

## **Appendix B**

### **Civil Reports/Studies**

Traffic Impact Report

Geotechnical Report

Acoustic Study (to be completed)

### **Civil & Landscape Plan Set (full size sheets – 24" x 36")**

C0 Title Sheet

C1 Existing Topography and Slope Map

C2 Preliminary Site and Utility Plan

C3 Preliminary Grading Plan

C4 Preliminary Cut Fill Map

C5 Preliminary Cross-Sections

L-1 Preliminary Landscape Plan

L-2 Landscape Buffer Detail and Cross-Sections

Preliminary Lighting Plan

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# **KP INVESTMENTS NORTH**

**RENO, NV**

**APNS: 081-121-39, 081-121-43, 081-121-45, 081-121-46,  
081-121-50, 081-121-51**

*Prepared for:*  
**KP Investments, LLC**  
83 Scripps  
Suite 210  
Sacramento, CA 95825

*Prepared by:*  
**Kimley»»Horn**

February 2022  
192261000  
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**TRAFFIC IMPACT STUDY**

**FOR**

**KP INVESTMENTS NORTH**

**Prepared for:**  
KP Investments, LLC  
83 Scripps  
Suite 210  
Sacramento, CA 95825



**Prepared by:**  
Kimley-Horn and Associates, Inc.  
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## EXECUTIVE SUMMARY

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

The proposed KP Investments North industrial center is to be generally located south of Reno Park Boulevard and west of US 395. The project is on approximately 59.35 acres within APNs 081-121-39, 081-121-43, 081-121-45, 081-121-46, 081-121-50, 081-121-51 in Reno, Nevada. The project is anticipated to have four buildings with a total of 1,664,000 square feet.

The Washoe County Scope of Study (included in **Appendix A**) dated December 10, 2021, identified five (5) intersections for full level of service (LOS) analysis:

- North Virginia Street and Village Parkway (Intersection #1)
- US 395 Southbound Ramps at Village Parkway (Intersection #2)
- US 395 Northbound Ramps at Village Parkway (Intersection #3)
- North Virginia Street and White Lake Road/South Reno Park Boulevard (Intersection #4)
- White Lake Road and South Reno Park Boulevard (Intersection #5)

Regional access to the site is expected to be provided via US 395 and North Virginia Street. Primary access to the proposed development is expected to be provided by Reno Park Boulevard. Direct access to the development is planned to be provided by the east and south legs of White Lake Road and South Reno Park Boulevard (Intersection #5).

**Figure E-1** shows the locations of the key study intersections for the site plan provided in **Appendix E**.

Access to the site will be along South Reno Park Boulevard. Access to the western portion of the property will be provided by the west leg of White Lake Road and South Reno Park Boulevard (Intersection #5) and access to the eastern portion of the property will be provided by the south leg of White Lake Road and South Reno Park Boulevard (Intersection #5).

Upon completion of the project, KP Investments North is anticipated to generate 495 AM peak hour and 533 PM peak hour trips to the surrounding street network. Project 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 eastbound approach to the existing South Reno Park Boulevard and White Lakes Road Intersection (#5) per current MUTCD Guidelines.
- 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.





### STUDY INTERSECTIONS

1. North Virginia Street and Village Parkway
2. Village Parkway and 395 Southbound Ramps
3. Village Parkway and 395 Northbound Ramps
4. North Virginia Street and South Reno Park Boulevard
5. South Reno Park Boulevard and White Lakes Road

SOURCE: NEARMAP

## KP INVESTMENTS NORTH STUDY AREA



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## 1. INTRODUCTION

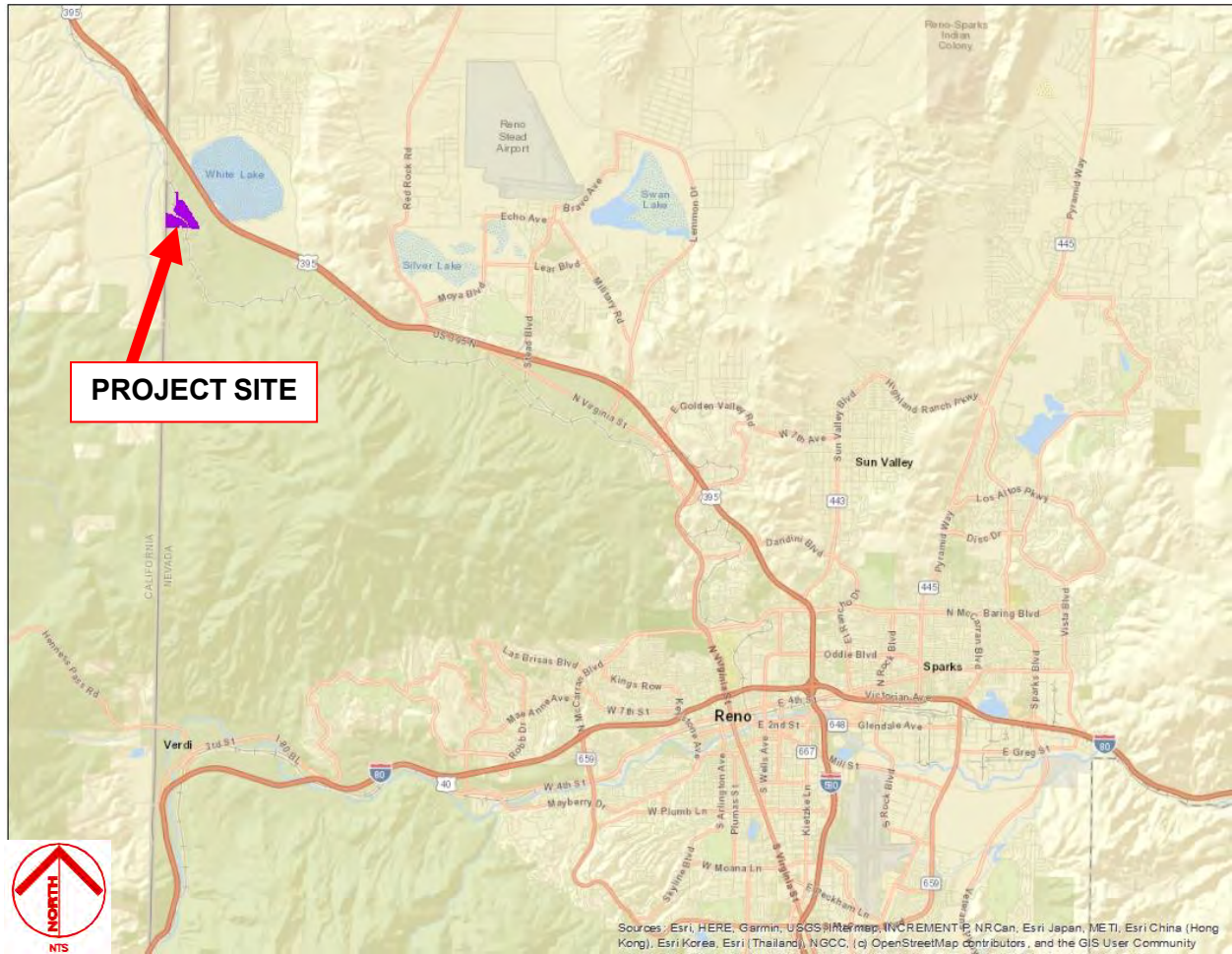
Kimley-Horn and Associates, Inc. has been retained by KP Investments to prepare a traffic impact study for a proposed industrial park development. The purpose of this traffic impact study is to identify traffic generation characteristics of the project, identify potential traffic related impacts on the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

The proposed KP Investments North industrial center is to be generally located southeast of Reno Park Boulevard and west of US 395. The project is on approximately 59.35 acres within APNs 081-121-39, 081-121-43, 081-121-45, 081-121-46, 081-121-50, 081-121-51 in Reno, Nevada. The proposed project site is a vacant, undeveloped lot. The project is anticipated to have four buildings of industrial space.

Regional access to the site is expected to be provided via US 395 and North Virginia Street. Primary access to the proposed development is expected to be provided by Reno Park Boulevard. Direct access to the development is planned to be provided by the south and west legs of the intersection of South Reno Park Boulevard and White Lake Road (Intersection #5).

A site plan for the proposed development is located in **Appendix E**. The project is anticipated to be completed in 2023. The location of the industrial development with respect to the City of Reno is shown on **Figure 1**.

Figure 1 – Vicinity Map



Source: Esri

## 2. EXISTING CONDITIONS

This section of the report details existing conditions adjacent to the project site.

### 2.1. Study Area Intersections

The KP Investments Scope of Study (included in **Appendix A**) dated December 10, 2021 identified five (5) intersections for full level of service (LOS) analysis:

- North Virginia Street and Village Parkway (Intersection #1)
- US 395 Southbound Ramps at Village Parkway (Intersection #2)
- US 395 Northbound Ramps at Village Parkway (Intersection #3)
- North Virginia Street and White Lake Road/South Reno Park Boulevard (Intersection #4)
- White Lake Road and South Reno Park Boulevard (Intersection #5)

### 2.2. Existing Land Uses

The location for the proposed industrial park is currently a vacant plot of land. The proposed project area has a railroad right of way running between the proposed buildings. The area surrounding the proposed industrial park is comprised of residential land uses and undeveloped land. The location of the project site, study area intersections, existing bus stop locations, and existing land uses are shown on **Figure 2**.

### 2.3. Existing Lane Configurations and Control

Regional access to KP Investments North is expected to be provided via US 395. Primary access to the proposed development is expected to be provided by Village Parkway, North Virginia Street, and South Reno Park Boulevard. Existing speed limits, lane configurations, and traffic control at the time of this study are illustrated in **Figure 3**.

### 2.4. Existing Turning Movements

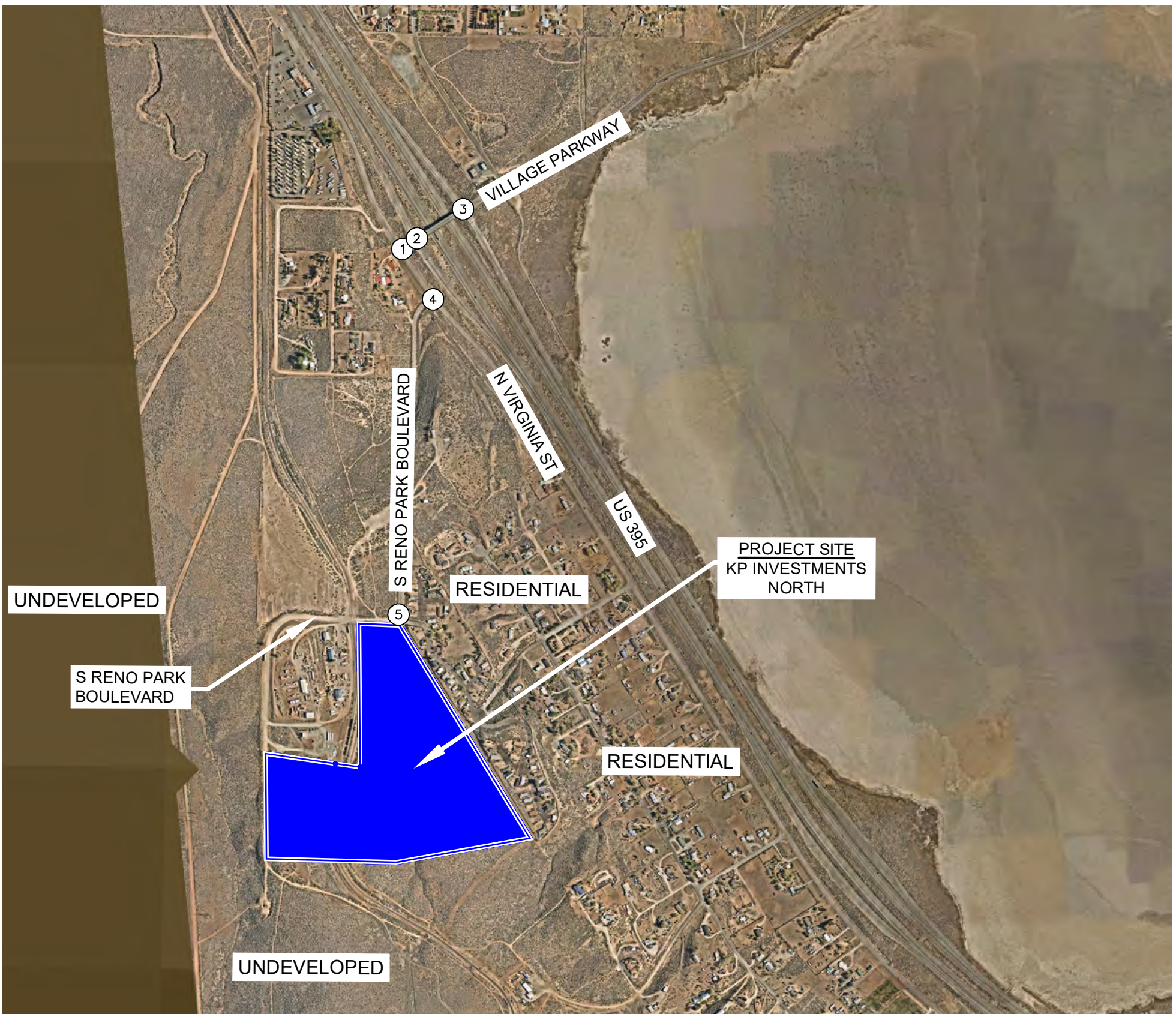
Existing AM and PM peak hour turning movement data was field counted, as summarized in **Table 1**, for the study area intersections identified in **Section 2.1**.

**Table 1 – Peak Hour Turning Movement Count Dates**

Intersection Number	Intersection	Count Date
1	North Virginia Street and Village Parkway	Thursday, January 6 <sup>th</sup> , 2022
2	US 395 Southbound Ramps and Village Parkway	Thursday, January 6 <sup>th</sup> , 2022
3	US 395 Northbound Ramps and Village Parkway	Thursday, January 6 <sup>th</sup> , 2022
4	North Virginia Street and South Reno Park Boulevard	Thursday, January 6 <sup>th</sup> , 2022
5	South Reno Park Boulevard and White Lake Road	Thursday, January 6 <sup>th</sup> , 2022

A summary of the peak hour count data at the study area intersections is shown in **Figure 4** and the count data sheets are provided in **Appendix B**.





**STUDY INTERSECTIONS**

- 1. North Virginia Street and Village Parkway
- 2. Village Parkway and 395 Southbound Ramps
- 3. Village Parkway and 395 Northbound Ramps
- 4. North Virginia Street and South Reno Park Boulevard
- 5. South Reno Park Boulevard and White Lakes Road

**LEGEND:**  
① Study Area Key Intersection

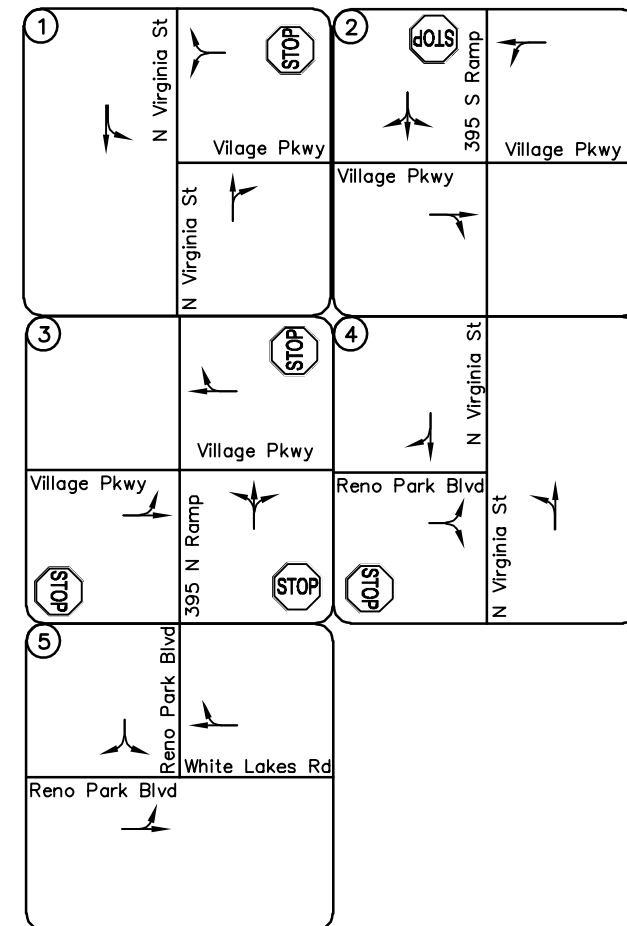
SOURCE: NEARMAP  
KP INVESTMENTS NORTH  
STUDY AREA





SOURCE: NEARMAP

**KP INVESTMENTS NORTH  
2022 EXISTING LANE CONFIGURATION AND CONTROL**



**LEGEND:**

- ① Study Area Key Intersection
- Roadway Speed Limit
- Stop Controlled Approach





SOURCE: NEARMAP

### KP INVESTMENTS NORTH 2022 EXISTING PEAK HOUR TRAFFIC VOLUMES

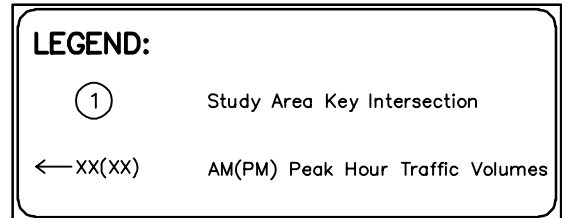
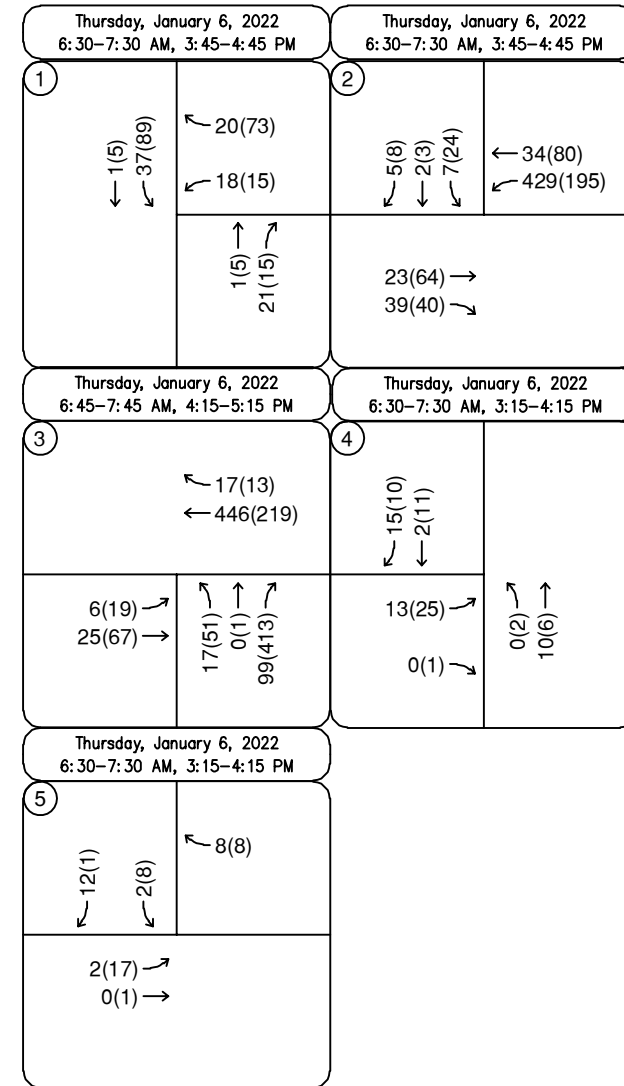


FIGURE 4  
**Kimley»Horn** ©2022



## 3. FUTURE CONDITIONS

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

### 3.1. Expected Lane Configuration and Control

Regional access to KP Investments North is expected to be provided via US 395. Primary access to the proposed development is expected to be provided by North Virginia Street and South Reno Park Boulevard. Expected speed limits, lane configuration, and traffic control in 2023 are expected remain the same as the 2022 existing speed limits, lane configuration and traffic control illustrated in **Figure 3**.

### 3.2. 2023 Background Peak Hour Traffic Volumes

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. Due to the relatively undeveloped nature of the project vicinity, KP Investments North is considered to represent the growth in the area surrounding the project site. The 2023 background peak hour traffic volumes are expected to be the same as the existing volumes illustrated in **Figure 4**.

### 3.3. Project Trip Generation

This study calculated trip generation based on data that is provided in the Institute of Transportation Engineers (ITE) Trip Generation Manual, 11<sup>th</sup> Edition (ITE Land Use Codes 140 – Manufacturing and 150 - Warehousing). 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 proposed development is anticipated to generate 495 AM and 533 PM peak hour trips during the peak periods on the surrounding street network as summarized in **Table 2**.

**Table 2 – Project Trip Generation**

ITE Code	Description	Size	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
140	Manufacturing	416,000 SF	215	68	283	95	213	308
150	Warehousing	1,248,000 SF	163	49	212	63	162	225
<b>Total</b>			<b>378</b>	<b>117</b>	<b>495</b>	<b>158</b>	<b>375</b>	<b>533</b>

Source: ITE Trip Generation Manual, 11<sup>th</sup> 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 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 back to the original source direction. **Figure 5** shows the project trip distribution at the study area intersections and project access drives.

### 3.5. Traffic Assignment

Assignment of project traffic was obtained by applying the developed trip distribution in **Figure 5** to the estimated traffic generation in **Table 2**. Project traffic assignment is illustrated in **Figure 6** for the study area intersection and proposed project access drives. The entering and exiting trips at the project access drives are rounded to the nearest whole number when assigned. Therefore, the number of trips assigned to the project driveways in **Figure 6** may differ slightly from the total trip generation.

### 3.6. 2023 Background Plus Project Peak Hour Traffic Volumes

It is anticipated that this project will represent the extent of growth in this area up to construction. The project generated traffic volumes in **Figure 6** were added to the 2023 background traffic volumes (identical to existing volumes in **Figure 4**) to represent estimated traffic conditions for full project development in 2023. The 2023 background plus project total traffic volumes for the study area intersections and project access drives are illustrated in **Figure 7**.





①	← 100%(0%)	②	← 95%(0%)
	↑ 0%(100%)	↓ 5%(0%)	→ 0%(15%) → 0%(85%)
③	← 10%(0%)	④	← 100%(0%)
→ 0%(5%) → 0%(10%)	↑ 85%(0%)	↓ 0%(100%)	→ 0%(100%)
⑤	↓ 40%(0%) ↓ 60%(0%)	↑ 0%(60%)	
→ 0%(40%)			

**LEGEND:**

①	Study Area Key Intersection
← XX%(XX%)	IN(OUT) Peak Hour Trip Distribution
←-XX%->	Global Peak Hour Trip Distribution

SOURCE: NEARMAP

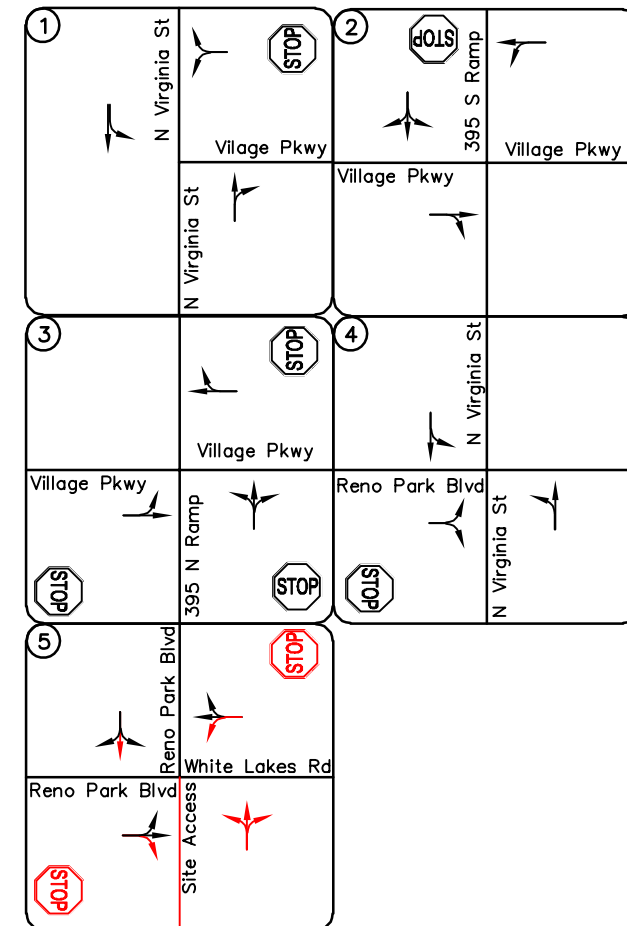
## KP INVESTMENTS NORTH PROJECT TRIP DISTRIBUTION





SOURCE: NEARMAP

## KP INVESTMENTS NORTH 2023 BACKGROUND PLUS PROJECT LANE CONFIGURATION AND CONTROL



**LEGEND:**

- 1 Study Area Key Intersection
- SPEED LIMIT 25 Roadway Speed Limit
- STOP Stop Controlled Approach
- Project Improvement





①	← 378(158)	②	← 360(151)
	↑ 117(375)		← 19(8)
③	← 38(16)	④	← 378(158)
	↑ 322(135)		← 18(57) → 100(319) ↓
⑤	↑ 152(64) ↓ 227(95)	⑤	↑ 117(375)
	↑ 47(150)		↑ 71(225)

**LEGEND:**

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

SOURCE: NEARMAP  
**KP INVESTMENTS NORTH**  
**PROJECT TRAFFIC ASSIGNMENT**





SOURCE: NEARMAP

### KP INVESTMENTS NORTH

### 2023 BACKGROUND PLUS PROJECT PEAK HOUR TRAFFIC VOLUMES

<p>①</p> <p>← 1(5) ← 37(89)</p> <p>↖ 20(73) ↖ 396(173)</p> <p>↗ 1(5) ↗ 138(390)</p>		<p>②</p> <p>↖ 24(16) ↖ 2(3) ↖ 7(24)</p> <p>← 394(231) ← 429(195)</p> <p>↗ 41(121) ↗ 139(359)</p>	
<p>③</p> <p>↖ 17(13) ↖ 484(235)</p> <p>↗ 12(38) ↗ 37(105)</p> <p>↖ 339(186) ↖ 0(1) ↖ 99(413)</p>		<p>④</p> <p>↖ 393(168) ↖ 2(11)</p> <p>↗ 130(400) ↗ 0(1)</p> <p>↖ 0(2) ↖ 10(6)</p>	
<p>⑤</p> <p>↖ 164(65) ↖ 227(95) ↖ 2(8)</p> <p>↗ 49(167) ↗ 0(1)</p> <p>↖ 8(8)</p> <p>↗ 71(225)</p>			



**LEGEND:**

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



## 4. ANALYSIS

Traffic analyses for 2022 existing, and 2023 background plus project scenarios were conducted at the identified key intersection and project access drives to determine possible existing and/or future deficiencies in the street network. It is anticipated that this project will represent the extent of growth in this area up to construction.

### 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” 6<sup>th</sup> Edition (HCM). 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 3** shows the definition of LOS for intersections.

**Table 3 – 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, 6<sup>th</sup> Edition, Transportation Research Board.*

Synchro 11 was used to analyze the study area intersections and project access drives 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 D**. All existing, background, and background plus project analyses are based on the lane geometry and intersection control shown in **Figure 3**. The results of the Key Intersection LOS Analysis are shown in **Table 4**.

**Table 4 – Key Intersection Peak Hour LOS Results**

Int. No	Intersection	2022 Existing		2023 Background + Project	
		AM	PM	AM	PM
		Delay (LOS)	Delay (LOS)	Delay (LOS)	Delay (LOS)
1	<b>N Virginia Street/ Village Parkway</b> One-Way Stop Controlled Southbound Left West Bound Left/Right	7.3(A) 9 (A)	7.4 (A) 9.1 (A)	15.2 (C) 7.6(A)	16.9 (C) 8.7 (A)
2	<b>Village Parkway/ US 395 Southbound Ramps</b> One-Way Stop Controlled Southbound Left/Right/Through Westbound Left	22.8 (C) 8.6 (A)	13.8 (B) 7.9 (A)	23.6 (C) 9 (A)	21 (C) 9.5 (A)
3	<b>Village Parkway/ US 395 Northbound Ramps</b> All-Way Stop Controlled	14.7 (B)	12.3 (B)	<b>25.2 (D)</b>	22.8 (C)
4	<b>North Virginia Street/South Reno Park Boulevard</b> One-Way Stop Controlled Northbound Left Eastbound Left/Right	0 (A) 8.7 (A)	7.3 (A) 9 (A)	0 (A) 13.9 (B)	7.8(A) <b>66.9 (F)</b>
5	<b>South Reno Boulevard/White Lakes Road</b> One-Way Stop Controlled Southbound Left/Right/Through Eastbound Left/Right/Through Westbound Left/Right/Through Northbound Left/Right/Through	0 (A) 0 (A) 0 (A) 0 (A)	0 (A) 0 (A) 0 (A) 0 (A)	7.4 (A) 14.1 (B) 8.7 (A) 0 (A)	7.7 (A) <b>30.9 (D)</b> 9.6 (A) 0 (A)

The key study area intersections are expected to operate at acceptable LOS (as defined by the Washoe County Development Code) in all scenarios with the exception of the following:

- Village Parkway and US 395 Northbound Ramps Intersection (#3) in the 2023 background plus project AM peak hour
- North Virginia Street and South Reno Park Boulevard Intersection (#4) Eastbound Approach in the 2023 background plus project PM peak hour
- South Reno Park Boulevard and White Lakes Road Intersection (#5) Eastbound Approach in the 2023 background plus project PM peak hour.

It is anticipated that there will be significant delay on the eastbound approach for Intersection #4 in the PM peak hour. If desired, removal of the R1-1 “STOP” signs on the eastbound and westbound approaches for the Village Parkway and US 95 Northbound Ramps Intersection (#3) would help achieve an acceptable LOS.

## 5. CRASH DATA ANALYSIS

Crash data for the five (5) study area intersections was obtained from the Nevada Department of Transportation (NDOT) Safety Engineering Division for the three-year period from January 1, 2017 – December 31, 2019. The crash data is summarized in **Table 5**.

**Table 5 – Crash Data Summary**

Intersection	Total Crashes	Property Damage Only	Injury	Fatal
North Virginia Street and Village Parkway	0	0 (0%)	0 (0%)	0 (0%)
US 395 Southbound Ramps and Village Parkway	1	0 (0%)	1 (100%)	0 (0%)
US 395 Northbound Ramps and Village Parkway	1	1 (100%)	0 (0%)	0 (0%)
North Virginia Street and South Reno Park Boulevard	0	0 (0%)	0 (0%)	0 (0%)
South Reno Park Boulevard and White Lake Road	0	0 (0%)	0 (0%)	0 (0%)
<b>Total</b>	<b>2</b>	<b>1 (50%)</b>	<b>1 (50%)</b>	<b>0 (0%)</b>

A total of 2 crashes were recorded at the study area intersections during the three-year period. Those 2 crashes resulted in 1 injury crashes (50%), and 1 property damage only crashes (50%). No fatal crashes were reported for the study area intersections.

## 6. RECOMMENDATIONS

The KP Investments North traffic is anticipated to be accommodated on the street network expected to exist in the background year of 2023. KP Investments North 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 eastbound approach to the existing South Reno Park Boulevard and White Lakes Road Intersection (#5) per current MUTCD Guidelines.
- 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.

**APPENDIX A**  
**SCOPE OF STUDY**

## Schaffner, Perry

---

From: Giacomini, David  
Sent: Friday, January 7, 2022 11:40 AM  
To: Schaffner, Perry  
Subject: FW: Project Max Traffic Study Scope Request

Scope from Washoe County and NDOT.

**David J Giacomini, P.E., PTOE, RSP<sub>1</sub>**  
**Kimley-Horn** | 7900 Rancharrah Parkway, Suite 100, Reno, NV 89511  
Direct: (775) 200-1981 | Mobile: (651) 497-8220

---

From: Wolfson, Alexander <AWolfson@dot.nv.gov>  
Sent: Friday, December 10, 2021 9:28 AM  
To: Fink, Mitchell <MFink@washoecounty.gov>; Giacomini, David <david.giacomini@kimley-horn.com>  
Subject: RE: Project Max Traffic Study Scope Request

Hi David,

To add to Mitch's scope, we'll be looking for analysis of the Village Pkwy/US-395 ramp intersections and also the Village Pkwy/FRWA23 intersection. Given the proximity of the Village Pkwy/FRWA23 intersection to the US-395 SB ramps, NDOT will be looking for queueing analysis to see how often traffic waiting at the stop sign backs into the US-395 SB ramps intersection. It may be worth considering treating those two intersections as one. I have a feeling that a mitigation will need to be proposed for that situation.

Thank you,

Alex Wolfson, P.E., PTOE, RSP<sub>1</sub>  
Engineering Manager – District 2  
Nevada Department of Transportation  
o 775.834.8304 | m 775.301.8150  
e [awolfson@dot.nv.gov](mailto:awolfson@dot.nv.gov) | w dot.nv.gov

---

From: Fink, Mitchell <[MFink@washoecounty.gov](mailto:MFink@washoecounty.gov)>  
Sent: Thursday, December 9, 2021 11:22 AM  
To: Giacomini, David <[david.giacomini@kimley-horn.com](mailto:david.giacomini@kimley-horn.com)>  
Cc: Wolfson, Alexander <[AWolfson@dot.nv.gov](mailto:AWolfson@dot.nv.gov)>  
Subject: RE: Project Max Traffic Study Scope Request

Hi David,

From the attached project site map that you sent over it appears that the ingress and egress to the project will be on the existing Reno Park Blvd. to FRWA23 to US 395N? As you are probably aware we would not allow the warehouse traffic to divert through the local residential streets. Please provide your intersection recommendations and I'm sure Alex will have some requirements as well.

Thank you.



Mitchell Fink, P.E. | Licensed Engineer

Community Services Department | Engineering & Capital Projects Division

[mfink@washoecounty.gov](mailto:mfink@washoecounty.gov) | Office: 775.328.2050

1001 E. 9<sup>th</sup> Street, Reno, NV 89512



*\*Have some kudos to share about a Community Services Department employee or experience?*

*email: [csdallstars@washoecounty.us](mailto:csdallstars@washoecounty.us)*

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From: Giacomini, David <[david.giacomini@kimley-horn.com](mailto:david.giacomini@kimley-horn.com)>

Sent: Wednesday, December 8, 2021 10:58 AM

To: Fink, Mitchell <[MFink@washoecounty.gov](mailto:MFink@washoecounty.gov)>

Cc: Wolfson, Alexander <[AWolfson@dot.nv.gov](mailto:AWolfson@dot.nv.gov)>

Subject: Project Max Traffic Study Scope Request

[NOTICE: This message originated outside of Washoe County -- DO NOT CLICK on links or open attachments unless you are sure the content is safe.]

Mitch,

I have another request for a traffic study scope for you. This is a larger project. I am attaching a copy of the conceptual site plan we have been given.

Please let me know if you would like me to suggest a set of intersections for this one. Feel free to give me a call anytime today. I am copying Alex Wolfson from NDOT as well incase Alex has any input regarding this one.

Thank you,

**David J Giacomini, P.E., PTOE, RSP<sub>1</sub>**

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**APPENDIX B**  
**COUNT DATA**



**N Virginia St and Village Pkwy - TMC**

Thu Jan 6, 2022

Full Length (5 AM-9 AM, 3 PM-7 PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 913836, Location: 39.667427, -119.99741

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

Leg Direction	N Virginia St Northbound				N Virginia St Southbound				Village Pkwy Westbound				
Time	R	T	U	App	T	L	U	App	R	L	U	App	Int
2022-01-06 5:00AM	1	0	0	1	1	9	0	10	12	0	0	12	23
5:15AM	1	0	0	1	0	10	0	10	12	1	0	13	24
5:30AM	1	0	0	1	1	9	0	10	10	2	0	12	23
5:45AM	0	0	0	0	0	3	0	3	6	0	0	6	9
<b>Hourly Total</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>2</b>	<b>31</b>	<b>0</b>	<b>33</b>	<b>40</b>	<b>3</b>	<b>0</b>	<b>43</b>	<b>79</b>
6:00AM	5	0	0	5	1	7	0	8	6	1	0	7	20
6:15AM	2	0	0	2	0	4	0	4	5	4	0	9	15
6:30AM	4	0	0	4	1	10	0	11	2	6	1	9	24
6:45AM	6	0	0	6	0	4	0	4	4	6	1	11	21
<b>Hourly Total</b>	<b>17</b>	<b>0</b>	<b>0</b>	<b>17</b>	<b>2</b>	<b>25</b>	<b>0</b>	<b>27</b>	<b>17</b>	<b>17</b>	<b>2</b>	<b>36</b>	<b>80</b>
7:00AM	6	0	0	6	0	15	0	15	7	0	0	7	28
7:15AM	5	1	0	6	0	8	0	8	7	3	1	11	25
7:30AM	3	0	0	3	0	7	0	7	4	0	0	4	14
7:45AM	5	1	0	6	0	5	0	5	5	1	0	6	17
<b>Hourly Total</b>	<b>19</b>	<b>2</b>	<b>0</b>	<b>21</b>	<b>0</b>	<b>35</b>	<b>0</b>	<b>35</b>	<b>23</b>	<b>4</b>	<b>1</b>	<b>28</b>	<b>84</b>
8:00AM	2	1	0	3	0	8	0	8	3	1	0	4	15
8:15AM	7	0	0	7	1	5	0	6	7	2	1	10	23
8:30AM	7	0	0	7	0	6	0	6	5	2	0	7	20
8:45AM	3	0	0	3	1	10	0	11	8	0	0	8	22
<b>Hourly Total</b>	<b>19</b>	<b>1</b>	<b>0</b>	<b>20</b>	<b>2</b>	<b>29</b>	<b>0</b>	<b>31</b>	<b>23</b>	<b>5</b>	<b>1</b>	<b>29</b>	<b>80</b>
3:00PM	3	1	0	4	2	16	0	18	13	4	0	17	39
3:15PM	14	2	0	16	0	16	0	16	13	8	0	21	53
3:30PM	4	3	0	7	2	19	0	21	16	3	0	19	47
3:45PM	4	0	0	4	1	23	0	24	17	4	0	21	49
<b>Hourly Total</b>	<b>25</b>	<b>6</b>	<b>0</b>	<b>31</b>	<b>5</b>	<b>74</b>	<b>0</b>	<b>79</b>	<b>59</b>	<b>19</b>	<b>0</b>	<b>78</b>	<b>188</b>
4:00PM	3	2	0	5	1	19	0	20	18	2	0	20	45
4:15PM	4	2	0	6	2	26	0	28	19	4	0	23	57
4:30PM	4	1	0	5	1	21	0	22	19	4	1	24	51
4:45PM	3	4	0	7	3	15	0	18	19	5	0	24	49
<b>Hourly Total</b>	<b>14</b>	<b>9</b>	<b>0</b>	<b>23</b>	<b>7</b>	<b>81</b>	<b>0</b>	<b>88</b>	<b>75</b>	<b>15</b>	<b>1</b>	<b>91</b>	<b>202</b>
5:00PM	1	0	0	1	2	16	0	18	19	2	0	21	40
5:15PM	2	0	0	2	0	14	0	14	14	2	0	16	32
5:30PM	0	3	0	3	2	25	0	27	16	5	0	21	51
5:45PM	3	2	0	5	4	24	0	28	8	1	0	9	42
<b>Hourly Total</b>	<b>6</b>	<b>5</b>	<b>0</b>	<b>11</b>	<b>8</b>	<b>79</b>	<b>0</b>	<b>87</b>	<b>57</b>	<b>10</b>	<b>0</b>	<b>67</b>	<b>165</b>
6:00PM	2	1	0	3	1	16	0	17	14	4	0	18	38
6:15PM	0	2	0	2	1	15	0	16	9	2	0	11	29
6:30PM	3	3	0	6	2	7	0	9	10	4	0	14	29
6:45PM	1	0	0	1	0	18	0	18	11	4	0	15	34
<b>Hourly Total</b>	<b>6</b>	<b>6</b>	<b>0</b>	<b>12</b>	<b>4</b>	<b>56</b>	<b>0</b>	<b>60</b>	<b>44</b>	<b>14</b>	<b>0</b>	<b>58</b>	<b>130</b>
<b>Total</b>	<b>109</b>	<b>29</b>	<b>0</b>	<b>138</b>	<b>30</b>	<b>410</b>	<b>0</b>	<b>440</b>	<b>338</b>	<b>87</b>	<b>5</b>	<b>430</b>	<b>1008</b>
<b>% Approach</b>	79.0%	21.0%	0%	-	6.8%	93.2%	0%	-	78.6%	20.2%	1.2%	-	-
<b>% Total</b>	10.8%	2.9%	0%	13.7%	3.0%	40.7%	0%	43.7%	33.5%	8.6%	0.5%	42.7%	-
<b>Lights</b>	98	28	0	126	28	397	0	425	326	78	5	409	960
<b>% Lights</b>	89.9%	96.6%	0%	91.3%	93.3%	96.8%	0%	96.6%	96.4%	89.7%	100%	95.1%	95.2%
<b>Articulated Trucks</b>	3	0	0	3	0	7	0	7	5	4	0	9	19
<b>% Articulated Trucks</b>	2.8%	0%	0%	2.2%	0%	1.7%	0%	1.6%	1.5%	4.6%	0%	2.1%	1.9%
<b>Buses and Single-Unit Trucks</b>	8	1	0	9	2	6	0	8	7	5	0	12	29
<b>% Buses and Single-Unit Trucks</b>	7.3%	3.4%	0%	6.5%	6.7%	1.5%	0%	1.8%	2.1%	5.7%	0%	2.8%	2.9%

\*L: Left, R: Right, T: Thru, U: U-Turn

**N Virginia St and Village Pkwy - TMC**

Thu Jan 6, 2022

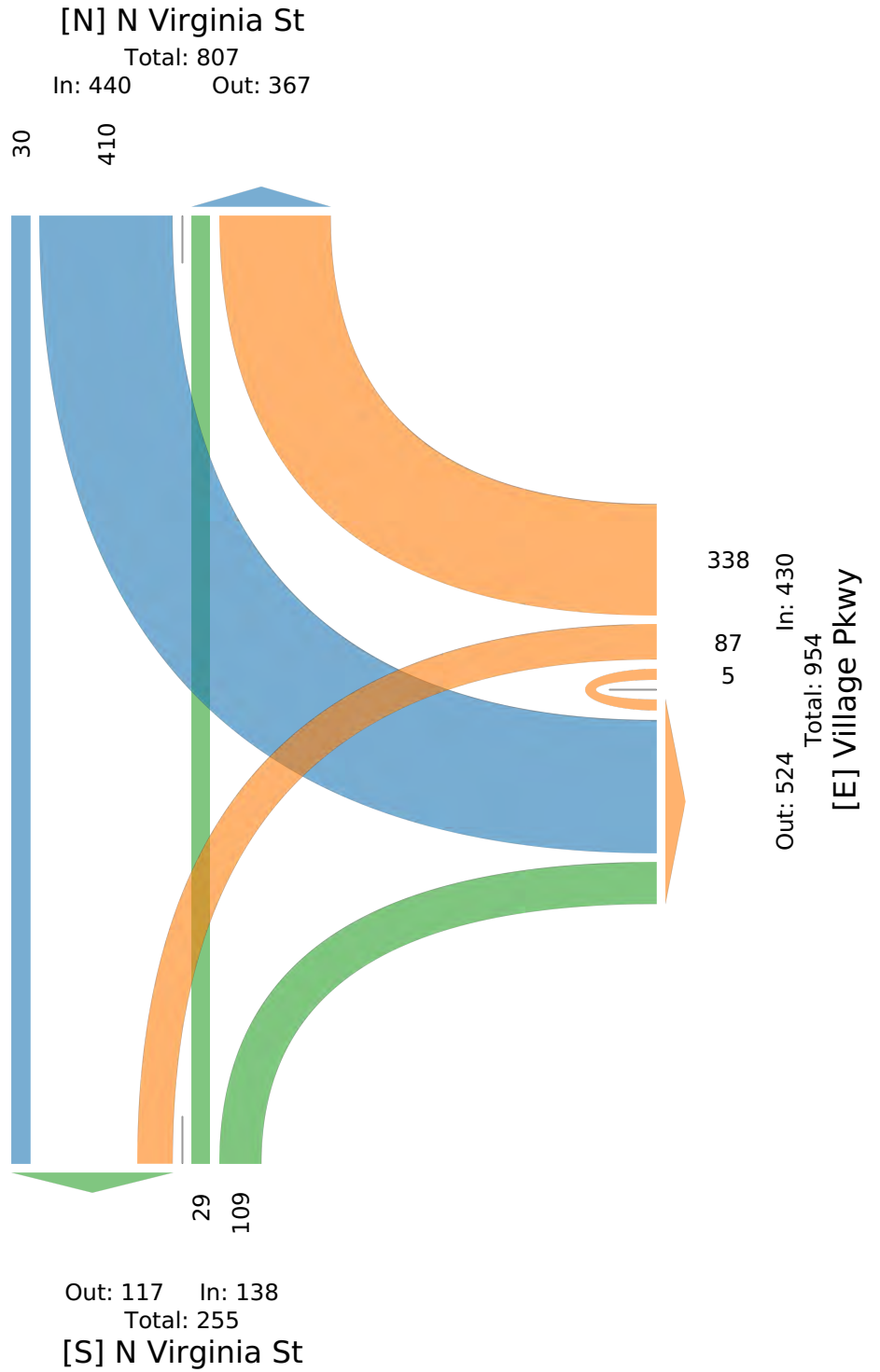
Full Length (5 AM-9 AM, 3 PM-7 PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 913836, Location: 39.667427, -119.99741

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



**N Virginia St and Village Pkwy - TMC**

Thu Jan 6, 2022

AM Peak (6:30 AM - 7:30 AM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 913836, Location: 39.667427, -119.99741

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

Leg Direction	N Virginia St Northbound				N Virginia St Southbound				Village Pkwy Westbound				
Time	R	T	U	App	T	L	U	App	R	L	U	App	Int
2022-01-06 6:30AM	4	0	0	4	1	10	0	11	2	6	1	9	24
6:45AM	6	0	0	6	0	4	0	4	4	6	1	11	21
7:00AM	6	0	0	6	0	15	0	15	7	0	0	7	28
7:15AM	5	1	0	6	0	8	0	8	7	3	1	11	25
<b>Total</b>	21	1	0	22	1	37	0	38	20	15	3	38	98
<b>% Approach</b>	95.5%	4.5%	0%	-	2.6%	97.4%	0%	-	52.6%	39.5%	7.9%	-	-
<b>% Total</b>	21.4%	1.0%	0%	22.4%	1.0%	37.8%	0%	38.8%	20.4%	15.3%	3.1%	38.8%	-
<b>PHF</b>	0.875	0.250	-	0.917	0.250	0.617	-	0.633	0.714	0.625	0.750	0.864	0.875
<b>Lights</b>	18	1	0	19	1	33	0	34	16	14	3	33	86
<b>% Lights</b>	85.7%	100%	0%	86.4%	100%	89.2%	0%	89.5%	80.0%	93.3%	100%	86.8%	87.8%
<b>Articulated Trucks</b>	0	0	0	0	0	3	0	3	2	0	0	2	5
<b>% Articulated Trucks</b>	0%	0%	0%	0%	0%	8.1%	0%	7.9%	10.0%	0%	0%	5.3%	5.1%
<b>Buses and Single-Unit Trucks</b>	3	0	0	3	0	1	0	1	2	1	0	3	7
<b>% Buses and Single-Unit Trucks</b>	14.3%	0%	0%	13.6%	0%	2.7%	0%	2.6%	10.0%	6.7%	0%	7.9%	7.1%

\* L: Left, R: Right, T: Thru, U: U-Turn

**N Virginia St and Village Pkwy - TMC**

Thu Jan 6, 2022

AM Peak (6:30 AM - 7:30 AM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 913836, Location: 39.667427, -119.99741

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

**[N] N Virginia St**

Total: 59

In: 38      Out: 21

1

37



20

15

3

Out: 61      In: 38

Total: 99

**[E] Village Pkwy**

Out: 16      In: 22

Total: 38

**[S] N Virginia St**

**N Virginia St and Village Pkwy - TMC**

Thu Jan 6, 2022

PM Peak (3:45 PM - 4:45 PM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 913836, Location: 39.667427, -119.99741

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

Leg Direction	N Virginia St Northbound				N Virginia St Southbound				Village Pkwy Westbound				
Time	R	T	U	App	T	L	U	App	R	L	U	App	Int
2022-01-06 3:45PM	4	0	0	4	1	23	0	24	17	4	0	21	49
4:00PM	3	2	0	5	1	19	0	20	18	2	0	20	45
4:15PM	4	2	0	6	2	26	0	28	19	4	0	23	57
4:30PM	4	1	0	5	1	21	0	22	19	4	1	24	51
<b>Total</b>	15	5	0	20	5	89	0	94	73	14	1	88	202
<b>% Approach</b>	75.0%	25.0%	0%	-	5.3%	94.7%	0%	-	83.0%	15.9%	1.1%	-	-
<b>% Total</b>	7.4%	2.5%	0%	9.9%	2.5%	44.1%	0%	46.5%	36.1%	6.9%	0.5%	43.6%	-
<b>PHF</b>	0.938	0.625	-	0.833	0.625	0.856	-	0.839	0.961	0.875	0.250	0.917	0.886
<b>Lights</b>	13	5	0	18	5	87	0	92	67	14	1	82	192
<b>% Lights</b>	86.7%	100%	0%	90.0%	100%	97.8%	0%	97.9%	91.8%	100%	100%	93.2%	95.0%
<b>Articulated Trucks</b>	2	0	0	2	0	0	0	0	2	0	0	2	4
<b>% Articulated Trucks</b>	13.3%	0%	0%	10.0%	0%	0%	0%	0%	2.7%	0%	0%	2.3%	2.0%
<b>Buses and Single-Unit Trucks</b>	0	0	0	0	0	2	0	2	4	0	0	4	6
<b>% Buses and Single-Unit Trucks</b>	0%	0%	0%	0%	0%	2.2%	0%	2.1%	5.5%	0%	0%	4.5%	3.0%

\* L: Left, R: Right, T: Thru, U: U-Turn

**N Virginia St and Village Pkwy - TMC**

Thu Jan 6, 2022

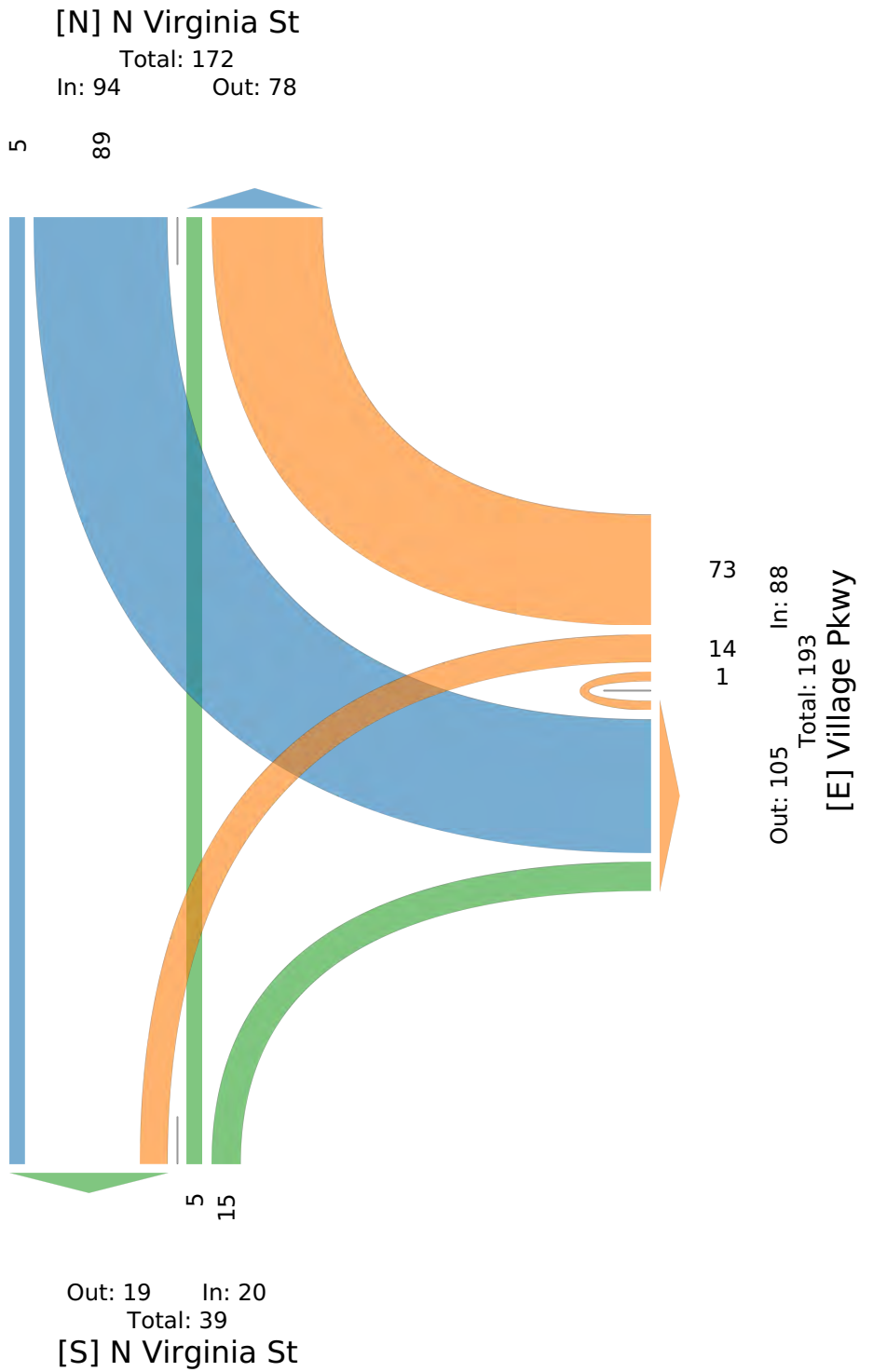
PM Peak (3:45 PM - 4:45 PM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 913836, Location: 39.667427, -119.99741

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



395 SB ramps and Village Pkwy - TMC

Thu Jan 6, 2022

Full Length (5 AM-9 AM, 3 PM-7 PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 913837, Location: 39.667615, -119.997055

Provided by: Kimley-Horn and Associates, Inc.

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

Leg Direction	395 SB On ramp Northbound					395 SB Off ramp Southbound					Village Pkwy Eastbound					Village Pkwy Westbound					Int
	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	
2022-01-06 5:00AM	0	0	0	0	0	0	1	0	0	1	4	6	0	0	10	0	12	34	0	46	57
5:15AM	0	0	0	0	0	0	0	1	0	1	4	7	0	0	11	0	13	54	0	67	79
5:30AM	0	0	0	0	0	0	0	0	0	0	4	6	0	0	10	0	12	83	0	95	105
5:45AM	0	0	0	0	0	0	0	0	0	0	2	1	0	0	3	0	6	62	0	68	71
Hourly Total	0	0	0	0	0	0	1	1	0	2	14	20	0	0	34	0	43	233	0	276	312
6:00AM	0	0	0	0	0	2	0	0	0	2	7	5	0	0	12	0	5	93	0	98	112
6:15AM	0	0	0	0	0	0	0	0	0	0	3	4	0	0	7	0	9	95	0	104	111
6:30AM	0	0	0	0	0	3	1	1	0	5	14	1	0	0	15	0	6	92	0	98	118
6:45AM	0	0	0	0	0	0	0	5	0	5	4	7	0	0	11	0	12	93	0	105	121
Hourly Total	0	0	0	0	0	5	1	6	0	12	28	17	0	0	45	0	32	373	0	405	462
7:00AM	0	0	0	0	0	2	1	1	0	4	13	9	0	0	22	0	6	112	0	118	144
7:15AM	0	0	0	0	0	0	0	0	0	0	8	6	0	0	14	0	10	132	0	142	156
7:30AM	0	0	0	0	0	0	0	1	0	1	6	4	0	0	10	0	4	94	0	98	109
7:45AM	0	0	0	0	0	1	0	0	0	1	7	3	0	0	10	0	5	84	0	89	100
Hourly Total	0	0	0	0	0	3	1	2	0	6	34	22	0	0	56	0	25	422	0	447	509
8:00AM	0	0	0	0	0	0	0	1	0	1	5	5	0	0	10	0	4	74	0	78	89
8:15AM	0	0	0	0	0	0	0	0	0	0	10	3	0	0	13	0	9	60	0	69	82
8:30AM	0	0	0	0	0	0	0	1	0	1	6	8	0	0	14	1	7	66	0	74	89
8:45AM	0	0	0	0	0	1	0	1	0	2	9	3	0	0	12	0	7	61	0	68	82
Hourly Total	0	0	0	0	0	1	0	3	0	4	30	19	0	0	49	1	27	261	0	289	342
3:00PM	0	0	0	0	0	0	0	2	0	2	4	15	0	0	19	0	17	48	0	65	86
3:15PM	0	0	0	0	0	3	0	8	0	11	14	17	0	0	31	0	17	37	0	54	96
3:30PM	0	0	0	0	0	3	2	1	0	6	12	12	0	0	24	1	16	40	0	57	87
3:45PM	0	0	0	0	0	0	0	4	0	4	5	22	0	0	27	0	21	54	0	75	106
Hourly Total	0	0	0	0	0	6	2	15	0	23	35	66	0	0	101	1	71	179	0	251	375
4:00PM	0	0	0	0	0	3	3	5	0	11	13	9	0	0	22	0	18	48	0	66	99
4:15PM	0	0	0	0	0	4	0	4	0	8	10	20	0	0	30	0	18	43	0	61	99
4:30PM	0	0	0	0	0	1	0	11	0	12	12	13	0	0	25	0	23	50	0	73	110
4:45PM	0	0	0	0	0	0	0	4	0	4	3	16	0	0	19	0	24	53	0	77	100
Hourly Total	0	0	0	0	0	8	3	24	0	35	38	58	0	0	96	0	83	194	0	277	408
5:00PM	0	0	0	0	0	0	0	4	0	4	2	15	0	0	17	0	21	38	0	59	80
5:15PM	0	0	0	0	0	0	0	4	0	4	5	12	0	0	17	0	15	43	0	58	79
5:30PM	0	0	0	0	0	2	0	15	0	17	11	14	0	0	25	0	19	28	0	47	89
5:45PM	0	0	0	0	0	0	0	19	0	19	10	17	0	0	27	0	9	39	0	48	94
Hourly Total	0	0	0	0	0	2	0	42	0	44	28	58	0	0	86	0	64	148	0	212	342
6:00PM	0	0	0	0	0	1	0	5	0	6	6	12	0	0	18	0	16	32	0	48	72
6:15PM	0	0	0	0	0	0	0	3	0	3	4	10	0	0	14	0	11	32	0	43	60
6:30PM	0	0	0	0	0	0	0	2	0	2	4	6	0	0	10	0	14	25	0	39	51
6:45PM	0	0	0	0	0	0	0	3	0	3	4	15	0	0	19	0	14	19	0	33	55
Hourly Total	0	0	0	0	0	1	0	13	0	14	18	43	0	0	61	0	55	108	0	163	238
<b>Total</b>	0	0	0	0	0	26	8	106	0	140	225	303	0	0	528	2	400	1918	0	2320	2988
<b>% Approach</b>	0%	0%	0%	0%	-	18.6%	5.7%	75.7%	0%	-	42.6%	57.4%	0%	0%	-	0.1%	17.2%	82.7%	0%	-	-
<b>% Total</b>	0%	0%	0%	0%	<b>0%</b>	0.9%	0.3%	3.5%	0%	<b>4.7%</b>	7.5%	10.1%	0%	0%	<b>17.7%</b>	0.1%	13.4%	64.2%	0%	<b>77.6%</b>	-
<b>Lights</b>	0	0	0	0	0	19	8	105	0	132	211	292	0	0	503	2	387	1882	0	2271	2906
<b>% Lights</b>	0%	0%	0%	0%	-	73.1%	100%	99.1%	0%	<b>94.3%</b>	93.8%	96.4%	0%	0%	<b>95.3%</b>	100%	96.8%	98.1%	0%	<b>97.9%</b>	97.3%
<b>Articulated Trucks</b>	0	0	0	0	0	2	0	0	0	2	9	3	0	0	12	0	5	2	0	7	21
<b>% Articulated Trucks</b>	0%	0%	0%	0%	-	7.7%	0%	0%	0%	<b>1.4%</b>	4.0%	1.0%	0%	0%	<b>2.3%</b>	0%	1.3%	0.1%	0%	<b>0.3%</b>	0.7%
<b>Buses and Single-Unit Trucks</b>	0	0	0	0	0	5	0	1	0	6	5	8	0	0	13	0	8	34	0	42	61
<b>% Buses and Single-Unit Trucks</b>	0%	0%	0%	0%	-	19.2%	0%	0.9%	0%	<b>4.3%</b>	2.2%	2.6%	0%	0%	<b>2.5%</b>	0%	2.0%	1.8%	0%	<b>1.8%</b>	2.0%

\*L: Left, R: Right, T: Thru, U: U-Turn

395 SB ramps and Village Pkwy - TMC

Thu Jan 6, 2022

Full Length (5 AM-9 AM, 3 PM-7 PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

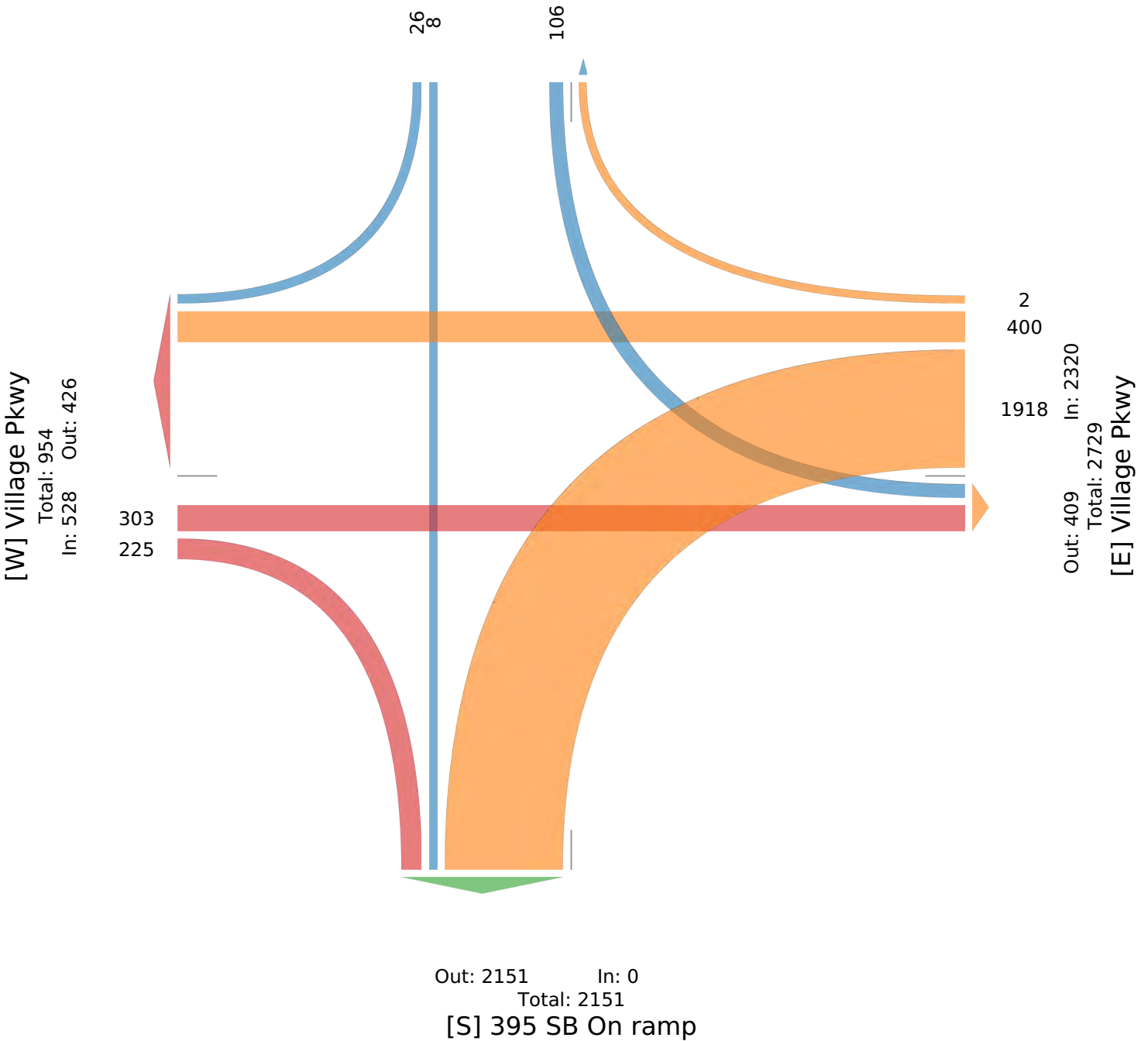
All Movements

ID: 913837, Location: 39.667615, -119.997055

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

[N] 395 SB Off ramp

Total: 142  
In: 140 Out: 2





395 SB ramps and Village Pkwy - TMC

Thu Jan 6, 2022

AM Peak (6:30 AM - 7:30 AM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 913837, Location: 39.667615, -119.997055

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

Leg Direction	395 SB On ramp Northbound					395 SB Off ramp Southbound					Village Pkwy Eastbound					Village Pkwy Westbound					Int
	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	
2022-01-06 6:30AM	0	0	0	0	0	3	1	1	0	5	14	1	0	0	15	0	6	92	0	98	118
6:45AM	0	0	0	0	0	0	0	5	0	5	4	7	0	0	11	0	12	93	0	105	121
7:00AM	0	0	0	0	0	2	1	1	0	4	13	9	0	0	22	0	6	112	0	118	144
7:15AM	0	0	0	0	0	0	0	0	0	0	8	6	0	0	14	0	10	132	0	142	156
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>2</b>	<b>7</b>	<b>0</b>	<b>14</b>	<b>39</b>	<b>23</b>	<b>0</b>	<b>0</b>	<b>62</b>	<b>0</b>	<b>34</b>	<b>429</b>	<b>0</b>	<b>463</b>	<b>539</b>
<b>% Approach</b>	0%	0%	0%	0%	-	35.7%	14.3%	50.0%	0%	-	62.9%	37.1%	0%	0%	-	0%	7.3%	92.7%	0%	-	-
<b>% Total</b>	0%	0%	0%	0%	<b>0%</b>	0.9%	0.4%	1.3%	0%	<b>2.6%</b>	7.2%	4.3%	0%	0%	<b>11.5%</b>	0%	6.3%	79.6%	0%	<b>85.9%</b>	-
<b>PHF</b>	-	-	-	-	-	0.417	0.500	0.350	-	<b>0.700</b>	0.696	0.639	-	-	<b>0.705</b>	-	0.708	0.813	-	<b>0.815</b>	0.864
<b>Lights</b>	0	0	0	0	0	3	2	7	0	12	36	18	0	0	54	0	32	423	0	455	521
<b>% Lights</b>	0%	0%	0%	0%	-	60.0%	100%	100%	0%	<b>85.7%</b>	92.3%	78.3%	0%	0%	<b>87.1%</b>	0%	94.1%	98.6%	0%	<b>98.3%</b>	96.7%
<b>Articulated Trucks</b>	0	0	0	0	0	0	0	0	0	0	3	1	0	0	4	0	1	0	0	1	5
<b>% Articulated Trucks</b>	0%	0%	0%	0%	-	0%	0%	0%	0%	<b>0%</b>	7.7%	4.3%	0%	0%	<b>6.5%</b>	0%	2.9%	0%	0%	<b>0.2%</b>	0.9%
<b>Buses and Single-Unit Trucks</b>	0	0	0	0	0	2	0	0	0	2	0	4	0	0	4	0	1	6	0	7	13
<b>% Buses and Single-Unit Trucks</b>	0%	0%	0%	0%	-	40.0%	0%	0%	0%	<b>14.3%</b>	0%	17.4%	0%	0%	<b>6.5%</b>	0%	2.9%	1.4%	0%	<b>1.5%</b>	2.4%

\* L: Left, R: Right, T: Thru, U: U-Turn

395 SB ramps and Village Pkwy - TMC

Thu Jan 6, 2022

AM Peak (6:30 AM - 7:30 AM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 913837, Location: 39.667615, -119.997055

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

[N] 395 SB Off ramp

Total: 14  
In: 14 Out: 0

52

7

[W] Village Pkwy  
Total: 101  
In: 62 Out: 39

23  
39

34  
429

Out: 30 In: 463  
Total: 493  
[E] Village Pkwy

Out: 470 In: 0  
Total: 470  
[S] 395 SB On ramp

395 SB ramps and Village Pkwy - TMC

Thu Jan 6, 2022

PM Peak (3:45 PM - 4:45 PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 913837, Location: 39.667615, -119.997055

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

Leg Direction	395 SB On ramp Northbound					395 SB Off ramp Southbound					Village Pkwy Eastbound					Village Pkwy Westbound					Int
	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	
2022-01-06 3:45PM	0	0	0	0	0	0	0	4	0	4	5	22	0	0	27	0	21	54	0	75	106
4:00PM	0	0	0	0	0	3	3	5	0	11	13	9	0	0	22	0	18	48	0	66	99
4:15PM	0	0	0	0	0	4	0	4	0	8	10	20	0	0	30	0	18	43	0	61	99
4:30PM	0	0	0	0	0	1	0	11	0	12	12	13	0	0	25	0	23	50	0	73	110
<b>Total</b>	0	0	0	0	0	8	3	24	0	35	40	64	0	0	104	0	80	195	0	275	414
<b>% Approach</b>	0%	0%	0%	0%	-	22.9%	8.6%	68.6%	0%	-	38.5%	61.5%	0%	0%	-	0%	29.1%	70.9%	0%	-	-
<b>% Total</b>	0%	0%	0%	0%	0%	1.9%	0.7%	5.8%	0%	8.5%	9.7%	15.5%	0%	0%	25.1%	0%	19.3%	47.1%	0%	66.4%	-
<b>PHF</b>	-	-	-	-	-	0.500	0.250	0.545	-	0.729	0.769	0.727	-	-	0.867	-	0.870	0.903	-	0.917	0.941
<b>Lights</b>	0	0	0	0	0	6	3	24	0	33	37	63	0	0	100	0	76	188	0	264	397
<b>% Lights</b>	0%	0%	0%	0%	-	75.0%	100%	100%	0%	94.3%	92.5%	98.4%	0%	0%	96.2%	0%	95.0%	96.4%	0%	96.0%	95.9%
<b>Articulated Trucks</b>	0	0	0	0	0	1	0	0	0	1	1	1	0	0	2	0	1	0	0	1	4
<b>% Articulated Trucks</b>	0%	0%	0%	0%	-	12.5%	0%	0%	0%	2.9%	2.5%	1.6%	0%	0%	1.9%	0%	1.3%	0%	0%	0.4%	1.0%
<b>Buses and Single-Unit Trucks</b>	0	0	0	0	0	1	0	0	0	1	2	0	0	0	2	0	3	7	0	10	13
<b>% Buses and Single-Unit Trucks</b>	0%	0%	0%	0%	-	12.5%	0%	0%	0%	2.9%	5.0%	0%	0%	0%	1.9%	0%	3.8%	3.6%	0%	3.6%	3.1%

\* L: Left, R: Right, T: Thru, U: U-Turn

395 SB ramps and Village Pkwy - TMC

Thu Jan 6, 2022

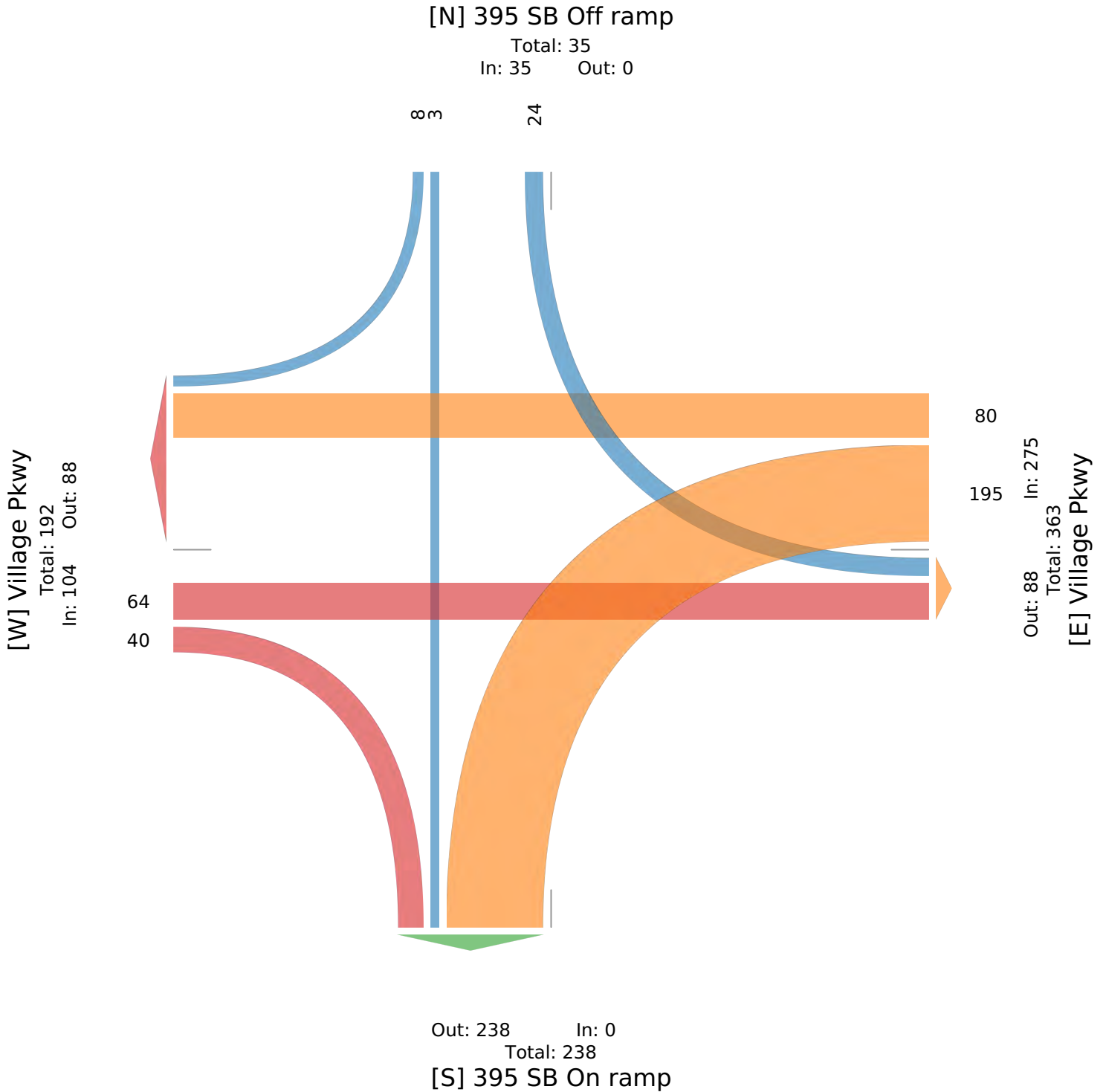
PM Peak (3:45 PM - 4:45 PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 913837, Location: 39.667615, -119.997055

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



**395 NB ramps and Village Pkwy - TMC**

Thu Jan 6, 2022

Full Length (5 AM-9 AM, 3 PM-7 PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 913838, Location: 39.668263, -119.995779

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

Leg Direction	395 NB Off ramp Northbound					395 NB On ramp Southbound					Village Pkwy Eastbound					Village Pkwy Westbound					Int
	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	
2022-01-06 5:00AM	6	0	8	0	14	0	0	0	0	0	0	1	5	0	6	8	38	0	0	46	66
5:15AM	2	0	7	0	9	0	0	0	0	0	0	2	6	0	8	17	61	0	0	78	95
5:30AM	3	0	7	0	10	0	0	0	0	0	0	0	6	0	6	17	87	0	0	104	120
5:45AM	5	0	4	0	9	0	0	0	0	0	0	0	0	0	0	11	65	0	0	76	85
Hourly Total	16	0	26	0	42	0	0	0	0	0	0	3	17	0	20	53	251	0	0	304	366
6:00AM	3	0	1	0	4	0	0	0	0	0	0	2	3	0	5	9	96	0	0	105	114
6:15AM	7	0	5	0	12	0	0	0	0	0	0	0	3	0	3	6	104	0	0	110	125
6:30AM	10	0	2	0	12	0	0	0	0	0	0	1	1	0	2	3	95	0	0	98	112
6:45AM	16	0	7	0	23	0	0	0	0	0	0	11	1	0	12	2	97	0	0	99	134
Hourly Total	36	0	15	0	51	0	0	0	0	0	0	14	8	0	22	20	392	0	0	412	485
7:00AM	19	0	1	0	20	0	0	0	0	0	0	7	2	0	9	3	117	0	0	120	149
7:15AM	36	0	5	0	41	0	0	0	0	0	0	3	1	0	4	5	138	0	0	143	188
7:30AM	28	0	4	0	32	0	0	0	0	0	0	4	2	0	6	7	94	0	0	101	139
7:45AM	23	0	3	0	26	0	0	0	0	0	0	3	0	0	3	3	86	0	0	89	118
Hourly Total	106	0	13	0	119	0	0	0	0	0	0	17	5	0	22	18	435	0	0	453	594
8:00AM	17	0	2	0	19	0	0	0	0	0	0	3	2	0	5	1	77	0	0	78	102
8:15AM	35	0	3	0	38	0	0	0	0	0	0	3	0	0	3	1	67	0	0	68	109
8:30AM	16	0	3	0	19	0	0	0	0	0	0	8	0	0	8	2	68	0	0	70	97
8:45AM	29	0	2	0	31	0	0	0	0	0	0	4	0	0	4	3	67	0	0	70	105
Hourly Total	97	0	10	0	107	0	0	0	0	0	0	18	2	0	20	7	279	0	0	286	413
3:00PM	90	0	13	0	103	0	0	0	0	0	0	14	3	0	17	3	49	0	0	52	172
3:15PM	79	0	10	0	89	0	0	0	0	0	0	18	2	0	20	1	44	0	0	45	154
3:30PM	67	0	10	0	77	0	0	0	0	0	0	10	3	0	13	3	49	0	0	52	142
3:45PM	97	0	13	0	110	0	0	0	0	0	0	15	10	0	25	2	63	0	0	65	200
Hourly Total	333	0	46	0	379	0	0	0	0	0	0	57	18	0	75	9	205	0	0	214	668
4:00PM	70	0	12	0	82	0	0	0	0	0	0	13	2	0	15	5	54	0	0	59	156
4:15PM	106	0	8	0	114	0	0	0	0	0	0	16	7	0	23	2	53	0	0	55	192
4:30PM	106	1	15	0	122	0	0	0	0	0	0	21	4	0	25	5	57	0	0	62	209
4:45PM	107	0	16	0	123	0	0	0	0	0	0	17	3	0	20	3	61	0	0	64	207
Hourly Total	389	1	51	0	441	0	0	0	0	0	0	67	16	0	83	15	225	0	0	240	764
5:00PM	94	0	12	0	106	0	0	0	0	0	0	13	5	0	18	3	48	0	0	51	175
5:15PM	100	0	9	0	109	0	0	0	0	0	0	13	4	0	17	3	48	0	0	51	177
5:30PM	102	0	13	0	115	0	0	0	0	0	0	27	1	0	28	4	35	0	0	39	182
5:45PM	105	0	5	0	110	0	0	0	0	0	0	31	7	0	38	2	43	0	0	45	193
Hourly Total	401	0	39	0	440	0	0	0	0	0	0	84	17	0	101	12	174	0	0	186	727
6:00PM	64	0	12	0	76	0	0	0	0	0	0	14	3	0	17	1	34	0	0	35	128
6:15PM	69	0	8	0	77	0	0	0	0	0	0	9	4	0	13	3	35	0	0	38	128
6:30PM	66	0	8	0	74	0	0	0	0	0	0	7	2	0	9	3	31	0	0	34	117
6:45PM	65	1	7	0	73	0	0	0	0	0	0	10	7	0	17	0	28	0	0	28	118
Hourly Total	264	1	35	0	300	0	0	0	0	0	0	40	16	0	56	7	128	0	0	135	491
<b>Total</b>	<b>1642</b>	<b>2</b>	<b>235</b>	<b>0</b>	<b>1879</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>300</b>	<b>99</b>	<b>0</b>	<b>399</b>	<b>141</b>	<b>2089</b>	<b>0</b>	<b>0</b>	<b>2230</b>	<b>4508</b>
<b>% Approach</b>	87.4%	0.1%	12.5%	0%	-	0%	0%	0%	0%	-	0%	75.2%	24.8%	0%	-	6.3%	93.7%	0%	0%	-	-
<b>% Total</b>	36.4%	0%	5.2%	0%	<b>41.7%</b>	0%	0%	0%	0%	<b>0%</b>	0%	6.7%	2.2%	0%	<b>8.9%</b>	3.1%	46.3%	0%	0%	<b>49.5%</b>	-
<b>Lights</b>	1615	2	227	0	<b>1844</b>	0	0	0	0	<b>0</b>	0	292	97	0	<b>389</b>	140	2051	0	0	<b>2191</b>	4424
<b>% Lights</b>	98.4%	100%	96.6%	0%	<b>98.1%</b>	0%	0%	0%	0%	-	0%	97.3%	98.0%	0%	<b>97.5%</b>	99.3%	98.2%	0%	0%	<b>98.3%</b>	98.1%
<b>Articulated Trucks</b>	1	0	4	0	<b>5</b>	0	0	0	0	<b>0</b>	0	0	1	0	<b>1</b>	0	2	0	0	<b>2</b>	8
<b>% Articulated Trucks</b>	0.1%	0%	1.7%	0%	<b>0.3%</b>	0%	0%	0%	0%	-	0%	0%	1.0%	0%	<b>0.3%</b>	0%	0.1%	0%	0%	<b>0.1%</b>	0.2%
<b>Buses and Single-Unit Trucks</b>	26	0	4	0	<b>30</b>	0	0	0	0	<b>0</b>	0	8	1	0	<b>9</b>	1	36	0	0	<b>37</b>	76
<b>% Buses and Single-Unit Trucks</b>	1.6%	0%	1.7%	0%	<b>1.6%</b>	0%	0%	0%	0%	-	0%	2.7%	1.0%	0%	<b>2.3%</b>	0.7%	1.7%	0%	0%	<b>1.7%</b>	1.7%

\*L: Left, R: Right, T: Thru, U: U-Turn

395 NB ramps and Village Pkwy - TMC

Thu Jan 6, 2022

Full Length (5 AM-9 AM, 3 PM-7 PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

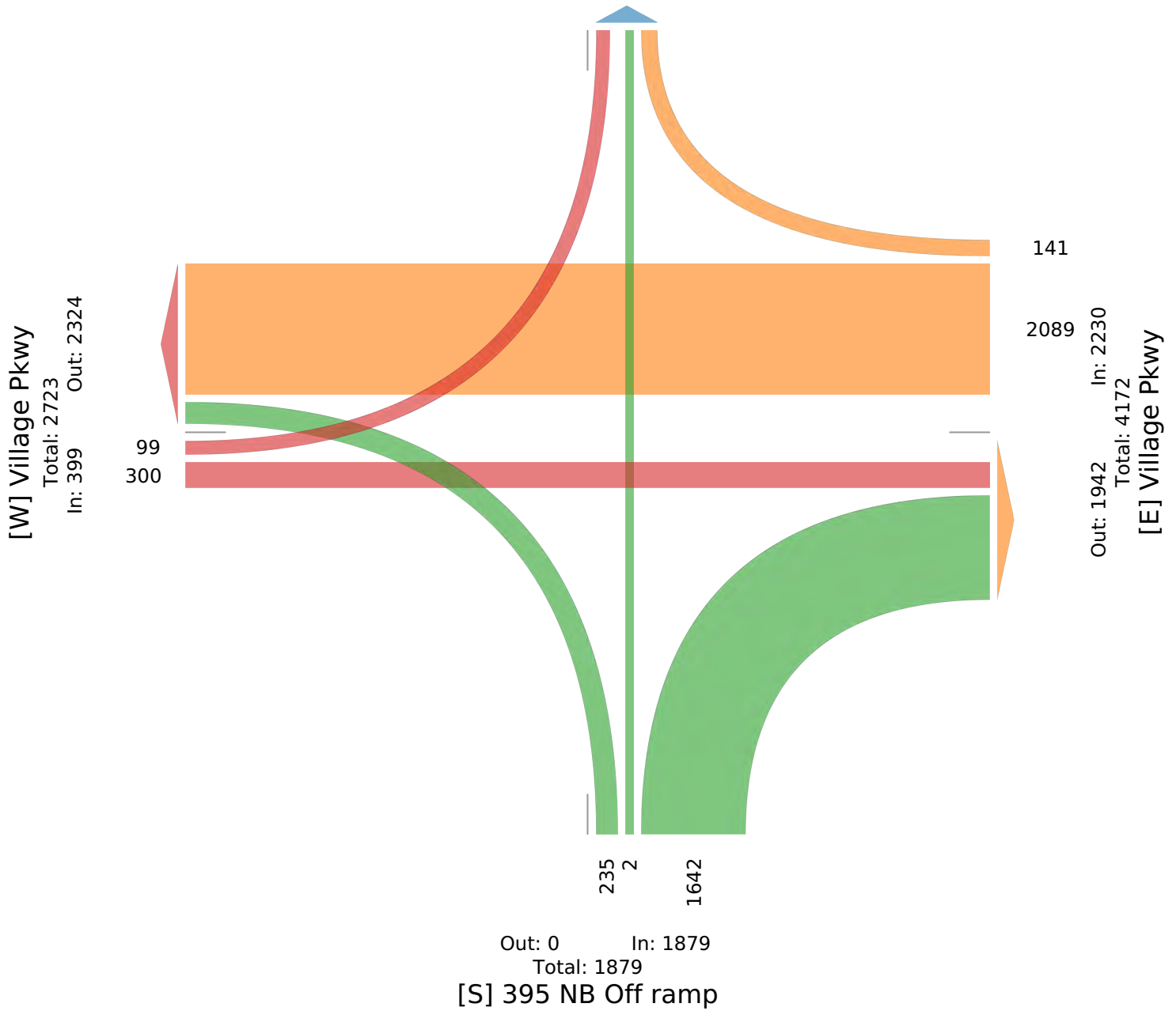
All Movements

ID: 913838, Location: 39.668263, -119.995779

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

[N] 395 NB On ramp

Total: 242  
In: 0 Out: 242



**395 NB ramps and Village Pkwy - TMC**

Thu Jan 6, 2022

AM Peak (6:45 AM - 7:45 AM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 913838, Location: 39.668263, -119.995779

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

Leg Direction	395 NB Off ramp Northbound					395 NB On ramp Southbound					Village Pkwy Eastbound					Village Pkwy Westbound					Int	
	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App		
2022-01-06 6:45AM	16	0	7	0	23	0	0	0	0	0	0	11	1	0	12	2	97	0	0	99	134	
7:00AM	19	0	1	0	20	0	0	0	0	0	0	7	2	0	9	3	117	0	0	120	149	
7:15AM	36	0	5	0	41	0	0	0	0	0	0	3	1	0	4	5	138	0	0	143	188	
7:30AM	28	0	4	0	32	0	0	0	0	0	0	4	2	0	6	7	94	0	0	101	139	
<b>Total</b>	99	0	17	0	116	0	0	0	0	0	0	25	6	0	31	17	446	0	0	463	610	
<b>% Approach</b>	85.3%	0%	14.7%	0%	-	0%	0%	0%	0%	-	0%	80.6%	19.4%	0%	-	3.7%	96.3%	0%	0%	-	-	
<b>% Total</b>	16.2%	0%	2.8%	0%	19.0%	0%	0%	0%	0%	0%	0%	4.1%	1.0%	0%	5.1%	2.8%	73.1%	0%	0%	75.9%	-	
<b>PHF</b>	0.688	-	0.607	-	0.707	-	-	-	-	-	-	0.568	0.750	-	0.646	0.607	0.808	-	-	0.809	0.811	
<b>Lights</b>	95	0	16	0	111	0	0	0	0	0	0	21	6	0	27	17	436	0	0	453	591	
<b>% Lights</b>	96.0%	0%	94.1%	0%	95.7%	0%	0%	0%	0%	-	0%	84.0%	100%	0%	87.1%	100%	97.8%	0%	0%	97.8%	96.9%	
<b>Articulated Trucks</b>	1	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
<b>% Articulated Trucks</b>	1.0%	0%	5.9%	0%	1.7%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0.3%
<b>Buses and Single-Unit Trucks</b>	3	0	0	0	3	0	0	0	0	0	0	4	0	0	4	0	10	0	0	10	17	
<b>% Buses and Single-Unit Trucks</b>	3.0%	0%	0%	0%	2.6%	0%	0%	0%	0%	-	0%	16.0%	0%	0%	12.9%	0%	2.2%	0%	0%	2.2%	2.8%	

\* L: Left, R: Right, T: Thru, U: U-Turn

395 NB ramps and Village Pkwy - TMC

Thu Jan 6, 2022

AM Peak (6:45 AM - 7:45 AM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

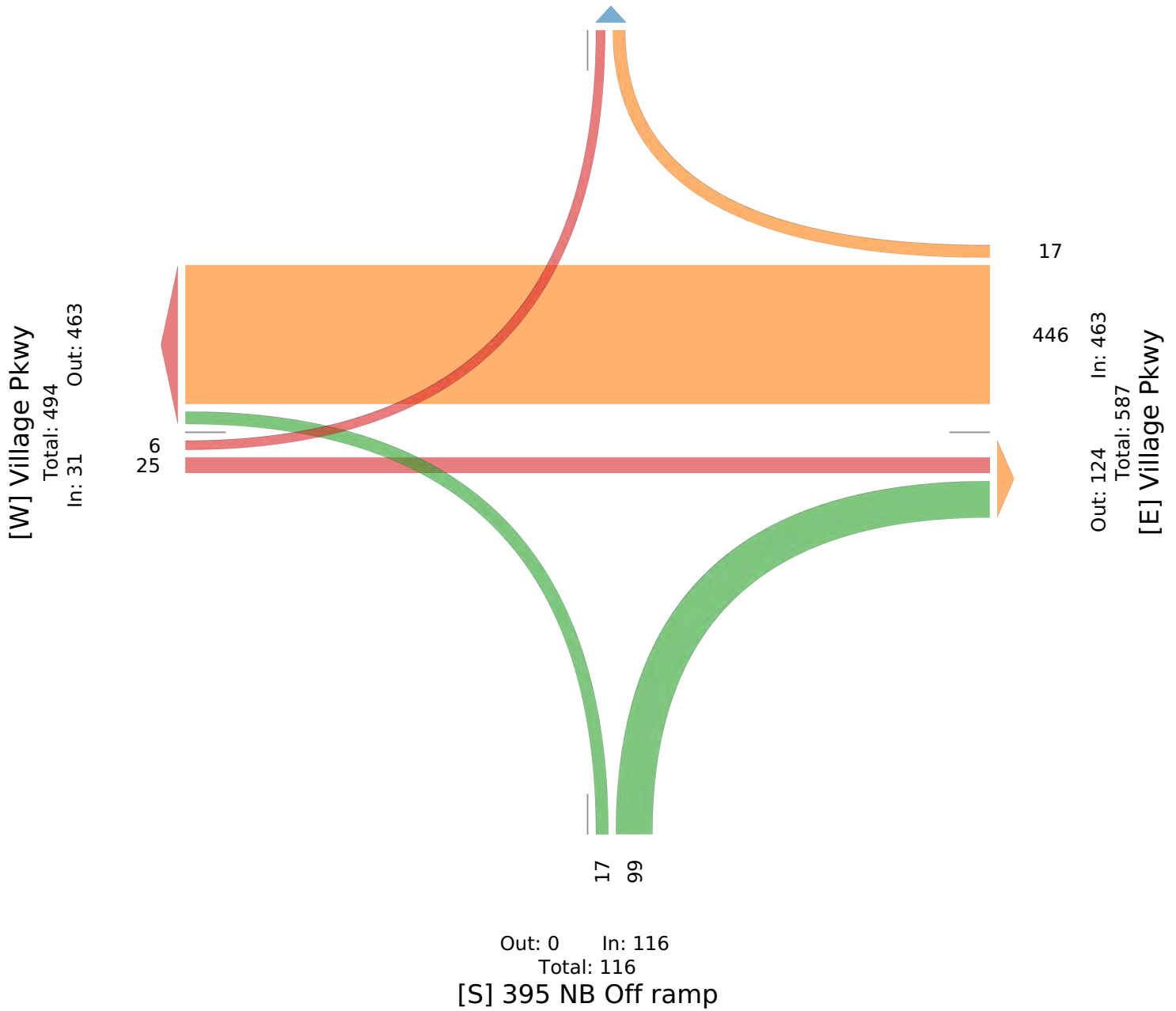
All Movements

ID: 913838, Location: 39.668263, -119.995779

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

[N] 395 NB On ramp

Total: 23  
In: 0 Out: 23





**395 NB ramps and Village Pkwy - TMC**

Thu Jan 6, 2022

PM Peak (4:15 PM - 5:15 PM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 913838, Location: 39.668263, -119.995779

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

Leg Direction	395 NB Off ramp Northbound					395 NB On ramp Southbound					Village Pkwy Eastbound					Village Pkwy Westbound					Int
	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	
2022-01-06 4:15PM	106	0	8	0	114	0	0	0	0	0	0	16	7	0	23	2	53	0	0	55	192
4:30PM	106	1	15	0	122	0	0	0	0	0	0	21	4	0	25	5	57	0	0	62	209
4:45PM	107	0	16	0	123	0	0	0	0	0	0	17	3	0	20	3	61	0	0	64	207
5:00PM	94	0	12	0	106	0	0	0	0	0	0	13	5	0	18	3	48	0	0	51	175
<b>Total</b>	413	1	51	0	465	0	0	0	0	0	0	67	19	0	86	13	219	0	0	232	783
<b>% Approach</b>	88.8%	0.2%	11.0%	0%	-	0%	0%	0%	0%	-	0%	77.9%	22.1%	0%	-	5.6%	94.4%	0%	0%	-	-
<b>% Total</b>	52.7%	0.1%	6.5%	0%	59.4%	0%	0%	0%	0%	0%	0%	8.6%	2.4%	0%	11.0%	1.7%	28.0%	0%	0%	29.6%	-
<b>PHF</b>	0.965	0.250	0.797	-	0.945	-	-	-	-	-	-	0.798	0.679	-	0.860	0.650	0.898	-	-	0.906	0.937
<b>Lights</b>	407	1	51	0	459	0	0	0	0	0	0	67	19	0	86	13	214	0	0	227	772
<b>% Lights</b>	98.5%	100%	100%	0%	98.7%	0%	0%	0%	0%	-	0%	100%	100%	0%	100%	100%	97.7%	0%	0%	97.8%	98.6%
<b>Articulated Trucks</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>% Articulated Trucks</b>	0%	0%	0%	0%	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
<b>Buses and Single-Unit Trucks</b>	6	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	5	0	0	5	11
<b>% Buses and Single-Unit Trucks</b>	1.5%	0%	0%	0%	1.3%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	0%	2.3%	0%	0%	2.2%	1.4%

\* L: Left, R: Right, T: Thru, U: U-Turn

395 NB ramps and Village Pkwy - TMC

Thu Jan 6, 2022

PM Peak (4:15 PM - 5:15 PM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

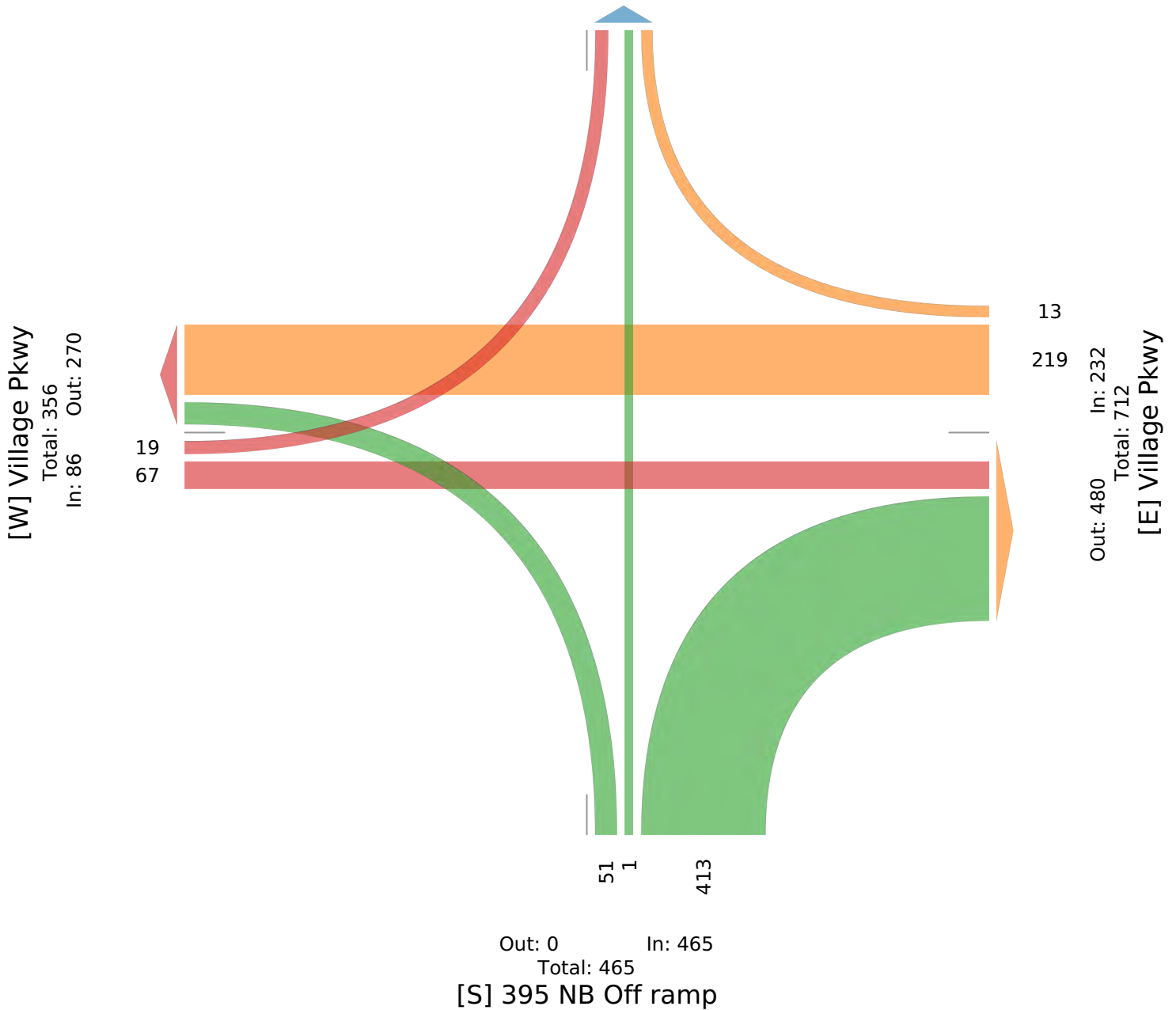
All Movements

ID: 913838, Location: 39.668263, -119.995779

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

[N] 395 NB On ramp

Total: 33  
In: 0 Out: 33



**N Virginia St and White Lake Pkwy - TMC**

Thu Jan 6, 2022

Full Length (5 AM-9 AM, 3 PM-7 PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 913839, Location: 39.666439, -119.996597

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

Leg Direction	N Virginia St Northbound				N Virginia St Southbound				White Lake Pkwy Eastbound				Int
	T	L	U	App	R	T	U	App	R	L	U	App	
2022-01-06 5:00AM	1	0	0	1	0	1	0	1	0	0	0	0	2
5:15AM	0	0	0	0	0	1	0	1	1	1	0	2	3
5:30AM	0	0	0	0	2	1	0	3	0	1	0	1	4
5:45AM	1	1	0	2	0	0	0	0	1	0	0	1	3
<b>Hourly Total</b>	<b>2</b>	<b>1</b>	<b>0</b>	<b>3</b>	<b>2</b>	<b>3</b>	<b>0</b>	<b>5</b>	<b>2</b>	<b>2</b>	<b>0</b>	<b>4</b>	<b>12</b>
6:00AM	3	0	0	3	2	0	0	2	0	2	0	2	7
6:15AM	1	0	0	1	2	2	0	4	0	1	0	1	6
6:30AM	2	0	0	2	6	1	0	7	0	2	0	2	11
6:45AM	3	0	0	3	7	0	0	7	0	3	0	3	13
<b>Hourly Total</b>	<b>9</b>	<b>0</b>	<b>0</b>	<b>9</b>	<b>17</b>	<b>3</b>	<b>0</b>	<b>20</b>	<b>0</b>	<b>8</b>	<b>0</b>	<b>8</b>	<b>37</b>
7:00AM	3	0	0	3	0	0	0	0	0	3	0	3	6
7:15AM	2	0	0	2	2	1	0	3	0	5	0	5	10
7:30AM	1	0	0	1	0	0	0	0	0	1	0	1	2
7:45AM	2	0	0	2	1	0	0	1	0	4	0	4	7
<b>Hourly Total</b>	<b>8</b>	<b>0</b>	<b>0</b>	<b>8</b>	<b>3</b>	<b>1</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>13</b>	<b>0</b>	<b>13</b>	<b>25</b>
8:00AM	1	0	0	1	1	0	0	1	0	3	0	3	5
8:15AM	4	0	0	4	0	3	0	3	0	2	0	2	9
8:30AM	4	1	0	5	1	1	0	2	0	3	0	3	10
8:45AM	1	0	0	1	0	1	0	1	0	2	0	2	4
<b>Hourly Total</b>	<b>10</b>	<b>1</b>	<b>0</b>	<b>11</b>	<b>2</b>	<b>5</b>	<b>0</b>	<b>7</b>	<b>0</b>	<b>10</b>	<b>0</b>	<b>10</b>	<b>28</b>
3:00PM	2	1	0	3	2	3	0	5	0	1	0	1	9
3:15PM	2	0	0	2	4	4	0	8	0	14	0	14	24
3:30PM	1	0	0	1	1	4	1	6	0	5	0	5	12
3:45PM	1	0	0	1	4	1	0	5	0	3	0	3	9
<b>Hourly Total</b>	<b>6</b>	<b>1</b>	<b>0</b>	<b>7</b>	<b>11</b>	<b>12</b>	<b>1</b>	<b>24</b>	<b>0</b>	<b>23</b>	<b>0</b>	<b>23</b>	<b>54</b>
4:00PM	2	2	0	4	1	2	0	3	1	3	0	4	11
4:15PM	2	0	0	2	3	3	0	6	0	4	0	4	12
4:30PM	2	0	0	2	3	2	0	5	0	3	0	3	10
4:45PM	2	0	0	2	3	4	0	7	0	4	1	5	14
<b>Hourly Total</b>	<b>8</b>	<b>2</b>	<b>0</b>	<b>10</b>	<b>10</b>	<b>11</b>	<b>0</b>	<b>21</b>	<b>1</b>	<b>14</b>	<b>1</b>	<b>16</b>	<b>47</b>
5:00PM	0	0	0	0	3	1	0	4	0	1	0	1	5
5:15PM	0	0	0	0	1	1	0	2	0	2	0	2	4
5:30PM	3	0	0	3	5	2	0	7	0	0	0	0	10
5:45PM	5	0	0	5	2	3	0	5	0	1	0	1	11
<b>Hourly Total</b>	<b>8</b>	<b>0</b>	<b>0</b>	<b>8</b>	<b>11</b>	<b>7</b>	<b>0</b>	<b>18</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>4</b>	<b>30</b>
6:00PM	2	0	0	2	3	2	0	5	0	0	0	0	7
6:15PM	2	0	0	2	2	1	0	3	0	0	0	0	5
6:30PM	2	1	0	3	2	2	0	4	0	3	0	3	10
6:45PM	0	0	0	0	2	3	0	5	0	1	0	1	6
<b>Hourly Total</b>	<b>6</b>	<b>1</b>	<b>0</b>	<b>7</b>	<b>9</b>	<b>8</b>	<b>0</b>	<b>17</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>4</b>	<b>28</b>
<b>Total</b>	<b>57</b>	<b>6</b>	<b>0</b>	<b>63</b>	<b>65</b>	<b>50</b>	<b>1</b>	<b>116</b>	<b>3</b>	<b>78</b>	<b>1</b>	<b>82</b>	<b>261</b>
<b>% Approach</b>	90.5%	9.5%	0%	-	56.0%	43.1%	0.9%	-	3.7%	95.1%	1.2%	-	-
<b>% Total</b>	21.8%	2.3%	0%	<b>24.1%</b>	24.9%	19.2%	0.4%	<b>44.4%</b>	1.1%	29.9%	0.4%	<b>31.4%</b>	-
<b>Lights</b>	52	5	0	57	59	46	0	105	2	72	1	75	237
<b>% Lights</b>	91.2%	83.3%	0%	<b>90.5%</b>	90.8%	92.0%	0%	<b>90.5%</b>	66.7%	92.3%	100%	<b>91.5%</b>	90.8%
<b>Articulated Trucks</b>	0	0	0	0	4	0	0	4	0	3	0	3	7
<b>% Articulated Trucks</b>	0%	0%	0%	<b>0%</b>	6.2%	0%	0%	<b>3.4%</b>	0%	3.8%	0%	<b>3.7%</b>	2.7%
<b>Buses and Single-Unit Trucks</b>	5	1	0	6	2	4	1	7	1	3	0	4	17
<b>% Buses and Single-Unit Trucks</b>	8.8%	16.7%	0%	<b>9.5%</b>	3.1%	8.0%	100%	<b>6.0%</b>	33.3%	3.8%	0%	<b>4.9%</b>	6.5%

\*L: Left, R: Right, T: Thru, U: U-Turn

**N Virginia St and White Lake Pkwy - TMC**

Thu Jan 6, 2022

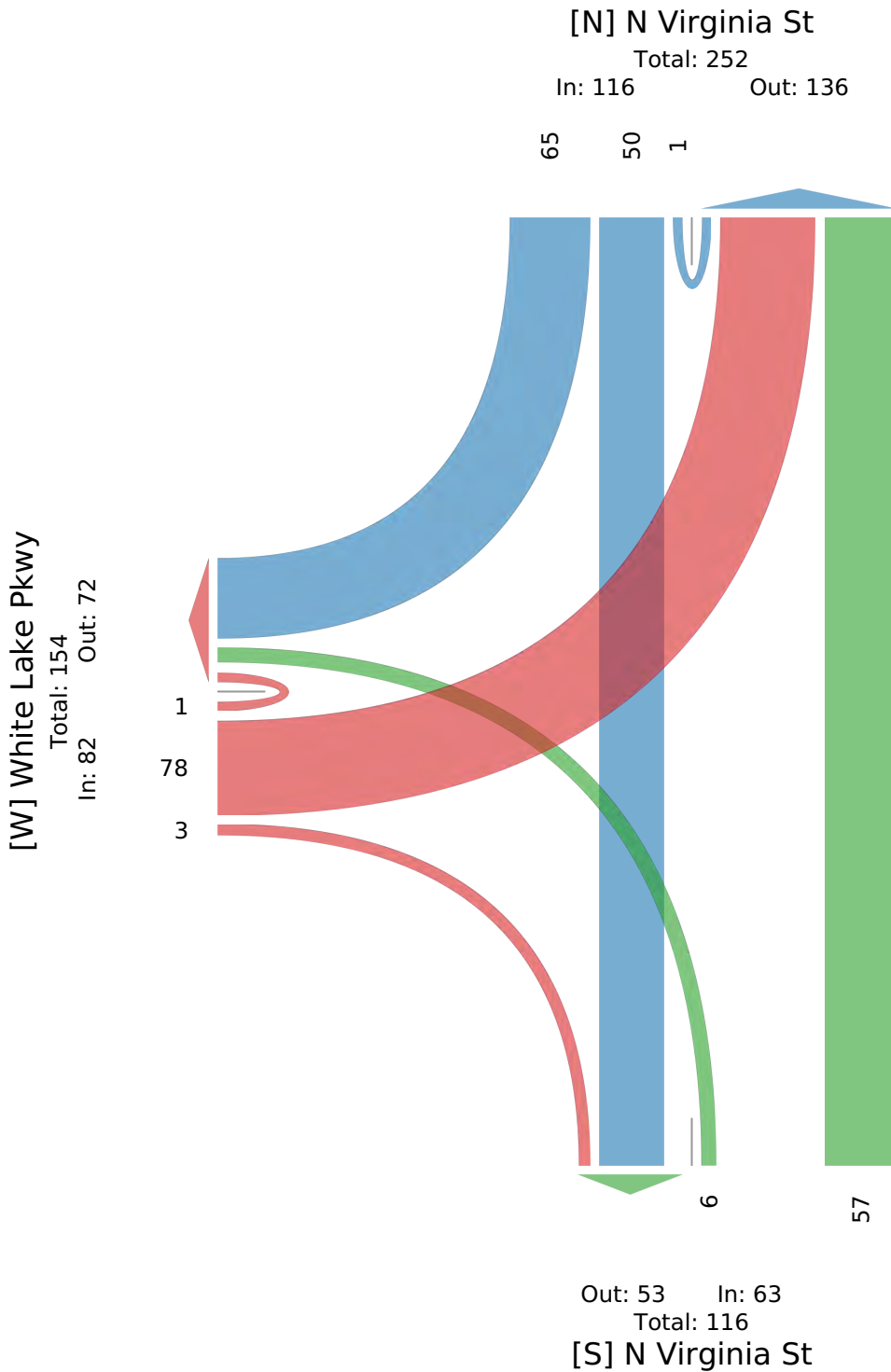
Full Length (5 AM-9 AM, 3 PM-7 PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 913839, Location: 39.666439, -119.996597

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



**N Virginia St and White Lake Pkwy - TMC**

Thu Jan 6, 2022

AM Peak (6:30 AM - 7:30 AM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 913839, Location: 39.666439, -119.996597

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

Leg Direction	N Virginia St Northbound				N Virginia St Southbound				White Lake Pkwy Eastbound				
Time	T	L	U	App	R	T	U	App	R	L	U	App	Int
2022-01-06 6:30AM	2	0	0	2	6	1	0	7	0	2	0	2	11
6:45AM	3	0	0	3	7	0	0	7	0	3	0	3	13
7:00AM	3	0	0	3	0	0	0	0	0	3	0	3	6
7:15AM	2	0	0	2	2	1	0	3	0	5	0	5	10
<b>Total</b>	10	0	0	10	15	2	0	17	0	13	0	13	40
<b>% Approach</b>	100%	0%	0%	-	88.2%	11.8%	0%	-	0%	100%	0%	-	-
<b>% Total</b>	25.0%	0%	0%	25.0%	37.5%	5.0%	0%	42.5%	0%	32.5%	0%	32.5%	-
<b>PHF</b>	0.833	-	-	0.833	0.536	0.500	-	0.607	-	0.650	-	0.650	0.769
<b>Lights</b>	8	0	0	8	14	2	0	16	0	11	0	11	35
<b>% Lights</b>	80.0%	0%	0%	80.0%	93.3%	100%	0%	94.1%	0%	84.6%	0%	84.6%	87.5%
<b>Articulated Trucks</b>	0	0	0	0	0	0	0	0	0	1	0	1	1
<b>% Articulated Trucks</b>	0%	0%	0%	0%	0%	0%	0%	0%	0%	7.7%	0%	7.7%	2.5%
<b>Buses and Single-Unit Trucks</b>	2	0	0	2	1	0	0	1	0	1	0	1	4
<b>% Buses and Single-Unit Trucks</b>	20.0%	0%	0%	20.0%	6.7%	0%	0%	5.9%	0%	7.7%	0%	7.7%	10.0%

\* L: Left, R: Right, T: Thru, U: U-Turn

**N Virginia St and White Lake Pkwy - TMC**

Thu Jan 6, 2022

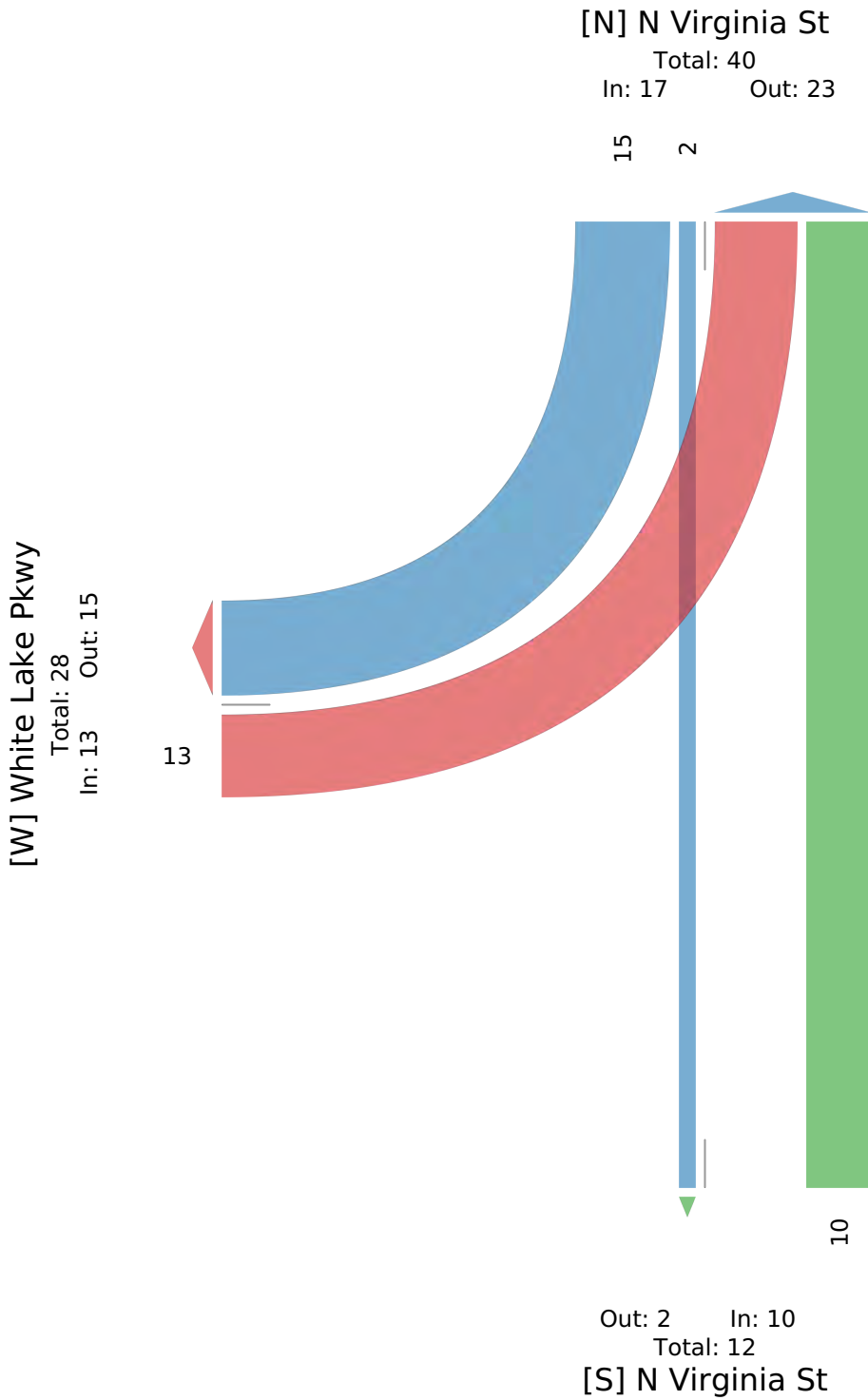
AM Peak (6:30 AM - 7:30 AM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 913839, Location: 39.666439, -119.996597

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



**N Virginia St and White Lake Pkwy - TMC**

Thu Jan 6, 2022

PM Peak (3:15 PM - 4:15 PM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 913839, Location: 39.666439, -119.996597

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

Leg Direction	N Virginia St Northbound				N Virginia St Southbound				White Lake Pkwy Eastbound				Int
	T	L	U	App	R	T	U	App	R	L	U	App	
2022-01-06 3:15PM	2	0	0	2	4	4	0	8	0	14	0	14	24
3:30PM	1	0	0	1	1	4	1	6	0	5	0	5	12
3:45PM	1	0	0	1	4	1	0	5	0	3	0	3	9
4:00PM	2	2	0	4	1	2	0	3	1	3	0	4	11
<b>Total</b>	6	2	0	8	10	11	1	22	1	25	0	26	56
<b>% Approach</b>	75.0%	25.0%	0%	-	45.5%	50.0%	4.5%	-	3.8%	96.2%	0%	-	-
<b>% Total</b>	10.7%	3.6%	0%	14.3%	17.9%	19.6%	1.8%	39.3%	1.8%	44.6%	0%	46.4%	-
<b>PHF</b>	0.750	0.250	-	0.500	0.625	0.688	0.250	0.688	0.250	0.446	-	0.464	0.583
<b>Lights</b>	6	1	0	7	10	9	0	19	1	23	0	24	50
<b>% Lights</b>	100%	50.0%	0%	87.5%	100%	81.8%	0%	86.4%	100%	92.0%	0%	92.3%	89.3%
<b>Articulated Trucks</b>	0	0	0	0	0	0	0	0	0	1	0	1	1
<b>% Articulated Trucks</b>	0%	0%	0%	0%	0%	0%	0%	0%	0%	4.0%	0%	3.8%	1.8%
<b>Buses and Single-Unit Trucks</b>	0	1	0	1	0	2	1	3	0	1	0	1	5
<b>% Buses and Single-Unit Trucks</b>	0%	50.0%	0%	12.5%	0%	18.2%	100%	13.6%	0%	4.0%	0%	3.8%	8.9%

\* L: Left, R: Right, T: Thru, U: U-Turn

**N Virginia St and White Lake Pkwy - TMC**

Thu Jan 6, 2022

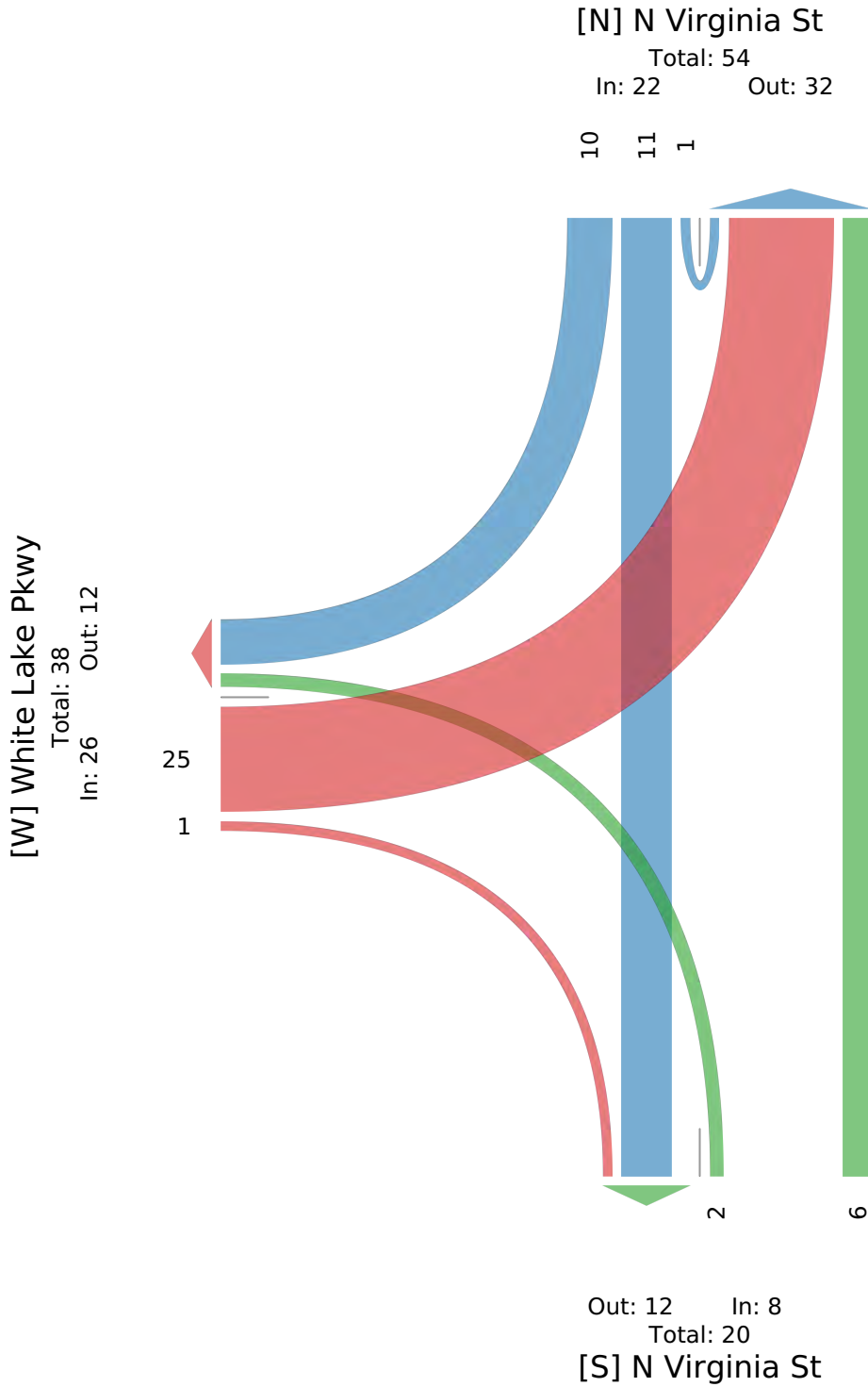
PM Peak (3:15 PM - 4:15 PM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 913839, Location: 39.666439, -119.996597

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





**White Lakes Rd and S Reno Park Blvd - TMC**

Thu Jan 6, 2022

Full Length (5 AM-9 AM, 3 PM-7 PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 913840, Location: 39.659631, -119.997312

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

Leg Direction	White Lake Blvd Southbound				S Reno Blvd Eastbound				S Reno Blvd Westbound				
Time	R	L	U	App	T	L	U	App	R	T	U	App	Int
2022-01-06 5:00AM	1	0	0	1	0	0	0	0	0	0	0	0	1
5:15AM	0	0	0	0	0	1	0	1	2	0	0	0	3
5:30AM	1	0	0	1	0	0	0	0	0	0	0	0	1
5:45AM	1	0	0	1	0	0	0	0	0	0	0	0	1
<b>Hourly Total</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>6</b>
6:00AM	1	1	0	2	0	1	0	1	1	0	0	1	4
6:15AM	2	0	0	2	0	0	0	0	1	0	0	1	3
6:30AM	5	1	0	6	0	0	0	0	2	0	0	2	8
6:45AM	6	0	0	6	0	1	0	1	0	0	0	0	7
<b>Hourly Total</b>	<b>14</b>	<b>2</b>	<b>0</b>	<b>16</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>2</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>22</b>
7:00AM	0	0	0	0	0	0	0	0	2	0	0	2	2
7:15AM	1	1	0	2	0	1	0	1	4	0	0	4	7
7:30AM	0	0	0	0	0	0	0	0	2	0	0	2	2
7:45AM	1	0	0	1	0	0	0	0	2	0	0	2	3
<b>Hourly Total</b>	<b>2</b>	<b>1</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>10</b>	<b>0</b>	<b>0</b>	<b>10</b>	<b>14</b>
8:00AM	1	0	0	1	0	0	0	0	3	0	0	3	4
8:15AM	0	0	0	0	0	0	0	0	2	0	0	2	2
8:30AM	1	0	0	1	0	0	0	0	2	0	0	2	3
8:45AM	0	1	0	1	0	0	0	0	1	0	0	1	2
<b>Hourly Total</b>	<b>2</b>	<b>1</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>8</b>	<b>0</b>	<b>0</b>	<b>8</b>	<b>11</b>
3:00PM	2	0	0	2	0	0	0	0	0	0	0	0	2
3:15PM	0	2	0	2	1	10	0	11	3	0	0	3	16
3:30PM	0	1	1	2	0	5	0	5	1	0	0	1	8
3:45PM	0	3	0	3	0	1	0	1	1	0	0	1	5
<b>Hourly Total</b>	<b>2</b>	<b>6</b>	<b>1</b>	<b>9</b>	<b>1</b>	<b>16</b>	<b>0</b>	<b>17</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>31</b>
4:00PM	1	1	0	2	0	1	0	1	3	0	0	3	6
4:15PM	0	3	0	3	0	1	0	1	1	0	1	2	6
4:30PM	1	2	0	3	0	3	1	4	2	0	0	2	9
4:45PM	0	1	0	1	0	2	0	2	0	0	0	0	3
<b>Hourly Total</b>	<b>2</b>	<b>7</b>	<b>0</b>	<b>9</b>	<b>0</b>	<b>7</b>	<b>1</b>	<b>8</b>	<b>6</b>	<b>0</b>	<b>1</b>	<b>7</b>	<b>24</b>
5:00PM	0	1	1	2	0	0	0	0	0	0	0	0	2
5:15PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30PM	0	4	0	4	0	0	0	0	0	0	1	1	5
5:45PM	1	1	0	2	0	0	0	0	1	0	0	1	3
<b>Hourly Total</b>	<b>1</b>	<b>6</b>	<b>1</b>	<b>8</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>2</b>	<b>10</b>
6:00PM	0	2	0	2	0	0	0	0	0	0	0	0	2
6:15PM	0	2	0	2	0	0	0	0	1	0	0	1	3
6:30PM	0	3	0	3	0	0	0	0	1	0	0	1	4
6:45PM	0	1	0	1	0	0	0	0	1	0	0	1	2
<b>Hourly Total</b>	<b>0</b>	<b>8</b>	<b>0</b>	<b>8</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>11</b>
<b>Total</b>	<b>26</b>	<b>31</b>	<b>2</b>	<b>59</b>	<b>1</b>	<b>27</b>	<b>1</b>	<b>29</b>	<b>39</b>	<b>0</b>	<b>2</b>	<b>41</b>	<b>129</b>
<b>% Approach</b>	44.1%	52.5%	3.4%	-	3.4%	93.1%	3.4%	-	95.1%	0%	4.9%	-	-
<b>% Total</b>	20.2%	24.0%	1.6%	<b>45.7%</b>	0.8%	20.9%	0.8%	<b>22.5%</b>	30.2%	0%	1.6%	<b>31.8%</b>	-
<b>Lights</b>	20	30	1	<b>51</b>	1	22	1	<b>24</b>	39	0	2	<b>41</b>	116
<b>% Lights</b>	76.9%	96.8%	50.0%	<b>86.4%</b>	100%	81.5%	100%	<b>82.8%</b>	100%	0%	100%	<b>100%</b>	89.9%
<b>Articulated Trucks</b>	4	0	0	<b>4</b>	0	3	0	<b>3</b>	0	0	0	<b>0</b>	7
<b>% Articulated Trucks</b>	15.4%	0%	0%	<b>6.8%</b>	0%	11.1%	0%	<b>10.3%</b>	0%	0%	0%	<b>0%</b>	5.4%
<b>Buses and Single-Unit Trucks</b>	2	1	1	<b>4</b>	0	2	0	<b>2</b>	0	0	0	<b>0</b>	6
<b>% Buses and Single-Unit Trucks</b>	7.7%	3.2%	50.0%	<b>6.8%</b>	0%	7.4%	0%	<b>6.9%</b>	0%	0%	0%	<b>0%</b>	4.7%

\*L: Left, R: Right, T: Thru, U: U-Turn

**White Lakes Rd and S Reno Park Blvd - TMC**

Thu Jan 6, 2022

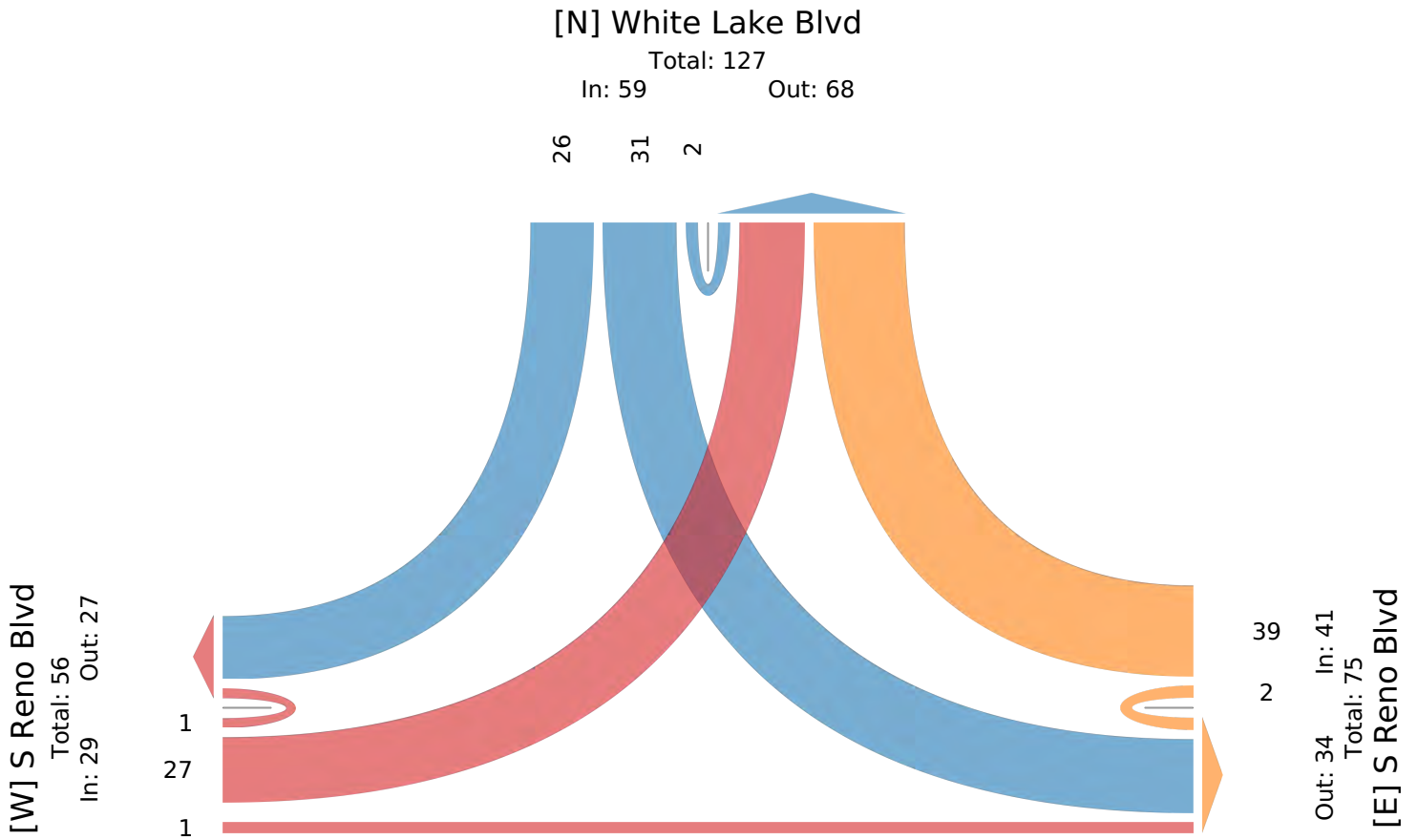
Full Length (5 AM-9 AM, 3 PM-7 PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 913840, Location: 39.659631, -119.997312

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



**White Lakes Rd and S Reno Park Blvd - TMC**

Thu Jan 6, 2022

AM Peak (6:30 AM - 7:30 AM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 913840, Location: 39.659631, -119.997312

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

Leg Direction	White Lake Blvd Southbound				S Reno Blvd Eastbound				S Reno Blvd Westbound				Int
	R	L	U	App	T	L	U	App	R	T	U	App	
2022-01-06 6:30AM	5	1	0	6	0	0	0	0	2	0	0	2	8
6:45AM	6	0	0	6	0	1	0	1	0	0	0	0	7
7:00AM	0	0	0	0	0	0	0	0	2	0	0	2	2
7:15AM	1	1	0	2	0	1	0	1	4	0	0	4	7
<b>Total</b>	12	2	0	14	0	2	0	2	8	0	0	8	24
<b>% Approach</b>	85.7%	14.3%	0%	-	0%	100%	0%	-	100%	0%	0%	-	-
<b>% Total</b>	50.0%	8.3%	0%	58.3%	0%	8.3%	0%	8.3%	33.3%	0%	0%	33.3%	-
<b>PHF</b>	0.500	0.500	-	0.583	-	0.500	-	0.500	0.500	-	-	0.500	0.750
<b>Lights</b>	12	1	0	13	0	1	0	1	8	0	0	8	22
<b>% Lights</b>	100%	50.0%	0%	92.9%	0%	50.0%	0%	50.0%	100%	0%	0%	100%	91.7%
<b>Articulated Trucks</b>	0	0	0	0	0	1	0	1	0	0	0	0	1
<b>% Articulated Trucks</b>	0%	0%	0%	0%	0%	50.0%	0%	50.0%	0%	0%	0%	0%	4.2%
<b>Buses and Single-Unit Trucks</b>	0	1	0	1	0	0	0	0	0	0	0	0	1
<b>% Buses and Single-Unit Trucks</b>	0%	50.0%	0%	7.1%	0%	0%	0%	0%	0%	0%	0%	0%	4.2%

\* L: Left, R: Right, T: Thru, U: U-Turn

**White Lakes Rd and S Reno Park Blvd - TMC**

Thu Jan 6, 2022

AM Peak (6:30 AM - 7:30 AM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 913840, Location: 39.659631, -119.997312

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

**[N] White Lake Blvd**

Total: 24

In: 14      Out: 10

12

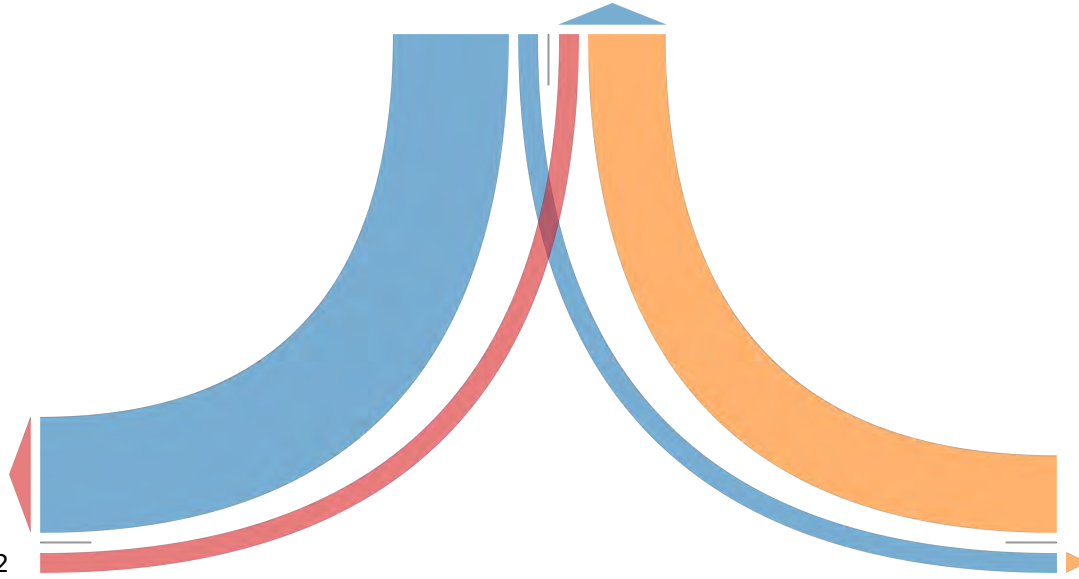
2

**[W] S Reno Blvd**

Total: 14

In: 2      Out: 12

2



8

Out: 2      In: 8

Total: 10

**[E] S Reno Blvd**

**White Lakes Rd and S Reno Park Blvd - TMC**

Thu Jan 6, 2022

PM Peak (3:15 PM - 4:15 PM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 913840, Location: 39.659631, -119.997312

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

Leg Direction	White Lake Blvd Southbound				S Reno Blvd Eastbound				S Reno Blvd Westbound				Int
	R	L	U	App	T	L	U	App	R	T	U	App	
Time													
2022-01-06 3:15PM	0	2	0	2	1	10	0	11	3	0	0	3	16
3:30PM	0	1	1	2	0	5	0	5	1	0	0	1	8
3:45PM	0	3	0	3	0	1	0	1	1	0	0	1	5
4:00PM	1	1	0	2	0	1	0	1	3	0	0	3	6
<b>Total</b>	1	7	1	9	1	17	0	18	8	0	0	8	35
<b>% Approach</b>	11.1%	77.8%	11.1%	-	5.6%	94.4%	0%	-	100%	0%	0%	-	-
<b>% Total</b>	2.9%	20.0%	2.9%	25.7%	2.9%	48.6%	0%	51.4%	22.9%	0%	0%	22.9%	-
<b>PHF</b>	0.250	0.583	0.250	0.750	0.250	0.425	-	0.409	0.667	-	-	0.667	0.547
<b>Lights</b>	0	7	0	7	1	16	0	17	8	0	0	8	32
<b>% Lights</b>	0%	100%	0%	77.8%	100%	94.1%	0%	94.4%	100%	0%	0%	100%	91.4%
<b>Articulated Trucks</b>	0	0	0	0	0	1	0	1	0	0	0	0	1
<b>% Articulated Trucks</b>	0%	0%	0%	0%	0%	5.9%	0%	5.6%	0%	0%	0%	0%	2.9%
<b>Buses and Single-Unit Trucks</b>	1	0	1	2	0	0	0	0	0	0	0	0	2
<b>% Buses and Single-Unit Trucks</b>	100%	0%	100%	22.2%	0%	0%	0%	0%	0%	0%	0%	0%	5.7%

\* L: Left, R: Right, T: Thru, U: U-Turn

**White Lakes Rd and S Reno Park Blvd - TMC**

Thu Jan 6, 2022

PM Peak (3:15 PM - 4:15 PM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 913840, Location: 39.659631, -119.997312

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

**[N] White Lake Blvd**

Total: 35

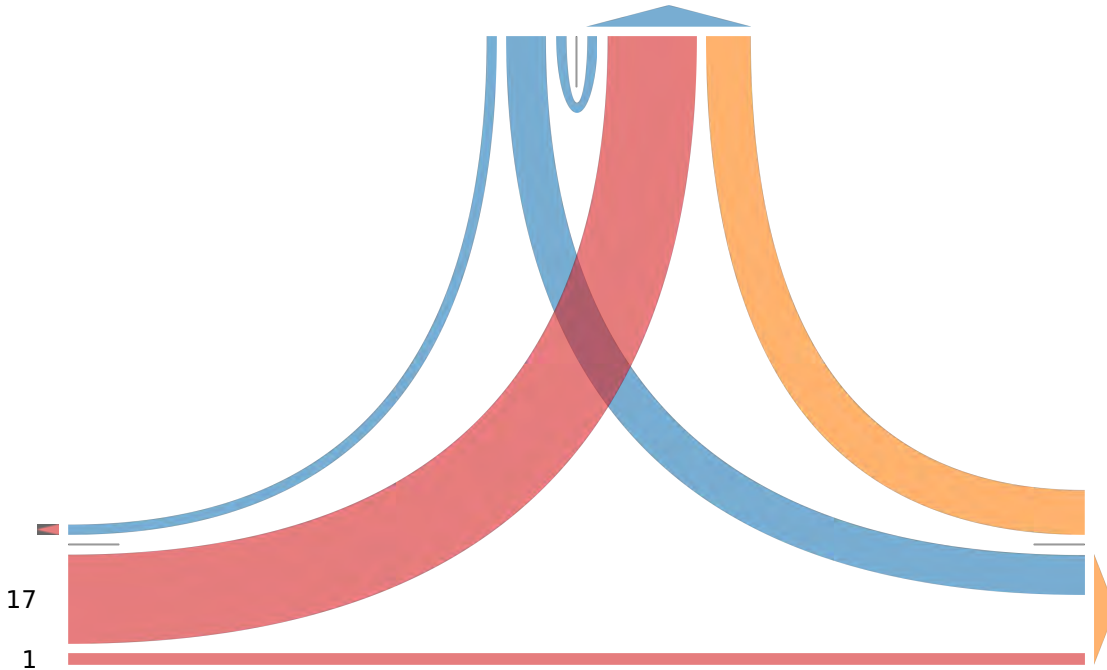
In: 9      Out: 26

1 7 1

**[W] S Reno Blvd**

Total: 19

In: 18      Out: 1



8

Out: 8      In: 8

Total: 16

**[E] S Reno Blvd**

**APPENDIX C**  
**TRIP GENERATION CALCULATIONS**

Project Project Max  
 Trip generation for Manufacturing  
 Designed by EKR Date February 01, 2022 Job No. 192261000  
 Checked by DG Date February 01, 2022 Sheet No. 1 of 1

**TRIP GENERATION MANUAL TECHNIQUES**

ITE Trip Generation 11th Edition, Average Rate Equations

Land Use Code - **140** Manufacturing

Independent Variable - 1,000 Sq Ft

Number of Units (X) - 416

T = Trip Ends

LUC 822

**Peak Hour Adjacent Street Traffic One Hour Between 7 and 9 AM**

AM Peak			Directional Distribution:
T = (X) * 0.68	Trip Ends Per 1,000 Sq Ft	76% Entering	24% Exiting
T = 283	Trip Ends	215 Entering	68 Exiting

**Peak Hour Adjacent Street Traffic One Hour Between 4 and 6 PM**

PM Peak			Directional Distribution:
T = (X) * 0.74	Trip Ends Per 1,000 Sq Ft	31% Entering	69% Exiting
T = 308	Trip Ends	95 Entering	213 Exiting

**Weekday**

Daily Weekday			Directional Distribution:
T = (X) * 4.75	Trip Ends Per 1,000 Sq Ft	50% Entering	50% Exiting
T = 1976	Trip Ends	988 Entering	988 Exiting

**Non-Pass-By Trip Percentage**

AM 100%  
PM 100%

**Non-Pass-By Trip Volumes**

AM Peak	215 Entering	68 Exiting
PM Peak	95 Entering	213 Exiting

Note: Rounding may occur in calculations



Project Project Max  
 Trip generation for Warehousing  
 Designed by EKR Date February 01, 2022 Job No. 192261000  
 Checked by DG Date February 01, 2022 Sheet No. 1 of 1

**TRIP GENERATION MANUAL TECHNIQUES**

ITE Trip Generation 11th Edition, Average Rate Equations

Land Use Code - **150** Warehousing

Independent Variable - 1,000 Sq Ft

Number of Units (X) - 1248

T = Trip Ends

LUC 822

**Peak Hour Adjacent Street Traffic One Hour Between 7 and 9 AM**

AM Peak			Directional Distribution:
T = (X) * 0.17	Trip Ends Per 1,000 Sq Ft	77% Entering	23% Exiting
T = 212	Trip Ends	163 Entering	49 Exiting

**Peak Hour Adjacent Street Traffic One Hour Between 4 and 6 PM**

PM Peak			Directional Distribution:
T = (X) * 0.18	Trip Ends Per 1,000 Sq Ft	28% Entering	72% Exiting
T = 225	Trip Ends	63 Entering	162 Exiting

**Weekday**

Daily Weekday			Directional Distribution:
T = (X) * 1.71	Trip Ends Per 1,000 Sq Ft	50% Entering	50% Exiting
T = 2136	Trip Ends	1068 Entering	1068 Exiting

**Non-Pass-By Trip Percentage**

AM 100%  
 PM 100%

**Non-Pass-By Trip Volumes**

AM Peak 163 Entering 49 Exiting  
 PM Peak 63 Entering 162 Exiting

Note: Rounding may occur in calculations

**APPENDIX D**  
**KEY INTERSECTION PEAK HOUR LOS CALCULATIONS**

HCM 6th TWSC  
1: N Virginia St & Village Pkwy

02/01/2022

Intersection						
Int Delay, s/veh	6.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T			T
Traffic Vol, veh/h	18	20	1	21	37	1
Future Vol, veh/h	18	20	1	21	37	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	86	86	92	92	63	63
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	21	23	1	23	59	2

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	133	13	0	0	24
Stage 1	13	-	-	-	-
Stage 2	120	-	-	-	-
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	861	1067	-	-	1591
Stage 1	1010	-	-	-	-
Stage 2	905	-	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	829	1067	-	-	1591
Mov Cap-2 Maneuver	829	-	-	-	-
Stage 1	1010	-	-	-	-
Stage 2	872	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9	0	7.2
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	939	1591
HCM Lane V/C Ratio	-	-	0.047	0.037
HCM Control Delay (s)	-	-	9	7.3
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0.1

HCM 6th TWSC  
 2: 395 S On Ramp/395 S Off Ramp & Village Pkwy

02/01/2022

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	23	39	429	34	0	0	0	0	7	2	5
Future Vol, veh/h	0	23	39	429	34	0	0	0	0	7	2	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	71	71	71	82	82	82	92	92	92	70	70	70
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	32	55	523	41	0	0	0	0	10	3	7

Major/Minor	Major1			Major2			Minor2			
Conflicting Flow All	-	0	0	87	0	0		1147	1174	41
Stage 1	-	-	-	-	-	-		1087	1087	-
Stage 2	-	-	-	-	-	-		60	87	-
Critical Hdwy	-	-	-	4.12	-	-		6.42	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-		5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-		5.42	5.52	-
Follow-up Hdwy	-	-	-	2.218	-	-		3.518	4.018	3.318
Pot Cap-1 Maneuver	0	-	-	1509	-	0		220	192	1030
Stage 1	0	-	-	-	-	0		323	292	-
Stage 2	0	-	-	-	-	0		963	823	-
Platoon blocked, %	-	-	-	-	-	-		-	-	-
Mov Cap-1 Maneuver	-	-	-	1509	-	-		142	0	1030
Mov Cap-2 Maneuver	-	-	-	-	-	-		142	0	-
Stage 1	-	-	-	-	-	-		323	0	-
Stage 2	-	-	-	-	-	-		621	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	8	22.8
HCM LOS			C

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1
Capacity (veh/h)	-	-	1509	-	222
HCM Lane V/C Ratio	-	-	0.347	-	0.09
HCM Control Delay (s)	-	-	8.6	0	22.8
HCM Lane LOS	-	-	A	A	C
HCM 95th %tile Q(veh)	-	-	1.6	-	0.3

HCM 6th AWSC  
 3: 395 N Off Ramp/395 N On Ramp & Village Pkwy

02/01/2022

Intersection

Intersection Delay, s/veh	14.7
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔				
Traffic Vol, veh/h	6	25	0	0	446	17	17	0	99	0	0	0
Future Vol, veh/h	6	25	0	0	446	17	17	0	99	0	0	0
Peak Hour Factor	0.65	0.65	0.65	0.81	0.81	0.81	0.71	0.71	0.71	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	38	0	0	551	21	24	0	139	0	0	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	0	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	8.4	16.8	9.3
HCM LOS	A	C	A

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	15%	19%	0%
Vol Thru, %	0%	81%	96%
Vol Right, %	85%	0%	4%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	116	31	463
LT Vol	17	6	0
Through Vol	0	25	446
RT Vol	99	0	17
Lane Flow Rate	163	48	572
Geometry Grp	1	1	1
Degree of Util (X)	0.22	0.066	0.694
Departure Headway (Hd)	4.853	4.997	4.373
Convergence, Y/N	Yes	Yes	Yes
Cap	737	713	823
Service Time	2.899	3.05	2.407
HCM Lane V/C Ratio	0.221	0.067	0.695
HCM Control Delay	9.3	8.4	16.8
HCM Lane LOS	A	A	C
HCM 95th-tile Q	0.8	0.2	5.7

HCM 6th TWSC  
4: N Virginia St & S Reno Park Blvd

02/01/2022

Intersection						
Int Delay, s/veh	2.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	13	0	0	10	2	15
Future Vol, veh/h	13	0	0	10	2	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	65	65	83	83	61	61
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	20	0	0	12	3	25

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	28	16	28	0	-	0
Stage 1	16	-	-	-	-	-
Stage 2	12	-	-	-	-	-
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	987	1063	1585	-	-	-
Stage 1	1007	-	-	-	-	-
Stage 2	1011	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	987	1063	1585	-	-	-
Mov Cap-2 Maneuver	987	-	-	-	-	-
Stage 1	1007	-	-	-	-	-
Stage 2	1011	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.7	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1585	-	987	-	-
HCM Lane V/C Ratio	-	-	0.02	-	-
HCM Control Delay (s)	0	-	8.7	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

HCM 6th TWSC  
5: S Reno Park Blvd

02/01/2022

Intersection												
Int Delay, s/veh	0											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	0	0	0	0	8	0	0	0	2	0	12
Future Vol, veh/h	2	0	0	0	0	8	0	0	0	2	0	12
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	50	50	92	92	50	50	92	92	92	58	92	58
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	0	0	0	0	16	0	0	0	3	0	21

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	25	17	11	17	27	0	21	0	0	0	0	0
Stage 1	17	17	-	0	0	-	-	-	-	-	-	-
Stage 2	8	0	-	17	27	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	986	877	1070	998	866	-	1595	-	-	-	-	-
Stage 1	1002	881	-	-	-	-	-	-	-	-	-	-
Stage 2	1013	-	-	1002	873	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	877	1070	998	866	-	1595	-	-	-	-	-
Mov Cap-2 Maneuver	-	877	-	998	866	-	-	-	-	-	-	-
Stage 1	1002	881	-	-	-	-	-	-	-	-	-	-
Stage 2	1013	-	-	1002	873	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	0							
HCM LOS	-							

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1595	-	-	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-	-
HCM Control Delay (s)	0	-	-	-	-	-	-
HCM Lane LOS	A	-	-	-	-	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-	-	-

HCM 6th TWSC  
1: N Virginia St & Village Pkwy

02/01/2022

Intersection						
Int Delay, s/veh	7.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W	R	T	R	L	T
Traffic Vol, veh/h	15	73	5	15	89	5
Future Vol, veh/h	15	73	5	15	89	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	83	83	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	79	6	18	106	6

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	233	15	0	0	24	0
Stage 1	15	-	-	-	-	-
Stage 2	218	-	-	-	-	-
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	755	1065	-	-	1591	-
Stage 1	1008	-	-	-	-	-
Stage 2	818	-	-	-	-	-
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	704	1065	-	-	1591	-
Mov Cap-2 Maneuver	704	-	-	-	-	-
Stage 1	1008	-	-	-	-	-
Stage 2	763	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.1	0	7
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	979	1591
HCM Lane V/C Ratio	-	-	0.098	0.067
HCM Control Delay (s)	-	-	9.1	7.4
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.3	0.2



HCM 6th TWSC  
 2: 395 S On Ramp/395 S Off Ramp & Village Pkwy

02/01/2022

Intersection												
Int Delay, s/veh	5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔						↔	
Traffic Vol, veh/h	0	64	40	195	80	0	0	0	0	24	3	8
Future Vol, veh/h	0	64	40	195	80	0	0	0	0	24	3	8
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	92	92	92	92	92	92	73	73	73
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	74	46	212	87	0	0	0	0	33	4	11

Major/Minor	Major1			Major2			Minor2			
Conflicting Flow All	-	0	0	120	0	0		608	631	87
Stage 1	-	-	-	-	-	-		511	511	-
Stage 2	-	-	-	-	-	-		97	120	-
Critical Hdwy	-	-	-	4.12	-	-		6.42	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-		5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-		5.42	5.52	-
Follow-up Hdwy	-	-	-	2.218	-	-		3.518	4.018	3.318
Pot Cap-1 Maneuver	0	-	-	1468	-	0		459	398	971
Stage 1	0	-	-	-	-	0		602	537	-
Stage 2	0	-	-	-	-	0		927	796	-
Platoon blocked, %	-	-	-	-	-	-		-	-	-
Mov Cap-1 Maneuver	-	-	-	1468	-	-		389	0	971
Mov Cap-2 Maneuver	-	-	-	-	-	-		389	0	-
Stage 1	-	-	-	-	-	-		602	0	-
Stage 2	-	-	-	-	-	-		786	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	5.6	13.8
HCM LOS			B

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1
Capacity (veh/h)	-	-	1468	-	458
HCM Lane V/C Ratio	-	-	0.144	-	0.105
HCM Control Delay (s)	-	-	7.9	0	13.8
HCM Lane LOS	-	-	A	A	B
HCM 95th %tile Q(veh)	-	-	0.5	-	0.3

HCM 6th AWSC  
 3: 395 N Off Ramp/395 N On Ramp & Village Pkwy

02/01/2022

Intersection	
Intersection Delay, s/veh	12.3
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔				
Traffic Vol, veh/h	19	67	0	0	219	13	51	1	413	0	0	0
Future Vol, veh/h	19	67	0	0	219	13	51	1	413	0	0	0
Peak Hour Factor	0.86	0.86	0.86	0.91	0.91	0.91	0.95	0.95	0.95	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	22	78	0	0	241	14	54	1	435	0	0	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	0	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	9.5	11.2	13.5
HCM LOS	A	B	B

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	11%	22%	0%
Vol Thru, %	0%	78%	94%
Vol Right, %	89%	0%	6%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	465	86	232
LT Vol	51	19	0
Through Vol	1	67	219
RT Vol	413	0	13
Lane Flow Rate	489	100	255
Geometry Grp	1	1	1
Degree of Util (X)	0.589	0.154	0.363
Departure Headway (Hd)	4.332	5.535	5.13
Convergence, Y/N	Yes	Yes	Yes
Cap	827	652	693
Service Time	2.391	3.535	3.229
HCM Lane V/C Ratio	0.591	0.153	0.368
HCM Control Delay	13.5	9.5	11.2
HCM Lane LOS	B	A	B
HCM 95th-tile Q	3.9	0.5	1.7

HCM 6th TWSC  
4: N Virginia St & S Reno Park Blvd

02/01/2022

Intersection						
Int Delay, s/veh	5.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	25	1	2	6	11	10
Future Vol, veh/h	25	1	2	6	11	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	46	46	50	50	69	69
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	54	2	4	12	16	14

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	43	23	30	0	0
Stage 1	23	-	-	-	-
Stage 2	20	-	-	-	-
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	968	1054	1583	-	-
Stage 1	1000	-	-	-	-
Stage 2	1003	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	965	1054	1583	-	-
Mov Cap-2 Maneuver	965	-	-	-	-
Stage 1	997	-	-	-	-
Stage 2	1003	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9	1.8	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1583	-	968	-	-
HCM Lane V/C Ratio	0.003	-	0.058	-	-
HCM Control Delay (s)	7.3	0	9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

HCM 6th TWSC  
5: S Reno Park Blvd

02/01/2022

Intersection												
Int Delay, s/veh	0											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	17	1	0	0	0	8	0	0	0	8	0	1
Future Vol, veh/h	17	1	0	0	0	8	0	0	0	8	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	41	41	92	92	67	67	92	92	92	75	92	75
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	41	2	0	0	0	12	0	0	0	11	0	1

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	29	23	1	24	23	0	1	0	0	0	0	0
Stage 1	23	23	-	0	0	-	-	-	-	-	-	-
Stage 2	6	0	-	24	23	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	980	870	1084	987	870	-	1622	-	-	-	-	-
Stage 1	995	876	-	-	-	-	-	-	-	-	-	-
Stage 2	1016	-	-	994	876	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	-	870	1084	985	870	-	1622	-	-	-	-	-
Mov Cap-2 Maneuver	-	870	-	985	870	-	-	-	-	-	-	-
Stage 1	995	876	-	-	-	-	-	-	-	-	-	-
Stage 2	1016	-	-	991	876	-	-	-	-	-	-	-

Approach	EB		WB		NB			SB				
HCM Control Delay, s	0											
HCM LOS	-											

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1622	-	-	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-	-
HCM Control Delay (s)	0	-	-	-	-	-	-
HCM Lane LOS	A	-	-	-	-	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-	-	-

HCM 6th TWSC  
1: N Virginia St & Village Pkwy

02/02/2022

Intersection						
Int Delay, s/veh	10.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W	W	T	T		T
Traffic Vol, veh/h	396	20	1	138	37	1
Future Vol, veh/h	396	20	1	138	37	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	83	83	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	430	22	1	166	44	1

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	173	84	0	0	167	0
Stage 1	84	-	-	-	-	-
Stage 2	89	-	-	-	-	-
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	817	975	-	-	1411	-
Stage 1	939	-	-	-	-	-
Stage 2	934	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	792	975	-	-	1411	-
Mov Cap-2 Maneuver	792	-	-	-	-	-
Stage 1	939	-	-	-	-	-
Stage 2	905	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.2	0	7.4
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	799	1411
HCM Lane V/C Ratio	-	-	0.566	0.031
HCM Control Delay (s)	-	-	15.2	7.6
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	3.6	0.1



HCM 6th TWSC  
 2: 395 S On Ramp/395 S Off Ramp & Village Pkwy

02/02/2022

Intersection												
Int Delay, s/veh	4.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔						↔	
Traffic Vol, veh/h	0	41	139	429	394	0	0	0	0	7	2	24
Future Vol, veh/h	0	41	139	429	394	0	0	0	0	7	2	24
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	92	92	92	92	92	92	73	73	73
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	47	160	466	428	0	0	0	0	10	3	33

Major/Minor	Major1			Major2			Minor2			
Conflicting Flow All	-	0	0	207	0	0		1487	1567	428
Stage 1	-	-	-	-	-	-		1360	1360	-
Stage 2	-	-	-	-	-	-		127	207	-
Critical Hdwy	-	-	-	4.12	-	-		6.42	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-		5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-		5.42	5.52	-
Follow-up Hdwy	-	-	-	2.218	-	-		3.518	4.018	3.318
Pot Cap-1 Maneuver	0	-	-	1364	-	0		137	111	627
Stage 1	0	-	-	-	-	0		239	216	-
Stage 2	0	-	-	-	-	0		899	731	-
Platoon blocked, %	-	-	-	-	-	-		-	-	-
Mov Cap-1 Maneuver	-	-	-	1364	-	-		76	0	627
Mov Cap-2 Maneuver	-	-	-	-	-	-		76	0	-
Stage 1	-	-	-	-	-	-		239	0	-
Stage 2	-	-	-	-	-	-		496	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	4.7	23.6
HCM LOS			C

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1
Capacity (veh/h)	-	-	1364	-	238
HCM Lane V/C Ratio	-	-	0.342	-	0.19
HCM Control Delay (s)	-	-	9	0	23.6
HCM Lane LOS	-	-	A	A	C
HCM 95th %tile Q(veh)	-	-	1.5	-	0.7

Intersection	
Intersection Delay, s/veh	25.2
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕				
Traffic Vol, veh/h	12	37	0	0	484	17	339	0	99	0	0	0
Future Vol, veh/h	12	37	0	0	484	17	339	0	99	0	0	0
Peak Hour Factor	0.86	0.86	0.86	0.91	0.91	0.91	0.95	0.95	0.95	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	14	43	0	0	532	19	357	0	104	0	0	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	0	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	10.1	29.2	22.3
HCM LOS	B	D	C

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	77%	24%	0%
Vol Thru, %	0%	76%	97%
Vol Right, %	23%	0%	3%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	438	49	501
LT Vol	339	12	0
Through Vol	0	37	484
RT Vol	99	0	17
Lane Flow Rate	461	57	551
Geometry Grp	1	1	1
Degree of Util (X)	0.725	0.1	0.828
Departure Headway (Hd)	5.661	6.288	5.413
Convergence, Y/N	Yes	Yes	Yes
Cap	636	567	666
Service Time	3.71	4.36	3.458
HCM Lane V/C Ratio	0.725	0.101	0.827
HCM Control Delay	22.3	10.1	29.2
HCM Lane LOS	C	B	D
HCM 95th-tile Q	6.2	0.3	8.9

HCM 6th TWSC  
4: N Virginia St & S Reno Park Blvd

02/02/2022

Intersection						
Int Delay, s/veh	4.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	130	0	0	10	2	393
Future Vol, veh/h	130	0	0	10	2	393
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	46	46	50	50	69	69
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	283	0	0	20	3	570

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	308	288	573	0	-	0
Stage 1	288	-	-	-	-	-
Stage 2	20	-	-	-	-	-
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	684	751	1000	-	-	-
Stage 1	761	-	-	-	-	-
Stage 2	1003	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	684	751	1000	-	-	-
Mov Cap-2 Maneuver	684	-	-	-	-	-
Stage 1	761	-	-	-	-	-
Stage 2	1003	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.9	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1000	-	684	-	-
HCM Lane V/C Ratio	-	-	0.413	-	-
HCM Control Delay (s)	0	-	13.9	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	2	-	-

HCM 6th TWSC  
5: S Reno Park Blvd

02/02/2022

Intersection												
Int Delay, s/veh	2.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	49	0	0	0	0	8	0	71	0	2	227	164
Future Vol, veh/h	49	0	0	0	0	8	0	71	0	2	227	164
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	41	41	92	92	67	67	92	92	92	75	92	75
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	120	0	0	0	0	12	0	77	0	3	247	219

Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	446	440	357	440	549	77	466	0	0	77	0	0
Stage 1	363	363	-	77	77	-	-	-	-	-	-	-
Stage 2	83	77	-	363	472	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	523	511	687	527	443	984	1095	-	-	1522	-	-
Stage 1	656	625	-	932	831	-	-	-	-	-	-	-
Stage 2	925	831	-	656	559	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	516	509	687	526	442	984	1095	-	-	1522	-	-
Mov Cap-2 Maneuver	516	509	-	526	442	-	-	-	-	-	-	-
Stage 1	656	623	-	932	831	-	-	-	-	-	-	-
Stage 2	914	831	-	654	557	-	-	-	-	-	-	-

Approach	EB		WB			NB			SB		
HCM Control Delay, s	14.1		8.7			0			0		
HCM LOS	B		A								

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1095	-	-	516	984	1522	-
HCM Lane V/C Ratio	-	-	-	0.232	0.012	0.002	-
HCM Control Delay (s)	0	-	-	14.1	8.7	7.4	0
HCM Lane LOS	A	-	-	B	A	A	A
HCM 95th %tile Q(veh)	0	-	-	0.9	0	0	-

HCM 6th TWSC  
1: N Virginia St & Village Pkwy

02/02/2022

Intersection						
Int Delay, s/veh	6.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W	W	T			T
Traffic Vol, veh/h	173	73	5	390	89	5
Future Vol, veh/h	173	73	5	390	89	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	83	83	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	188	79	6	470	106	6

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	459	241	0	0	476	0
Stage 1	241	-	-	-	-	-
Stage 2	218	-	-	-	-	-
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	560	798	-	-	1086	-
Stage 1	799	-	-	-	-	-
Stage 2	818	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	505	798	-	-	1086	-
Mov Cap-2 Maneuver	505	-	-	-	-	-
Stage 1	799	-	-	-	-	-
Stage 2	738	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.9	0	8.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	567	1086
HCM Lane V/C Ratio	-	-	0.472	0.098
HCM Control Delay (s)	-	-	16.9	8.7
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	2.5	0.3



HCM 6th TWSC  
 2: 395 S On Ramp/395 S Off Ramp & Village Pkwy

02/02/2022

Intersection												
Int Delay, s/veh	3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔						↔	
Traffic Vol, veh/h	0	121	359	195	231	0	0	0	0	24	3	16
Future Vol, veh/h	0	121	359	195	231	0	0	0	0	24	3	16
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	92	92	92	92	92	92	73	73	73
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	139	413	212	251	0	0	0	0	33	4	22

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	-	0	0	552	0	0	1021	1227	251
Stage 1	-	-	-	-	-	-	675	675	-
Stage 2	-	-	-	-	-	-	346	552	-
Critical Hdwy	-	-	-	4.12	-	-	6.42	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.42	5.52	-
Follow-up Hdwy	-	-	-	2.218	-	-	3.518	4.018	3.318
Pot Cap-1 Maneuver	0	-	-	1018	-	0	262	178	788
Stage 1	0	-	-	-	-	0	506	453	-
Stage 2	0	-	-	-	-	0	716	515	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	1018	-	-	199	0	788
Mov Cap-2 Maneuver	-	-	-	-	-	-	199	0	-
Stage 1	-	-	-	-	-	-	506	0	-
Stage 2	-	-	-	-	-	-	543	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	4.3	21
HCM LOS			C

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1
Capacity (veh/h)	-	-	1018	-	284
HCM Lane V/C Ratio	-	-	0.208	-	0.207
HCM Control Delay (s)	-	-	9.5	0	21
HCM Lane LOS	-	-	A	A	C
HCM 95th %tile Q(veh)	-	-	0.8	-	0.8

HCM 6th AWSC  
 3: 395 N Off Ramp/395 N On Ramp & Village Pkwy

02/02/2022

Intersection	
Intersection Delay, s/veh	22.8
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔				
Traffic Vol, veh/h	38	105	0	0	235	13	186	1	413	0	0	0
Future Vol, veh/h	38	105	0	0	235	13	186	1	413	0	0	0
Peak Hour Factor	0.86	0.86	0.86	0.91	0.91	0.91	0.95	0.95	0.95	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	44	122	0	0	258	14	196	1	435	0	0	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	0	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	11.7	13.6	29.7
HCM LOS	B	B	D

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	31%	27%	0%
Vol Thru, %	0%	73%	95%
Vol Right, %	69%	0%	5%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	600	143	248
LT Vol	186	38	0
Through Vol	1	105	235
RT Vol	413	0	13
Lane Flow Rate	632	166	273
Geometry Grp	1	1	1
Degree of Util (X)	0.855	0.284	0.445
Departure Headway (Hd)	4.874	6.147	5.875
Convergence, Y/N	Yes	Yes	Yes
Cap	739	582	610
Service Time	2.917	4.208	3.929
HCM Lane V/C Ratio	0.855	0.285	0.448
HCM Control Delay	29.7	11.7	13.6
HCM Lane LOS	D	B	B
HCM 95th-tile Q	10.1	1.2	2.3

HCM 6th TWSC  
4: N Virginia St & S Reno Park Blvd

02/02/2022

Intersection

Int Delay, s/veh 50.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			4	4	
Traffic Vol, veh/h	400	1	2	6	11	168
Future Vol, veh/h	400	1	2	6	11	168
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	46	46	50	50	69	69
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	870	2	4	12	16	243

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	158	138	259	0	-	0
Stage 1	138	-	-	-	-	-
Stage 2	20	-	-	-	-	-
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	~ 833	910	1306	-	-	-
Stage 1	889	-	-	-	-	-
Stage 2	1003	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 831	910	1306	-	-	-
Mov Cap-2 Maneuver	~ 831	-	-	-	-	-
Stage 1	886	-	-	-	-	-
Stage 2	1003	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	66.9	1.9	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1306	-	831	-	-
HCM Lane V/C Ratio	0.003	-	1.049	-	-
HCM Control Delay (s)	7.8	0	66.9	-	-
HCM Lane LOS	A	A	F	-	-
HCM 95th %tile Q(veh)	0	-	20.8	-	-

Notes

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

HCM 6th TWSC  
5: S Reno Park Blvd

02/02/2022

Intersection												
Int Delay, s/veh	14.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	167	1	0	0	0	8	0	225	0	8	95	65
Future Vol, veh/h	167	1	0	0	0	8	0	225	0	8	95	65
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	41	41	92	92	67	67	92	92	92	75	92	75
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	407	2	0	0	0	12	0	245	0	11	103	87

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	420	414	147	415	457	245	190	0	0	245	0	0
Stage 1	169	169	-	245	245	-	-	-	-	-	-	-
Stage 2	251	245	-	170	212	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	544	529	900	548	500	794	1384	-	-	1321	-	-
Stage 1	833	759	-	759	703	-	-	-	-	-	-	-
Stage 2	753	703	-	832	727	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	532	524	900	543	496	794	1384	-	-	1321	-	-
Mov Cap-2 Maneuver	532	524	-	543	496	-	-	-	-	-	-	-
Stage 1	833	752	-	759	703	-	-	-	-	-	-	-
Stage 2	742	703	-	822	720	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	30.9		9.6		0		0.4	
HCM LOS	D		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1384	-	-	532	794	1321	-
HCM Lane V/C Ratio	-	-	-	0.77	0.015	0.008	-
HCM Control Delay (s)	0	-	-	30.9	9.6	7.7	0
HCM Lane LOS	A	-	-	D	A	A	A
HCM 95th %tile Q(veh)	0	-	-	6.9	0	0	-

**APPENDIX E**  
**SITE PLAN**





**EARTHWORK SUMMARY**

DISTURBANCE AREA (ACRES)	WEST	EAST	TOTAL
	33.0	47.7	80.7
CUT (CY)	-465,000	-375,000	-840,000
FILL (CY)	+230,000	+715,000	+945,000
NET (CY)	-235,000 (EXPORT)	+340,000 (IMPORT)	+105,000 (IMPORT)

**KP INVESTMENTS NORTH  
GRADING SPECIAL USE PERMIT**

SHEET C3  
PRELIMINARY GRADING PLAN

WASHOE COUNTY  
PROJECT NO: T-2008-01.002  
NEVADA

THE WEI, STAMPED AND  
COPY OF THIS PLAN  
SUPERSEDES ALL OTHER  
COPIES AND ELECTRONIC  
NOTES AND CONTRACT  
AGREEMENT.

0' 1/2" 1"  
INCHES@FULL SCALE

PREPARED FOR:  
**KP INVESTMENTS LLC**  
10399 DOUBLE P BLVD  
STE 109  
RENO, NV 89521  
(775) 544-8464

**Robison Engineering**  
848 VICTORIAN AVENUE  
RENO, NV 89521  
WWW.ROBISONENG.COM  
(775) 852-2251

DRAWN: RMS  
DATE: PENDING

**PRELIMINARY  
NOT FOR  
CONSTRUCTION**

TECHNICAL DESIGN GROUP SITE PLAN

NO	DESCRIPTION	DATE	BY	CHKD
1	GLOBAL MAPPER WORLD IMAGERY			
2				
3				
4				
5				
6				
7				
8				

REFERENCES

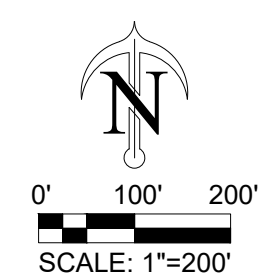
NO	DESCRIPTION	DATE	BY	CHKD
P1	FOR CLIENT REVIEW	12/23/2021	RMS	-
P2	FOR CLIENT REVIEW	12/28/2021	RMS	-
P3	FOR CLIENT REVIEW	12/31/2021	RMS	-
P4	FOR CLIENT REVIEW	01/04/2022	RMS	-
P5	WASHOE COUNTY PREDEVELOPMENT MEETING	01/06/2022	RMS	-
P6	FOR CLIENT REVIEW	01/17/2022	RMS	-
P7	FOR CLIENT REVIEW	01/21/2022	RMS	-

REVISIONS

APPROVALS

**C3**

SHEET 4 OF 5





**RE: Geotechnical Summary Report  
Project Max - North Reno Parcels  
Washoe County, Nevada**

Dear Mr. Owens:

Corestone Engineering, Inc. (CEI) is pleased to present this geotechnical summary report for the proposed industrial/commercial project with multiple warehouse-type buildings within an approximately 130 acres of undeveloped land south of South Reno Park Boulevard in Cold Springs community area of Washoe County, Nevada. Currently, CEI is performing geotechnical investigation for the project to develop complete preliminary geotechnical recommendations for the planning and preliminary design of the project, and we recently completed geotechnical test pit exploration and fault trenching activities within the site. The advancement of geotechnical borings is scheduled to occur in the next 2 weeks timeframe. A geotechnical investigation report will be issued in the next few weeks to summarize findings from recently completed exploration and soon to be completed boring exploration, subsequent laboratory testing, geotechnical analyses, and detailed geotechnical recommendations for the project.

This geotechnical summary letter is being issued as an interim document for tentative map submittal to Washoe County and provides summary of our preliminary findings from the completed research/review and filed tasks to date focusing on geological hazards, geologic and general soil conditions associated with the site and limited preliminary geotechnical recommendations for the proposed project.

## **Project Description**

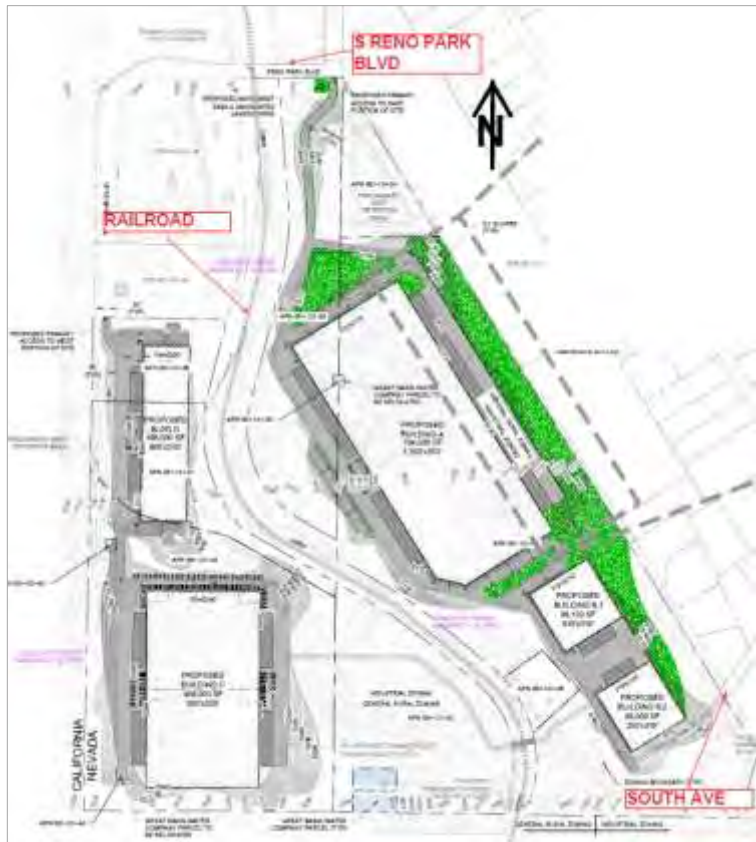
The proposed project will include design and construction of multiple industrial buildings within the vacant land south of South Reno Park Boulevard in Cold Springs community area of Washoe County, Nevada. The project site includes 7 parcels, Accessor's Parcel Numbers (APNs) 081-131-21, -32, -39, -43, -46, -50, and -51, of various sizes and incorporates approximately 130 acres of undeveloped land. The site span east and west of Union Pacific Railroad (UPRR) right-of-way and exhibits a hilly terrain. The project site is entirely contained in Sections 29 and 30, Township 21 North, Range 18 East, Mount Diablo Meridian and spans west up to the State of Nevada border with State of California. The project site is bordered to the north by South Reno Park Boulevard and existing commercial facilities, to the east by existing single-family residential parcels and to the south and west by undeveloped land. Access to the project site areas east and west of UPRR right-of-way is obtained from northside via the unpaved South Reno Park Boulevard. The site area east of UPRR track can also be accessed by a gravel-surfaced road that extends west/northwest from the termination of South Avenue.



Based on the preliminary site layout and grading plan for the project prepared by Robison Engineering Company, Inc. (Robison) of Reno, Nevada, a total of 5 buildings of various sizes up to about 764,500-square-foot (-sf) in size are expected on the project. The largest building A and 2 smaller buildings (Buildings B1 and B2 that are less than 100,000-sf in size) will be located east of railroad and Buildings C and D will be located west of railroad. The buildings will be Portland cement concrete (PCC) tilt-up panel wall structures support by PCC shallow spread footings and will have PCC slab-on-grade floors. Buildings will include PCC truck loading docks and PCC truck aprons on one or two long sides.

The primary access to the buildings east of the railroad will be via a new private access drive that will extend from the northeast corner of the overall project site off Reno Park Boulevard. The western buildings will have the main access point extending from the current termination of Reno Park Boulevard. In addition, an emergency access road will be provided for the project from the southeast extending from the South Avenue. This access will connect the project east and west of the railroad via a new at-grade railroad crossing. The facility will include asphalt concrete drive paths between buildings as well as adjacent to buildings along with parking lots consisting of numerous passenger car vehicle and truck parking spaces for each building. We also anticipate the need for retention/detention basins as part of stormwater management for the project. A large detention/retention basin is expected in the northeastern portion of the project site. Natural drainage paths and ravines that exist within the site (mostly within the eastern portion of the site east of railroad) will also likely be routed surrounding the improvement areas and to drain ultimately to the east.

Due to moderate to steep site topography, the preliminary grading plan from Robinson shows deep cuts and fills to establish design grades for the project. Cuts and fills up to 40 feet are expected. Deepest cuts will occur within the southeastern limits of pad for Building C (southern building west of railroad) and deepest fills will occur within the northeastern limits of the project site to establish design grades for



**Preliminary Project Layout and Grading Concept**



Building A. Depending on the final grading plan and space constraints, site retaining walls may be necessary in some areas. Majority of the cuts and fills will be sloped at 3H:1V (horizontal to vertical) ratio. Some limited segments of the slopes on the project will be sloped at 2H:1V ratio and these slopes will be protected against erosion via providing rip-rap armor.

## Site Conditions

The site is generally undeveloped with some minor infrastructures. As noted above, UPRR right-of-way runs in the middle of the project area and lies on grades established via cuts and fills. Unimproved roads (jeep trails) exist on both sides of the railroad and these roads follow the natural topography. A large, at-grade steel water storage tank exists just outside the southern limits of the project site (west of railroad) within an approximately 200-foot-square parcel, APN 081-121-31, owned by Great Basin Water Company (GBWC) and is not part of the project site. This parcel is located near the highest topographical areas of the overall project site. A mostly unimproved road extends from the current termination of Reno Park Boulevard to the water tank parcel and this access road includes recycled asphalt concrete base surfacing in the segment that climbs up near the tank. There are three additional GBWC's 50-foot-square parcels west of the railroad and it is our understanding these parcels will be relocated as part of the project. Another GBWC's 50-foot-square parcel also present east of railroad and this parcel will also be relocated. Overhead power lines exist along Reno Park Boulevard and extends south from the northern limits of the project site. A separate approximately 1.5-acre parcel, APN 081-121-45, is located just east of the railroad and is surrounded by the project site. This parcel hosts a voluntary fire station facility and is accessed by a gravel-surfaced access road that extends from the current termination of South Avenue. Overhead power and communication lines exist along this access road.

The topography within the site is undulating and irregular with small ridge areas and ravines. In general, the site area west of the railroad slopes down moderately to the east and north from the high areas within the southern edge portion of the project site. The site area east of the railroad starts from a low elevation at the southern edge (near South Avenue) and



Site Conditions - Looking North from Edge of Southern Tank Parcel





follows an undulating ground with ridges and narrow to broad ravines towards north. The highest elevation of about 5,300 feet above mean sea level (msl) within the site exists along the southcentral perimeter of the site (near tank parcel). The low points within the site exist at the southeastern, northeastern, and northwestern portions of the project site (about 5,140 feet above msl).

The site generally exhibits sparse to dense vegetation consisting of sage brush and some other desert plants that are generally up to about 4 feet tall. There are isolated desert plants that are as tall as 6 feet, mainly east of railroad. The site drainage is via surface runoff and sheet flow towards natural drainage paths.

### Exploration and Laboratory Testing

The site was explored recently in the week of January 24<sup>th</sup> of 2022 by advancing 22 geotechnical test pits. The test pits were located throughout the limits of the proposed improvements and were advanced using a Cat® track-mounted 336 excavator to maximum depth of about 18 feet below existing ground surface. The geotechnical exploration for the project will also include advancement of 8 geotechnical borings extending as deep as 80 feet depth below existing ground surface. In addition, the subsurface geologic investigation of the mapped faults within the site (discussed later under **Geological Hazards** section) included advancement of 7 fault trenches.

The results of the geotechnical exploration (logs of test pits, fault trenches, and borings) will be included in the complete geotechnical report. During the completed test pit and fault trenching, a geotechnical engineer examined and identified all soils in the field in accordance with the American Society for Testing Materials (ASTM) D 2488. The soils encountered in the proposed borings will also be examined and identified by a CEI geotechnical engineer. Laboratory testing will commence upon the completion of boring exploration and will include the analyzing of representative soil samples to determine the in-situ moisture content (ASTM D 2216), grain size distribution (ASTM D



**Typical Soils Profile in a Fault Trench**



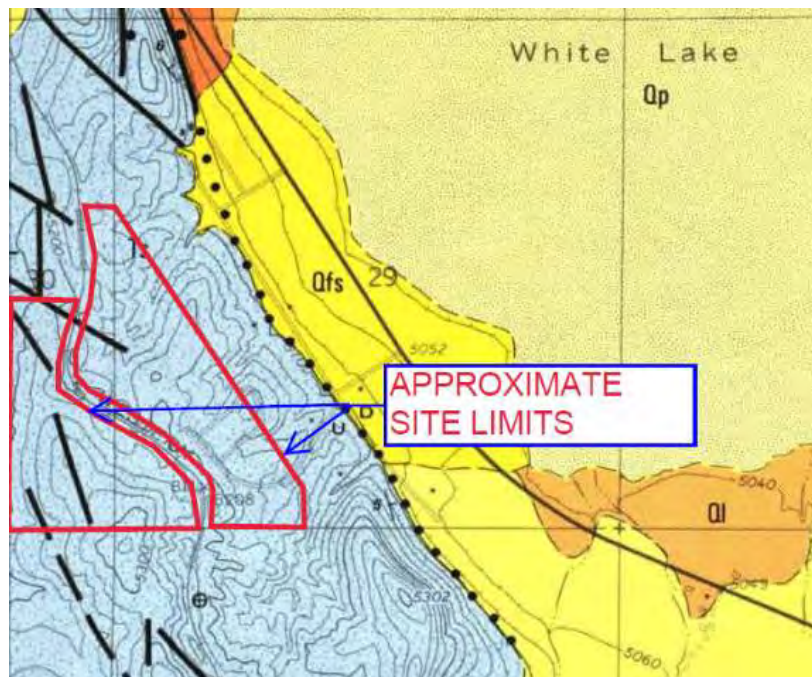
422), and plasticity index (ASTM D 4318) as well as chemical testing to evaluate site soils' potential to corrode PCC and buried metal. The laboratory test results will be utilized to classify the soils in accordance with ASTM D 2487 and to verify field classification and to prepare final exploration logs that will be included in the geotechnical report. Laboratory test results will also be utilized in geotechnical analyses and the formulation of geotechnical recommendations for the project.

## Geologic and Preliminary Soil Conditions

The Project Max site is mapped by the Nevada Bureau of Mines and Geology (NBMG) to lie in the Tertiary age *Lacustrine and alluvial sediments* (Soeller and Nielsen, 1980). The NBMG describes these sediments (Ts) as *thick basin-fill deposits of grayish-orange to pale-brown, coarse to medium sand, granular sand, siltstone, silty to pebbly sandstone, and minor sandy pebble conglomerate, very thin-bedded as and diatomite; sediments are generally unconsolidated and bedding is usually indistinct; In part includes younger alluvium near the surface* (Soeller and Nielsen, 1980). The geological setting of the site consists of old basin-fill deposits that have been faulted and folded to result in the current undulating topography of the site with small ridges and ravines. The materials encountered in our test pit and fault trench exploration that have been completed to date through a maximum depth of 18 feet below existing ground surface correspond with NBMG mapping and mostly consists of granular clayey to silty sand deposits.

The following provides the preliminary description of subsurface soils conditions within the site based on our field classification of soils encountered in the test pits and fault trenches. Laboratory testing on representative soil samples collected from test pits/trenches will be performed upon the completion of geotechnical borings. The field classifications of soils will be updated once the laboratory testing is complete and final exploration logs will be presented in the complete geotechnical report for the project.

The site subsurface soils generally consist of a relatively thin (generally up to 2 feet in thickness) dark brown, medium dense clay-rich clayey sand to sandy lean clay soil layer underlain by mostly granular silty



Geologic Map





sand to clayey sand deposits. The deeper soils exhibit a variable slight to moderate cementation and are at dense to very dense consistency. These granular sand soils exhibit moderate percentage (generally up to about 40 percent) of low to medium plasticity fines. Minor layers of fine-grained silt and sandy lean clay exhibiting generally low plasticity fines were also encountered in some test pits within the deeper horizon. The upper clay-rich soils generally exhibit up to about 60 percent medium plasticity fines. Surficial clayey sand soils were common in the site area east of railroad track, The subsurface soils in some areas also exhibit a variable percentage of gravels that are generally up to 2 inches in diameter. Oversized particles were rare in the subsurface soils except some localized areas west of the railroad where cobbles up to 4 inches were encountered in the exploration.

Groundwater was not encountered during our test pit exploration that extended through a maximum of 18 feet below existing ground surface. Based on the review of well logs in the Nevada Division of Water Resources database, a well advanced about 0.5 miles northeast of the project site (near White Lake) encountered static groundwater table at about 34 feet below existing ground surface. The project site is located at significantly higher elevation than the well location. We anticipate the groundwater within the project site is at a depth that should not be a concern for design and construction of the project. It is noted that the geotechnical exploration for the project will include borings extending as deep as 80 feet below existing ground surface, mainly focusing deep cut areas. These deep borings will allow to provide additional discussion on the depth to groundwater table within the project site in the complete geotechnical report for the project.

## Geologic Hazards

### Seismicity

The Cold Springs area lies within an area with a high potential for moderate to strong earthquake shaking. It is generally accepted that a maximum credible earthquake in this area would be in the range of magnitude 7 to 7.5 along the frontal fault system of the eastern Sierra Nevada. The most active segment of this fault system in this region is located at the base of the mountains near Thomas Creek, Whites Creek, and Mt. Rose Highway, some 21 miles southeast of the project site.

### Faults

The NBMG MyHazards web-mapping tool (NBMG, 2022) and the earthquake hazards map for the area (Szecsody, 1983) shows four undifferentiated Quaternary age fault splays associated with the Peavine Mountain Fault Zone within the limits of the project site. The earthquake hazards map states the faults are *predominantly bedrock faults of probable pre-Pleistocene age and bedrock-alluvial faults of probable mid-to late Pleistocene age; However, recent fault movements are not precluded in this category.*

The Nevada Earthquake Safety Council (NESC, 1998) has developed and adopted the criteria for evaluation of Quaternary age earthquake faults. *Holocene Active Faults* are defined as those with evidence of movement within the past 10,000 years (Holocene time). Those faults with evidence of



displacement during the last 130,000 years are termed *Late Quaternary Active Faults*. A *Quaternary Active Fault* is one that has moved within the last 1.6 million years. An *Inactive Fault* is a fault *without recognized activity within Quaternary time* (last 1.6 million years). Holocene Active Faults normally require that occupied structures be set back a minimum of 50 feet (100-foot-wide zone) from the ground surface fault trace. An *Occupied Structure* is considered a building, as defined by the *International Building Code (IBC)*, which is expected to have a human occupancy rate of more than 2,000 hours per year (International Code Council [ICC], 2018).

The setback from Quaternary Active Faults is left to the judgment of the geologist/engineer; however, no *Critical Facility* is permitted to be placed over the trace of a Late Quaternary Active Fault. A *Critical Facility* is defined as *a building or structure that is considered critical to the function of the community or the project under consideration. Examples include, but are not limited to, hospitals, fire stations, emergency management operations centers and schools.*

With the presence of mapped Quaternary age faults within the project site, CEI subcontracted an experienced and qualified geologist Mr. Thomas L. Sawyer with Piedmont Geoseismic Services (PGS) of Dyer, Nevada to perform a detailed fault hazard investigation for the project in accordance with NESC guidelines. To date, PGS has completed surficial geologic investigation tasks (research and aerial photo study) and field tasks (fault trenching) associated with the subsurface geologic investigation for the mapped faults within the project site. PGS is currently analyzing the fault trench photos and preparing a detailed fault hazard investigation report for the project. The findings from the fault hazard investigation will be incorporated as part of the complete geotechnical investigation for the project. The preliminary Quaternary age fault map prepared by PGS based on the research and aerial photo study is enclosed in Appendix A (Preliminary Quaternary Fault Map). The map also shows the locations of the fault trenches (FT1 through FT7) that were advanced as part of the subsurface geologic investigation of faults; the fault trenches were evaluated, mapped, and photographed in the field by PGS and PGS is currently completing additional analyses of the collected data from fault trenches

Based on the verbal findings from PGS, only the southwestern fault trenches (FT1 and FT2) advanced across the fault play mapped to extend within the extreme southwestern corner portion of the site revealed a young fault requiring fault hazard mitigation in the form of building set back. Depending on the final location of the southwestern fault splay, the proposed southwestern Building C may need some shifting/adjustment in the final project design to observe sufficient set back from a potentially active fault trace. Once the fault hazard investigation is complete, the fault location should be surveyed based on the stakes placed by PGS to incorporate the fault trace in the final project plans. No other buildings on the project will require fault mitigation.

### **Ground Motion and Liquefaction**

The United States Geological Survey seismic design maps that have been incorporated with the American Society of Civil Engineers (ASCE) Online *ASCE 7 Hazard Tool* indicate that there is a 2 percent



probability that a *bedrock* ground acceleration of 0.64 g will be exceeded in any 50-year interval (ASCE, 2022). Only localized amplification of ground motion would be expected during an earthquake.

Site is underlain by dense to very dense soils starting from shallow depths and the groundwater within the site is expected to be relatively deep. Further, the published earthquake hazards map indicates the site *includes unconsolidated deposits with moderate to moderately high rigidity where depth to ground water is greater than 10 m (33 ft); also includes moderately indurated deposits with moderately high rigidity where depth to ground water is less than 10 m (33 ft)* (Szecsody, 1983). Because of the consistency of site soils and absence of shallow groundwater, the potential for soil liquefaction within the site is considered low. The site exploration for the complete geotechnical investigation (currently in progress) will include advancement of deep borings. The data from these deep borings will be utilized to assess and provide any needed additional conclusions on the potential for soil liquefaction in the geotechnical report.

### **Flood Plains**

The Federal Emergency Management Agency (FEMA) has identified the site as lying-in unshaded Zone X, or outside of a 500-year flood zone (FEMA, 2009; 2013b; 2013b).

### **Other Geologic Hazards**

A high potential for dust generation is present if grading is performed in dry weather. Due to the dense nature of site soils, the site does not exhibit a potential for landslides. No other geologic hazards were identified.

## **Discussion and Preliminary Geotechnical Recommendations**

The proposed project is feasible on a geotechnical standpoint. Based on our research/review and the geotechnical exploration completed to date, the subsurface materials within the project site predominantly consists of granular silty to clayey sand soils that will provide adequate support for proposed improvements in cuts and also as densified structural fill. A complete geotechnical investigation report with all necessary geotechnical recommendations for the project will be issued by CEI upon the completion of the remaining exploration tasks, laboratory testing and geotechnical analyses. Currently, we provide the following preliminary geotechnical recommendations for the proposed project:

1. All vegetation should be stripped and/or grubbed from all structural areas. A stripping depth of about 0.3 to 0.5 feet should be anticipated. Localized areas with heavy vegetation may require additional stripping depth. Vegetation and organic matters should be disposed offsite or in designated non-structural areas.
2. The subsurface soils encountered in the completed test pit and fault trench exploration to date are predominantly granular silty sand to clayey sand soils with low to moderate percentage of low to medium plasticity fines. These granular soils will provide adequate support for the



proposed improvements in cuts and will also be suitable to use as structural fill.

The surficial soil layer and some localized deep horizons include clay-rich and fine-grained soils. These clay and fine-grained soils should be mitigated via providing sufficient structural fill separation/support for improvements. When excavated these poor-quality soils should only be placed as fill in non-structural areas or beneath a structural fill separation within the exterior improvements.

3. Onsite materials were excavated using a medium-size excavator in test pits and fault trenches. It is anticipated that the mass grading should be possible using conventional medium to large earthwork equipment. Strongly cemented soils may pose some excavation/trenching difficulties
4. Temporary trenches with near-vertical sidewalls should be stable in onsite soils to a depth of approximately 4 feet. Excavations to greater depths in soils will require laying back of sidewalls at a slope no steeper than 1H:1V to maintain adequate stability. All trenching and excavation should conform to the State of Nevada, Department of Industrial Relations, Division of Occupational Safety and Health Administration (OSHA) standards (Code of Federal Regulations, 2010).
5. All structural fill within the building footprint and the structural fill placed in deep fill areas (fill thickness exceeding 8 feet) shall be placed in maximum 8-inch loose lifts, moisture conditioned, and compacted to 95 percent relative compaction per ASTM D 1557. All other structural fill shall be compacted to 90 percent relative compaction.
6. The project grading will involve cut and fill slopes that are up to about 40 feet in vertical height. Based on the consistency and type of materials encountered in our exploration, cut and fill slopes on the project will be globally stable at 2H:1V ratio or flatter. It is also emphasized that *IBC* (ICC, 2018) allow 2H:1V slopes on the type of materials encountered in our exploration. Slopes steeper than 3H:1V ratio should be mechanically stabilized against erosion; however, alternate erosion protection measures may also be considered with approval from governing agencies.
7. The project will include deep fills that will be subject to internal fill settlement. Areas exhibiting 10 feet or more fills should require a settlement waiting period in the range of 60 to 90 days from the completion of the pad grades prior to construction of building footings. Settlement monitoring via establishment of survey monuments within deep fill areas is also recommended.
8. Individual column footings and continuous wall footings underlain by properly prepared onsite soils or compacted structural fill can be designed for a net maximum allowable bearing pressure in the range of 2,500 to 3,000 pounds per square foot.



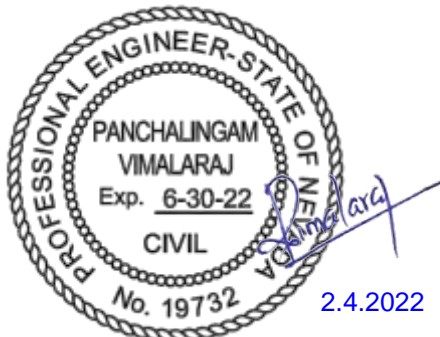
9. Paved areas subject to truck traffic should consist of 4 inches of asphalt concrete underlain by 6 inches of Type 2, Class B aggregate base (*Standard Specifications for Public Works Construction [SSPWC]*, 2016). Paved areas restricted to automobile parking can consist of 3 inches of asphalt concrete underlain by 6 inches of Type 2, Class B aggregate base (*SSPWC*, 2016).
10. A coefficient of subgrade reaction (K-value) in the range of 125 to 150 pounds per cubic inch is appropriate for use in design of the building floor slabs.
11. Truck PCC loading dock ramps and any other PCC slabs subject to vehicle loading should be a minimum of 6 inches of 4,000 pounds per square inch PCC overlying 6 inches of Type 2, Class B aggregate base (*SSPWC*, 2016).

## Closing

We appreciate being of service to you on this project. If you have any questions or require any additional information, please do not hesitate to contact us.

Sincerely,

**Corestone Engineering, Inc.**



Vimal P. Vimalaraj, P.E., G.E.

President

PV:pv/lkv

Enclosure: Appendix A - Preliminary Quaternary Fault Map

Copies to: Addressee (PDF)  
Mr. Paul Kinne, Panattoni Development Company (PDF)  
Mr. Ryan Switzer, PE, Robison Engineering Company, Inc. (4 copies and PDF)



## References

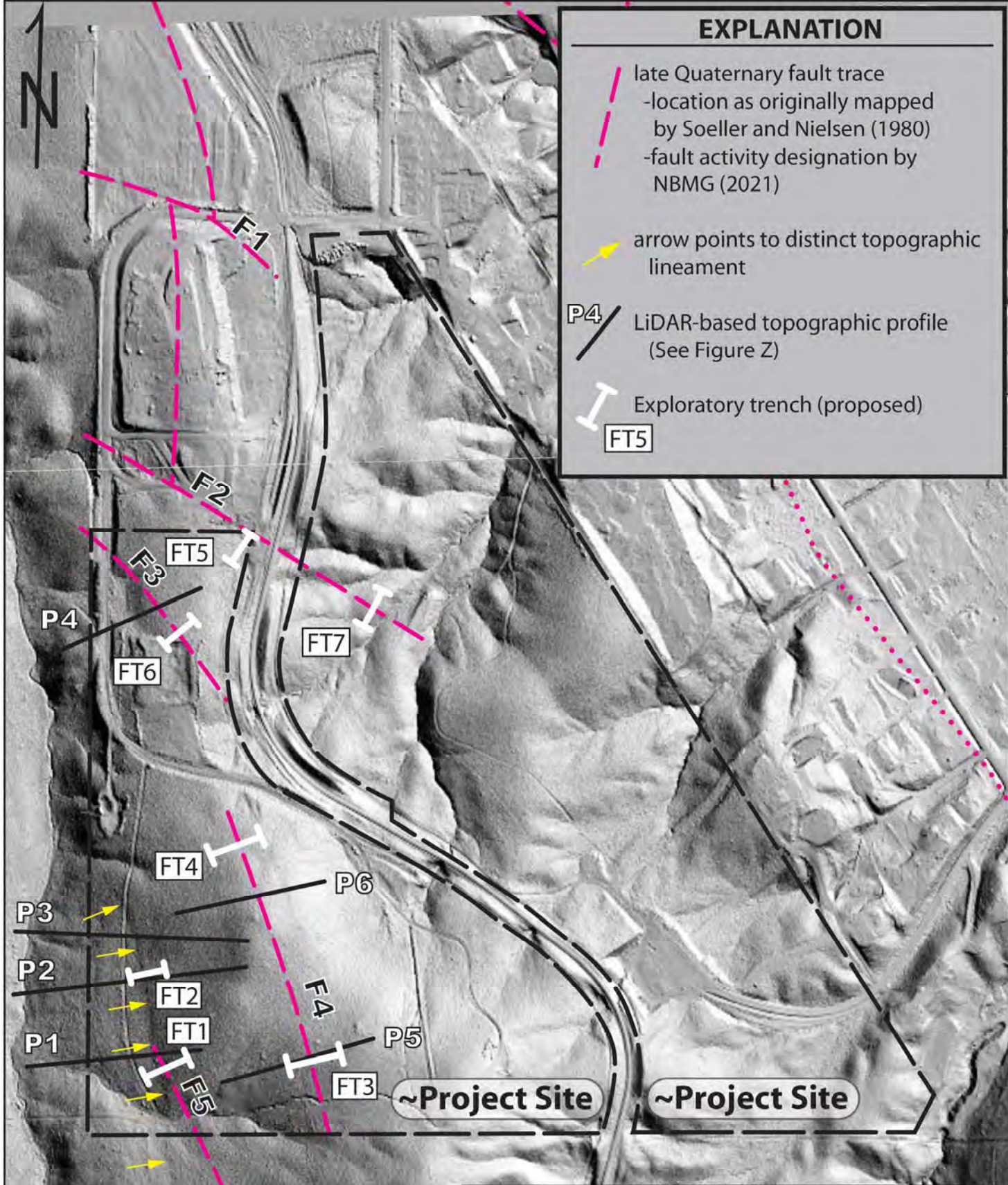
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# APPENDIX A

## PRELIMINARY QUATERNARY FAULT MAP



**Note:** LiDAR-based shaded-relief map constructed with illumination geometry selected to shadow or highlight possible fault-related geomorphic features

 PIEDMONT GEoseismic Services Dyer, Nevada • 89010 • 775-772-5902		
<b>PRELIMINARY QUATERNARY FAULT MAP</b> North Reno Site Quaternary Fault Investigation Reno, Washoe County, Nevada		
MODIFIED BY TLS	SCALE As reported	PROJECT NO. 2022-2100
ORIGINAL SOURCE Soeller and Nielsen (1980)	DATE 1/17/2022	FIG NO. 1