



TRAFFIC IMPACT STUDY

RIVERSIDE DRIVE APARTMENTS

RENO, NEVADA

APNS: 010-590-01 AND 02, 010-591-01 AND 02, 010-592-01 TO 06, 010-593-01 TO 06, 010-594-01 TO 06, 010-595-01 TO 06, 010-601-01 TO 06, 010-602-01 TO 04, 010-603-01-04 AND 010-604-01

Prepared for:

BUILT

3600 Mayberry Drive
Reno, Nevada 89509

Prepared by:

Kimley»Horn

February 2024

192437000

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TRAFFIC IMPACT STUDY

FOR

RIVERSIDE DRIVE APARTMENTS

Prepared for:

BUILT

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Reno, Nevada 89509



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EXECUTIVE SUMMARY

The purpose of this traffic study is to identify traffic generation characteristics of a proposed mid-rise multifamily housing development, identify potential traffic related impacts on the surrounding street network, and develop mitigation measures required for identified impacts.

The proposed Riverside Apartments is to be generally located on Riverside Drive approximately 250 feet west of Booth Street on 3.85 Acres within the following APNs in Reno, Nevada:

- 010-590-01 and 02
- 010-591-01 and 02
- 010-592-01 to 06
- 010-593-01 to 06
- 010-594-01 to 06
- 010-595-01 to 06
- 010-601-01 to 06
- 010-602-01 to 04
- 010-603-01-04
- 010-604-01

Upon completion, the buildout of the proposed development is anticipated to consist of a 180-unit apartment building.

Regional access to the project site is expected to be provided via Interstate 80 (I-80). Primary access to the project site is anticipated to be from Riverside Drive. Direct access to the project site is planned to be provided by one (1) full access drive located on Riverside Drive. As a part of this study the following three (5) key intersections were analyzed:

- Keystone Avenue and West 1st Street (#1)
- Keystone Avenue and Jones Street (#2)
- Jones Street and Project Access Alleyway (#3)
- Riverside Drive and Booth Street (#4)
- Booth Street and Idlewild Drive (#5)

The scope from the City of Reno is provided in **Appendix A**. The study area intersections and project access drive are shown in **Figure E-1**. Full buildout of the development is expected to generate approximately 802 daily weekday trips, with 67 of these trips occurring during the morning peak hour and 70 trips occurring during the evening peak hour.

The proposed multifamily development traffic is anticipated to generate traffic volumes resulting in the following recommendations:

- The developer is recommended to install an R1-1 “STOP” sign with appropriate pavement markings for the egressing access drive on to Riverside Drive.
- All on-site and off-site signing and striping improvements should be incorporated into the Civil Drawings and conform to the current Manual on Uniform Traffic Control Devices (MUTCD), as applicable.
- The project is not anticipated to have significant impacts to the key study intersections and the surrounding street network.
- Projects of a greater size could be pursued at this location by restricting project traffic from egressing onto Jones Street.



SOURCE: NEARMAP US, INC.

STUDY INTERSECTIONS

1. KEYSTONE AVENUE AND WEST FIRST STREET
2. KEYSTONE AVENUE AND JONES STREET
3. JONES STREET AND PROJECT ACCESS ALLEYWAY
4. RIVERSIDE DRIVE AND BOOTH STREET
5. BOOTH STREET AND IDLEWILD DRIVE

LEGEND:

- ① Study Area Key Intersection
- Ⓐ Project Access Drive

RIVERSIDE DRIVE APARTMENTS STUDY AREA INTERSECTIONS AND PROJECT ACCESS DRIVES

Date: December 19, 2023 - 11:02am / User: Alex.Tang
Path: C:\Users\ALEX~1\TAN\AppData\Local\Temp\AcPublish_10904\RiversideDrive Apartments Figures - 11x17.dwg / Xref:

FIGURE E-1
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1. INTRODUCTION

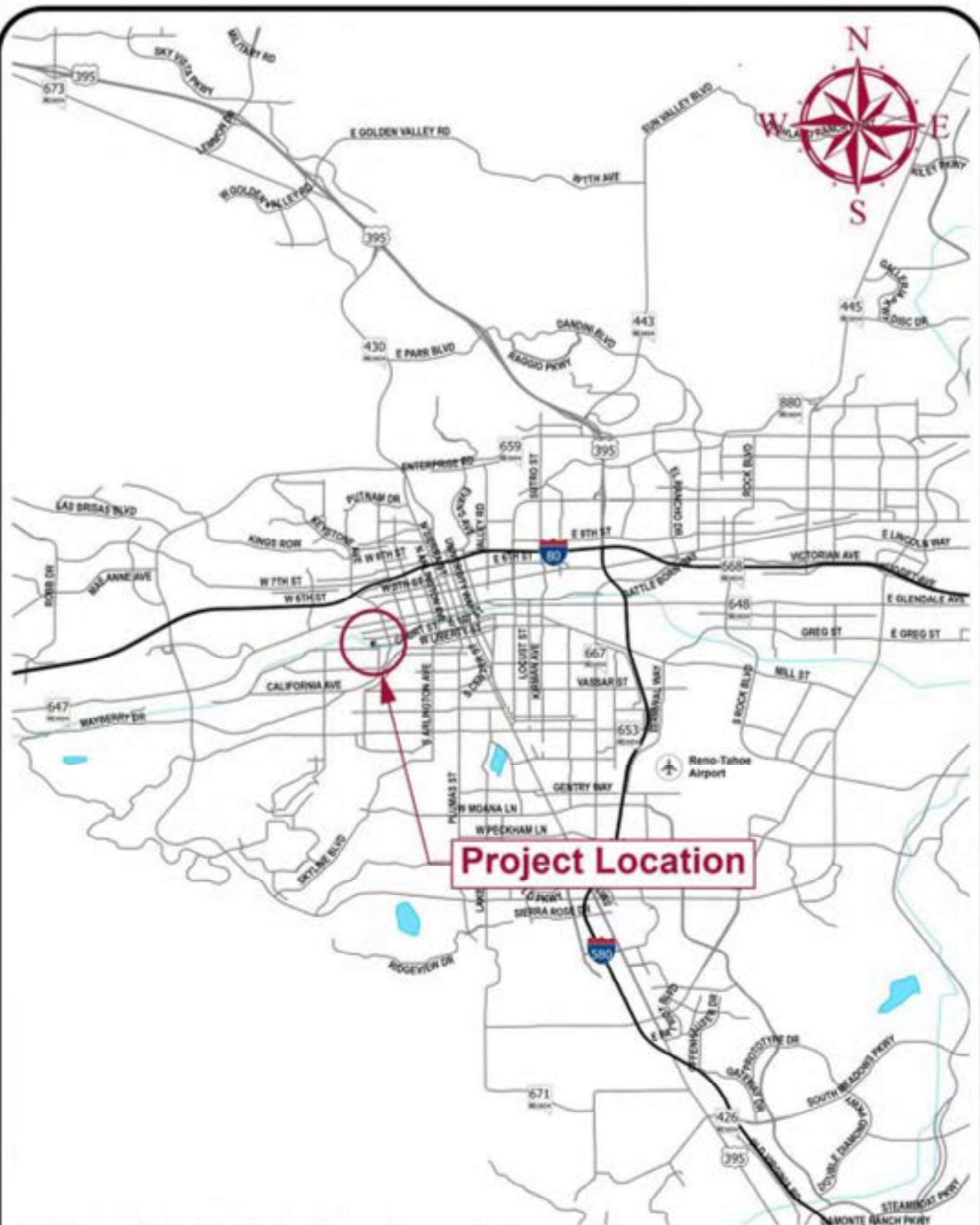
Kimley-Horn and Associates, Inc. has been retained by BUILT. to prepare a traffic impact study for a five-story apartment building. The purpose of this traffic impact study is to identify traffic generation characteristics of the proposed development, identify potential traffic related impacts on the local street system, and develop mitigation measures required for the identified impacts.

The proposed Riverside Apartments is to be generally located on Riverside Drive approximately 250 feet west of Booth Street on 3.85 Acres within the following APNs in Reno, Nevada:

- 01059001 and 02
- 01059101 and 02
- 01059201 to 06
- 01059301 to 06
- 01059401 to 06
- 01059501 to 06
- 01060101 to 06
- 01060201 to 04
- 0106030104
- 01060401

Upon completion, the buildout of the proposed development is anticipated to consist of a 180-unit apartment building. The location of the project site with respect to the City of Reno is shown on **Figure 1** and a site plan is provided in **Appendix B**.

Regional access to the project site is expected to be provided via Interstate 80 (I-80). Primary access to the project site is anticipated to be from Riverside Drive. Direct access to the project site is planned to be provided by one (1) full access drive located on Riverside Drive.



**Riverside Drive Apartments
Vicinity Map**

Figure 1

2. EXISTING CONDITIONS

This section of the report details existing conditions near the project site.

2.1. Study Area Intersections

As a part of this study the following three (5) key intersections were analyzed:

- Keystone Avenue and West 1st Street (#1)
- Keystone Avenue and Jones Street (#2)
- Jones Street and Project Access Alleyway (#3)
- Riverside Drive and Booth Street (#4)
- Booth Street and Idlewild Drive (#5)

2.2. Existing Land Uses

The location for the proposed apartment is currently undeveloped. The area surrounding the project site is composed primarily of residential and public facility land uses. The location of the project site and study area intersections are shown on **Figure 2**.

2.3. Existing Lane Configurations and Control

Regional access to the project site is expected to be provided via Interstate 80 (I-80). Primary access to the project site is anticipated to be from Riverside Drive. Direct access to the project site is planned to be provided by one (1) full access drive located on Riverside Drive. Existing lane configuration and intersection control at the time of this study are illustrated in **Figure 2**.

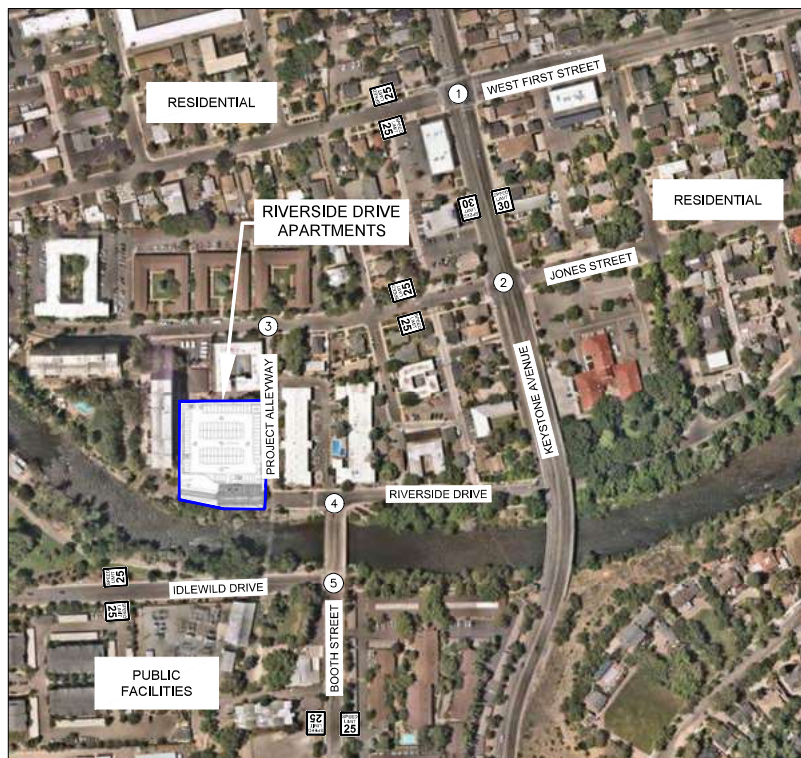
2.4. Existing Turning Movements

AM and PM peak hour turning movement data was field counted on November 15, 2023, as summarized in **Table 1**, for the study area intersections identified in **Section 2.1**. Count data sheets are provided in **Appendix C**.

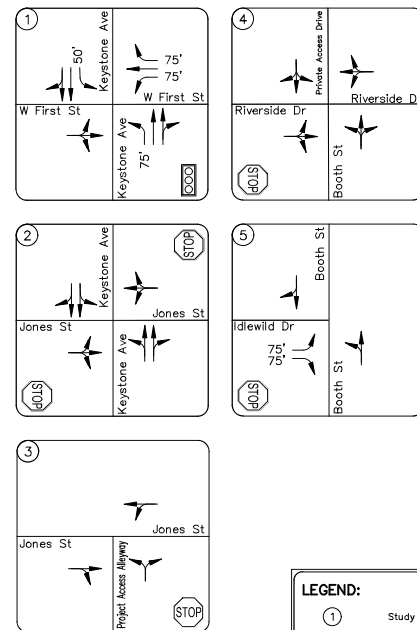
Table 1 – Peak Hour Turning Movement Count Dates

Intersection	Count Date
Keystone Avenue and West 1 st Street (#1)	Wednesday, November 15, 2023
Keystone Avenue and Jones Street (#2)	Wednesday, November 15, 2023
Jones Street and Project Access Alleyway (#3)	Wednesday, November 15, 2023
Riverside Drive and Booth Street (#4)	Wednesday, November 15, 2023
Booth Street and Idlewild Drive (#5)	Wednesday, November 15, 2023

Figure 3 illustrates the 2023 existing peak hour traffic volumes.



SOURCE: NEARMAP US, INC.



LEGEND:

- ① Study Area Key Intersection
- 25 Roadway Speed Limit
- Signal Controlled Approach
- STOP Stop Controlled Approach
- XXX' Storage Bay Length

RIVERSIDE DRIVE APARTMENTS 2023 EXISTING LANE CONFIGURATION AND CONTROL

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RIVERSIDE DRIVE APARTMENTS 2023 EXISTING PEAK HOUR TRAFFIC VOLUMES

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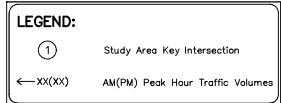
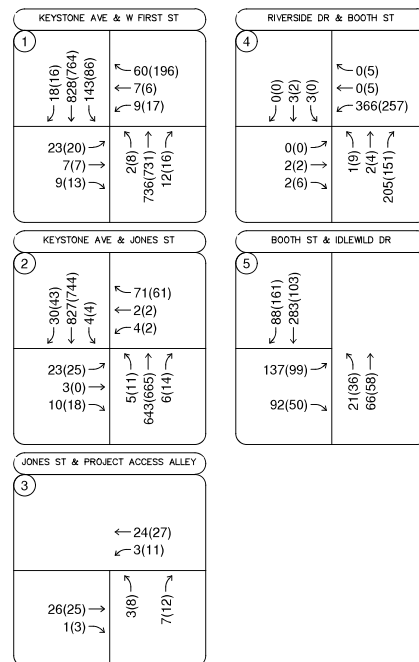


FIGURE 3
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3. FUTURE CONDITIONS

This section of the report details the conditions that are expected in the future at the time the proposed project is anticipated to be completed.

3.1. Background Lane Configuration and Control

Regional access to the project site is expected to be provided via Interstate 80 (I-80). Primary access to the project site is anticipated to be from Riverside Drive. Direct access to the project site is planned to be provided by one (1) full access drive located on Riverside Drive. Speed limits, lane configuration, and intersection control in 2025 illustrated in **Figure 4** are anticipated to remain the same as 2023 existing lane configuration and intersection control illustrated in **Figure 2**.

3.2. Buildout Background Traffic

To accurately determine the impact of project traffic, it is necessary to establish future baseline traffic volumes along roadways in the vicinity of the proposed development site.

Forecasted traffic volumes for 2020 and 2050 were obtained using the Regional Transportation Commission (RTC) – Washoe Travel Demand Model (TDM) 2050 Model Output. Traffic volumes were obtained for 2020 and 2050 at the approaches of each study area intersection to determine an annual growth rate for each approach. The annual growth rates were used to grow 2023 existing turning movement counts for the 2020 background year. The growth rate factors are summarized in **Table 2**. The 2020 background peak hour traffic volumes at the key intersections are illustrated in **Figure 5**.

Table 2 – 2050 Growth Rate Summary

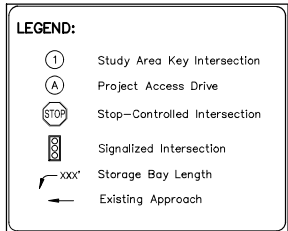
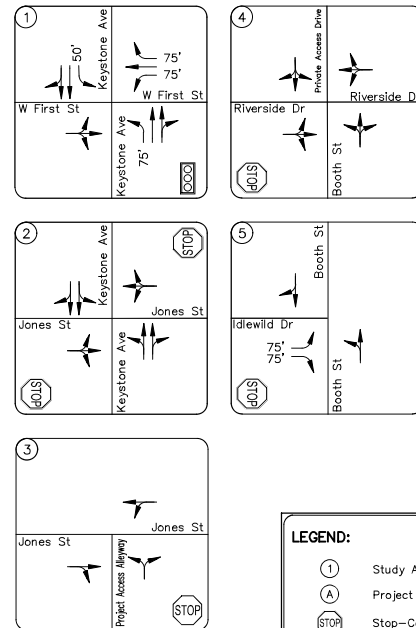
Intersection Location	Approach	2020 Volumes (Vehicles)	2050 Volumes (Vehicles)	Annual Growth Rate
Keystone Avenue and West 1st Street (#1)	Northbound	8,220	9,610	0.52%
	Southbound	11,127	13,550	0.66%
	Eastbound	5,571	4,462	-0.74%*
	Westbound	4,232	4,433	0.15%
Keystone Avenue and Jones Street (#2)	Northbound	8,220	9,610	0.52%
	Southbound	8,220	9,610	0.52%
Jones Street and Project Access Alleyway (#3)	Northbound	-	-	-
	Eastbound	-	-	-
	Westbound	-	-	-
Riverside Drive and Booth Street (#4)	Northbound	4,770	5,296	0.35%
	Westbound	4,712	5,246	0.36%
Idlewild Drive and Booth Street (#5)	Northbound	0	4	-
	Southbound	4,770	5,296	0.35%
	Eastbound	4,770	5,291	0.35%

Source: RTC Travel Demand Model 2050 Model Output

*A growth rate of 0% was used for a conservative analysis.



SOURCE: NEARMAP US, INC.



RIVERSIDE DRIVE APARTMENTS 2025 BACKGROUND LANE CONFIGURATION AND CONTROL

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FIGURE 4
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SOURCE: NEARMAP US, INC.

KEYSTONE AVE & W FIRST ST		RIVERSIDE DR & BOOTH ST	
1	18(16) ← 839(774) → 145(87)	60(197) ← 7(6) → 9(17)	0(5) ← 0(5) → 369(259)
23(20) ← 7(7) → 9(13)	2(8) ← 744(739) → 12(16)	0(0) ← 2(2) → 2(6)	1(9) ← 2(4) → 208(162)
KEYSTONE AVE & JONES ST		BOOTH ST & IDLEWILD DR	
2	30(43) ← 836(752) → 4(4)	71(61) ← 2(2) → 4(2)	88(162) ← 285(104) →
23(25) ← 3(0) → 10(18)	5(11) ← 650(672) → 6(14)	138(100) ← 93(50) →	21(36) ← 66(58) →
JONES ST & PROJECT ACCESS ALLEY		3	
		← 24(27) → 3(11)	
26(25) ← 1(3) →	3(8) ← 7(12) →		

LEGEND:	
1	Study Area Key Intersection
← XX(X) →	AM(PM) Peak Hour Traffic Volumes

RIVERSIDE DRIVE APARTMENTS
2025 BACKGROUND PEAK HOUR TRAFFIC VOLUMES

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3.3. Project Trip Generation

For purposes of estimating the number of new trips that are anticipated to be generated by the proposed residential development, the Institute of Transportation Engineers (ITE) Trip Generation Manual, 11th Edition (ITE Land Use Code 221 – Multifamily Housing Mid-Rise, Not Close to Rail Transit) was used. The ITE Trip Generation Manual informational report is a standard reference used by jurisdictions throughout the country and is based on actual trip generation studies performed at numerous locations in areas of various populations.

The project is expected to consist of 180 dwelling units. **Table 3** summarizes the estimated project trips. The proposed development is anticipated to generate 802 daily weekday trips, with 67 of these trips occurring during the morning peak hour and 70 trips occurring during the evening peak hour. Calculations are provided in **Appendix D**.

Table 3 – Trip Generation

ITE Code	Description	Size	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
221	Multifamily Housing (Mid-Rise, Not Close to Rail Transit)	180 Dwelling Units	15	52	67	43	27	70	802

Source: ITE Trip Generation Manual, 11th Edition

3.4. Project Trip Distribution

The study area street network characteristics, including the existing traffic patterns, expected street network, and access to regional facilities (I-80) were used to determine the distribution of site generated traffic. The directional distribution of traffic is a means to quantify the percentage of site-generated traffic that approaches the site from a given direction and departs the site in the same or different direction. **Figure 6** shows the trip distribution at the study area intersections and the project access drive.

3.5. Traffic Assignment

Project traffic assignment was obtained by applying the project trip distribution to the estimated traffic generation of the development shown in **Table 3**. Project traffic assignment is shown in **Figure 7** for the development.

The entering and exiting trips at the project access drive are rounded to the nearest whole number when assigned. Therefore, the number of trips assigned to the project driveway may differ slightly from the total trip generation.

3.6. Buildout Traffic Volumes

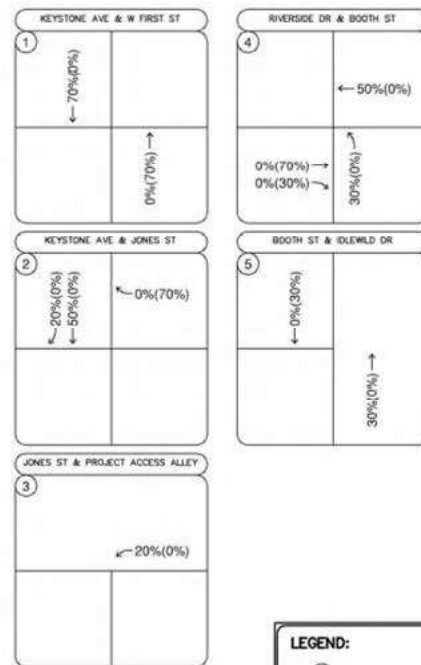
The project generated traffic volumes shown in **Figure 7** were added to the 2025 background traffic volumes illustrated in **Figure 5** to represent estimated traffic conditions for full project development in 2025. The 2025 background plus project peak hour traffic volumes for the study area intersections and the project access drive are illustrated in **Figure 8**.



SOURCE: NEARMAP US, INC.

RIVERSIDE DRIVE APARTMENTS PROJECT TRIP DISTRIBUTION

Date: December 19, 2023 - 12:21pm / User: Alex.Tang
 Path: C:\Users\alex.tang\KH\Glocomin, David - Reno Civil\192437 - BUILT\000 - Riverside Drive Apartments\Figures\Dwg Files\Riverside Drive Apartments Figures - 11x17.dwg / Xref:



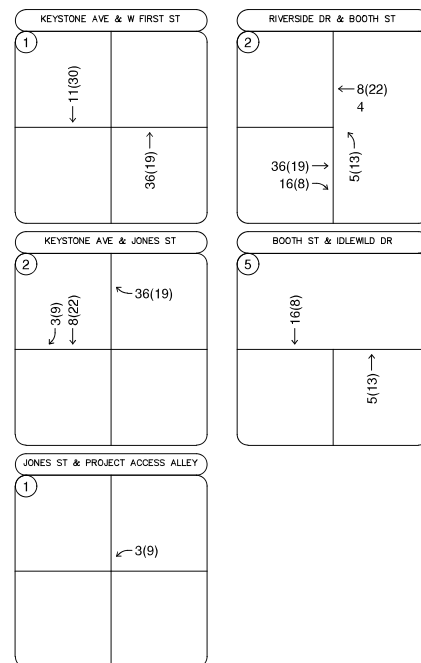
LEGEND:

- ① Study Area Key Intersection
- Ⓐ Project Access Drive
- ← XXX (XXX) IN(OUT) Peak Hour Trip Distribution
- ←-XXX-→ Global Peak Hour Trip Distribution

FIGURE 6
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SOURCE: NEARMAP US, INC.



LEGEND:

① Study Area Key Intersection

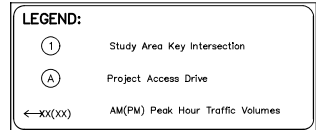
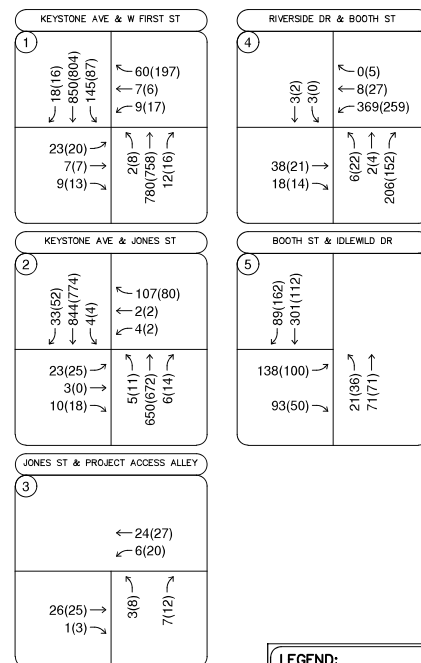
← XX(XX) AM(PM) Peak Hour Traffic Volumes

RIVERSIDE DRIVE APARTMENTS
PROJECT TRIP ASSIGNMENT

Date: January 11, 2024 - 4:44pm / User: Alex.Tang
Path: C:\Users\alex.tang\KH\Glacomin, David - Reno Civil\192437 - BUILT\000 - Riverside Drive Apartments\Figures\Dwg Files\Riverside Drive Apartments Figures - 11x17.dwg / Xref:



SOURCE: NEARMAP US, INC.



RIVERSIDE DRIVE APARTMENTS
2025 BACKGROUND PLUS PROJECT PEAK HOUR TRAFFIC VOLUMES

4. TRAFFIC IMPACT ANALYSIS

Traffic analyses for 2023 existing, 2025 background, and 2025 background plus project scenarios were conducted at the identified key intersections to determine possible existing and/or future deficiencies in the street network.

4.1. Analysis Methodology

Study area intersections were analyzed based on average total delay analysis for signalized and unsignalized intersections presented in the Transportation Research Board's "Highway Capacity Manual" 6th Edition (HCM 6). Under the unsignalized analysis, the level of service (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 a signalized or four-way stop controlled intersection is defined for the intersection as a whole. **Table 4** shows the definition of LOS for intersections.

Table 4 – 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, 6th Edition, Transportation Research Board.

Synchro 11 was used to analyze the study area intersections and driveways for LOS. Synchro is an interactive computer program that enables planners and engineers to forecast the traffic impacts of new developments; conduct area-wide traffic forecasting studies; test different mitigation measures and compare different traffic scenarios. Synchro 11 utilizes HCM 6 methodology to analyze intersection delay and LOS.

4.2. Key Intersection Operational Analysis

Calculations for the LOS at the key intersections are provided in **Appendix E**. The 2023 existing analysis is based on the lane geometry and intersection control shown in **Figure 2**. The 2025 background and 2025 background plus project analyses are based on the lane geometry and intersection control shown in **Figure 4**. It should be noted that the signalized intersection (Intersection #1) was analyzed using optimized cycle lengths and splits. The results of the Key Intersection LOS Analysis for existing and horizon year conditions are summarized in **Table 5**.

Table 5 – Key Intersection Peak Hour LOS Analysis

Intersection	2023 Existing		2025 Background		2025 Background Plus Project	
	AM	PM	AM	PM	AM	PM
	Delay (LOS)	Delay (LOS)	Delay (LOS)	Delay (LOS)	Delay (LOS)	Delay (LOS)
Keystone Avenue and West 1st Street (#1) Signalized	27.3 (C)	30.1 (C)	27.5 (C)	30.1 (C)	28.2 (C)	30.5 (C)
Keystone Avenue and Jones Street (#2) Two-Way Stop Control Northbound Left Southbound Left Eastbound Left/Through/Right Westbound Left/Through/Right	0 (A) 9.5 (A) 78.3 (F) 16.6 (C)	9.8 (A) 9.3 (A) 36.3 (E) 13.9 (B)	10.8 (B) 9.5 (A) 82.6 (F) 16.9 (C)	9.8 (A) 9.3 (A) 37.1 (E) 14.0 (B)	0 (A) 9.5 (A) 94.7 (F) 16.9 (C)	0 (A) 9.3 (A) 40.2 (E) 13.9 (B)
Jones Street and Project Access Alleyway (#3) Two-Way Stop Control Northbound Left/Right Westbound Left	8.7 (A) 7.3 (A)	8.8 (A) 7.3 (A)	8.7 (A) 7.3 (A)	8.8 (A) 7.3 (A)	8.7 (A) 7.3 (A)	8.9 (A) 7.3 (A)
Riverside Drive and Booth Street (#4) Two-Way Stop Control Eastbound Left/Through/Right Westbound Left	8.6 (A) 8.4 (A)	8.4 (A) 7.7 (A)	8.6 (A) 8.4 (A)	8.4 (A) 7.7 (A)	8.9 (A) 8.4 (A)	8.5 (A) 7.7 (A)
Booth Street and Idlewild Drive (#5) Two-Way Stop Control Northbound Left Eastbound Left/Through/Right	8.9 (A) 20.8 (C)	8.0 (A) 11.7 (B)	8.4 (A) 21.0 (C)	8.4 (A) 11.7 (B)	9.0 (A) 22.3 (C)	8.0 (A) 11.9 (B)

The key intersections are expected to operate at acceptable LOS under 2023 existing, 2025 background, 2025 background plus project scenarios with the exception of the eastbound approach at Intersection #2. It should be noted that the eastbound approach is a minor approach at an unsignalized intersection which often experiences higher delays during peak periods.

4.3. Left Turn Storage Bay Analysis

Left turn storage bay analysis was conducted for signalized turning movements anticipated to be impacted by the addition of project traffic at the study area intersections as well as the intersection of the project access drive. The left turn storage bay calculations include AM and PM peak volumes. The analysis was conducted using the Synchro 11 software and HCM 6 methodology to obtain 95th percentile queues and are summarized in **Table 6** and provided with the LOS calculations in **Appendix E**.

Table 6 – Left Turn Storage Bay Analysis

Intersection	Storage Provided (ft)	2023 Existing Queue (ft)		2025 Background Queue (ft)		2025 Background Plus Project Queue (ft)	
		AM	PM	AM	PM	AM	PM
Keystone Avenue and West 1st Street (#1)							
Signalized							
Northbound Left	75'	3'	10'	3'	10'	3'	10'
Southbound Left	75'	215'	113'	218'	113'	218'	115'
Westbound Left	75'	10'	18'	10'	18'	10'	18'

The existing storage bays have adequate length to serve all analyzed scenarios during both the AM and PM peak hours with the exception of the southbound left turn movement. It should be noted that no project traffic is anticipated at the southbound left turn movement at Keystone Avenue and West 1st Street (#1).

5. CRASH DATA SUMMARY

Crash data was requested for the five (5) existing key intersection from the NDOT Safety Engineering Division for the most recent five-year period (January 1, 2016 – December 31, 2020). The crash data for the study intersections is summarized in **Table 7**. A detailed summary is included in **Appendix F**. The intersection crashes include those crashes on both the major and minor streets of the key intersections during the four-year analysis period.

Table 7 – Crash Data Summary

Intersection Name	Total Crashes	Property Damage Only	Injury	Fatal
Keystone Avenue and West 1st Street (#1)	8	3 (38%)	5 (63%)	0 (0%)
Keystone Avenue and Jones Street (#2)	14	10 (71%)	4 (29%)	0 (0%)
Jones Street and Project Alleyway (#3)	0	0 (0%)	0 (0%)	0 (0%)
Riverside Drive and Booth Street (#4)	6	2 (33%)	4 (67%)	0 (0%)
Idlewild Drive and Booth Street (#5)	7	4 (57%)	3 (43%)	0 (0%)
Total	35	19 (54%)	16 (46%)	0 (0%)

A total of 35 crashes were recorded at the five (5) intersections in the most recent four-year period. Those 35 crashes resulted in 16 injury crashes (46%) and 19 property damage only crashes (54%). There no fatal crashes reported across the five (5) study intersections.

6. CONCLUSIONS/RECOMMENDATIONS

The proposed development traffic is anticipated to generate traffic volumes resulting in the following recommendations:

- The developer is recommended to install an R1-1 “STOP” sign with appropriate pavement markings for the egressing access drive on to Riverside Drive.
- All on-site and off-site signing and striping improvements should be incorporated into the Civil Drawings and conform to the current Manual on Uniform Traffic Control Devices (MUTCD), as applicable.
- The project is not anticipated to have significant impacts to the key study intersections and the surrounding street network.
- Projects of a greater size could be pursued at this location by restricting project traffic from egressing onto Jones Street.

APPENDIX A

CITY OF RENO SCOPE

Tang, Alex

From: Todd Landry <LandryT@reno.gov>
Sent: Tuesday, November 14, 2023 11:16 AM
To: Giacomini, David
Cc: Tang, Alex; Waechter, Chris; Michael Mischel
Subject: RE: Traffic Study Scope Request

Hi David,

Per your email below and our phone conversation this morning, we are good with your revised scope of intersections to be studied.

Thanks,
Todd

From: Giacomini, David <david.giacomini@kimley-horn.com>
Sent: Tuesday, November 14, 2023 11:14 AM
To: Todd Landry <LandryT@reno.gov>
Cc: Tang, Alex <Alex.Tang@kimley-horn.com>; Waechter, Chris <Chris.Waechter@kimley-horn.com>; Michael Mischel <MischelM@reno.gov>
Subject: RE: Traffic Study Scope Request

Todd – following up on our call, please confirm that you concur with the following intersections for analysis in the TIS.

- Jones Street and Project Alley
- Jones Street and Keystone Avenue
- Riverside Drive and Booth Street
- Keystone Avenue and 1st Street
- Booth Street and Idlewild Drive

Thank you,

David J Giacomini, P.E., PTOE, RSP,
Kimley-Horn | 7900 Rancharrah Parkway, Suite 100, Reno, NV 89511
Direct: 775 200 1981 | Mobile: 651 497 8220

From: Giacomini, David
Sent: Monday, November 13, 2023 3:25 PM
To: Michael Mischel <mischelm@reno.gov>
Cc: Tang, Alex <Alex.Tang@kimley-horn.com>; Waechter, Chris <Chris.Waechter@kimley-horn.com>
Subject: Traffic Study Scope Request

Mike,

We are working on a proposed multifamily housing (mid-rise) development located along Riverside Drive within APN 010-590-01 (and interior parcels). Full buildout of the development is anticipated to consist of 180 dwelling units. According to the ITE Trip Generation Manual, 11th Edition (ITE Land Use Code 221 – Multifamily Housing (Mid-Rise)) the proposed development is anticipated to generate 817 daily trips, 67 AM peak hour trips, and 70 PM peak hour trips.

Can you please confirm the following intersections to be studied (7-9 AM, 4-6 PM):

- Project Access Drive(s)
- Jones Street and Project Alley
- Jones Street and Boyd Place
- Jones Street and Keyston Avenue
- Riverside Drive and Booth Street

Please let me know if you concur.

Thank you,

David J Giacomini, P.E., PTOE, RSP,

Kimley-Horn | 7900 Rancharran Parkway, Suite 100, Reno, NV 89511

Direct: 775 200 1981 | Mobile: 651 497 8220

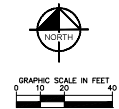
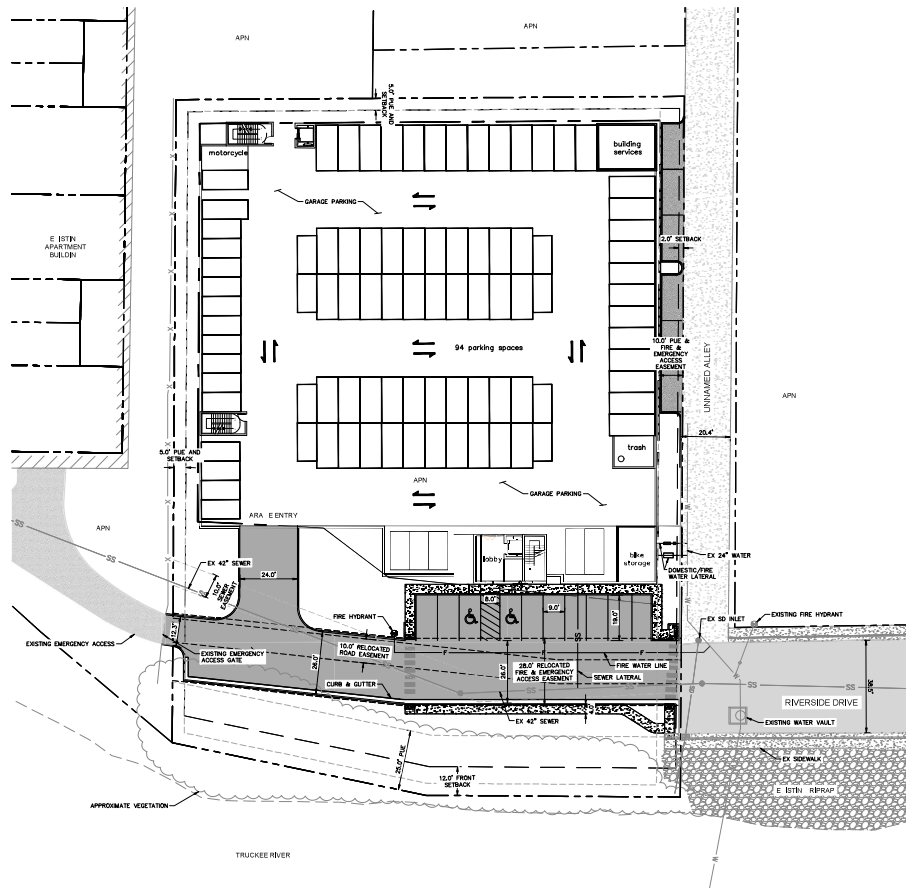
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APPENDIX B

SITE PLAN

RIVERSIDE DRIVE
PRELIMINARY SITE PLAN E HIBIT
DECEMBER



NOTE: THIS PLAN IS CONCEPTUAL IN NATURE AND HAS BEEN PRODUCED WITHOUT THE BENEFIT OF A SURVEY

Kimley»Horn
S R P
R N

APPENDIX C

COUNT DATA

Keystone Avenue and 1st Street - TMC

Wed Nov 15, 2023

Full Length (7 AM-9 AM, 4 PM-6 PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 1134208, Location: 39.523347, -119.825321

Provided by: Kimley-Horn and Associates, Inc.

767 Eustis Street, Suite 100,
Saint Paul, MN, 55114, US

Leg Direction	Keystone Avenue Northbound						Keystone Avenue Southbound						West 1st Street Eastbound						West 1st Street Westbound						
Time	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	Int
2023-11-15 7:00AM	8	728	3	0	739	1	15	854	120	0	989	1	7	6	21	0	34	1	68	8	9	0	85	2	1847
8:00AM	23	493	4	0	520	1	13	563	138	0	714	0	6	9	18	0	33	0	78	6	9	0	93	1	1360
9:00AM	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:00PM	14	655	15	0	684	2	21	712	98	0	831	6	13	7	25	0	45	2	166	9	11	0	186	3	1746
5:00PM	17	724	5	0	746	2	15	706	69	1	791	0	5	4	18	0	27	1	169	11	16	0	196	1	1760
Total	62	2600	27	0	2689	6	64	2835	426	1	3326	7	31	26	82	0	139	4	481	34	45	0	560	7	6714
% Approach	2.3%	96.7%	1.0%	0%	-	-	1.9%	85.2%	12.8%	0%	-	-	22.3%	18.7%	59.0%	0%	-	-	85.9%	6.1%	8.0%	0%	-	-	-
% Total	0.9%	38.7%	0.4%	0%	40.1%	-	1.0%	42.2%	6.3%	0%	49.5%	-	0.5%	0.4%	1.2%	0%	2.1%	-	7.2%	0.5%	0.7%	0%	8.3%	-	-
Lights	60	2562	27	0	2649	-	63	2791	422	1	3277	-	30	24	81	0	135	-	470	31	41	0	542	-	6603
% Lights	96.8%	98.5%	100%	0%	98.5%	-	98.4%	98.4%	99.1%	100%	98.5%	-	96.8%	92.3%	98.8%	0%	97.1%	-	97.7%	91.2%	91.1%	0%	96.8%	-	98.3%
Articulated Trucks	0	3	0	0	3	-	0	3	1	0	4	-	0	0	0	0	0	-	0	0	1	0	1	-	8
% Articulated Trucks	0%	0.1%	0%	0%	0.1%	-	0%	0.1%	0.2%	0%	0.1%	-	0%	0%	0%	0%	0%	-	0%	0%	2.2%	0%	0.2%	-	0.1%
Buses and Single-Unit Trucks	2	35	0	0	37	-	1	41	3	0	45	-	0	0	1	0	1	-	10	1	3	0	14	-	97
% Buses and Single-Unit Trucks	3.2%	1.3%	0%	0%	1.4%	-	1.6%	1.4%	0.7%	0%	1.4%	-	0%	0%	1.2%	0%	0.7%	-	2.1%	2.9%	6.7%	0%	2.5%	-	1.4%
Bicycles on Road	0	0	0	0	0	-	0	0	0	0	0	-	1	2	0	0	3	-	1	2	0	0	3	-	6
% Bicycles on Road	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	3.2%	7.7%	0%	0%	2.2%	-	0.2%	5.9%	0%	0%	0.5%	-	0.1%
Pedestrians	-	-	-	-	-	5	-	-	-	-	-	6	-	-	-	-	-	3	-	-	-	-	-	7	
% Pedestrians	-	-	-	-	-	83.3%	-	-	-	-	-	85.7%	-	-	-	-	-	75.0%	-	-	-	-	-	100%	-
Bicycles on Crosswalk	-	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	16.7%	-	-	-	-	-	14.3%	-	-	-	-	-	25.0%	-	-	-	-	-	0%	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Keystone Avenue and 1st Street - TMC

Wed Nov 15, 2023

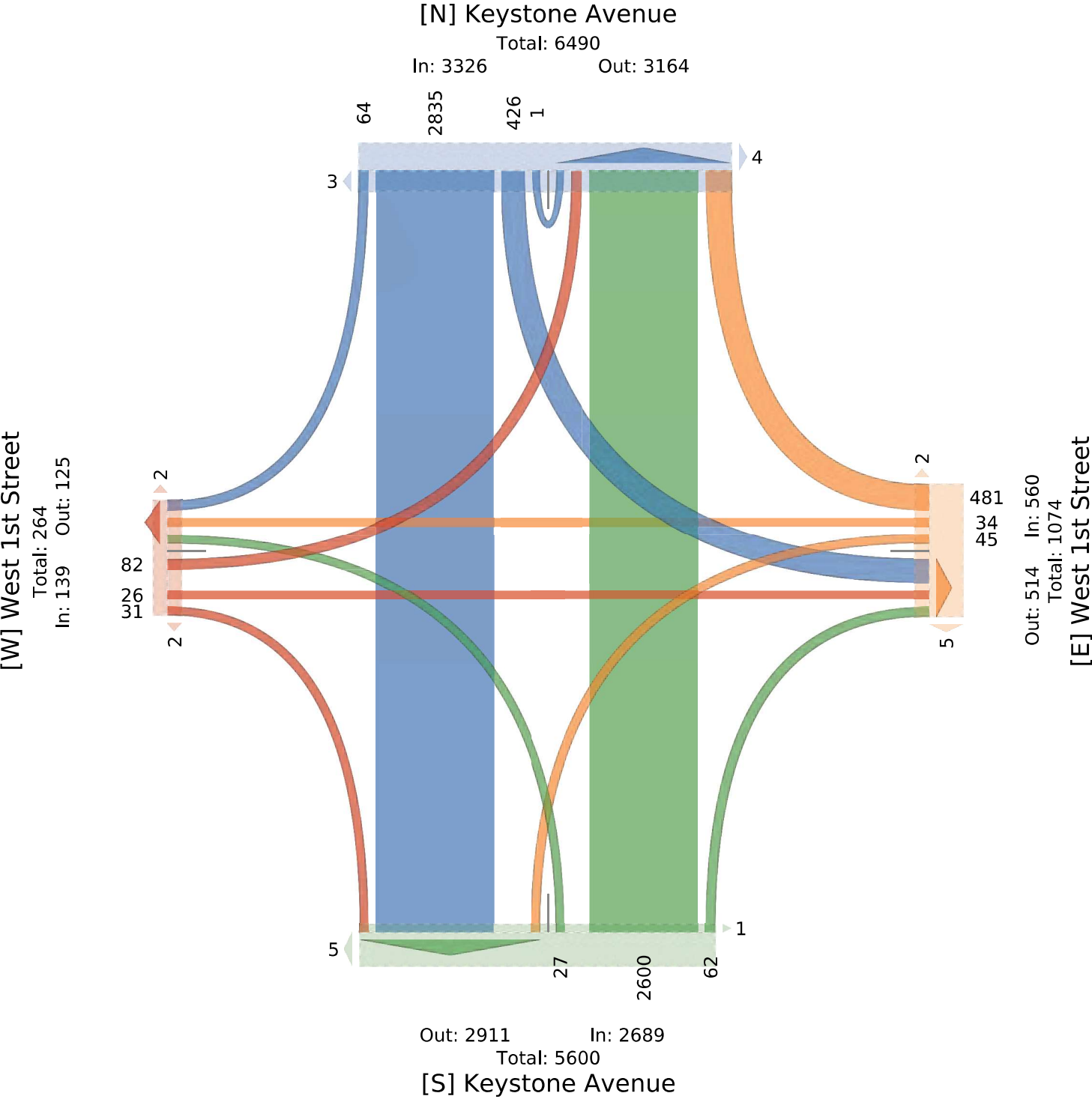
Full Length (7 AM-9 AM, 4 PM-6 PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 1134208, Location: 39.523347, -119.825321

Provided by: Kimley-Horn and Associates, Inc.
767 Eustis Street, Suite 100,
Saint Paul, MN, 55114, US



Keystone Avenue and 1st Street - TMC

Wed Nov 15, 2023

AM Peak (7:15 AM - 8:15 AM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 1134208, Location: 39.523347, -119.825321

Provided by: Kimley-Horn and Associates,

Inc.

767 Eustis Street, Suite 100,

Saint Paul, MN, 55114, US

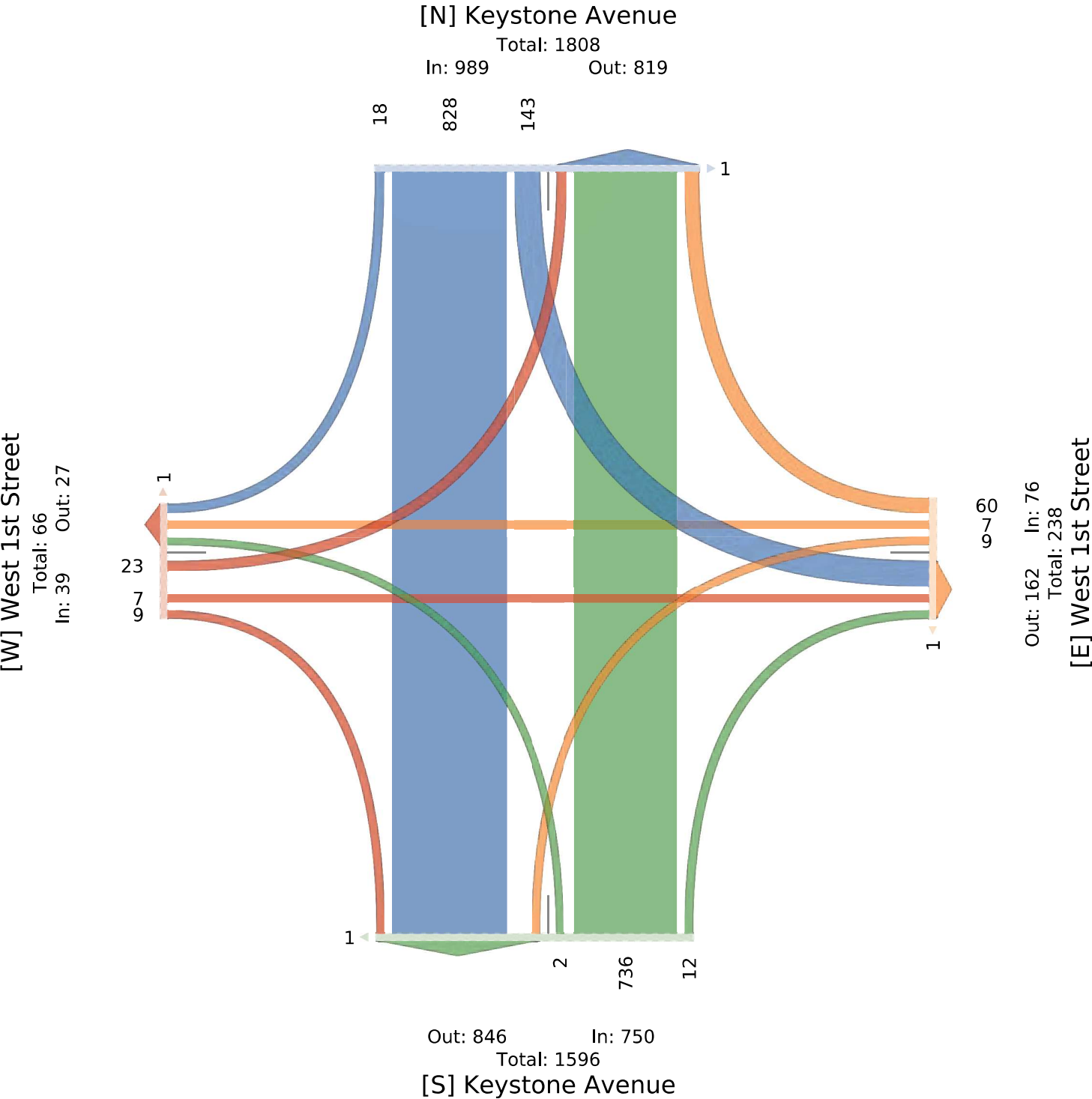
Leg Direction	Keystone Avenue Northbound						Keystone Avenue Southbound						West 1st Street Eastbound						West 1st Street Westbound						
Time	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	Int
2023-11-15 7:15AM	1	173	0	0	174	0	6	265	23	0	294	1	2	2	7	0	11	1	16	2	2	0	20	0	499
7:30AM	2	256	2	0	260	1	2	241	32	0	275	0	4	1	5	0	10	0	10	3	2	0	15	1	560
7:45AM	2	174	0	0	176	0	5	203	53	0	261	0	1	3	5	0	9	0	18	1	2	0	21	0	467
8:00AM	7	133	0	0	140	0	5	119	35	0	159	0	2	1	6	0	9	0	16	1	3	0	20	0	328
Total	12	736	2	0	750	1	18	828	143	0	989	1	9	7	23	0	39	1	60	7	9	0	76	1	1854
% Approach	1.6%	98.1%	0.3%	0%	-	-	1.8%	83.7%	14.5%	0%	-	-	23.1%	17.9%	59.0%	0%	-	-	78.9%	9.2%	11.8%	0%	-	-	-
% Total	0.6%	39.7%	0.1%	0%	40.5%	-	1.0%	44.7%	7.7%	0%	53.3%	-	0.5%	0.4%	1.2%	0%	2.1%	-	3.2%	0.4%	0.5%	0%	4.1%	-	-
PHF	0.429	0.719	0.250	-	0.721	-	0.750	0.781	0.675	-	0.841	-	0.563	0.500	0.821	-	0.950	-	0.833	0.583	0.750	-	0.905	-	0.827
Lights	12	719	2	0	733	-	18	817	140	0	975	-	9	6	22	0	37	-	60	7	9	0	76	-	1821
% Lights	100%	97.7%	100%	0%	97.7%	-	100%	98.7%	97.9%	0%	98.6%	-	100%	85.7%	95.7%	0%	94.9%	-	100%	100%	100%	0%	100%	-	98.2%
Articulated Trucks	0	2	0	0	2	-	0	0	1	0	1	-	0	0	0	0	0	-	0	0	0	0	0	-	3
% Articulated Trucks	0%	0.3%	0%	0%	0.3%	-	0%	0%	0.7%	0%	0.1%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0.2%
Buses and Single-Unit Trucks	0	15	0	0	15	-	0	11	2	0	13	-	0	0	1	0	1	-	0	0	0	0	0	-	29
% Buses and Single-Unit Trucks	0%	2.0%	0%	0%	2.0%	-	0%	1.3%	1.4%	0%	1.3%	-	0%	0%	4.3%	0%	2.6%	-	0%	0%	0%	0%	0%	-	1.6%
Bicycles on Road	0	0	0	0	0	-	0	0	0	0	0	-	0	1	0	0	1	-	0	0	0	0	0	-	1
% Bicycles on Road	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	14.3%	0%	0%	2.6%	-	0%	0%	0%	0%	0%	-	0.1%
Pedestrians	-	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	1	
% Pedestrians	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	100%	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-

* Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Keystone Avenue and 1st Street - TMC

Wed Nov 15, 2023
AM Peak (7:15 AM - 8:15 AM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 1134208, Location: 39.523347, -119.825321

Provided by: Kimley-Horn and Associates, Inc.
767 Eustis Street, Suite 100,
Saint Paul, MN, 55114, US



Keystone Avenue and 1st Street - TMC

Wed Nov 15, 2023

PM Peak (4:30 PM - 5:30 PM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 1134208, Location: 39.523347, -119.825321

Provided by: Kimley-Horn and Associates,

Inc.

767 Eustis Street, Suite 100,

Saint Paul, MN, 55114, US

Leg Direction	Keystone Avenue Northbound						Keystone Avenue Southbound						West 1st Street Eastbound						West 1st Street Westbound						
Time	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	Int
2023-11-15 4:30PM	1	154	5	0	160	0	5	176	22	0	203	2	4	2	3	0	9	1	36	2	1	0	39	2	411
4:45PM	4	165	0	0	169	0	1	188	28	0	217	3	4	3	8	0	15	1	53	2	3	0	58	1	459
5:00PM	4	211	0	0	215	1	3	217	22	1	243	0	3	0	6	0	9	0	55	1	8	0	64	0	531
5:15PM	7	201	3	0	211	1	7	183	13	0	203	0	2	2	3	0	7	1	52	1	5	0	58	0	479
Total	16	731	8	0	755	2	16	764	85	1	866	5	13	7	20	0	40	3	196	6	17	0	219	3	1880
% Approach	2.1%	96.8%	1.1%	0%	-	-	1.8%	88.2%	9.8%	0.1%	-	-	32.5%	17.5%	50.0%	0%	-	-	89.5%	2.7%	7.8%	0%	-	-	-
% Total	0.9%	38.9%	0.4%	0%	40.2%	-	0.9%	40.6%	4.5%	0.1%	46.1%	-	0.7%	0.4%	1.1%	0%	2.1%	-	10.4%	0.3%	0.9%	0%	11.6%	-	-
PHF	0.571	0.866	0.400	-	0.878	-	0.571	0.880	0.759	0.250	0.891	-	0.750	0.583	0.625	-	0.696	-	0.891	0.750	0.531	-	0.855	-	0.885
Lights	16	726	8	0	750	-	15	755	85	1	856	-	12	7	20	0	39	-	194	6	16	0	216	-	1861
% Lights	100%	99.3%	100%	0%	99.3%	-	93.8%	98.8%	100%	100%	98.8%	-	92.3%	100%	100%	0%	97.5%	-	99.0%	100%	94.1%	0%	98.6%	-	99.0%
Articulated Trucks	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0
% Articulated Trucks	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%
Buses and Single-Unit Trucks	0	5	0	0	5	-	1	9	0	0	10	-	0	0	0	0	0	-	2	0	1	0	3	-	18
% Buses and Single-Unit Trucks	0%	0.7%	0%	0%	0.7%	-	6.3%	1.2%	0%	0%	1.2%	-	0%	0%	0%	0%	0%	-	1.0%	0%	5.9%	0%	1.4%	-	1.0%
Bicycles on Road	0	0	0	0	0	-	0	0	0	0	0	-	1	0	0	0	1	-	0	0	0	0	0	-	1
% Bicycles on Road	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	7.7%	0%	0%	0%	2.5%	-	0%	0%	0%	0%	0%	-	0.1%
Pedestrians	-	-	-	-	-	1	-	-	-	-	-	5	-	-	-	-	-	2	-	-	-	-	-	3	
% Pedestrians	-	-	-	-	-	50.0%	-	-	-	-	-	100%	-	-	-	-	-	66.7%	-	-	-	-	-	100%	-
Bicycles on Crosswalk	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	50.0%	-	-	-	-	-	0%	-	-	-	-	-	33.3%	-	-	-	-	-	0%	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Keystone Avenue and 1st Street - TMC

Wed Nov 15, 2023

PM Peak (4:30 PM - 5:30 PM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 1134208, Location: 39.523347, -119.825321

Provided by: Kimley-Horn and Associates, Inc.

767 Eustis Street, Suite 100,
Saint Paul, MN, 55114, US

[N] Keystone Avenue

Total: 1814

In: 866

Out: 948

[W] West 1st Street

Total: 70

In: 40 Out: 30

[E] West 1st Street

Out: 108 In: 219

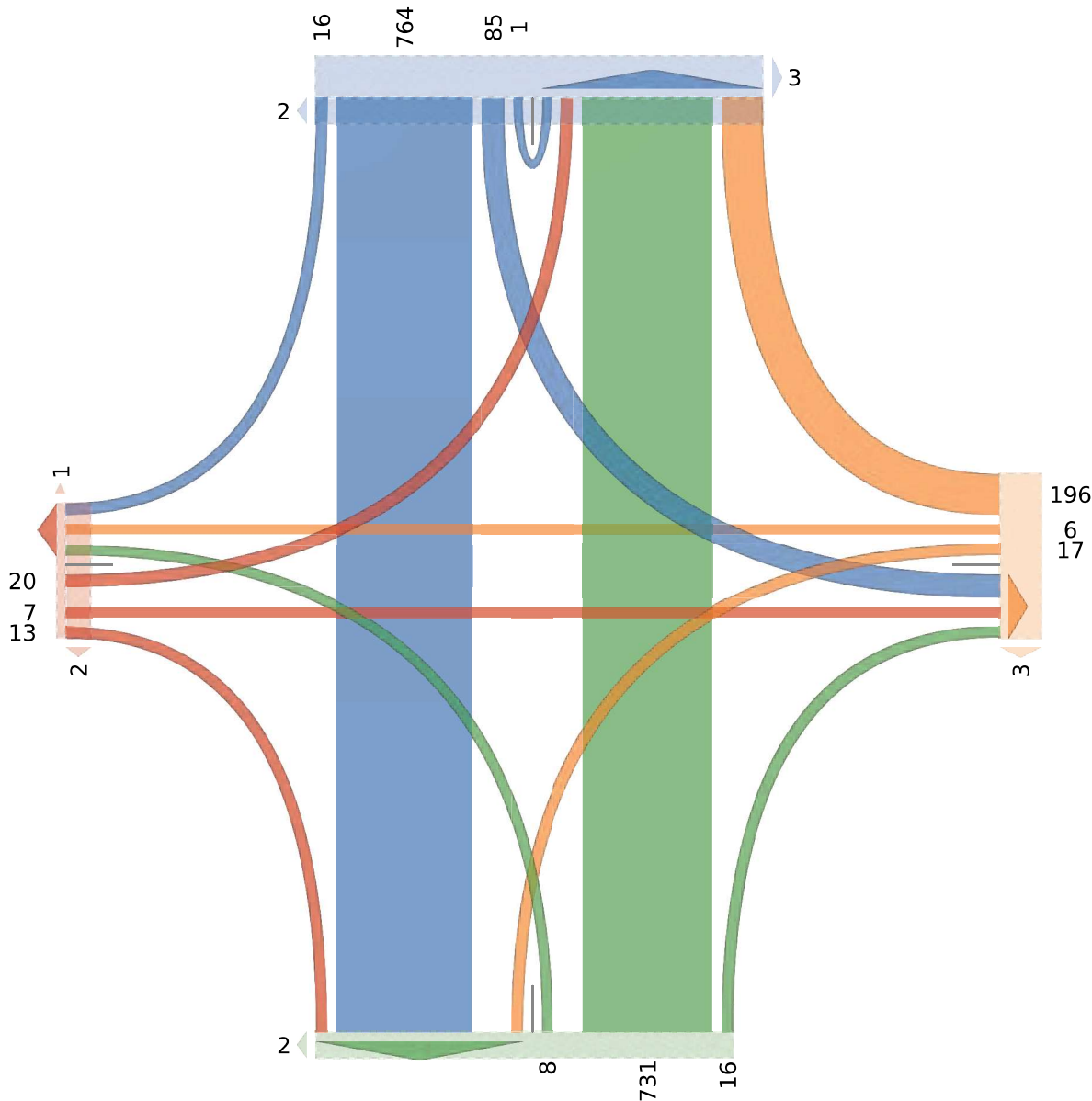
Total: 327

[S] Keystone Avenue

Out: 794

In: 755

Total: 1549



Keystone Avenue and Jones Street - TMC

Wed Nov 15, 2023

Full Length (7 AM-9 AM, 4 PM-6 PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 1134210, Location: 39.522019, -119.824884

Provided by: Kimley-Horn and

Associates, Inc.

767 Eustis Street, Suite 100,

Saint Paul, MN, 55114, US

Leg Direction	Keystone Avenue Northbound								Keystone Avenue Southbound								Jones Street Eastbound							
Time	R	T	L	HL	U	App	Ped*		R	BR	T	L	U	App	Ped*		HR	R	T	L	U	App	Ped*	
2023-11-15 7:00AM	6	643	5	0	0	654	0		30	271	556	4	0	861	0		2	8	3	23	0	36	6	
8:00AM	13	442	4	1	0	460	0		24	99	433	6	0	562	0		1	9	2	22	0	34	4	
9:00AM	0	0	0	0	0	0	0		0	0	0	0	0	0	0		0	0	0	0	0	0	0	
4:00PM	15	603	14	0	0	632	0		40	137	567	5	0	749	0		3	19	1	19	0	42	2	
5:00PM	12	644	8	0	2	666	0		40	116	558	6	0	720	1		5	5	1	21	0	32	4	
6:00PM	0	0	0	0	0	0	0		0	0	0	0	0	0	0		0	0	0	0	0	0	0	
Total	46	2332	31	1	2	2412	0		134	623	2114	21	0	2892	1		11	41	7	85	0	144	16	
% Approach	1.9%	96.7%	1.3%	0%	0.1%	-	-		4.6%	21.5%	73.1%	0.7%	0%	-	-		7.6%	28.5%	4.9%	59.0%	0%	-	-	
% Total	0.8%	40.8%	0.5%	0%	0%	42.2%	-		2.3%	10.9%	37.0%	0.4%	0%	50.6%	-		0.2%	0.7%	0.1%	1.5%	0%	2.5%	-	
Lights	45	2295	31	1	2	2374	-		132	616	2089	20	0	2857	-		10	41	7	85	0	143	-	
% Lights	97.8%	98.4%	100%	100%	100%	98.4%	-		98.5%	98.9%	98.8%	95.2%	0%	98.8%	-		90.9%	100%	100%	100%	0%	99.3%	-	
Articulated Trucks	0	1	0	0	0	1	-		0	0	0	0	0	0	-		0	0	0	0	0	0	-	
% Articulated Trucks	0%	0%	0%	0%	0%	0%	-		0%	0%	0%	0%	0%	0%	-		0%	0%	0%	0%	0%	0%	-	
Buses and Single-Unit Trucks	1	34	0	0	0	35	-		2	5	25	1	0	33	-		1	0	0	0	0	1	-	
% Buses and Single-Unit Trucks	2.2%	1.5%	0%	0%	0%	1.5%	-		1.5%	0.8%	1.2%	4.8%	0%	1.1%	-		9.1%	0%	0%	0%	0%	0.7%	-	
Bicycles on Road	0	2	0	0	0	2	-		0	2	0	0	0	2	-		0	0	0	0	0	0	-	
% Bicycles on Road	0%	0.1%	0%	0%	0%	0.1%	-		0%	0.3%	0%	0%	0%	0.1%	-		0%	0%	0%	0%	0%	0%	-	
Pedestrians	-	-	-	-	-	-	0		-	-	-	-	-	-	0		-	-	-	-	-	-	16	
% Pedestrians	-	-	-	-	-	-	-		-	-	-	-	-	-	0%		-	-	-	-	-	-	100%	
Bicycles on Crosswalk	-	-	-	-	-	-	0		-	-	-	-	-	-	1		-	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-		-	-	-	-	-	-	100%		-	-	-	-	-	-	0%	

* Pedestrians and Bicycles on Crosswalk. BL: Bear left, BR: Bear right, HL: Hard left, HR: Hard right, L: Left, R: Right, T: Thru, U: U-Turn

Keystone Avenue and Jones Street - TMC

Wed Nov 15, 2023

Full Length (7 AM-9 AM, 4 PM-6 PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 1134210, Location: 39.522019, -119.824884

Provided by: Kimley-Horn and

Associates, Inc.

767 Eustis Street, Suite 100,

Saint Paul, MN, 55114, US

Leg Direction	Jones Street Westbound							Keystone Avenue to Riverside Drive Northeastbound							
Time	R	T	BL	L	U	App	Ped*	HR	BR	BL	HL	U	App	Ped*	Int
2023-11-15 7:00AM	71	2	0	4	0	77	1	0	0	0	0	0	0	0	1628
8:00AM	58	2	1	1	0	62	0	0	0	0	0	0	0	0	1118
9:00AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00PM	60	0	0	0	0	60	3	2	0	0	0	0	2	0	1485
5:00PM	62	2	1	1	0	66	2	0	0	0	0	0	0	0	1484
6:00PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	251	6	2	6	0	265	6	2	0	0	0	0	2	0	5715
% Approach	94.7%	2.3%	0.8%	2.3%	0%	-	-	100%	0%	0%	0%	0%	-	-	-
% Total	4.4%	0.1%	0%	0.1%	0%	4.6%	-	0%	0%	0%	0%	0%	0%	-	-
Lights	245	6	2	6	0	259	-	2	0	0	0	0	2	-	5635
% Lights	97.6%	100%	100%	100%	0%	97.7%	-	100%	0%	0%	0%	0%	100%	-	98.6%
Articulated Trucks	1	0	0	0	0	1	-	0	0	0	0	0	0	-	2
% Articulated Trucks	0.4%	0%	0%	0%	0%	0.4%	-	0%	0%	0%	0%	0%	0%	-	0%
Buses and Single-Unit Trucks	5	0	0	0	0	5	-	0	0	0	0	0	0	-	74
% Buses and Single-Unit Trucks	2.0%	0%	0%	0%	0%	1.9%	-	0%	0%	0%	0%	0%	0%	-	1.3%
Bicycles on Road	0	0	0	0	0	0	-	0	0	0	0	0	0	-	4
% Bicycles on Road	0%	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	0%	-	0.1%
Pedestrians	-	-	-	-	-	-	6	-	-	-	-	-	-	0	-
% Pedestrians	-	-	-	-	-	-	100%	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-
% Bicycles on Crosswalk	-	-	-	-	-	-	0%	-	-	-	-	-	-	-	-

* Pedestrians and Bicycles on Crosswalk. BL: Bear left, BR: Bear right, HL: Hard left, HR: Hard right, L: Left, R: Right, T: Thru, U: U-Turn

Keystone Avenue and Jones Street - TMC

Wed Nov 15, 2023

Full Length (7 AM-9 AM, 4 PM-6 PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 1134210, Location: 39.522019, -119.824884

Provided by: Kimley-Horn and

Associates, Inc.

767 Eustis Street, Suite 100,

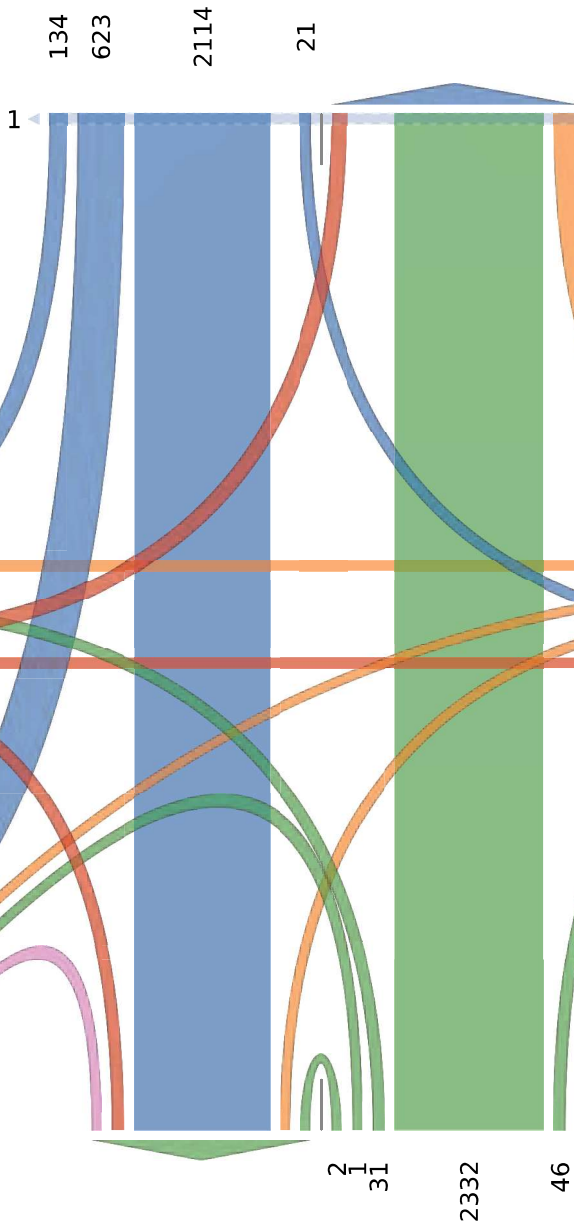
Saint Paul, MN, 55114, US

[N] Keystone Avenue

Total: 5560

In: 2892

Out: 2668



[W] Jones Street

Total: 315

In: 144

Out: 171

Out: 74

In: 265

Total: 339

[E] Jones Street

Out: 2165

In: 2412

Total: 4577

[S] Keystone Avenue

[SW] Keystone Avenue to Riverside Drive

Out: 637

Total: 639

In: 2

Keystone Avenue and Jones Street - TMC

Wed Nov 15, 2023

AM Peak (7 AM - 8 AM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 1134210, Location: 39.522019, -119.824884

Provided by: Kimley-Horn and Associates, Inc.

767 Eustis Street, Suite 100,
Saint Paul, MN, 55114, US

Leg Direction	Keystone Avenue Northbound								Keystone Avenue Southbound								Jones Street Eastbound							
Time	R	T	L	HL	U	App	Ped*		R	BR	T	L	U	App	Ped*		HR	R	T	L	U	App	Ped*	
2023-11-15 7:00AM	0	113	1	0	0	114	0		5	39	98	1	0	143	0		0	5	2	4	0	11	2	
7:15AM	0	157	2	0	0	159	0		7	110	153	1	0	271	0		0	0	0	2	0	2	2	
7:30AM	4	222	0	0	0	226	0		7	89	148	2	0	246	0		0	2	1	8	0	11	1	
7:45AM	2	151	2	0	0	155	0		11	33	157	0	0	201	0		2	1	0	9	0	12	1	
Total	6	643	5	0	0	654	0		30	271	556	4	0	861	0		2	8	3	23	0	36	6	
% Approach	0.9%	98.3%	0.8%	0%	0%	-	-		3.5%	31.5%	64.6%	0.5%	0%	-	-		5.6%	22.2%	8.3%	63.9%	0%	-	-	
% Total	0.4%	39.5%	0.3%	0%	0%	40.2%	-		1.8%	16.6%	34.2%	0.2%	0%	52.9%	-		0.1%	0.5%	0.2%	1.4%	0%	2.2%	-	
PHF	0.375	0.724	0.625	-	-	0.723	-		0.682	0.616	0.885	0.500	-	0.794	-		0.250	0.400	0.375	0.639	-	0.750	-	
Lights	5	631	5	0	0	641	-		30	270	549	4	0	853	-		2	8	3	23	0	36	-	
% Lights	83.3%	98.1%	100%	0%	0%	98.0%	-		100%	99.6%	98.7%	100%	0%	99.1%	-		100%	100%	100%	100%	0%	100%	-	
Articulated Trucks	0	1	0	0	0	1	-		0	0	0	0	0	0	-		0	0	0	0	0	0	-	
% Articulated Trucks	0%	0.2%	0%	0%	0%	0.2%	-		0%	0%	0%	0%	0%	0%	-		0%	0%	0%	0%	0%	0%	-	
Buses and Single-Unit Trucks	1	11	0	0	0	12	-		0	1	7	0	0	8	-		0	0	0	0	0	0	-	
% Buses and Single-Unit Trucks	16.7%	1.7%	0%	0%	0%	1.8%	-		0%	0.4%	1.3%	0%	0%	0.9%	-		0%	0%	0%	0%	0%	0%	-	
Bicycles on Road	0	0	0	0	0	0	-		0	0	0	0	0	0	-		0	0	0	0	0	0	-	
% Bicycles on Road	0%	0%	0%	0%	0%	0%	-		0%	0%	0%	0%	0%	0%	-		0%	0%	0%	0%	0%	0%	-	
Pedestrians	-	-	-	-	-	-	0		-	-	-	-	-	-	0		-	-	-	-	-	-	6	
% Pedestrians	-	-	-	-	-	-	-		-	-	-	-	-	-	-		-	-	-	-	-	-	100%	
Bicycles on Crosswalk	-	-	-	-	-	-	0		-	-	-	-	-	-	0		-	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-		-	-	-	-	-	-	-		-	-	-	-	-	-	0%	

* Pedestrians and Bicycles on Crosswalk. BL: Bear left, BR: Bear right, HL: Hard left, HR: Hard right, L: Left, R: Right, T: Thru, U: U-Turn

Keystone Avenue and Jones Street - TMC

Wed Nov 15, 2023

AM Peak (7 AM - 8 AM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 1134210, Location: 39.522019, -119.824884

Provided by: Kimley-Horn and

Associates, Inc.

767 Eustis Street, Suite 100,

Saint Paul, MN, 55114, US

Leg Direction	Jones Street Westbound								Keystone Avenue to Riverside Drive Northeastbound								
Time	R	T	BL	L	U	App	Ped*		HR	BR	BL	HL	U	App	Ped*	Int	
2023-11-15 7:00AM	14	0	0	2	0	16	1		0	0	0	0	0	0	0	0	284
7:15AM	22	0	0	0	0	22	0		0	0	0	0	0	0	0	0	454
7:30AM	23	0	0	2	0	25	0		0	0	0	0	0	0	0	0	508
7:45AM	12	2	0	0	0	14	0		0	0	0	0	0	0	0	0	382
Total	71	2	0	4	0	77	1		0	0	0	0	0	0	0	0	1628
% Approach	92.2%	2.6%	0%	5.2%	0%	-	-		0%	0%	0%	0%	0%	-	-	-	-
% Total	4.4%	0.1%	0%	0.2%	0%	4.7%	-		0%	0%	0%	0%	0%	0%	-	-	-
PHF	0.772	0.250	-	0.500	-	0.770	-		-	-	-	-	-	-	-	-	0.801
Lights	71	2	0	4	0	77	-		0	0	0	0	0	0	-	-	1607
% Lights	100%	100%	0%	100%	0%	100%	-		0%	0%	0%	0%	0%	-	-	-	98.7%
Articulated Trucks	0	0	0	0	0	0	-		0	0	0	0	0	0	-	-	1
% Articulated Trucks	0%	0%	0%	0%	0%	0%	-		0%	0%	0%	0%	0%	-	-	-	0.1%
Buses and Single-Unit Trucks	0	0	0	0	0	0	-		0	0	0	0	0	0	-	-	20
% Buses and Single-Unit Trucks	0%	0%	0%	0%	0%	0%	-		0%	0%	0%	0%	0%	-	-	-	1.2%
Bicycles on Road	0	0	0	0	0	0	-		0	0	0	0	0	0	-	-	0
% Bicycles on Road	0%	0%	0%	0%	0%	0%	-		0%	0%	0%	0%	0%	-	-	-	0%
Pedestrians	-	-	-	-	-	-	1		-	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	100%		-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	-	-	0		-	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	0%		-	-	-	-	-	-	-	-	-

* Pedestrians and Bicycles on Crosswalk. BL: Bear left, BR: Bear right, HL: Hard left, HR: Hard right, L: Left, R: Right, T: Thru, U: U-Turn

Keystone Avenue and Jones Street - TMC

Wed Nov 15, 2023

AM Peak (7 AM - 8 AM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 1134210, Location: 39.522019, -119.824884

Provided by: Kimley-Horn and

Associates, Inc.

767 Eustis Street, Suite 100,

Saint Paul, MN, 55114, US

[N] Keystone Avenue

Total: 1598

In: 861

Out: 737

30

271

556

4

[W] Jones Street

Total: 73

In: 36 Out: 37

22

2

4

71

4

Out: 13 In: 77

Total: 90

[E] Jones Street

Out: 568

In: 654

Total: 1222

[S] Keystone Avenue

5

643

6

Out: 273 In: 0
Total: 273

[SW] Keystone Avenue to Riverside Drive

Keystone Avenue and Jones Street - TMC

Wed Nov 15, 2023

PM Peak (4:30 PM - 5:30 PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 1134210, Location: 39.522019, -119.824884

Provided by: Kimley-Horn and

Associates, Inc.

767 Eustis Street, Suite 100,

Saint Paul, MN, 55114, US

Leg Direction	Keystone Avenue Northbound							Keystone Avenue Southbound							Jones Street Eastbound						
Time	R	T	L	HL	U	App	Ped*	R	BR	T	L	U	App	Ped*	HR	R	T	L	U	App	Ped*
2023-11-15 4:30PM	4	142	4	0	0	150	0	13	36	132	1	0	182	0	1	4	0	9	0	14	1
4:45PM	2	159	3	0	0	164	0	8	36	153	0	0	197	0	1	6	0	6	0	13	0
5:00PM	2	181	3	0	0	186	0	8	37	178	2	0	225	0	2	2	0	5	0	9	1
5:15PM	6	183	1	0	1	191	0	14	30	142	1	0	187	1	1	1	0	5	0	7	2
Total	14	665	11	0	1	691	0	43	139	605	4	0	791	1	5	13	0	25	0	43	4
% Approach	2.0%	96.2%	1.6%	0%	0.1%	-	-	5.4%	17.6%	76.5%	0.5%	0%	-	-	11.6%	30.2%	0%	58.1%	0%	-	-
% Total	0.9%	41.8%	0.7%	0%	0.1%	43.5%	-	2.7%	8.7%	38.1%	0.3%	0%	49.7%	-	0.3%	0.8%	0%	1.6%	0%	2.7%	-
PHF	0.583	0.908	0.688	-	0.250	0.904	-	0.768	0.926	0.850	0.500	-	0.877	-	0.625	0.542	-	0.694	-	0.768	-
Lights	14	661	11	0	1	687	-	42	135	599	4	0	780	-	5	13	0	25	0	43	-
% Lights	100%	99.4%	100%	0%	100%	99.4%	-	97.7%	97.1%	99.0%	100%	0%	98.6%	-	100%	100%	0%	100%	0%	100%	-
Articulated Trucks	0	0	0	0	0	0	-	0	0	0	0	0	0	-	0	0	0	0	0	0	-
% Articulated Trucks	0%	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	0%	-
Buses and Single-Unit Trucks	0	4	0	0	0	4	-	1	2	6	0	0	9	-	0	0	0	0	0	0	-
% Buses and Single-Unit Trucks	0%	0.6%	0%	0%	0%	0.6%	-	2.3%	1.4%	1.0%	0%	0%	1.1%	-	0%	0%	0%	0%	0%	0%	-
Bicycles on Road	0	0	0	0	0	0	-	0	2	0	0	0	2	-	0	0	0	0	0	0	-
% Bicycles on Road	0%	0%	0%	0%	0%	0%	-	0%	1.4%	0%	0%	0%	0.3%	-	0%	0%	0%	0%	0%	0%	-
Pedestrians	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	4
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	0%	-	-	-	-	-	-	100%
Bicycles on Crosswalk	-	-	-	-	-	-	0	-	-	-	-	-	-	1	-	-	-	-	-	-	0
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	-	-	0%

* Pedestrians and Bicycles on Crosswalk. BL: Bear left, BR: Bear right, HL: Hard left, HR: Hard right, L: Left, R: Right, T: Thru, U: U-Turn

Keystone Avenue and Jones Street - TMC

Wed Nov 15, 2023

PM Peak (4:30 PM - 5:30 PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 1134210, Location: 39.522019, -119.824884

Provided by: Kimley-Horn and

Associates, Inc.

767 Eustis Street, Suite 100,

Saint Paul, MN, 55114, US

Leg Direction	Jones Street Westbound								Keystone Avenue to Riverside Drive Northeastbound								
Time	R	T	BL	L	U	App	Ped*		HR	BR	BL	HL	U	App	Ped*		Int
2023-11-15 4:30PM	10	0	0	0	0	10	1		0	0	0	0	0	0	0		356
4:45PM	13	0	0	0	0	13	0		0	0	0	0	0	0	0		387
5:00PM	18	0	1	1	0	20	0		0	0	0	0	0	0	0		440
5:15PM	20	2	0	0	0	22	2		0	0	0	0	0	0	0		407
Total	61	2	1	1	0	65	3		0	0	0	0	0	0	0		1590
% Approach	93.8%	3.1%	1.5%	1.5%	0%	-	-		0%	0%	0%	0%	0%	-	-		-
% Total	3.8%	0.1%	0.1%	0.1%	0%	4.1%	-		0%	0%	0%	0%	0%	0%	-		-
PHF	0.763	0.250	0.250	0.250	-	0.739	-		-	-	-	-	-	-	-		0.902
Lights	61	2	1	1	0	65	-		0	0	0	0	0	0	-		1575
% Lights	100%	100%	100%	100%	0%	100%	-		0%	0%	0%	0%	0%	-	-		99.1%
Articulated Trucks	0	0	0	0	0	0	-		0	0	0	0	0	0	-		0
% Articulated Trucks	0%	0%	0%	0%	0%	0%	-		0%	0%	0%	0%	0%	-	-		0%
Buses and Single-Unit Trucks	0	0	0	0	0	0	-		0	0	0	0	0	0	-		13
% Buses and Single-Unit Trucks	0%	0%	0%	0%	0%	0%	-		0%	0%	0%	0%	0%	-	-		0.8%
Bicycles on Road	0	0	0	0	0	0	-		0	0	0	0	0	0	-		2
% Bicycles on Road	0%	0%	0%	0%	0%	0%	-		0%	0%	0%	0%	0%	-	-		0.1%
Pedestrians	-	-	-	-	-	-	3		-	-	-	-	-	-	0		
% Pedestrians	-	-	-	-	-	-	100%		-	-	-	-	-	-	-		-
Bicycles on Crosswalk	-	-	-	-	-	-	0		-	-	-	-	-	-	0		
% Bicycles on Crosswalk	-	-	-	-	-	-	0%		-	-	-	-	-	-	-		-

* Pedestrians and Bicycles on Crosswalk. BL: Bear left, BR: Bear right, HL: Hard left, HR: Hard right, L: Left, R: Right, T: Thru, U: U-Turn

Keystone Avenue and Jones Street - TMC

Wed Nov 15, 2023

PM Peak (4:30 PM - 5:30 PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 1134210, Location: 39.522019, -119.824884

Provided by: Kimley-Horn and Associates, Inc.

767 Eustis Street, Suite 100,
Saint Paul, MN, 55114, US

[N] Keystone Avenue

Total: 1542

In: 791

Out: 751

43

139

605

4

1

3

61

Out: 18 In: 65
Total: 83

[E] Jones Street

[W] Jones Street

Total: 99
In: 43 Out: 56

1

25
13
5

3

Out: 145 In: 0
Total: 145

[SW] Keystone Avenue to Riverside Drive

Out: 620

In: 691

Total: 1311

[S] Keystone Avenue

1

11

665

14

Jones Street and Project Alleyway - TMC

Wed Nov 15, 2023

Full Length (7 AM-9 AM, 4 PM-6 PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 1134213, Location: 39.521716, -119.827039

Provided by: Kimley-Horn and Associates, Inc.

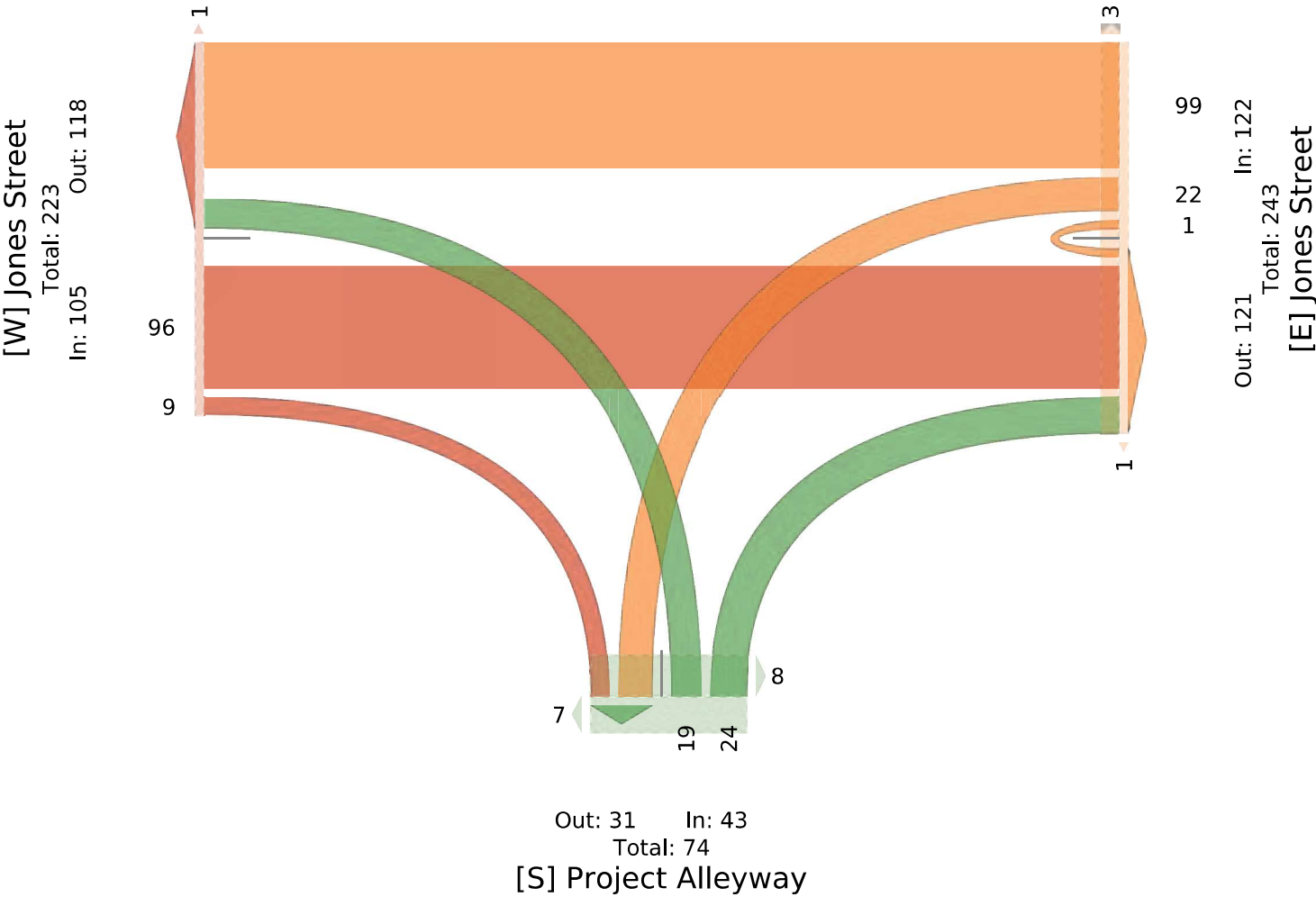
767 Eustis Street, Suite 100,
Saint Paul, MN, 55114, US

Leg Direction	Project Alleyway Northbound					Jones Street Eastbound					Jones Street Westbound					
Time	R	L	U	App	Ped*	R	T	U	App	Ped*	T	L	U	App	Ped*	Int
2023-11-15 7:00AM	7	3	0	10	2	1	26	0	27	0	24	3	0	27	2	64
8:00AM	3	1	0	4	3	2	26	0	28	1	20	1	0	21	2	53
9:00AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00PM	5	10	0	15	8	4	20	0	24	0	34	9	0	43	0	82
5:00PM	9	5	0	14	2	2	24	0	26	0	21	9	1	31	0	71
6:00PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	24	19	0	43	15	9	96	0	105	1	99	22	1	122	4	270
% Approach	55.8%	44.2%	0%	-	-	8.6%	91.4%	0%	-	-	81.1%	18.0%	0.8%	-	-	-
% Total	8.9%	7.0%	0%	15.9%	-	3.3%	35.6%	0%	38.9%	-	36.7%	8.1%	0.4%	45.2%	-	-
Lights	24	19	0	43	-	9	90	0	99	-	93	17	1	111	-	253
% Lights	100%	100%	0%	100%	-	100%	93.8%	0%	94.3%	-	93.9%	77.3%	100%	91.0%	-	93.7%
Articulated Trucks	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0
% Articulated Trucks	0%	0%	0%	0%	-	0%	0%	0%	0%	-	0%	0%	0%	0%	-	0%
Buses and Single-Unit Trucks	0	0	0	0	-	0	4	0	4	-	6	3	0	9	-	13
% Buses and Single-Unit Trucks	0%	0%	0%	0%	-	0%	4.2%	0%	3.8%	-	6.1%	13.6%	0%	7.4%	-	4.8%
Bicycles on Road	0	0	0	0	-	0	2	0	2	-	0	2	0	2	-	4
% Bicycles on Road	0%	0%	0%	0%	-	0%	2.1%	0%	1.9%	-	0%	9.1%	0%	1.6%	-	1.5%
Pedestrians	-	-	-	-	15	-	-	-	-	1	-	-	-	-	4	
% Pedestrians	-	-	-	-	100%	-	-	-	-	100%	-	-	-	-	100%	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	0%	-	-	-	-	0%	-	-	-	-	0%	-

* Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Jones Street and Project Alleyway - TMC
Wed Nov 15, 2023
Full Length (7 AM-9 AM, 4 PM-6 PM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 1134213, Location: 39.521716, -119.827039

Provided by: Kimley-Horn and Associates, Inc.
767 Eustis Street, Suite 100,
Saint Paul, MN, 55114, US



Jones Street and Project Alleyway - TMC

Wed Nov 15, 2023

AM Peak (7 AM - 8 AM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 1134213, Location: 39.521716, -119.827039

Provided by: Kimley-Horn and

Associates, Inc.

767 Eustis Street, Suite 100,

Saint Paul, MN, 55114, US

Leg Direction	Project Alleyway Northbound					Jones Street Eastbound					Jones Street Westbound					
Time	R	L	U	App	Ped*	R	T	U	App	Ped*	T	L	U	App	Ped*	Int
2023-11-15 7:00AM	2	1	0	3	1	0	4	0	4	0	1	2	0	3	0	10
7:15AM	1	0	0	1	1	0	5	0	5	0	7	1	0	8	1	14
7:30AM	1	1	0	2	0	1	7	0	8	0	7	0	0	7	0	17
7:45AM	3	1	0	4	0	0	10	0	10	0	9	0	0	9	1	23
Total	7	3	0	10	2	1	26	0	27	0	24	3	0	27	2	64
% Approach	70.0%	30.0%	0%	-	-	3.7%	96.3%	0%	-	-	88.9%	11.1%	0%	-	-	-
% Total	10.9%	4.7%	0%	15.6%	-	1.6%	40.6%	0%	42.2%	-	37.5%	4.7%	0%	42.2%	-	-
PHF	0.583	0.750	-	0.625	-	0.250	0.650	-	0.675	-	0.667	0.375	-	0.750	-	0.696
Lights	7	3	0	10	-	1	26	0	27	-	24	3	0	27	-	64
% Lights	100%	100%	0%	100%	-	100%	100%	0%	100%	-	100%	100%	0%	100%	-	100%
Articulated Trucks	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0
% Articulated Trucks	0%	0%	0%	0%	-	0%	0%	0%	0%	-	0%	0%	0%	0%	-	0%
Buses and Single-Unit Trucks	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0
% Buses and Single-Unit Trucks	0%	0%	0%	0%	-	0%	0%	0%	0%	-	0%	0%	0%	0%	-	0%
Bicycles on Road	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0
% Bicycles on Road	0%	0%	0%	0%	-	0%	0%	0%	0%	-	0%	0%	0%	0%	-	0%
Pedestrians	-	-	-	-	2	-	-	-	-	0	-	-	-	-	2	
% Pedestrians	-	-	-	-	100%	-	-	-	-	-	-	-	-	-	100%	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	0%	-	-	-	-	-	-	-	-	-	0%	-

* Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Jones Street and Project Alleyway - TMC

Wed Nov 15, 2023

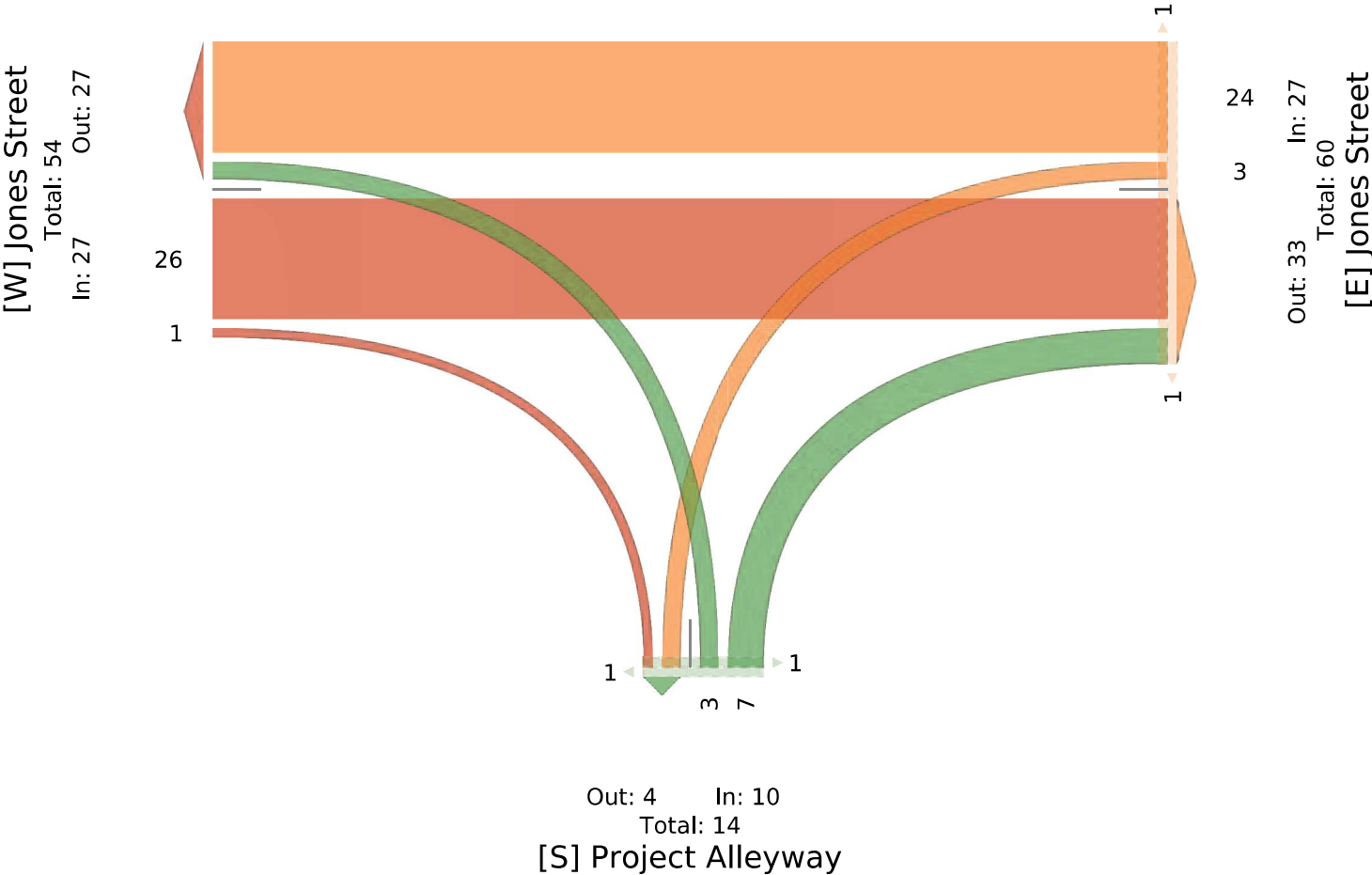
AM Peak (7 AM - 8 AM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 1134213, Location: 39.521716, -119.827039

Provided by: Kimley-Horn and Associates, Inc.
767 Eustis Street, Suite 100,
Saint Paul, MN, 55114, US



Jones Street and Project Alleyway - TMC

Wed Nov 15, 2023

PM Peak (4:30 PM - 5:30 PM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 1134213, Location: 39.521716, -119.827039

Provided by: Kimley-Horn and

Associates, Inc.

767 Eustis Street, Suite 100,

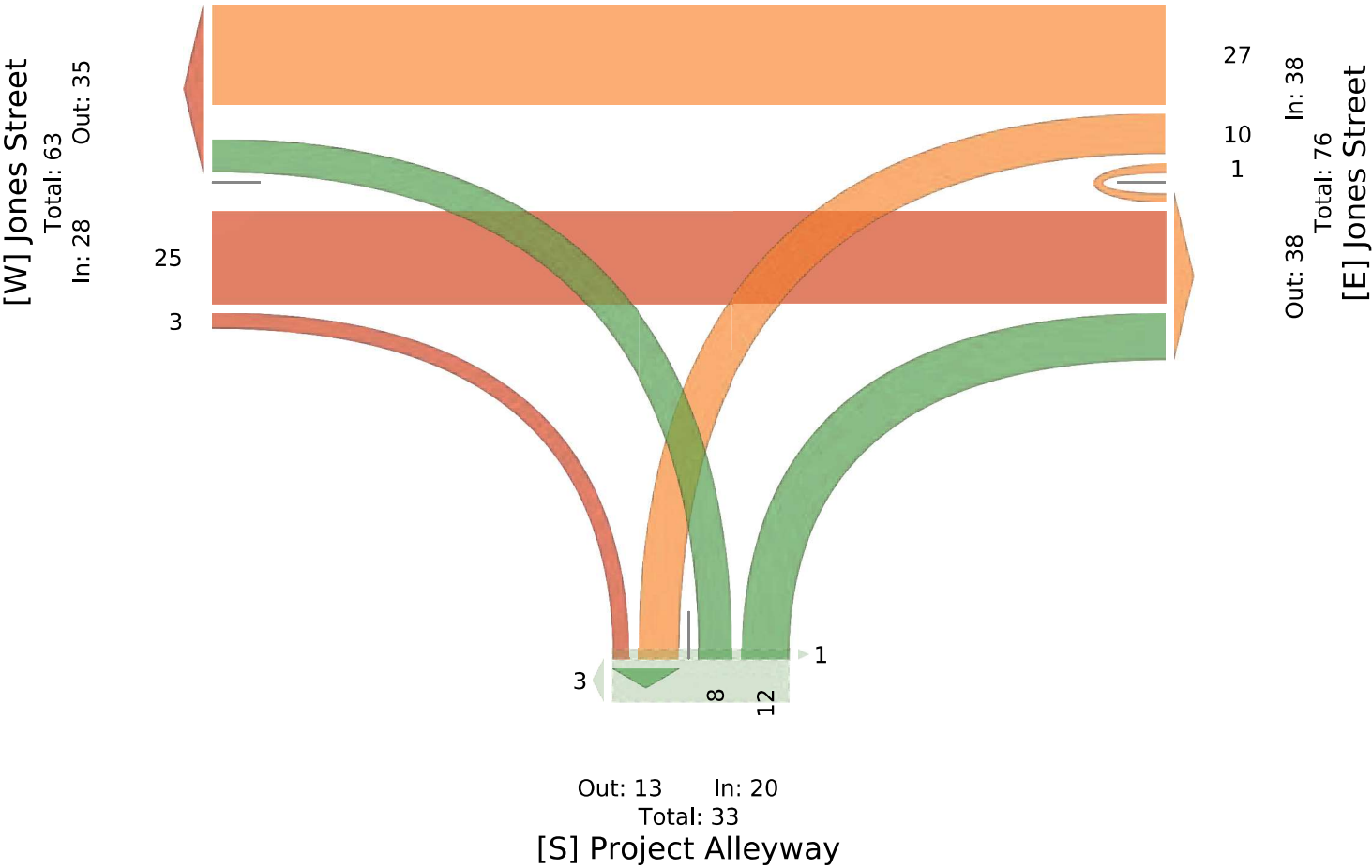
Saint Paul, MN, 55114, US

Leg Direction	Project Alleyway Northbound					Jones Street Eastbound					Jones Street Westbound					
Time	R	L	U	App	Ped*	R	T	U	App	Ped*	T	L	U	App	Ped*	Int
2023-11-15 4:30PM	2	2	0	4	2	0	7	0	7	0	11	4	0	15	0	26
4:45PM	3	1	0	4	1	1	6	0	7	0	6	1	0	7	0	18
5:00PM	4	1	0	5	1	1	6	0	7	0	3	2	0	5	0	17
5:15PM	3	4	0	7	0	1	6	0	7	0	7	3	1	11	0	25
Total	12	8	0	20	4	3	25	0	28	0	27	10	1	38	0	86
% Approach	60.0%	40.0%	0%	-	-	10.7%	89.3%	0%	-	-	71.1%	26.3%	2.6%	-	-	-
% Total	14.0%	9.3%	0%	23.3%	-	3.5%	29.1%	0%	32.6%	-	31.4%	11.6%	1.2%	44.2%	-	-
PHF	0.750	0.500	-	0.714	-	0.750	0.893	-	1.000	-	0.614	0.563	0.250	0.617	-	0.817
Lights	12	8	0	20	-	3	24	0	27	-	27	7	1	35	-	82
% Lights	100%	100%	0%	100%	-	100%	96.0%	0%	96.4%	-	100%	70.0%	100%	92.1%	-	95.3%
Articulated Trucks	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0
% Articulated Trucks	0%	0%	0%	0%	-	0%	0%	0%	0%	-	0%	0%	0%	0%	-	0%
Buses and Single-Unit Trucks	0	0	0	0	-	0	1	0	1	-	0	2	0	2	-	3
% Buses and Single-Unit Trucks	0%	0%	0%	0%	-	0%	4.0%	0%	3.6%	-	0%	20.0%	0%	5.3%	-	3.5%
Bicycles on Road	0	0	0	0	-	0	0	0	0	-	0	1	0	1	-	1
% Bicycles on Road	0%	0%	0%	0%	-	0%	0%	0%	0%	-	0%	10.0%	0%	2.6%	-	1.2%
Pedestrians	-	-	-	-	4	-	-	-	-	0	-	-	-	-	0	
% Pedestrians	-	-	-	-	100%	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	0%	-	-	-	-	-	-	-	-	-	-	-

* Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Jones Street and Project Alleyway - TMC
Wed Nov 15, 2023
PM Peak (4:30 PM - 5:30 PM) - Overall Peak Hour
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 1134213, Location: 39.521716, -119.827039

Provided by: Kimley-Horn and Associates, Inc.
767 Eustis Street, Suite 100,
Saint Paul, MN, 55114, US



Riverside Drive and Booth Street - TMC

Wed Nov 15, 2023

Full Length (7 AM-9 AM, 4 PM-6 PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 1134873, Location: 39.520539, -119.826407

Provided by: Kimley-Horn and Associates,

Inc.

767 Eustis Street, Suite 100,

Saint Paul, MN, 55114, US

Leg Direction	Booth Street Northbound						Private Access Drive Southbound						Riverside Drive Eastbound						Riverside Drive Westbound						
Time	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	Int
2023-11-15 7:00AM	205	2	1	0	208	15	0	3	3	0	6	16	2	2	0	0	4	27	0	0	366	0	366	0	584
8:00AM	125	2	3	2	132	3	0	4	1	0	5	5	5	1	0	0	6	5	6	1	151	0	158	1	301
9:00AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00PM	151	4	9	0	164	3	0	2	0	0	2	11	6	2	0	0	8	2	5	5	257	0	267	1	441
5:00PM	108	2	12	0	122	3	1	1	5	0	7	6	4	6	0	0	10	3	8	7	210	0	225	2	364
6:00PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	589	10	25	2	626	24	1	10	9	0	20	38	17	11	0	0	28	37	19	13	984	0	1016	4	1690
% Approach	94.1%	1.6%	4.0%	0.3%	-	-	5.0%	50.0%	45.0%	0%	-	-	60.7%	39.3%	0%	0%	-	-	1.9%	1.3%	96.9%	0%	-	-	-
% Total	34.9%	0.6%	1.5%	0.1%	37.0%	-	0.1%	0.6%	0.5%	0%	1.2%	-	1.0%	0.7%	0%	0%	1.7%	-	1.1%	0.8%	58.2%	0%	60.1%	-	-
Lights	556	10	25	2	593	-	1	9	9	0	19	-	16	8	0	0	24	-	18	12	950	0	980	-	1616
% Lights	94.4%	100%	100%	100%	94.7%	-	100%	90.0%	100%	0%	95.0%	-	94.1%	72.7%	0%	0%	85.7%	-	94.7%	92.3%	96.5%	0%	96.5%	-	95.6%
Articulated Trucks	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	1	-	1
% Articulated Trucks	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0.1%	0%	0.1%	-	0.1%
Buses and Single-Unit Trucks	9	0	0	0	9	-	0	0	0	0	0	-	1	3	0	0	4	-	1	0	6	0	7	-	20
% Buses and Single-Unit Trucks	1.5%	0%	0%	0%	1.4%	-	0%	0%	0%	0%	0%	-	5.9%	27.3%	0%	0%	14.3%	-	5.3%	0%	0.6%	0%	0.7%	-	1.2%
Bicycles on Road	24	0	0	0	24	-	0	1	0	0	1	-	0	0	0	0	0	-	0	1	27	0	28	-	53
% Bicycles on Road	4.1%	0%	0%	0%	3.8%	-	0%	10.0%	0%	0%	5.0%	-	0%	0%	0%	0%	0%	-	0%	7.7%	2.7%	0%	2.8%	-	3.1%
Pedestrians	-	-	-	-	-	24	-	-	-	-	-	37	-	-	-	-	-	37	-	-	-	-	-	4	
% Pedestrians	-	-	-	-	-	100%	-	-	-	-	-	97.4%	-	-	-	-	-	100%	-	-	-	-	-	100%	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	0%	-	-	-	-	-	2.6%	-	-	-	-	-	0%	-	-	-	-	-	0%	-

* Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Riverside Drive and Booth Street - TMC

Wed Nov 15, 2023

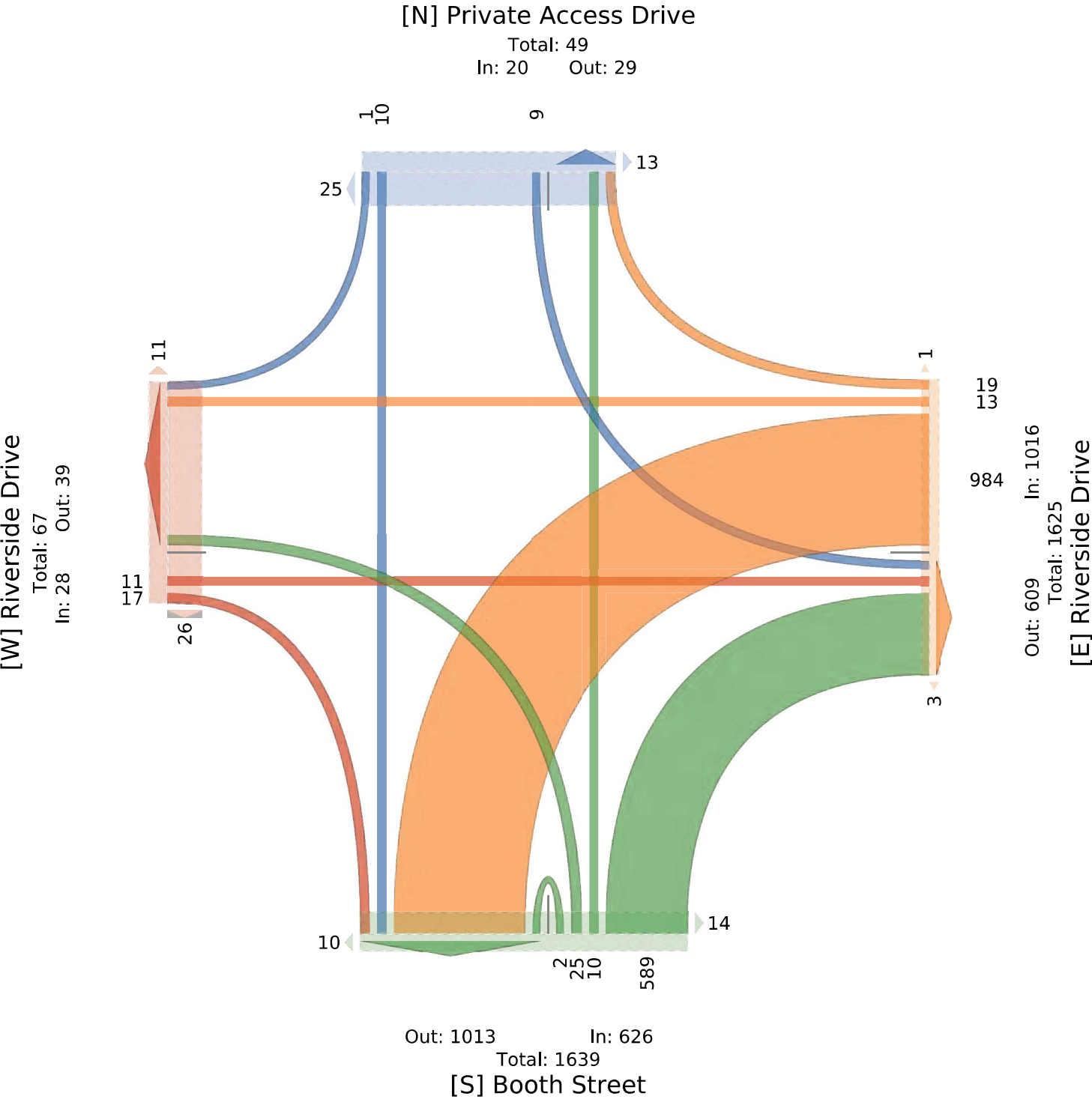
Full Length (7 AM-9 AM, 4 PM-6 PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 1134873, Location: 39.520539, -119.826407

Provided by: Kimley-Horn and Associates, Inc.
767 Eustis Street, Suite 100,
Saint Paul, MN, 55114, US



Riverside Drive and Booth Street - TMC

Wed Nov 15, 2023

AM Peak (7 AM - 8 AM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 1134873, Location: 39.520539, -119.826407

Provided by: Kimley-Horn and

Associates, Inc.

767 Eustis Street, Suite 100,

Saint Paul, MN, 55114, US

Leg Direction	Booth Street Northbound						Private Access Drive Southbound						Riverside Drive Eastbound						Riverside Drive Westbound						
Time	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	Int
2023-11-15 7:00AM	31	0	1	0	32	12	0	2	2	0	4	0	0	0	0	0	0	11	0	0	56	0	56	0	92
7:15AM	53	2	0	0	55	1	0	0	1	0	1	5	1	0	0	0	1	7	0	0	144	0	144	0	201
7:30AM	82	0	0	0	82	2	0	1	0	0	1	3	1	2	0	0	3	5	0	0	121	0	121	0	207
7:45AM	39	0	0	0	39	0	0	0	0	0	0	8	0	0	0	0	0	4	0	0	45	0	45	0	84
Total	205	2	1	0	208	15	0	3	3	0	6	16	2	2	0	0	4	27	0	0	366	0	366	0	584
% Approach	98.6%	1.0%	0.5%	0%	-	-	0%	50.0%	50.0%	0%	-	-	50.0%	50.0%	0%	0%	-	-	0%	0%	100%	0%	-	-	-
% Total	35.1%	0.3%	0.2%	0%	35.6%	-	0%	0.5%	0.5%	0%	1.0%	-	0.3%	0.3%	0%	0%	0.7%	-	0%	0%	62.7%	0%	62.7%	-	-
PHF	0.631	0.250	0.250	-	0.641	-	-	0.375	0.375	-	0.375	-	0.500	0.250	-	-	0.333	-	-	-	0.637	-	0.637	-	0.704
Lights	201	2	1	0	204	-	0	3	3	0	6	-	2	2	0	0	4	-	0	0	360	0	360	-	574
% Lights	98.0%	100%	100%	0%	98.1%	-	0%	100%	100%	0%	100%	-	100%	100%	0%	0%	100%	-	0%	0%	98.4%	0%	98.4%	-	98.3%
Articulated Trucks	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0
% Articulated Trucks	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%
Buses and Single-Unit Trucks	1	0	0	0	1	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	2	0	2	-	3
% Buses and Single-Unit Trucks	0.5%	0%	0%	0%	0.5%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0.5%	0%	0.5%	-	0.5%
Bicycles on Road	3	0	0	0	3	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	4	0	4	-	7
% Bicycles on Road	1.5%	0%	0%	0%	1.4%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	1.1%	0%	1.1%	-	1.2%
Pedestrians	-	-	-	-	-	15	-	-	-	-	-	15	-	-	-	-	-	27	-	-	-	-	-	0	
% Pedestrians	-	-	-	-	-	100%	-	-	-	-	-	93.8%	-	-	-	-	-	100%	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	0%	-	-	-	-	-	6.3%	-	-	-	-	-	0%	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Riverside Drive and Booth Street - TMC

Wed Nov 15, 2023

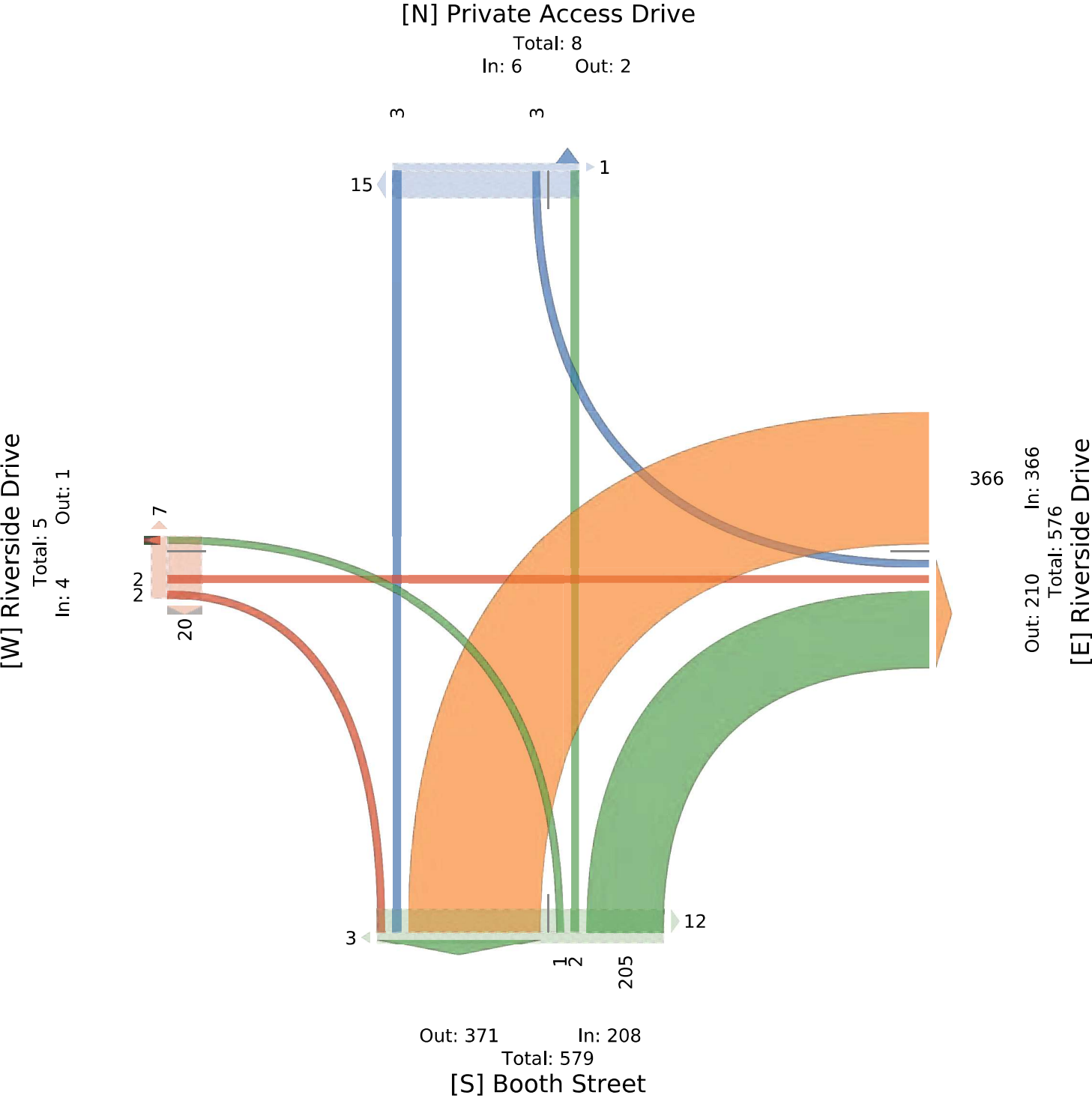
AM Peak (7 AM - 8 AM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 1134873, Location: 39.520539, -119.826407

Provided by: Kimley-Horn and Associates, Inc.
767 Eustis Street, Suite 100,
Saint Paul, MN, 55114, US



Riverside Drive and Booth Street - TMC

Wed Nov 15, 2023

PM Peak (4 PM - 5 PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 1134873, Location: 39.520539, -119.826407

Provided by: Kimley-Horn and Associates, Inc.

767 Eustis Street, Suite 100,
Saint Paul, MN, 55114, US

Leg Direction	Booth Street Northbound						Private Access Drive Southbound						Riverside Drive Eastbound						Riverside Drive Westbound						
Time	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	Int
2023-11-15 4:00PM	43	1	1	0	45	0	0	2	0	0	2	4	2	1	0	0	3	1	2	2	62	0	66	0	116
4:15PM	45	1	2	0	48	2	0	0	0	0	0	2	2	0	0	0	2	1	1	2	64	0	67	0	117
4:30PM	30	1	4	0	35	0	0	0	0	0	0	2	1	1	0	0	2	0	2	1	71	0	74	1	111
4:45PM	33	1	2	0	36	1	0	0	0	0	0	3	1	0	0	0	1	0	0	0	60	0	60	0	97
Total	151	4	9	0	164	3	0	2	0	0	2	11	6	2	0	0	8	2	5	5	257	0	267	1	441
% Approach	92.1%	2.4%	5.5%	0%	-	-	0%	100%	0%	0%	-	-	75.0%	25.0%	0%	0%	-	-	1.9%	1.9%	96.3%	0%	-	-	-
% Total	34.2%	0.9%	2.0%	0%	37.2%	-	0%	0.5%	0%	0%	0.5%	-	1.4%	0.5%	0%	0%	1.8%	-	1.1%	1.1%	58.3%	0%	60.5%	-	-
PHF	0.802	1.000	0.563	-	0.821	-	-	0.250	-	-	0.250	-	0.750	0.500	-	-	0.667	-	0.625	0.500	0.875	-	0.870	-	0.952
Lights	138	4	9	0	151	-	0	2	0	0	2	-	5	1	0	0	6	-	5	4	245	0	254	-	413
% Lights	91.4%	100%	100%	0%	92.1%	-	0%	100%	0%	0%	100%	-	83.3%	50.0%	0%	0%	75.0%	-	100%	80.0%	95.3%	0%	95.1%	-	93.7%
Articulated Trucks	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0
% Articulated Trucks	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%
Buses and Single-Unit Trucks	0	0	0	0	0	-	0	0	0	0	0	-	1	1	0	0	2	-	0	0	0	0	0	-	2
% Buses and Single-Unit Trucks	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	16.7%	50.0%	0%	0%	25.0%	-	0%	0%	0%	0%	0%	-	0.5%
Bicycles on Road	13	0	0	0	13	-	0	0	0	0	0	-	0	0	0	0	0	-	0	1	12	0	13	-	26
% Bicycles on Road	8.6%	0%	0%	0%	7.9%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	20.0%	4.7%	0%	4.9%	-	5.9%
Pedestrians	-	-	-	-	-	3	-	-	-	-	-	11	-	-	-	-	-	2	-	-	-	-	-	1	
% Pedestrians	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	100%	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-

* Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Riverside Drive and Booth Street - TMC

Wed Nov 15, 2023

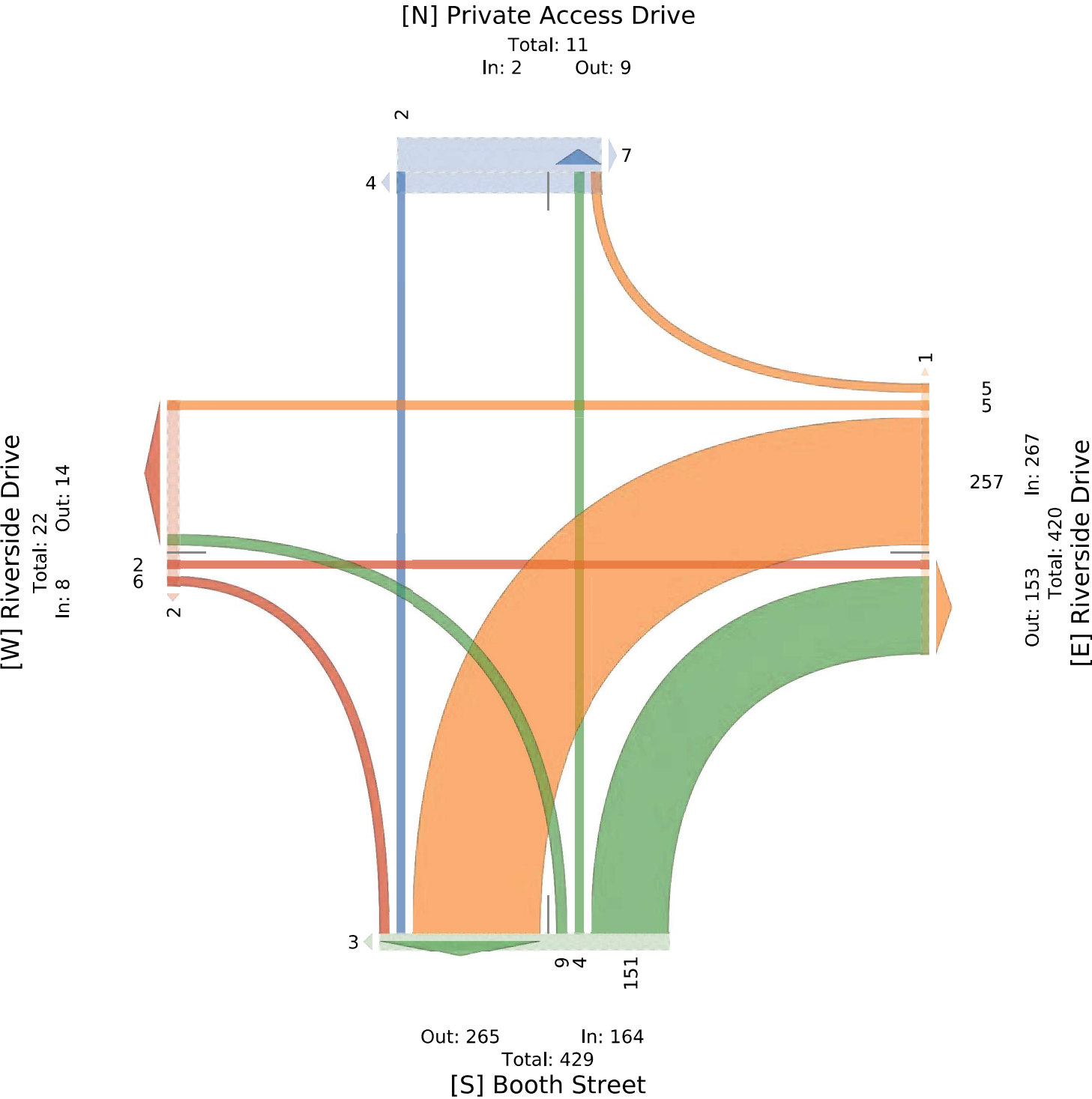
PM Peak (4 PM - 5 PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 1134873, Location: 39.520539, -119.826407

Provided by: Kimley-Horn and Associates, Inc.
767 Eustis Street, Suite 100,
Saint Paul, MN, 55114, US



Idlewild Drive and Booth Street - TMC

Wed Nov 15, 2023

Full Length (7 AM-9 AM, 4 PM-6 PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 1134216, Location: 39.519984, -119.826455

Provided by: Kimley-Horn and

Associates, Inc.

767 Eustis Street, Suite 100,

Saint Paul, MN, 55114, US

Leg Direction	Booth Street Northbound					Booth Street Southbound					Idlewild Drive Eastbound					
Time	T	L	U	App	Ped*	R	T	U	App	Ped*	R	L	U	App	Ped*	Int
2023-11-15 7:00AM	66	21	0	87	0	88	283	0	371	19	92	137	0	229	49	687
8:00AM	23	9	0	32	0	107	56	0	163	23	36	110	0	146	11	341
4:00PM	58	36	0	94	2	161	103	0	264	27	50	99	0	149	17	507
5:00PM	35	32	0	67	0	134	84	0	218	17	41	87	0	128	6	413
6:00PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	182	98	0	280	2	490	526	0	1016	86	219	433	0	652	83	1948
% Approach	65.0%	35.0%	0%	-	-	48.2%	51.8%	0%	-	-	33.6%	66.4%	0%	-	-	-
% Total	9.3%	5.0%	0%	14.4%	-	25.2%	27.0%	0%	52.2%	-	11.2%	22.2%	0%	33.5%	-	-
Lights	174	93	0	267	-	465	518	0	983	-	207	416	0	623	-	1873
% Lights	95.6%	94.9%	0%	95.4%	-	94.9%	98.5%	0%	96.8%	-	94.5%	96.1%	0%	95.6%	-	96.1%
Articulated Trucks	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0
% Articulated Trucks	0%	0%	0%	0%	-	0%	0%	0%	0%	-	0%	0%	0%	0%	-	0%
Buses and Single-Unit Trucks	0	4	0	4	-	5	2	0	7	-	9	9	0	18	-	29
% Buses and Single-Unit Trucks	0%	4.1%	0%	1.4%	-	1.0%	0.4%	0%	0.7%	-	4.1%	2.1%	0%	2.8%	-	1.5%
Bicycles on Road	8	1	0	9	-	20	6	0	26	-	3	8	0	11	-	46
% Bicycles on Road	4.4%	1.0%	0%	3.2%	-	4.1%	1.1%	0%	2.6%	-	1.4%	1.8%	0%	1.7%	-	2.4%
Pedestrians	-	-	-	-	2	-	-	-	-	84	-	-	-	-	82	
% Pedestrians	-	-	-	-	100%	-	-	-	-	97.7%	-	-	-	-	98.8%	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	2	-	-	-	-	1	
% Bicycles on Crosswalk	-	-	-	-	0%	-	-	-	-	2.3%	-	-	-	-	1.2%	-

* Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Idlewild Drive and Booth Street - TMC

Wed Nov 15, 2023

Full Length (7 AM-9 AM, 4 PM-6 PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 1134216, Location: 39.519984, -119.826455

Provided by: Kimley-Horn and Associates, Inc.
767 Eustis Street, Suite 100,
Saint Paul, MN, 55114, US

[N] Booth Street

Total: 1631

In: 1016

Out: 615



Idlewild Drive and Booth Street - TMC

Wed Nov 15, 2023

AM Peak (7 AM - 8 AM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 1134216, Location: 39.519984, -119.826455

Provided by: Kimley-Horn and

Associates, Inc.

767 Eustis Street, Suite 100,

Saint Paul, MN, 55114, US

Leg Direction	Booth Street Northbound					Booth Street Southbound					Idlewild Drive Eastbound					
Time	T	L	U	App	Ped*	R	T	U	App	Ped*	R	L	U	App	Ped*	Int
2023-11-15 7:00AM	6	5	0	11	0	16	42	0	58	5	10	24	0	34	19	103
7:15AM	19	4	0	23	0	24	119	0	143	6	43	33	0	76	11	242
7:30AM	29	7	0	36	0	27	98	0	125	5	27	53	0	80	12	241
7:45AM	12	5	0	17	0	21	24	0	45	3	12	27	0	39	7	101
Total	66	21	0	87	0	88	283	0	371	19	92	137	0	229	49	687
% Approach	75.9%	24.1%	0%	-	-	23.7%	76.3%	0%	-	-	40.2%	59.8%	0%	-	-	-
% Total	9.6%	3.1%	0%	12.7%	-	12.8%	41.2%	0%	54.0%	-	13.4%	19.9%	0%	33.3%	-	-
PHF	0.593	0.750	-	0.625	-	0.778	0.595	-	0.651	-	0.535	0.642	-	0.713	-	0.708
Lights	64	19	0	83	-	83	283	0	366	-	89	133	0	222	-	671
% Lights	97.0%	90.5%	0%	95.4%	-	94.3%	100%	0%	98.7%	-	96.7%	97.1%	0%	96.9%	-	97.7%
Articulated Trucks	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0
% Articulated Trucks	0%	0%	0%	0%	-	0%	0%	0%	0%	-	0%	0%	0%	0%	-	0%
Buses and Single-Unit Trucks	0	2	0	2	-	1	0	0	1	-	3	3	0	6	-	9
% Buses and Single-Unit Trucks	0%	9.5%	0%	2.3%	-	1.1%	0%	0%	0.3%	-	3.3%	2.2%	0%	2.6%	-	1.3%
Bicycles on Road	2	0	0	2	-	4	0	0	4	-	0	1	0	1	-	7
% Bicycles on Road	3.0%	0%	0%	2.3%	-	4.5%	0%	0%	1.1%	-	0%	0.7%	0%	0.4%	-	1.0%
Pedestrians	-	-	-	-	0	-	-	-	-	19	-	-	-	-	49	
% Pedestrians	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	100%	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	0%	-	-	-	-	0%	-

* Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Idlewild Drive and Booth Street - TMC

Wed Nov 15, 2023

AM Peak (7 AM - 8 AM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

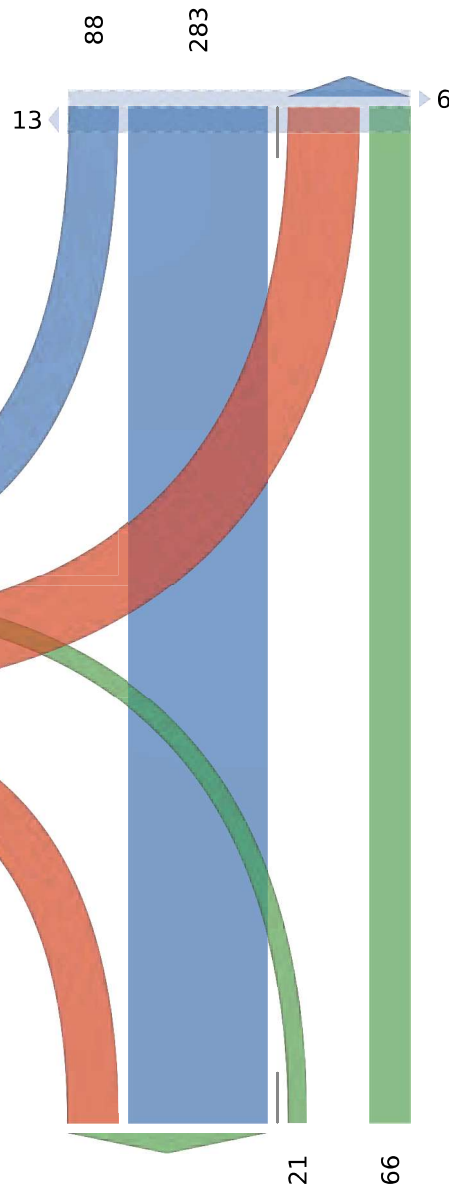
ID: 1134216, Location: 39.519984, -119.826455

Provided by: Kimley-Horn and Associates, Inc.

767 Eustis Street, Suite 100,
Saint Paul, MN, 55114, US

[N] Booth Street

Total: 574
In: 371 Out: 203



[W] Idlewild Drive

Total: 338
In: 229 Out: 109

Out: 375 In: 87
Total: 462

[S] Booth Street

Idlewild Drive and Booth Street - TMC

Wed Nov 15, 2023

PM Peak (4 PM - 5 PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 1134216, Location: 39.519984, -119.826455

Provided by: Kimley-Horn and

Associates, Inc.

767 Eustis Street, Suite 100,

Saint Paul, MN, 55114, US

Leg Direction	Booth Street Northbound					Booth Street Southbound					Idlewild Drive Eastbound					
Time	T	L	U	App	Ped*	R	T	U	App	Ped*	R	L	U	App	Ped*	Int
2023-11-15 4:00PM	15	11	0	26	0	42	24	0	66	6	12	23	0	35	3	127
4:15PM	15	10	0	25	1	36	31	0	67	13	5	33	0	38	9	130
4:30PM	12	8	0	20	0	44	28	0	72	4	17	24	0	41	2	133
4:45PM	16	7	0	23	1	39	20	0	59	4	16	19	0	35	3	117
Total	58	36	0	94	2	161	103	0	264	27	50	99	0	149	17	507
% Approach	61.7%	38.3%	0%	-	-	61.0%	39.0%	0%	-	-	33.6%	66.4%	0%	-	-	-
% Total	11.4%	7.1%	0%	18.5%	-	31.8%	20.3%	0%	52.1%	-	9.9%	19.5%	0%	29.4%	-	-
PHF	0.900	0.795	-	0.890	-	0.881	0.853	-	0.894	-	0.706	0.750	-	0.878	-	0.929
Lights	54	34	0	88	-	154	99	0	253	-	46	96	0	142	-	483
% Lights	93.1%	94.4%	0%	93.6%	-	95.7%	96.1%	0%	95.8%	-	92.0%	97.0%	0%	95.3%	-	95.3%
Articulated Trucks	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0
% Articulated Trucks	0%	0%	0%	0%	-	0%	0%	0%	0%	-	0%	0%	0%	0%	-	0%
Buses and Single-Unit Trucks	0	1	0	1	-	1	0	0	1	-	2	0	0	2	-	4
% Buses and Single-Unit Trucks	0%	2.8%	0%	1.1%	-	0.6%	0%	0%	0.4%	-	4.0%	0%	0%	1.3%	-	0.8%
Bicycles on Road	4	1	0	5	-	6	4	0	10	-	2	3	0	5	-	20
% Bicycles on Road	6.9%	2.8%	0%	5.3%	-	3.7%	3.9%	0%	3.8%	-	4.0%	3.0%	0%	3.4%	-	3.9%
Pedestrians	-	-	-	-	2	-	-	-	-	25	-	-	-	-	16	
% Pedestrians	-	-	-	-	100%	-	-	-	-	92.6%	-	-	-	-	94.1%	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	2	-	-	-	-	1	
% Bicycles on Crosswalk	-	-	-	-	0%	-	-	-	-	7.4%	-	-	-	-	5.9%	-

* Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Idlewild Drive and Booth Street - TMC

Wed Nov 15, 2023

PM Peak (4 PM - 5 PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 1134216, Location: 39.519984, -119.826455

Provided by: Kimley-Horn and

Associates, Inc.

767 Eustis Street, Suite 100,

Saint Paul, MN, 55114, US

[N] Booth Street

Total: 421

In: 264

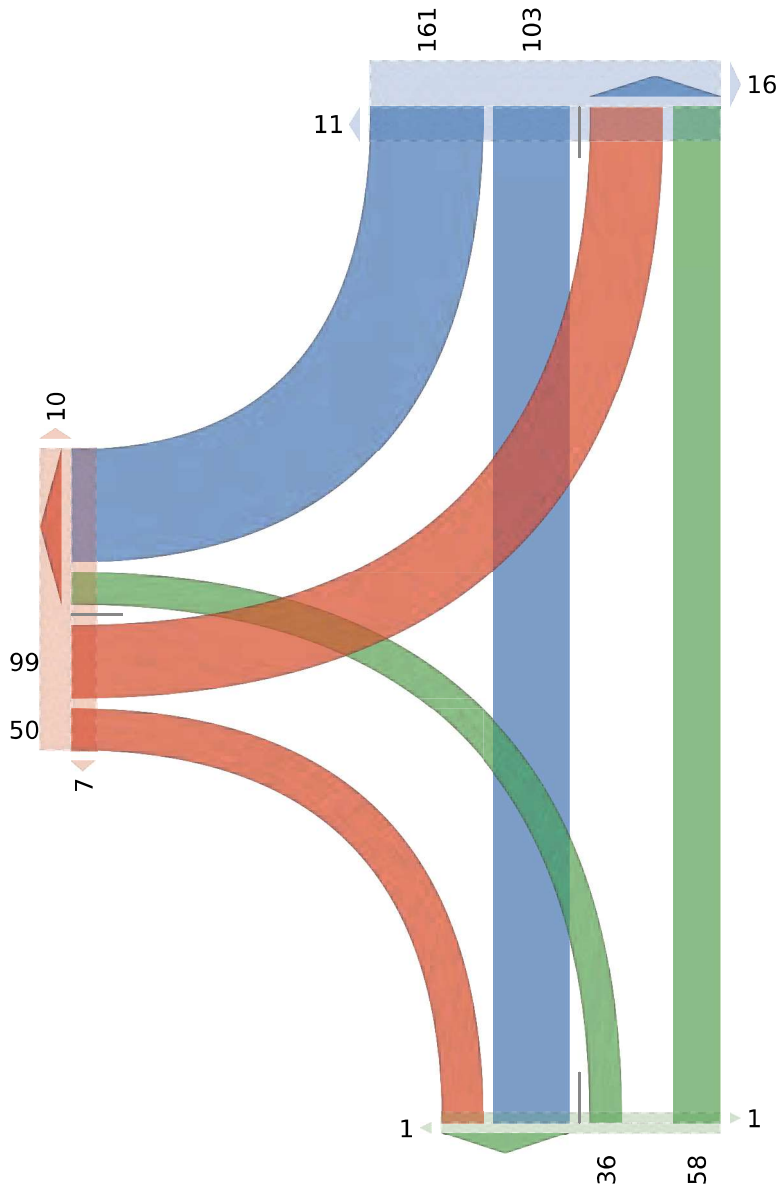
Out: 157

[W] Idlewild Drive

Total: 346

In: 149

Out: 197



Out: 153 In: 94

Total: 247

[S] Booth Street

APPENDIX D

TRIP GENERATION CALCULATIONS

Project Riverside Drive Apartments



Trip generation for Multifamily Housing (Mid-Rise), Not Close to Rail Transit

Designed by AKT

Date January 11, 2024

Job No. 192437000

Checked by DJG

Date January 11, 2024

Sheet No. 1 of 1

TRIP GENERATION MANUAL TECHNIQUES

ITE Trip Generation 11th Edition, Average Rate Equations

Land Use Code - **221** Multifamily Housing (Mid-Rise)
Land Use Sub Category Not Close to Rail Transit
Setting/Location General Urban/Suburban
Independent Variable - Dwelling Unit(s)
Number of Units (X) - 180

T = Trip Ends

Peak Hour: Weekday, Adjacent Street Traffic

One Hour Between 7 and 9 AM

Average Rate

$$T = (X) * 0.37$$

$$T = 67$$

Trip Ends Per Dwelling Unit(s)
Trip Ends

Directional Distribution:

23% Entering	77% Exiting
15 Entering	52 Exiting

Peak Hour: Weekday, Adjacent Street Traffic

One Hour Between 4 and 6 PM

Average Rate

$$T = (X) * 0.39$$

$$T = 70$$

Trip Ends Per Dwelling Unit(s)
Trip Ends

Directional Distribution:

61% Entering	39% Exiting
43 Entering	27 Exiting

Daily Weekday

Average Rate

$$T = (X) * 4.45$$

$$T = 802$$

Trip Ends Per Dwelling Unit(s)
Trip Ends

Directional Distribution:

50% Entering	50% Exiting
401 Entering	401 Exiting

Non-Pass-By Trip Percentage

AM Peak	100%
PM Peak	100%

Non-Pass-By Trip Volumes

AM Peak	15 Entering	52 Exiting
PM Peak	43 Entering	27 Exiting

Note: Rounding may occur in calculations

APPENDIX E

KEY INTERSECTION PEAK HOUR LOS CALCULATIONS

HCM 6th Signalized Intersection Summary

1: Keystone Avenue & West 1st Street

12/19/2023

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	7	9	9	7	60	2	736	12	143	828	18
Future Volume (veh/h)	23	7	9	9	7	60	2	736	12	143	828	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	28	8	11	11	8	72	2	887	14	172	998	22
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	381	110	137	622	755	639	176	1453	23	478	2038	45
Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.40	0.01	0.41	0.41	0.17	0.57	0.57
Sat Flow, veh/h	839	274	340	1393	1870	1584	1781	3580	57	1781	3555	78
Grp Volume(v), veh/h	47	0	0	11	8	72	2	440	461	172	499	521
Grp Sat Flow(s),veh/h/ln	1452	0	0	1393	1870	1584	1781	1777	1860	1781	1777	1856
Q Serve(g_s), s	1.0	0.0	0.0	0.0	0.3	3.8	0.1	26.4	26.4	0.0	22.5	22.5
Cycle Q Clear(g_c), s	2.4	0.0	0.0	0.5	0.3	3.8	0.1	26.4	26.4	0.0	22.5	22.5
Prop In Lane	0.60		0.23	1.00		1.00	1.00		0.03	1.00		0.04
Lane Grp Cap(c), veh/h	629	0	0	622	755	639	176	721	755	478	1019	1064
V/C Ratio(X)	0.07	0.00	0.00	0.02	0.01	0.11	0.01	0.61	0.61	0.36	0.49	0.49
Avail Cap(c_a), veh/h	632	0	0	625	759	643	366	721	755	478	1019	1064
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.7	0.0	0.0	24.2	24.1	25.1	27.6	31.7	31.7	37.2	17.1	17.1
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.0	0.1	0.0	3.8	3.7	0.5	1.7	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.7	0.0	0.0	0.4	0.3	2.7	0.1	17.8	18.5	8.6	14.7	15.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.7	0.0	0.0	24.2	24.1	25.2	27.7	35.5	35.3	37.6	18.8	18.7
LnGrp LOS	C	A	A	C	C	C	C	D	D	D	B	B
Approach Vol, veh/h	47		91				903		1192			
Approach Delay, s/veh	24.7		25.0				35.4		21.5			
Approach LOS	C		C				D		C			
Timer - Assigned Phs	1	2	4		5	6	8					
Phs Duration (G+Y+Rc), s	28.6	60.0	59.7		5.6	83.0	59.7					
Change Period (Y+Rc), s	* 5.2	* 5.2	* 5.2		4.5	* 5.2	* 5.2					
Max Green Setting (Gmax), s	* 11	* 55	* 55		15.5	* 50	* 55					
Max Q Clear Time (g_c+I1), s	2.0	28.4	4.4		2.1	24.5	5.8					
Green Ext Time (p_c), s	0.3	6.4	0.3		0.0	7.4	0.3					
Intersection Summary												
HCM 6th Ctrl Delay			27.3									
HCM 6th LOS			C									
Notes												

HCM 6th TWSC
2: Keystone Avenue & Jones Street

12/19/2023

Intersection												
Int Delay, s/veh	2.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	23	3	10	4	2	71	5	643	6	4	827	30
Future Vol, veh/h	23	3	10	4	2	71	5	643	6	4	827	30
Conflicting Peds, #/hr	0	0	0	0	0	0	6	0	1	1	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	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	29	4	13	5	3	89	6	804	8	5	1034	38
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1485	1894	542	1350	1909	407	1078	0	0	813	0	0
Stage 1	1069	1069	-	821	821	-	-	-	-	-	-	-
Stage 2	416	825	-	529	1088	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	-	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	10	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	10	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	-	-	-	2.22	-	-
Pot Cap-1 Maneuver	86	69	485	109	68	593	-	-	-	810	-	-
Stage 1	236	296	-	335	140	-	-	-	-	-	-	-
Stage 2	585	385	-	501	75	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	70	67	482	100	67	592	-	-	-	809	-	-
Mov Cap-2 Maneuver	70	67	-	100	67	-	-	-	-	-	-	-
Stage 1	236	290	-	335	140	-	-	-	-	-	-	-
Stage 2	488	385	-	474	73	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	78.3		16.6				0					
HCM LOS	F		C									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	-	-	-	91	406	809	-	-				
HCM Lane V/C Ratio	-	-	-	0.495	0.237	0.006	-	-				
HCM Control Delay (s)	-	-	-	78.3	16.6	9.5	-	-				
HCM Lane LOS	-	-	-	F	C	A	-	-				
HCM 95th %tile Q(veh)	-	-	-	2.1	0.9	0	-	-				

HCM 6th TWSC
3: Project Alley & Jones Street

12/19/2023

Intersection

Int Delay, s/veh 1.7

Movement EBT EBR WBL WBT NBL NBR

Lane Configurations

Traffic Vol, veh/h 26 1 3 24 3 7

Future Vol, veh/h 26 1 3 24 3 7

Conflicting Peds, #/hr 0 2 2 0 1 2

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 70 70 70 70 70 70

Heavy Vehicles, % 2 2 2 2 2 2

Mvmt Flow 37 1 4 34 4 10

Major/Minor Major1 Major2 Minor1

Conflicting Flow All 0 0 40 0 83 42

Stage 1 - - - - 40 -

Stage 2 - - - - 43 -

Critical Hdwy - - 4.12 - 6.42 6.22

Critical Hdwy Stg 1 - - - - 5.42 -

Critical Hdwy Stg 2 - - - - 5.42 -

Follow-up Hdwy - - 2.218 - 3.518 3.318

Pot Cap-1 Maneuver - - 1570 - 919 1029

Stage 1 - - - - 982 -

Stage 2 - - - - 979 -

Platoon blocked, % - - - -

Mov Cap-1 Maneuver - - 1567 - 913 1025

Mov Cap-2 Maneuver - - - - 913 -

Stage 1 - - - - 980 -

Stage 2 - - - - 975 -

Approach EB WB NB

HCM Control Delay, s 0 0.8 8.7

HCM LOS A

Minor Lane/Major Mvmt NBLn1 EBT EBR WBL WBT

Capacity (veh/h) 989 - - 1567 -

HCM Lane V/C Ratio 0.014 - - 0.003 -

HCM Control Delay (s) 8.7 - - 7.3 0

HCM Lane LOS A - - A A

HCM 95th %tile Q(veh) 0 - - 0 -

Intersection													
Int Delay, s/veh	8.3												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Vol, veh/h	0	2	2	366	0	0	1	2	205	3	3	0	
Future Vol, veh/h	0	2	2	366	0	0	1	2	205	3	3	0	
Conflicting Peds, #/hr	0	0	15	15	0	16	27	0	0	0	0	0	
Sign Control	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free	Free	
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None	
Storage Length	-	-	-	-	-	-	0	-	-	-	-	-	
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-	
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-	
Peak Hour Factor	70	70	70	70	70	70	70	70	70	70	70	70	
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	
Mvmt Flow	0	3	3	523	0	0	1	3	293	4	4	0	
Major/Minor	Minor1		Major2				Major1						
Conflicting Flow All	-	1073	34	19	0	0				0	0	0	
Stage 1	-	27	-	-	-	-				-	-	-	
Stage 2	-	1046	-	-	-	-				-	-	-	
Critical Hdwy	-	6.52	6.22	4.12	-	-				4.12	-	-	
Critical Hdwy Stg 1	-	5.52	-	-	-	-				-	-	-	
Critical Hdwy Stg 2	-	5.52	-	-	-	-				-	-	-	
Follow-up Hdwy	-	4.018	3.318	2.218	-	-				2.218	-	-	
Pot Cap-1 Maneuver	0	220	1039	1597	-	0				-	-	-	
Stage 1	0	873	-	-	-	0				-	-	-	
Stage 2	0	305	-	-	-	0				-	-	-	
Platoon blocked, %													-
Mov Cap-1 Maneuver	-	0	1010	1574	-	-				-	-	-	
Mov Cap-2 Maneuver	-	0	-	-	-	-				-	-	-	
Stage 1	-	0	-	-	-	-				-	-	-	
Stage 2	-	0	-	-	-	-				-	-	-	
Approach	EB		WB				SB						
HCM Control Delay, s	8.6		8.4										
HCM LOS	A												
Minor Lane/Major Mvmt	EBLn1	WBL	WBT	SBL	SBT	SBR							
Capacity (veh/h)	1010	1574	-	-	-	-							
HCM Lane V/C Ratio	0.006	0.332	-	-	-	-							
HCM Control Delay (s)	8.6	8.4	0	-	-	-							
HCM Lane LOS	A	A	A	-	-	-							
HCM 95th %tile Q(veh)	0	1.5	-	-	-	-							

HCM 6th TWSC
5: Booth Street & Idlewild Drive

12/19/2023

Intersection						
Int Delay, s/veh	7.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	137	92	21	66	283	88
Future Vol, veh/h	137	92	21	66	283	88
Conflicting Peds, #/hr	19	0	49	0	0	49
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	71	71	71	71	71	71
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	193	130	30	93	399	124
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	682	510	572	0	-	0
Stage 1	510	-	-	-	-	-
Stage 2	172	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	415	563	1001	-	-	-
Stage 1	603	-	-	-	-	-
Stage 2	858	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	364	537	954	-	-	-
Mov Cap-2 Maneuver	364	-	-	-	-	-
Stage 1	556	-	-	-	-	-
Stage 2	818	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	20.8	2.1		0		
HCM LOS	C					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	954	-	364	537	-	-
HCM Lane V/C Ratio	0.031	-	0.53	0.241	-	-
HCM Control Delay (s)	8.9	0	25.5	13.8	-	-
HCM Lane LOS	A	A	D	B	-	-
HCM 95th %tile Q(veh)	0.1	-	3	0.9	-	-

HCM 6th Signalized Intersection Summary

1: Keystone Avenue & West 1st Street

12/19/2023

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	7	13	17	6	196	8	731	16	86	764	16
Future Volume (veh/h)	20	7	13	17	6	196	8	731	16	86	764	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	22	8	15	19	7	220	9	821	18	97	858	18
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	301	113	187	621	759	641	207	1311	29	487	1865	39
Arrive On Green	0.41	0.41	0.41	0.41	0.41	0.41	0.03	0.37	0.37	0.18	0.52	0.52
Sat Flow, veh/h	643	279	461	1384	1870	1579	1781	3555	78	1781	3559	75
Grp Volume(v), veh/h	45	0	0	19	7	220	9	410	429	97	428	448
Grp Sat Flow(s),veh/h/ln	1383	0	0	1384	1870	1579	1781	1777	1856	1781	1777	1857
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.3	13.0	0.4	25.6	25.6	0.0	20.4	20.4
Cycle Q Clear(g_c), s	2.1	0.0	0.0	0.9	0.3	13.0	0.4	25.6	25.6	0.0	20.4	20.4
Prop In Lane	0.49		0.33	1.00		1.00	1.00		0.04	1.00		0.04
Lane Grp Cap(c), veh/h	601	0	0	621	759	641	207	655	685	487	931	973
V/C Ratio(X)	0.07	0.00	0.00	0.03	0.01	0.34	0.04	0.63	0.63	0.20	0.46	0.46
Avail Cap(c_a), veh/h	601	0	0	621	759	641	353	655	685	487	931	973
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.4	0.0	0.0	24.1	23.9	27.7	30.5	35.0	35.0	33.7	20.1	20.1
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.0	0.0	0.3	0.1	4.5	4.3	0.2	1.6	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.6	0.0	0.0	0.7	0.2	8.7	0.4	17.6	18.2	4.5	13.8	14.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.5	0.0	0.0	24.1	23.9	28.0	30.6	39.4	39.3	33.9	21.8	21.7
LnGrp LOS	C	A	A	C	C	C	C	D	D	C	C	C
Approach Vol, veh/h	45			246			848			973		
Approach Delay, s/veh	24.5			27.6			39.3			23.0		
Approach LOS	C			C			D			C		
Timer - Assigned Phs	1	2	4		5	6	8					
Phs Duration (G+Y+Rc), s	30.2	55.0	60.0		8.9	76.3	60.0					
Change Period (Y+Rc), s	* 5.2	* 5.2	* 5.2		4.5	* 5.2	* 5.2					
Max Green Setting (Gmax), s	* 16	* 50	* 55		15.5	* 50	* 55					
Max Q Clear Time (g_c+I1), s	2.0	27.6	4.1		2.4	22.4	15.0					
Green Ext Time (p_c), s	0.2	5.6	0.3		0.0	6.2	0.9					
Intersection Summary												
HCM 6th Ctrl Delay			30.1									
HCM 6th LOS			C									
Notes												

Intersection												
Int Delay, s/veh	1.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	0	18	2	2	61	11	665	14	4	744	43
Future Vol, veh/h	25	0	18	2	2	61	11	665	14	4	744	43
Conflicting Peds, #/hr	1	0	0	0	0	1	4	0	3	3	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	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	28	0	20	2	2	68	12	739	16	4	827	48
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1259	1645	442	1196	1661	382	879	0	0	758	0	0
Stage 1	863	863	-	774	774	-	-	-	-	-	-	-
Stage 2	396	782	-	422	887	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	127	99	563	142	96	616	764	-	-	849	-	-
Stage 1	316	370	-	357	406	-	-	-	-	-	-	-
Stage 2	601	403	-	580	360	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	107	95	561	133	92	613	761	-	-	847	-	-
Mov Cap-2 Maneuver	107	95	-	133	92	-	-	-	-	-	-	-
Stage 1	306	365	-	346	394	-	-	-	-	-	-	-
Stage 2	517	391	-	554	355	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	36.3		13.9		0.3		0					
HCM LOS	E		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	761	-	-	162	477	847	-	-				
HCM Lane V/C Ratio	0.016	-	-	0.295	0.151	0.005	-	-				
HCM Control Delay (s)	9.8	0.1	-	36.3	13.9	9.3	-	-				
HCM Lane LOS	A	A	-	E	B	A	-	-				
HCM 95th %tile Q(veh)	0	-	-	1.2	0.5	0	-	-				

HCM 6th TWSC
3: Project Alley & Jones Street

12/19/2023

Intersection						
Int Delay, s/veh	3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	25	3	11	27	8	12
Future Vol, veh/h	25	3	11	27	8	12
Conflicting Peds, #/hr	0	4	4	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	82	82	82	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	30	4	13	33	10	15
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	38	0	95	36
Stage 1	-	-	-	-	36	-
Stage 2	-	-	-	-	59	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1572	-	905	1037
Stage 1	-	-	-	-	986	-
Stage 2	-	-	-	-	964	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1566	-	894	1033
Mov Cap-2 Maneuver	-	-	-	-	894	-
Stage 1	-	-	-	-	982	-
Stage 2	-	-	-	-	956	-
Approach	EB	WB		NB		
HCM Control Delay, s	0	2.1		8.8		
HCM LOS	A					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	973	-	-	1566	-	
HCM Lane V/C Ratio	0.025	-	-	0.009	-	
HCM Control Delay (s)	8.8	-	-	7.3	0	
HCM Lane LOS	A	-	-	A	A	
HCM 95th %tile Q(veh)	0.1	-	-	0	-	

Intersection												
Int Delay, s/veh	7.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	2	6	257	5	5	9	4	151	0	2	0
Future Vol, veh/h	0	2	6	257	5	5	9	4	151	0	2	0
Conflicting Peds, #/hr	0	0	3	3	0	11	2	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	2	6	271	5	5	9	4	159	0	2	0
Major/Minor	Minor1			Major2			Major1					
Conflicting Flow All	-	568	8	5	0	0	21			0	0	
Stage 1	-	5	-	-	-	-	-			-	-	-
Stage 2	-	563	-	-	-	-	-			-	-	-
Critical Hdwy	-	6.52	6.22	4.12	-	-	4.12			-	-	-
Critical Hdwy Stg 1	-	5.52	-	-	-	-	-			-	-	-
Critical Hdwy Stg 2	-	5.52	-	-	-	-	-			-	-	-
Follow-up Hdwy	-	4.018	3.318	2.218	-	-	2.218			-	-	-
Pot Cap-1 Maneuver	0	432	1074	1616	-	-	1595			-	-	-
Stage 1	0	892	-	-	-	-	-			-	-	-
Stage 2	0	509	-	-	-	-	-			-	-	-
Platoon blocked, %										-	-	-
Mov Cap-1 Maneuver	-	0	1068	1611	-	-	1595			-	-	-
Mov Cap-2 Maneuver	-	0	-	-	-	-	-			-	-	-
Stage 1	-	0	-	-	-	-	-			-	-	-
Stage 2	-	0	-	-	-	-	-			-	-	-
Approach	EB			WB			SB					
HCM Control Delay, s	8.4			7.4			0					
HCM LOS	A											
Minor Lane/Major Mvmt	EBLn1	WBL	WBT	WBR	SBL	SBT	SBR					
Capacity (veh/h)	1068	1611	-	-	1595	-	-					
HCM Lane V/C Ratio	0.008	0.168	-	-	-	-	-					
HCM Control Delay (s)	8.4	7.7	0	-	0	-	-					
HCM Lane LOS	A	A	A	-	A	-	-					
HCM 95th %tile Q(veh)	0	0.6	-	-	0	-	-					

HCM 6th TWSC
5: Booth Street & Idlewild Drive

12/19/2023

Intersection

Int Delay, s/veh 4

Movement EBL EBR NBL NBT SBT SBR

Lane Configurations

Traffic Vol, veh/h 99 50 36 58 103 161

Future Vol, veh/h 99 50 36 58 103 161

Conflicting Peds, #/hr 27 2 17 0 0 17

Sign Control Stop Stop Free Free Free Free

RT Channelized - None - None - None

Storage Length 0 0 - - - -

Veh in Median Storage, # 0 - - 0 0 -

Grade, % 0 - - 0 0 -

Peak Hour Factor 93 93 93 93 93 93

Heavy Vehicles, % 2 2 2 2 2 2

Mvmt Flow 106 54 39 62 111 173

Major/Minor Minor2 Major1 Major2

Conflicting Flow All 382 217 301 0 - 0

Stage 1 215 - - - - -

Stage 2 167 - - - - -

Critical Hdwy 6.42 6.22 4.12 - - -

Critical Hdwy Stg 1 5.42 - - - - -

Critical Hdwy Stg 2 5.42 - - - - -

Follow-up Hdwy 3.518 3.318 2.218 - - -

Pot Cap-1 Maneuver 620 823 1260 - - -

Stage 1 821 - - - - -

Stage 2 863 - - - - -

Platoon blocked, % - - -

Mov Cap-1 Maneuver 580 808 1240 - - -

Mov Cap-2 Maneuver 580 - - - - -

Stage 1 782 - - - - -

Stage 2 849 - - - - -

Approach EB NB SB

HCM Control Delay, s 11.7 3.1 0

HCM LOS B

Minor Lane/Major Mvmt NBL NBT EBLn1 EBLn2 SBT SBR

Capacity (veh/h) 1240 - 580 808 - -

HCM Lane V/C Ratio 0.031 - 0.184 0.067 - -

HCM Control Delay (s) 8 0 12.6 9.8 - -

HCM Lane LOS A A B A - -

HCM 95th %tile Q(veh) 0.1 - 0.7 0.2 - -

HCM 6th Signalized Intersection Summary

1: Keystone Avenue & West 1st Street

12/19/2023

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	7	9	9	7	60	2	744	12	145	839	18
Future Volume (veh/h)	23	7	9	9	7	60	2	744	12	145	839	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	28	8	11	11	8	72	2	896	14	175	1011	22
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	381	110	137	622	755	639	173	1454	23	476	2040	44
Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.40	0.01	0.41	0.41	0.17	0.57	0.57
Sat Flow, veh/h	839	274	340	1393	1870	1584	1781	3581	56	1781	3556	77
Grp Volume(v), veh/h	47	0	0	11	8	72	2	445	465	175	505	528
Grp Sat Flow(s),veh/h/ln	1452	0	0	1393	1870	1584	1781	1777	1860	1781	1777	1856
Q Serve(g_s), s	1.0	0.0	0.0	0.0	0.3	3.8	0.1	26.8	26.8	0.0	22.9	22.9
Cycle Q Clear(g_c), s	2.4	0.0	0.0	0.5	0.3	3.8	0.1	26.8	26.8	0.0	22.9	22.9
Prop In Lane	0.60		0.23	1.00		1.00	1.00		0.03	1.00		0.04
Lane Grp Cap(c), veh/h	629	0	0	622	755	639	173	721	755	476	1019	1065
V/C Ratio(X)	0.07	0.00	0.00	0.02	0.01	0.11	0.01	0.62	0.62	0.37	0.50	0.50
Avail Cap(c_a), veh/h	632	0	0	625	759	643	363	721	755	476	1019	1065
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.7	0.0	0.0	24.2	24.1	25.1	27.7	31.8	31.8	37.6	17.1	17.1
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.0	0.1	0.0	3.9	3.7	0.5	1.7	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.7	0.0	0.0	0.4	0.3	2.7	0.1	18.0	18.7	8.7	14.9	15.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.7	0.0	0.0	24.2	24.1	25.2	27.7	35.7	35.5	38.1	18.9	18.8
LnGrp LOS	C	A	A	C	C	C	C	D	D	D	B	B
Approach Vol, veh/h	47		91				912		1208			
Approach Delay, s/veh	24.7		25.0				35.6		21.6			
Approach LOS	C		C				D		C			
Timer - Assigned Phs	1	2	4		5	6	8					
Phs Duration (G+Y+Rc), s	28.6	60.0	59.7		5.6	83.0	59.7					
Change Period (Y+Rc), s	* 5.2	* 5.2	* 5.2		4.5	* 5.2	* 5.2					
Max Green Setting (Gmax), s	* 11	* 55	* 55		15.5	* 50	* 55					
Max Q Clear Time (g_c+I1), s	2.0	28.8	4.4		2.1	24.9	5.8					
Green Ext Time (p_c), s	0.3	6.5	0.3		0.0	7.5	0.3					
Intersection Summary												
HCM 6th Ctrl Delay			27.5									
HCM 6th LOS			C									
Notes												

Intersection												
Int Delay, s/veh	2.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	23	3	10	4	2	71	5	650	6	4	836	30
Future Vol, veh/h	23	3	10	4	2	71	5	650	6	4	836	30
Conflicting Peds, #/hr	0	0	0	0	0	0	6	0	1	1	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	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	29	4	13	5	3	89	6	813	8	5	1045	38
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1500	1914	548	1365	1929	412	1089	0	0	822	0	0
Stage 1	1080	1080	-	830	830	-	-	-	-	-	-	-
Stage 2	420	834	-	535	1099	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	84	67	480	106	66	589	636	-	-	803	-	-
Stage 1	233	293	-	331	383	-	-	-	-	-	-	-
Stage 2	581	381	-	497	287	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	67	64	477	96	63	588	632	-	-	802	-	-
Mov Cap-2 Maneuver	67	64	-	96	63	-	-	-	-	-	-	-
Stage 1	228	287	-	325	376	-	-	-	-	-	-	-
Stage 2	482	374	-	470	281	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	82.6		16.9		0.2		0					
HCM LOS	F		C									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	632	-	-	88	397	802	-	-				
HCM Lane V/C Ratio	0.01	-	-	0.511	0.242	0.006	-	-				
HCM Control Delay (s)	10.8	0.1	-	82.6	16.9	9.5	-	-				
HCM Lane LOS	B	A	-	F	C	A	-	-				
HCM 95th %tile Q(veh)	0	-	-	2.2	0.9	0	-	-				

HCM 6th TWSC
3: Project Alley & Jones Street

12/19/2023

Intersection						
Int Delay, s/veh	1.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	26	1	3	24	3	7
Future Vol, veh/h	26	1	3	24	3	7
Conflicting Peds, #/hr	0	2	2	0	1	2
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	70	70	70	70	70	70
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	37	1	4	34	4	10
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	40	0	83	42
Stage 1	-	-	-	-	40	-
Stage 2	-	-	-	-	43	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1570	-	919	1029
Stage 1	-	-	-	-	982	-
Stage 2	-	-	-	-	979	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1567	-	913	1025
Mov Cap-2 Maneuver	-	-	-	-	913	-
Stage 1	-	-	-	-	980	-
Stage 2	-	-	-	-	975	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.8		8.7	
HCM LOS					A	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	989	-	-	1567	-	
HCM Lane V/C Ratio	0.014	-	-	0.003	-	
HCM Control Delay (s)	8.7	-	-	7.3	0	
HCM Lane LOS	A	-	-	A	A	
HCM 95th %tile Q(veh)	0	-	-	0	-	

Intersection												
Int Delay, s/veh	8.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	2	2	369	0	0	1	2	206	3	3	0
Future Vol, veh/h	0	2	2	369	0	0	1	2	206	3	3	0
Conflicting Peds, #/hr	0	0	15	15	0	16	27	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	70	70	70	70	70	70	70	70	70	70	70	70
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	3	3	527	0	0	1	3	294	4	4	0
Major/Minor	Minor1			Major2			Major1					
Conflicting Flow All	-	1081	34	19	0	0				0	0	0
Stage 1	-	27	-	-	-	-				-	-	-
Stage 2	-	1054	-	-	-	-				-	-	-
Critical Hdwy	-	6.52	6.22	4.12	-	-				4.12	-	-
Critical Hdwy Stg 1	-	5.52	-	-	-	-				-	-	-
Critical Hdwy Stg 2	-	5.52	-	-	-	-				-	-	-
Follow-up Hdwy	-	4.018	3.318	2.218	-	-				2.218	-	-
Pot Cap-1 Maneuver	0	218	1039	1597	-	0				-	-	-
Stage 1	0	873	-	-	-	0				-	-	-
Stage 2	0	303	-	-	-	0				-	-	-
Platoon blocked, %						-					-	-
Mov Cap-1 Maneuver	-	0	1010	1574	-	-				-	-	-
Mov Cap-2 Maneuver	-	0	-	-	-	-				-	-	-
Stage 1	-	0	-	-	-	-				-	-	-
Stage 2	-	0	-	-	-	-				-	-	-
Approach	EB			WB			SB					
HCM Control Delay, s	8.6			8.4								
HCM LOS	A											
Minor Lane/Major Mvmt	EBLn1	WBL	WBT	SBL	SBT	SBR						
Capacity (veh/h)	1010	1574	-	-	-	-						
HCM Lane V/C Ratio	0.006	0.335	-	-	-	-						
HCM Control Delay (s)	8.6	8.4	0	-	-	-						
HCM Lane LOS	A	A	A	-	-	-						
HCM 95th %tile Q(veh)	0	1.5	-	-	-	-						

HCM 6th TWSC
5: Booth Street & Idlewild Drive

12/19/2023

Intersection						
Int Delay, s/veh	7.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	138	93	21	66	285	89
Future Vol, veh/h	138	93	21	66	285	89
Conflicting Peds, #/hr	19	0	49	0	0	49
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	71	71	71	71	71	71
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	194	131	30	93	401	125
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	685	513	575	0	-	0
Stage 1	513	-	-	-	-	-
Stage 2	172	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	414	561	998	-	-	-
Stage 1	601	-	-	-	-	-
Stage 2	858	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	363	535	951	-	-	-
Mov Cap-2 Maneuver	363	-	-	-	-	-
Stage 1	554	-	-	-	-	-
Stage 2	818	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	21	2.1		0		
HCM LOS	C					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	951	-	363	535	-	-
HCM Lane V/C Ratio	0.031	-	0.535	0.245	-	-
HCM Control Delay (s)	8.9	0	25.8	13.9	-	-
HCM Lane LOS	A	A	D	B	-	-
HCM 95th %tile Q(veh)	0.1	-	3	1	-	-

HCM 6th Signalized Intersection Summary

1: Keystone Avenue & West 1st Street

12/19/2023

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	7	13	17	6	197	8	739	16	87	774	16
Future Volume (veh/h)	20	7	13	17	6	197	8	739	16	87	774	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	22	8	15	19	7	221	9	830	18	98	870	18
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	301	113	187	621	759	641	205	1312	28	491	1879	39
Arrive On Green	0.41	0.41	0.41	0.41	0.41	0.41	0.03	0.37	0.37	0.19	0.53	0.53
Sat Flow, veh/h	643	279	461	1384	1870	1579	1781	3556	77	1781	3560	74
Grp Volume(v), veh/h	45	0	0	19	7	221	9	415	433	98	434	454
Grp Sat Flow(s),veh/h/ln	1382	0	0	1384	1870	1579	1781	1777	1856	1781	1777	1857
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.3	13.0	0.4	25.9	25.9	0.0	20.6	20.6
Cycle Q Clear(g_c), s	2.1	0.0	0.0	0.9	0.3	13.0	0.4	25.9	25.9	0.0	20.6	20.6
Prop In Lane	0.49		0.33	1.00		1.00	1.00		0.04	1.00		0.04
Lane Grp Cap(c), veh/h	601	0	0	621	759	641	205	655	685	491	938	980
V/C Ratio(X)	0.07	0.00	0.00	0.03	0.01	0.34	0.04	0.63	0.63	0.20	0.46	0.46
Avail Cap(c_a), veh/h	601	0	0	621	759	641	351	655	685	491	938	980
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.4	0.0	0.0	24.1	23.9	27.7	30.6	35.1	35.1	33.7	19.9	19.9
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.0	0.0	0.3	0.1	4.6	4.4	0.2	1.6	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.6	0.0	0.0	0.7	0.2	8.7	0.4	17.8	18.4	4.5	13.8	14.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.5	0.0	0.0	24.1	23.9	28.0	30.7	39.7	39.5	33.9	21.5	21.5
LnGrp LOS	C	A	A	C	C	C	C	D	D	C	C	C
Approach Vol, veh/h	45			247			857			986		
Approach Delay, s/veh	24.5			27.6			39.5			22.7		
Approach LOS	C			C			D			C		
Timer - Assigned Phs	1	2	4		5	6	8					
Phs Duration (G+Y+Rc), s	30.7	55.0	60.0		8.9	76.8	60.0					
Change Period (Y+Rc), s	* 5.2	* 5.2	* 5.2		4.5	* 5.2	* 5.2					
Max Green Setting (Gmax), s	* 16	* 50	* 55		15.5	* 50	* 55					
Max Q Clear Time (g_c+I1), s	2.0	27.9	4.1		2.4	22.6	15.0					
Green Ext Time (p_c), s	0.2	5.6	0.3		0.0	6.3	0.9					
Intersection Summary												
HCM 6th Ctrl Delay			30.1									
HCM 6th LOS			C									
Notes												

Intersection												
Int Delay, s/veh	1.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	0	18	2	2	61	11	672	14	4	752	43
Future Vol, veh/h	25	0	18	2	2	61	11	672	14	4	752	43
Conflicting Peds, #/hr	1	0	0	0	0	1	4	0	3	3	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	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	28	0	20	2	2	68	12	747	16	4	836	48
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1272	1662	446	1208	1678	386	888	0	0	766	0	0
Stage 1	872	872	-	782	782	-	-	-	-	-	-	-
Stage 2	400	790	-	426	896	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	125	96	560	139	94	612	758	-	-	843	-	-
Stage 1	312	366	-	353	403	-	-	-	-	-	-	-
Stage 2	597	400	-	577	357	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	105	92	558	130	90	609	755	-	-	841	-	-
Mov Cap-2 Maneuver	105	92	-	130	90	-	-	-	-	-	-	-
Stage 1	302	361	-	342	391	-	-	-	-	-	-	-
Stage 2	512	388	-	551	352	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	37.1		14		0.3		0					
HCM LOS	E		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	755	-	-	159	472	841	-	-				
HCM Lane V/C Ratio	0.016	-	-	0.3	0.153	0.005	-	-				
HCM Control Delay (s)	9.8	0.1	-	37.1	14	9.3	-	-				
HCM Lane LOS	A	A	-	E	B	A	-	-				
HCM 95th %tile Q(veh)	0	-	-	1.2	0.5	0	-	-				

HCM 6th TWSC
3: Project Alley & Jones Street

12/19/2023

Intersection

Int Delay, s/veh 3

Movement EBT EBR WBL WBT NBL NBR

Lane Configurations

Traffic Vol, veh/h 25 3 11 27 8 12

Future Vol, veh/h 25 3 11 27 8 12

Conflicting Peds, #/hr 0 4 4 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 82 82 82 82 82 82

Heavy Vehicles, % 2 2 2 2 2 2

Mvmt Flow 30 4 13 33 10 15

Major/Minor Major1 Major2 Minor1

Conflicting Flow All 0 0 38 0 95 36

Stage 1 - - - - 36 -

Stage 2 - - - - 59 -

Critical Hdwy - - 4.12 - 6.42 6.22

Critical Hdwy Stg 1 - - - - 5.42 -

Critical Hdwy Stg 2 - - - - 5.42 -

Follow-up Hdwy - - 2.218 - 3.518 3.318

Pot Cap-1 Maneuver - - 1572 - 905 1037

Stage 1 - - - - 986 -

Stage 2 - - - - 964 -

Platoon blocked, % - - - -

Mov Cap-1 Maneuver - - 1566 - 894 1033

Mov Cap-2 Maneuver - - - - 894 -

Stage 1 - - - - 982 -

Stage 2 - - - - 956 -

Approach EB WB NB

HCM Control Delay, s 0 2.1 8.8

HCM LOS A

Minor Lane/Major Mvmt NBLn1 EBT EBR WBL WBT

Capacity (veh/h) 973 - - 1566 -

HCM Lane V/C Ratio 0.025 - - 0.009 -

HCM Control Delay (s) 8.8 - - 7.3 0

HCM Lane LOS A - - A A

HCM 95th %tile Q(veh) 0.1 - - 0 -

Intersection												
Int Delay, s/veh	7.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	2	6	259	5	5	9	4	152	0	2	0
Future Vol, veh/h	0	2	6	259	5	5	9	4	152	0	2	0
Conflicting Peds, #/hr	0	0	3	3	0	11	2	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	2	6	273	5	5	9	4	160	0	2	0
Major/Minor	Minor1			Major2			Major1					
Conflicting Flow All	-	572	8	5	0	0	21			0	0	
Stage 1	-	5	-	-	-	-	-			-	-	-
Stage 2	-	567	-	-	-	-	-			-	-	-
Critical Hdwy	-	6.52	6.22	4.12	-	-	4.12			-	-	-
Critical Hdwy Stg 1	-	5.52	-	-	-	-	-			-	-	-
Critical Hdwy Stg 2	-	5.52	-	-	-	-	-			-	-	-
Follow-up Hdwy	-	4.018	3.318	2.218	-	-	2.218			-	-	-
Pot Cap-1 Maneuver	0	430	1074	1616	-	-	1595			-	-	-
Stage 1	0	892	-	-	-	-	-			-	-	-
Stage 2	0	507	-	-	-	-	-			-	-	-
Platoon blocked, %										-	-	-
Mov Cap-1 Maneuver	-	0	1068	1611	-	-	1595			-	-	-
Mov Cap-2 Maneuver	-	0	-	-	-	-	-			-	-	-
Stage 1	-	0	-	-	-	-	-			-	-	-
Stage 2	-	0	-	-	-	-	-			-	-	-
Approach	EB			WB			SB					
HCM Control Delay, s	8.4			7.4			0					
HCM LOS	A											
Minor Lane/Major Mvmt	EBLn1	WBL	WBT	WBR	SBL	SBT	SBR					
Capacity (veh/h)	1068	1611	-	-	1595	-	-					
HCM Lane V/C Ratio	0.008	0.169	-	-	-	-	-					
HCM Control Delay (s)	8.4	7.7	0	-	0	-	-					
HCM Lane LOS	A	A	A	-	A	-	-					
HCM 95th %tile Q(veh)	0	0.6	-	-	0	-	-					

Intersection						
Int Delay, s/veh	4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	100	50	36	58	104	162
Future Vol, veh/h	100	50	36	58	104	162
Conflicting Peds, #/hr	27	2	17	0	0	17
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	108	54	39	62	112	174
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	383	218	303	0	-	0
Stage 1	216	-	-	-	-	-
Stage 2	167	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	620	822	1258	-	-	-
Stage 1	820	-	-	-	-	-
Stage 2	863	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	580	807	1238	-	-	-
Mov Cap-2 Maneuver	580	-	-	-	-	-
Stage 1	781	-	-	-	-	-
Stage 2	849	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	11.7	3.1		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1238	-	580	807	-	-
HCM Lane V/C Ratio	0.031	-	0.185	0.067	-	-
HCM Control Delay (s)	8	0	12.6	9.8	-	-
HCM Lane LOS	A	A	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.7	0.2	-	-

HCM 6th Signalized Intersection Summary

1: Keystone Avenue & West 1st Street

01/11/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	7	9	9	7	60	2	780	12	145	850	18
Future Volume (veh/h)	23	7	9	9	7	60	2	780	12	145	850	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	28	8	11	11	8	72	2	940	14	175	1024	22
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	381	110	137	622	755	639	170	1455	22	463	2040	44
Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.40	0.01	0.41	0.41	0.17	0.57	0.57
Sat Flow, veh/h	839	274	340	1393	1870	1584	1781	3584	53	1781	3557	76
Grp Volume(v), veh/h	47	0	0	11	8	72	2	466	488	175	512	534
Grp Sat Flow(s),veh/h/ln	1452	0	0	1393	1870	1584	1781	1777	1861	1781	1777	1857
Q Serve(g_s), s	1.0	0.0	0.0	0.0	0.3	3.8	0.1	28.5	28.5	0.0	23.3	23.3
Cycle Q Clear(g_c), s	2.4	0.0	0.0	0.5	0.3	3.8	0.1	28.5	28.5	0.0	23.3	23.3
Prop In Lane	0.60		0.23	1.00		1.00	1.00		0.03	1.00		0.04
Lane Grp Cap(c), veh/h	629	0	0	622	755	639	170	721	755	463	1019	1065
V/C Ratio(X)	0.07	0.00	0.00	0.02	0.01	0.11	0.01	0.65	0.65	0.38	0.50	0.50
Avail Cap(c_a), veh/h	632	0	0	625	759	643	360	721	755	463	1019	1065
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.7	0.0	0.0	24.2	24.1	25.1	27.8	32.3	32.3	39.1	17.2	17.2
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.0	0.1	0.0	4.4	4.2	0.5	1.8	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.7	0.0	0.0	0.4	0.3	2.7	0.1	19.1	19.8	8.7	15.1	15.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.7	0.0	0.0	24.2	24.1	25.2	27.8	36.7	36.5	39.6	19.0	18.9
LnGrp LOS	C	A	A	C	C	C	C	D	D	D	B	B
Approach Vol, veh/h	47		91				956				1221	
Approach Delay, s/veh	24.7		25.0				36.6				21.9	
Approach LOS	C		C				D				C	
Timer - Assigned Phs	1	2	4		5	6	8					
Phs Duration (G+Y+Rc), s	28.6	60.0	59.7		5.6	83.0	59.7					
Change Period (Y+Rc), s	* 5.2	* 5.2	* 5.2		4.5	* 5.2	* 5.2					
Max Green Setting (Gmax), s	* 11	* 55	* 55		15.5	* 50	* 55					
Max Q Clear Time (g_c+I1), s	2.0	30.5	4.4		2.1	25.3	5.8					
Green Ext Time (p_c), s	0.3	6.7	0.3		0.0	7.6	0.3					
Intersection Summary												
HCM 6th Ctrl Delay			28.2									
HCM 6th LOS			C									
Notes												

Intersection

Int Delay, s/veh 3.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	23	3	10	4	2	107	5	650	6	4	844	33
Future Vol, veh/h	23	3	10	4	2	107	5	650	6	4	844	33
Conflicting Peds, #/hr	0	0	0	0	0	0	6	0	1	1	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	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	29	4	13	5	3	134	6	813	8	5	1055	41

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1512	1926	554	1370	1942	412	1102	0	0	822	0	0
Stage 1	1092	1092	-	830	830	-	-	-	-	-	-	-
Stage 2	420	834	-	540	1112	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	-	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	10	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	10	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	-	-	-	2.22	-	-
Pot Cap-1 Maneuver	83	66	476	105	64	589	-	-	-	803	-	-
Stage 1	229	289	-	331	137	-	-	-	-	-	-	-
Stage 2	581	381	-	494	71	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	61	64	473	96	63	588	-	-	-	802	-	-
Mov Cap-2 Maneuver	61	64	-	96	63	-	-	-	-	-	-	-
Stage 1	229	283	-	331	137	-	-	-	-	-	-	-
Stage 2	441	381	-	467	69	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	94.7		16.9				0	
HCM LOS	F		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	-	-	-	81	442	802	-
HCM Lane V/C Ratio	-	-	-	0.556	0.32	0.006	-
HCM Control Delay (s)	-	-	-	94.7	16.9	9.5	-
HCM Lane LOS	-	-	-	F	C	A	-
HCM 95th %tile Q(veh)	-	-	-	2.4	1.4	0	-

HCM 6th TWSC
3: Project Alley & Jones Street

01/11/2024

Intersection

Int Delay, s/veh 2

Movement EBT EBR WBL WBT NBL NBR

Lane Configurations

Traffic Vol, veh/h 26 1 6 24 3 7

Future Vol, veh/h 26 1 6 24 3 7

Conflicting Peds, #/hr 0 2 2 0 1 2

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 70 70 70 70 70 70

Heavy Vehicles, % 2 2 2 2 2 2

Mvmt Flow 37 1 9 34 4 10

Major/Minor Major1 Major2 Minor1

Conflicting Flow All 0 0 40 0 93 42

Stage 1 - - - - 40 -

Stage 2 - - - - 53 -

Critical Hdwy - - 4.12 - 6.42 6.22

Critical Hdwy Stg 1 - - - - 5.42 -

Critical Hdwy Stg 2 - - - - 5.42 -

Follow-up Hdwy - - 2.218 - 3.518 3.318

Pot Cap-1 Maneuver - - 1570 - 907 1029

Stage 1 - - - - 982 -

Stage 2 - - - - 970 -

Platoon blocked, % - - - -

Mov Cap-1 Maneuver - - 1567 - 899 1025

Mov Cap-2 Maneuver - - - - 899 -

Stage 1 - - - - 980 -

Stage 2 - - - - 963 -

Approach EB WB NB

HCM Control Delay, s 0 1.5 8.7

HCM LOS A

Minor Lane/Major Mvmt NBLn1 EBT EBR WBL WBT

Capacity (veh/h) 984 - - 1567 -

HCM Lane V/C Ratio 0.015 - - 0.005 -

HCM Control Delay (s) 8.7 - - 7.3 0

HCM Lane LOS A - - A A

HCM 95th %tile Q(veh) 0 - - 0 -

Intersection												
Int Delay, s/veh	8.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	38	18	369	8	0	6	2	206	3	3	0
Future Vol, veh/h	0	38	18	369	8	0	6	2	206	3	3	0
Conflicting Peds, #/hr	0	0	15	15	0	16	27	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	70	70	70	70	70	70	70	70	70	70	70	70
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	54	26	527	11	0	9	3	294	4	4	0
Major/Minor	Minor1			Major2			Major1					
Conflicting Flow All	-	1092	34	19	0	0	11			0	0	
Stage 1	-	27	-	-	-	-	-			-	-	-
Stage 2	-	1065	-	-	-	-	-			-	-	-
Critical Hdwy	-	6.52	6.22	4.12	-	-	4.12			-	-	-
Critical Hdwy Stg 1	-	5.52	-	-	-	-	-			-	-	-
Critical Hdwy Stg 2	-	5.52	-	-	-	-	-			-	-	-
Follow-up Hdwy	-	4.018	3.318	2.218	-	-	2.218			-	-	-
Pot Cap-1 Maneuver	0	215	1039	1597	-	0	1608			-	-	-
Stage 1	0	873	-	-	-	0	-			-	-	-
Stage 2	0	299	-	-	-	0	-			-	-	-
Platoon blocked, %	-						-					
Mov Cap-1 Maneuver	-	0	1010	1574	-	-	1608			-	-	-
Mov Cap-2 Maneuver	-	0	-	-	-	-	-			-	-	-
Stage 1	-	0	-	-	-	-	-			-	-	-
Stage 2	-	0	-	-	-	-	-			-	-	-
Approach	EB			WB			SB					
HCM Control Delay, s	8.9			8.3			3.6					
HCM LOS	A											
Minor Lane/Major Mvmt	EBLn1	WBL	WBT	SBL	SBT	SBR						
Capacity (veh/h)	1010	1574	-	1608	-	-						
HCM Lane V/C Ratio	0.079	0.335	-	0.003	-	-						
HCM Control Delay (s)	8.9	8.4	0	7.2	0	-						
HCM Lane LOS	A	A	A	A	A	-						
HCM 95th %tile Q(veh)	0.3	1.5	-	0	-	-						

Intersection						
Int Delay, s/veh	7.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	138	93	21	71	301	89
Future Vol, veh/h	138	93	21	71	301	89
Conflicting Peds, #/hr	19	0	49	0	0	49
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	71	71	71	71	71	71
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	194	131	30	100	424	125
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	715	536	598	0	-	0
Stage 1	536	-	-	-	-	-
Stage 2	179	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	397	545	979	-	-	-
Stage 1	587	-	-	-	-	-
Stage 2	852	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	348	520	933	-	-	-
Mov Cap-2 Maneuver	348	-	-	-	-	-
Stage 1	541	-	-	-	-	-
Stage 2	812	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	22.3	2.1		0		
HCM LOS	C					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	933	-	348	520	-	-
HCM Lane V/C Ratio	0.032	-	0.559	0.252	-	-
HCM Control Delay (s)	9	0	27.7	14.2	-	-
HCM Lane LOS	A	A	D	B	-	-
HCM 95th %tile Q(veh)	0.1	-	3.2	1	-	-

HCM 6th Signalized Intersection Summary

1: Keystone Avenue & West 1st Street

01/11/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	7	13	17	6	197	8	758	16	87	804	16
Future Volume (veh/h)	20	7	13	17	6	197	8	758	16	87	804	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	22	8	15	19	7	221	9	852	18	98	903	18
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	301	113	187	621	759	641	197	1313	28	485	1881	37
Arrive On Green	0.41	0.41	0.41	0.41	0.41	0.41	0.03	0.37	0.37	0.19	0.53	0.53
Sat Flow, veh/h	643	279	461	1384	1870	1579	1781	3558	75	1781	3563	71
Grp Volume(v), veh/h	45	0	0	19	7	221	9	425	445	98	450	471
Grp Sat Flow(s),veh/h/ln	1382	0	0	1384	1870	1579	1781	1777	1856	1781	1777	1857
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.3	13.0	0.4	26.8	26.8	0.0	21.6	21.6
Cycle Q Clear(g_c), s	2.1	0.0	0.0	0.9	0.3	13.0	0.4	26.8	26.8	0.0	21.6	21.6
Prop In Lane	0.49		0.33	1.00		1.00	1.00		0.04	1.00		0.04
Lane Grp Cap(c), veh/h	601	0	0	621	759	641	197	655	685	485	938	981
V/C Ratio(X)	0.07	0.00	0.00	0.03	0.01	0.34	0.05	0.65	0.65	0.20	0.48	0.48
Avail Cap(c_a), veh/h	601	0	0	621	759	641	343	655	685	485	938	981
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.4	0.0	0.0	24.1	23.9	27.7	30.8	35.3	35.4	34.5	20.1	20.1
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.0	0.0	0.3	0.1	4.9	4.7	0.2	1.8	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.6	0.0	0.0	0.7	0.2	8.7	0.4	18.3	19.0	4.6	14.4	14.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.5	0.0	0.0	24.1	23.9	28.0	30.9	40.3	40.1	34.7	21.9	21.8
LnGrp LOS	C	A	A	C	C	C	C	D	D	C	C	C
Approach Vol, veh/h	45			247			879			1019		
Approach Delay, s/veh	24.5			27.6			40.1			23.1		
Approach LOS	C			C			D			C		
Timer - Assigned Phs	1	2	4		5	6	8					
Phs Duration (G+Y+Rc), s	30.7	55.0	60.0		8.9	76.8	60.0					
Change Period (Y+Rc), s	* 5.2	* 5.2	* 5.2		4.5	* 5.2	* 5.2					
Max Green Setting (Gmax), s	* 16	* 50	* 55		15.5	* 50	* 55					
Max Q Clear Time (g_c+I1), s	2.0	28.8	4.1		2.4	23.6	15.0					
Green Ext Time (p_c), s	0.2	5.7	0.3		0.0	6.6	0.9					
Intersection Summary												
HCM 6th Ctrl Delay			30.5									
HCM 6th LOS			C									
Notes												

HCM 6th TWSC
2: Keystone Avenue & Jones Street

01/11/2024

Intersection																
Int Delay, s/veh	1.8															
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR				
Lane Configurations																
Traffic Vol, veh/h	25	0	18	2	2	80	11	672	14	4	774	52				
Future Vol, veh/h	25	0	18	2	2	80	11	672	14	4	774	52				
Conflicting Peds, #/hr	1	0	0	0	0	1	4	0	3	3	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	90	90	90	90	90	90	90	90	90	90	90	90				
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2				
Mvmt Flow	28	0	20	2	2	89	12	747	16	4	860	58				
Major/Minor	Minor2		Minor1		Major1		Major2									
Conflicting Flow All	1301	1691	463	1220	1712	386	922	0	0	766	0	0				
Stage 1	901	901	-	782	782	-	-	-	-	-	-	-				
Stage 2	400	790	-	438	930	-	-	-	-	-	-	-				
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	-	-	-	4.14	-	-				
Critical Hdwy Stg 1	6.54	5.54	-	6.54	10	-	-	-	-	-	-	-				
Critical Hdwy Stg 2	6.54	5.54	-	6.54	10	-	-	-	-	-	-	-				
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	-	-	-	2.22	-	-				
Pot Cap-1 Maneuver	118	92	546	136	90	612	-	-	-	843	-	-				
Stage 1	299	355	-	353	153	-	-	-	-	-	-	-				
Stage 2	597	400	-	567	109	-	-	-	-	-	-	-				
Platoon blocked, %								-	-		-	-				
Mov Cap-1 Maneuver	98	90	544	130	88	609	-	-	-	841	-	-				
Mov Cap-2 Maneuver	98	90	-	130	88	-	-	-	-	-	-	-				
Stage 1	299	350	-	353	153	-	-	-	-	-	-	-				
Stage 2	502	399	-	541	107	-	-	-	-	-	-	-				
Approach	EB		WB		NB		SB									
HCM Control Delay, s	40.2		13.9				0									
HCM LOS	E		B													
Minor Lane/Major Mvmt	NBL		NBT		NBR		EBLn1WBLn1		SBL		SBT		SBR			
Capacity (veh/h)	-		-		-		149		496		841		-		-	
HCM Lane V/C Ratio	-		-		-		0.321		0.188		0.005		-		-	
HCM Control Delay (s)	-		-		-		40.2		13.9		9.3		-		-	
HCM Lane LOS	-		-		-		E		B		A		-		-	
HCM 95th %tile Q(veh)	-		-		-		1.3		0.7		0		-		-	

HCM 6th TWSC
3: Project Alley & Jones Street

01/11/2024

Intersection						
Int Delay, s/veh	3.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	25	3	20	27	8	12
Future Vol, veh/h	25	3	20	27	8	12
Conflicting Peds, #/hr	0	4	4	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	82	82	82	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	30	4	24	33	10	15
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	38	0	117	36
Stage 1	-	-	-	-	36	-
Stage 2	-	-	-	-	81	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1572	-	879	1037
Stage 1	-	-	-	-	986	-
Stage 2	-	-	-	-	942	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1566	-	861	1033
Mov Cap-2 Maneuver	-	-	-	-	861	-
Stage 1	-	-	-	-	982	-
Stage 2	-	-	-	-	927	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		3.1		8.9	
HCM LOS					A	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	957	-	-	1566	-	
HCM Lane V/C Ratio	0.025	-	-	0.016	-	
HCM Control Delay (s)	8.9	-	-	7.3	0	
HCM Lane LOS	A	-	-	A	A	
HCM 95th %tile Q(veh)	0.1	-	-	0	-	

Intersection												
Int Delay, s/veh	6.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	21	14	259	27	5	22	4	152	0	2	0
Future Vol, veh/h	0	21	14	259	27	5	22	4	152	0	2	0
Conflicting Peds, #/hr	0	0	3	3	0	11	2	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	22	15	273	28	5	23	4	160	0	2	0
Major/Minor	Minor1			Major2			Major1					
Conflicting Flow All	-	595	8	5	0	0			44	0	0	
Stage 1	-	5	-	-	-	-			-	-	-	
Stage 2	-	590	-	-	-	-			-	-	-	
Critical Hdwy	-	6.52	6.22	4.12	-	-			4.12	-	-	
Critical Hdwy Stg 1	-	5.52	-	-	-	-			-	-	-	
Critical Hdwy Stg 2	-	5.52	-	-	-	-			-	-	-	
Follow-up Hdwy	-	4.018	3.318	2.218	-	-			2.218	-	-	
Pot Cap-1 Maneuver	0	417	1074	1616	-	-			1564	-	-	
Stage 1	0	892	-	-	-	-			-	-	-	
Stage 2	0	495	-	-	-	-			-	-	-	
Platoon blocked, %					-	-				-	-	
Mov Cap-1 Maneuver	-	0	1068	1611	-	-			1564	-	-	
Mov Cap-2 Maneuver	-	0	-	-	-	-			-	-	-	
Stage 1	-	0	-	-	-	-			-	-	-	
Stage 2	-	0	-	-	-	-			-	-	-	
Approach	EB			WB			SB					
HCM Control Delay, s	8.5			6.8			0					
HCM LOS	A											
Minor Lane/Major Mvmt	EBLn1	WBL	WBT	WBR	SBL	SBT	SBR					
Capacity (veh/h)	1068	1611	-	-	1564	-	-					
HCM Lane V/C Ratio	0.034	0.169	-	-	-	-	-					
HCM Control Delay (s)	8.5	7.7	0	-	0	-	-					
HCM Lane LOS	A	A	A	-	A	-	-					
HCM 95th %tile Q(veh)	0.1	0.6	-	-	0	-	-					

Intersection						
Int Delay, s/veh	3.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	100	50	36	71	112	162
Future Vol, veh/h	100	50	36	71	112	162
Conflicting Peds, #/hr	27	2	17	0	0	17
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	108	54	39	76	120	174
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	405	226	311	0	-	0
Stage 1	224	-	-	-	-	-
Stage 2	181	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	602	813	1249	-	-	-
Stage 1	813	-	-	-	-	-
Stage 2	850	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	563	798	1229	-	-	-
Mov Cap-2 Maneuver	563	-	-	-	-	-
Stage 1	774	-	-	-	-	-
Stage 2	836	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	11.9	2.7		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1229	-	563	798	-	-
HCM Lane V/C Ratio	0.031	-	0.191	0.067	-	-
HCM Control Delay (s)	8	0	12.9	9.8	-	-
HCM Lane LOS	A	A	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.7	0.2	-	-

APPENDIX F

CRASH DATA

Angle	2	26.5%
Walking	2	2.0%
Head on	0	0.0%
Non-Collision	1	12.5%
Face End	2	25.0%
Entrance (Clipping in Standing)	2	25.0%
Unknown	1	12.5%
Total	8	100.0%

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Account		
Working	1	8.0%
Based on	1	8.0%
Non-Confession	1	21.8%
Year End	1	28.6%
Language: Outlining or Writing	1	21.8%
Subject	1	8.0%
Total	11	100.0%

Year	1	100.0%
Working	1	0.0%
Dead on	0	0.0%
Non-Cellular	0	0.0%
Year End	1	10.0%
Overweight, Underweight or Stunted	0	0.0%
Admitted	0	0.0%
Total	1	100.0%

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Working	1	0.0%
Based on	1	0.0%
San Galliano	1	0.0%
Year End	1	0.0%
Compassionate Overtime or Standing	1	0.0%
Admission	1	0.0%
Total	7	0.0%

[illegible]