Traffic Impact Study

Webster Elementary School Expansion

El Paso County, Colorado

Prepared for:

Widefield School District #3

Kimley»Horn

Add PCD File No
PPR-22-009

T R A F F I C I M P A C T S T U D Y

Traffic Engineer's Statement

The attached traffic report and supporting information were prepared under my responsible charge and they comport with the standard of care. So far as is consistent with the standard of care, said report was prepared in general conformance with the criteria established by the County for traffic reports.

Jeffrey R. Planck

Jeffrey R. Planck, P.E., PE #53006

January 7, 2022
Date

Developer's Statement

I, the Developer, have read and will comply with all commitments made on my behalf within this report.

Mr. Dave Gish
Widefield School District #3
1820 Main Street
Colorado Springs, CO 80911

Date

Webster Elementary School Expansion

El Paso County, Colorado

Prepared for
Widefield School District #3
1820 Main Street
Colorado Springs, Colorado 80911

Prepared by
Kimley-Horn and Associates, Inc.
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Denver, Colorado 80237
(303) 228-2300

January 2022

TABLE OF CONTENTS

APPENDICES

LIST OF TABLES

LIST OF FIGURES

Include a circulation exhibit that identifies the queue length, drop-off/pick-up zone & stacking length

Include a pedestrian/bicycle circulation plan.

Include an exhibit for sight distance.

Include exhibit for directional distribution of Site-Generate Traffic.

1.0 EXECUTIVE SUMMARY

Webster Elementary School is proposing an expansion to the existing school located on the southwest corner of the Jersey Lane and Quebec Street intersection in El Paso County, Colorado. Webster Elementary School is planning to expand the existing school and re-configure the parking lots along Syracuse Street while increasing the potential enrollment by 332 students for a potential maximum capacity of 850 students. The existing student enrollment is 518 students, and the future capacity accounts for an increase of approximately 64 percent. It should be noted the existing school has a capacity of 600 students, so it is not currently maximizing the potential enrollment for the existing school. For analysis purposes, it was assumed that the Webster Elementary School Expansion will be completed in the next year; therefore, analysis was conducted for the 2022 school year. However, the buildout year is not critical as the studied intersections are in a fully built out area and future traffic growth is not expected along the local streets other than the expansion of the school; therefore, only a buildout scenario was evaluated in this traffic study.

The purpose of this traffic study is to identify project traffic generation characteristics to determine potential project traffic related impacts on the local street system and to develop the necessary mitigation measures required for the identified traffic impacts. The following intersections were incorporated into this traffic study in accordance with El Paso County standards and requirements:

Discuss if any other traffic studies, within the last 5 years, had been performed in the area.

- Jersey Lane and Syracuse Street (Intersection #1)
- Jersey Lane and Bickley Street (#2)
- Jersey Lane and Quebec Street (#3)
- Jersey Lane Faculty Exit (Existing Condition Only) (#4)
- Jersey Lane East Access (Bus Entrance Only) (#5)
- Syracuse Street North Access (Student Drop-off/Pick-up Exit) (#6)
- Syracuse Street South Access (Student Drop-off Pick-up Entrance) (#7)
- Quebec Street Access (Bus Exit Only) (#8)
- Syracuse Street Faculty Entrance (Existing Condition Only) (#9)

Webster Elementary School currently primarily serves the neighborhoods surrounding the school; therefore, limited regional access is currently provided from Interstate 25 (I-25), US-85, and Mesa Ridge Parkway (SH-16). Primary access is provided by Fontaine Boulevard, Fountain Mesa

Road, and Syracuse Street while direct access is provided by Jersey Lane, Syracuse Street and Quebec Street.

Webster Elementary School Expansion is expected to generate a net increase of approximately 754 weekday daily trips, with 249 of these trips occurring during the school's morning peak hour and 150 of these trips occurring during the school's afternoon peak hour.

Based on the analysis presented in this report, Kimley-Horn believes the Webster Elementary School expansion project will be successfully incorporated into the existing and future roadway network. Analysis of the existing street network, the proposed project development, and expected traffic volumes resulted in the following conclusions and recommendations:

- With the expansion of the school, the drop-off and pick-up parking lot along Syracuse Street will expand to the north and the south while the faculty parking lot located on the southeast corner of the Jersey Lane and Syracuse Street intersection will be removed. The expansion of the drop-off and pick-up parking lot will provide additional parking for the faculty/staff and account for the increase in drop-off/pick-up with the proposed increase in students. The entrance to the parking lot is proposed to be moved and align with Fay Drive. The circulation will remain the same with vehicles entering at the south access through the parking lot and exit to the north.

- The movements at all of the studied intersections and accesses currently operate acceptably and are expected to continue to operate acceptably with LOS B or better during the peak hours with the school expansion. Therefore, no modifications to the existing lane configurations and control are recommended at the study area key intersections. The existing street network is expected to be able to accommodate the increase in school traffic. However, to further identify the exiting only accesses and to restrict entering movements, R5-1 "Do Not Enter" signs could be installed at the approaches of the Syracuse Street North Access (#6) and the access along Quebec Street (#8). Likewise, to further identify the entrance only accesses and to restrict exiting movements, R6-1 "One Way" signs could be installed at the entering approaches of the Jersey Lane East Access (#5) and the relocated Syracuse Street South Access (#7). Lastly, R1-1 "Stop" signs could be installed on the exiting approaches of the Syracuse Street North Access (#6) and the Quebec Street Access (#8).

- To mitigate existing conditions and future enrollment capacity of 850 students, the following improvements may be considered by the school:
  - Provide additional school personnel to direct parents with the student drop-off and pick-up circulation. This would potentially allow for additional vehicles to enter the drop-off/pick-up zone to minimize drivers from using other means of drop-off/pick-up in the public right-of-way (ROW) of the adjacent streets.
  - The school could encourage more pedestrian and bicycle traffic and discourage vehicular traffic to reduce the number of vehicle trips to and from the school. Programs could be developed to incentivize reducing single family vehicle trips such as carpooling, bicycle and pedestrian usage. In addition, providing sufficient, convenient, and safe bicycle storage could encourage more bicycle usage.
  - Provide a student drop-off/pick-up lane along the south side of Jersey Lane. The pavement width along Jersey Lane adjacent to the school is approximately 31 feet wide; therefore, the eastbound and westbound travel lanes could be restriped with 11-foot travel lanes while designating a 9-foot student drop-off and pick-up lane along the south side of Jersey Lane. If this student drop-off and pick-up area is designated on the south side of Jersey Lane, the north curb line of Jersey Lane will need to be designated with R7-1 "No Parking" signs. **Figure 8** conceptually displays the possible signing improvement options as well as the striping for the designated student drop-off and pick-up area.

This would
County doe
or school pa

- Any on-site or offsite improvements should be incorporated into the Civil Drawings and conform to standards of the El Paso County and the Manual on Uniform Traffic Control Devices (MUTCD) – 2009 Edition.

will be

2.0 INTRODUCTION

Kimley-Horn and Associates, Inc. has prepared this report to document the results of a Traffic Impact Study for the proposed school expansion at the existing Webster Elementary School located on the southwest corner of the Jersey Lane and Quebec Street intersection in El Paso County, Colorado. A vicinity map illustrating Webster Elementary School location is shown in **Figure 1**. Webster Elementary School is planning to expand the existing school and re-configure the parking lots along Syracuse Street while increasing the potential enrollment by 332 students for a potential maximum capacity of 850 students. A conceptual site plan is attached in **Appendix D**. The existing student enrollment is 518 students, and the future capacity accounts for an increase of approximately 64 percent. It should be noted the existing school has a capacity of 600 students, so it is not currently maximizing the potential enrollment for the existing school. For analysis purposes, it was assumed that the Webster Elementary School Expansion will be completed in the next year; therefore, analysis was conducted for the 2022 school year. However, the buildout year is not critical as the studied intersections are in a fully built out area and future traffic growth is not expected along the local streets other than the expansion of the school; therefore, only a buildout scenario was evaluated in this traffic study.

The purpose of this traffic study is to identify project traffic generation characteristics to determine potential project traffic related impacts on the local street system and to develop the necessary mitigation measures required for the identified traffic impacts. The following intersections were incorporated into this traffic study in accordance with El Paso County standards and requirements:

- Jersey Lane and Syracuse Street (Intersection #1)
- Jersey Lane and Bickley Street (#2)
- Jersey Lane and Quebec Street (#3)
- Jersey Lane Faculty Exit (Existing Condition Only) (#4)
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NORTH
NTS 196341000

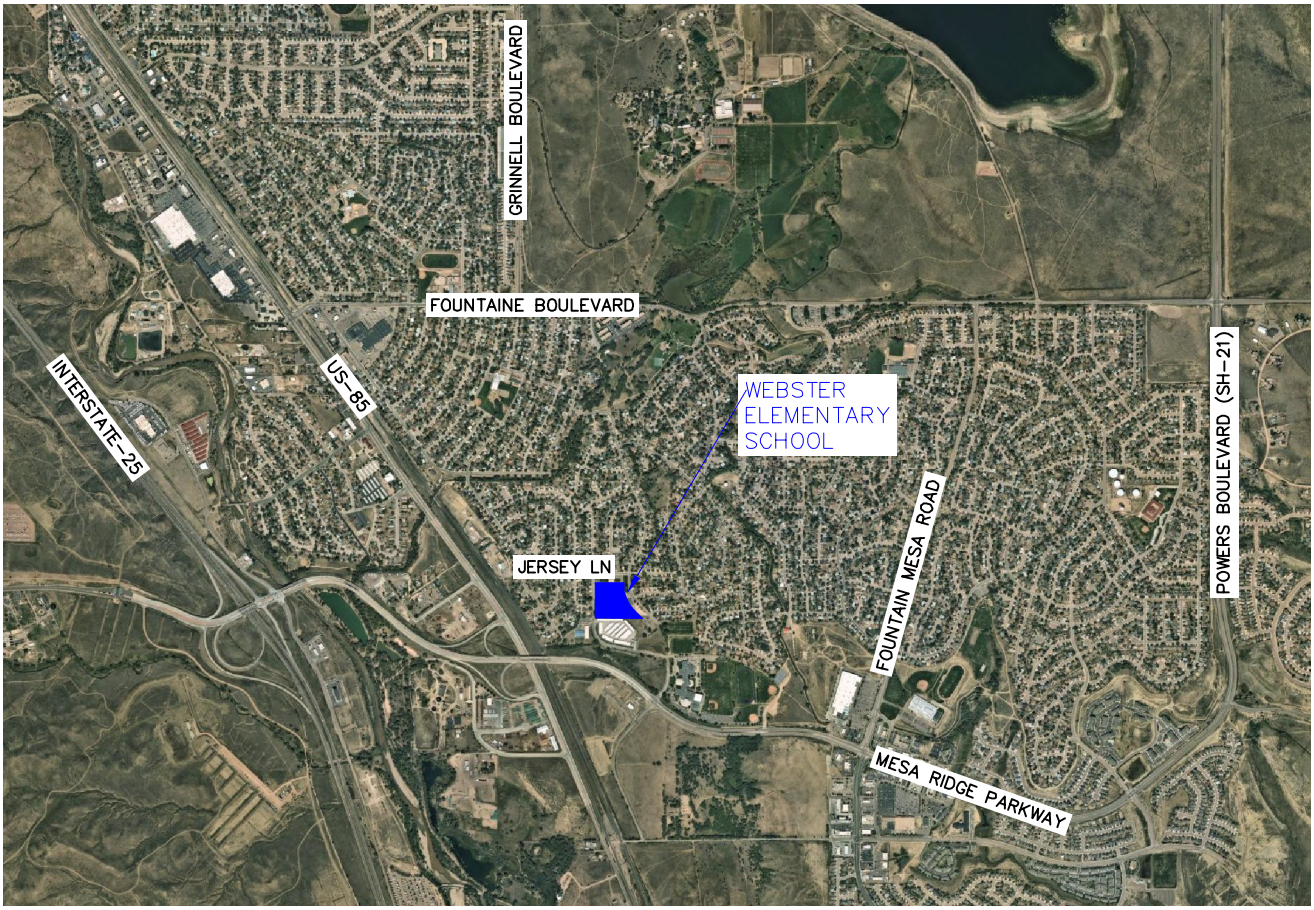


FIGURE 1
WEBSTER ELEMENTARY SCHOOL
EL PASO COUNTY, COLORADO
VICINITY MAP

3.0 EXISTING AND FUTURE CONDITIONS

3.1 Existing Study Area

The existing site contains Webster Elementary School while single family residential homes are in the immediate surrounding area. A storage facility is located to the south of the site while James Madison Charter Academy is located southwest of the site. Santa Fe Avenue (US-85) is located in the extended area to the west while Mesa Ridge Parkway is located in the extended area to the south.

3.2 Existing and Future Roadway Network

Jersey Lane extends in the east-west direction as a two-lane roadway and has a posted speed limit of 20 miles per hour (mph) near the school.

Syracuse Street, Bickley Street, and Quebec Street extend northbound and southbound and provide one through lane in each direction. The posted speed limits are 20 mph near the school and increases to 25 mph at the posted “End School Zone” signs.

Include discussion of Fay Dr, as new access lines up with this street.

Include a discussion on the queueing length under existing and proposed conditions. Queueing lengths for school should be based on a 15-minute peak. Use North Carolina MSTA School Traffic Calculator for queueing. Based on data generated by spreadsheet, additional factor of safety may need to be used. County will be looking for an extremely realistic analysis.

County suggests setting up a meeting to discuss once the comments have been received.

Copy of spreadsheet can be found here:
https://connect.ncdot.gov/municipalities/school/pages.default.aspx

The unsignalized intersection of Jersey Lane and Syracuse Street (#1) operates with stop control on all four approaches. In addition, all four approaches provide a single lane shared with all movements. An aerial photo of the existing intersection configuration is below (north is up - typical).

Jersey Lane & Syracuse Street (#1)

The signalized ‘T’-intersection of Jersey Lane and Bickley Street (#2) operates with permissive only phasing on all three approaches with signal control intended for pedestrian crossings. All three approaches provide a single lane shared with all movements. An aerial photo of the existing intersection configuration is below.

Jersey Lane & Bickley Street (#2)

The unsignalized intersection of Jersey Lane and Quebec Street (#3) operates with stop control on all four approaches. In addition, all four approaches provide a single lane shared with all movements. An aerial photo of the existing intersection configuration is below.

Jersey Lane & Quebec Street (#3)

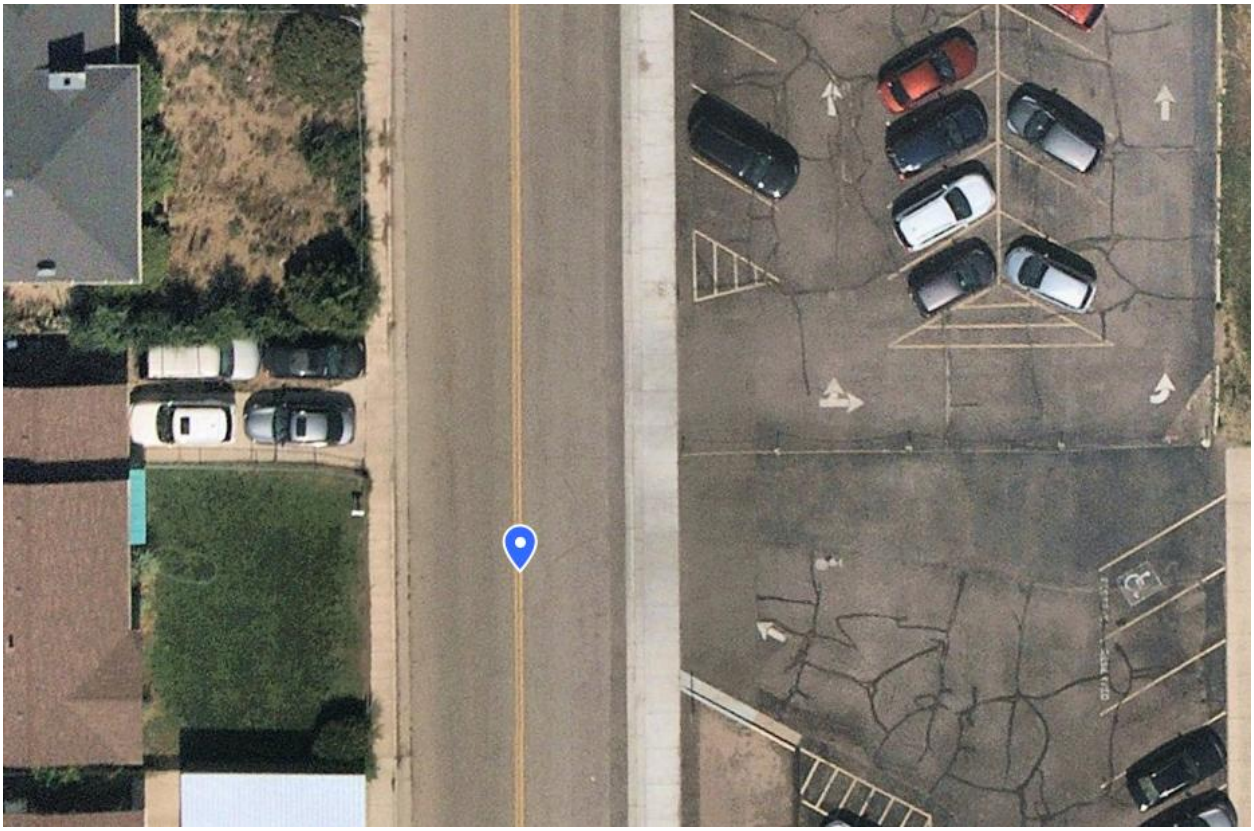
The unsignalized ‘T’-intersection of the Jersey Lane Faculty Exit (#4) operates with assumed stop control on the northbound exiting approach of the West Access. A stop sign is not present on the northbound exiting approach of this access intersection. This access allows exiting movements only and is intended only for faculty use. The exiting northbound approach of this access intersection provides a single shared lane for left and right turning movements. The faculty parking lot and accesses are proposed to be removed with the expansion of the school. An aerial photo of the existing intersection configuration is below.

Jersey Lane Faculty Exit (Existing Condition Only) (#4)

The unsignalized ‘T’-intersection of the Jersey Lane East Access (#5) operates as an inbound-only uncontrolled access. Therefore, stop control is not present at this intersection. This access is intended for school buses only and is signed accordingly with “School Buses Only” on the southbound entering approach. The eastbound approach of this access intersection provides a shared through/right turn lane while the westbound approach provides a shared left turn/through lane. An aerial photo of the existing intersection configuration is below.

Jersey Lane East Access (Bus Entrance) (#5)

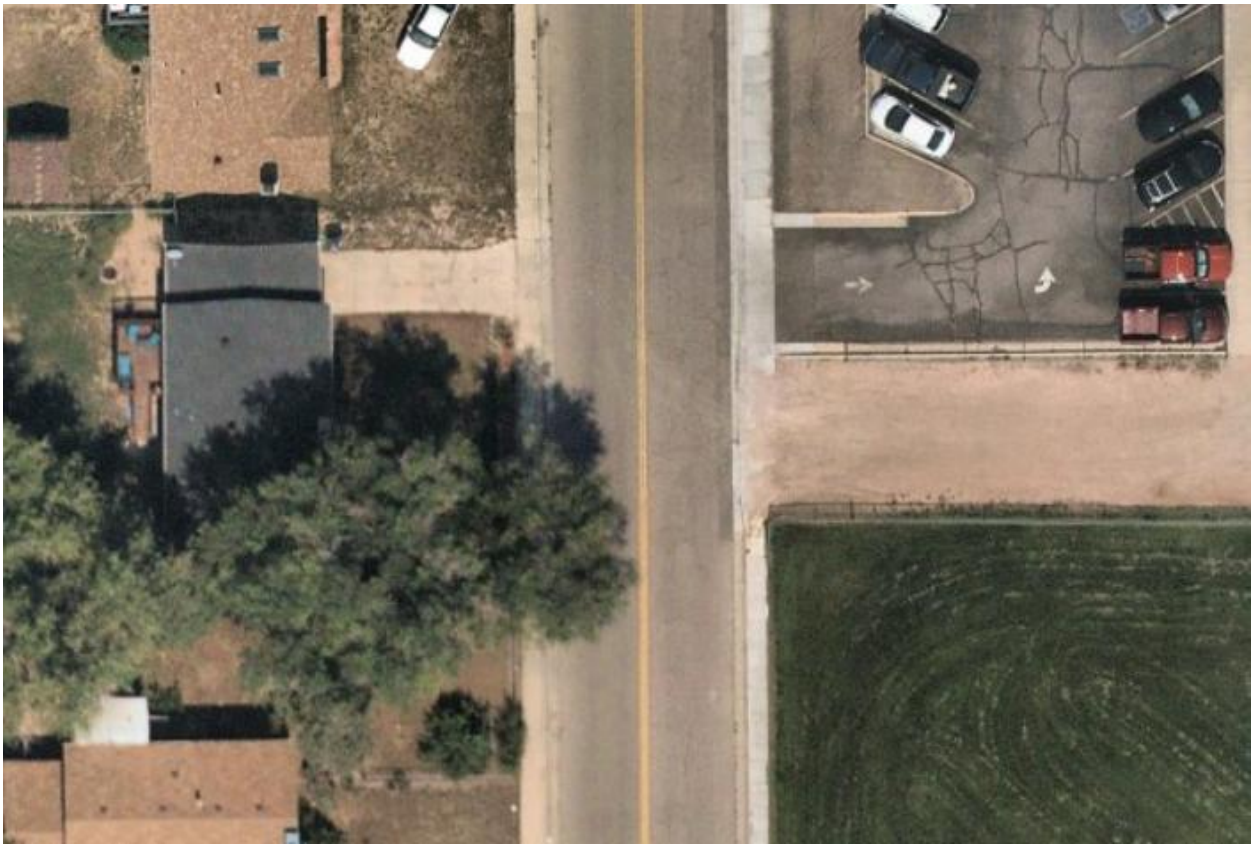
The unsignalized ‘T’-intersection of the Syracuse Street North Access (#6) operates with assumed stop control on the westbound exiting approach of the North Access. A stop sign is not present on the westbound exiting approach of this access intersection. The Faculty Entrance Access (#9) and North Access (#6) along Syracuse Street is divided with a chain to separate the faculty and student pick-up/drop-off parking lots. This access allows exiting movements only and is primarily intended for student drop-off/pick-up use during the peak student drop-off and pick-ups times. Faculty parking and use is also provided at this access but primarily occurs outside of the peak student drop-off and pick-ups times. The exiting west approach of this access intersection provides a single shared lane for left and right turning movements. It should be noted that this access is proposed to be reconfigured and located approximately 50 feet north of the current alignment. An aerial photo of the existing intersection configuration is below.



Syracuse Street North Access (Existing Student Drop-off/Pick-up Exit) (#6)

The unsignalized ‘T’-intersection of the Syracuse Street South Access (#7) operates as an inbound-only uncontrolled access. Therefore, stop control is not present at this intersection. The South Access is primarily intended for student drop-off/pick-up use during the peak student drop-off and pick-ups times. Faculty parking and use is also provided at this access but primarily occurs outside of the peak student drop-off and pick-ups times. The northbound approach of this access provides a shared through/right turn lane while the southbound approach includes a shared left turn/through lane. Of note, a small additional dirt lot is located directly south of this access and several parents were observed using this lot for additional pick-up and drop-offs. An aerial photo of the existing intersection configuration is below.

With the expansion of the school, this drop-off/pick-up area and lot will extend to the south. The entrance will align with Fay Drive, and it is proposed that this access will provide the same circulation patterns as existing with drop-off/pick-up entering from the south and exiting to the north.

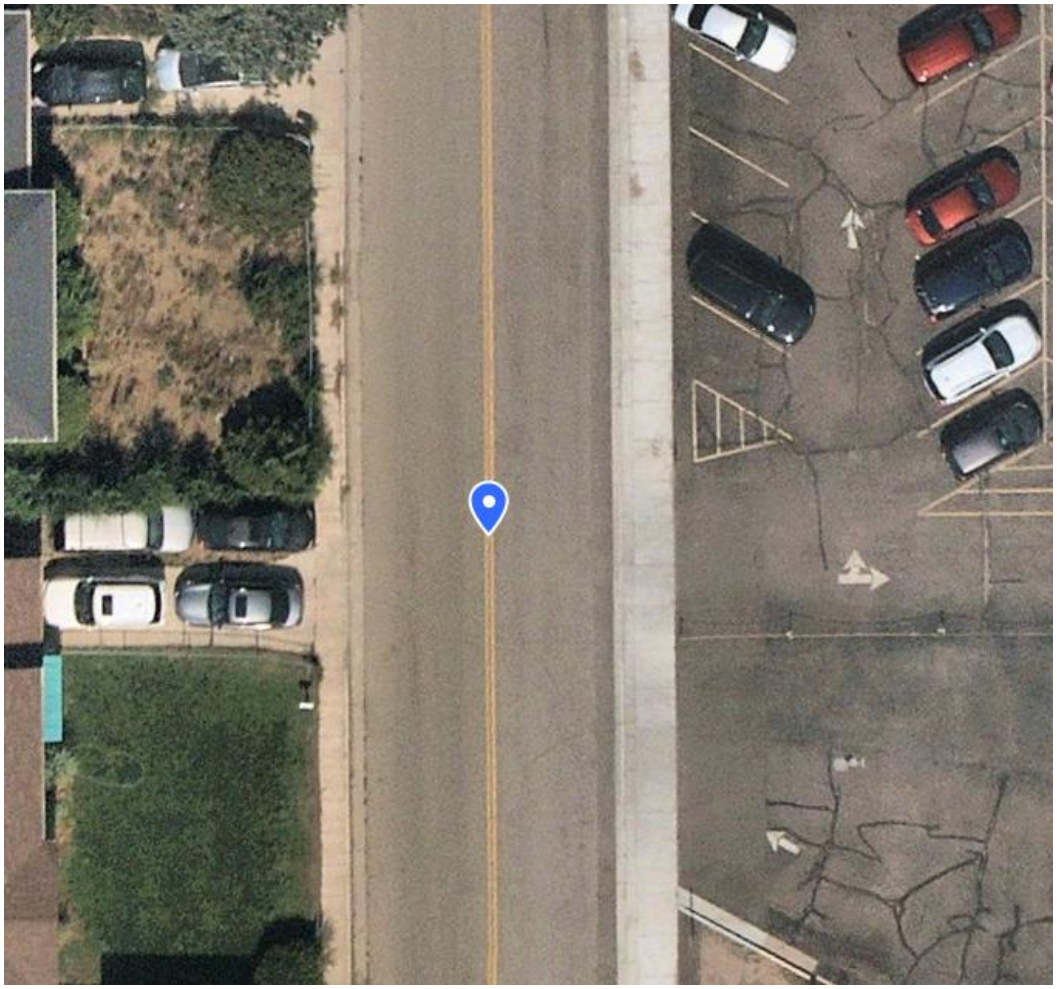


Syracuse Street South Access (Existing Student Drop-off/Pick-up Entrance) (#7)

The unsignalized ‘T’-intersection of the Quebec Street Access (#8) operates with assumed stop control on the eastbound exiting approach this access. A stop sign is not present on the eastbound exiting approach of this access intersection. The access is designated for school buses only and is intended for outbound-only bus traffic. The exiting eastbound approach of this access intersection provides a single lane shared between the left and right movements. An aerial photo of the existing intersection configuration is below.

Quebec Street Access (Bus Exit Only) (#8)

The unsignalized ‘T’-intersection of the Syracuse Street Faculty Entrance (#9) operates as an inbound-only uncontrolled access. Therefore, stop control is not present at this intersection. The North Access is intended inbound-only faculty traffic. The Faculty Entrance (#9) and North Access (#6) along Syracuse Street is divided with a chain to separate the faculty and student pick-up/drop-off parking lots. The northbound approach of this access provides a shared through/right turn lane while the southbound approach includes a shared left turn/through lane. Of note, vehicle traffic was not observed entering this access during the peak hours of the school traffic. The faculty parking lot and accesses are proposed to be removed with the expansion of the school. An aerial photo of the existing intersection configuration is below.



Syracuse Street Faculty Entrance (Existing Conditions Only) (#9)

The intersection lane configuration and control for the study area intersections are shown in **Figure 2**.

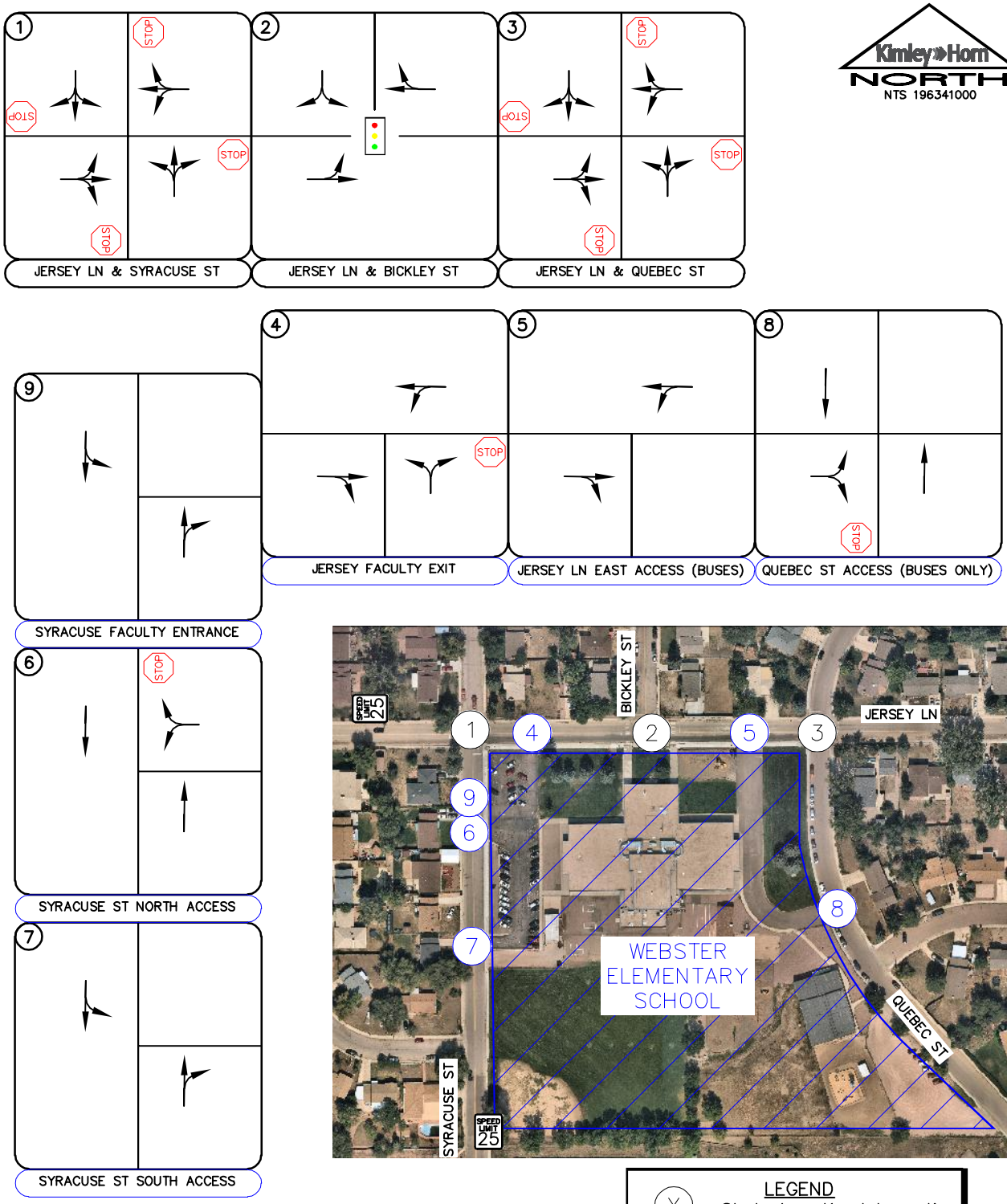


FIGURE 2
WEBSTER ELEMENTARY SCHOOL
EL PASO COUNTY, COLORADO
EXISTING GEOMETRY AND CONTROL

Kimley»Horn

As this is for a school site, traffic analysis needs to be done per North Carolina DOT MSTA School Traffic Calculator (copy of spreadsheet output will be provided at end of redlines.)

3.3 Existing Traffic Volumes

Existing vehicle turning movement counts and pedestrian counts were conducted at the study intersections on Thursday, December 2, 2021 during the school's morning and afternoon peak hours. The counts were conducted during the morning and afternoon peak hours of the school traffic in 15-minute intervals from 7:15 AM to 8:15 AM and 2:15 PM to 3:15 PM on this count date. The existing intersection vehicle traffic volumes are shown in **Figure 3** with count sheets provided in **Appendix A**. Likewise, existing pedestrian counts are shown in **Figure 4**.

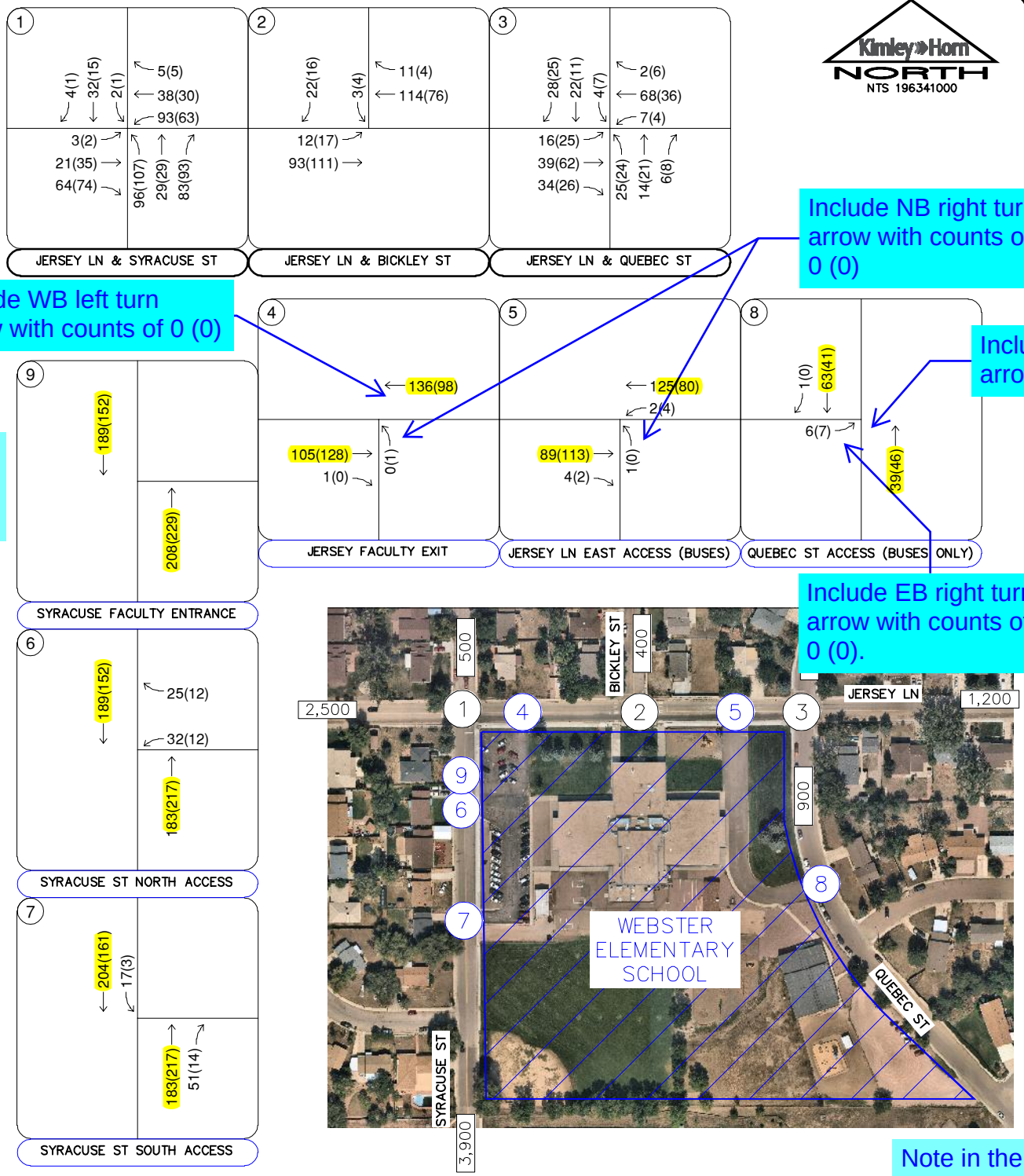
State what the start and end t are for the school day, to sho the "peak hour" counts line up the school day.

3.4 Unspecified Development Traffic Growth

The Webster Elementary School Expansion is planned to have a potential increased enrollment from 518 students to a capacity of 850 students for the 2022-2023 school year. It should be noted that the future capacity of the school is not expected to occur in the first year; however, the full capacity of students was utilized to provide a conservative analysis. Of note, the buildout year is not critical as the studied intersections are in a fully built out area and future traffic growth is not expected along the local streets other than the expansion of the school; therefore, future volumes at the studied intersections consist of existing plus net increase of school traffic.

Discuss if there is a potential for either of the 2 other schools in the vicinity (James Madison Charter or Mesa Ridge High School) to expand in the future.

Discuss pedestrian and bicycle access.



Include NB right turn arrow with counts of 0 (0)

Include WB left turn arrow with counts of 0 (0)

Include NB left arrow with 0 (

tion in the e highlighted erived.

Include EB right turn arrow with counts of 0 (0).

Note in the narrative the estimated daily tr volumes were obtain

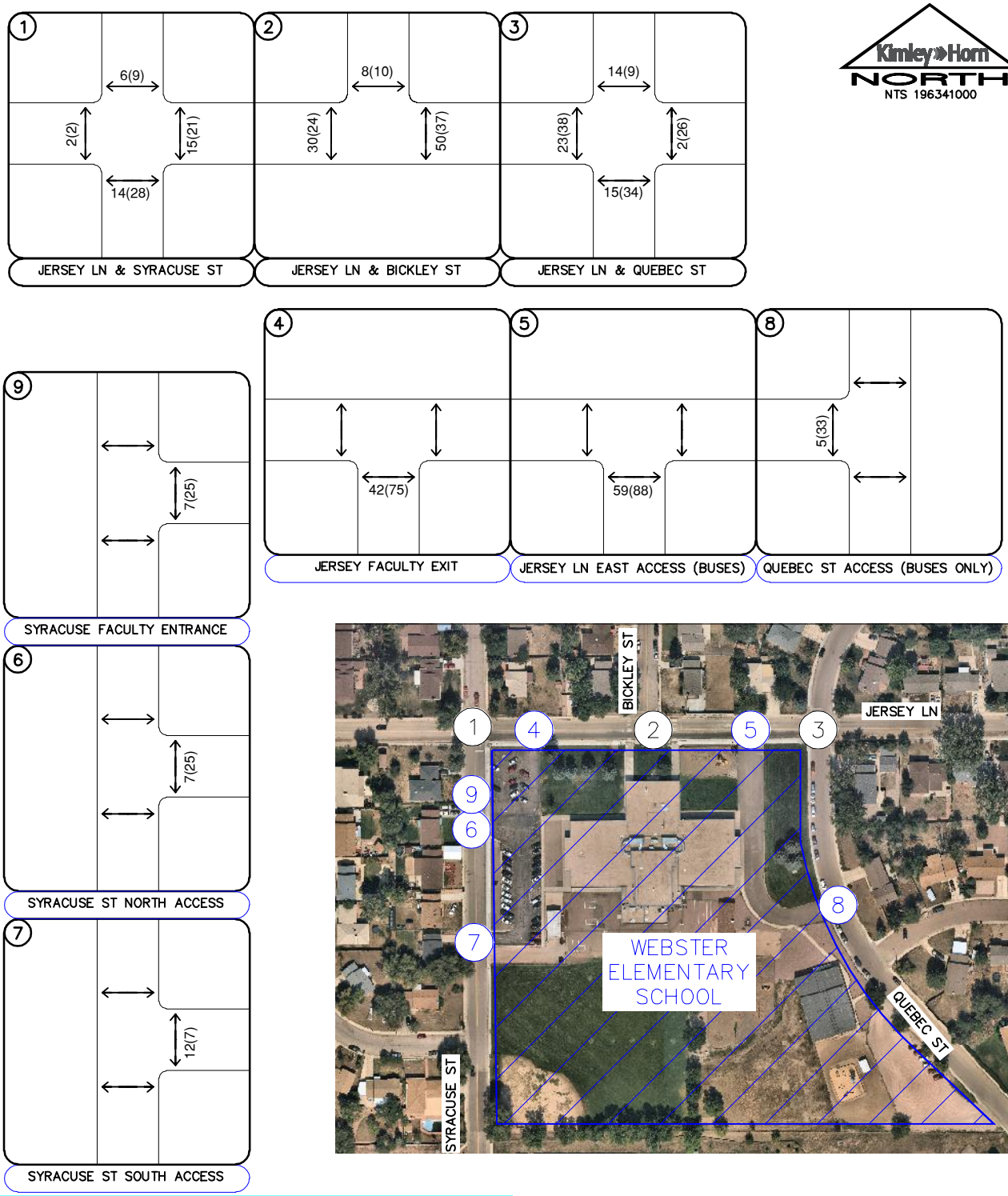
All Intersection Counts Collected On:
Thursday, December 2, 2021
7:15 to 8:15AM (2:15 to 3:15PM)

LEGEND

(X)	Study Area Key Intersection
(X)	School Accesses
XXX(XXX)	Weekday AM(PM) Peak Hour Traffic Volumes
XX,X00	Estimated Daily Traffic Volume

FIGURE 3
WEBSTER ELEMENTARY SCHOOL
EL PASO COUNTY, COLORADO
2021 EXISTING TRAFFIC VOLUMES

Kimley»Horn



Pedestrian counts (arrows) crossing Syracuse, Jersey & Quebec at access points, remove the arrows on the exhibit as it implies there could be crossings here. Include in narrative that pedestrians are not allowed to cross at these locations, only the 3 key intersections.

EL PASO COUNTY, COLORADO
2021 EXISTING PEDESTRIAN VOLUMES

Kimley»Horn

4.0 PROJECT TRAFFIC CHARACTERISTICS

4.1 Trip Generation

Site-generated traffic estimates are determined through a process known as trip generation. Rates and equations are applied to the proposed land use to estimate traffic generated by the development during a specific time interval. The acknowledged source for trip generation rates is the *Trip Generation Manual*[1] published by the Institute of Transportation Engineers (ITE). ITE has established trip rates in nationwide studies of similar land uses. The ITE Trip Generation Report fitted curve equations that applies to Elementary School (ITE Land Use Code 520) was used to determine the increase in trips from the existing 518 students to future capacity of 850 students. For this study, Kimley-Horn used the current conditions at the school driveways to predict future driveway trips associated with the expansion of the elementary school. The existing school has a current enrollment of 518 students and is proposed to increase to a maximum capacity of 850 students. This equates to an increase of approximately 64 percent which was applied to the existing entering and exiting driveway counts to predict future entering and exiting driveway volumes.

Include discussion on where traffic is being generated from. Is the majority of the students within a 2-mile radius, indicating that there will be more daily traffic, or is there a large percentage of students outside of the 2-mile radius and being bused in?

When the traffic counts were collected, observations and video footage showed parents dropping-off and picking-up students in the right-of-way of Syracuse Street, Jersey Lane, Bickley Street, and Quebec Street. Of note, Quebec Street does not provide access to the external street network, and it is believed the majority of traffic volumes on the south leg of the Jersey Lane and Quebec Street intersection are vehicles parking in the public ROW for student pick-up and drop-off. The existing traffic volumes along Quebec Street (south of Jersey Lane) were also increased by 64 percent to account for future student drop-off and pick-up volumes in the ROW of Quebec Street. Therefore, the remaining school traffic (beyond driveway volumes and Quebec Street ROW) is still using the ROW of Syracuse Street, Jersey Lane, and Bickley Street. As such, traffic volumes were also added to the surrounding street network and area based on a proportionate share of the increase of enrollment to 850 students from the existing 518 students.

[1] Institute of Transportation Engineers, *Trip Generation Manual*, Eleventh Edition, Washington DC, 2021.

The Webster Elementary School expansion is expected to generate a net increase of approximately 754 weekday daily trips, with 249 of these trips occurring during the school's morning peak hour and 150 of these trips occurring during the school's afternoon peak hour. Calculations were based on the procedure and information provided in the ITE *Trip Generation Manual, 11th Edition – Volume 1: User's Guide and Handbook*, 2021. **Table 1** summarizes the estimated trip generation for the Webster Elementary School Expansion. The trip generation worksheets are included in **Appendix B**.

Table 1 – Webster Elementary School Expansion Traffic Generation

Land Use and Size	Weekday Vehicle Trips						
	Daily	School AM Peak Hour			School PM Peak Hour		
		In	Out	Total	In	Out	Total
ITE Trip Generation							
(A) Elementary School (ITE 520) – Existing 518 Students	1,176	210	179	389	107	126	233
(B) Elementary School (ITE 520) – Future 850 Students	1,930	345	293	638	176	207	383
(C) Increase in ITE Trips	754	135	114	249	69	81	150
Site Specific Data – Existing 518 Students							
(D) Existing Counts Driveway Counts 518 Students		76	64	140	23	32	55
(E) Existing ROW Counts along Quebec St		57	41	98	37	48	85
School Expansion – 850 Students							
(F) Future Driveway Volumes *(F = D*1.64)*		125	105	230	38	52	90
(G) Future Quebec ROW Volumes *(G = E*1.64)*		93	67	160	60	79	139

State
count

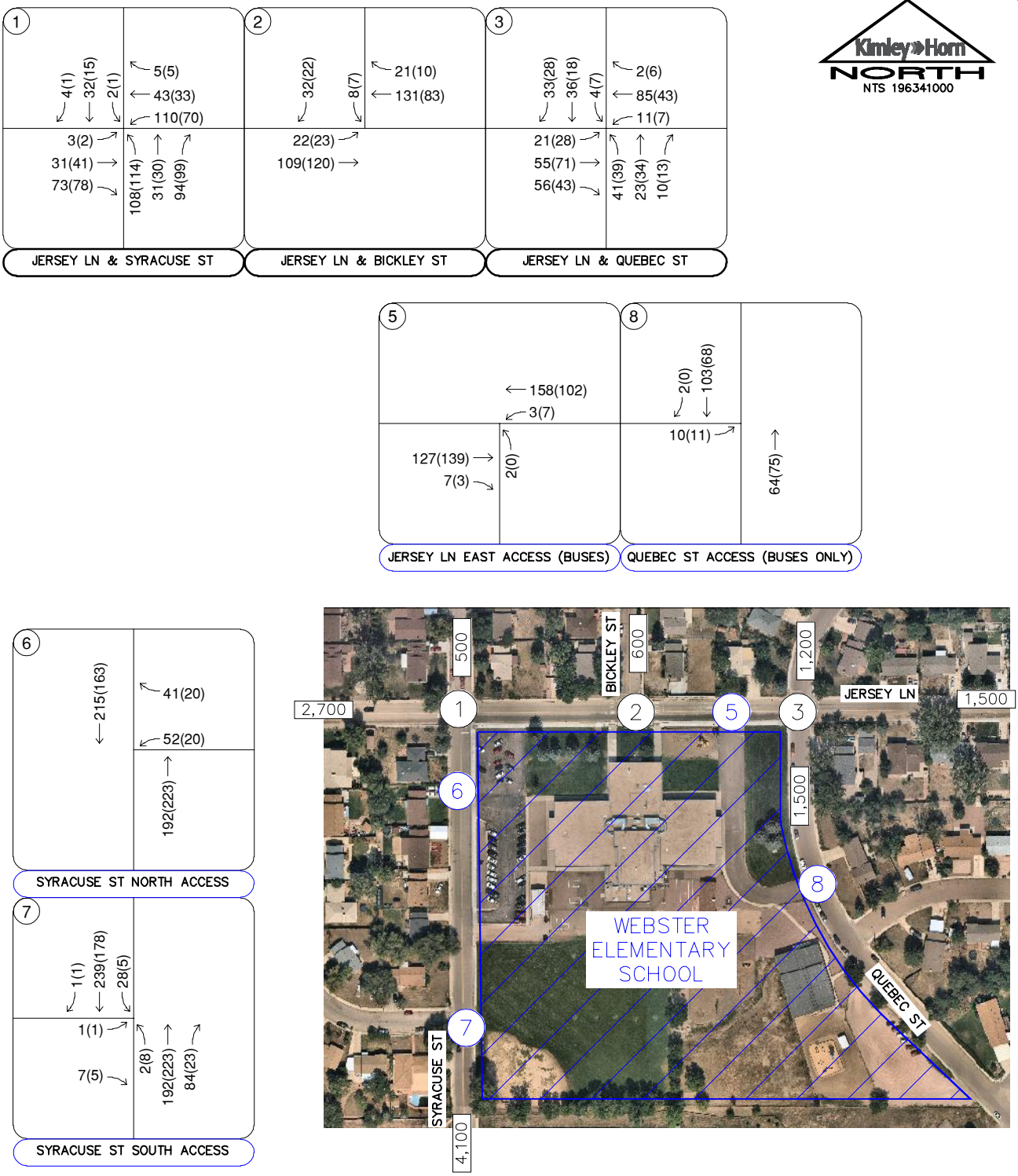
r

4.2 Total (Background Plus Project) Traffic

The remaining site generated traffic volumes associated with the Webster Elementary School expansion were added to the existing traffic volumes to represent estimated traffic conditions for a maximum enrollment of 850 students. These total vehicle traffic volumes for the study area are illustrated for the opening 2022 year in **Figures 5** while the total pedestrian volumes accounting for the school expansion are shown in **Figure 6**.

Include discussion on how driveway volumes were distributed to each drive.

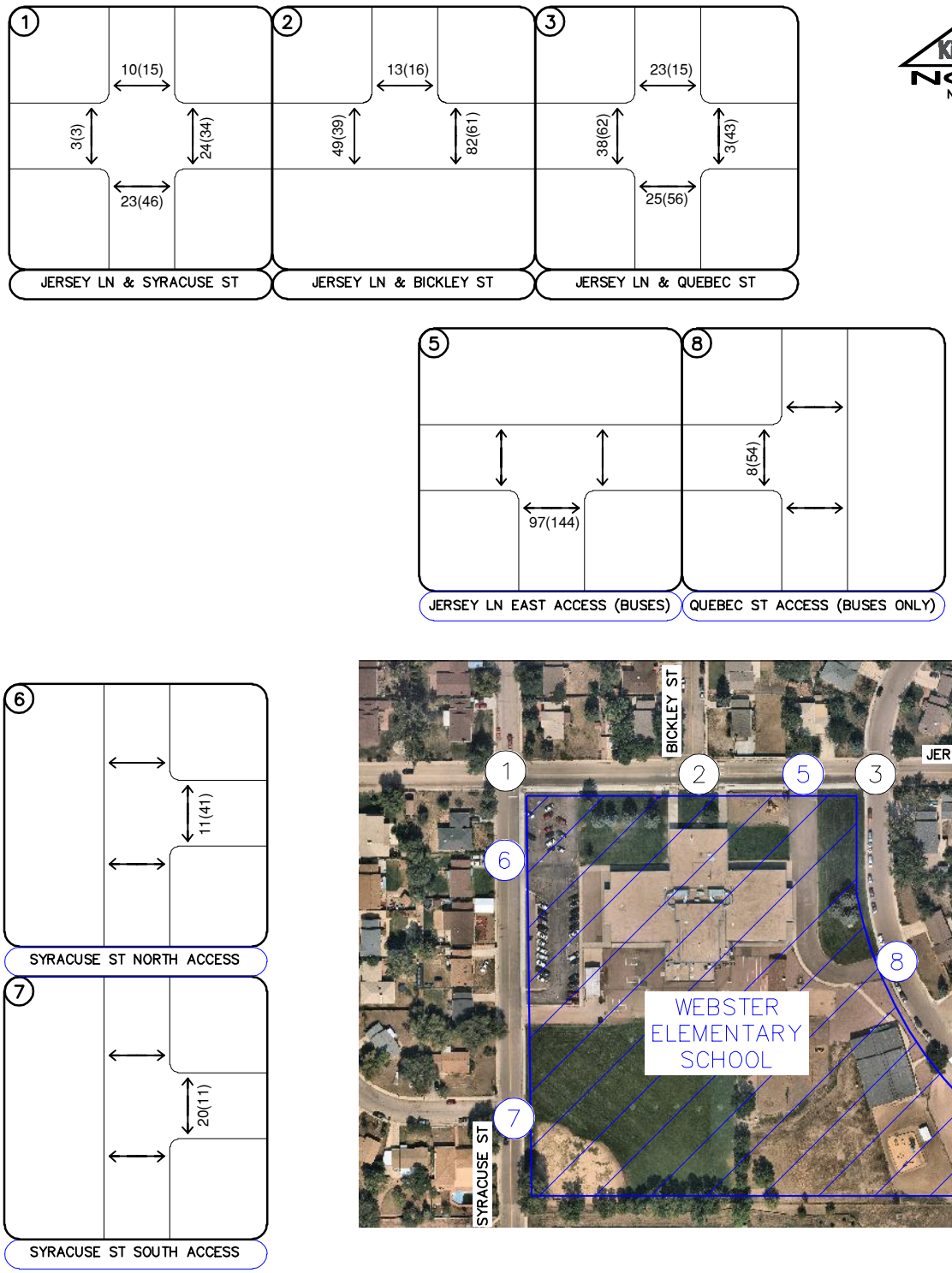
Include discussion on how future pedestrian traffic was determined.



Kimley»Horn NORTH
NTS 196341000

FIGURE 5
WEBSTER ELEMENTARY SCHOOL
EL PASO COUNTY, COLORADO
2022 TOTAL TRAFFIC VOLUMES

Kimley»Horn



Kimley»Horn NORTH
NTS 196341000

LEGEND

(X) Study Area Key Intersection

(X) School Accesses

XX(XX) Weekday AM(PM) Peak Hour Pedestrian Volumes

FIGURE 6
WEBSTER ELEMENTARY SCHOOL
EL PASO COUNTY, COLORADO
2022 TOTAL PEDESTRIAN VOLUMES

Kimley»Horn

5.0 TRAFFIC OPERATIONS ANALYSIS

Kimley-Horn's analysis of traffic operations in the site vicinity was conducted to determine potential capacity deficiencies in the 2022 development horizon at the identified key intersections. The acknowledged source for determining overall capacity is the current edition of the *Highway Capacity Manual (HCM)*[2].

5.1 Analysis Methodology

Capacity analysis results are listed in terms of Level of Service (LOS). LOS is a qualitative term describing operating conditions a driver will experience while traveling on a particular street or highway during a specific time interval. It ranges from A (very little delay) to F (long delays and congestion). For intersections and roadways in this study area, standard traffic engineering practice recommends overall intersection LOS D and movement/approach LOS E as the minimum desirable thresholds for acceptable operations. **Table 2** shows the definition of level of service for signalized and unsignalized intersections.

Table 2 – Level of Service Definitions

Level of Service	Signalized Intersection Average Total Delay (sec/veh)	Unsignalized Intersection Average Total Delay (sec/veh)
A	≤ 10	≤ 10
B	> 10 and ≤ 20	> 10 and ≤ 15
C	> 20 and ≤ 35	> 15 and ≤ 25
D	> 35 and ≤ 55	> 25 and ≤ 35
E	> 55 and ≤ 80	> 35 and ≤ 50
F	> 80	> 50

Definitions provided from the Highway Capacity Manual, Sixth Edition, Transportation Research Board, 2016.

Study area intersections were analyzed based on average total delay analysis for signalized and unsignalized intersections. Under the unsignalized analysis, the LOS for a two-way stop-controlled intersection is determined by the computed or measured control delay and is defined for each minor movement. LOS for a two-way stop-controlled intersection is not defined for the intersection as a whole. LOS for signalized, roundabout, and all-way stop controlled intersections are defined for each approach and for the overall intersection.

[2] Transportation Research Board, *Highway Capacity Manual*, Sixth Edition, Washington DC, 2016.

5.2 Key Intersection Operational Analysis

Calculations for the operational level of service at the key intersections for the study area are provided in **Appendix C**. The existing year analysis is based on the lane geometry and intersection control shown in **Figure 2.** Existing peak hour factors were utilized in the existing and 2022 horizon analysis years. Synchro traffic analysis software was used to analyze the signalized, and unsignalized key intersections for HCM level of service. **Table 3** provides the level of service operational results of all the study intersections.

Table 3 – Existing and Future LOS Results

Intersection	Movement	Control	2021 Existing		2022 Total	
			AM Peak Hour LOS (Delay)	PM Peak Hour LOS (Delay)	AM Peak Hour LOS (Delay	PM Peak Hour LOS (Delay
Jersey Lane & Syracuse Street (#1)	**Overall**		**9.1 A**	**10.6 B**	**9.6 A**	**11.1 B**
	Eastbound Approach	STOP	8.1 A	9.2 A	8.5 A	9.5 A
	Westbound Approach	STOP	9.3 A	9.8 A	9.8 A	10.2 B
	Northbound Approach	STOP	9.6 A	11.7 B	10.2 B	12.5 B
	Southbound Approach	STOP	8.2 A	8.5 A	8.4 A	8.7 A
Jersey Lane & Bickley Street (#2)	**Signal (Overall)**		6.3 A	6.2 A	6.4 A	6.2 A
Jersey Lane & Quebec Street (#3)	**Overall**		**8.0 A**	**8.4 A**	**8.7 A**	**9.3 A**
	Eastbound Approach	STOP	8.0 A	8.8 A	8.8 A	9.8 A
	Westbound Approach	STOP	8.1 A	8.1 A	8.8 A	8.6 A
	Northbound Approach	STOP	8.0 A	8.4 A	8.8 A	9.3 A
	Southbound Approach	STOP	7.7 A	7.9 A	8.4 A	8.4 A
Jersey Lane Faculty Exit (#4)	**Northbound Approach**	STOP	0.0 A	10.7 B	Removed with School Expansion	
Jersey Lane East Access (#5) – (Inbound Bus Access)	**Westbound Left**		0.2 A	0.4 A	0.2 A	0.6 A
Syracuse Street North Access (#6) (Student drop-off/pick-up Exit)	**Westbound Approach**	STOP	12.5 B	11.9 B	14.3 B	12.4 B
Syracuse Street South Access (#7) (Student drop-off/pick-up entrance)	**Southbound Left**		1.0 A	0.2 A	Relocated	

Intersection	Movement	Control	2021 Existing		2022 Total	
			AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
			LOS (Delay)	LOS (Delay)	LOS (Delay	LOS (Delay
Syracuse Street South Access (#7) (Student drop-off/pick-up entrance) – Proposed to align with Fay Drive	**Northbound Left**		Associated with School Expansion in 2022		8.1 A	7.9 A
	Eastbound Approach	STOP			11.3 B	10.6 B
	Southbound Left				8.3 A	8.1 A
Quebec Street Access (#8) – (Outbound Bus Access)	**Eastbound Approach**	STOP	9.7 A	9.5 A	10.6 B	10.3 B
Syracuse Street Faculty Entrance (#9)	**Southbound Left**		No Observed Vehicles		Removed with School Expansion	

Green = LOS A-C, Yellow = LOS D (Not Experienced), Orange = LOS E (Not Experienced), Red = LOS F (Not Experienced)

As shown in **Table 3**, the movements at all of the studied intersections and accesses currently operate acceptably and are expected to continue to operate acceptably with LOS B or better during the peak hours with the school expansion.

Faculty

As shown in the table, the Faulty Accesses (Intersections #4 and #9) will be removed when the school is expanded and the parking lot along Syracuse Street is re-configured. In addition, the south entrance along Syracuse Street is proposed to align with Fay Drive when the drop-off/pick-up parking lot expands to the south.

Therefore, no modifications to the existing lane configurations and control are recommended at the study area key intersections. The existing street network is expected to be able to accommodate the increase in school traffic. However, to further identify the exiting only accesses and to restrict entering movements, R5-1 “Do Not Enter” signs could be installed at the approaches of the Syracuse Street North Access (#6) and the access along Quebec Street (#8). Likewise, to further identify the entrance only accesses and to restrict exiting movements, R6-1 “One Way” signs could be installed at the entering approaches of the Jersey Lane East Access (#5) and the relocated Syracuse Street South Access (#7). Lastly, R1-1 “Stop” signs could be installed on the exiting approaches of the Syracuse Street North Access (#6) and the Quebec Street Access (#8).

5.3 Internal Roadway Classifications and Turn Lanes

The studied roadways all meet the characteristics of as urban local roadway with exception of the Syracuse Street south of Jersey Lane. The average daily traffic (ADT) among the studied roadways is expected to be less than 3,000 vehicles per day (vpd) with the exception of Syracuse Street south of Jersey Lane. The south leg of Jersey Lane and Syracuse Street has a projected ADT of 4,100 vpd which matches the classification of an urban residential collector roadway. **Figure 7** illustrates the street classification map for the surrounding area. In addition, exclusive left turn lanes are warranted for ingress turning volumes of 25 vehicles per hour or greater whereas exclusive right turn lanes are warranted for ingress turning volumes of 50 vph or greater along "Minor Arterial and Lower Classification". Of note, the surrounding roadway network primarily consists of local streets without the implementation of any designated left and right turn lanes; therefore, auxiliary turn lanes are not recommended at the studied intersections. Further, all studied intersections are expected to operate at LOS B or better during the peak hours.

Discuss if al
requirement

5.4 Sight Distance Evaluation

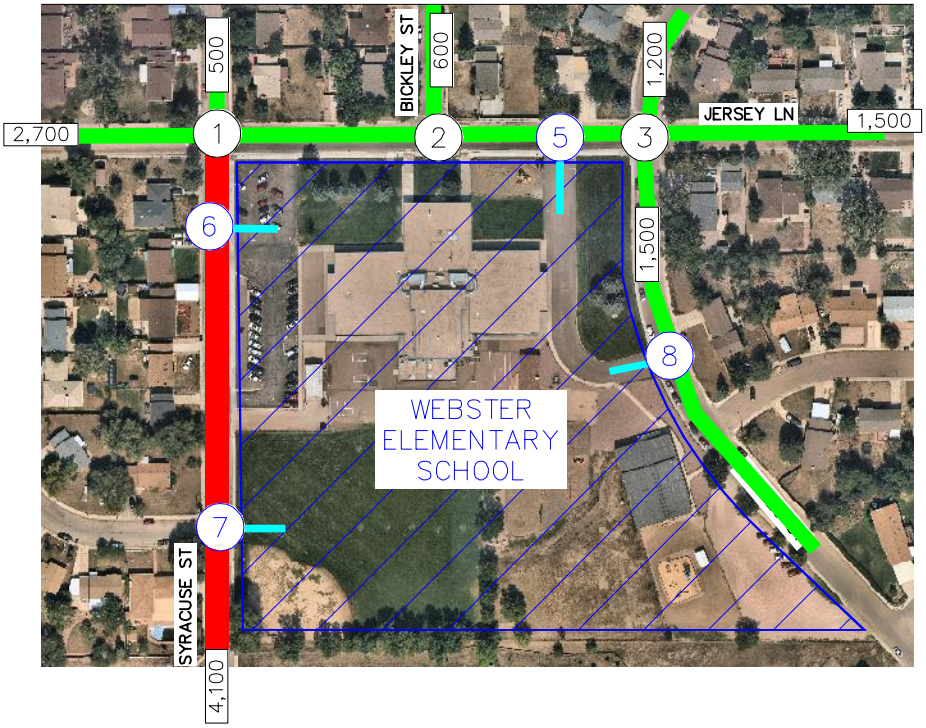
It is recommended that sight triangles be provided at all site access points to give drivers exiting the site a clear view of oncoming traffic. Landscaping and objects within sight triangles must not obstruct drivers' views of the adjacent travel lanes. ECM design intersection sight distances for left turn from stop at all the study intersection is recommended to provide an intersection sight distance of 280 feet. Of note, because the intersections are between two local roadways or a local and an access, the distance from the driver's eye to the edge of pavement can be reduced to 10 feet and the sight distance can be measured to the centerline of the road. It is believed that all existing intersections provide the necessary sight distance.

Discuss if all the intersections and accesses can meet this requirement. Include an exhibit in the appendix.

Make note of where this reduction came from.

Include discussion that no ROW dedication or preservation is needed on any of the existing roadways.

NORTH
NTS 196341000



LEGEND

URBAN RESIDENTIAL COLLECTOR

URBAN LOCAL

PRIVATE ACCESS

XX,X00 ESTIMATED 2023 DAILY TRAFFIC VOLUME

FIGURE 7
WEBSTER ELEMENTARY SCHOOL
EL PASO COUNTY, COLORADO
ROADWAY CLASSIFICATION MAP

Kimley»Horn

5.5 Site Circulation Evaluation

There are existing sidewalks located along both sides of Jersey Lane, Syracuse Street, Bickley Street, and Quebec Street. In addition, east-west crosswalk pavement markings are provided along Syracuse Street and Quebec Street intersecting with Jersey Lane. North-south crosswalk pavement markings are also provided along Jersey Lane at Bickley Street.

Based on the videos and counts at the study intersections, the Syracuse Street North Access and South Access are for student drop-off/pick-up on the west side of the school. Vehicles enter the south access, circulate counterclockwise and drop off or pick up the student, and then exit from the north access along Syracuse Street. With this circulation pattern for student drop-offs and pick-ups, the passenger side of vehicles is appropriately located on the side of the school to minimize vehicles doors opening on the side with circulating traffic. Two vehicles were observed extending beyond the student drop-off area and to the south along Syracuse Street during the arrival morning peak hour. Likewise, approximately 10 vehicles were observed extending beyond the student pick-off area and to the south along Syracuse Street during the dismissal afternoon peak hour.

The existing parking lot to the north of the designated student drop-off and pick-up area is intended for faculty and generated negligible volumes during the school's peak morning and afternoon hours. Typically, faculty and staff arrive prior to student drop-off and depart after student pick-up. Faculty enter from the Syracuse Street Faculty Entrance and circulate counterclockwise while exiting from the Jersey Lane Faculty Exit. Of note, vehicle traffic was not observed entering the north access along Syracuse Street during the peak hours of the school traffic, and this portion of the parking lot will be removed with the expansion of the school.

With the expansion of the school, the drop-off and pick-up parking lot along Syracuse Street will expand to the north and the south while the faculty parking lot located on the southeast corner of the Jersey Lane and Syracuse Street intersection will be removed. The expansion of the drop-off and pick-up parking lot will provide additional parking for the faculty/staff and account for the increase in drop-off/pick-up with the proposed increase in students. The entrance to the parking lot is proposed to be moved and align with Fay Drive. The circulation will remain the same with vehicles entering at the south access through the parking lot and exit to the north.

State whether routing plan has been coordinated with law enforcement and school officials.

The east access along Jersey Street is designated for school buses entering the bus drop-off/pick-up zone and the access along Quebec Street is designated for buses exiting the school site. Six (6) school buses accommodated the existing school enrollment of 518 students.

Discuss if there will be an in number of buses due to the enrollment, which could imp drop-off/pick-up zones and

Of note, many drop-offs/pick-ups are occurring along the public street right- surrounding the elementary school. As discussed above, minimal student drop-off and pick-ups occur along Syracuse Street. However, it was observed that parents park on the north side of Jersey Lane while the south side of Jersey Lane is restricted with traffic cones. Several vehicles were observed queuing on Bickley Street for student pick-ups. Quebec Street was fairly well utilized for student pick-up and drop-offs while several faculty members seem to utilize parking on Quebec Street. The following recommendations are intended to improve safety and site circulation at the school:

- To mitigate existing conditions and future enrollment capacity of 850 students, the following improvements may be considered by the school:
  - Provide additional school personnel to direct parents with the student drop-off and pick-up circulation. This would potentially allow for additional vehicles to enter the drop-off/pick-up zone to minimize drivers from using other means of drop-off/pick-up in the public right-of-way (ROW) of the adjacent streets.
  - The school could encourage more pedestrian and bicycle traffic and discourage vehicular traffic to reduce the number of vehicle trips to and from the school. Programs could be developed to incentivize reducing single family vehicle trips such as carpooling, bicycle and pedestrian usage. In addition, providing sufficient, convenient, and safe bicycle storage could encourage more bicycle usage.
  - Provide a student drop-off/pick-up lane along the south side of Jersey Lane. The pavement width along Jersey Lane adjacent to the school is approximately 33 feet wide; therefore, the eastbound and westbound travel lanes could be striped with 11-foot travel lanes while designating a 11-foot student drop-off and pick-up lane along the south side of Jersey Lane. If this student drop-off and pick-up area is designated on the south side of Jersey Lane, the north curb line of Jersey Lane will need to be designated with R7-1 “No Parking” signs. **Figure 8** conceptually displays the possible signing improvement options as well as the striping for the designated student drop-off and pick-up area.

Include discussion on safety analysis, any crash data within project area.

5.6 Road Impact Fees

Road impact fees were evaluated based on the El Paso County Road Impact Fee Schedule. Based on these fee schedule guidelines, the fee per thousand square feet is $3,372. Therefore, the road impact fee for the proposed 18,500 square feet of elementary school expansion is expected to be $62,382. Road impact fee calculations are shown in **Table 4**. The project team will determine payment methods with the final plat.

Fees will need to be determined now, as there will not be a final plat.

Table 4 – Road Impact Fe

Use	Square Feet	Fee / KSF	Total Fee
Elementary School Expansion	18,500	$3,372	$62,382

Discuss if there are any anticipated deviations.

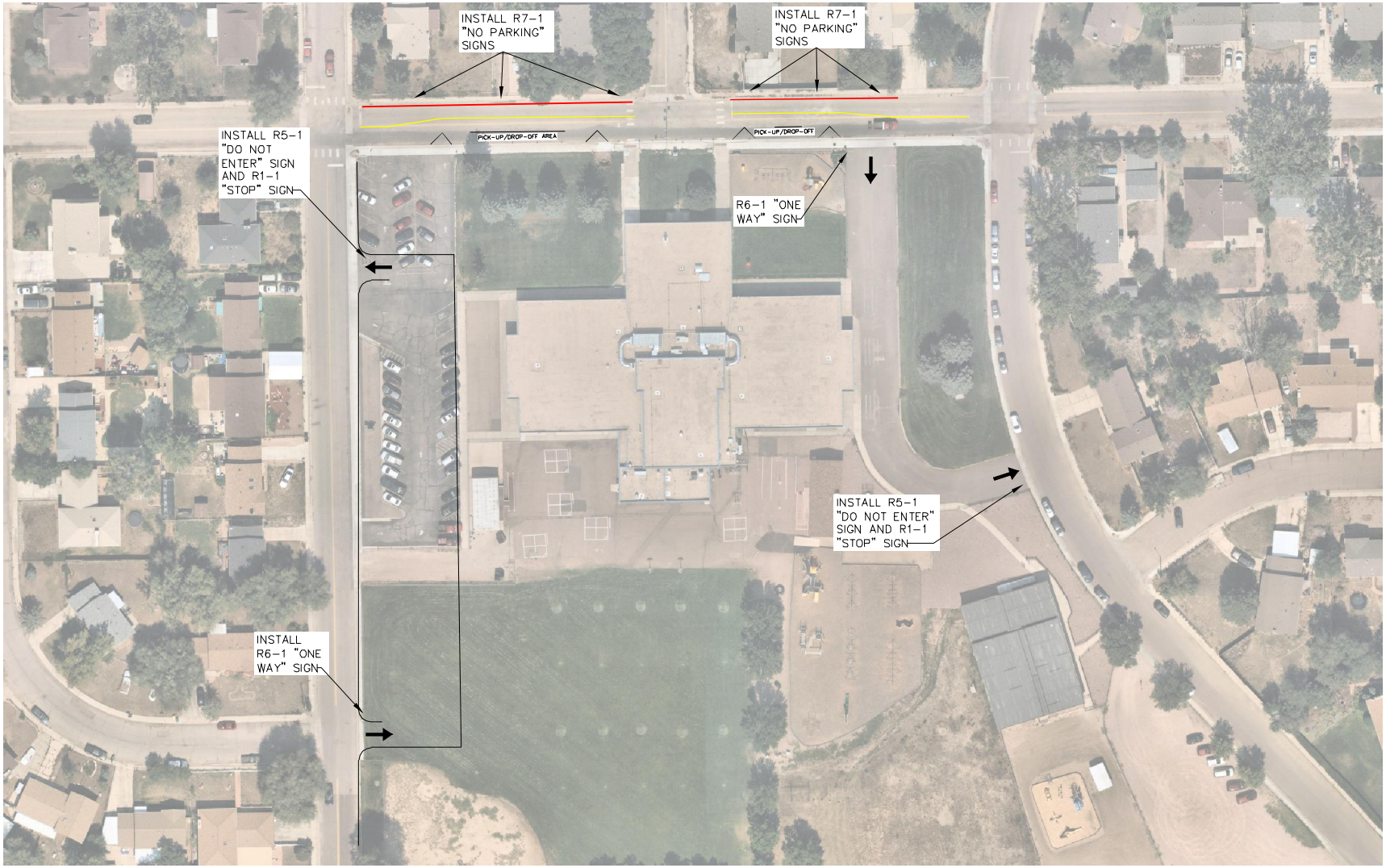


FIGURE 8
WEBSTER ELEMENTARY SCHOOL
EL PASO COUNTY, COLORADO
POTENTIAL IMPROVEMENTS

Kimley»Horn
NORTH
NTS 196341000

Kimley»Horn

6.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the analysis presented in this report, Kimley-Horn believes the Webster Elementary School expansion project will be successfully incorporated into the existing and future roadway network. Analysis of the existing street network, the proposed project development, and expected traffic volumes resulted in the following conclusions and recommendations:

- With the expansion of the school, the drop-off and pick-up parking lot along Syracuse Street will expand to the north and the south while the faculty parking lot located on the southeast corner of the Jersey Lane and Syracuse Street intersection will be removed. The expansion of the drop-off and pick-up parking lot will provide additional parking for the faculty/staff and account for the increase in drop-off/pick-up with the proposed increase in students. The entrance to the parking lot is proposed to be moved and align with Fay Drive. The circulation will remain the same with vehicles entering at the south access through the parking lot and exit to the north.

- The movements at all of the studied intersections and accesses currently operate acceptably and are expected to continue to operate acceptably with LOS B or better during the peak hours with the school expansion. Therefore, no modifications to the existing lane configurations and control are recommended at the study area key intersections. The existing street network is expected to be able to accommodate the increase in school traffic. However, to further identify the exiting only accesses and to restrict entering movements, R5-1 “Do Not Enter” signs could be installed at the approaches of the Syracuse Street North Access (#6) and the access along Quebec Street (#8). Likewise, to further identify the entrance only accesses and to restrict exiting movements, R6-1 “One Way” signs could be installed at the entering approaches of the Jersey Lane East Access (#5) and the relocated Syracuse Street South Access (#7). Lastly, R1-1 “Stop” signs could be installed on the exiting approaches of the Syracuse Street North Access (#6) and the Quebec Street Access (#8).

- To mitigate existing conditions and future enrollment capacity of 850 students, the following improvements may be considered by the school:
  - Provide additional school personnel to direct parents with the student drop-off and pick-up circulation. This would potentially allow for additional vehicles to enter the drop-off/pick-

up zone to minimize drivers from using other means of drop-off/pick-up in the public right-of-way (ROW) of the adjacent streets.

- The school could encourage more pedestrian and bicycle traffic and discourage vehicular traffic to reduce the number of vehicle trips to and from the school. Programs could be developed to incentivize reducing single family vehicle trips such as carpooling, bicycle and pedestrian usage. In addition, providing sufficient, convenient, and safe bicycle storage could encourage more bicycle usage.
- Provide a student drop-off/pick-up lane along the south side of Jersey Lane. The pavement width along Jersey Lane adjacent to the school is approximately 31 feet wide; therefore, the eastbound and westbound travel lanes could be restriped with 11-foot travel lanes while designating a 9-foot student drop-off and pick-up lane along the south side of Jersey Lane. If this student drop-off and pick-up area is designated on the south side of Jersey Lane, the north curb line of Jersey Lane will need to be designated with R7-1 “No Parking” signs. **Figure 8** conceptually displays the possible signing improvement options as well as the striping for the designated student drop-off and pick-up area.

- Any on-site or offsite improvements should be incorporated into the Civil Drawings and conform to standards of the El Paso County and the Manual on Uniform Traffic Control Devices (MUTCD) – 2009 Edition.

APPENDICES

Include an hourly distribution table at 15-minute intervals. (Example is located at end of redlines.)

APPENDIX A

Intersection Count Sheets

Ridgeview Data Collection

El Paso County, CO
Webster Elementary School
AM Peak
Jersey Lane and Syracuse St

File Name : Jersey and Syracuse AM
Site Code : IPO 581
Start Date : 12/2/2021
Page No : 1

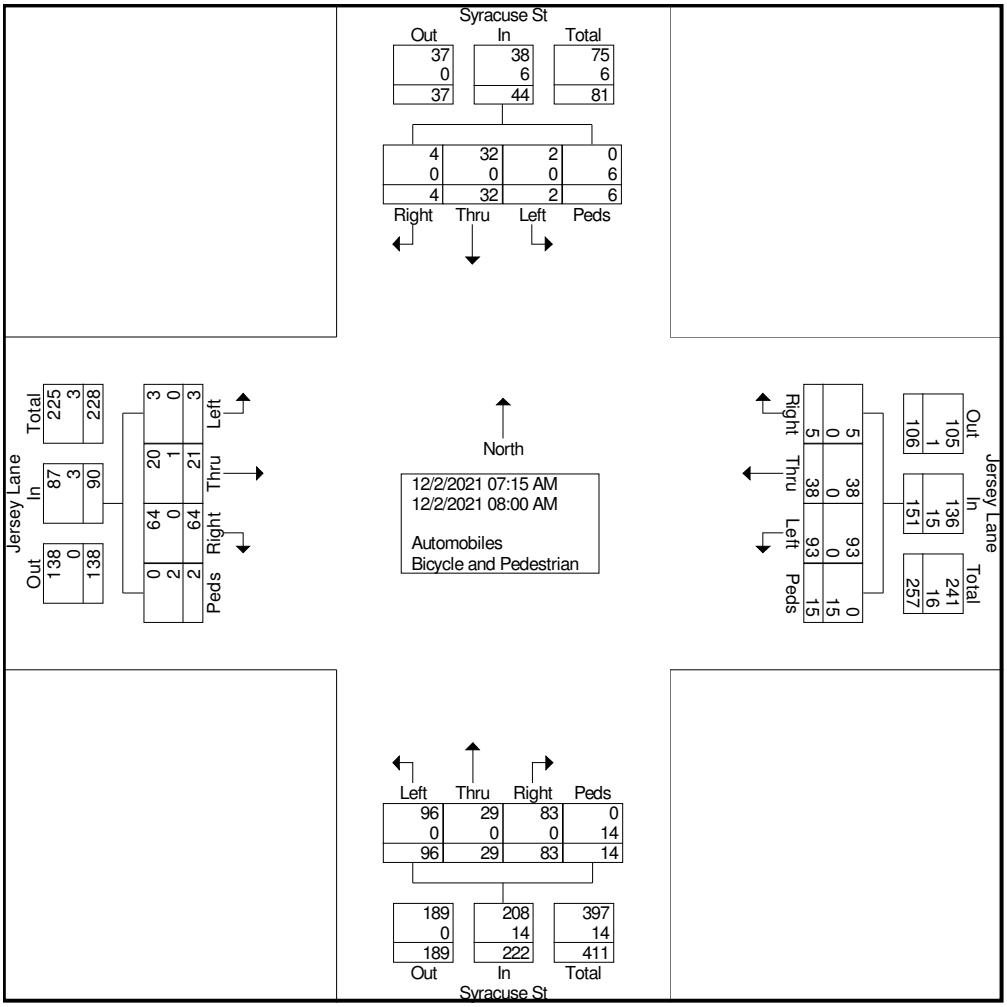
Groups Printed- Automobiles - Bicycle and Pedestrian

	Jersey Lane Eastbound					Jersey Lane Westbound					Syracuse St Northbound					Syracuse St Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
07:15 AM	1	2	28	0	31	26	5	0	0	31	41	10	22	0	73	0	18	0	0	18	153
07:30 AM	1	7	13	2	23	18	13	0	9	40	16	8	19	4	47	0	7	0	2	9	119
07:45 AM	0	6	11	0	17	17	11	2	3	33	23	6	24	9	62	0	1	3	1	5	117
Total	2	15	52	2	71	61	29	2	12	104	80	24	65	13	182	0	26	3	3	32	389
08:00 AM	1	6	12	0	19	32	9	3	3	47	16	5	18	1	40	2	6	1	3	12	118
Grand Total	3	21	64	2	90	93	38	5	15	151	96	29	83	14	222	2	32	4	6	44	507
Apprch %	3.3	23.3	71.1	2.2		61.6	25.2	3.3	9.9		43.2	13.1	37.4	6.3		4.5	72.7	9.1	13.6		
Total %	0.6	4.1	12.6	0.4	17.8	18.3	7.5	1	3	29.8	18.9	5.7	16.4	2.8	43.8	0.4	6.3	0.8	1.2	8.7	
Automobiles	3	20	64	0	87	93	38	5	0	136	96	29	83	0	208	2	32	4	0	38	469
% Automobiles	100	95.2	100	0	96.7	100	100	100	0	90.1	100	100	100	0	93.7	100	100	100	0	86.4	92.5
Bicycle and Pedestrian	0	1	0	2	3	0	0	0	15	15	0	0	0	14	14	0	0	0	6	6	38
% Bicycle and Pedestrian	0	4.8	0	100	3.3	0	0	0	100	9.9	0	0	0	100	6.3	0	0	0	100	13.6	7.5

Ridgeview Data Collection

El Paso County, CO
Webster Elementary School
AM Peak
Jersey Lane and Syracuse St

File Name : Jersey and Syracuse AM
Site Code : IPO 581
Start Date : 12/2/2021
Page No : 2

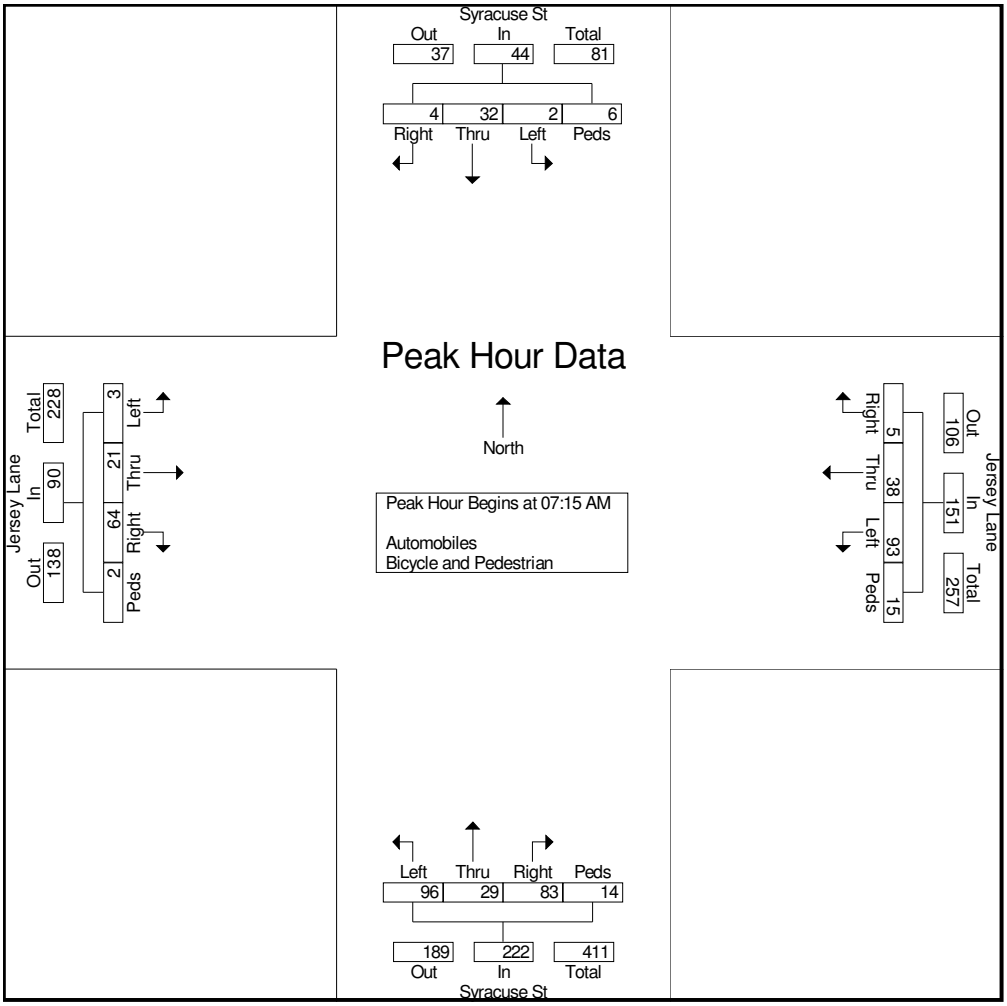


Ridgeview Data Collection

El Paso County, CO
Webster Elementary School
AM Peak
Jersey Lane and Syracuse St

File Name : Jersey and Syracuse AM
Site Code : IPO 581
Start Date : 12/2/2021
Page No : 3

	Jersey Lane Eastbound					Jersey Lane Westbound					Syracuse St Northbound					Syracuse St Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	**1**	2	**28**	0	**31**	26	5	0	0	31	**41**	**10**	22	0	**73**	0	**18**	0	0	**18**	**153**
07:30 AM	1	**7**	13	**2**	23	18	**13**	0	**9**	40	16	8	19	4	47	0	7	0	2	9	119
07:45 AM	0	6	11	0	17	17	11	2	3	33	23	6	**24**	**9**	62	0	1	**3**	1	5	117
08:00 AM	1	6	12	0	19	**32**	9	**3**	3	**47**	16	5	18	1	40	**2**	6	1	**3**	12	118
Total Volume	3	21	64	2	90	93	38	5	15	151	96	29	83	14	222	2	32	4	6	44	507
% App. Total	3.3	23.3	71.1	2.2		61.6	25.2	3.3	9.9		43.2	13.1	37.4	6.3		4.5	72.7	9.1	13.6		
PHF	.750	.750	.571	.250	.726	.727	.731	.417	.417	.803	.585	.725	.865	.389	.760	.250	.444	.333	.500	.611	.828



Ridgeview Data Collection

El Paso County, CO
Webster Elementary School
PM Peak
Jersey Lane and Syracuse St

File Name : Jersey and Syracuse PM
Site Code : IPO 581
Start Date : 12/2/2021
Page No : 1

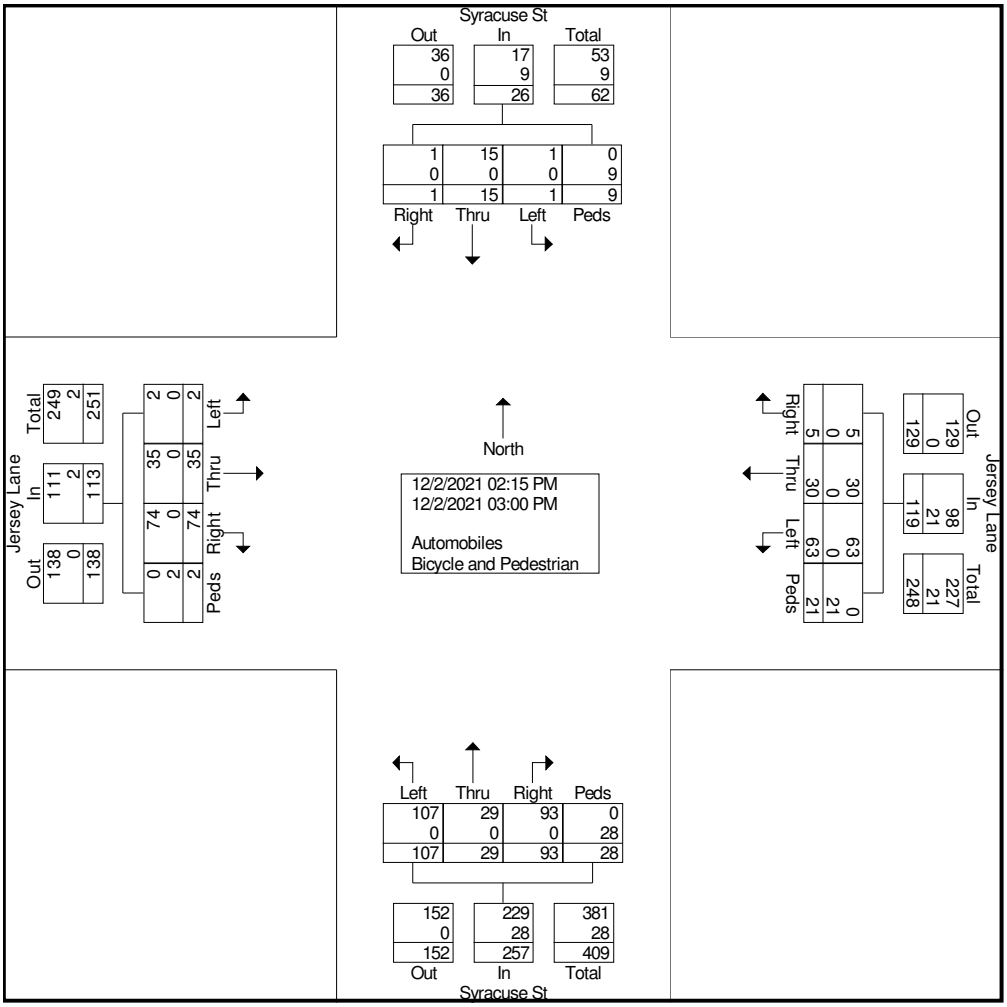
Groups Printed- Automobiles - Bicycle and Pedestrian

	Jersey Lane Eastbound					Jersey Lane Westbound					Syracuse St Northbound					Syracuse St Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
02:15 PM	1	6	16	0	23	7	3	0	0	10	8	4	18	0	30	1	4	0	0	5	68
02:30 PM	1	7	23	2	33	10	5	2	10	27	14	5	17	16	52	0	2	0	2	4	116
02:45 PM	0	16	18	0	34	35	17	2	9	63	49	12	29	8	98	0	5	1	5	11	206
Total	2	29	57	2	90	52	25	4	19	100	71	21	64	24	180	1	11	1	7	20	390
03:00 PM	0	6	17	0	23	11	5	1	2	19	36	8	29	4	77	0	4	0	2	6	125
Grand Total	2	35	74	2	113	63	30	5	21	119	107	29	93	28	257	1	15	1	9	26	515
Apprch %	1.8	31	65.5	1.8		52.9	25.2	4.2	17.6		41.6	11.3	36.2	10.9		3.8	57.7	3.8	34.6		
Total %	0.4	6.8	14.4	0.4	21.9	12.2	5.8	1	4.1	23.1	20.8	5.6	18.1	5.4	49.9	0.2	2.9	0.2	1.7	5	
Automobiles	2	35	74	0	111	63	30	5	0	98	107	29	93	0	229	1	15	1	0	17	455
% Automobiles	100	100	100	0	98.2	100	100	100	0	82.4	100	100	100	0	89.1	100	100	100	0	65.4	88.3
Bicycle and Pedestrian	0	0	0	2	2	0	0	0	21	21	0	0	0	28	28	0	0	0	9	9	60
% Bicycle and Pedestrian	0	0	0	100	1.8	0	0	0	100	17.6	0	0	0	100	10.9	0	0	0	100	34.6	11.7

Ridgeview Data Collection

El Paso County, CO
Webster Elementary School
PM Peak
Jersey Lane and Syracuse St

File Name : Jersey and Syracuse PM
Site Code : IPO 581
Start Date : 12/2/2021
Page No : 2

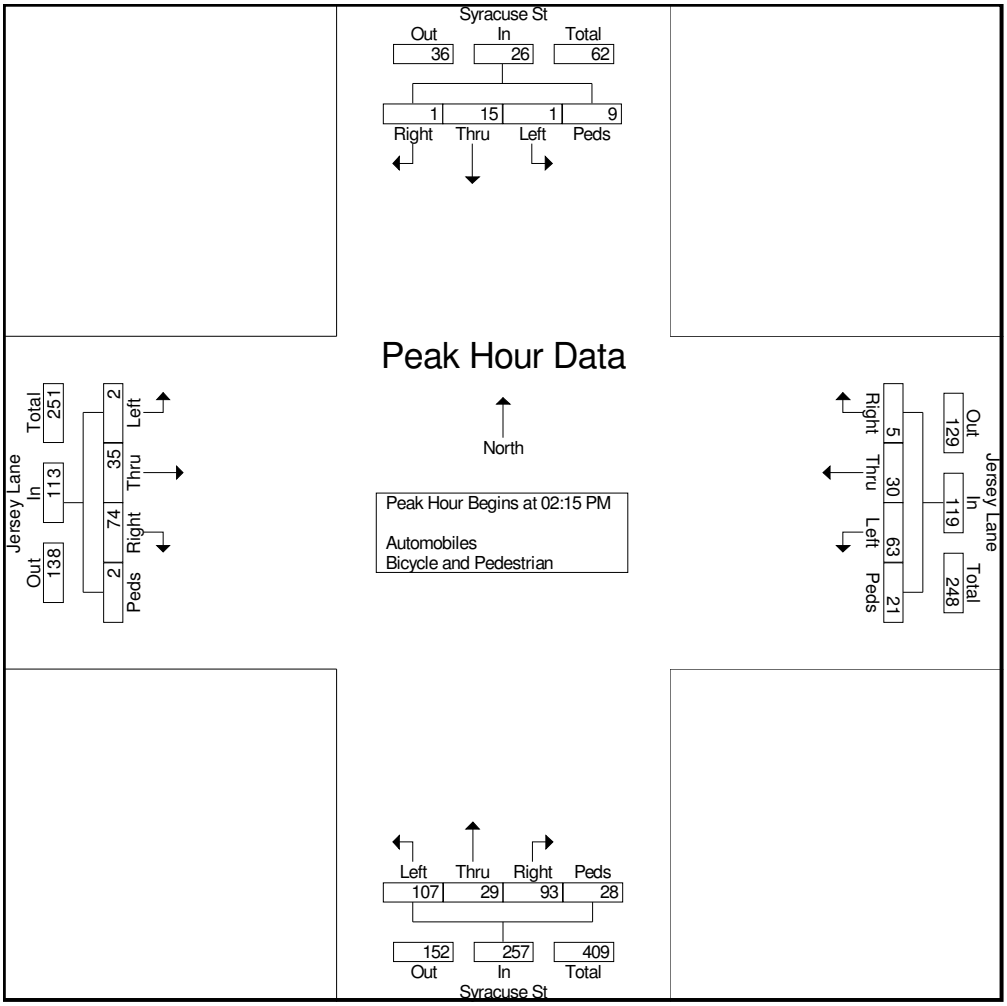


Ridgeview Data Collection

El Paso County, CO
Webster Elementary School
PM Peak
Jersey Lane and Syracuse St

File Name : Jersey and Syracuse PM
Site Code : IPO 581
Start Date : 12/2/2021
Page No : 3

	Jersey Lane Eastbound					Jersey Lane Westbound					Syracuse St Northbound					Syracuse St Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 02:15 PM to 03:00 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 02:15 PM																					
02:15 PM	**1**	6	16	0	23	7	3	0	0	10	8	4	18	0	30	**1**	4	0	0	5	68
02:30 PM	1	7	**23**	**2**	33	10	5	**2**	**10**	27	14	5	17	**16**	52	0	2	0	2	4	116
02:45 PM	0	**16**	18	0	**34**	**35**	**17**	2	9	**63**	**49**	**12**	**29**	8	**98**	0	**5**	**1**	**5**	**11**	**206**
03:00 PM	0	6	17	0	23	11	5	1	2	19	36	8	29	4	77	0	4	0	2	6	125
Total Volume	2	35	74	2	113	63	30	5	21	119	107	29	93	28	257	1	15	1	9	26	515
% App. Total	1.8	31	65.5	1.8		52.9	25.2	4.2	17.6		41.6	11.3	36.2	10.9		3.8	57.7	3.8	34.6		
PHF	.500	.547	.804	.250	.831	.450	.441	.625	.525	.472	.546	.604	.802	.438	.656	.250	.750	.250	.450	.591	.625



Ridgeview Data Collection

El Paso County, CO
Webster Elementary School
AM Peak
Jersey Lane and Bickley St

File Name : Jersey and Bickley AM
Site Code : IPO 581
Start Date : 12/2/2021
Page No : 1

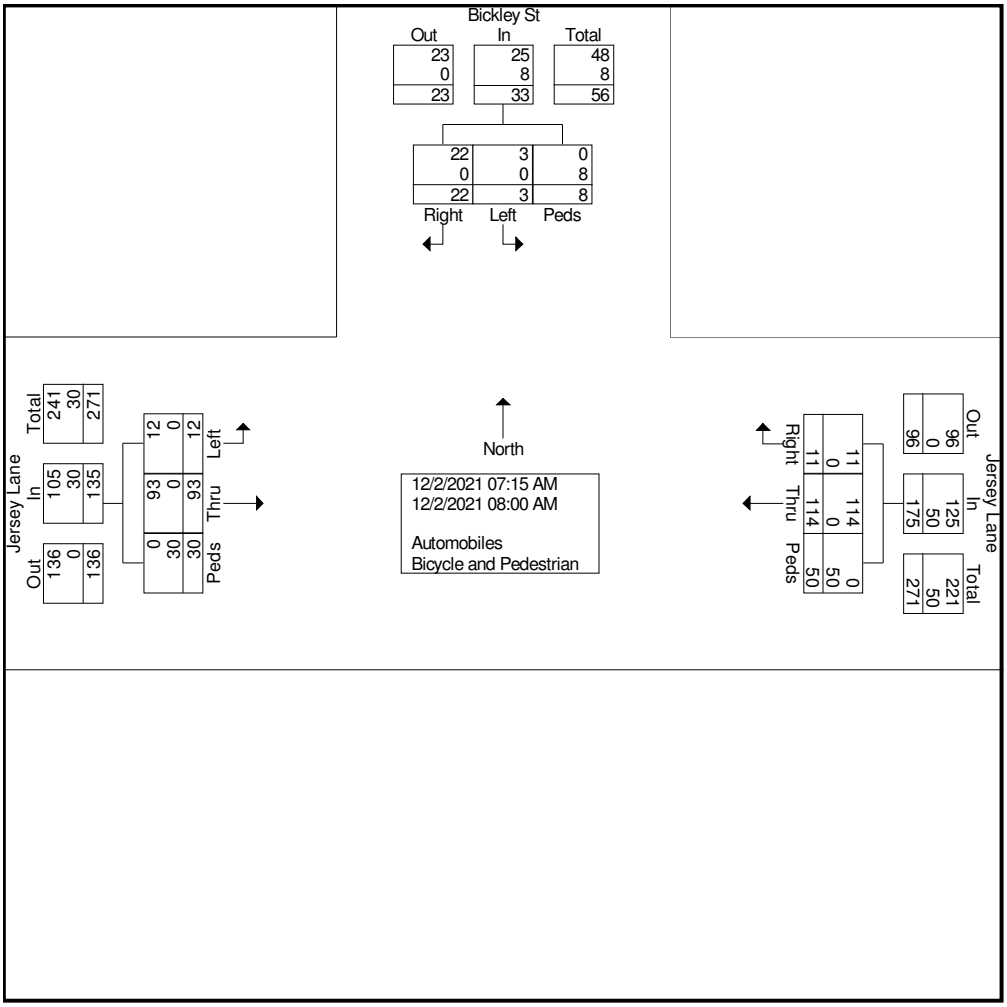
Groups Printed- Automobiles - Bicycle and Pedestrian

	Jersey Lane Eastbound				Jersey Lane Westbound				Bickley St Southbound				
Start Time	Left	Thru	Peds	App. Total	Thru	Right	Peds	App. Total	Left	Right	Peds	App. Total	Int. Total
07:15 AM	2	22	0	24	27	1	0	28	0	3	0	3	55
07:30 AM	2	20	2	24	25	0	5	30	0	5	0	5	59
07:45 AM	6	30	15	51	34	5	26	65	2	2	3	7	123
Total	10	72	17	99	86	6	31	123	2	10	3	15	237
08:00 AM	2	21	13	36	28	5	19	52	1	12	5	18	106
Grand Total	12	93	30	135	114	11	50	175	3	22	8	33	343
Apprch %	8.9	68.9	22.2		65.1	6.3	28.6		9.1	66.7	24.2		
Total %	3.5	27.1	8.7	39.4	33.2	3.2	14.6	51	0.9	6.4	2.3	9.6	
Automobiles	12	93	0	105	114	11	0	125	3	22	0	25	255
% Automobiles	100	100	0	77.8	100	100	0	71.4	100	100	0	75.8	74.3
Bicycle and Pedestrian	0	0	30	30	0	0	50	50	0	0	8	8	88
% Bicycle and Pedestrian	0	0	100	22.2	0	0	100	28.6	0	0	100	24.2	25.7

Ridgeview Data Collection

El Paso County, CO
Webster Elementary School
AM Peak
Jersey Lane and Bickley St

File Name : Jersey and Bickley AM
Site Code : IPO 581
Start Date : 12/2/2021
Page No : 2

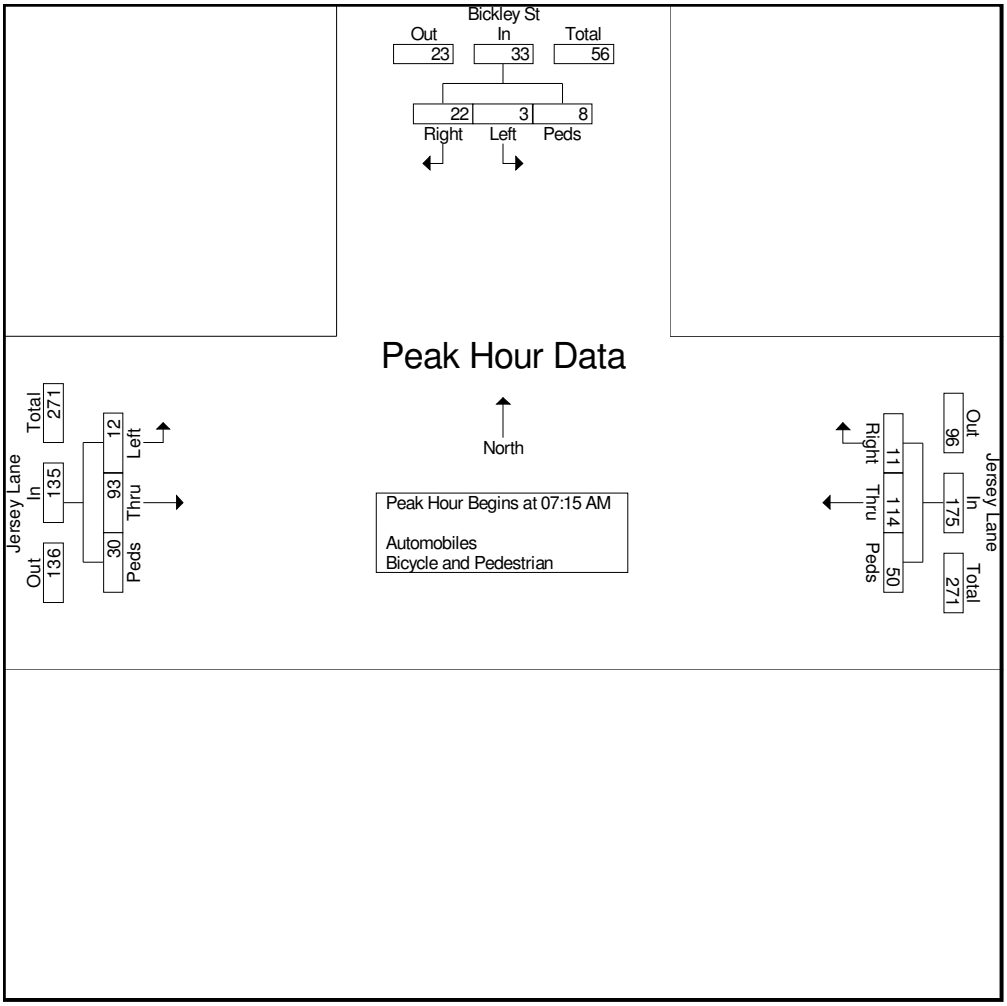


Ridgeview Data Collection

El Paso County, CO
Webster Elementary School
AM Peak
Jersey Lane and Bickley St

File Name : Jersey and Bickley AM
Site Code : IPO 581
Start Date : 12/2/2021
Page No : 3

	Jersey Lane Eastbound				Jersey Lane Westbound				Bickley St Southbound				
Start Time	Left	Thru	Peds	App. Total	Thru	Right	Peds	App. Total	Left	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:15 AM													
07:15 AM	2	22	0	24	27	1	0	28	0	3	0	3	55
07:30 AM	2	20	2	24	25	0	5	30	0	5	0	5	59
07:45 AM	**6**	**30**	**15**	**51**	**34**	**5**	**26**	**65**	**2**	2	3	7	**123**
08:00 AM	2	21	13	36	28	5	19	52	1	**12**	**5**	**18**	106
Total Volume	12	93	30	135	114	11	50	175	3	22	8	33	343
% App. Total	8.9	68.9	22.2		65.1	6.3	28.6		9.1	66.7	24.2		
PHF	.500	.775	.500	.662	.838	.550	.481	.673	.375	.458	.400	.458	.697



Ridgeview Data Collection

El Paso County, CO
Webster Elementary School
PM Peak
Jersey Lane and Bickley St

File Name : Jersey and Bickley PM
Site Code : IPO 581
Start Date : 12/2/2021
Page No : 1

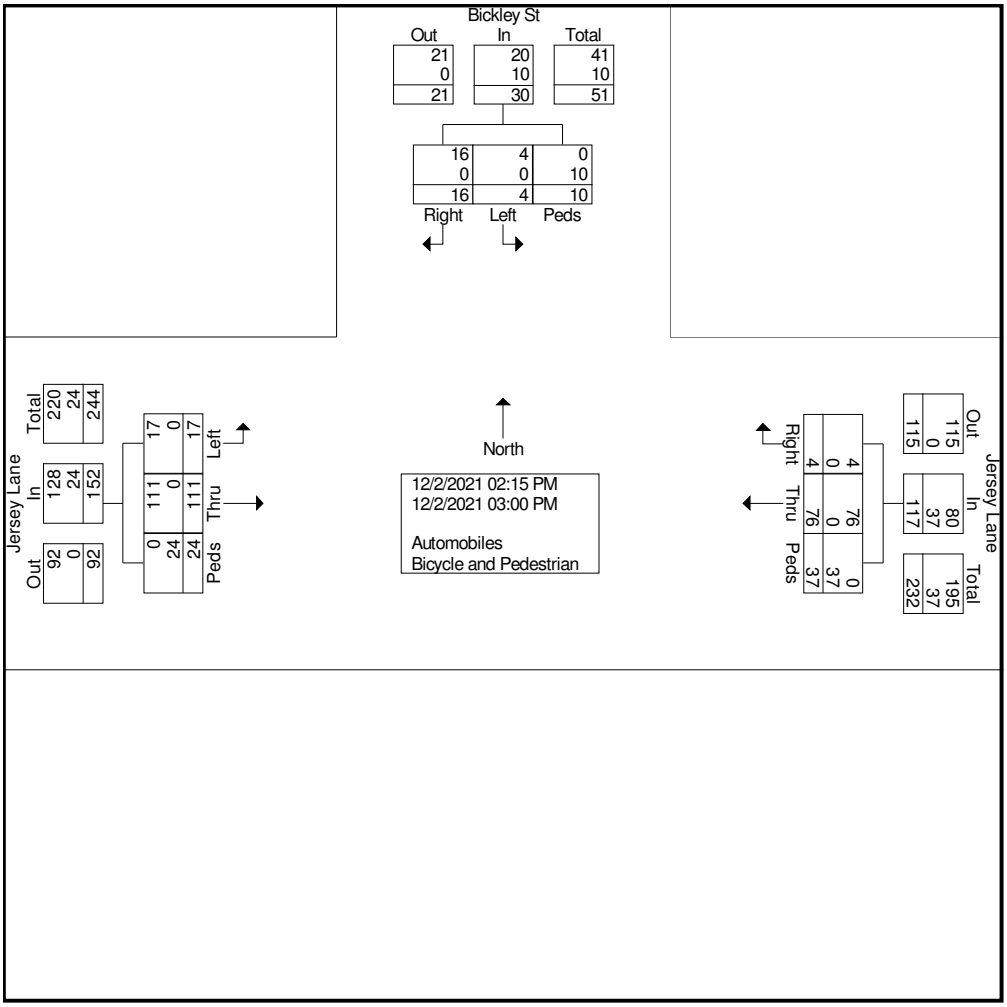
Groups Printed- Automobiles - Bicycle and Pedestrian

	Jersey Lane Eastbound				Jersey Lane Westbound				Bickley St Southbound				
Start Time	Left	Thru	Peds	App. Total	Thru	Right	Peds	App. Total	Left	Right	Peds	App. Total	Int. Total
02:15 PM	4	19	0	23	8	0	0	8	1	2	0	3	34
02:30 PM	5	19	15	39	15	1	26	42	0	3	7	10	91
02:45 PM	5	37	9	51	39	3	11	53	3	10	3	16	120
Total	14	75	24	113	62	4	37	103	4	15	10	29	245
03:00 PM	3	36	0	39	14	0	0	14	0	1	0	1	54
Grand Total	17	111	24	152	76	4	37	117	4	16	10	30	299
Apprch %	11.2	73	15.8		65	3.4	31.6		13.3	53.3	33.3		
Total %	5.7	37.1	8	50.8	25.4	1.3	12.4	39.1	1.3	5.4	3.3	10	
Automobiles	17	111	0	128	76	4	0	80	4	16	0	20	228
% Automobiles	100	100	0	84.2	100	100	0	68.4	100	100	0	66.7	76.3
Bicycle and Pedestrian	0	0	24	24	0	0	37	37	0	0	10	10	71
% Bicycle and Pedestrian	0	0	100	15.8	0	0	100	31.6	0	0	100	33.3	23.7

Ridgeview Data Collection

El Paso County, CO
Webster Elementary School
PM Peak
Jersey Lane and Bickley St

File Name : Jersey and Bickley PM
Site Code : IPO 581
Start Date : 12/2/2021
Page No : 2

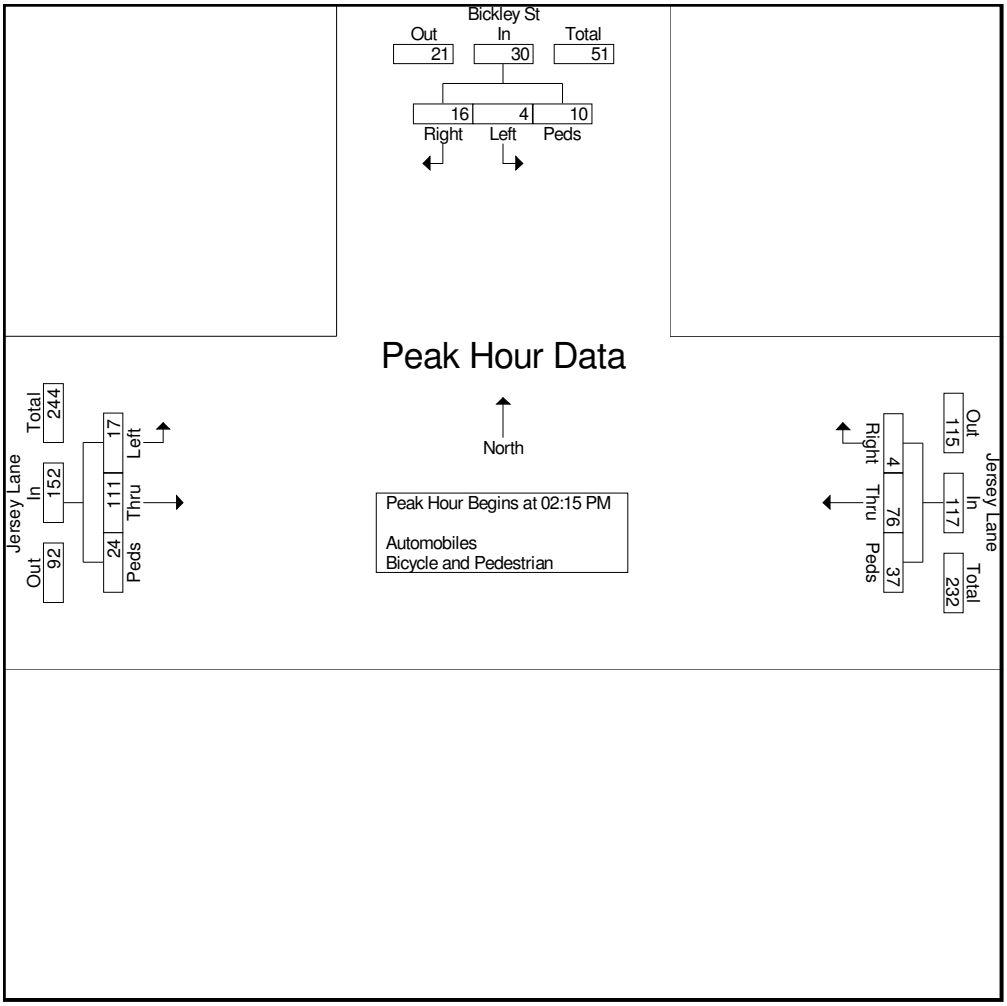


Ridgeview Data Collection

El Paso County, CO
Webster Elementary School
PM Peak
Jersey Lane and Bickley St

File Name : Jersey and Bickley PM
Site Code : IPO 581
Start Date : 12/2/2021
Page No : 3

	Jersey Lane Eastbound				Jersey Lane Westbound				Bickley St Southbound				
Start Time	Left	Thru	Peds	App. Total	Thru	Right	Peds	App. Total	Left	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 02:15 PM to 03:00 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 02:15 PM													
02:15 PM	4	19	0	23	8	0	0	8	1	2	0	3	34
02:30 PM	**5**	19	**15**	39	15	1	**26**	42	0	3	**7**	10	91
02:45 PM	5	**37**	9	**51**	**39**	**3**	11	**53**	**3**	**10**	3	**16**	**120**
03:00 PM	3	36	0	39	14	0	0	14	0	1	0	1	54
Total Volume	17	111	24	152	76	4	37	117	4	16	10	30	299
% App. Total	11.2	73	15.8		65	3.4	31.6		13.3	53.3	33.3		
PHF	.850	.750	.400	.745	.487	.333	.356	.552	.333	.400	.357	.469	.623



Ridgeview Data Collection

El Paso County, CO
Webster Elementary School
AM Peak
Jersey Lane and Quebec St

File Name : Jersey and Quebec AM
Site Code : IPO 581
Start Date : 12/2/2021
Page No : 1

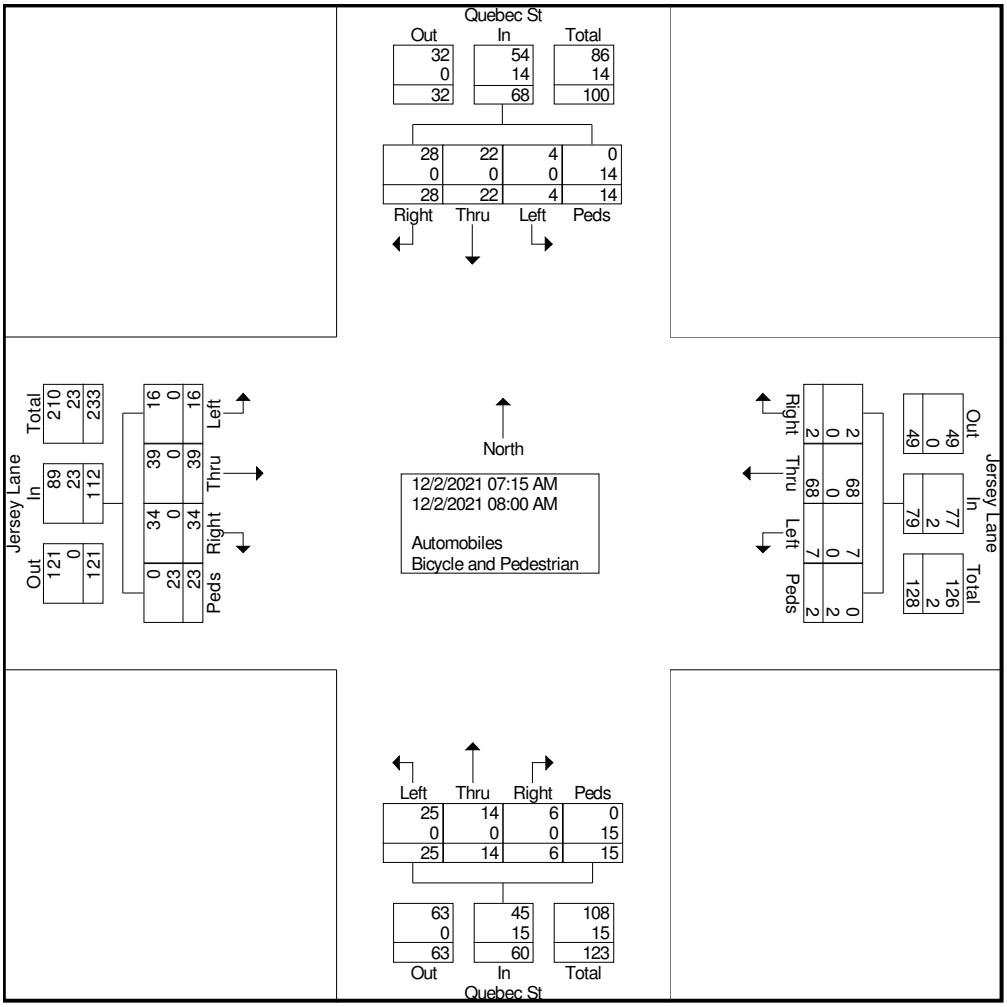
Groups Printed- Automobiles - Bicycle and Pedestrian

	Jersey Lane Eastbound					Jersey Lane Westbound					Quebec St Northbound					Quebec St Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
07:15 AM	5	13	4	0	22	1	16	0	0	17	2	0	0	0	2	1	4	9	0	14	55
07:30 AM	2	6	9	5	22	1	16	0	1	18	7	3	0	2	12	0	4	5	5	14	66
07:45 AM	6	8	11	9	34	4	24	1	1	30	10	6	3	13	32	1	10	7	4	22	118
Total	13	27	24	14	78	6	56	1	2	65	19	9	3	15	46	2	18	21	9	50	239
08:00 AM	3	12	10	9	34	1	12	1	0	14	6	5	3	0	14	2	4	7	5	18	80
Grand Total	16	39	34	23	112	7	68	2	2	79	25	14	6	15	60	4	22	28	14	68	319
Apprch %	14.3	34.8	30.4	20.5		8.9	86.1	2.5	2.5		41.7	23.3	10	25		5.9	32.4	41.2	20.6		
Total %	5	12.2	10.7	7.2	35.1	2.2	21.3	0.6	0.6	24.8	7.8	4.4	1.9	4.7	18.8	1.3	6.9	8.8	4.4	21.3	
Automobiles	16	39	34	0	89	7	68	2	0	77	25	14	6	0	45	4	22	28	0	54	265
% Automobiles	100	100	100	0	79.5	100	100	100	0	97.5	100	100	100	0	75	100	100	100	0	79.4	83.1
Bicycle and Pedestrian	0	0	0	23	23	0	0	0	2	2	0	0	0	15	15	0	0	0	14	14	54
% Bicycle and Pedestrian	0	0	0	100	20.5	0	0	0	100	2.5	0	0	0	100	25	0	0	0	100	20.6	16.9

Ridgeview Data Collection

El Paso County, CO
Webster Elementary School
AM Peak
Jersey Lane and Quebec St

File Name : Jersey and Quebec AM
Site Code : IPO 581
Start Date : 12/2/2021
Page No : 2

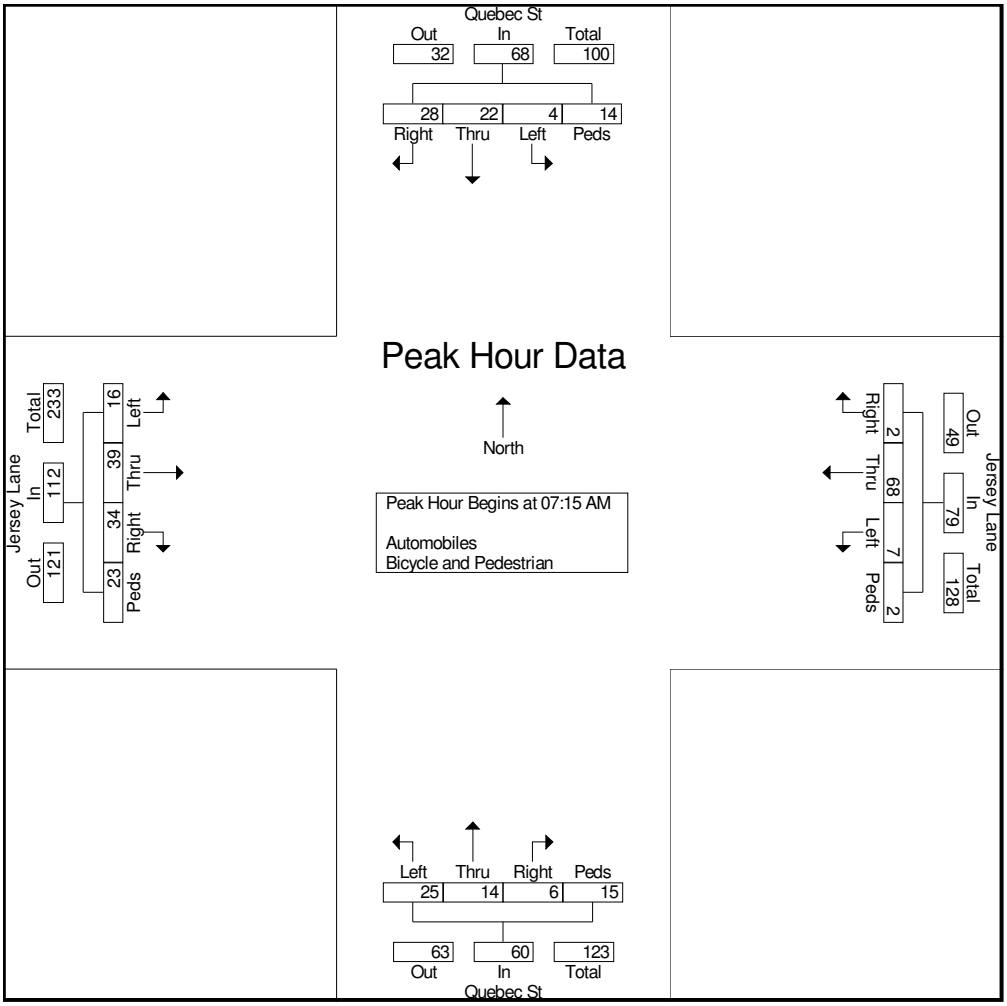


Ridgeview Data Collection

El Paso County, CO
Webster Elementary School
AM Peak
Jersey Lane and Quebec St

File Name : Jersey and Quebec AM
Site Code : IPO 581
Start Date : 12/2/2021
Page No : 3

	Jersey Lane Eastbound					Jersey Lane Westbound					Quebec St Northbound					Quebec St Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	5	**13**	4	0	22	1	16	0	0	17	2	0	0	0	2	1	4	**9**	0	14	55
07:30 AM	2	6	9	5	22	1	16	0	**1**	18	7	3	0	2	12	0	4	5	**5**	14	66
07:45 AM	**6**	8	**11**	**9**	**34**	**4**	**24**	**1**	1	**30**	**10**	**6**	**3**	**13**	**32**	1	**10**	7	4	**22**	**118**
08:00 AM	3	12	10	9	34	1	12	1	0	14	6	5	3	0	14	**2**	4	7	5	18	80
Total Volume	16	39	34	23	112	7	68	2	2	79	25	14	6	15	60	4	22	28	14	68	319
% App. Total	14.3	34.8	30.4	20.5		8.9	86.1	2.5	2.5		41.7	23.3	10	25		5.9	32.4	41.2	20.6		
PHF	.667	.750	.773	.639	.824	.438	.708	.500	.500	.658	.625	.583	.500	.288	.469	.500	.550	.778	.700	.773	.676



Ridgeview Data Collection

El Paso County, CO
Webster Elementary School
PM Peak
Jersey Lane and Quebec St

File Name : Jersey and Quebec PM
Site Code : IPO 581
Start Date : 12/2/2021
Page No : 1

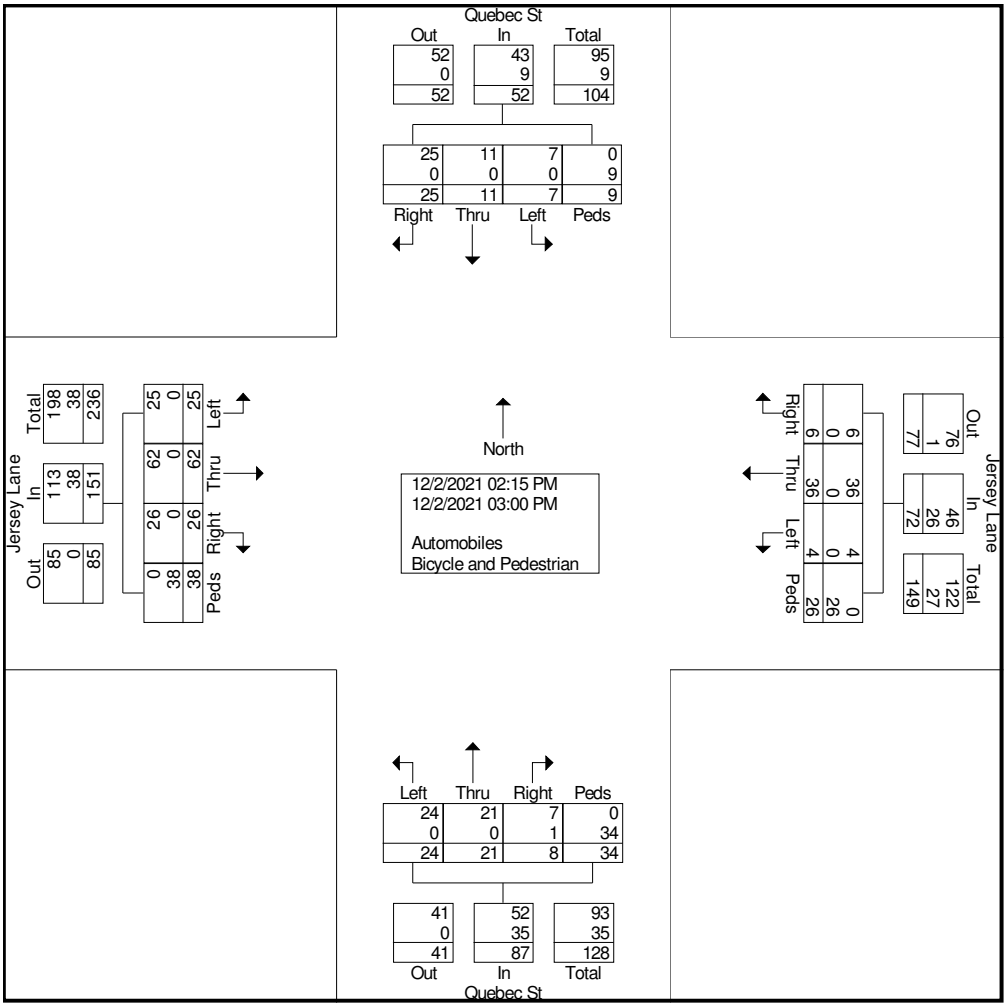
Groups Printed- Automobiles - Bicycle and Pedestrian

	Jersey Lane Eastbound					Jersey Lane Westbound					Quebec St Northbound					Quebec St Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
02:15 PM	2	9	6	1	18	1	5	1	0	7	2	0	1	1	4	3	0	9	0	12	41
02:30 PM	8	4	9	15	36	3	11	2	1	17	0	1	2	23	26	2	5	4	6	17	96
02:45 PM	10	25	7	17	59	0	13	2	24	39	19	18	4	7	48	2	5	7	3	17	163
Total	20	38	22	33	113	4	29	5	25	63	21	19	7	31	78	7	10	20	9	46	300
03:00 PM	5	24	4	5	38	0	7	1	1	9	3	2	1	3	9	0	1	5	0	6	62
Grand Total	25	62	26	38	151	4	36	6	26	72	24	21	8	34	87	7	11	25	9	52	362
Apprch %	16.6	41.1	17.2	25.2		5.6	50	8.3	36.1		27.6	24.1	9.2	39.1		13.5	21.2	48.1	17.3		
Total %	6.9	17.1	7.2	10.5	41.7	1.1	9.9	1.7	7.2	19.9	6.6	5.8	2.2	9.4	24	1.9	3	6.9	2.5	14.4	
Automobiles	25	62	26	0	113	4	36	6	0	46	24	21	7	0	52	7	11	25	0	43	254
% Automobiles	100	100	100	0	74.8	100	100	100	0	63.9	100	100	87.5	0	59.8	100	100	100	0	82.7	70.2
Bicycle and Pedestrian	0	0	0	38	38	0	0	0	26	26	0	0	1	34	35	0	0	0	9	9	108
% Bicycle and Pedestrian	0	0	0	100	25.2	0	0	0	100	36.1	0	0	12.5	100	40.2	0	0	0	100	17.3	29.8

Ridgeview Data Collection

El Paso County, CO
Webster Elementary School
PM Peak
Jersey Lane and Quebec St

File Name : Jersey and Quebec PM
Site Code : IPO 581
Start Date : 12/2/2021
Page No : 2

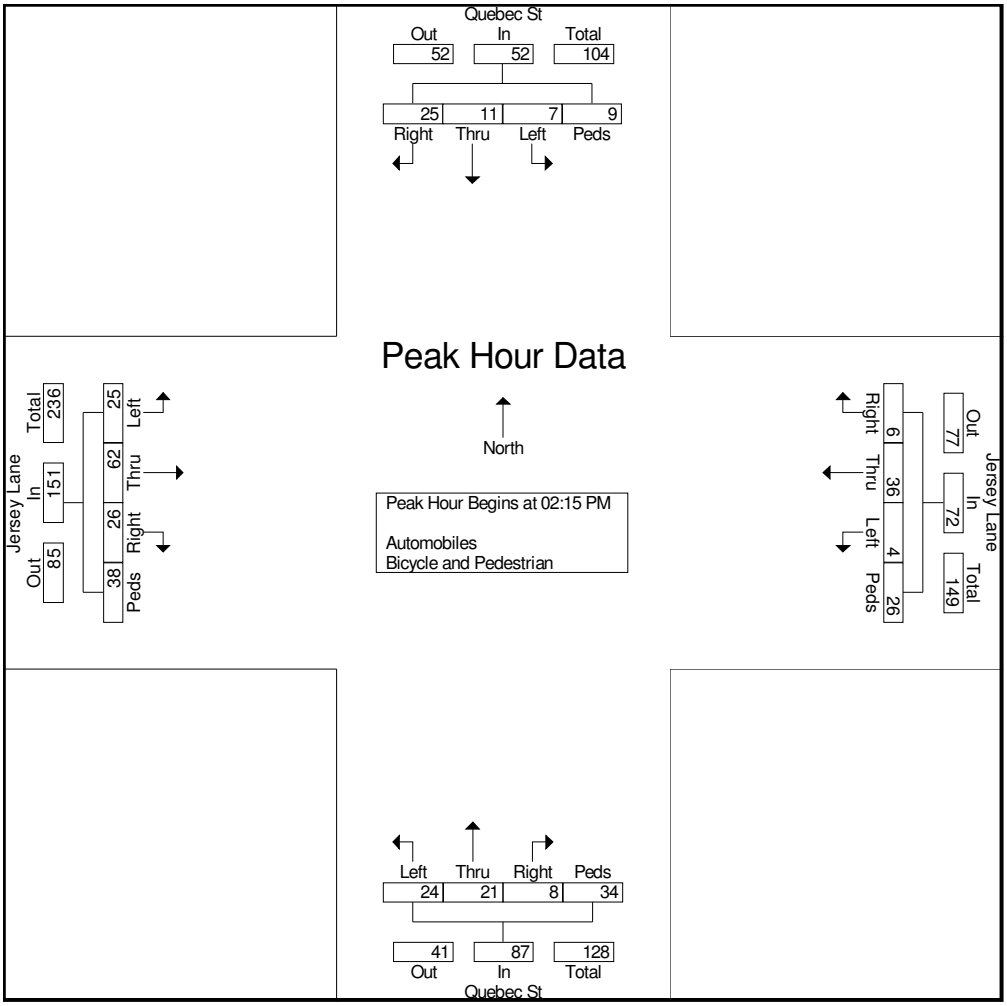


Ridgeview Data Collection

El Paso County, CO
Webster Elementary School
PM Peak
Jersey Lane and Quebec St

File Name : Jersey and Quebec PM
Site Code : IPO 581
Start Date : 12/2/2021
Page No : 3

	Jersey Lane Eastbound					Jersey Lane Westbound					Quebec St Northbound					Quebec St Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 02:15 PM to 03:00 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 02:15 PM																					
02:15 PM	2	9	6	1	18	1	5	1	0	7	2	0	1	1	4	**3**	0	**9**	0	12	41
02:30 PM	8	4	**9**	15	36	**3**	11	**2**	1	17	0	1	2	**23**	26	2	**5**	4	**6**	**17**	96
02:45 PM	**10**	**25**	7	**17**	**59**	0	**13**	2	**24**	**39**	**19**	**18**	**4**	7	**48**	2	5	7	3	17	**163**
03:00 PM	5	24	4	5	38	0	7	1	1	9	3	2	1	3	9	0	1	5	0	6	62
Total Volume	25	62	26	38	151	4	36	6	26	72	24	21	8	34	87	7	11	25	9	52	362
% App. Total	16.6	41.1	17.2	25.2		5.6	50	8.3	36.1		27.6	24.1	9.2	39.1		13.5	21.2	48.1	17.3		
PHF	.625	.620	.722	.559	.640	.333	.692	.750	.271	.462	.316	.292	.500	.370	.453	.583	.550	.694	.375	.765	.555



RDC
Ridgeview Data Collection

Webster Elementary School - December 2, 2021

Syracuse South Access

	WB		NB	SB	Peds
	Left	Right	Right	Left	Crossing
7:15	0	0	7	8	0
7:30	0	0	9	5	1
7:45	0	0	29	4	4
8:00	0	0	6	0	7
	0	0	51	17	12

	WB		NB	SB	Peds
	Left	Right	Right	Left	Crossing
2:15	0	0	4	1	0
2:30	0	0	7	1	3
2:45	0	0	2	1	4
3:00	0	0	1	0	0
	0	0	14	3	7

Syracuse North Access

	WB		NB	SB	Peds
	Left	Right	Right	Left	Crossing
7:15	0	0	0	0	0
7:30	9	5	0	0	2
7:45	16	17	0	0	2
8:00	7	3	0	0	3
	32	25	0	0	7

	WB		NB	SB	Peds
	Left	Right	Right	Left	Crossing
2:15	2	2	0	0	0
2:30	4	3	0	0	23
2:45	5	6	0	0	2
3:00	1	1	0	0	0
	12	12	0	0	25

Jersey West Access

	NB		EB	WB	Peds
	Left	Right	Right	Left	Crossing
7:15	0	0	0	0	0
7:30	0	0	0	0	13
7:45	0	0	0	0	18
8:00	0	0	1	0	11
	0	0	1	0	42

	NB		EB	WB	Peds
	Left	Right	Right	Left	Crossing
2:15	0	0	0	0	0
2:30	0	0	0	0	33
2:45	0	0	0	0	33
3:00	1	0	0	0	9
	1	0	0	0	75

Jersey East Access

	NB		EB	WB	Peds
	Left	Right	Right	Left	Crossing
7:15	0	0	0	0	1
7:30	0	0	2	1	13
7:45	0	0	2	1	25
8:00	1	0	0	0	20
	1	0	4	2	59

	NB		EB	WB	Peds
	Left	Right	Right	Left	Crossing
2:15	0	0	0	3	0
2:30	0	0	0	1	61
2:45	0	0	0	0	20
3:00	0	0	2	0	7
	0	0	2	4	88

Quebec Access

	EB		SB	NB	Peds
	Left	Right	Right	Left	Crossing
7:15	0	0	0	0	0
7:30	0	0	0	0	2
7:45	5	0	0	0	2
8:00	1	0	1	0	1
	6	0	1	0	5

	EB		SB	NB	Peds
	Left	Right	Right	Left	Crossing
2:15	0	0	0	0	1
2:30	0	0	0	0	4
2:45	6	0	0	0	21
3:00	1	0	0	0	7
	7	0	0	0	33

APPENDIX B

Trip Generation Worksheets

Kimley»Horn

Project	Webster Elementary School Expansion (Existing)				
Subject	Trip Generation for Elementary School				
Designed by	MAG	*Date*	December 20, 2021	*Job No.*	196341000
Checked by		*Date*		*Sheet No.*	*of*

TRIP GENERATION MANUAL TECHNIQUES

ITE Trip Generation Manual 11th Edition, Average Rate Equations

Land Use Code - Elementary School (520)

Independent Variable - Students (X)

X = 518
T = Average Vehicle Trip Ends

AM Peak Hour of Generator (500 Series Page 329)

Average Weekday
(T) = 0.75 (X)
(T) = 0.75 * (518.0)

Directional Distribution: 54% ent. 46% exit.
T = 389 Average Vehicle Trip Ends
210 entering 179 exiting

210 + 179 = 389

PM Peak Hour of Generator (500 Series Page 330)

Average Weekday
(T) = 0.45 (X)
(T) = 0.45 * (518.0)

Directional Distribution: 46% ent. 54% exit.
T = 233 Average Vehicle Trip Ends
107 entering 126 exiting

107 + 126 = 233

Weekday (500 Series Page 326)

Average Weekday
(T) = 2.27 (X)
(T) = 2.27 * (518.0)

Directional Distribution: 50% entering, 50% exiting
T = 1176 Average Vehicle Trip Ends
588 entering 588 exiting

588 + 588 = 1176

Kimley»Horn

Project	Webster Elementary School Expansion (Future)				
Subject	Trip Generation for Elementary School				
Designed by	MAG	*Date*	December 20, 2021	*Job No.*	196341000
Checked by		*Date*		*Sheet No.*	*of*

TRIP GENERATION MANUAL TECHNIQUES

ITE Trip Generation Manual 11th Edition, Average Rate Equations

Land Use Code - Elementary School (520)

Independent Variable - Students (X)

X = 850
T = Average Vehicle Trip Ends

AM Peak Hour of Generator (500 Series Page 329)

Average Weekday
(T) = 0.75 (X)
(T) = 0.75 * (850.0)

Directional Distribution: 54% ent. 46% exit.
T = 638 Average Vehicle Trip Ends
345 entering 293 exiting

345 + 293 = 638

PM Peak Hour of Generator (500 Series Page 330)

Average Weekday
(T) = 0.45 (X)
(T) = 0.45 * (850.0)

Directional Distribution: 46% ent. 54% exit.
T = 383 Average Vehicle Trip Ends
176 entering 207 exiting

176 + 207 = 383

Weekday (500 Series Page 326)

Average Weekday
(T) = 2.27 (X)
(T) = 2.27 * (850.0)

Directional Distribution: 50% entering, 50% exiting
T = 1930 Average Vehicle Trip Ends
965 entering 965 exiting

965 + 965 = 1930

APPENDIX C

Intersection Analysis Worksheets

Intersection	
Intersection Delay, s/veh	9.1
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	21	64	93	38	5	96	29	83	2	32	4
Future Vol, veh/h	3	21	64	93	38	5	96	29	83	2	32	4
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	25	77	112	46	6	116	35	100	2	39	5
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.1	9.3	9.6	8.2
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	46%	3%	68%	5%
Vol Thru, %	14%	24%	28%	84%
Vol Right, %	40%	73%	4%	11%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	208	88	136	38
LT Vol	96	3	93	2
Through Vol	29	21	38	32
RT Vol	83	64	5	4
Lane Flow Rate	251	106	164	46
Geometry Grp	1	1	1	1
Degree of Util (X)	0.312	0.13	0.221	0.061
Departure Headway (Hd)	4.481	4.4	4.858	4.817
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	802	812	737	741
Service Time	2.516	2.443	2.9	2.865
HCM Lane V/C Ratio	0.313	0.131	0.223	0.062
HCM Control Delay	9.6	8.1	9.3	8.2
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	1.3	0.4	0.8	0.2

Intersection	
Intersection Delay, s/veh	10.6
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	35	74	63	30	5	107	29	93	1	15	1
Future Vol, veh/h	2	35	74	63	30	5	107	29	93	1	15	1
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	56	117	100	48	8	170	46	148	2	24	2
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.2	9.8	11.7	8.5
HCM LOS	A	A	B	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	47%	2%	64%	6%
Vol Thru, %	13%	32%	31%	88%
Vol Right, %	41%	67%	5%	6%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	229	111	98	17
LT Vol	107	2	63	1
Through Vol	29	35	30	15
RT Vol	93	74	5	1
Lane Flow Rate	363	176	156	27
Geometry Grp	1	1	1	1
Degree of Util (X)	0.466	0.229	0.224	0.039
Departure Headway (Hd)	4.619	4.679	5.182	5.176
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	774	761	688	684
Service Time	2.677	2.751	3.256	3.266
HCM Lane V/C Ratio	0.469	0.231	0.227	0.039
HCM Control Delay	11.7	9.2	9.8	8.5
HCM Lane LOS	B	A	A	A
HCM 95th-tile Q	2.5	0.9	0.9	0.1

Intersection	
Intersection Delay, s/veh	9.6
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	31	73	110	43	5	108	31	94	2	32	4
Future Vol, veh/h	3	31	73	110	43	5	108	31	94	2	32	4
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	37	88	133	52	6	130	37	113	2	39	5
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.5	9.8	10.2	8.4
HCM LOS	A	A	B	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	46%	3%	70%	5%
Vol Thru, %	13%	29%	27%	84%
Vol Right, %	40%	68%	3%	11%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	233	107	158	38
LT Vol	108	3	110	2
Through Vol	31	31	43	32
RT Vol	94	73	5	4
Lane Flow Rate	281	129	190	46
Geometry Grp	1	1	1	1
Degree of Util (X)	0.359	0.163	0.263	0.064
Departure Headway (Hd)	4.607	4.553	4.982	4.999
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	778	783	718	711
Service Time	2.657	2.613	3.038	3.067
HCM Lane V/C Ratio	0.361	0.165	0.265	0.065
HCM Control Delay	10.2	8.5	9.8	8.4
HCM Lane LOS	B	A	A	A
HCM 95th-tile Q	1.6	0.6	1.1	0.2

Intersection	
Intersection Delay, s/veh	11.1
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	41	78	70	33	5	114	30	99	1	15	1
Future Vol, veh/h	2	41	78	70	33	5	114	30	99	1	15	1
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	65	124	111	52	8	181	48	157	2	24	2
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

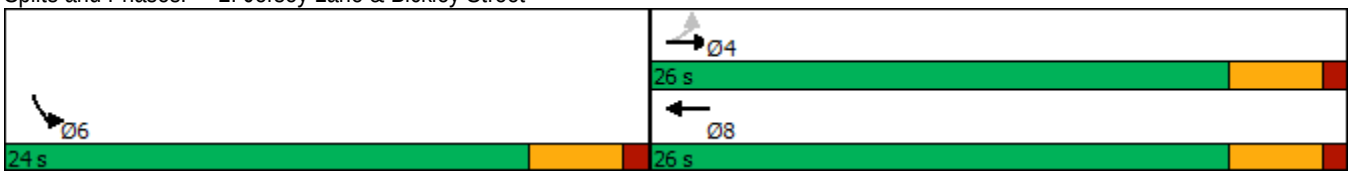
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.5	10.2	12.5	8.7
HCM LOS	A	B	B	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	47%	2%	65%	6%
Vol Thru, %	12%	34%	31%	88%
Vol Right, %	41%	64%	5%	6%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	243	121	108	17
LT Vol	114	2	70	1
Through Vol	30	41	33	15
RT Vol	99	78	5	1
Lane Flow Rate	386	192	171	27
Geometry Grp	1	1	1	1
Degree of Util (X)	0.504	0.255	0.251	0.041
Departure Headway (Hd)	4.703	4.785	5.277	5.42
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	760	741	674	665
Service Time	2.776	2.874	3.37	3.42
HCM Lane V/C Ratio	0.508	0.259	0.254	0.041
HCM Control Delay	12.5	9.5	10.2	8.7
HCM Lane LOS	B	A	B	A
HCM 95th-tile Q	2.9	1	1	0.1

Lane Group	EBL	EBT	WBT	SBL
Lane Configurations				
Traffic Volume (vph)	12	93	114	3
Future Volume (vph)	12	93	114	3
Turn Type	Perm	NA	NA	Prot
Protected Phases		4	8	6
Permitted Phases	4			
Detector Phase	4	4	8	6
Switch Phase				
Minimum Initial (s)	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5
Total Split (s)	26.0	26.0	26.0	24.0
Total Split (%)	52.0%	52.0%	52.0%	48.0%
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0	0.0
Total Lost Time (s)		4.5	4.5	4.5
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	None	None	None	Min
Act Effct Green (s)		7.5	7.5	12.0
Actuated g/C Ratio		0.35	0.35	0.55
v/c Ratio		0.25	0.28	0.04
Control Delay		6.2	6.0	3.7
Queue Delay		0.0	0.0	0.0
Total Delay		6.2	6.0	3.7
LOS		A	A	A
Approach Delay		6.2	6.0	3.7
Approach LOS		A	A	A

Intersection Summary	
Cycle Length: 50	
Actuated Cycle Length: 21.7	
Natural Cycle: 45	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.28	
Intersection Signal Delay: 5.9	Intersection LOS: A
Intersection Capacity Utilization 26.6%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 2: Jersey Lane & Bickley Street



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	12	93	114	11	3	22
Future Volume (veh/h)	12	93	114	11	3	22
Initial Q (Qb), veh	0	0	0	0	0	0
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	1870	1870	1870	1870
Adj Flow Rate, veh/h	17	133	163	16	4	31
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	250	360	375	37	50	385
Arrive On Green	0.22	0.22	0.22	0.22	0.28	0.28
Sat Flow, veh/h	125	1610	1676	165	179	1388
Grp Volume(v), veh/h	150	0	0	179	36	0
Grp Sat Flow(s),veh/h/ln	1735	0	0	1841	1612	0
Q Serve(g_s), s	0.0	0.0	0.0	1.5	0.3	0.0
Cycle Q Clear(g_c), s	1.5	0.0	0.0	1.5	0.3	0.0
Prop In Lane	0.11			0.09	0.11	0.86
Lane Grp Cap(c), veh/h	611	0	0	412	447	0
V/C Ratio(X)	0.25	0.00	0.00	0.43	0.08	0.00
Avail Cap(c_a), veh/h	2315	0	0	2194	1742	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	5.9	0.0	0.0	6.0	4.8	0.0
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.7	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.0	0.3	0.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	6.1	0.0	0.0	6.7	4.9	0.0
LnGrp LOS	A	A	A	A	A	A
Approach Vol, veh/h		150	179		36	
Approach Delay, s/veh		6.1	6.7		4.9	
Approach LOS		A	A		A	

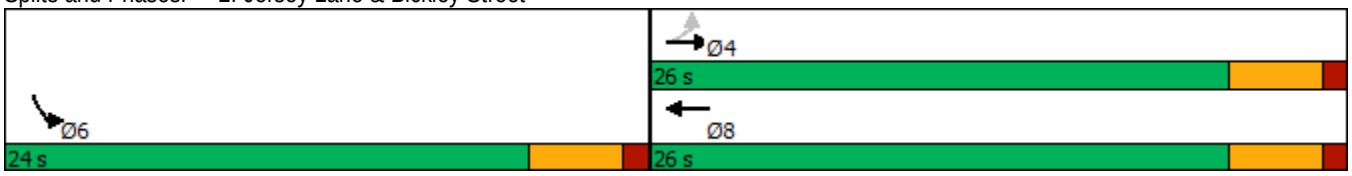
Timer - Assigned Phs		4		6		8
Phs Duration (G+Y+Rc), s		8.5		9.5		8.5
Change Period (Y+Rc), s		4.5		4.5		4.5
Max Green Setting (Gmax), s		21.5		19.5		21.5
Max Q Clear Time (g_c+I1), s		3.5		2.3		3.5
Green Ext Time (p_c), s		0.7		0.1		0.9

Intersection Summary	
HCM 6th Ctrl Delay	6.3
HCM 6th LOS	A

Lane Group	EBL	EBT	WBT	SBL
Lane Configurations				
Traffic Volume (vph)	17	111	76	4
Future Volume (vph)	17	111	76	4
Turn Type	Perm	NA	NA	Prot
Protected Phases		4	8	6
Permitted Phases	4			
Detector Phase	4	4	8	6
Switch Phase				
Minimum Initial (s)	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5
Total Split (s)	26.0	26.0	26.0	24.0
Total Split (%)	52.0%	52.0%	52.0%	48.0%
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0	0.0
Total Lost Time (s)		4.5	4.5	4.5
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	None	None	None	Min
Act Effct Green (s)		8.1	7.8	12.1
Actuated g/C Ratio		0.37	0.35	0.55
v/c Ratio		0.32	0.20	0.03
Control Delay		6.6	5.5	4.2
Queue Delay		0.0	0.0	0.0
Total Delay		6.6	5.5	4.2
LOS		A	A	A
Approach Delay		6.6	5.5	4.3
Approach LOS		A	A	A

Intersection Summary	
Cycle Length: 50	
Actuated Cycle Length: 22	
Natural Cycle: 45	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.32	
Intersection Signal Delay: 6.0	Intersection LOS: A
Intersection Capacity Utilization 25.1%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 2: Jersey Lane & Bickley Street



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	17	111	76	4	4	16
Future Volume (veh/h)	17	111	76	4	4	16
Initial Q (Qb), veh	0	0	0	0	0	0
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	1870	1870	1870	1870
Adj Flow Rate, veh/h	27	179	123	6	6	26
Peak Hour Factor	0.62	0.62	0.62	0.62	0.62	0.62
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	262	367	398	19	82	354
Arrive On Green	0.23	0.23	0.23	0.23	0.28	0.28
Sat Flow, veh/h	163	1628	1769	86	295	1280
Grp Volume(v), veh/h	206	0	0	129	33	0
Grp Sat Flow(s),veh/h/ln	1791	0	0	1855	1625	0
Q Serve(g_s), s	0.6	0.0	0.0	1.0	0.3	0.0
Cycle Q Clear(g_c), s	1.8	0.0	0.0	1.0	0.3	0.0
Prop In Lane	0.13			0.05	0.18	0.79
Lane Grp Cap(c), veh/h	629	0	0	418	450	0
V/C Ratio(X)	0.33	0.00	0.00	0.31	0.07	0.00
Avail Cap(c_a), veh/h	2326	0	0	2207	1754	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	6.1	0.0	0.0	5.8	4.8	0.0
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.4	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.0	0.2	0.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	6.4	0.0	0.0	6.2	4.9	0.0
LnGrp LOS	A	A	A	A	A	A
Approach Vol, veh/h		206	129		33	
Approach Delay, s/veh		6.4	6.2		4.9	
Approach LOS		A	A		A	

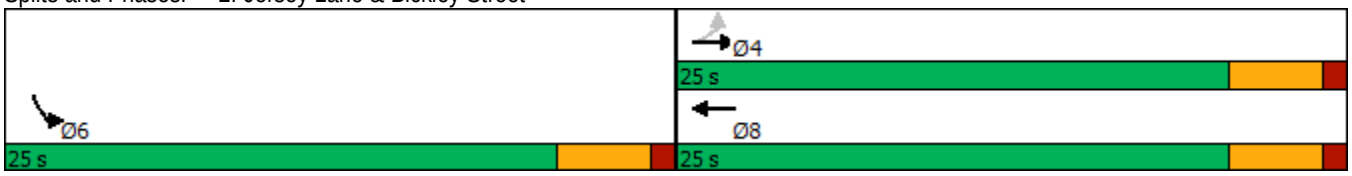
Timer - Assigned Phs		4		6		8
Phs Duration (G+Y+Rc), s		8.6		9.5		8.6
Change Period (Y+Rc), s		4.5		4.5		4.5
Max Green Setting (Gmax), s		21.5		19.5		21.5
Max Q Clear Time (g_c+I1), s		3.8		2.3		3.0
Green Ext Time (p_c), s		1.0		0.0		0.6

Intersection Summary	
HCM 6th Ctrl Delay	6.2
HCM 6th LOS	A

Lane Group	EBL	EBT	WBT	SBL
Lane Configurations				
Traffic Volume (vph)	22	109	131	8
Future Volume (vph)	22	109	131	8
Turn Type	Perm	NA	NA	Prot
Protected Phases		4	8	6
Permitted Phases	4			
Detector Phase	4	4	8	6
Switch Phase				
Minimum Initial (s)	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5
Total Split (s)	25.0	25.0	25.0	25.0
Total Split (%)	50.0%	50.0%	50.0%	50.0%
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0	0.0
Total Lost Time (s)		4.5	4.5	4.5
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	None	None	None	Min
Act Effct Green (s)		7.8	7.8	9.6
Actuated g/C Ratio		0.33	0.33	0.41
v/c Ratio		0.34	0.35	0.08
Control Delay		7.5	6.8	3.9
Queue Delay		0.0	0.0	0.0
Total Delay		7.5	6.8	3.9
LOS		A	A	A
Approach Delay		7.5	6.8	3.9
Approach LOS		A	A	A

Intersection Summary	
Cycle Length: 50	
Actuated Cycle Length: 23.6	
Natural Cycle: 45	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.35	
Intersection Signal Delay: 6.7	Intersection LOS: A
Intersection Capacity Utilization 30.5%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 2: Jersey Lane & Bickley Street



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	22	109	131	21	8	32
Future Volume (veh/h)	22	109	131	21	8	32
Initial Q (Qb), veh	0	0	0	0	0	0
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	1870	1870	1870	1870
Adj Flow Rate, veh/h	31	156	187	30	11	46
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	267	333	377	60	84	350
Arrive On Green	0.24	0.24	0.24	0.24	0.27	0.27
Sat Flow, veh/h	161	1391	1573	252	308	1287
Grp Volume(v), veh/h	187	0	0	217	58	0
Grp Sat Flow(s),veh/h/ln	1552	0	0	1825	1623	0
Q Serve(g_s), s	0.3	0.0	0.0	1.9	0.5	0.0
Cycle Q Clear(g_c), s	2.2	0.0	0.0	1.9	0.5	0.0
Prop In Lane	0.17			0.14	0.19	0.79
Lane Grp Cap(c), veh/h	600	0	0	437	441	0
V/C Ratio(X)	0.31	0.00	0.00	0.50	0.13	0.00
Avail Cap(c_a), veh/h	2085	0	0	2032	1807	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	6.0	0.0	0.0	6.0	5.1	0.0
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.9	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.0	0.3	0.1	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	6.3	0.0	0.0	6.9	5.2	0.0
LnGrp LOS	A	A	A	A	A	A
Approach Vol, veh/h		187	217		58	
Approach Delay, s/veh		6.3	6.9		5.2	
Approach LOS		A	A		A	

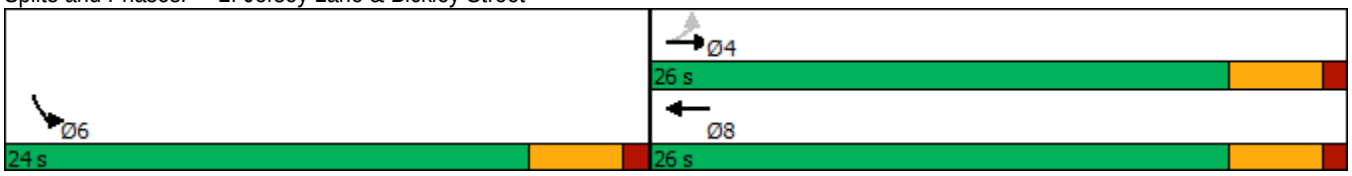
Timer - Assigned Phs		4		6		8
Phs Duration (G+Y+Rc), s		8.9		9.5		8.9
Change Period (Y+Rc), s		4.5		4.5		4.5
Max Green Setting (Gmax), s		20.5		20.5		20.5
Max Q Clear Time (g_c+I1), s		4.2		2.5		3.9
Green Ext Time (p_c), s		0.9		0.1		1.1

Intersection Summary	
HCM 6th Ctrl Delay	6.4
HCM 6th LOS	A

Lane Group	EBL	EBT	WBT	SBL
Lane Configurations				
Traffic Volume (vph)	23	120	83	7
Future Volume (vph)	23	120	83	7
Turn Type	Perm	NA	NA	Prot
Protected Phases		4	8	6
Permitted Phases	4			
Detector Phase	4	4	8	6
Switch Phase				
Minimum Initial (s)	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5
Total Split (s)	26.0	26.0	26.0	24.0
Total Split (%)	52.0%	52.0%	52.0%	48.0%
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0	0.0
Total Lost Time (s)		4.5	4.5	4.5
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	None	None	None	Min
Act Effct Green (s)		8.3	8.2	9.7
Actuated g/C Ratio		0.34	0.34	0.40
v/c Ratio		0.39	0.24	0.07
Control Delay		7.8	5.8	4.4
Queue Delay		0.0	0.0	0.0
Total Delay		7.8	5.8	4.4
LOS		A	A	A
Approach Delay		7.8	5.8	4.4
Approach LOS		A	A	A

Intersection Summary	
Cycle Length: 50	
Actuated Cycle Length: 24.1	
Natural Cycle: 45	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.39	
Intersection Signal Delay: 6.7	Intersection LOS: A
Intersection Capacity Utilization 25.9%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 2: Jersey Lane & Bickley Street



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	23	120	83	10	7	22
Future Volume (veh/h)	23	120	83	10	7	22
Initial Q (Qb), veh	0	0	0	0	0	0
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	1870	1870	1870	1870
Adj Flow Rate, veh/h	37	194	134	16	11	35
Peak Hour Factor	0.62	0.62	0.62	0.62	0.62	0.62
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	274	382	397	47	103	329
Arrive On Green	0.24	0.24	0.24	0.24	0.27	0.27
Sat Flow, veh/h	196	1574	1639	196	382	1216
Grp Volume(v), veh/h	231	0	0	150	47	0
Grp Sat Flow(s),veh/h/ln	1770	0	0	1835	1632	0
Q Serve(g_s), s	0.7	0.0	0.0	1.2	0.4	0.0
Cycle Q Clear(g_c), s	2.0	0.0	0.0	1.2	0.4	0.0
Prop In Lane	0.16			0.11	0.23	0.74
Lane Grp Cap(c), veh/h	655	0	0	445	442	0
V/C Ratio(X)	0.35	0.00	0.00	0.34	0.11	0.00
Avail Cap(c_a), veh/h	2247	0	0	2135	1723	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	6.1	0.0	0.0	5.8	5.1	0.0
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.4	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.0	0.2	0.1	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	6.4	0.0	0.0	6.2	5.2	0.0
LnGrp LOS	A	A	A	A	A	A
Approach Vol, veh/h		231	150		47	
Approach Delay, s/veh		6.4	6.2		5.2	
Approach LOS		A	A		A	

Timer - Assigned Phs		4		6		8
Phs Duration (G+Y+Rc), s		9.0		9.5		9.0
Change Period (Y+Rc), s		4.5		4.5		4.5
Max Green Setting (Gmax), s		21.5		19.5		21.5
Max Q Clear Time (g_c+I1), s		4.0		2.4		3.2
Green Ext Time (p_c), s		1.2		0.1		0.7

Intersection Summary	
HCM 6th Ctrl Delay	6.2
HCM 6th LOS	A

Intersection	
Intersection Delay, s/veh	8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	16	39	34	7	68	2	25	14	6	4	22	28
Future Vol, veh/h	16	39	34	7	68	2	25	14	6	4	22	28
Peak Hour Factor	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	24	57	50	10	100	3	37	21	9	6	32	41
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8	8.1	8	7.7
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	56%	18%	9%	7%
Vol Thru, %	31%	44%	88%	41%
Vol Right, %	13%	38%	3%	52%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	45	89	77	54
LT Vol	25	16	7	4
Through Vol	14	39	68	22
RT Vol	6	34	2	28
Lane Flow Rate	66	131	113	79
Geometry Grp	1	1	1	1
Degree of Util (X)	0.084	0.153	0.139	0.094
Departure Headway (Hd)	4.595	4.198	4.406	4.257
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	781	857	816	843
Service Time	2.615	2.211	2.421	2.276
HCM Lane V/C Ratio	0.085	0.153	0.138	0.094
HCM Control Delay	8	8	8.1	7.7
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.3	0.5	0.5	0.3

Intersection	
Intersection Delay, s/veh	8.4
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	62	26	4	36	6	24	21	8	7	11	25
Future Vol, veh/h	25	62	26	4	36	6	24	21	8	7	11	25
Peak Hour Factor	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	45	113	47	7	65	11	44	38	15	13	20	45
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.8	8.1	8.4	7.9
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	45%	22%	9%	16%
Vol Thru, %	40%	55%	78%	26%
Vol Right, %	15%	23%	13%	58%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	53	113	46	43
LT Vol	24	25	4	7
Through Vol	21	62	36	11
RT Vol	8	26	6	25
Lane Flow Rate	96	205	84	78
Geometry Grp	1	1	1	1
Degree of Util (X)	0.125	0.248	0.105	0.095
Departure Headway (Hd)	4.677	4.34	4.503	4.388
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	767	828	796	816
Service Time	2.704	2.362	2.529	2.416
HCM Lane V/C Ratio	0.125	0.248	0.106	0.096
HCM Control Delay	8.4	8.8	8.1	7.9
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.4	1	0.4	0.3

Intersection	
Intersection Delay, s/veh	8.7
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	21	55	56	11	85	2	41	23	10	4	36	33
Future Vol, veh/h	21	55	56	11	85	2	41	23	10	4	36	33
Peak Hour Factor	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	31	81	82	16	125	3	60	34	15	6	53	49
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.8	8.8	8.8	8.4
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	55%	16%	11%	5%
Vol Thru, %	31%	42%	87%	49%
Vol Right, %	14%	42%	2%	45%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	74	132	98	73
LT Vol	41	21	11	4
Through Vol	23	55	85	36
RT Vol	10	56	2	33
Lane Flow Rate	109	194	144	107
Geometry Grp	1	1	1	1
Degree of Util (X)	0.147	0.237	0.187	0.137
Departure Headway (Hd)	4.866	4.4	4.68	4.584
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	735	815	765	779
Service Time	2.91	2.435	2.719	2.628
HCM Lane V/C Ratio	0.148	0.238	0.188	0.137
HCM Control Delay	8.8	8.8	8.8	8.4
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.5	0.9	0.7	0.5

Intersection	
Intersection Delay, s/veh	9.3
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	28	71	43	7	43	6	39	34	13	7	18	28
Future Vol, veh/h	28	71	43	7	43	6	39	34	13	7	18	28
Peak Hour Factor	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	51	129	78	13	78	11	71	62	24	13	33	51
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.8	8.6	9.3	8.4
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	45%	20%	12%	13%
Vol Thru, %	40%	50%	77%	34%
Vol Right, %	15%	30%	11%	53%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	86	142	56	53
LT Vol	39	28	7	7
Through Vol	34	71	43	18
RT Vol	13	43	6	28
Lane Flow Rate	156	258	102	96
Geometry Grp	1	1	1	1
Degree of Util (X)	0.212	0.325	0.136	0.125
Departure Headway (Hd)	4.889	4.527	4.811	4.683
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	730	793	741	760
Service Time	2.942	2.57	2.864	2.742
HCM Lane V/C Ratio	0.214	0.325	0.138	0.126
HCM Control Delay	9.3	9.8	8.6	8.4
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.8	1.4	0.5	0.4

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	⋔	
Traffic Vol, veh/h	105	1	0	136	0	0
Future Vol, veh/h	105	1	0	136	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	73	50	50	80	50	50
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	144	2	0	170	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	315	145
Stage 1	-	-	-	-	145	-
Stage 2	-	-	-	-	170	-
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	-	-	0	-	678	902
Stage 1	-	-	0	-	882	-
Stage 2	-	-	0	-	860	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	678	902
Mov Cap-2 Maneuver	-	-	-	-	678	-
Stage 1	-	-	-	-	882	-
Stage 2	-	-	-	-	860	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s)	0	-	-	-
HCM Lane LOS	A	-	-	-
HCM 95th %tile Q(veh)	-	-	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	128	0	0	98	1	0
Future Vol, veh/h	128	0	0	98	1	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	50	47	47	50	50
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	154	0	0	209	2	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	-	-	363	154
Stage 1	-	-	-	-	154	-
Stage 2	-	-	-	-	209	-
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	-	0	0	-	636	892
Stage 1	-	0	0	-	874	-
Stage 2	-	0	0	-	826	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	-	-	636	892
Mov Cap-2 Maneuver	-	-	-	-	636	-
Stage 1	-	-	-	-	874	-
Stage 2	-	-	-	-	826	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	10.7
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	WBT
Capacity (veh/h)	636	-	-
HCM Lane V/C Ratio	0.003	-	-
HCM Control Delay (s)	10.7	-	-
HCM Lane LOS	B	-	-
HCM 95th %tile Q(veh)	0	-	-

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	89	4	2	125	1	0
Future Volume (Veh/h)	89	4	2	125	1	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.82	0.50	0.50	0.66	0.50	0.50
Hourly flow rate (vph)	109	8	4	189	2	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	160					
pX, platoon unblocked						
vC, conflicting volume			117		310	113
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			117		310	113
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1471		681	940

Direction, Lane #	EB 1	WB 1
Volume Total	117	193
Volume Left	0	4
Volume Right	8	0
cSH	1700	1471
Volume to Capacity	0.07	0.00
Queue Length 95th (ft)	0	0
Control Delay (s)	0.0	0.2
Lane LOS		A
Approach Delay (s)	0.0	0.2
Approach LOS		

Intersection Summary			
Average Delay	Err		
Intersection Capacity Utilization	Err%	ICU Level of Service	H
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	113	2	4	80	0	0
Future Volume (Veh/h)	113	2	4	80	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.64	0.50	0.46	0.46	0.50	0.50
Hourly flow rate (vph)	177	4	9	174	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	160					
pX, platoon unblocked			0.95		0.95	0.95
vC, conflicting volume			181		371	179
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			106		307	104
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		100	100
cM capacity (veh/h)			1405		644	900

Direction, Lane #	EB 1	WB 1
Volume Total	181	183
Volume Left	0	9
Volume Right	4	0
cSH	1700	1405
Volume to Capacity	0.11	0.01
Queue Length 95th (ft)	0	0
Control Delay (s)	0.0	0.4
Lane LOS		A
Approach Delay (s)	0.0	0.4
Approach LOS		

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	10.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	127	7	3	158	2	0
Future Volume (Veh/h)	127	7	3	158	2	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.82	0.50	0.50	0.66	0.50	0.50
Hourly flow rate (vph)	155	14	6	239	4	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	160					
pX, platoon unblocked			0.97		0.97	0.97
vC, conflicting volume			169		413	162
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			130		381	123
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		99	100
cM capacity (veh/h)			1414		601	902

Direction, Lane #	EB 1	WB 1
Volume Total	169	245
Volume Left	0	6
Volume Right	14	0
cSH	1700	1414
Volume to Capacity	0.10	0.00
Queue Length 95th (ft)	0	0
Control Delay (s)	0.0	0.2
Lane LOS		A
Approach Delay (s)	0.0	0.2
Approach LOS		

Intersection Summary			
Average Delay	Err		
Intersection Capacity Utilization	Err%	ICU Level of Service	H
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	139	3	7	102	0	0
Future Volume (Veh/h)	139	3	7	102	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.64	0.50	0.46	0.46	0.50	0.50
Hourly flow rate (vph)	217	6	15	222	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	160					
pX, platoon unblocked			0.94		0.94	0.94
vC, conflicting volume			223		472	220
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			144		408	141
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		100	100
cM capacity (veh/h)			1355		558	854

Direction, Lane #	EB 1	WB 1
Volume Total	223	237
Volume Left	0	15
Volume Right	6	0
cSH	1700	1355
Volume to Capacity	0.13	0.01
Queue Length 95th (ft)	0	1
Control Delay (s)	0.0	0.6
Lane LOS		A
Approach Delay (s)	0.0	0.6
Approach LOS		

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	14.5%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	2.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	32	25	183	0	0	189
Future Vol, veh/h	32	25	183	0	0	189
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	50	50	76	50	50	61
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	64	50	241	0	0	310

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	551	241	0	-	-	-
Stage 1	241	-	-	-	-	-
Stage 2	310	-	-	-	-	-
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	495	798	-	0	0	-
Stage 1	799	-	-	0	0	-
Stage 2	744	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	495	798	-	-	-	-
Mov Cap-2 Maneuver	495	-	-	-	-	-
Stage 1	799	-	-	-	-	-
Stage 2	744	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.5	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	WBLn1	SBT
Capacity (veh/h)	-	594	-
HCM Lane V/C Ratio	-	0.192	-
HCM Control Delay (s)	-	12.5	-
HCM Lane LOS	-	B	-
HCM 95th %tile Q(veh)	-	0.7	-

Intersection	
Int Delay, s/veh	0.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	12	12	217	0	0	152
Future Vol, veh/h	12	12	217	0	0	152
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	50	50	66	50	50	59
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	24	24	329	0	0	258

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	587	329	0	-	-	-
Stage 1	329	-	-	-	-	-
Stage 2	258	-	-	-	-	-
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	472	712	-	0	0	-
Stage 1	729	-	-	0	0	-
Stage 2	785	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	472	712	-	-	-	-
Mov Cap-2 Maneuver	472	-	-	-	-	-
Stage 1	729	-	-	-	-	-
Stage 2	785	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.9	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	WBLn1	SBT
Capacity (veh/h)	-	568	-
HCM Lane V/C Ratio	-	0.085	-
HCM Control Delay (s)	-	11.9	-
HCM Lane LOS	-	B	-
HCM 95th %tile Q(veh)	-	0.3	-

Intersection	
Int Delay, s/veh	3.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	52	41	188	0	0	209
Future Vol, veh/h	52	41	188	0	0	209
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	50	50	76	50	50	61
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	104	82	247	0	0	343

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	590	247	0	-	-	-
Stage 1	247	-	-	-	-	-
Stage 2	343	-	-	-	-	-
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	470	792	-	0	0	-
Stage 1	794	-	-	0	0	-
Stage 2	719	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	470	792	-	-	-	-
Mov Cap-2 Maneuver	470	-	-	-	-	-
Stage 1	794	-	-	-	-	-
Stage 2	719	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.3	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	WBLn1	SBT
Capacity (veh/h)	-	573	-
HCM Lane V/C Ratio	-	0.325	-
HCM Control Delay (s)	-	14.3	-
HCM Lane LOS	-	B	-
HCM 95th %tile Q(veh)	-	1.4	-

Intersection	
Int Delay, s/veh	1.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	20	20	217	0	0	154
Future Vol, veh/h	20	20	217	0	0	154
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	50	50	66	50	50	59
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	40	40	329	0	0	261

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	590	329	0	-	-	-
Stage 1	329	-	-	-	-	-
Stage 2	261	-	-	-	-	-
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	470	712	-	0	0	-
Stage 1	729	-	-	0	0	-
Stage 2	783	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	470	712	-	-	-	-
Mov Cap-2 Maneuver	470	-	-	-	-	-
Stage 1	729	-	-	-	-	-
Stage 2	783	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.4	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	WBLn1	SBT
Capacity (veh/h)	-	566	-
HCM Lane V/C Ratio	-	0.141	-
HCM Control Delay (s)	-	12.4	-
HCM Lane LOS	-	B	-
HCM 95th %tile Q(veh)	-	0.5	-

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	183	51	17	204
Future Volume (Veh/h)	0	0	183	51	17	204
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.50	0.50	0.76	0.50	0.50	0.61
Hourly flow rate (vph)	0	0	241	102	34	334
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	694	292			343	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	694	292			343	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			97	
cM capacity (veh/h)	397	747			1216	

Direction, Lane #	NB 1	SB 1
Volume Total	343	368
Volume Left	0	34
Volume Right	102	0
cSH	1700	1216
Volume to Capacity	0.20	0.03
Queue Length 95th (ft)	0	2
Control Delay (s)	0.0	1.0
Lane LOS		A
Approach Delay (s)	0.0	1.0
Approach LOS		

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	28.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	217	14	3	161
Future Volume (Veh/h)	0	0	217	14	3	161
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.50	0.50	0.66	0.50	0.50	0.59
Hourly flow rate (vph)	0	0	329	28	6	273
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	628	343			357	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	628	343			357	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	445	700			1202	

Direction, Lane #	NB 1	SB 1
Volume Total	357	279
Volume Left	0	6
Volume Right	28	0
cSH	1700	1202
Volume to Capacity	0.21	0.00
Queue Length 95th (ft)	0	0
Control Delay (s)	0.0	0.2
Lane LOS		A
Approach Delay (s)	0.0	0.2
Approach LOS		

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	15.6%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	0	7	0	0	0	2	192	84	28	239	1
Future Vol, veh/h	1	0	7	0	0	0	2	192	84	28	239	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
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	92	92	92	50	92	50	92	76	50	50	61	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	0	8	0	0	0	2	253	168	56	392	1

Major/Minor	Minor2					Major1			Major2		
Conflicting Flow All	846	930	393			393	0	0	421	0	0
Stage 1	505	505	-			-	-	-	-	-	-
Stage 2	341	425	-			-	-	-	-	-	-
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	333	267	656			1166	-	-	1138	-	-
Stage 1	606	540	-			-	-	-	-	-	-
Stage 2	720	586	-			-	-	-	-	-	-
Platoon blocked, %							-	-		-	-
Mov Cap-1 Maneuver	311	0	656			1166	-	-	1138	-	-
Mov Cap-2 Maneuver	311	0	-			-	-	-	-	-	-
Stage 1	605	0	-			-	-	-	-	-	-
Stage 2	675	0	-			-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.3	0	1
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	SBL	SBT	SBR
Capacity (veh/h)	1166	-	-	576	1138	-	-
HCM Lane V/C Ratio	0.002	-	-	0.015	0.049	-	-
HCM Control Delay (s)	8.1	-	-	11.3	8.3	0	-
HCM Lane LOS	A	-	-	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.2	-	-

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	0	5	0	0	0	8	223	23	5	178	1
Future Vol, veh/h	1	0	5	0	0	0	8	223	23	5	178	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
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	92	92	92	50	92	50	92	66	50	50	59	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	0	5	0	0	0	9	338	46	10	302	1

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	702	725	303	303	0	0	384	0	0
Stage 1	323	323	-	-	-	-	-	-	-
Stage 2	379	402	-	-	-	-	-	-	-
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	404	352	737	1258	-	-	1174	-	-
Stage 1	734	650	-	-	-	-	-	-	-
Stage 2	692	600	-	-	-	-	-	-	-
Platoon blocked, %					-	-		-	-
Mov Cap-1 Maneuver	396	0	737	1258	-	-	1174	-	-
Mov Cap-2 Maneuver	396	0	-	-	-	-	-	-	-
Stage 1	727	0	-	-	-	-	-	-	-
Stage 2	685	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.6	0.2	0.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	SBL	SBT	SBR
Capacity (veh/h)	1258	-	-	645	1174	-	-
HCM Lane V/C Ratio	0.007	-	-	0.01	0.009	-	-
HCM Control Delay (s)	7.9	-	-	10.6	8.1	0	-
HCM Lane LOS	A	-	-	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0	-	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	6	0	0	39	63	1
Future Vol, veh/h	6	0	0	39	63	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	50	50	50	50	50	50
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	0	0	78	126	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	205	127	-	0	-	0
Stage 1	127	-	-	-	-	-
Stage 2	78	-	-	-	-	-
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	783	923	0	-	-	-
Stage 1	899	-	0	-	-	-
Stage 2	945	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	783	923	-	-	-	-
Mov Cap-2 Maneuver	783	-	-	-	-	-
Stage 1	899	-	-	-	-	-
Stage 2	945	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.7	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	783	-	-
HCM Lane V/C Ratio	-	0.015	-	-
HCM Control Delay (s)	-	9.7	-	-
HCM Lane LOS	-	A	-	-
HCM 95th %tile Q(veh)	-	0	-	-

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	7	0	0	46	41	0
Future Vol, veh/h	7	0	0	46	41	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	50	50	50	50	50	50
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	14	0	0	92	82	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	174	82	-	0	-	0
Stage 1	82	-	-	-	-	-
Stage 2	92	-	-	-	-	-
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	816	978	0	-	-	0
Stage 1	941	-	0	-	-	0
Stage 2	932	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	816	978	-	-	-	-
Mov Cap-2 Maneuver	816	-	-	-	-	-
Stage 1	941	-	-	-	-	-
Stage 2	932	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.5	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT
Capacity (veh/h)	-	816	-
HCM Lane V/C Ratio	-	0.017	-
HCM Control Delay (s)	-	9.5	-
HCM Lane LOS	-	A	-
HCM 95th %tile Q(veh)	-	0.1	-

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	10	0	0	64	103	2
Future Vol, veh/h	10	0	0	64	103	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	50	50	50	50	50	50
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	20	0	0	128	206	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	336	208	-	0	-	0
Stage 1	208	-	-	-	-	-
Stage 2	128	-	-	-	-	-
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	659	832	0	-	-	-
Stage 1	827	-	0	-	-	-
Stage 2	898	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	659	832	-	-	-	-
Mov Cap-2 Maneuver	659	-	-	-	-	-
Stage 1	827	-	-	-	-	-
Stage 2	898	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.6	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	659	-	-
HCM Lane V/C Ratio	-	0.03	-	-
HCM Control Delay (s)	-	10.6	-	-
HCM Lane LOS	-	B	-	-
HCM 95th %tile Q(veh)	-	0.1	-	-

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	11	0	0	75	68	0
Future Vol, veh/h	11	0	0	75	68	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	50	50	50	50	50	50
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	22	0	0	150	136	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	286	136	-	0	-	0
Stage 1	136	-	-	-	-	-
Stage 2	150	-	-	-	-	-
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	704	913	0	-	-	0
Stage 1	890	-	0	-	-	0
Stage 2	878	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	704	913	-	-	-	-
Mov Cap-2 Maneuver	704	-	-	-	-	-
Stage 1	890	-	-	-	-	-
Stage 2	878	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.3	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT
Capacity (veh/h)	-	704	-
HCM Lane V/C Ratio	-	0.031	-
HCM Control Delay (s)	-	10.3	-
HCM Lane LOS	-	B	-
HCM 95th %tile Q(veh)	-	0.1	-

APPENDIX D

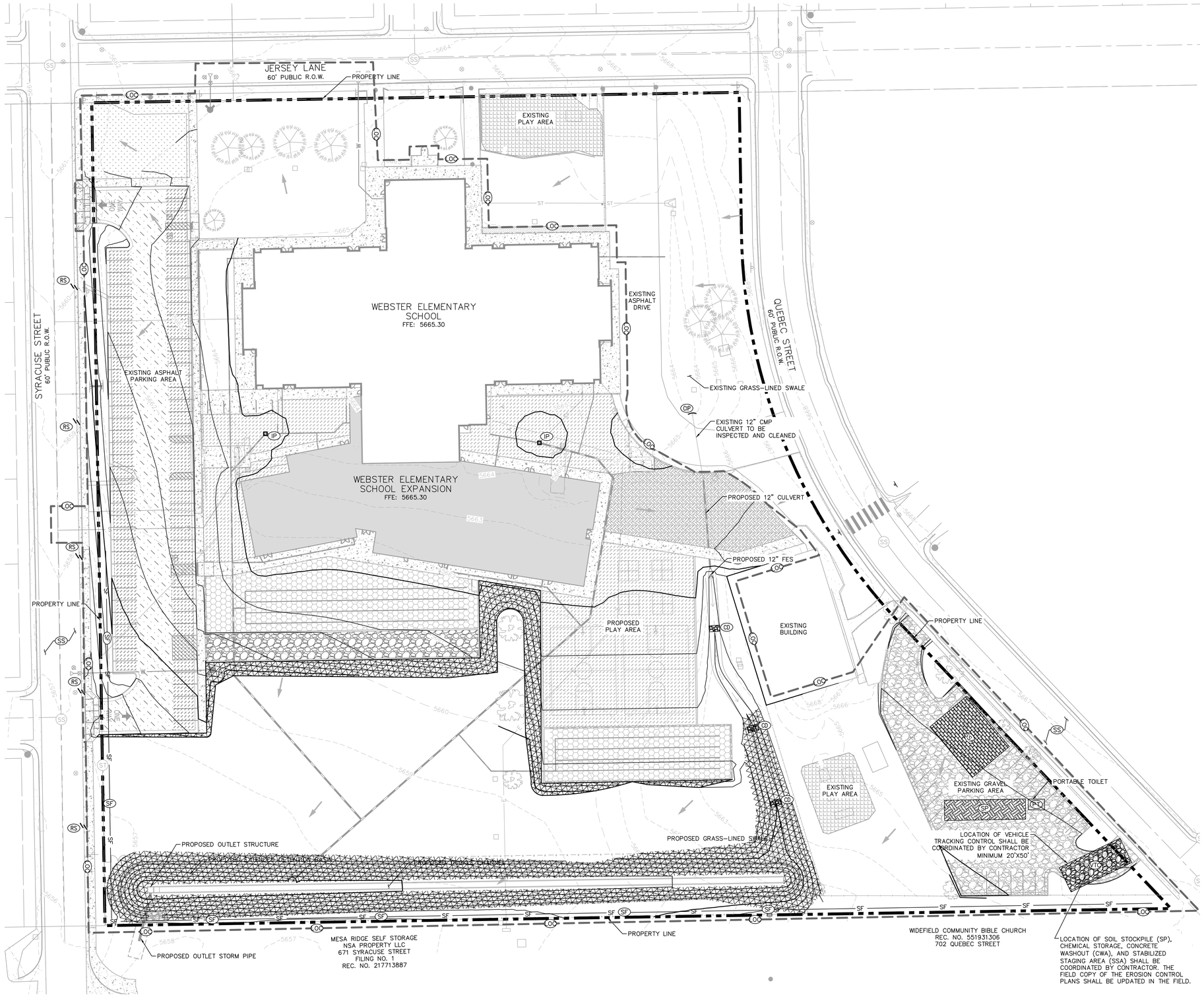
Conceptual Site Plan

LEGEND

- PROPERTY LINE
- 6550 — EXISTING MAJOR CONTOUR
- 6551 — EXISTING MINOR CONTOUR
- 6550 — PROPOSED MAJOR CONTOUR
- 6551 — PROPOSED MINOR CONTOUR
- LOC — LIMITS OF CONSTRUCTION/DISTURBANCE
- SF — SILT FENCE
- EASEMENT
- S — EXISTING SANITARY SEWER
- W — EXISTING WATER LINE
- EXISTING STORM SEWER PIPE
- FO — EXISTING FIBER OPTIC LINE
- G — EXISTING GAS LINE
- OH — EXISTING OVERHEAD ELECTRIC LINE
- O — EXISTING BARBED WIRE FENCE
- RS — ROCK SOCKS PER UDFCD DETAIL SC-5
- SSA — STABILIZED STAGING AREA
- CWA — CONCRETE WASHOUT
- VTC — VEHICLE TRACKING CONTROL
- SP — SOIL STOCKPILE
- ECB — EROSION CONTROL BLANKET
- IP — INLET PROTECTION
- CIP — CULVERT INLET PROTECTION
- EXISTING FLOW DIRECTION ARROW
- PROPOSED FLOW DIRECTION ARROW
- SS — STREET SWEEPING AND VACUUMING PER UDFCD DETAIL SM-7
- DC — DUST CONTROL PER UDFCD DETAIL EC-14
- FINAL STABILIZATION. (REFERENCE FINAL LANDSCAPING PLANS)

NOTES

1. THE INTENT OF THIS PLAN IS TO IDENTIFY THE EROSION CONTROL PRACTICES RECOMMENDED. THE CONTRACTOR SHALL REFERENCE ADDITIONAL CONSTRUCTION PLANS FOR DEMOLITION OF EXISTING AND CONSTRUCTION OF PROPOSED IMPROVEMENTS.
2. ADJACENT STREETS AND SIDEWALK SHALL BE KEPT CLEAN AND FREE OF SEDIMENT AND/OR DEBRIS AT ALL TIMES. CONTRACTOR SHALL PERFORM STREET SWEEPING AT ALL TIMES DURING ACTIVE TRACKING AND AT A MINIMUM ON A DAILY BASIS AT THE END OF EACH CONSTRUCTION DAY.
3. TEMPORARY STABILIZATION (TS) SHALL BE IMPLEMENTED WITHIN THE DISTURBED PORTIONS OF THE PROJECT SITE NO LATER THAN 14 DAYS FOLLOWING THE CEASE OF CONSTRUCTION ACTIVITIES WITHIN THE DISTURBED AREAS.
4. PERMANENT STABILIZATION (PS) MAY BE USED WITHIN AREAS OF TEMPORARY STABILIZATION (TS) AT THE CONTRACTOR'S DISCRETION. STABILIZATION SHALL BE APPLIED IN ACCORDANCE WITH APPLICABLE TEMPORARY STABILIZATION SEQUENCING REQUIREMENTS.
5. CONTRACTOR SHALL UTILIZE ROLLED EROSION CONTROL PRODUCTS ON ALL SLOPES 3H:1V OR GREATER TO ACHIEVE REQUIRED STABILIZATION.
6. CONTRACTOR SHALL MAINTAIN ACCEPTABLE EROSION CONTROL PRACTICES WITHIN THE ANTICIPATED LIMITS OF CONSTRUCTION IDENTIFIED HEREIN. BEST MANAGEMENT PRACTICES AND STABILIZATION SHALL BE COMPLETED AS IDENTIFIED HEREIN IN ACCORDANCE WITHIN OWNER REQUIREMENTS.
7. ALL WORK IN THE SYRACUSE STREET, JERSEY LANE, AND QUEBEC STREET ROW REQUIRES A ROW PERMIT FROM COLORADO SPRINGS. CONTRACTOR IS RESPONSIBLE FOR APPLYING FOR AND OBTAINING ALL NECESSARY ROW PERMITS.
8. CONTRACTOR SHALL REFER TO THE APPROVED GEOTECHNICAL REPORT FOR OVEREXCAVATION REQUIREMENTS AND ADDITIONAL INFORMATION.
9. SILT FENCE TO BE INSTALLED PRIOR TO COMMENCEMENT OF ONSITE GRADING AND CONSTRUCTION ACTIVITIES.
10. DEMOLITION, REMOVAL AND SOIL TREATMENT SHALL BE IN ACCORDANCE WITH THE GEOTECHNICAL ENGINEER RECOMMENDATIONS AS NOTED IN THE APPROVED PROJECT GEOTECHNICAL REPORT.
11. CONTRACTOR TO NOTE PROXIMITY OF EXISTING IMPROVEMENTS ADJACENT TO THE SITE AND PROVIDE NECESSARY MEASURES TO PROTECT ALL FACILITIES AND STRUCTURES IN PLACE.
12. CONTRACTOR SHALL MAINTAIN STABILIZED STAGING AREA (SSA), VEHICLE TRACKING CONTROL (VTC), AND CONCRETE WASHOUT AREA (CWA) AT THE CONSTRUCTION ENTRANCE AT ALL TIMES. CONTRACTOR SHALL UPDATE THE EROSION CONTROL PLAN IN THE FIELD TO INDICATE THE LOCATION OF THE SSA, VTC, AND CWA BMPS AS EXCAVATION SEQUENCING DICTATES.
13. CONTRACTOR MAY SUBSTITUTE SEDIMENT CONTROL LOGS (SCL) FOR SILT FENCE (SF) AS PERIMETER CONTROL, DEPENDING UPON SITE CONDITIONS. SCL, AND SF MAY BE INTERCHANGED DEPENDING ON SITE CONDITIONS.
14. CONTRACTOR SHALL OBTAIN R.O.W. PERMITS FOR ANY R.O.W. CLOSURES.
15. SEE FINAL LANDSCAPING PLAN IN THE DEVELOPMENT PLAN FOR FINAL STABILIZATION MEASURES.



LKA PARTNERS INCORPORATED
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430 North Tejon Street Suite 208
Colorado Springs Colorado 80903
tele: 719.473.8446 fax: 719.473.8448
web: www.lkapartners.com

Kimley»Horn
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2885 CROWN POINT BOULEVARD
COLORADO SPRINGS, COLORADO 80922 (719) 453-0180

Webster Elementary School Addition and Alterations

445 Jersey Lane, Colorado Springs, CO 80911

Widefield School District 3
1820 Main Street
Colorado Springs, CO. 80911

WIDEFIELD SCHOOL DISTRICT 3
PRIDE. TRADITION. INNOVATION.

PRELIMINARY
FOR REVIEW ONLY
NOT FOR CONSTRUCTION
Kimley»Horn
Kimley-Horn and Associates, Inc.

Bid Set
Not for Construction

Drawn:	JAR
Checked:	EJG
Issued:	24 November 2021
Revised: 1	ADD-01, Dec 10, 2021

Area Key Plan

NORTH

GRAPHIC SCALE IN FEET
0 15 30 60

FINAL EROSION CONTROL PLAN – ALT BID

C9.3

Project No. 21-003
The LKA Partners Incorporated

ENG-PPR22009-R1_Traffic Impact Study.pdf Markup Summary

CDurham (49)

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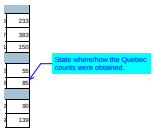

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State where/how the Quebec counts were obtained.

Subject: Text Box
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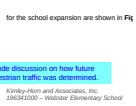
Date: 3/15/2022 1:48:08 PM
Status:
Color:
Layer:
Space:

Include discussion on how driveway volumes were distributed to each drive.



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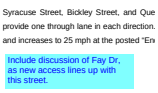
Include discussion on how future pedestrian traffic was determined.



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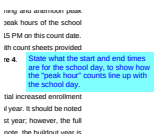
Include discussion of Fay Dr, as new access lines up with this street.



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Date: 3/15/2022 10:25:53 AM
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State what the start and end times are for the school day, to show how the "peak hour" counts line up with the school day.

6)

189(152)

25

32

Subject: Highlight
Page Label: 23
Author: CDurham
Date: 3/15/2022 10:39:47 AM
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17(3)

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204(161

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51(14)

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83(217)

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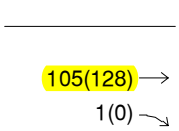
136(98



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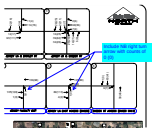

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Date: 3/15/2022 10:45:55 AM
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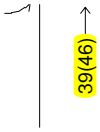
Space:

Include NB right turn arrow with counts of 0 (0)



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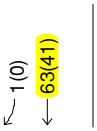

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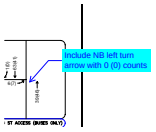

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Include NB left turn arrow with 0 (0) counts

Subject: Callout
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Author: CDurham
Date: 3/15/2022 10:48:29 AM
Status:
Color:
Layer:
Space:

Include WB left turn arrow with counts of 0 (0)

125(80)
2(4)

Subject: Highlight
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Author: CDurham
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25(80)

89(113)
4(2)

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89(113)

9
189(152)

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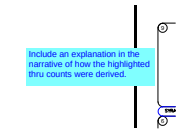
189(152)



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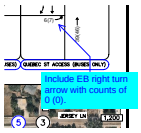
Page Label: 23
Author: CDurham
Date: 3/15/2022 11:01:40 AM
Status:
Color:
Layer:
Space:

Include an explanation in the narrative of how the highlighted thru counts were derived.



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Author: CDurham
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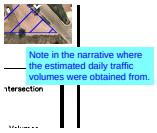
Include EB right turn arrow with counts of 0 (0).



Subject: Text Box
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Date: 3/15/2022 11:04:53 AM
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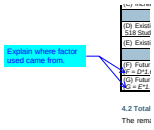
Note in the narrative where the estimated daily traffic volumes were obtained from.



Subject: Callout
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Date: 3/15/2022 12:56:25 PM
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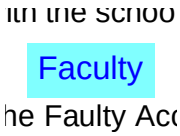
Explain where factor used came from.



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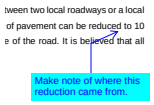
Faculty



Subject: Callout
Page Label: 32
Author: CDurham
Date: 3/15/2022 2:07:15 PM
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Color:
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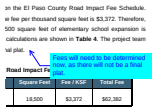
Make note of where this reduction came from.



Subject: Callout
Page Label: 36
Author: CDurham
Date: 3/15/2022 2:13:04 PM
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Color:
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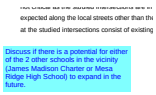
Fees will need to be determined now, as there will not be a final plat.



Subject: Text Box
Page Label: 22
Author: CDurham
Date: 3/15/2022 2:35:36 PM
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Color:
Layer:
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Discuss if there is a potential for either of the 2 other schools in the vicinity (James Madison Charter or Mesa Ridge High School) to expand in the future.

Subject: Text Box
Page Label: 22
Author: CDurham
Date: 3/15/2022 2:36:14 PM
Status:
Color:
Layer:
Space:

Discuss pedestrian and bicycle access.

Discuss if any other traffic studies, within the last 5 years, had been performed in the area.

Subject: Text Box
Page Label: 5
Author: CDurham
Date: 3/15/2022 2:36:52 PM
Status:
Color:
Layer:
Space:

Discuss if any other traffic studies, within the last 5 years, had been performed in the area.

Figure 5 – 2022 Total Vehicle Traffic Volumes....
Figure 6 – 2022 Total Pedestrian Volumes .....
Figure 7 – Roadway Classification Map .....
Figure 8 – Potential Improvements.....

Include a circulation exhibit that identifies the queue length, drop-off/pick-up zone & stacking length

Subject: Text Box
Page Label: 4
Author: CDurham
Date: 3/15/2022 2:42:38 PM
Status:
Color:
Layer:
Space:

Include a circulation exhibit that identifies the queue length, drop-off/pick-up zone & stacking length

---

Figure 8 – Potential Improvements.....

Include a pedestrian/bicycle circulation plan.

Subject: Text Box
Page Label: 4
Author: CDurham
Date: 3/15/2022 2:43:20 PM
Status:
Color:
Layer:
Space:

Include a pedestrian/bicycle circulation plan.

Include an exhibit for sight distance.

Subject: Text Box
Page Label: 4
Author: CDurham
Date: 3/15/2022 2:43:49 PM
Status:
Color:
Layer:
Space:

Include an exhibit for sight distance.

Include exhibit for directional distribution of Site-Generate Traffic.

Subject: Text Box
Page Label: 4
Author: CDurham
Date: 3/15/2022 2:44:49 PM
Status:
Color:
Layer:
Space:

Include exhibit for directional distribution of Site-Generate Traffic.

Elementary School Expa

Discuss if there are any anticipated deviations.

Subject: Text Box
Page Label: 36
Author: CDurham
Date: 3/15/2022 3:01:35 PM
Status:
Color:
Layer:
Space:

Discuss if there are any anticipated deviations.

Subject: Text Box
Page Label: 32
Author: CDurham
Date: 3/15/2022 3:02:07 PM
Status:
Color:
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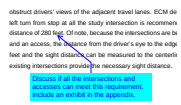
Discuss if all intersections meet spacing requirements.



Subject: Callout
Page Label: 32
Author: CDurham
Date: 3/15/2022 3:03:08 PM
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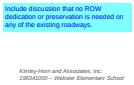
Discuss if all the intersections and accesses can meet this requirement. Include an exhibit in the appendix.



Subject: Text Box
Page Label: 32
Author: CDurham
Date: 3/15/2022 3:03:33 PM
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Color:
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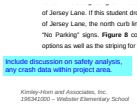
Include discussion that no ROW dedication or preservation is needed on any of the existing roadways.



Subject: Text Box
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Date: 3/15/2022 3:36:45 PM
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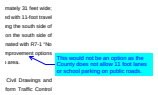
Include discussion on safety analysis, any crash data within project area.



Subject: Callout
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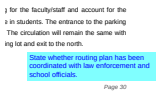
This would not be an option as the County does not allow 11 foot lanes or school parking on public roads.



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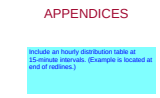
State whether routing plan has been coordinated with law enforcement and school officials.



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Author: CDurham
Date: 3/15/2022 3:49:37 PM
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Include an hourly distribution table at 15-minute intervals. (Example is located at end of redlines.)

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Author: CDurham
Date: 3/15/2022 3:53:41 PM
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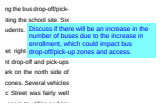
Include discussion on where traffic is being generated from. Is the majority of the students within a 2-mile radius, indicating that there will be more daily traffic, or is there a large percentage of students outside of the 2-mile radius and being bused in?



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Page Label: 35
Author: CDurham
Date: 3/15/2022 3:54:35 PM
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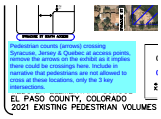
Discuss if there will be an increase in the number of buses due to the increase in enrollment, which could impact bus drop-off/pick-up zones and access.



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Author: CDurham
Date: 3/15/2022 3:56:52 PM
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Pedestrian counts (arrows) crossing Syracuse, Jersey & Quebec at access points, remove the arrows on the exhibit as it implies there could be crossings here. Include in narrative that pedestrians are not allowed to cross at these locations, only the 3 key intersections.

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Author: CDurham
Date: 3/15/2022 4:02:05 PM
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As this is for a school site, traffic analysis needs to be done per North Carolina DOT MSTA School Traffic Calculator (copy of spreadsheet output will be provided at end of redlines.)

Subject: Text Box
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Author: CDurham
Date: 3/15/2022 4:05:11 PM
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Include a discussion on the queueing length under existing and proposed conditions. Queueing lengths for school should be based on a 15-minute peak. Use North Carolina MSTA School Traffic Calculator for queueing. Based on data generated by spreadsheet, additional factor of safety may need to be used. County will be looking for an extremely realistic analysis.

County suggests setting up a meeting to discuss once the comments have been received.

Copy of spreadsheet can be found here: https://connect.ncdot.gov/municipalities/school/pages.default.aspx

e improvements should be incorp
s of the El Paso County and the
2009 Edition.

will be

Subject: Callout
Page Label: 7
Author: CDurham
Date: 3/15/2022 4:11:07 PM
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will be

Table 3
Hourly Distribution

	Middle School (Grades 6-8)		High School (Grades 9-12)	
Time	**IN**	**OUT**	**IN**	**OUT**
7:15 AM	40%	40%	0%	0%
7:30 AM	60%	60%	10%	0%
7:45 AM	0%	0%	45%	40%
8:00 AM	0%	0%	45%	60%
1:45 PM	0%	0%	0%	0%
2:00 PM	25%	0%	0%	0%
2:15 PM	50%	5%	5%	0%
2:30 PM	20%	60%	10%	0%
2:45 PM	5%	30%	45%	20%
3:00 PM	0%	5%	35%	60%
3:15 PM	0%	0%	5%	15%
3:30 PM	0%	0%	0%	5%
2:15-3:15 PM	Percentage			
	75%	100%	95%	80%
	Vehicles Per Hour			
	107	168	200	247

Source:LSC Transportation Consultants, Inc.