I-94 East-West Corridor Study
Supplemental Final EIS
Supporting Documentation – Volume 2 of 4

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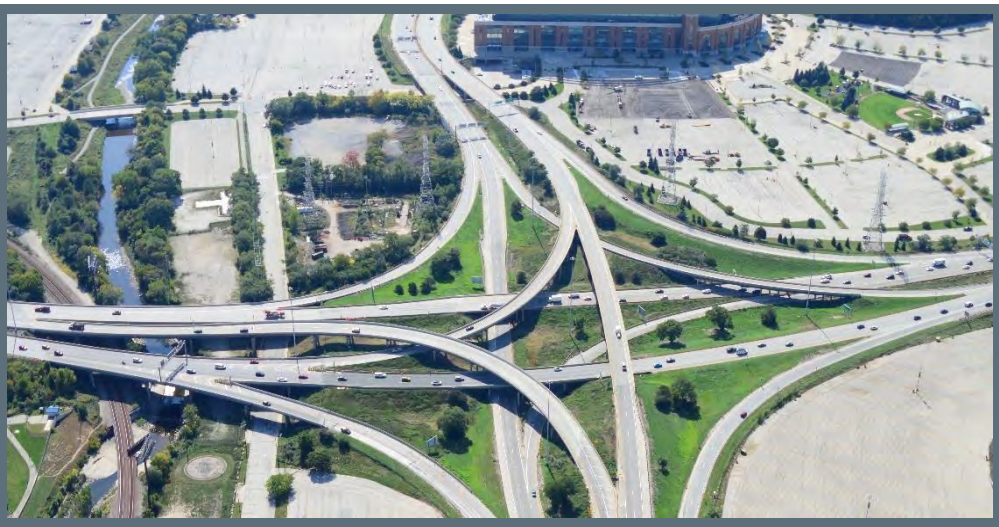


I-94 East-West Data Collection Project

Existing VISSIM Calibration & Validation

February 5, 2021

PREPARED FOR

Wisconsin Department of Transportation
Southeast Region
141 NW Barstow St
Waukesha, WI 53186

PREPARED BY

HNTB Corporation
250 E Wisconsin Avenue
Suite 2000
Milwaukee, WI 53202

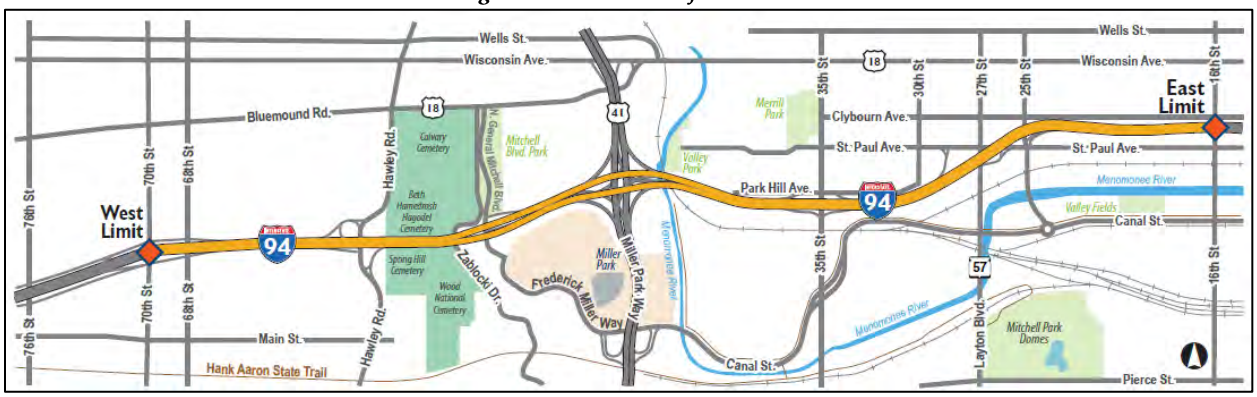
HNTB

Introduction

The Wisconsin Department of Transportation (WisDOT) has started a data collection effort for the Interstate 94 East-West (I-94 EW) Corridor to identify changes which have occurred since the project was suspended in late 2016. The I-94 EW corridor is located in Milwaukee County in southeastern Wisconsin and is a one of the busiest stretches of freeway in the state. The project limits include the following (**Figure 1**):

- 3.5 miles of the I-94 freeway corridor between 16th Street (east limit) and 70th Street (west limit)
  - Five (5) service interchanges (68th/70th Streets, Hawley Road, General Mitchell Boulevard, 35th Street, and 25th-28th Street area)
- 0.75 miles of Wisconsin State Trunk Highway (WIS) 175 from north of Frederick Miller Way/Canal Street (south limit) to Bluemound Road (north limit)
  - No impact to the Frederick Miller Way/Canal Street interchange
  - Reconstruction of the WIS 175 northbound exit ramp to Wisconsin Avenue
- One (1) system interchange (also known as the "Stadium Interchange") which provides full access between I-94 and WIS 175 (currently ramp metered for movements to I-94 in both directions)

Figure 1 – I-94 EW Project Limits



One unique feature of this corridor is the proximity and location of American Family Field (formerly known as Miller Park), which is the 41,900-seat home stadium for the Milwaukee Brewers of Major League Baseball. American Family Field is located directly southwest of the Stadium Interchange and has general, preferred, suite, rideshare, and staff parking lots located in all quadrants. On game day, the General Mitchell Boulevard interchange (via I-94) is reserved for preferred, suite, and handicapped parking and the Frederick Miller Way/Canal Street interchange (via WIS 175) is reserved for preferred (via Frederick Miller Way to the west) and general (via Canal Street to the east) parking.

As part of the data collection effort, HNTB Corporation (HNTB) has developed and calibrated existing year (2019) VISSIM microsimulation models of the I-94 EW corridor to analyze peak period operations. The VISSIM network included the I-94 EW corridor freeway and service interchange project limits (as indicated in Figure 1), in addition to the service interchange ramps immediately adjacent to the project (13th Street/Tory Hill Street and 84th Street) and the major system interchange approaches (Zoo and Marquette) at both ends of the project corridor. The incorporation of the Zoo and Marquette Interchange movements to/from I-94 within the VISSIM model network allowed HNTB to analyze the interactions between the system interchanges throughout the I-94 corridor.

The purpose of this memo is to document existing data collection, development and calibration of the existing year VISSIM models, validation of the VISSIM models using WisDOT microsimulation standards, and summarize operations reported from VISSIM.

Data Collection

The following sections detail volume, speed, travel time, and signal/ramp meter timing data gathered and utilized as part of I-94 EW VISSIM model development.

Roadway and Intersection Counts

WisDOT supplied freeway, ramp, and arterial roadway count data in 15-minute bins throughout the I-94 EW corridor. Count data was mainly from 2019. In addition, intersection count data (15-minute intervals) at ramp terminals along I-94 and major adjacent intersections was also provided by WisDOT. The roadway and intersection 15-minute count data were used to develop hourly factors which were ultimately used to derive 15-minute trip tables for use in VISSIM. Count data after 2016 was not available for ramp terminals and adjacent intersections at the following locations:

- 76th Street/Kearney Street
- 76th Street/O'Connor Street
- Clybourn Street/26th Street to 28th Street (including 27th Street)
- Wisconsin Avenue/46th Street to 44th Street (including 45th Place [WIS 175 NB Exit Ramp])
- Wells Street/WIS 175 SB Exit Ramp (46th Street) and 45th Place (WIS 175 NB Entrance Ramp)
- Miller Park Way[1]/Canal Street interchange ramp terminals

These locations were identified by HNTB as being critical to accurately model and analyze existing and future year conditions within the corridor. As such, HNTB utilized StreetLight origin-destination data to estimate 2019 hourly turning movement counts for these locations. First, HNTB conducted a comparison of 2019 hourly field count volumes at known intersections versus StreetLight volume estimated trip tables assigned to the I-94 EW network. The StreetLight data was based on the same May 2019 dates when field intersection counts were collected (5/9, 5/15, 5/23, 5/29, and 5/30) and factored using calibration zone sets based on directional Average Annual Daily Traffic (AADT) data provided by WisDOT and supplemented by daily data from WisDOT's count site. There are several zones where daily volume data was not available and these locations were removed from the calibration zone sets.

The comparison suggested that StreetLight hourly turn proportions are more accurate than the assigned volume estimates using the hourly trip tables (**Appendix A**). Most differences were related to low volume turn movements. As a result, HNTB utilized the StreetLight hourly proportions, adjacent intersection balanced hourly volumes provided by WisDOT, and 2019 tube count data to develop hourly volume estimates at the additional intersections (**Appendix A**).

Balanced Hourly Volumes

Existing (2019) balanced hourly mainline/ramp and turning movement volumes corresponding to the analysis periods were provided by WisDOT (**Appendix B**). As noted in the previous section, HNTB also

[1] Miller Park Way between I-94 and National Avenue was renamed as Brewers Boulevard in February 2021. For the purposes of this report it is referred to as Miller Park Way as the existing models simulate 2019 conditions.

utilized the hourly volumes to help develop hourly balanced turning movement volumes for additional intersections in the network.

Truck Data

WisDOT provided hourly freeway mainline, system ramp, and service ramp truck length based classification data for all count sites within the model limits. Hourly truck percentages for turn movements was determined using intersection count data provided by WisDOT. Separate 15-minute truck matrices were then derived that represented the mainline and intersection hourly truck percentages as discussed in the "Trip Tables" section. A comparison of field and model hourly truck percentages is discussed in the "Model Validation" section.

Speeds and Travel Times

Field speed and travel time data was collected for the corridor for 2019 weekdays using the National Performance Management Research Data Set (NPMRDS). Previous analysis of 2019 NPMRDS weekday speed and travel time data indicated that the Stadium Interchange is the primary bottleneck in the I-94 EW corridor due to the combination of left hand entrance and exit ramps and short spacing/weaving with adjacent interchanges at 35th Street and General Mitchell Boulevard. In addition, the General Mitchell Boulevard interchange has left hand exit and entrance ramps which also adds to peak period congestion, lane changing, and turbulence. **Figure 2** on the following page shows the 2019 weekday median speed heat map for the I-94 EW corridor.

Using the 2019 NPMRDS data, a representative day for each peak period and travel direction was determined from midweek April 2019 data using a statistical cluster analysis and visual inspection of speed profiles using speed heat maps (**Appendix C**). April 2019 weekday data was selected as it had raw volumes which were most consistent with the balanced volumes provided by WisDOT. The cluster analysis utilized the methodology listed below:

1) Gather cluster analysis input data for each peak period (data source in parentheses)
   a. Peak hour volumes (WisDOT)
   b. Corridor travel times (NPMRDS)
   c. Corridor crashes (Wisconsin Traffic Operations and Safety Laboratory [TOPS Lab])
   d. Weather data (National Oceanic and Atmospheric Administration [NOAA])
   e. Milwaukee Brewers home game dates (Milwaukee Brewers)
2) Normalize the input data to have a value between 0 and 1 for each metric
3) Run "k-means" cluster analysis for each peak period , assuming up to five different clusters
4) Review assigned clusters and select the cluster that represents typical travel conditions
5) Review speed heat maps and modify the cluster selection set based on similar travel trends. In some cases, precipitation was recorded for a peak period but it had no impact on the speed profiles and so the day was still included in the "typical day" cluster (summarized in **Table 1** on Page 6). In other cases, a day was initially identified as typical, but had speed profiles that were abnormal and were therefore was removed.
6) Calculate sigma bands for every NPMRDS segment using the typical day cluster for each peak period direction. The sigma bands are a travel time statistic used in the Federal Highway Administration's (FHWA) Traffic Analysis Toolbox III (TAT 3). Note that these are not statistics currently utilized by WisDOT or included in the Traffic Analysis, Operations, and Safety Manual (TEOpS).

Figure 2 – Average Weekday Speed Heat Map (2019)

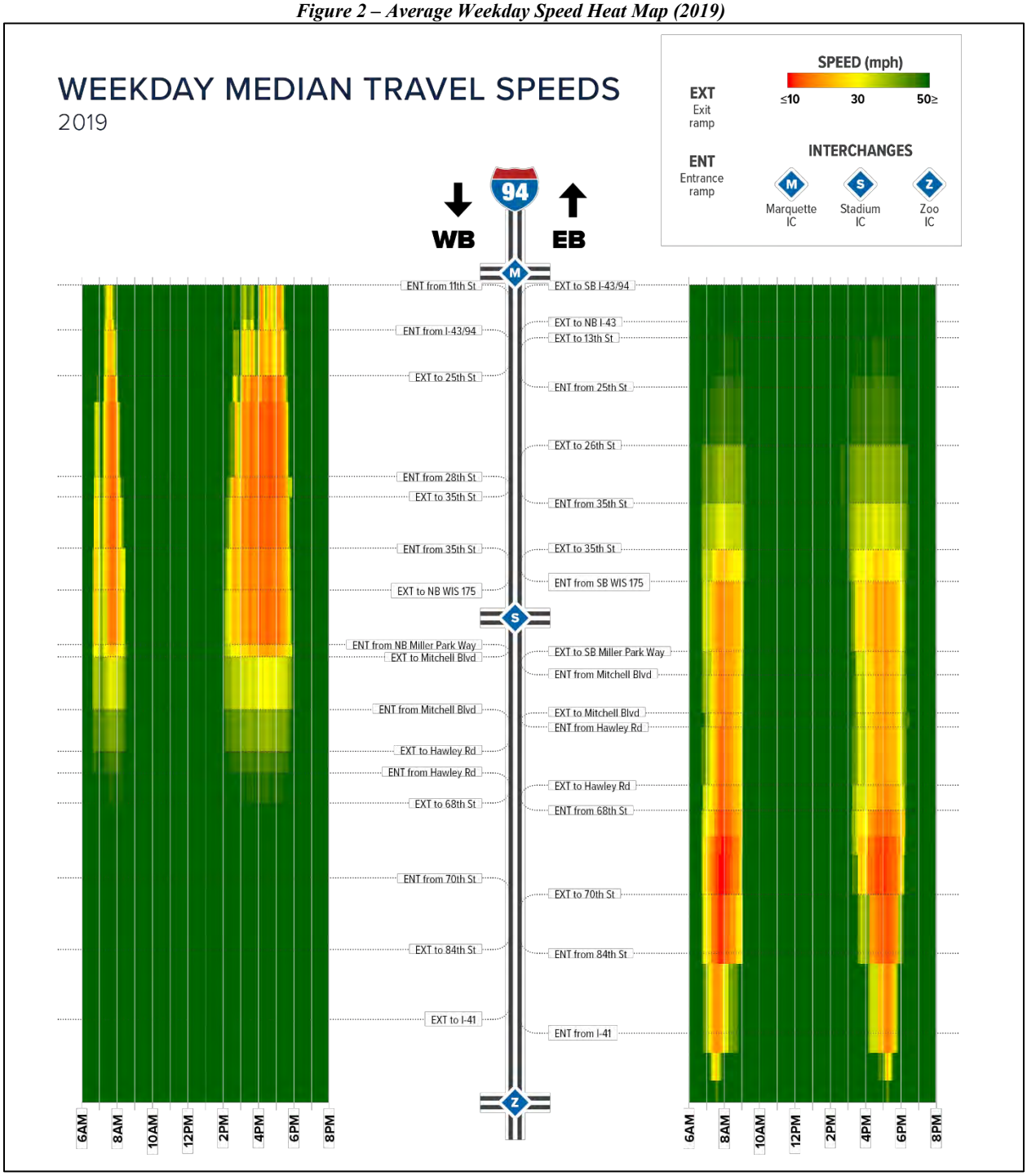


Table 1 – Cluster Analysis Typical Day Summary

Date	AM Peak Period		PM Peak Period	
	I-94 EB	I-94 WB	I-94 EB	I-94 WB
4/2/2019	✓	✓	✗	✓
4/3/2019	✗	✓	✓	✓
4/4/2019	✓	✗	✓	✓
4/9/2019	✗	✓	✓	✓
4/10/2019	✗	✗	✗	✗
4/11/2019	✓	✗	✓	✗
4/16/2019	✓	✗	✗	✗
4/17/2019	✓	✗	✗	✗
4/18/2019	✓	✓	✗	✗
4/23/2019	✓	✓	✓	✗
4/24/2019	✗	✗	✓	✓
4/25/2019	✓	✓	✗	✓
4/30/2019	✓	✗	✗	✗

Initially a single "typical" day was selected using the cluster analysis summary for each peak period and direction of I-94. The days were 4/24/2019 (I-94 eastbound [EB] PM), 4/25/2019 (I-94 westbound [WB] AM/PM), and 4/30/2019 (I-94 EB AM). This was later refined in conjunction with a review of the balanced hourly volumes as detailed in the next section.

Speed and Traffic Volume Data Alignment

WisDOT provided a memo detailing the hourly volume balancing methodology for the corridor. The memo indicated that data from Tuesday, April 9th, 2019 and Wednesday, April 10th, 2019 was primarily utilized for the balanced freeway volume set. HNTB reviewed speed data from NPMRDS for April 9th and 10th and compared them against the initially selected typical days. The two days in April have some significant differences in peak period speeds and the rate of recovery to free-flow conditions at back of queue locations, such as I-94 EB between the Zoo Interchange and 68th Street and I-94 WB between 35th Street and the Marquette Interchange, due to a combination of day to day variation, crashes, and weather.

As indicated in **Table 1**, April 9th was identified as one of typical days for the corridor except for I-94 EB during the AM peak period. However, April 10th was entirely excluded from the typical day cluster due to incidents in each direction during the AM peak period and mixed rain/snow precipitation during the PM peak period.

HNTB also reviewed the yearly volume profiles in comparison to the balanced hourly volumes and found that there were some locations where the hour to hour relationship was altered in comparison to the yearly average profile. As such, the balanced hourly volumes and typical day speeds were not aligned and therefore the two were unable to be simultaneously matched when calibrating the peak period VISSIM models.

HNTB, in conjunction with WisDOT, developed a methodology that attempted to rectify the misalignment of the balanced volume and typical day speed data (**Appendix D**). With respect to the field speed and travel time data used for model validation, April 9th data was selected as it was more consistent with the days used for volume balancing than the initially selected typical days. Additional methodology to adjust the balanced volumes for the last analysis hours is detailed in the "Last Hour Factoring" section.

Ramp Meter and Signal Timings

HNTB requested traffic signal timing and plans from signal owners within the model limits. The majority of traffic signals are owned and maintained by the City of Milwaukee. The Village of West Milwaukee owns and maintains the signal at National Avenue/Miller Park Way which is part of a coordinated system on Miller Park Way. WisDOT owns and maintains the ramp terminal signals at the Miller Park Way/Canal Street interchange. Signal timings are included in the project's BOX folder for reference.

WisDOT also provided ramp meter timing plans for all metered ramps within the I-94 EW model limits. Existing ramp meters in the corridor utilize either traffic responsive or fixed time ramp metering plans during specific portions of the peak periods. Traffic responsive metering allows for meter rates to change in real time in the field at each location based on mainline operational parameters (flow rates, speeds, etc.). Fixed time metering follows a pre-determined timing plan largely based on historical data. Additional detail regarding modeling of ramp meters in the network is discussed in the "Ramp Meters" sub-section under "Model Development and Calibration".

Model Development and Calibration

The existing peak period models were created and calibrated using VISSIM Version 2020-Build 09. The following sections discuss model/analysis periods, model network, model zones, trip table development, speed distributions, vehicle fleet, ramp meters, number of model runs, and driver behaviors.

Model and Analysis Periods

The I-94 EW model periods include five (5) hours in the AM period and six (6) hours in the PM period corresponding to the buildup and dissipation of existing traffic congestion in the corridor. As indicated previously, balanced hourly volumes for each analysis period (including the peak hours) were provided by WisDOT. The analysis periods were used to validate model hourly volumes, speeds, and travel times against field conditions. Warm up and cool down periods were used to provide traffic released within the analysis period other vehicles to interact with. Model and analysis periods are indicated in **Table 2** below.

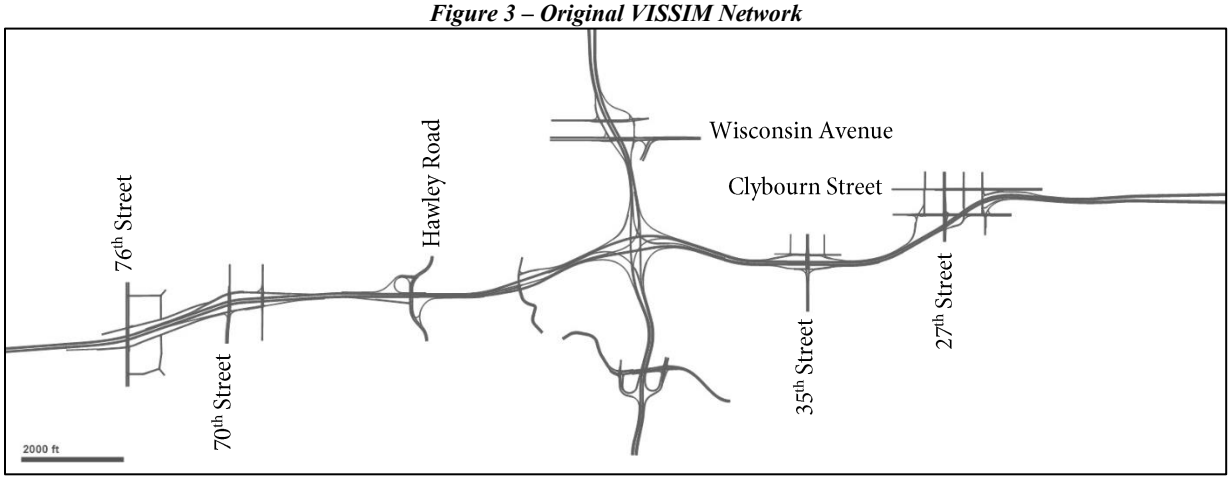
Table 2 – Model and Analysis Periods

Peak/Period	AM	PM
Model Period	5:00-10:00AM	1:00-7:00PM
Warm Up Period	5:00-5:30AM	1:00-1:30PM
Analysis Period	5:30-9:30AM	1:30-6:30PM
Analysis Peak Hour	6:30-7:30AM	2:30-3:30PM
Cool Down Period	9:30-10:00AM	6:30-7:00PM

Model Network

HNTB received an uncalibrated VISSIM model of the I-94 EW corridor from WisDOT which was originally created in 2015 using VISISM Version 8. The 2015 VISSIM model included I-94 from west of 76th Street to east of 25th Street and Miller Park Way/WIS 175 from south of Canal Street to north of Wells Street (**Figure 3** on the following page), which was consistent with the limits of the microsimulation model created as part of the original I-94 EW Study.

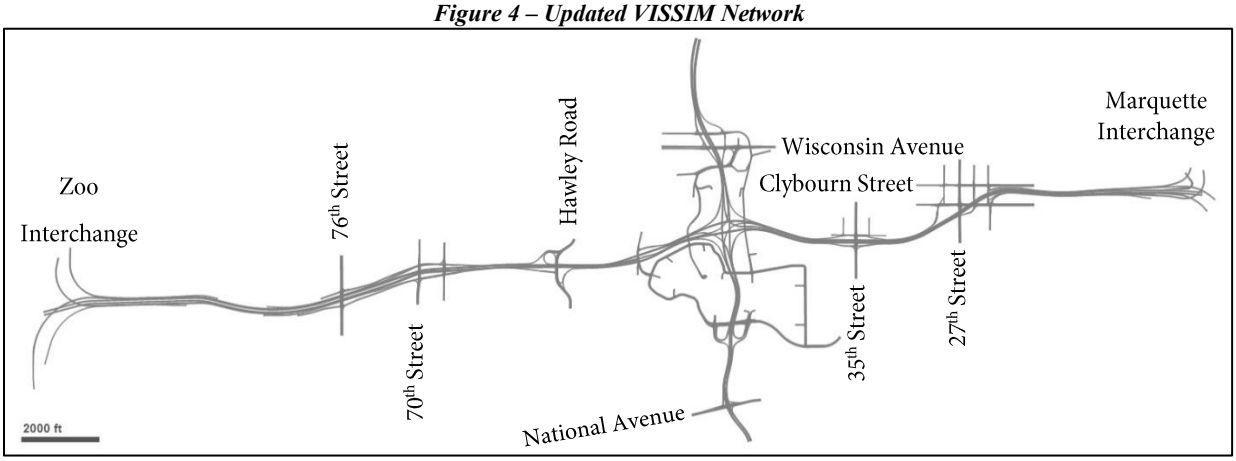
Figure 3 – Original VISSIM Network



For the purposes of the data collection project and in agreement with WisDOT, HNTB updated the model to VISSIM Version 2020-09, oriented the network to the background aerial map, and expanded the network to include the following (as shown in **Figure 4**):

- I-94 mainline west of 76th Street to the Zoo Interchange, including 84th Street service ramps and system ramps to/from the east
- I-94 mainline east of 25th Street to the Marquette Interchange, including 13th Street and Tory Hill Street/11th Street ramps, and system ramps to/from the west
- Intersection of National Avenue/Miller Park Way
- American Family Field "ring road" network (Canal Street, Frederick Miller Way, and Selig Drive)
- Other minor roadways including Yount Drive, 44th Street, and Story Parkway

Figure 4 – Updated VISSIM Network



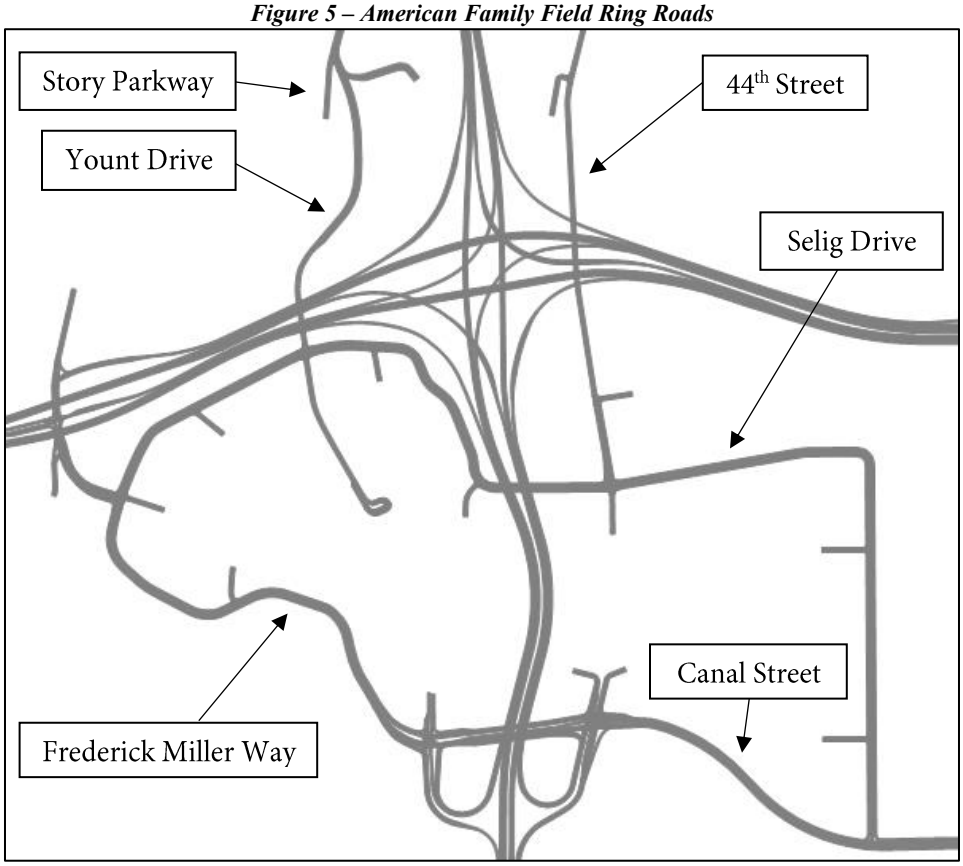
The updated VISSIM model includes all service interchanges along I-94 and Miller Park Way/WIS 175:

- I-94/84th Street
- I-94/70th-68th Streets
- I-94/Hawley Road
- I-94/General Mitchell Boulevard
- I-94/35th Street
- I-94/25th-28th Streets
- I-94/13th Street
- I-94/Tory Hill Street (11th Street)
- Miller Park Way/Canal Street
- WIS 175/Wisconsin Avenue-Wells Street

Ramp terminal intersections are included at all service interchanges, except at 84th Street, 13th Street, and Tory Hill Street/11th Street. The 84th Street and Tory Hill Street/11th Street entrance ramps are metered and the inclusion of the ramp terminals at these locations would have increased the number of zones and therefore model complexity without adding much benefit in terms of traffic analysis. The 84th Street and 13th Street exit ramps do not queue onto the I-94 mainline due to ramp terminal signal operations and therefore the ramp terminal intersections were deemed unnecessary for the purposes of this analysis. The 25th-28th Street interchange includes adjacent local intersections along Clybourn Street and St Paul Avenue, in addition to ramp terminals with I-94, as they operate as a coordinated signal system in this area. The 76th Street intersections with adjacent I-94 frontage roads (Kearney Street and O'Connor Street) were kept from the original network although zones adjacent to 76th Street were eliminated. The intersection of Miller Park Way/National Avenue was included in the updated model to simulate the platooning effects from the signal.

The American Family Field "ring road" (Selig Drive, Frederick Miller Way, and Canal Street), 44th Street, Yount Drive, and Story Parkway were also included in the model network (**Figure 5**). Yount Drive was included with future year Brewers scenario modeling in mind as that roadway is used by shuttles. For the purposes of the existing model, it is "closed" to traffic as pre-2019 count data suggested little to no traffic utilizes this roadway outside of Brewers games. Similarly, there is minimal non-game day traffic utilizing the ring road roadways, but they were included with future year scenario modeling in mind as the Build alternative shifts freeway access from General Mitchell Boulevard to 44th/46th Streets. In addition, zones were added to the network corresponding to American Family Field parking lots which were not utilized in the existing models.

Figure 5 – American Family Field Ring Roads



The original model network was reviewed and adjusted as needed to be consistent with the background aerial and 2019 geometric conditions, including on I-94 WB from the Marquette Interchange to the Stadium Interchange. This portion of the freeway system was restriped in 2013 to include a fourth westbound lane. The 35th Street WB entrance ramp merges into the right lane of I-94 which then becomes an exit-only lane to WIS 175 northbound (NB) at the Stadium Interchange. This geometry was not included in the original network as that model simulated 2009 conditions.

In general, freeway lane change distances for ramp and weave links were assumed as ½ mile due to the urban nature of the corridor. Some adjustments were made to certain ramps based on model operations and geometric conditions.

Model Zone Structure

Zones were placed in the network at all external roadway limits and generally follows the same zone numbering as the original model. Additional zones were added corresponding to new roadways and ramps such as the Zoo and Marquette Interchange system ramps and 84th Street, 13th Street, and Tory Hill Street/11th Street service ramps. **Appendix E** includes an exhibit showing the model zone structure and numbering.

Note that handful of cut points were added to the network to reduce trip table estimation and path complexity within VISSIM. A cut point is a location where the network is broken apart and specific loading points are placed. Cut points were made at locations which have little to no impact on the model as a whole, simulated vehicle operations, or anticipated future model scenarios. The number of vehicles exiting the network at a cut point is equal to the number of vehicles entering the network at the same cut point. Network cut points include the following:

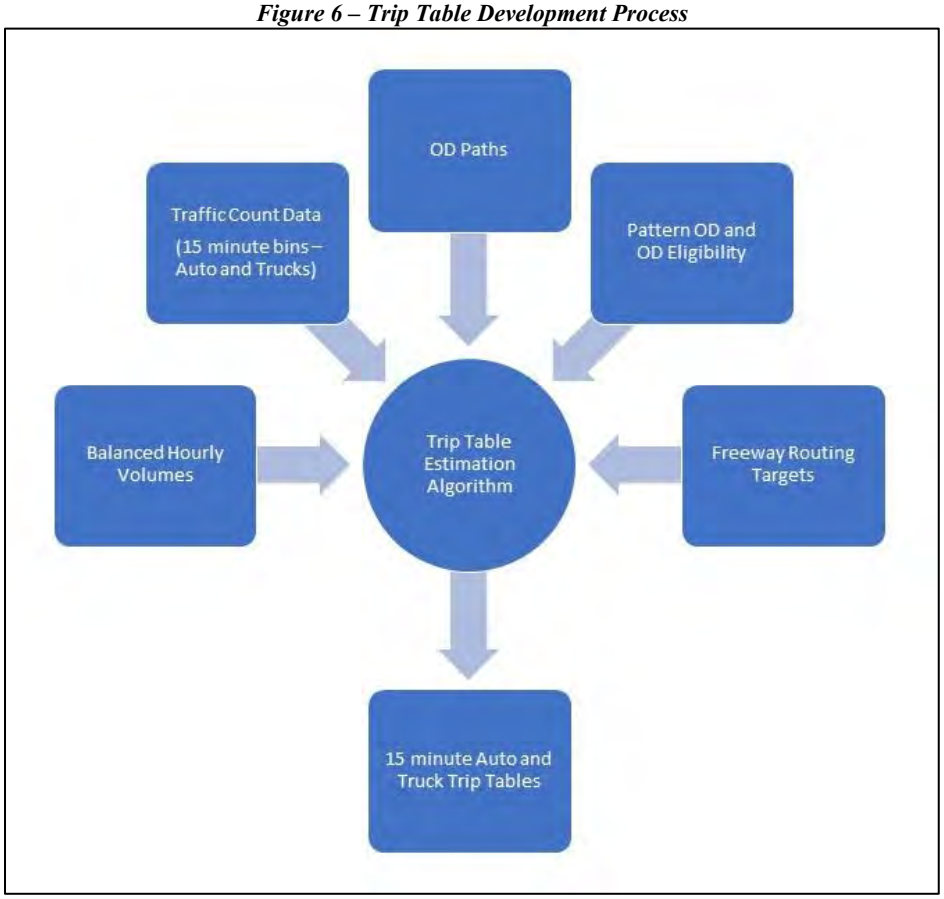
- Frederick Miller Way between Miller Park Way and General Mitchell Boulevard (Zones 73 & 75)
- Selig Drive between 44th Street and Canal Street (Zones 72 & 74)
- 44th Street south of Bluemound Road (Zones 77 & 78)
- 28th Street south of Clybourn Street (Zone 76)

Trip Tables

The existing VISSIM models utilize origin-destination (OD) trip tables to load vehicles into the network. HNTB obtained OD data from StreetLight Data, Inc. (StreetLight), which compiles multi-model trip data using cell phone and global positioning data of personal and commercial vehicles. HNTB documented the development of the StreetLight dataset for the I-94 EW corridor, performed a detailed comparison of StreetLight field and Southeast Wisconsin Regional Planning Commission (SEWRPC) travel demand model sub-area trip tables, and recommended the use of StreetLight data for VISSIM trip table development (*I-94 East-West Data Collection OD Data Comparison, September 2, 2020*).

StreetLight data for April 2019 non-Brewers game weekdays was utilized as the peak period trip pattern for the corridor and correlated with the balanced hourly volumes, which were generally based on April 2019 weekday count data as indicated by WisDOT. HNTB has developed a process to develop 15-minute trip tables for the model network using balanced hourly volumes, 15-minute count data, and StreetLight trip patterns as indicated in **Figure 6** on the following page.

Figure 6 – Trip Table Development Process



The objective of the trip table estimation algorithm is to reflect the auto and truck counts in 15-minute bins while maintaining realistic trip patterns ("pattern OD" and "OD eligibility"), routing ("OD paths"), and ramp to ramp ("freeway routing targets") proportions. Trip tables were estimated for each balanced hourly volume set provided by WisDOT. The trip tables were estimated assuming up to four (4) route options per trip pair (if needed) based on the StreetLight trip pattern and balanced target volumes. Only route options that were roughly equivalent in costs, based on travel time and distance estimates, to the lowest cost option were considered viable. This mainly affected trips in the 25th-28th Street interchange area where there are multiple possible and logical routes due to the grid roadway system.

The estimated hourly matrices were split into 15-minute matrices using 15-minute roadway and count data. The 15-minute matrices attempt to replicate the count profiles at each count location. Count locations include each roadway count station, intersection ramp terminal, and adjacent intersection where 2019 data was collected by WisDOT. Two example comparisons of count and model input volume profiles are shown in **Figures 7 and 8** on the following page. Note that the model profiles shown are for the "factored" trip tables which is why the last hour modeled volumes are lower than the input volumes. The 15-minute total vehicle matrices were then sub-divided into auto and truck matrices using available truck data. Truck percentages were calculated based on data provided by WisDOT for roadway, ramp, and intersection turn movements.

Figure 7 – I-94 EB between Hawley Rd and Mitchell Blvd: AM Profile Comparison

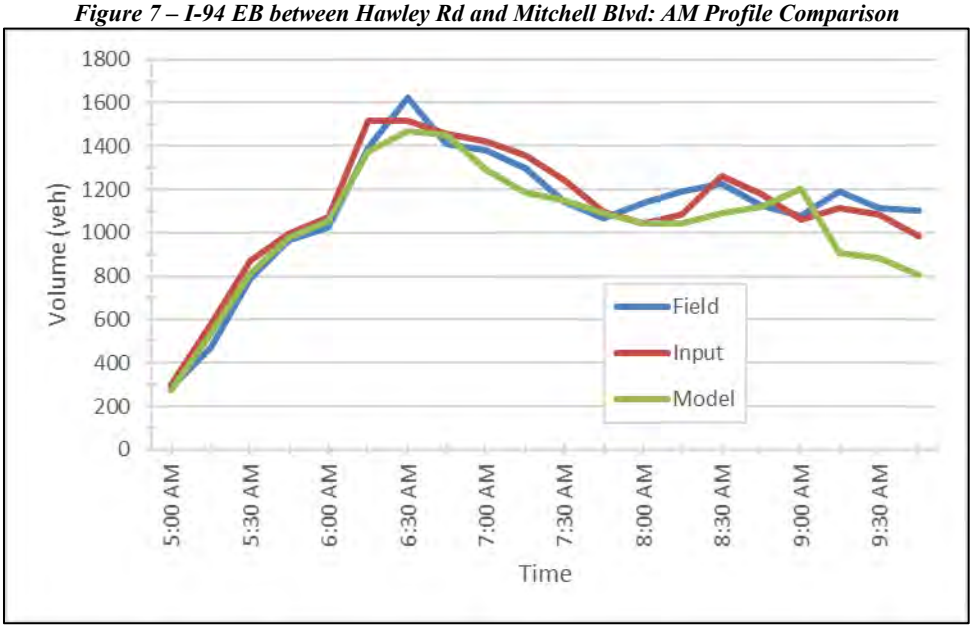
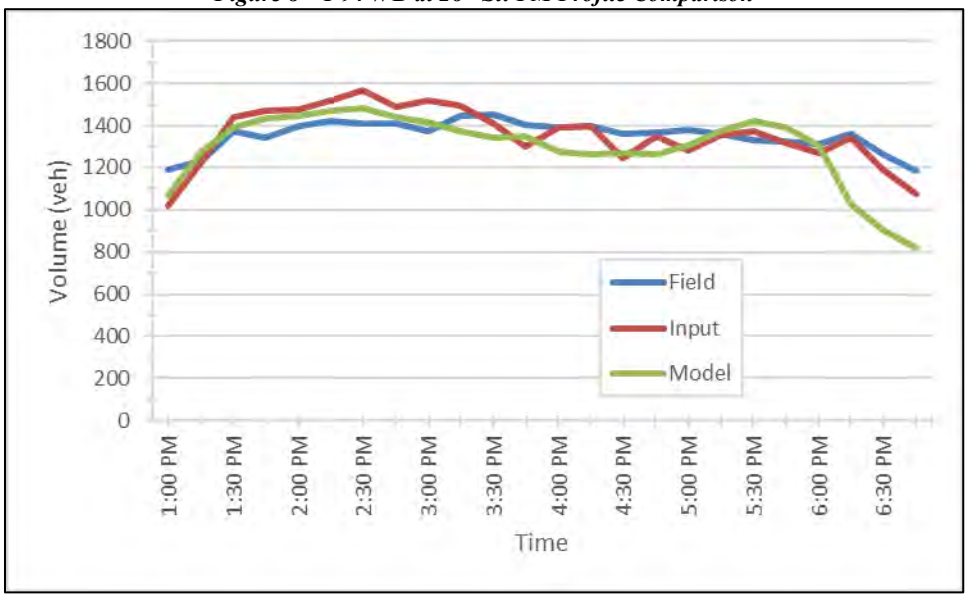


Figure 8 – I-94 WB at 26th St: PM Profile Comparison



High occupancy vehicle (HOV) demand for the EB and WB Hawley Road, EB General Mitchell Boulevard, WB 28th Street, and WB Tory Hill Street/11th Street entrance ramps was estimated using TOPS Lab Volume, Speed, and Occupancy (VSPOC) application suite data from April 2019 weekdays to determine entrance ramp general and HOV lane proportions. Calculated HOV proportions were then applied to any auto trip pair traveling through a link associated with these entrance ramps in the trip tables. **Table 3** on the following page shows average hourly HOV lane utilization for each ramp during the model analysis periods.

Table 3 – Entrance Ramp HOV Lane Utilization

Ramp	Hour								
	5:30 AM	6:30 AM	7:30 AM	8:30 AM	1:30 PM	2:30 PM	3:30 PM	4:30 PM	5:30 PM
Hawley Rd EB Entrance	14%	22%	23%	15%	13%	20%	20%	20%	19%
Hawley Rd WB Entrance	18%	15%	15%	13%	15%	14%	17%	15%	15%
Gen Mitchell Blvd EB Entrance	18%	11%	12%	14%	22%	18%	17%	15%	15%
28th St WB Entrance	4%	15%	17%	13%	7%	11%	14%	27%	20%
Tory Hill St/11th St WB Entrance	3%	3%	3%	2%	1%	1%	1%	1%	1%

The warm up and cool down periods (30 minutes each) utilize the first and last 15-minute trip tables of the analysis period respectively and apply a global scaling factor to mimic the actual relationship to the adjacent 15-minute period. A scaling factor is a value that can be multiplied by the volume of each trip pair to adjust trip tables as a whole. The global scaling factors for the warm up and cool down trip tables were estimated using raw freeway volume data from WisDOT (reported as average flow rates in **Table 4** below).

Table 4 – Scaling Factors

Peak	Time	Period	Avg Flow (vph)	Scaling Factor
AM	5:00 AM	Warm Up	1,400	0.4
	5:15 AM		2,000	0.6
	5:30 AM	Analysis	3,400	1.0
	9:15 AM	Analysis	4,600	1.0
	9:30 AM	Cool Down	4,400	1.0
	9:45 AM		4,200	0.9
PM	1:00 PM	Warm Up	4,400	0.9
	1:15 PM		4,400	0.9
	1:30 PM	Analysis	4,800	1.0
	6:15 PM	Analysis	5,000	1.0
	6:30 PM	Cool Down	4,600	0.9
	6:45 PM		4,200	0.8

Last Hour Factoring

As previously discussed in the "Speed and Traffic Volume Data Alignment" section, volume and target field speed data used for model validation did not align, particularly at the end of the analysis periods. In addition to using field speed data from April 9th to better align the two data sets, HNTB (in discussion and agreement with WisDOT) also factored external trips during the final analysis hour of each peak period.

The disconnect between the balanced volumes and the field speed data limited the ability of the VISSIM models to replicate rapid speed recovery to free-flow conditions at all speed and travel time validation locations in the network. To attempt to rectify this issue, HNTB factored the external trip pairs of the four 15-minute trip tables correspond to the final analysis hour in each peak period. Factoring the external trip pairs limits the amount of change in each trip table to only the longer end to end trip pairs and allows for the model to better replicate rapid speed recovery to free-flow conditions at the end of each period.

The final hour factors were developed based on an iterative analysis of model operations to determine the minimum factors for each direction and hour which would simulate speed recovery most similar to field conditions (**Table 5**). The external trip pairs factored included the following:

- Zoo Interchange to WIS 175 NB, Miller Park Way SB, and Marquette Interchange
  - From zones 1, 40, and 41 to zones 2, 3, 49, 50, 52, 53, and 54
- Marquette Interchange to WIS 175 NB, Miller Park Way SB, and Zoo Interchange
  - From zones 54, 55, and 56 to zones 1, 2, 3, 42, 43, 49, and 50

Table 5 – Last Hour Factor Summary

Hour	Factor (%)	
	EB	WB
8:30-9:30 AM	70%	80%
5:30-6:30 PM	85%	60%

Model calibration and validation calculations utilized the factored trip tables. Unfactored and factored volumes and operations (speeds and travel times) were reported from the VISSIM models in order to develop an "envelope" of model results, which is discussed further in the "Model Validation" section.

Speed Distributions

Eight (8) speed distributions were created using overnight (10PM-4AM) NPMRDS speed data from April 9th and 10th 2019 for the I-94 and Miller Park Way/WIS 175 corridors to estimate desired speeds under free-flow conditions. As noted previously, April 9th, 2019 was determined to be the closest representation of a "typical" day for the corridor based on volume and speed data. Four (4) distributions were created to correspond to the change in the posted speed limit on I-94 between General Mitchell Boulevard and the Stadium Interchange (from 50 miles per hour (mph) to 55 mph) for cars and trucks separately. Similarly, four (4) distributions were also created to correspond to the change in posted speed limit on Miller Park Way south of the Stadium Interchange (from 45 mph to 50 mph) for cars and trucks. The off-peak speeds were summarized into 5 mph bins to derive distributions for VISSIM.

Based on the I-94 off-peak speed data east of General Mitchell Boulevard (50 mph speed limit), approximately 70% of car traffic travels between 50-60 mph and 60% of truck traffic travels between 45-55 mph. West of General Mitchell Boulevard (55 mph speed limit), about 79% of cars on I-94 travel between 55-65 mph and 69% of trucks travel between 50-60 mph. Similarly, 70% of cars on WIS 175 (50 mph speed limit) travel between 50-60 mph and 62% of trucks travel between 40-50 mph.

Additional analysis of speed distributions based on April 9th-10th, 2019 overnight data found that resulting model speeds were 5-8 mph slower in comparison to field speeds during uncongested peak period conditions (5-6AM and 1-2PM). This suggests that commuter traffic during uncongested periods adjacent to the peak tend to travel faster than non-commuter traffic during uncongested overnight conditions. As such, the I-94 car and truck speed distributions were shifted to better correlate to uncongested peak period speeds. The speed distribution for the 55 mph speed limit was increased by 5 mph and the speed distribution for the 50 mph speed limit was increased by 3 mph. See **Figure 9** on the following page for

freeway speed distributions used for the "east" (50 mph speed limit) and "west" (55 mph speed limit) areas of the I-94 model network. **Figure 10** shows speed distributions for Miller Park Way ("south" – 45 mph speed limit) and WIS 175 ("north" – 50 mph speed limit). Non-freeway speed limits utilized non-linear distributions provided by WisDOT.

Figure 9 – I-94 Speed Distributions

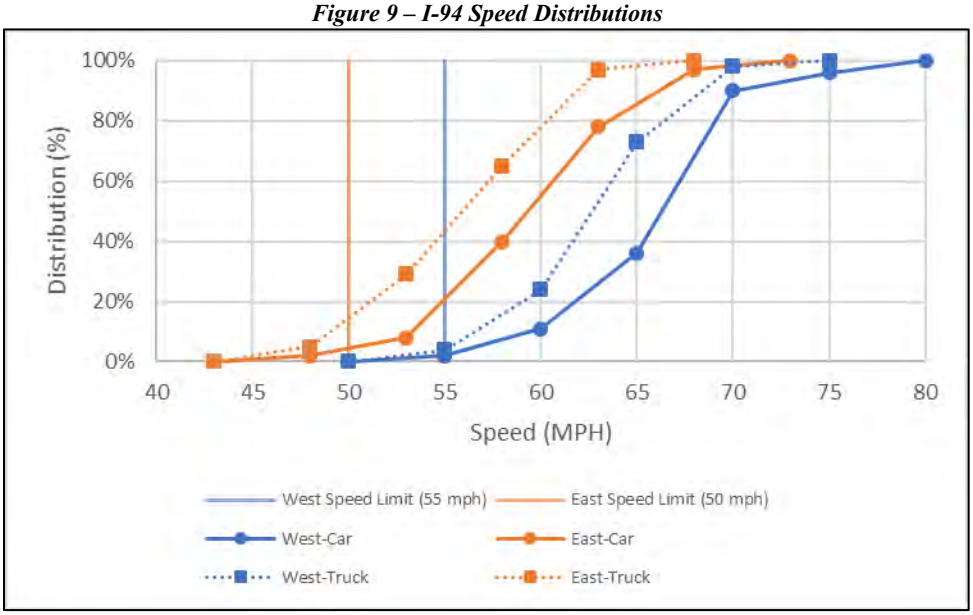
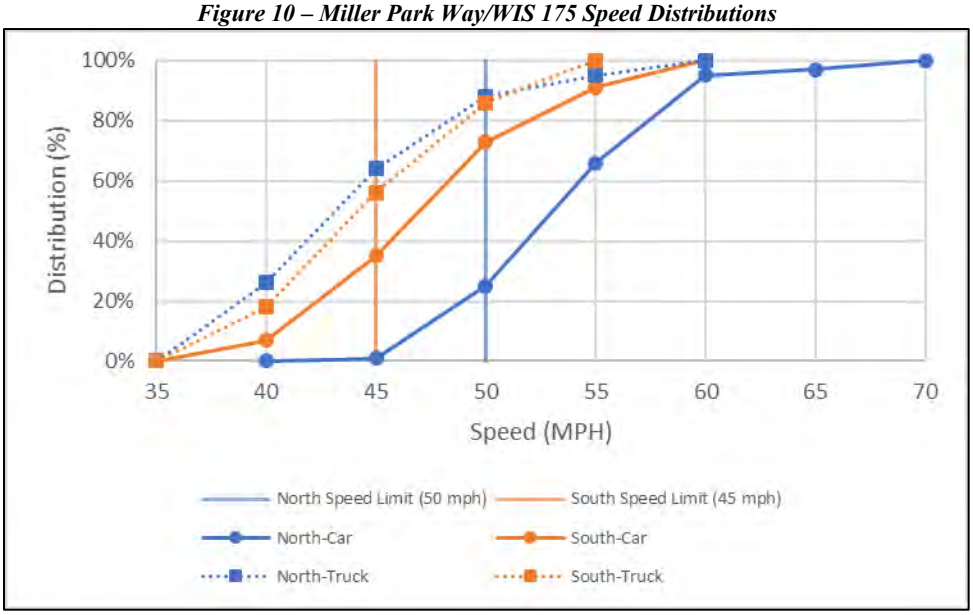


Figure 10 – Miller Park Way/WIS 175 Speed Distributions



Vehicle Fleet

The I-94 VISSIM models utilized the WisDOT vehicle fleet and percentages provided to HNTB based on "North American" vehicle models as indicated in **Table 6** on the following page. The proportion of single unit (SU) and tractor trailer (TT) trucks was estimated based on I-94 freeway classification data provided by WisDOT for the AM and PM peak periods (**Table 7** on the following page). Single unit truck proportions were based on Federal Highway Administration (FHWA) vehicle classification bins 4-8. Tractor trailer truck proportions were based on the summation of FHWA vehicle classification bins 9-11.

The proportion of single unit versus tractor trailer trucks was applied globally in the VISSIM models via the truck vehicle composition input.

Table 6 – Vehicle Fleet

VISSIM Category	Vehicle Type	Vehicle Make/Model	Percentage (%)
NA Car - WisDOT (10)	Car	Nissan Altima	27.5%
	Car	Honda Accord	27.5%
	SUV	Jeep Grand Cherokee	24.0%
	SUV	Ford Explorer	4.0%
	SUV	GMC Yukon XL	4.0%
	Car	Plymouth Voyager	4.0%
	Light Truck	Chevrolet Silverado	3.0%
	Light Truck	Ford F150	3.0%
	Van	Stepvan 01	3.0%
NA SU Truck - WisDOT (21)	Bus	C2 Standard 2-Doors	12.0%
	HGV	US Flatbed	29.0%
	HGV	EU 04 Tractor	29.0%
	HGV	US AASHTO WB 40	6.0%
	HGV	US AASHTO WB 50	24.0%
NA TT Truck - WisDOT (22)	HGV	US AASHTO WB 65	94.0%
	HGV	US AASHTO WB 67D	6.0%

Table 7 – Single Unit/Tractor Trailer Truck Proportions

Truck Type	AM Peak Period		PM Peak Period	
	Total (%)	Proportion (%)	Total (%)	Proportion (%)
SU	4.3%	65.7%	4.3%	67.7%
TT	2.3%	34.3%	2.0%	32.3%

Ramp Meters

As noted previously, the ramp meters in the corridor operate either as traffic responsive or as fixed time. The VISSIM models mimic changes for both types of ramp metering in 15-minute periods but does not change dynamically for traffic responsive locations (i.e. all locations are simulated as fixed time). The changes in meter rates were calculated using the target mainline flow rates and ramp meter timing parameters. These changes are input into the .sig files at each location where each ramp meter rate is a different signal program. Resulting calculations are included in **Appendix F** for reference. Note that there are some deviations from the calculated ramp metering rates in order to better correspond to mainline operations and observed ramp queuing. Upstream of each ramp meter, a short reduced speed area was applied to enforce vehicles stopping at the signal rather than continuing through without stopping in

order to proceed on the green indication of the ramp meter phase. This method of modeling ramp meters has been included in previous WisDOT Southeast Region models as well.

Number of Model Runs

The required number of model runs was determined using WisDOT Traffic Engineering, Operations, and Safety Manual (TEOpS) 16-20-7 guidance using the field variation of TOPS Lab VSPOC volume data for April 2019 for each analysis hour and direction. Two (2) locations were selected for each direction: I-94 between 68th Street and Hawley Road, and I-94 at 26th Street. WisDOT's spreadsheet was utilized to compare VISSIM model and field data variance (results shown in **Appendix G**).

For each location and hour, the resulting number of runs required was less than the number of initial runs (seven). As such, the initial seven runs were considered an acceptable number of runs for both peak period models for validation. Seed numbers included the following (per TEOpS 16-20-7.2): 199, 409, 619, 829, 1039, 1249, and 1459.

Driver Behaviors

VISSIM model calibration criteria follows recommended ranges per WisDOT TEOpS 16-20-6. In general, the existing models were calibrated using two (2) types of driving behaviors: "freeway" and "ramp/weave". The freeway behavior was applied to mainline links outside of entrance/exit ramp or weave links. The ramp/weave behavior is generally more aggressive and allows for lane changing with smaller gaps. Models were calibrated first by adjusting freeway and ramp/weave behavior parameters applied network wide.

As noted previously, based on the NPMRDS speed heat maps the Stadium Interchange and overlapping left/right weaving behavior with adjacent interchanges is the primary bottleneck in the I-94 corridor for both directions. During the model calibration process, it was determined that a different driving behavior was required specific to the Stadium Interchange bottleneck for each direction as the general freeway and ramp/merge behaviors did not adequately capture congestion originating at this location. As such, Stadium Interchange "weave" behaviors were created for each direction which are tied specifically to the unique geometry between the Stadium Interchange and the adjacent service interchanges. Slightly different parameters are required for this behavior for each direction of I-94 as the geometry is different. For example, the I-94 WB weave between the Stadium Interchange and General Mitchell Boulevard is about 1,000 feet shorter than the corresponding weave between the Stadium Interchange and 35th Street which means that drivers tend to travel through these segments differently.

Two other driving behaviors were created which correspond to different existing geometric elements in the corridor. A behavior was created for the I-94 WB section between the Marquette and Stadium Interchanges ("Narrow"). As noted previously, this portion of I-94 was resurfaced in 2013 and reconfigured with four (4), 11 foot lanes and varying sub-standard shoulder widths. The narrower lanes and existing roadway curvature results in a reduced roadway capacity in comparison to the general freeway and ramp/weave model driving behaviors. Additionally, a separate behavior was created for the I-94 EB transition from four (4) to three (3) lanes where the Zoo Interchange project ended just east of 70th Street, which is a known operational pinch point in the corridor.

Note that the AM and PM VISSIM models have matching parameters for all driving behaviors except for cc2 (following variation) for the Stadium Interchange weave and I-94 WB "narrow" behaviors. Extensive testing of the AM and PM models found that the models necessitated slightly different values in order to best replicate field speed data from April 9th.

The calibrated existing models utilize the freeway driver behaviors as indicated in **Table 8** (AM) and **Table 9** (PM) on the following page, which report modified parameters for each behavior (others not

shown are default) and highlight values which differ between the two models. Driving behaviors for Miller Park Way and WIS 175 utilize the general freeway and ramp/weave behaviors. A general urban driving behavior (using Wiedemann 74) was applied to links at each service interchange and local roadway. No changes were made to default parameters for the urban behavior. An urban weave behavior was also created for EB Kearney Street between the I-94 EB exit ramp and 70th Street to facilitate more aggressive lane changing required by the existing geometry of the frontage road and eastbound exit ramp. The only differences between the urban behaviors is the safety distance factor (0.10 vs 0.60) and maximum deceleration for cooperative braking (-28.84 ft/sec^2 vs -9.84ft/sec^2).

Table 8 – Freeway Driver Behaviors and Parameters (AM Peak Period)

Dir	Driver Behavior	Driver Behavior Parameters						
		cc0	cc1	cc2	Safety Dist Factor	Max Decel Co-Op	Co-Op Lane Change	CLC Max Speed
EB/WB	Freeway	4.92	1.03	22.12	0.60	-9.84		
EB/WB	Ramp/Weave	4.92	1.03	22.12	0.10	-28.84	X	6.71
EB	Stadium Int Weave	4.92	1.04	32.62	0.10	-28.84	X	6.71
WB	Stadium Int Weave	5.35	1.04	33.12	0.10	-28.84	X	6.71
WB	Freeway Narrow	5.40	1.07	30.62	0.60	-9.84		
WB	Ramp/Weave Narrow	5.40	1.07	30.62	0.10	-28.84	X	6.71
EB	Transition	4.92	1.30	24.12	0.40	-18.84		
EB	Transition Merge	4.92	1.30	24.12	0.10	-28.84	X	6.71

Table 9 – Freeway Driver Behaviors and Parameters (PM Peak Period)

Dir	Driver Behavior	Driver Behavior Parameters						
		cc0	cc1	cc2	Safety Dist Factor	Max Decel Co-Op	Co-Op Lane Change	CLC Max Speed
EB/WB	Freeway	4.92	1.03	22.12	0.60	-9.84		
EB/WB	Ramp/Weave	4.92	1.03	22.12	0.10	-28.84	X	6.71
EB	Stadium Int Weave	4.92	1.04	35.62	0.10	-28.84	X	6.71
WB	Stadium Int Weave	5.35	1.04	39.12	0.10	-28.84	X	6.71
WB	Freeway Narrow	5.40	1.07	19.12	0.60	-9.84		
WB	Ramp/Weave Narrow	5.40	1.07	19.12	0.10	-28.84	X	6.71
EB	Transition	4.92	1.30	24.12	0.40	-18.84		
EB	Transition Merge	4.92	1.30	24.12	0.10	-28.84	X	6.71

Model Validation

Existing VISSIM model validation criteria follows WisDOT TEOpS 16-20-8 standards outlined on the following page for freeway mainline, system ramp, and service ramp volumes, ramp terminal and intersection turning movement volumes, segment speeds, and segment travel times. Model volumes are evaluated by direction along both I-94 and Miller Park Way/WIS 175 for each analysis hour. Model segment speeds and travel times are evaluated in 15-minute increments within each analysis hour and direction along I-94. Final analysis hour model volumes, speeds, and travel times were validated based on the "factored" model runs.

- **Freeway Mainline and Ramp Volumes**
  - Tier 1 – Root Mean Squared Percent Error (RMSPE) < 5.0%
  - Tier 2 – Root Normalized Squared Error (RNSE) < 3.0% for 85% of links
- **Turning Movement Volumes**
  - Tier 2 – RNSE < 3.0% for 85% of links
- **Freeway Mainline Segment Speeds**
  - Tier 1 – RMSPE < 10.0%
  - Tier 2 – Within +/- 20% of posted speed for 85% of locations
- **Freeway Mainline Travel Times**
  - Tier 1 – RMSPE < 10.0%
  - Tier 2 – Within +/- 15% for 85% of routes

Table 10 on the following page summarizes the validation results by AM hour/period and direction for the existing I-94 EW VISSIM model. Detailed validation results and calculations are included in **Appendix H**. For the AM peak period model, Tier 1 freeway/ramp volume validation criteria is satisfied for one hour in the eastbound direction. Tier 2 freeway/ramp volume criteria is satisfied for all other hours in both directions. Tier 2 validation criteria is satisfied for intersection volumes during all hours. Tier 2 validation criteria for segment speeds and travel times is met for all hours in both directions, except for the following:

- 6:30 AM
  - I-94 EB (speeds and travel times)
  - I-94 WB (speeds and travel times)
- 7:30 AM
  - I-94 WB (travel times)
- 8:30 AM
  - I-94 EB (speeds)

The AM VISSIM model experiences issues with matching the exact rate of change with respect to speeds and travel times in the beginning and end of the analysis period at the back of queue locations (EB1 and WB1) even with factoring the final hour trip tables. For I-94 EB segment 1 and the corridor in general, differences between model and field speeds/travel times could be because April 9th, 2019 was identified as a non-typical day in comparison to the rest of April 2019 weekdays. For I-94 WB segment 1, the model is able to accurately replicate the degradation of speeds between 7:00 AM and 7:45 AM, but model speeds to do not recover as quickly as indicated by the field data.

As noted previously, balanced hourly target volumes were developed based on data from both April 9th and April 10th and balancing shifted some of the raw hour to hour relationships in comparison to the yearly average volume profile. The review of April 2019 weekday speed data showed that back of queue locations can vary significantly day to day, and therefore using a single day for speed/travel time targets when the target volumes are based on more than one day likely creates a situation where the model will not be able to exactly match speeds/travel times from a single day at back of queue locations. However, the model should still be considered as validated and accurate to field conditions as the AM model does replicate the buildup and dissipation of congestion throughout the rest of the corridor in both directions as indicated by the magnitude and shape of the model speed profiles. In addition, directional modeled AM peak period speeds and travel times do meet Tier 2 validation criteria and end to end corridor travel times satisfy Tier 1 validation criteria for both directions.

Table 10 – AM Period VISSIM Model Validation Results Summary

Test	Tier	AM Peak Period									
		5:30 AM		6:30 AM		7:30 AM		8:30 AM*		Period	
		I-94 EB	I-94 WB	I-94 EB	I-94 WB	I-94 EB	I-94 WB	I-94 EB	I-94 WB	I-94 EB	I-94 WB
Mainline/Ramp Volume	Tier 1	✗	✗	✗	✗	✓	✗	✗	✗	-	-
	Tier 2	✓	✓	✓	✓	-	✓	✓	✓	-	-
Intersection Volume	Tier 2	✓		✓		✓		✓		-	
Segment Speed	Tier 1	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
	Tier 2	✓	✓	✗	✗	✓	✓	✗	✓	✓	✓
Segment Travel Time	Tier 1	✓	✓	✗	✗	✓	✗	✗	✗	✗	✗
	Tier 2	-	-	✗	✗	-	✗	✓	✓	✓	✓

*Factored model validation results

Table 11 on the following page summarizes the validation results by PM hour/period and direction with detailed validation results included in **Appendix H**. For the PM peak period model, Tier 1 freeway/ramp volume validation criteria is satisfied for all hours of I-94 EB, Miller Park Way, and WIS 175. Tier 2 freeway/ramp volume criteria is satisfied for all hours for I-94 WB links except for 1:30 PM which satisfies Tier 1 criteria. Tier 2 validation criteria is satisfied for intersection volumes during all hours. Tier 1 validation criteria for segment speeds is met for the first two analysis hours on I-94 EB. Tier 2 for segment speeds is satisfied for the remaining hours in both directions, except for I-94 WB in the final hour (5:30 PM). The PM existing model meets Tier 1 validation criteria for travel times for both directions of I-94 in the 1:30 PM and 3:30 PM analysis hours, I-94 EB in the 2:30 PM and 5:30 PM analysis hours, and I-94 WB in the 4:30 PM analysis hour. Tier 2 criteria for travel times is met for I-94 EB in the 2:30 PM hour. Model travel times do not meet Tier 2 criteria for I-94 EB in the 4:30 PM hour and I-94 WB in the 5:30 PM hour.

As noted with the AM VISSIM model, the PM VISSIM model is not able to replicate the quick recovery to free-flow conditions that is indicated by the field data, in particular on I-94 WB during the 5:30 PM hour, and therefore model speed and travel time validation criteria is not met. As indicated in the I-94 WB speed profiles, the model is able to match the buildup of congestion and slower speeds at the beginning of the PM peak period, but the dissipation of that congestion occurs over a longer period of time (even with factoring of the last hour) in comparison to what is suggested by the field speed profiles and travel time data. As noted previously, this may be due to the utilization of April 9th as the target day for speed and travel time data, and the use of a balanced volume set which was based on a combination of April 9th and 10th data. The PM model does not meet travel time criteria for I-94 EB in the 4:30 PM hour due to the inconsistency of the travel times between 84th Street and 68th Street (EB2) from 4:45 PM to 5:15 PM.

Table 11 – PM Period VISSIM Model Validation Results Summary

Test	Tier	PM Peak Period											
		1:30 PM		2:30 PM		3:30 PM		4:30 PM		5:30 PM*		Period	
		I-94 EB	I-94 WB	I-94 EB	I-94 WB	I-94 EB	I-94 WB	I-94 EB	I-94 WB	I-94 EB	I-94 WB	I-94 EB	I-94 WB
Mainline/Ramp Volume	Tier 1	✓	✓	✓	✓	✓	✗	✓	✓	✓	✗	-	-
	Tier 2	-	-	-	-	-	✓	-	-	-	✓	-	-
Intersection Volume	Tier 2	✓		✓		✓		✓		✓		-	
Segment Speed	Tier 1	✓	✗	✓	✗	✗	✗	✗	✗	✗	✗	✗	✗
	Tier 2	-	✓	-	✓	✓	✓	✓	✓	✓	✗	✓	✓
Segment Travel Time	Tier 1	✓	✓	✓	✗	✓	✓	✗	✓	✓	✗	✗	✗
	Tier 2	-	-	-	✓	-	-	✗	-	-	✗	✓	✓

*Factored model validation results

Similar to the existing AM model, the PM model should still be considered as validated and accurate to field conditions as the existing PM model reports similar shape and magnitude of speed profiles, directional modeled PM period speeds and travel times meet Tier 2 validation criteria, and the end to end corridor travel times meet Tier 1 validation criteria in both directions.

Note that Miller Park Way/WIS 175 volumes were validated and included in the validation results for each model (**Appendix H**) but are not summarized in **Table 10** and **Table 11**. Miller Park Way/WIS 175 hourly directional volumes meet validation criteria for freeway and ramp volumes for Tier 1 (SB) and Tier 2 (NB) for the AM analysis hours and Tier 1 (NB/SB) for the PM analysis hours.

Summary comparisons of VISSIM model versus field directional hourly truck percentages for I-94 are reported in **Table 12** (AM) below and **Table 13** (PM) on the following page. Field truck percentages were averaged for count locations on either side of the Stadium Interchange. All modeled segment truck percentages are within 2% of the field average hourly segment percentage.

Table 12 – AM Period Truck Percentage Comparison

Dir	Segment	Data	Truck %			
			5:30 AM	6:30 AM	7:30 AM	8:30 AM
I-94 EB	West of Stadium Int	VISSIM	6%	9%	10%	6%
		Field	6%	9%	10%	7%
	East of Stadium Int	VISSIM	5%	6%	5%	5%
		Field	5%	5%	5%	6%
I-94 WB	West of Stadium Int	VISSIM	5%	5%	5%	7%
		Field	5%	5%	7%	8%
	East of Stadium Int	VISSIM	5%	5%	5%	6%
		Field	4%	4%	4%	5%

Table 13 – PM Period Truck Percentage Comparison

Dir	Segment	Data	Truck %				
			1:30 PM	2:30 PM	3:30 PM	4:30 PM	5:30 PM
I-94 EB	West of Stadium Int	VISSIM	6%	7%	7%	6%	7%
		Field	7%	6%	6%	5%	6%
	East of Stadium Int	VISSIM	6%	6%	7%	6%	6%
		Field	6%	5%	4%	4%	3%
I-94 WB	West of Stadium Int	VISSIM	6%	6%	6%	5%	5%
		Field	7%	7%	6%	4%	4%
	East of Stadium Int	VISSIM	5%	5%	4%	4%	4%
		Field	5%	4%	4%	4%	3%

Table 14 below shows a comparison of model and field hourly entrance ramp HOV lane utilization. Field HOV lane utilization percentages are based on April 2019 weekday data from VSPOC. As shown below, modelled HOV lane utilization is generally within 5% of the field target.

Table 14 – Entrance Ramp HOV Lane Utilization Comparison

Ramp		Hour								
		AM Peak Period				PM Peak Period				
		5:30 AM	6:30 AM	7:30 AM	8:30 AM	1:30 PM	2:30 PM	3:30 PM	4:30 PM	5:30 PM
Hawley Rd EB Entrance	VISSIM	10%	19%	24%	15%	12%	20%	16%	20%	21%
	Field	14%	22%	23%	15%	13%	20%	20%	20%	19%
Hawley Rd WB Entrance	VISSIM	17%	15%	16%	12%	16%	15%	18%	15%	15%
	Field	18%	15%	15%	13%	15%	14%	17%	15%	15%
Gen Mitchell Blvd EB Entrance	VISSIM	15%	6%	8%	9%	14%	10%	9%	9%	11%
	Field	18%	11%	12%	14%	22%	18%	17%	15%	15%
28th St WB Entrance	VISSIM	2%	11%	13%	9%	6%	8%	12%	28%	19%
	Field	4%	15%	17%	13%	7%	11%	14%	27%	20%
Tory Hill St/11th St WB Entrance	VISSIM	2%	2%	3%	3%	1%	0%	1%	1%	1%
	Field	3%	3%	3%	2%	1%	1%	1%	1%	1%

Summaries of VISSIM model and field lane utilization hourly percentages for I-94 are reported in **Tables 15 and 16** on the following page. Field lane utilization is based on April 9th, 2019 data from VPSOC for locations on either side of the Stadium Interchange. All modeled hourly lane utilizations are within 6% of the field hourly percentages.

Table 15 – I-94 Mainline AM Period Lane Utilization Comparison

Dir	Location	Lane	Lane Utilization (%)							
			Field				VISSIM			
			5:30 AM	6:30 AM	7:30 AM	8:30 AM	5:30 AM	6:30 AM	7:30 AM	8:30 AM
I-94 EB	Mitchell Blvd	Left	32%	37%	38%	35%	34%	35%	34%	33%
		Center	34%	31%	31%	33%	33%	33%	34%	34%
		Right	35%	32%	32%	32%	34%	33%	33%	33%
	25th St	Left	27%	32%	34%	31%	27%	30%	29%	28%
		Center	37%	33%	34%	34%	34%	34%	34%	34%
		Right	36%	35%	33%	35%	39%	37%	37%	38%
I-94 WB	35th St	Right	11%	20%	24%	15%	9%	15%	20%	14%
		Right-Center	32%	25%	23%	29%	30%	27%	27%	27%
		Left-Center	31%	26%	25%	29%	32%	29%	27%	30%
		Left	27%	29%	29%	27%	30%	30%	27%	30%
	Mitchell Blvd	Right	32%	30%	30%	35%	31%	34%	33%	32%
		Center	36%	33%	33%	35%	34%	34%	34%	34%
		Left	33%	37%	37%	31%	35%	33%	33%	34%

Table 16 – I-94 Mainline PM Period Lane Utilization Comparison

Dir	Location	Lane	Lane Utilization (%)									
			Field					VISSIM				
			1:30 PM	2:30 PM	3:30 PM	4:30 PM	5:30 PM	1:30 PM	2:30 PM	3:30 PM	4:30 PM	5:30 PM
I-94 EB	Mitchell Blvd	Left	30%	33%	35%	35%	35%	34%	35%	34%	34%	34%
		Center	36%	34%	33%	33%	33%	33%	32%	33%	33%	33%
		Right	34%	33%	32%	32%	32%	33%	33%	33%	33%	33%
	25th St	Left	28%	30%	32%	32%	33%	28%	29%	30%	30%	30%
		Center	37%	36%	34%	34%	34%	34%	34%	33%	33%	33%
		Right	35%	34%	34%	34%	33%	38%	37%	37%	37%	37%
I-94 WB	35th St	Right	17%	21%	25%	26%	22%	22%	15%	20%	23%	26%
		Right-Center	30%	24%	22%	23%	26%	26%	27%	26%	25%	22%
		Left-Center	27%	26%	26%	25%	26%	26%	29%	27%	26%	25%
		Left	27%	29%	28%	27%	27%	27%	30%	27%	26%	27%
	Mitchell Blvd	Right	34%	30%	30%	30%	30%	33%	34%	34%	34%	34%
		Center	33%	32%	33%	33%	33%	34%	34%	35%	34%	34%
		Left	33%	38%	37%	37%	37%	33%	32%	31%	32%	32%

As noted previously, the existing VISSIM models were calibrated and validated based on the factored trip tables developed for the final analysis hours. The calibrated models were also run with the unfactored final hour trip tables to determine an envelope of operations from the calibrated VISSIM models. The unfactored models report the same speeds and travel times as the factored models for all hours, except the final hour in both directions as speeds and travel times are slower with increased demand in the final analysis hours.

The VISSIM model envelope was compared against the range of "typical" field conditions from the cluster analysis (as denoted in the light purple shading in the speed profiles in **Appendix H**). The model envelope is largely contained within the typical field range for the majority of segments in both directions and peak periods, except at back of queue segments (EB1 and WB1). For these segments, speeds from both models with the factored and unfactored volumes tend to fall outside of the typical speed range. HNTB also compared the model envelope to the range of all weekday April 2019 field conditions as shown in **Figures 11-14** on the following pages. The dotted lines represent the maximum and minimum speeds for all April 2019 weekdays. This comparison shows that the model envelope is largely contained within the April 2019 weekday field range and suggests that the existing VISSIM models are operating within the universe of actual field conditions based on April 2019 speed data.

Figure 11 – AM Peak Period Speed Comparison (EB1)

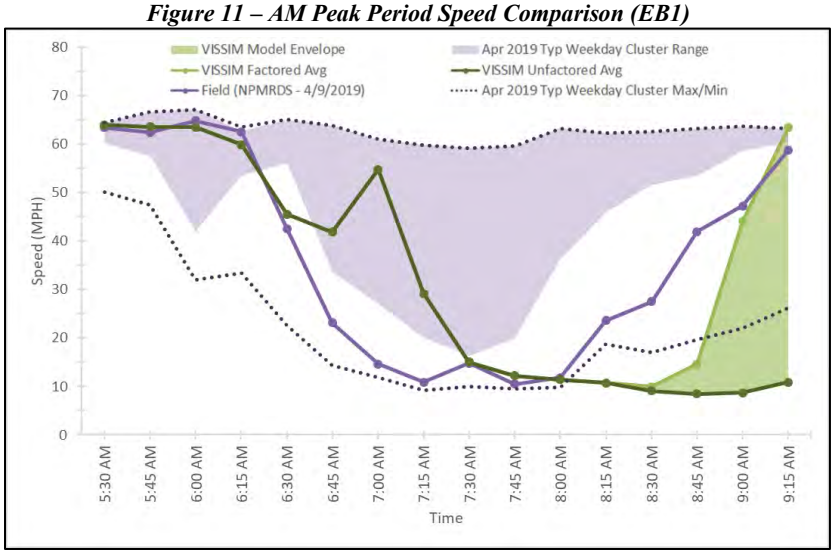


Figure 12 – AM Peak Period Speed Comparison (WB1)

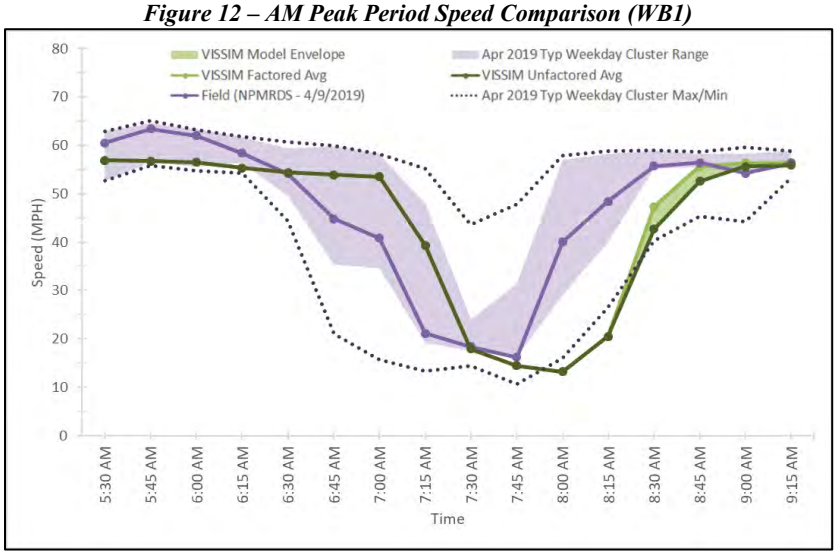


Figure 13 – PM Peak Period Speed Comparison (EB1)

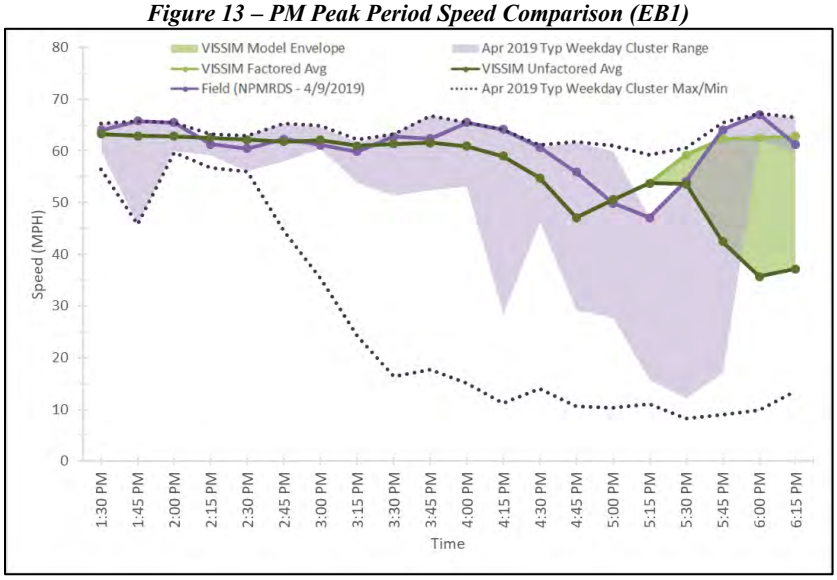
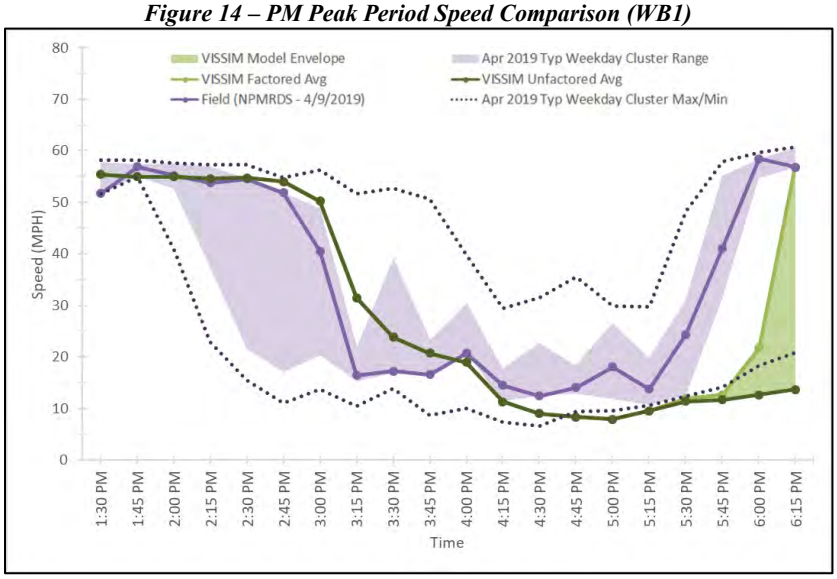


Figure 14 – PM Peak Period Speed Comparison (WB1)



Conclusion

The I-94 East-West existing peak period VISSIM models meet mainline, ramp, and turning movement volume validation criteria for each direction and analysis hour. The VISSIM models meet directional segment speed and travel time validation criteria for the majority of the analysis hours and analysis periods overall. Hours not meeting criteria are due to challenges in the existing dataset alignment to best represent back of queue operations. In general, the models represent existing peak period corridor field conditions to the greatest extent possible using available data and will accurately analyze future conditions in the corridor.

Appendix A – StreetLight TMC Development

I-94 East-West Data Collection Project

StreetLight Intersection Assignment Comparison

AM Peak Period

Intersection	Mvmt	FID	AM Peak Period																		
			6-7AM					7-8AM					8-9AM					9-10AM				
			Volume			Difference (%)		Volume			Difference (%)		Volume			Difference (%)		Volume			Difference (%)	
			StL-Raw	StL-Factor	Count	Vol	Prop	StL-Raw	StL-Factor	Count	Vol	Prop	StL-Raw	StL-Factor	Count	Vol	Prop	StL-Raw	StL-Factor	Count	Vol	Prop
68th St/ Kearney St	NBT	6	45	33	50	-34%	7%	46	32	128	-75%	-6%	119	90	65	38%	14%	43	31	38	-18%	3%
	NBR	6	27	19	39	-51%	-7%	26	20	59	-66%	6%	39	25	37	-32%	-14%	34	23	33	-30%	-3%
	SBL	6	132	67	106	-37%	-13%	208	128	129	-1%	7%	91	59	114	-48%	-16%	122	67	95	-29%	-13%
	SBT	6	113	57	52	10%	13%	122	50	69	-28%	-7%	133	74	76	-3%	16%	123	60	50	20%	13%
	EBL	6	133	86	76	13%	-5%	351	231	223	4%	-14%	286	191	186	3%	-12%	151	104	87	20%	-4%
	EBT	6	452	256	193	33%	-5%	1073	810	484	67%	-7%	635	447	307	46%	-2%	473	302	236	28%	-7%
	EBR	6	50	55	9	511%	10%	477	333	21	1486%	21%	194	147	28	425%	14%	65	64	11	482%	11%
68th St/ O'Connor St	SBT	5	132	67	142	-53%	-17%	266	152	170	-11%	11%	163	99	158	-37%	2%	154	83	114	-27%	4%
	SBR	5	156	130	138	-6%	17%	213	155	267	-42%	-11%	155	118	202	-42%	-2%	114	91	148	-39%	-4%
	NBL	5	28	25	35	-29%	-7%	14	16	73	-78%	-15%	51	52	30	73%	7%	23	19	25	-24%	-6%
	NBT	5	150	94	91	3%	7%	383	247	273	-10%	15%	354	229	224	2%	-7%	171	116	100	16%	6%
	WBL	5	113	57	22	159%	3%	64	26	21	24%	-1%	61	34	36	-6%	-2%	91	44	27	63%	4%
	WBT	5	521	308	136	126%	9%	928	533	318	68%	4%	746	421	345	22%	5%	440	269	242	11%	6%
	WBR	5	67	40	46	-13%	-12%	125	55	44	25%	-3%	132	72	77	-6%	-3%	86	45	81	-44%	-10%
70th St/ Kearney St	NBT	4	185	180	219	-18%	-2%	278	255	289	-12%	-10%	114	98	220	-55%	-21%	161	147	173	-15%	2%
	NBR	4	226	106	117	-9%	2%	377	199	146	36%	10%	243	144	139	4%	21%	207	123	162	-24%	-2%
	SBL	4	45	30	9	233%	7%	15	11	17	-35%	-2%	21	15	15	0%	1%	22	17	14	21%	4%
	SBT	4	386	214	164	30%	-7%	629	312	344	-9%	2%	657	389	443	-12%	-1%	340	183	276	-34%	-4%
	EBL	4	95	124	40	210%	17%	310	398	165	141%	8%	202	200	102	96%	7%	128	129	61	111%	8%
	EBT	4	364	261	150	74%	21%	1509	1164	568	105%	16%	851	626	343	83%	20%	460	330	168	96%	17%
	EBR	4	114	119	299	-60%	-38%	346	315	496	-36%	-24%	265	262	446	-41%	-27%	135	127	203	-37%	-25%
70th St/ O'Connor St	SBT	3	97	65	51	27%	34%	120	65	90	-28%	14%	161	114	100	14%	16%	136	90	55	64%	15%
	SBR	3	13	16	59	-73%	-34%	24	31	78	-60%	-14%	21	21	46	-54%	-16%	21	26	33	-21%	-15%
	NBL	3	270	296	207	43%	16%	402	496	246	102%	21%	171	198	188	5%	6%	177	196	164	20%	0%
	NBT	3	10	8	49	-84%	-16%	186	157	205	-23%	-21%	145	100	124	-19%	-6%	112	80	68	18%	0%
	WBL	3	334	179	122	47%	0%	524	258	269	-4%	-4%	517	290	344	-16%	-11%	226	110	233	-53%	-27%
	WBT	3	331	248	182	36%	-5%	538	388	372	4%	-2%	415	289	218	33%	11%	339	262	171	53%	28%
	WBR	3	40	36	7	414%	5%	93	58	13	346%	6%	20	12	11	9%	0%	12	7	10	-30%	-1%
Hawley Rd/ I-94 EB Entr Ramp	SBL	9	36	20	48	-58%	-5%	112	64	107	-40%	-5%	81	47	90	-48%	-5%	68	41	68	-40%	-2%
	SBT	9	451	365	435	-16%	5%	796	608	625	-3%	5%	612	473	556	-15%	5%	445	326	442	-26%	2%
	NBT	9	346	276	479	-42%	-14%	480	382	787	-51%	-14%	518	384	565	-32%	-7%	410	303	383	-21%	-4%
	NBR	9	410	240	236	2%	14%	448	281	304	-8%	14%	351	207	216	-4%	7%	295	214	221	-3%	4%
Hawley Rd/ I-94 EB Exit Ramp	SBT	8	433	319	285	12%	-	857	611	629	-3%	-	612	429	561	-24%	-	425	277	398	-30%	-
	NBT	8	346	276	477	-42%	-	480	382	760	-50%	-	518	384	574	-33%	-	410	303	378	-20%	-
	EBL	8	45	59	27	119%	35%	85	78	37	111%	27%	82	71	50	42%	9%	108	92	57	61%	17%
	EBR	8	54	66	198	-67%	-35%	51	61	92	-34%	-27%	81	91	93	-2%	-9%	88	90	109	-17%	-17%
Hawley Rd/ I-94 WB Ramps	SBT	7	180	125	206	-39%	4%	549	372	511	-27%	0%	458	311	406	-23%	1%	285	185	274	-32%	-2%
	SBR	7	51	50	100	-50%	-4%	210	171	231	-26%	0%	125	116	157	-26%	-1%	102	94	129	-27%	2%
	NBL	7	129	145	294	-51%	-15%	171	195	350	-44%	-2%	196	181	237	-24%	2%	115	126	191	-34%	-12%
	NBT	7	262	190	214	-11%	15%	394	265	452	-41%	2%	404	274	384	-29%	-2%	403	269	243	11%	12%
	EBL	7	89	51	24	113%	-3%	60	35	15	133%	1%	51	29	38	-24%	-1%	60	35	39	-10%	3%
	EBR	7	253	194	78	149%	3%	308	239	113	112%	-1%	154	118	147	-20%	1%	140	92	120	-23%	-3%
Mitchell Blvd/I-94 EB Ramps/WB Entr Ramp	SBL	11	22	24	44	-45%	-11%	47	38	134	-72%	-18%	111	70	124	-44%	3%	57	45	27	67%	31%
	SBT	11	284	145	129	12%	11%	341	201	241	-17%	19%	156	93	173	-46%	2%	61	33	79	-58%	-25%
	SBR	11	15	13	13	0%	0%	28	27	49	-45%	-1%	2	3	21	-86%	-5%	4	7	18	-61%	-6%
	NBL	11	63	77	8	863%	24%	114	173	86	101%	-24%	67	74	37	100%	-13%	55	58	35	66%	1%
	NBT	11	7	5	7	-29%	-31%	0	0	25	-100%	-20%	14	9	28	-68%	-31%	5	4	25	-84%	-23%
	NBR	11	71	39	5	680%	7%	287	220	15	1367%	44%	197	140	16	775%	44%	146	101	41	146%	22%
	EBL	11	11	17	12	42%	3%	63	63	15	320%	20%	33	30	7	329%	13%	28	23	12	92%	7%
	EBT	11	0	0	0	0%	0%	0	0	8	-100%	-4%	0	0	7	-100%	-6%	0	0	1	-100%	-1%
	EBR	11	171	148	172	-14%	-3%	182	160	171	-6%	-16%	169	131	109	20%	-7%	98	81	67	21%	-6%
Mitchell Blvd/I-94 WB Exit Ramp	SBT	10	55	47	122	-61%	-	232	177	345	-49%	-	207	134	259	-48%	-	92	72	85	-15%	-
	NBT	10	18	22	19	16%	-	63	63	39	62%	-	47	39	34	15%	-	33	27	37	-27%	-
	WBL	10	266	135	63	114%	-10%	184	89	79	13%	-29%	62	32	59	-46%	-22%	30	13	40	-68%	-20%
	WBR	10	93	52	14	271%	10%	96	59	10	490%	29%	55	40	30	33%	22%	30	14	19	-26%	20%
35th St/ I-94 EB Ramps	SBL	16	83	65	57	14%	2%	196	119	163	-27%	-3%	152	100	121	-17%	-2%	174	125	92	36%	11%
	SBT	16	406	314	328	-4%	-2%	556	448	529	-15%	3%	574	429	466	-8%	2%	390	286	401	-29%	-11%
	NBT	16	366	346	463	-25%	-4%	497	457	690	-34%	-14%	432	385	490	-21%	-15%	370	335	397	-16%	-5%
	NBR	16	294	196	214	-8%	4%	726	501	424	18%	14%	582	407	280	45%	15%	250	185	175	6%	5%
	EBL	16	193	191	89	115%	28%	359	357	92	288%	28%	229	210	97	116%	27%	133	118	78	51%	15%
	EBT	16	0	0	3	-100%	-1%	0	0	4	-100%	-2%	0	0	1	-100%	0%	0	0	5	-100%	-2%
	EBR	16	159	138	202	-32%	-27%	226	178	140	27%	-26%	88	70	104	-33%	-27%	178	146	175	-17%	-13%
35th St/ Park Hill Ave	SBT	14	264	216	225	-4%	-19%	549	440	520	-15%	-15%	494	400	414	-3%	-9%	309	249	356	-30%	-6%
	SBR	14	112	121	46	163%	19%	184	178	83	114%	15%	120	125	72	74%	9%	71	73	73	0%	6%
	NBL	14	183	207	290	-29%	-14%	333	344	265	30%	7%	266	244	187	30%	8%	195	186	156	19%	7%
	NBT	14	376	330	260	27%	14%	523	470	503	-7%	-7%	395	351	383	-8%	-8%	308	267	305	-12%	-7%
	WBL	14	225	163	162	1%	-22%	203	127	171	-26%	-24%	232	129	169	-24%	-12%	255	162	128	27%	2%
	WBT	14	251	169	33	412%	22%	421	277	49	465%	39%	149	92	43	114%	14%	66	60	41	46%	4%
	WBR	14	256	182	103	77%	0%	193	121	139	-13%	-15%	180	122	127	-4%	-2%	103	81	84	-4%	-6%

StreetLight factored turning movement volume (assigned) is more than 50% different than field count

StreetLight factored turning movement volume proportion (assigned) is more than 20% different than field count proportion

I-94 East-West Data Collection Project

StreetLight Intersection Assignment Comparison

PM Peak Period

Intersection	Mvmt	FID	PM Peak Period																								
			1-2PM					2-3PM					3-4PM					4-5PM					5-6PM				
			Volume			Eifference (%)		Volume			Difference (%)		Volume			Difference (%)		Volume			Difference (%)		Volume			Difference (%)	
			StL-Raw	StL-Factor	Count	Vol	Prop	StL-Raw	StL-Factor	Count	Vol	Prop	StL-Raw	StL-Factor	Count	Vol	Prop	StL-Raw	StL-Factor	Count	Vol	Prop	StL-Raw	StL-Factor	Count	Vol	Prop
68th St/ Kearney St	NBT	6	23	19	50	-62%	-23%	53	45	84	-46%	-10%	59	39	70	-44%	-2%	114	77	97	-21%	-1%	84	55	82	-33%	15%
	NBR	6	35	23	24	-4%	23%	52	35	43	-19%	10%	31	27	44	-39%	2%	66	49	60	-18%	1%	13	20	59	-66%	-15%
	SBL	6	146	93	111	-16%	-5%	228	130	95	37%	-1%	258	158	141	12%	-3%	218	160	139	15%	-4%	180	142	113	26%	7%
	SBT	6	107	67	64	5%	5%	218	142	100	42%	1%	205	108	85	27%	3%	313	168	125	34%	4%	239	122	126	-3%	-7%
	EBL	6	125	85	148	-43%	-12%	172	127	163	-22%	-13%	198	149	239	-38%	-14%	460	337	342	-1%	-9%	322	228	282	-19%	-13%
	EBT	6	562	332	311	7%	8%	800	512	332	54%	10%	713	491	401	22%	8%	1023	769	567	36%	0%	854	700	489	43%	6%
	EBR	6	36	31	12	158%	4%	52	61	34	79%	3%	124	119	61	95%	6%	221	212	65	226%	9%	206	191	81	136%	7%
68th St/ O'Connor St	SBT	5	195	125	152	-18%	14%	314	192	153	25%	7%	306	185	207	-11%	5%	333	224	236	-5%	7%	338	229	197	16%	7%
	SBR	5	85	69	151	-54%	-14%	170	127	137	-7%	-7%	221	156	217	-28%	-5%	224	161	225	-28%	-7%	301	204	232	-12%	-7%
	NBL	5	5	7	25	-72%	-5%	41	37	38	-3%	7%	13	14	20	-30%	0%	21	20	26	-23%	-1%	39	31	18	72%	6%
	NBT	5	143	97	176	-45%	5%	184	135	209	-35%	-7%	244	174	287	-39%	0%	553	394	411	-4%	1%	367	252	349	-28%	-6%
	WBL	5	58	35	28	25%	1%	132	80	43	86%	3%	157	81	18	350%	7%	198	104	29	259%	6%	81	35	42	-17%	-4%
	WBT	5	556	338	263	29%	12%	622	356	223	60%	6%	736	436	218	100%	-2%	931	470	195	141%	2%	835	398	255	56%	11%
	WBR	5	129	74	121	-39%	-13%	109	55	69	-20%	-9%	174	88	60	47%	-5%	203	94	61	54%	-8%	204	99	103	-4%	-7%
70th St/ Kearney St	NBT	4	201	175	276	-37%	-7%	287	253	340	-26%	-12%	369	301	494	-39%	-8%	578	477	629	-24%	1%	524	403	511	-21%	3%
	NBR	4	321	177	211	-16%	7%	482	296	250	18%	12%	411	238	281	-15%	8%	542	292	409	-29%	-1%	411	215	308	-30%	-3%
	SBL	4	19	10	17	-41%	-1%	17	12	19	-37%	-1%	21	28	21	33%	2%	44	32	23	39%	2%	11	9	20	-55%	-3%
	SBT	4	392	244	297	-18%	1%	345	189	248	-24%	1%	510	287	266	8%	-2%	625	327	296	10%	-2%	587	303	290	4%	3%
	EBL	4	85	99	48	106%	12%	131	154	68	126%	11%	212	250	170	47%	9%	310	360	276	30%	5%	257	340	263	29%	1%
	EBT	4	383	261	239	9%	11%	525	392	262	50%	12%	603	493	424	16%	10%	1118	994	539	84%	26%	960	895	525	70%	17%
	EBR	4	87	86	212	-59%	-23%	108	117	232	-50%	-23%	235	252	473	-47%	-19%	312	346	892	-61%	-31%	399	427	623	-31%	-18%
70th St/ O'Connor St	SBT	3	129	83	81	2%	6%	112	76	68	12%	17%	157	113	96	18%	8%	168	106	120	-12%	-13%	146	97	66	47%	23%
	SBR	3	16	21	28	-25%	-6%	9	14	33	-58%	-17%	28	25	34	-26%	-8%	63	64	41	56%	13%	21	21	45	-53%	-23%
	NBL	3	224	229	234	-2%	13%	264	290	279	4%	2%	399	414	411	1%	13%	635	638	566	13%	13%	465	489	406	20%	13%
	NBT	3	62	45	94	-52%	-13%	154	117	123	-5%	-2%	182	137	247	-45%	-13%	253	199	330	-40%	-13%	316	254	360	-29%	-13%
	WBL	3	282	171	236	-28%	-13%	250	125	199	-37%	-26%	374	202	189	7%	-8%	501	253	205	23%	-7%	452	215	232	-7%	-12%
	WBT	3	360	239	189	26%	15%	533	362	186	95%	24%	552	374	257	46%	6%	637	379	221	71%	8%	643	373	257	45%	8%
	WBR	3	4	4	15	-73%	-2%	50	33	16	106%	2%	44	30	13	131%	2%	38	19	20	-5%	-1%	80	45	15	200%	4%
Hawley Rd/ I-94 EB Entr Ramp	SBL	9	111	66	77	-14%	2%	31	18	86	-79%	-8%	78	44	88	-50%	-3%	163	103	98	5%	1%	178	105	99	6%	0%
	SBT	9	642	470	664	-29%	-2%	690	523	674	-22%	8%	869	627	759	-17%	3%	1020	751	805	-7%	-1%	1004	742	703	6%	0%
	NBT	9	375	298	468	-36%	-4%	512	419	574	-27%	-8%	671	516	751	-31%	-4%	784	613	917	-33%	-14%	696	575	688	-16%	-9%
	NBR	9	261	185	238	-22%	4%	386	277	264	5%	8%	335	239	292	-18%	4%	465	334	248	35%	14%	471	310	248	25%	9%
Hawley Rd/ I-94 EB Exit Ramp	SBT	8	636	401	561	-29%	-	597	399	555	-28%	-	815	517	668	-23%	-	1050	701	793	-12%	-	1086	731	722	1%	-
	NBT	8	375	298	466	-36%	-	512	419	571	-27%	-	671	516	747	-31%	-	784	613	909	-33%	-	696	575	688	-16%	-
	EBL	8	77	79	73	8%	8%	120	111	110	1%	10%	106	106	89	19%	7%	181	153	81	89%	8%	98	93	62	50%	2%
	EBR	8	117	135	175	-23%	-8%	124	142	216	-34%	-10%	132	154	170	-9%	-7%	133	153	112	37%	-8%	96	116	85	36%	-2%
Hawley Rd/ I-94 WB Ramps	SBT	7	395	243	380	-36%	-14%	337	224	430	-48%	-11%	528	332	555	-40%	-15%	825	556	669	-17%	-4%	849	561	601	-7%	1%
	SBR	7	152	137	110	25%	14%	138	126	144	-13%	11%	245	209	174	20%	15%	262	207	201	3%	4%	148	123	144	-15%	-1%
	NBL	7	82	100	205	-51%	-11%	150	167	270	-38%	-8%	151	168	325	-48%	-12%	160	185	363	-49%	-13%	174	203	194	5%	4%
	NBT	7	370	277	333	-17%	11%	482	363	408	-11%	8%	626	454	501	-9%	12%	805	581	621	-6%	13%	620	465	557	-17%	-4%
	EBL	7	97	49	54	-9%	1%	156	83	43	93%	5%	169	94	30	213%	11%	126	65	20	225%	15%	136	83	41	102%	7%
	EBR	7	241	158	183	-14%	-1%	260	175	117	50%	-5%	287	185	103	80%	-11%	225	145	109	33%	-15%	237	170	117	45%	-7%
Mitchell Blvd/I-94 EB Ramps/WB Entr Ramp	SBL	11	35	13	33	-61%	-14%	14	10	35	-71%	-24%	14	11	36	-69%	-20%	158	107	95	13%	0%	159	104	231	-55%	-16%
	SBT	11	93	40	50	-20%	8%	66	42	44	-5%	12%	136	73	45	62%	24%	156	75	62	21%	2%	130	79	85	-7%	14%
	SBR	11	14	16	17	-6%	6%	25	18	13	38%	12%	62	38	44	-14%	-4%	93	83	79	5%	-2%	21	18	25	-28%	2%
	NBL	11	61	76	62	23%	6%	272	208	118	76%	19%	343	363	283	28%	6%	604	597	429	39%	3%	281	307	198	55%	-4%
	NBT	11	30	18	37	-51%	-15%	40	24	43	-44%	-11%	27	24	72	-67%	-11%	84	61	111	-45%	-9%	39	32	50	-36%	-10%
	NBR	11	66	51	37	38%	9%	105	55	62	-11%	-8%	233	139	95	46%	5%	393	248	139	78%	6%	235	140	42	233%	14%
	EBL	11	11	11	22	-50%	-19%	18	20	19	5%	11%	4	4	19	-79%	-30%	28	39	25	56%	-7%	50	54	16	238%	16%
	EBT	11	0	0	1	-100%	-1%	0	0	0	0%	0%	0	0	6	-100%	-11%	0	0	21	-100%	-26%	0	0	22	-100%	-27%
	EBR	11	89	82	49	67%	20%	16	24	37	-35%	-11%	62	82	29	183%	41%	126	123	35	251%	33%	105	94	44	114%	11%
Mitchell Blvd/I-94 WB Exit Ramp	SBT	10	65	37	81	-54%	-	42	31	66	-53%	-	105	70	98	-29%	-	285	210	218	-4%	-	232	161	333	-52%	-
	NBT	10	41	29	59	-51%	-	58	44	59	-25%	-	31	28	93	-70%	-	112	100	132	-24%	-	89	86	67	28%	-
	WBL	10	77	32	20	60%	2%	63	39	25	56%	-1%	107	52	26	100%	-28%	122	55	19	189%	-17%	78	40	8	400%	2%
	WBR	10	96	60	40	50%	-2%	57	44	27	63%	1%	218	140	21	567%	28%	237	156	25	524%	17%	199	121	27	348%	-2%
35th St/ I-94 EB Ramps	SBL	16	119	95	110	-14%	-1%	76	57	134	-57%	-6%	201	138	207	-33%	-3%	336	244	258	-5%	7%	227	158	231	-32%	-2%
	SBT	16	671	514	528	-3%	1%	763	537	692	-22%	6%	878	650	761	-15%	3%	788	592	909	-35%	-7%	816	615	803	-23%	2%
	NBT	16	408	358	494	-28%	-6%	451	387	480	-19%	-11%	432	387	599	-35%	-9%	586	499	609	-18%	-1%	516	436	504	-13%	1%
	NBR	16	244	159	166	-4%	6%	404	274	209	31%	11%	355	233	244	-5%	9%	405	271	315	-14%	1%	326	211	258	-18%	-1%
	EBL	16	116	132	120	10%	8%	224	198	123	61%	14%	208	202	134	51%	10%	387	384	89	331%	38%	301	324	83	290%	40%
	EBT	16	0	0	5	-100%	-1%	0	0	5	-100%	-1%	0	0	5	-100%	-1%	0	0	3	-100%	-1%	0	0	5	-100%	-2%
	EBR	16	180	183	226	-19%	-7%	309	337	406	-17%	-13%	305	315	326	-3%	-9%	241	224	258	-13%	-37%	173	165	232	-29%	-38%
35th St/ Park Hill Ave	SBT	14	468	408	477	-14%	-3%	458	355	589	-40%	-15%	803	635	742	-14%	-12%	701	584	915	-36%	-18%	634	531	795	-33%	-19%
	SBR	14	113	115	109	6%	3%	154	166	124	34%	15%	306	309	192	61%	12%	238	225	107	110%	18%	254	233	102	128%	19%
	NBL	14	199	197	158	25%	14%	200	169	155	9%	3%	207	205	199	3%	7%	281	268	178	51%	4%	202	213	166	28%	-1%
	NBT	14	325	293	461	-36%	-14%	475	416	451	-8%	-3%	433	384	510	-25%	-7%	692	615	507	21%	-4%	615	547	399	37%	1%
	WBL	14	322	201	153	31%	-7%	381	239	230	4%	-13%	276	153	230	-33%	-25%	423	252	233	8%	-22%	409	242	213	14%	-16%
	WBT	14	178	135	46	193%	16%	330	240	109	120%	15%	703	440	151	191%	29%	885	601	174	245%	24%	497	325	109	198%	22%
	WBR	14	106	71	76	-7%	-9%	203	144	111	30%	-2%	227	148	121	22%	-4%	224	159	87	83%	-2%	119	78	69	13%	-6%

StreetLight factored turning movement volume (assigned) is more than 50% different than field count

StreetLight factored turning movement volume proportion (assigned) is more than 20% different than field count proportion

I-94 East-West Data Collection Project
Existing (2019) TMC Balancing - Additional Intersections

Intersection	Mvmt	FID	Tube Count		Analysis Hours																					
					5:30-6:30AM					6:30-7:30AM (Peak)					2012	12-19	7:30-8:30AM					8:30-9:30AM				
					StL-Factor	Tube	Adjacent	Calculated		StL-Factor	Tube	Adjacent	Calculated		Bal	Annual	StL-Factor	Tube	Adjacent	Calculated		StL-Factor	Tube	Adjacent	Calculated	
			ID	Dir	6AM	Vol	Balanced	Raw	Balanced	7AM	Vol	Balanced	Raw	Balanced	7-8AM	Growth*	8AM	Vol	Balanced	Raw	Balanced	9AM	Vol	Balanced	Raw	Balanced
76th St/ Kearney St	NBT	2	404943	NB	198	137	-	83	98	518	313	-	199	215	730	-9%	362	363	-	230	278	223	205	-	122	151
	NBR	2			130		-	54	38	295		-	114	37	90	1%	209		-	133	161	151		-	83	35
	SBL	2	404943	SB	7	66	-	3	2	132	184	-	84	27	105	-8%	60	264	-	52	63	61	169	-	47	20
	SBT	2			145		-	53	35	219		-	140	145	310	-5%	237		-	207	251	183		-	141	60
	EBL	2	-	-	54	-	-	21	18	192	-	-	124	54	90	-5%	65	-	-	57	69	6	-	-	5	5
	EBT	2	-	-	77	-	-	29	20	535	-	-	346	111	255	-3%	273	-	-	239	289	90	-	-	68	28
	EBR	2	-	-	34	-	-	13	16	68	-	-	44	58	80	-3%	65	-	-	57	72	37	-	-	28	66
76th St/ O'Connor St	NBL	1	-	-	64	-	-	26	40	179	-	-	81	93	190	-7%	76	-	-	51	89	72	-	-	40	60
	NBT	1	-	-	188	-	-	78	76	531	-	-	242	176	630	-9%	351	-	-	236	258	157	-	-	87	96
	SBT	1	-	-	104	-	-	47	33	248	-	-	207	159	390	-7%	162	-	-	208	263	143	-	-	151	31
	SBR	1	-	-	13	-	-	6	9	31	-	-	26	30	85	-9%	6	-	-	8	30	10	-	-	11	17
	WBL	1	-	-	48	-	50	9	4	103	-	83	17	13	25	4%	135	-	102	51	51	101	-	88	37	49
	WBT	1	-	-	97	-		19	29	200	-		33	37	80	8%	80	-		30	210	85	-		31	47
	WBR	1	-	-	109	-		22	17	204	-		33	33	70	-4%	56	-		21	68	55	-		20	28

*Based on average of of 6:30-7:30AM and 7:30-8:30AM 2019 balanced volumes in comparison to 2012 7-8AM balanced volumes

I-94 East-West Data Collection Project
Existing (2019) TMC Balancing - Additional Intersections

Intersection	Mvmt	FID	Tube Count		Analysis Hours																							
					1:30-2:30PM					2:30-3:30PM (Peak)					3:30-4:30PM					4:30-5:30PM					2012	12-19	5:30-6:30PM				
					StL-Factor	Tube	Adjacent	Calculated		StL-Factor	Tube	Adjacent	Calculated		StL-Factor	Tube	Adjacent	Calculated		StL-Factor	Tube	Adjacent	Calculated		Bal	Annual	StL-Factor	Tube	Adjacent	Calculated	
			ID	Dir	2PM	Vol	Balanced	Raw	Balanced	3PM	Vol	Balanced	Raw	Balanced	4PM	Vol	Balanced	Raw	Balanced	5PM	Vol	Balanced	Raw	Balanced	:30-5:30PM	Growth*	6PM	Vol	Balanced	Raw	Balanced
76th St/ Kearney St	NBT	2	404943	NB	176	279	-	148	92	327	307	-	177	164	362	324	-	206	219	423	258	-	133	126	385	-10%	368	177	-	103	121
	NBR	2			155		-	131	81	239		-	130	84	208		-	118	97	400		-	125	90	75	3%	267		-	74	87
	SBL	2	404943	SB	73	255	-	71	44	66	297	-	71	46	120	332	-	99	81	75	247	-	34	55	90	-6%	93	155	-	27	48
	SBT	2			219		-	214	133	233		-	250	162	336		-	278	227	463		-	207	335	555	-6%	419		-	121	215
	EBL	2	-	-	13	-	-	13	18	21	-	-	22	22	27	-	-	22	15	83	-	-	37	30	60	-7%	87	-	-	26	20
	EBT	2	-	-	41	-	-	40	25	59	-	-	63	40	142	-	-	118	96	352	-	-	156	83	65	4%	458	-	-	134	111
	EBR	2	-	-	42	-	-	41	87	44	-	-	47	69	65	-	-	54	20	90	-	-	40	73	100	-4%	116	-	-	34	16
76th St/ O'Connor St	NBL	1	-	-	38	-	-	32	40	119	-	-	68	72	120	-	-	70	85	131	-	-	44	61	105	-6%	134	-	-	38	68
	NBT	1	-	-	151	-	-	129	70	229	-	-	131	114	269	-	-	158	149	375	-	-	126	95	340	-10%	321	-	-	91	73
	SBT	1	-	-	204	-	-	249	167	173	-	-	267	192	326	-	-	332	293	399	-	-	193	376	560	-5%	330	-	-	86	254
	SBR	1	-	-	26	-	-	32	40	16	-	-	25	26	41	-	-	42	51	38	-	-	18	35	55	-5%	25	-	-	7	23
	WBL	1	-	-	88	-	96	36	10	126	-	136	54	16	130	-	125	45	15	139	-	163	48	14	85	-12%	182	-	162	62	9
	WBT	1	-	-	100	-		41	50	143	-		62	66	151	-		53	65	233	-		81	101	195	-7%	219	-		75	125
	WBR	1	-	-	45	-		19	36	46	-		20	54	77	-		27	45	98	-		34	48	70	-4%	71	-		25	28

*Based on 4:30-5:30PM 2019 balanced volumes in comparison to 2012 4:30-5:30PM balanced volumes

I-94 East-West Data Collection Project
Existing (2019) TMC Balancing - Additional Intersections

Intersection	Mvmt	FID	Tube Count		Analysis Hours																					
					5:30-6:30AM					6:30-7:30AM (Peak)					2012	12-19	7:30-8:30AM					8:30-9:30AM				
					StL-Factor	Tube	Adjacent	Calculated		StL-Factor	Tube	Adjacent	Calculated		Bal	Annual	StL-Factor	Tube	Adjacent	Calculated		StL-Factor	Tube	Adjacent	Calculated	
			ID	Dir	6AM	Vol	Count	Raw	Balanced	7AM	Vol	Count	Raw	Balanced	7-8AM	Growth*	8AM	Vol	Count	Raw	Balanced	9AM	Vol	Count	Raw	Balanced
Wells St/ WIS 175 SB Exit	SBL	33	403528	SB Exit	24	29	-	8	17	95	138	-	32	56	75	-6%	17	192	-	18	27	24	98	-	18	27
	SBT	33			38		-	13	26	146		-	48	83	270	-8%	98		-	106	160	65		-	49	72
	SBR	33			21		-	8	17	175		-	58	101	65	8%	62		-	68	103	41		-	31	46
	EBT	33	-	-	11	-	-	33	12	42	-	-	179	24	50	0%	32	-	-	67	77	39	-	-	128	94
	EBR	33	-	-	29	-	110	88	52	42	-	337	179	24	20	17%	89	-	302	186	64	18	-	151	59	43
	WBL	33	-	-	3	-		9	15	26	-		17	20	20	-2%	5	-		10	15	13	-		43	37
	WBT	33	-	-	34	-	-	45	58	23	-		110	55	15	29%	7	-		30	35	16	-		42	41
Wells St/WIS 175 NB Entr	NBL	34	-	-	31	22	77	46	65	11	77	252	73	55	10	46%	7	189	149	19	29	12	83	106	59	52
	NBT	34	403527	NB Entr	47			19	35	111			132	99	130	1%	69			122	184	29			32	51
	NBR	34	-	-	8			12	22	20			47	35	25	-1%	3			8	12	3			15	24
	EBL	34	-	-	3	-	-	1	2	23	-	-	10	29	45	2%	27	-	-	48	73	29	-	-	32	71
	EBT	34	-	-	35	-	-	40	27	114	-	-	201	51	80	-7%	22	-	-	37	31	34	-	-	114	50
	WBT	34	404204	WB	3	20	-	8	8	38	44	-	20	20	25	-3%	5	66	-	21	21	17	54	-	26	26
	WBR	34			5		-	12	23	47		-	24	22	5	114%	11		-	45	68	18		-	28	53

Based on "StL-Factor" profile

*Based on average of of 6:30-7:30AM and 7:30-8:30AM 2019 balanced volumes in comparison to 2012 7-8AM balanced volumes

I-94 East-West Data Collection Project
Existing (2019) TMC Balancing - Additional Intersections

Intersection	Mvmt	FID	Tube Count		Analysis Hours																							
					1:30-2:30PM					2:30-3:30PM (Peak)					3:30-4:30PM					4:30-5:30PM					2012	12-19	5:30-6:30PM				
					StL-Factor	Tube	Adjacent	Calculated		StL-Factor	Tube	Adjacent	Calculated		StL-Factor	Tube	Adjacent	Calculated		StL-Factor	Tube	Adjacent	Calculated		Bal	Annual	StL-Factor	Tube	Adjacent	Calculated	
			ID	Dir	2PM	Vol	Balanced	Raw	Balanced	3PM	Vol	Balanced	Raw	Balanced	4PM	Vol	Balanced	Raw	Balanced	5PM	Vol	Balanced	Raw	Balanced	:30-5:30PM	Growth*	6PM	Vol	Balanced	Raw	Balanced
Wells St/ WIS 175 SB Exit	SBL	33	403528	SB Exit	2	126	-	2	2	39	172	-	50	63	64	159	-	45	74	59	146	-	37	61	30	15%	49	61	-	15	54
	SBT	33			59		-	65	51	62		-	80	99	94		-	66	108	76		-	47	77	120	-5%	67		-	20	72
	SBR	33			54		-	59	47	33		-	42	53	69		-	48	78	101		-	62	102	60	10%	88		-	26	94
	EBT	33	-	-	10	-	-	9	43	35	-	-	20	61	71	-	-	112	106	138	-	-	191	156	70	18%	99	-	-	163	115
	EBR	33	-	-	36	-	110	32	50	24	-	105	14	43	21	-	146	33	31	60	-	154	83	68	20	34%	59	-	142	97	68
	WBL	33	-	-	14	-		13	12	18	-		11	9	30	-		47	57	17	-		24	58	105	-6%	15	-		25	51
	WBT	33	-	-	11	-	-	17	16	55	-		62	50	48	-		40	48	77	-		54	78	120	-5%	79	-		27	60
Wells St/WIS 175 NB Entr	NBL	34	-	-	11	107	75	4	2	34	160	93	15	11	19	181	172	48	66	60	118	233	52	110	30	38%	51	60	198	36	75
	NBT	34	403527	NB Entr	78			85	44	85			112	81	115			93	128	163			63	133	245	-7%	139			42	87
	NBR	34	-	-	14			6	3	10			4	3	12			31	43	7			18	80	10	100%	22			40	83
	EBL	34	-	-	3	-	-	3	22	30	-	-	40	60	71	-	-	57	78	114	-	-	44	94	30	30%	78	-	-	18	51
	EBT	34	-	-	12	-	-	8	23	44	-	-	30	64	64	-	-	100	102	83	-	-	184	123	70	11%	70	-	-	160	118
	WBT	34	404204	WB	14	58	-	26	26	39	67	-	58	48	59	64	-	39	39	34	46	-	26	26	195	-12%	43	32	-	16	36
	WBR	34			17		-	32	24	6		-	9	19	38		-	25	34	27		-	20	43	25	10%	41		-	16	37

Based on "StL-Factor" profile

*Based on 4:30-5:30PM 2019 balanced volumes in comparison to 2012 4:30-5:30PM balanced volumes

I-94 East-West Data Collection Project
Existing (2019) TMC Balancing - Additional Intersections

Intersection	Mvmt	FID	Analysis Hours													
			5:30-6:30AM			6:30-7:30AM (Peak)			2012	12-19	7:30-8:30AM			8:30-9:30AM		
			StL-Factor	BRT	Calc	StL-Factor	BRT	Calc	Bal	Annual	StL-Factor	BRT	Calc	StL-Factor	BRT	Calc
			6AM	Count	Balanced	7AM	Count	Balanced	7-8AM	Growth*	8AM	Count	Balanced	9AM	Count	Balanced
Wisc Ave/ WIS 175 SB Entr	SBL	30	35	71	63	106	214	74	165	-5%	93	188	149	69	139	130
	SBT	30	24	10	9	64	27	10	25	-5%	69	29	23	22	9	9
	SBR	30	8	23	21	44	125	43	120	-8%	30	85	67	5	14	13
	EBT	30	67	134	234	460	920	560	390	8%	280	560	660	131	262	362
	EBR	30	73	48	38	163	107	83	70	13%	129	85	183	100	66	134
	WBL	30	53	29	23	189	104	72	75	1%	89	49	89	64	35	67
	WBT	30	233	527	295	485	1097	731	455	3%	191	432	399	163	369	242
Wisc Ave/ WIS 175 NB Exit	NBL	31	117	274	55	181	424	130	190	-6%	67	157	103	64	150	76
	NBT	31	36	97	19	31	84	25	30	-4%	10	27	18	10	27	14
	NBR	31	181	202	41	474	528	145	360	-7%	306	341	224	240	267	135
	EBL	31	9	20	14	36	79	54	70	0%	25	55	83	4	9	14
	EBT	31	93	186	283	530	1062	580	485	5%	348	697	726	196	393	478
	WBT	31	169	259	263	493	755	673	340	8%	213	326	385	163	249	233
	WBR	31	41	62	89	75	114	110	65	11%	44	67	124	30	46	99
Wisc Ave/ Bluemound Rd	NBR	32	56	134	134	300	718	300	350	-1%	147	352	352	85	204	204
	EBT	32	237	403	310	805	1368	631	785	0%	579	984	906	397	675	593
	EBR	32	37	27	14	199	143	94	55	4%	75	54	44	39	28	20
	WBL	32	42	33	33	188	148	148	85	5%	107	84	84	48	38	38
	WBT	32	210	252	352	568	683	783	400	9%	257	309	509	193	232	332

Based on "StL-Factor" profile

*Based on average of of 6:30-7:30AM and 7:30-8:30AM 2019 balanced volumes in comparison to 2012 7-8AM balanced volumes

I-94 East-West Data Collection Project
Existing (2019) TMC Balancing - Additional Intersections

Intersection	Mvmt	FID	Analysis Hours															
			1:30-2:30PM			2:30-3:30AM (Peak)			3:30-4:30PM			4:30-5:30PM			2012	12-19	5:30-6:30PM		
			StL-Factor	BRT	Calc	StL-Factor	BRT	Calc	StL-Factor	BRT	Calc	StL-Factor	BRT	Calc	Bal	Annual	StL-Factor	BRT	Calc
			2PM	Count	Balanced	3PM	Count	Balanced	4PM	Count	Balanced	5PM	Count	Balanced	:30-5:30PM	Growth*	6PM	Count	Balanced
Wisc Ave/ WIS 175 SB Entr	SBL	30	50	50	48	45	45	63	80	80	102	87	87	115	65	11%	57	57	81
	SBT	30	30	16	15	34	18	25	34	18	23	41	22	29	120	-11%	59	32	46
	SBR	30	29	52	50	25	45	63	31	56	71	25	45	59	60	0%	25	45	64
	EBT	30	136	116	216	204	173	273	286	243	343	385	327	427	400	1%	440	374	474
	EBR	30	123	70	131	114	64	107	171	97	148	207	117	183	50	38%	389	220	153
	WBL	30	107	38	64	234	82	133	426	150	224	547	192	293	170	10%	340	119	156
	WBT	30	263	264	223	405	407	240	534	536	338	677	680	440	1115	-9%	570	573	405
Wisc Ave/ WIS 175 NB Exit	NBL	31	118	59	95	177	88	132	205	102	133	231	115	123	120	0%	181	90	82
	NBT	31	15	11	18	30	21	31	31	22	28	45	32	34	45	-3%	60	43	40
	NBR	31	165	66	107	253	101	152	354	141	184	453	180	193	235	-3%	368	146	133
	EBL	31	0	0	2	17	9	6	41	21	35	56	28	39	50	-3%	50	25	30
	EBT	31	186	175	262	232	218	330	325	305	410	416	391	503	415	3%	447	420	525
	WBT	31	252	196	192	462	360	241	755	588	429	993	774	610	1165	-7%	729	568	479
	WBR	31	78	105	29	82	110	58	74	99	174	129	173	200	190	1%	102	137	125
Wisc Ave/ Bluemound Rd	NBR	32	51	37	37	58	42	82	84	60	160	314	225	225	225	0%	293	210	210
	EBT	32	300	206	340	411	282	438	507	348	497	732	503	625	575	1%	747	513	603
	EBR	32	51	25	29	74	37	44	172	85	97	137	68	71	70	0%	68	34	33
	WBL	32	61	106	106	115	200	200	314	546	546	309	537	537	535	0%	303	527	327
	WBT	32	330	121	221	544	199	299	829	303	603	1122	410	810	1330	-6%	831	304	604

Based on "StL-Factor" profile

*Based on 4:30-5:30PM 2019 balanced volumes in comparison to 2012 4:30-5:30PM balanced volumes

I-94 East-West Data Collection Project
Existing (2019) TMC Balancing - Additional Intersections

Intersection	Mvmt	FID	Tube Count		Analysis Hours															
					5:30-6:30AM				6:30-7:30AM (Peak)				2012	12-19	7:30-8:30AM				8:30-9:30AM			
					StL-Factor	Tube	Calculated		StL-Factor	Tube	Calculated		Bal	Annual	StL-Factor	Tube	Calculated		StL-Factor	Tube	Calculated	
			ID	Dir	6AM	Vol	Raw	Balanced	7AM	Vol	Raw	Balanced	7-8AM	Growth*	8AM	Vol	Raw	Balanced	9AM	Vol	Raw	Balanced
National Ave/ Miller Park Way	SBL	27	403509	NB-north	158	788	110	177	176	1306	138	194	160	5%	177	1646	201	231	90	1081	95	140
	SBT	27			637		443	711	926		726	1028	1230	-2%	871		989	1136	608		642	937
	SBR	27			316		220	352	597		468	663	525	1%	347		394	453	249		263	383
	NBL	27	403512	SB	40	760	35	33	78	1317	98	97	145	-1%	79	1242	107	164	66	1070	81	97
	NBT	27			821		714	681	953		1199	1186	1770	-3%	801		1084	1668	771		942	1139
	NBR	27			13		11	11	16		20	19	95	-7%	38		51	79	39		47	58
	EBL	27	-	-	279		194	231	511		401	482	525	-1%	378		429	493	312		329	320
	EBT	27	-	-	59		41	48	221		173	208	260	-2%	189		215	247	134		141	137
	EBR	27	-	-	10		7	8	26		20	24	75	-10%	16		18	21	7		7	7
	WBL	27	-	-	11		8	10	59		46	68	90	-1%	51		58	94	35		37	47
	WBT	27	-	-	76		53	62	175		137	200	275	-5%	86		98	158	73		77	99
	WBR	27	-	-	216		151	178	229		179	262	275	2%	201		228	369	104		110	141

*Based on average of of 6:30-7:30AM and 7:30-8:30AM 2019 balanced volumes in comparison to 2012 7-8AM balanced volumes

I-94 East-West Data Collection Project
Existing (2019) TMC Balancing - Additional Intersections

Intersection	Mvmt	FID	Tube Count		Analysis Hours																			
					1:30-2:30PM				2:30-3:30PM (Peak)				3:30-4:30AM				4:30-5:30PM				2012	12-19	5:30-6:30PM			
					StL-Factor	Tube	Calculated		StL-Factor	Tube	Calculated		StL-Factor	Tube	Calculated		StL-Factor	Tube	Calculated		Bal	Annual	StL-Factor	Tube	Calculated	
			ID	Dir	2PM	Vol	Raw	Balanced	3PM	Vol	Raw	Balanced	4PM	Vol	Raw	Balanced	5PM	Vol	Raw	Balanced	:30-5:30PM	Growth*	6PM	Vol	Raw	Balanced
National Ave/ Miller Park Way	SBL	27	403509	NB-north	134	1397	132	179	89	1487	90	167	158	1555	117	180	273	1126	134	268	200	5%	234	855	100	196
	SBT	27			950		933	1272	880		893	1261	1354		1000	1554	1446		710	1414	2110	-5%	1264		542	1058
	SBR	27			313		307	419	479		486	687	598		442	686	623		306	608	600	0%	527		226	441
	NBL	27	403512	SB	49	1473	75	59	24	1629	38	62	45	1662	66	63	83	1190	77	111	115	0%	56	926	47	71
	NBT	27			857		1307	1261	963		1527	1344	1033		1522	1456	1122		1043	1514	1510	0%	985		830	1245
	NBR	27			60		91	88	40		64	76	50		74	71	75		70	101	85	3%	58		49	74
	EBL	27	-	-	278		273	276	355		360	359	396		292	281	445		219	322	475	-5%	420		180	247
	EBT	27	-	-	155		152	154	169		171	171	143		105	102	266		131	192	340	-6%	333		143	196
	EBR	27	-	-	11		11	11	8		8	8	46		34	33	64		31	47	135	-9%	41		18	25
	WBL	27	-	-	43		42	58	85		86	110	120		89	145	99		49	117	205	-6%	76		33	81
	WBT	27	-	-	176		173	239	230		234	297	288		213	351	279		137	326	355	-1%	240		103	256
	WBR	27	-	-	194		191	263	230		234	297	356		263	433	401		197	469	315	7%	309		133	328

*Based on 4:30-5:30PM 2019 balanced volumes in comparison to 2012 4:30-5:30PM balanced volumes

I-94 East-West Data Collection Project
Existing (2019) TMC Balancing - Additional Intersections

Intersection	Mvmt	FID	Analysis Hours													
			5:30-6:30AM			6:30-7:30AM (Peak)			2012	12-19	7:30-8:30AM			8:30-9:30AM		
			StL-Factor	2016	Calc	StL-Factor	2016	Calc	Bal	Annual	StL-Factor	2016	Calc	StL-Factor	2016	Calc
			6AM	Count	Balanced	7AM	Count	Balanced	7-8AM	Growth*	8AM	Count	Balanced	9AM	Count	Balanced
Canal St/ WIS 175 SB Ramps	SBL	28	0	0	0	0	0	0	5	-13%	0	1	1	0	0	0
	SBT	28	0	0	0	0	1	7	5	-4%	0	0	0	0	0	0
	SBR	28	0	0	0	0	0	0	5	-13%	0	1	1	0	2	2
	NBL	28	14	1	8	27	3	12	30	-11%	18	1	3	7	0	0
	NBT	28	0	1	8	0	2	8	10	26%	0	19	48	0	19	36
	NBR	28	27	23	184	110	62	255	290	3%	21	174	434	4	16	304
	EBL	28	0	0	0	0	0	7	5	6%	0	7	7	0	5	5
	EBT	28	11	1	1	5	4	16	10	9%	4	16	16	3	1	1
	EBR	28	24	1	10	15	4	23	5	51%	8	8	23	24	2	13
	WBL	28	26	5	50	78	15	142	90	8%	44	50	142	30	16	107
	WBT	28	6	1	26	62	2	41	50	-3%	12	5	41	11	3	33
	WBR	28	0	1	1	0	2	2	10	-11%	0	2	2	0	4	4
Canal St/ WIS 175 NB Ramps	SBL	29	0	0	0	0	1	1	5	-13%	0	0	0	0	1	1
	SBT	29	0	0	0	0	1	1	5	0%	0	7	9	0	5	6
	SBR	29	0	2	2	0	8	8	5	4%	0	5	5	0	5	5
	NBL	29	4	3	7	8	12	11	50	-11%	3	12	13	5	30	28
	NBT	29	0	2	4	0	6	6	10	-5%	0	6	7	0	15	14
	NBR	29	0	78	169	0	308	283	410	-2%	0	380	425	0	187	178
	EBL	29	0	1	1	0	5	5	5	-1%	0	4	4	0	8	8
	EBT	29	27	50	164	110	199	214	280	0%	21	357	362	4	100	258
	EBR	29	11	12	20	5	49	40	20	30%	4	65	85	3	32	39
	WBL	29	29	6	10	137	24	19	25	3%	37	31	41	24	20	25
	WBT	29	28	18	68	132	71	131	95	8%	53	97	167	36	71	111
	WBR	29	0	0	0	0	1	1	5	-13%	0	0	0	0	0	0

Based on "StL-Factor" profile

*Based on average of of 6:30-7:30AM and 7:30-8:30AM 2019 balanced volumes in comparison to 2012 7-8AM balanced volumes

I-94 East-West Data Collection Project
Existing (2019) TMC Balancing - Additional Intersections

Intersection	Mvmt	FID	Analysis Hours																
			1:30-2:30PM			2:30-3:30AM (Peak)			3:30-4:30PM			4:30-5:30PM			2012	12-19	5:30-6:30PM		
			StL-Factor	BRT	Calc	StL-Factor	BRT	Calc	StL-Factor	BRT	Calc	StL-Factor	BRT	Calc	Bal	Annual	StL-Factor	BRT	Calc
			2PM	Count	Balanced	3PM	Count	Balanced	4PM	Count	Balanced	5PM	Count	Balanced	:30-5:30PM	Growth*	6PM	Count	Balanced
Canal St/ WIS 175 SB Ramps	SBL	28	0	2	3	0	2	2	0	3	2	0	19	11	35	-10%	0	3	2
	SBT	28	0	2	4	0	1	9	0	5	9	0	13	5	15	-10%	0	4	6
	SBR	28	0	3	2	0	1	3	0	2	3	0	11	19	10	13%	0	2	3
	NBL	28	47	2	7	8	1	8	38	2	28	69	2	11	10	1%	56	1	25
	NBT	28	0	2	2	0	0	0	0	1	4	0	2	6	5	3%	0	1	5
	NBR	28	4	39	131	32	16	127	138	13	188	143	60	333	85	42%	88	9	240
	EBL	28	0	0	0	0	1	1	0	1	1	0	0	0	5	-14%	0	0	0
	EBT	28	4	4	4	10	0	5	6	1	6	16	4	4	10	-9%	22	1	1
	EBR	28	26	11	24	10	4	17	22	2	25	30	9	37	25	7%	21	2	25
	WBL	28	56	79	172	56	73	318	214	84	406	255	242	458	490	-1%	249	43	224
	WBT	28	6	7	25	4	6	22	148	10	38	236	54	166	200	-2%	171	11	47
	WBR	28	0	1	1	0	1	1	0	4	4	0	1	1	10	-13%	0	1	1
Canal St/ WIS 175 NB Ramps	SBL	29	0	1	1	0	1	1	0	1	1	0	0	0	5	-14%	0	0	0
	SBT	29	0	13	7	0	5	8	0	0	0	0	7	8	10	-3%	0	4	9
	SBR	29	0	26	26	0	11	11	0	10	10	0	19	19	10	13%	0	7	7
	NBL	29	4	13	15	4	16	20	21	28	34	25	20	46	50	-1%	13	8	19
	NBT	29	0	5	6	0	10	8	0	10	7	0	6	9	10	-1%	0	4	9
	NBR	29	0	120	134	0	112	147	0	128	159	0	126	295	260	2%	0	106	247
	EBL	29	0	5	5	0	4	4	0	1	7	0	7	7	5	6%	0	1	1
	EBT	29	4	53	97	32	47	82	138	58	227	143	107	227	90	22%	88	48	199
	EBR	29	4	20	36	10	27	47	6	21	114	16	39	114	35	32%	22	18	43
	WBL	29	34	56	72	47	110	190	240	115	330	457	159	423	225	13%	286	81	193
	WBT	29	58	157	157	56	310	310	341	404	404	466	560	560	640	-2%	407	246	246
	WBR	29	0	2	2	0	1	1	0	1	1	0	1	1	5	-11%	0	1	1

*Based on 4:30-5:30PM 2019 balanced volumes in comparison to 2012 4:30-5:30PM balanced volumes

I-94 East-West Data Collection Project
Existing (2019) TMC Balancing - Additional Intersections

Intersection	Mvmt	FID	Tube Count		Analysis Hours																					
					5:30-6:30AM					6:30-7:30AM (Peak)					2012	12-19	7:30-8:30AM					8:30-9:30AM				
					StL-Factor	Tube	Adjacent	Calculated		StL-Factor	Tube	Adjacent	Calculated		Bal	Annual	StL-Factor	Tube	Adjacent	Calculated		StL-Factor	Tube	Adjacent	Calculated	
			ID	Dir	6AM	Vol	Balanced	Raw	Balanced	7AM	Vol	Balanced	Raw	Balanced	7-8AM	Growth*	8AM	Vol	Balanced	Raw	Balanced	9AM	Vol	Balanced	Raw	Balanced
28th St/ Clybourn St	SBL	17	-	-	5		11	2	2	5		18	2	2	-	-	4		38	5	2	4		38	4	4
	SBT	17	-	-	5			2	2	8			3	3	-	-	14			19	9	8			8	8
	SBR	17	-	-	3			1	1	4			2	2	-	-	5			7	3	3			3	3
	EBL	17	-	-	0			0	0	0			0	0	-	-	0			0	0	0			0	0
	EBT	17	-	-	46			23	32	49			12	72	-	-	87			120	175	39			39	83
	EBR	17	-	-	2			1	1	4			1	1	-	-	8			11	11	4			4	4
	WBL	17	-	-	28			9	8	44			14	14	-	-	6			8	18	27			26	26
	WBT	17	-	-	84			27	27	167			53	56	-	-	35			47	38	55			53	32
	WBR	17	-	-	2			1	1	9			3	3	-	-	5			7	16	2			2	2
27th St/ Clybourn St	SBL	18	404224	NB	3	395	214	5	2	5	521	336	5	2	25	-9%	35	845	574	50	18	12	811	424	25	14
	SBT	18			232			374	183	477			499	248	410	-3%	537			774	383	363			761	414
	SBR	18			10			16	4	16			17	8	10	-1%	14			21	10	12			25	14
	NBL	18	404224	SB	16	504	257	23	15	20	878	408	23	22	20	-2%	0	1186	543	0	12	18	1079	550	37	20
	NBT	18			209			303	190	251			293	277	500	-3%	406			811	487	326			678	373
	NBR	18			5			7	9	34			40	37	90	-5%	63			126	75	27			56	31
	EBL	18	-	-	8			7	2	18			43	9	20	-10%	4			12	4	4			16	7
	EBT	18	-	-	30			27	23	19			46	60	135	-3%	68			205	159	25			98	70
	EBR	18	-	-	13			19	9	12			14	5	35	-10%	19			38	14	10			21	10
	WBL	18	-	-	126			182	65	488			571	155	100	7%	169			337	146	183			380	126
	WBT	18	-	-	96			122	17	184			299	43	200	-11%	27			162	50	52			123	26
	WBR	18	-	-	129			163	22	199			324	46	50	9%	64			384	120	93			219	47
26th St/ Clybourn St	SBL	19	-	-	10		122	17	5	4		156	15	3	15	-10%	5		148	20	5	7		168	29	10
	SBR	19	-	-	0			0	1	0			0	3	20	-10%	8			32	8	6			25	9
	NBL	19	-	-	61			105	24	39			141	19	5	33%	24			96	14	27			114	32
	NBT	19	-	-	37			33	15	44			68	21	60	-7%	70			97	40	33			59	39
	NBR	19	-	-	212			189	83	243			376	116	105	0%	164			227	94	84			150	97
	EBL	19	-	-	4			4	4	4			6	7	5	26%	13			18	21	3			5	5
	EBT	19	-	-	33		118	30	30	54		211	83	92	245	-5%	143		330	199	231	61		217	109	110
	WBT	19	-	-	290		85	79	79	832		233	232	222	325	-3%	228		310	299	294	295		165	163	158
	WBR	19	-	-	24			6	6	3			1	11	20	-5%	8			11	16	4			2	7

*Based on average of of 6:30-7:30AM and 7:30-8:30AM 2019 balanced volumes in comparison to 2012 7-8AM balanced volumes

I-94 East-West Data Collection Project
Existing (2019) TMC Balancing - Additional Intersections

Intersection	Mvmt	FID	Tube Count		Analysis Hours																									
					1:30-2:30PM					2:30-3:30PM (Peak)					3:30-4:30PM					4:30-5:30PM					2012	12-19	5:30-6:30PM				
					StL-Factor	Tube	Adjacent	Calculated		StL-Factor	Tube	Adjacent	Calculated		StL-Factor	Tube	Adjacent	Calculated		StL-Factor	Tube	Adjacent	Calculated		Bal	Annual	StL-Factor	Tube	Adjacent	Calculated	
			ID	Dir	2PM	Vol	Balanced	Raw	Balanced	3PM	Vol	Balanced	Raw	Balanced	4PM	Vol	Balanced	Raw	Balanced	5PM	Vol	Balanced	Raw	Balanced	:30-5:30PM	Growth*	6PM	Vol	Balanced	Raw	Balanced
28th St/ Clybourn St	SBL	17	-	-	4		11	1	3	4		18	2	4	0		38	0	0	0		38	0	0	-	-	0		38	0	0
	SBT	17	-	-	20			5	15	8			3	6	6			6	9	4			2	4	-	-	13			9	14
	SBR	17	-	-	10			3	9	0			0	4	10			10	15	5			3	6	-	-	3			2	3
	EBL	17	-	-	0			0	0	0			0	0	3			3	3	0			0	0	-	-	0			0	0
	EBT	17	-	-	22			11	71	48			24	77	173			173	108	64			32	136	-	-	59			30	54
	EBR	17	-	-	2			1	3	4			2	4	3			3	4	2			1	2	-	-	2			1	2
	WBL	17	-	-	26			6	19	33			13	26	29			29	41	65			35	76	-	-	41			28	43
	WBT	17	-	-	54			12	32	49			19	53	140			140	78	134			72	52	-	-	111			76	31
	WBR	17	-	-	2			0	0	3			1	2	5			5	7	23			12	26	-	-	3			2	3
27th St/ Clybourn St	SBL	18			10			18	8	20			25	14	23			30	9	38			38	20	30	-5%	33			28	21
	SBT	18	404224	NB	592	1095	214	1063	480	810	1041	336	994	580	832	1135	574	1077	584	872	925	574	866	630	745	-2%	819	727	424	685	512
	SBR	18			8			14	7	18			22	13	22			28	15	21			21	16	15	1%	17			14	10
	NBL	18			17			40	23	0			0	28	24			39	49	14			12	26	25	1%	10			9	10
	NBT	18	404224	SB	350	1468	257	829	478	424	1706	408	813	534	392	1885	543	639	566	576	1420	543	509	617	550	2%	469	1016	550	402	490
	NBR	18			17			40	23	38			73	48	34			55	49	16			14	17	35	-7%	7			6	7
	EBL	18	-	-	4			10	4	12			24	15	28			35	20	16			43	35	25	6%	6			9	8
	EBT	18	-	-	14			37	63	32			63	58	113			139	67	33			89	92	55	10%	49			70	39
	EBR	18	-	-	8			19	7	12			23	8	32			52	21	15			13	9	30	-10%	13			11	7
	WBL	18	-	-	262			620	263	454			870	316	732			1194	442	1017			898	472	265	11%	704			603	276
	WBT	18	-	-	55			70	21	67			87	40	123			146	62	182			231	112	395	-10%	128			101	57
	WBR	18	-	-	114			145	45	198			257	116	257			304	129	227			288	139	65	16%	225			178	100
26th St/ Clybourn St	SBL	19	-	-	8		122	19	6	7		156	10	8	3		148	4	3	20		148	23	5	20	-11%	4		168	4	4
	SBR	19	-	-	11			26	10	13			18	15	26			36	26	24			27	42	10	46%	33			37	33
	NBL	19	-	-	32			77	28	90			128	55	79			108	52	86			98	47	10	53%	114			127	55
	NBT	19	-	-	44			46	38	65			63	40	73			79	46	46			79	25	80	-10%	54			48	26
	NBR	19	-	-	110			115	96	106			103	65	129			140	84	110			189	60	70	-2%	124			110	60
	EBL	19	-	-	8			8	16	26			25	35	8			9	6	17			29	28	5	66%	12			11	9
	EBT	19	-	-	37		118	39	78	64		211	62	85	152		330	165	119	60		330	103	101	115	-2%	77		217	68	58
	WBT	19	-	-	388		85	81	291	616		233	231	402	1007		310	306	555	1316		310	307	634	705	-1%	910		165	165	403
	WBR	19	-	-	20			4	4	4			2	2	13			4	4	11			3	3	40	-13%	0			0	1

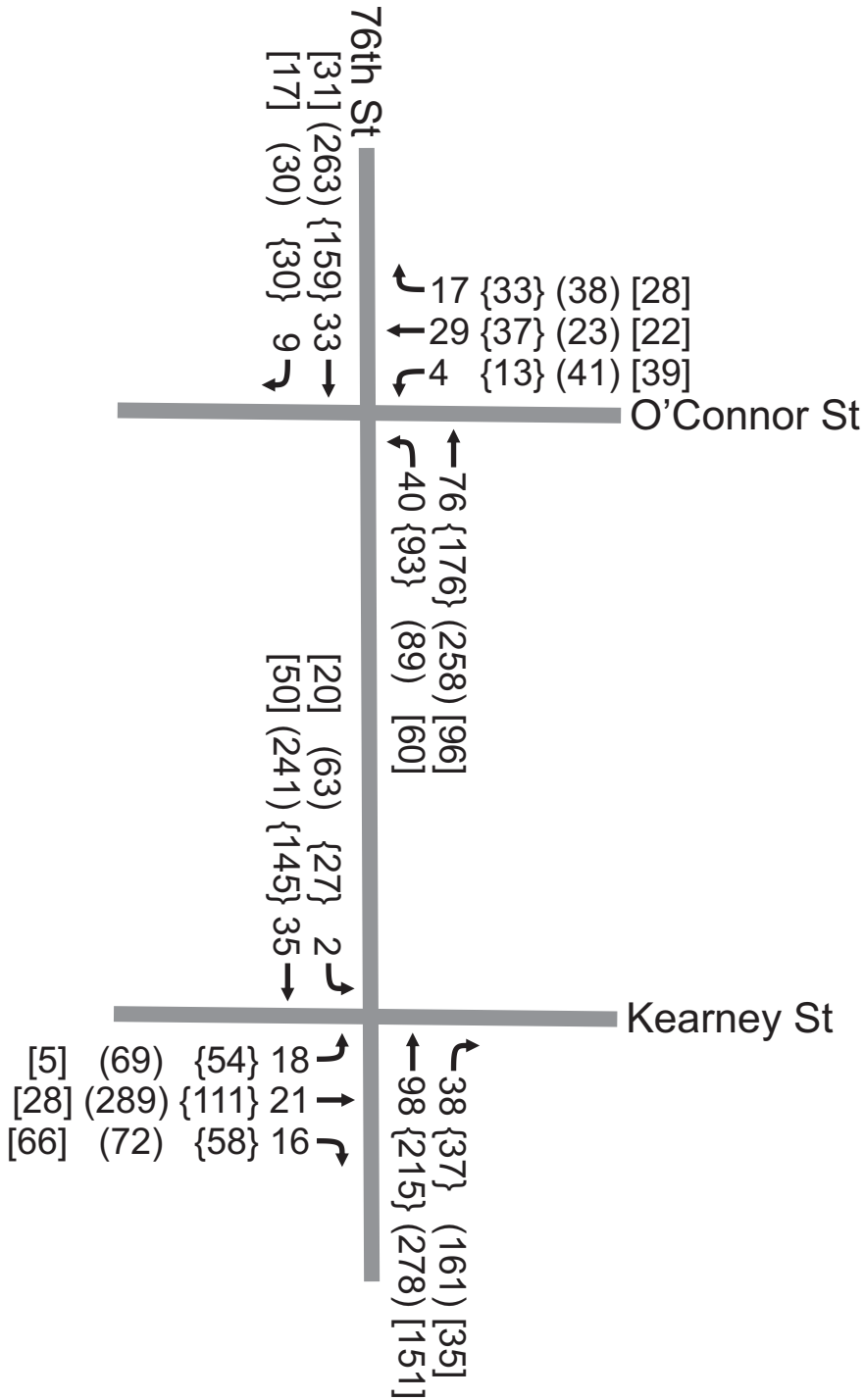
*Based on 4:30-5:30PM 2019 balanced volumes in comparison to 2012 4:30-5:30PM balanced volumes

I-94 East-West

Data Collection Project

2019 Existing AM Hourly Balanced Volumes

76th St



5:30-6:30AM
{6:30-7:30AM} - Peak Hour
(7:30-8:30AM)
[8:30-9:30AM]

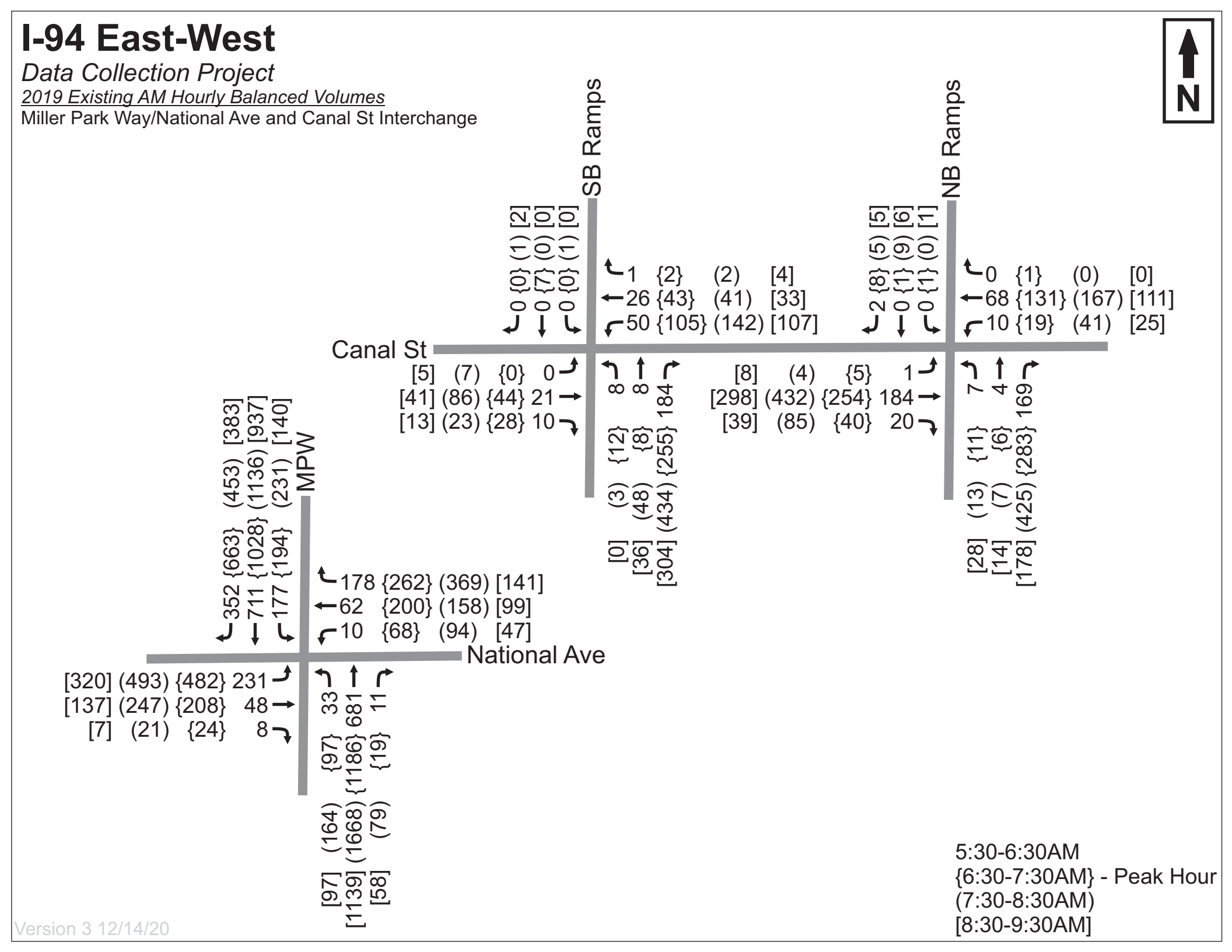
Version 3 12/14/20

I-94 East-West

Data Collection Project

2019 Existing AM Hourly Balanced Volumes

Miller Park Way/National Ave and Canal St Interchange



5:30-6:30AM
{6:30-7:30AM} - Peak Hour
(7:30-8:30AM)
[8:30-9:30AM]

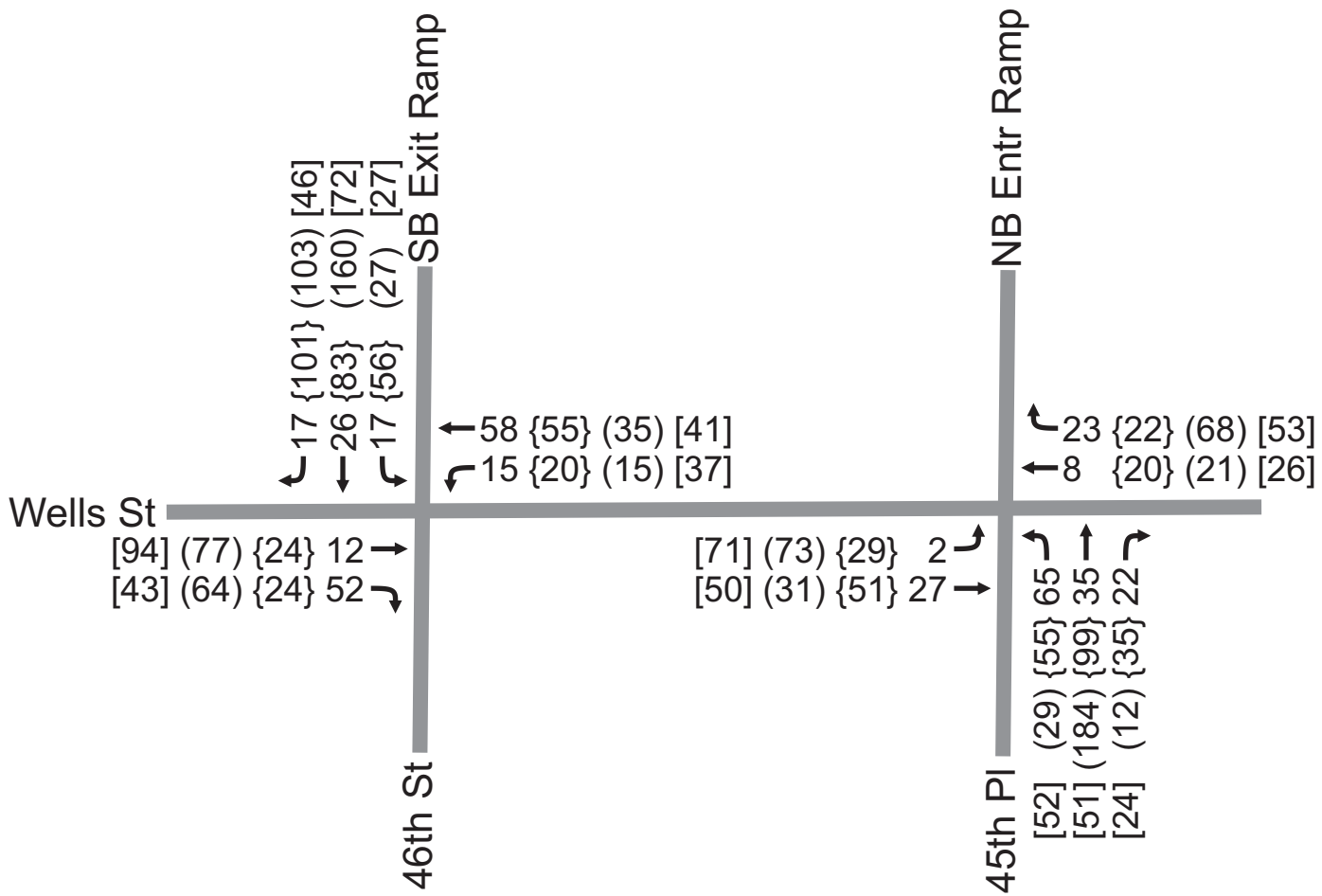
Version 3 12/14/20

I-94 East-West

Data Collection Project

2019 Existing AM Hourly Balanced Volumes

Wells St/WIS 175 Interchange



5:30-6:30AM
{6:30-7:30AM} - Peak Hour
(7:30-8:30AM)
[8:30-9:30AM]

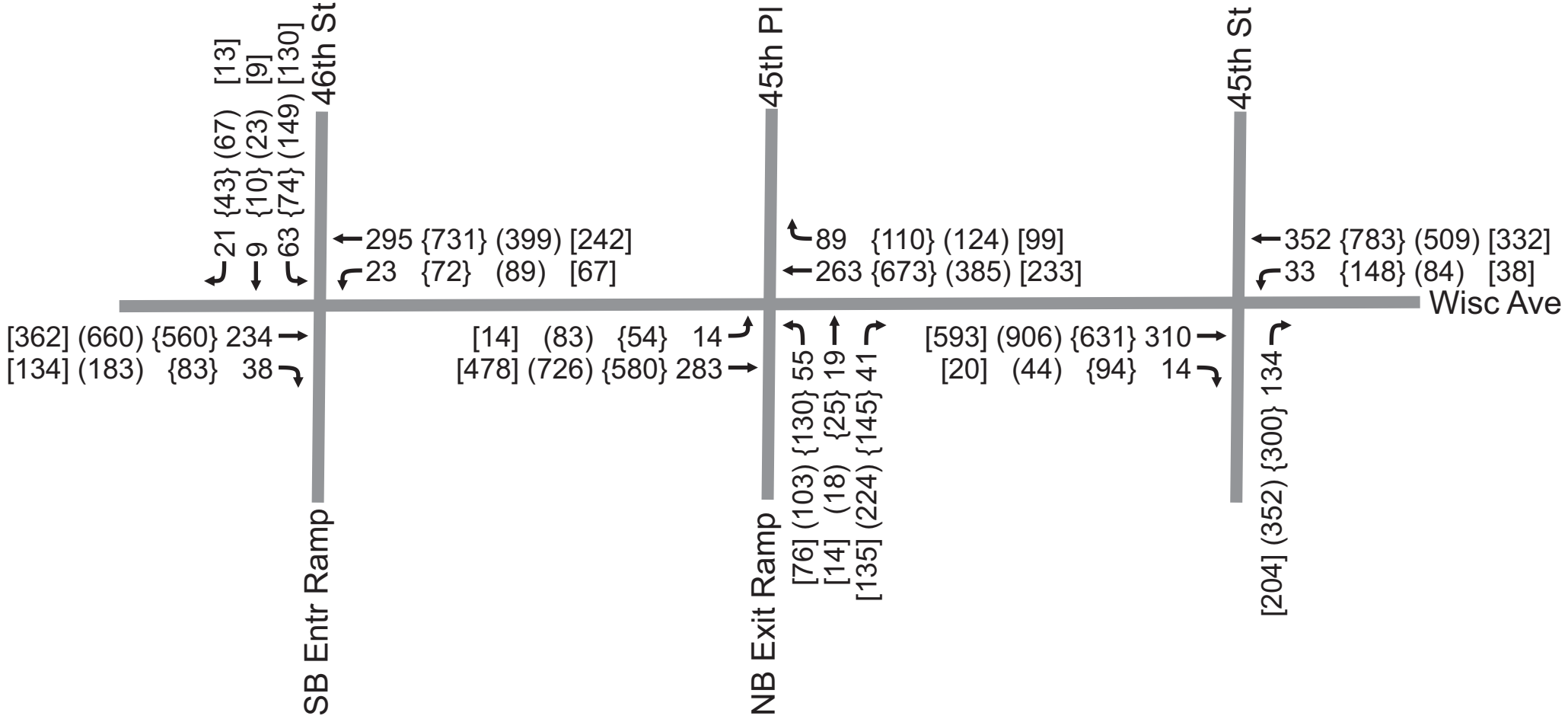
Version 3 12/14/20

I-94 East-West

Data Collection Project

2019 Existing AM Hourly Balanced Volumes

Wisconsin Ave/WIS 175 Interchange



5:30-6:30AM
{6:30-7:30AM} - Peak Hour
(7:30-8:30AM)
[8:30-9:30AM]

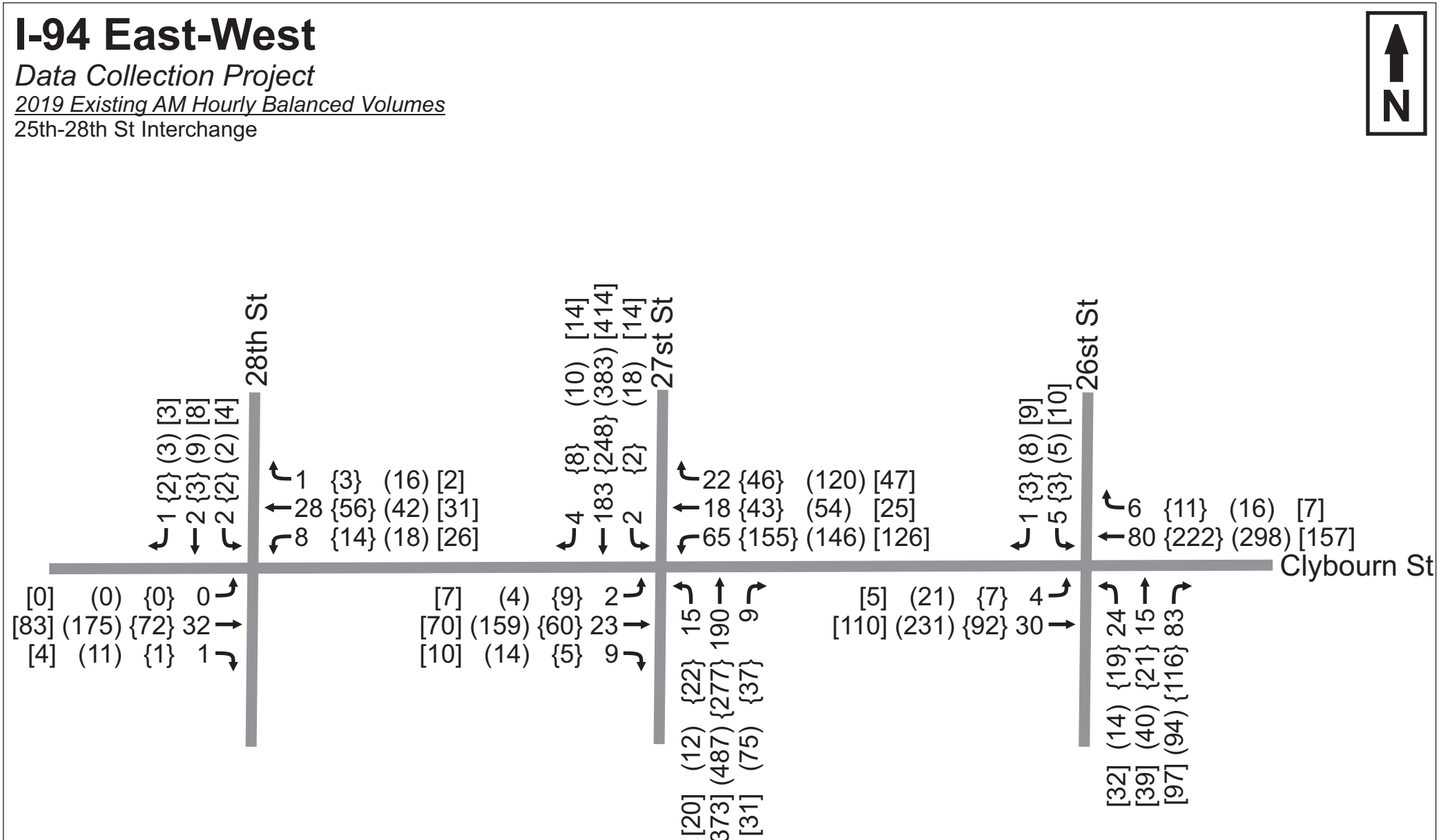
Version 3 12/14/20

I-94 East-West

Data Collection Project

2019 Existing AM Hourly Balanced Volumes

25th-28th St Interchange



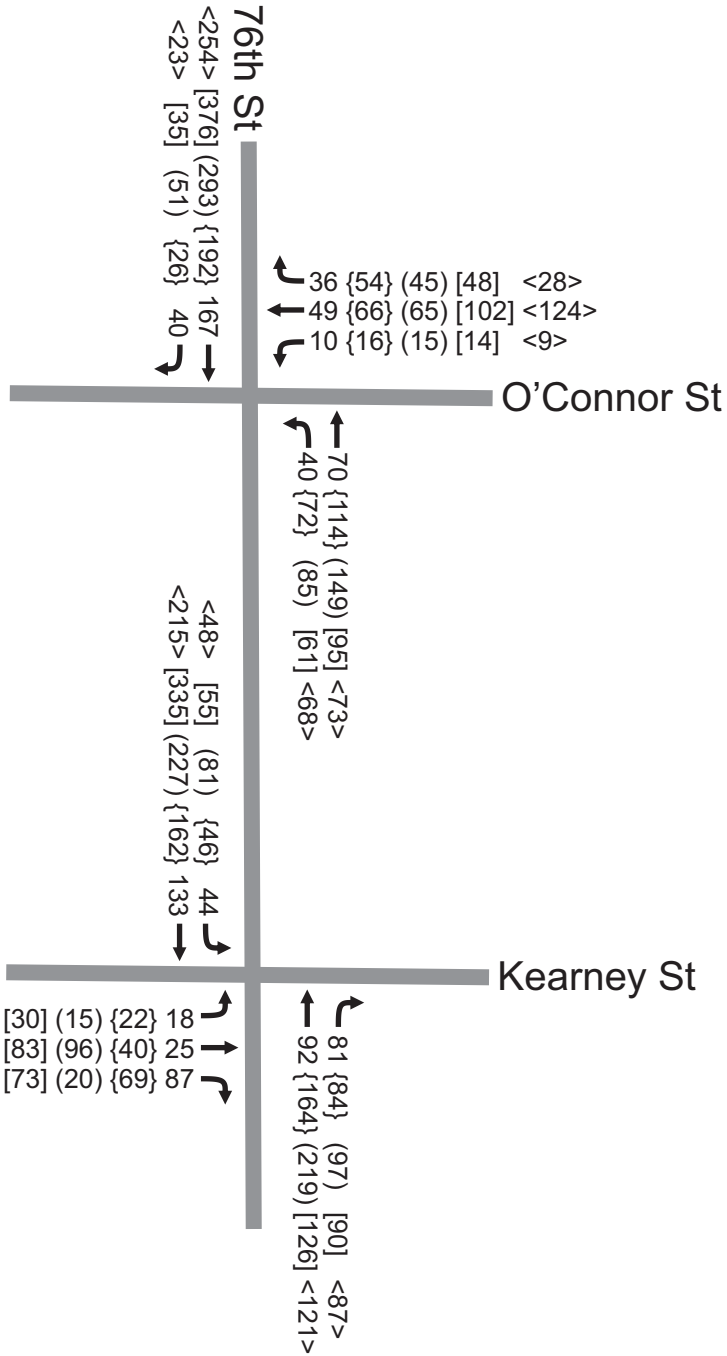
Version 3 12/14/20

I-94 East-West

Data Collection Project

2019 Existing PM Hourly Balanced Volumes

76th St



1:30-2:30PM
{2:30-3:30PM} - Peak Hour
(3:30-4:30PM)
[4:30-5:30PM]
<5:30-6:30PM>

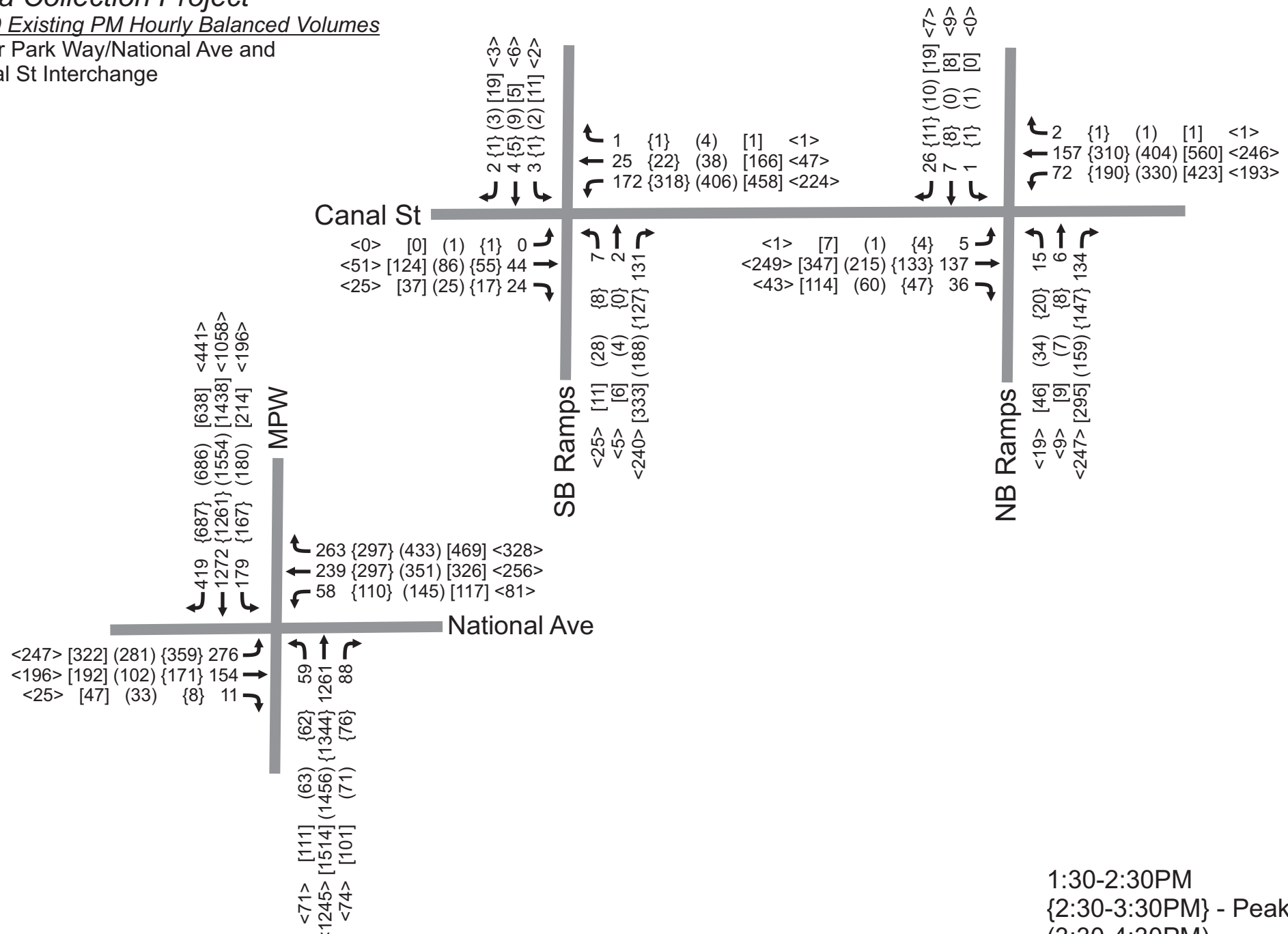
Version 3 12/14/20

I-94 East-West

Data Collection Project

2019 Existing PM Hourly Balanced Volumes

Miller Park Way/National Ave and
Canal St Interchange



1:30-2:30PM
{2:30-3:30PM} - Peak Hour
(3:30-4:30PM)
[4:30-5:30PM]
<5:30-6:30PM>

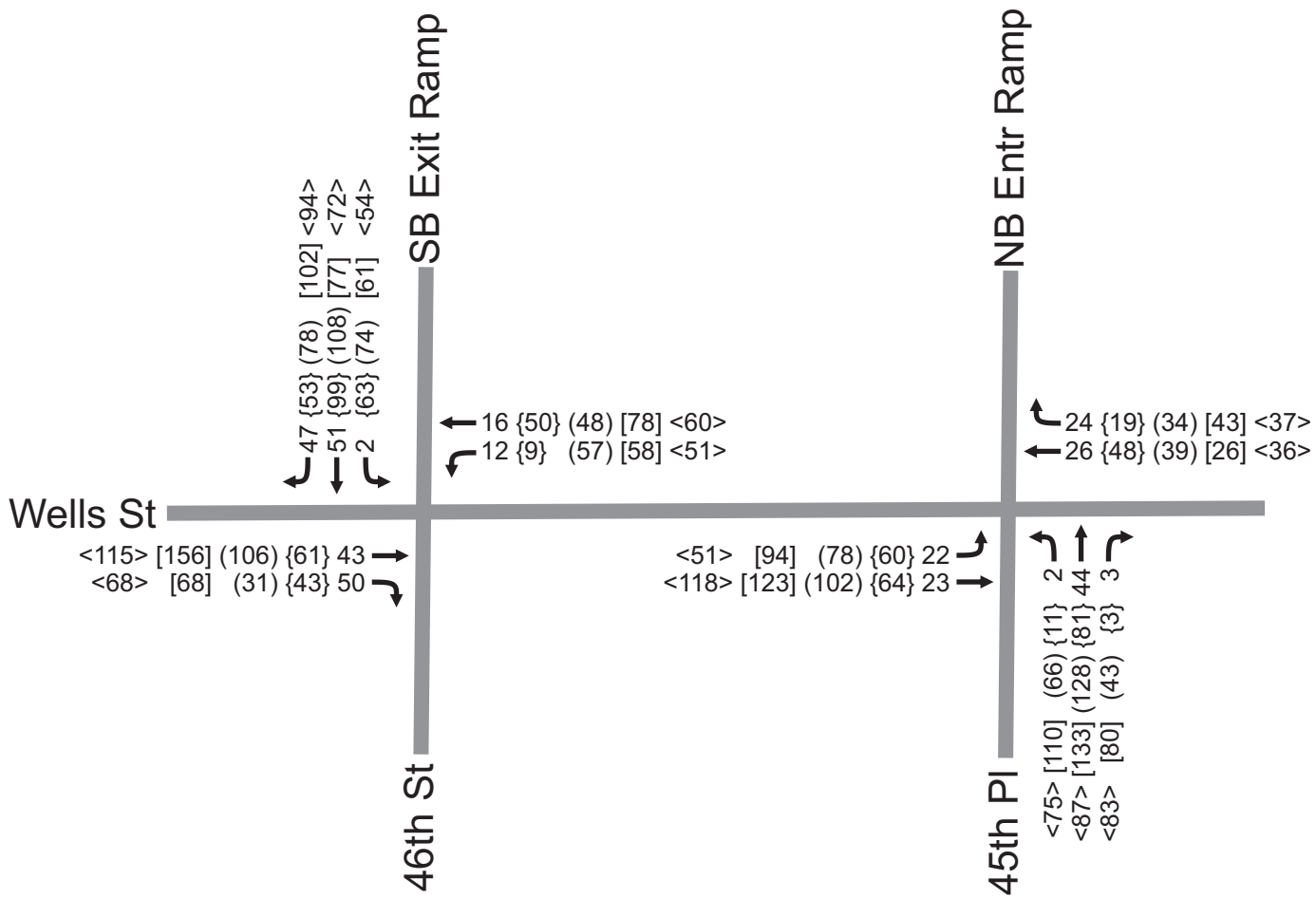
Version 3 12/14/20

I-94 East-West

Data Collection Project

2019 Existing PM Hourly Balanced Volumes

Wells St/WIS 175 Interchange



1:30-2:30PM
{2:30-3:30PM} - Peak Hour
(3:30-4:30PM)
[4:30-5:30PM]
<5:30-6:30PM>

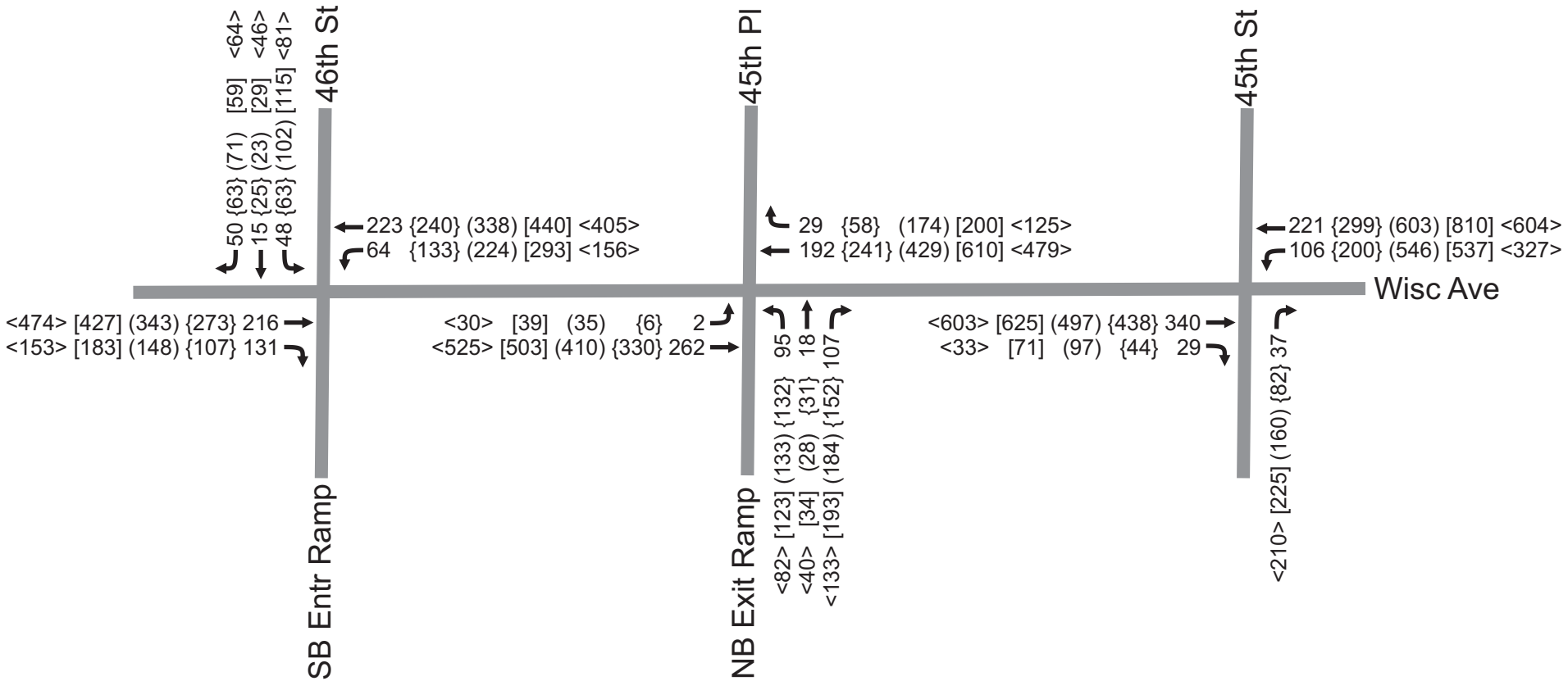
Version 3 12/14/20

I-94 East-West

Data Collection Project

2019 Existing PM Hourly Balanced Volumes

Wisconsin Ave/WIS 175 Interchange



1:30-2:30PM
{2:30-3:30PM} - Peak Hour
(3:30-4:30PM)
[4:30-5:30PM]
<5:30-6:30PM>

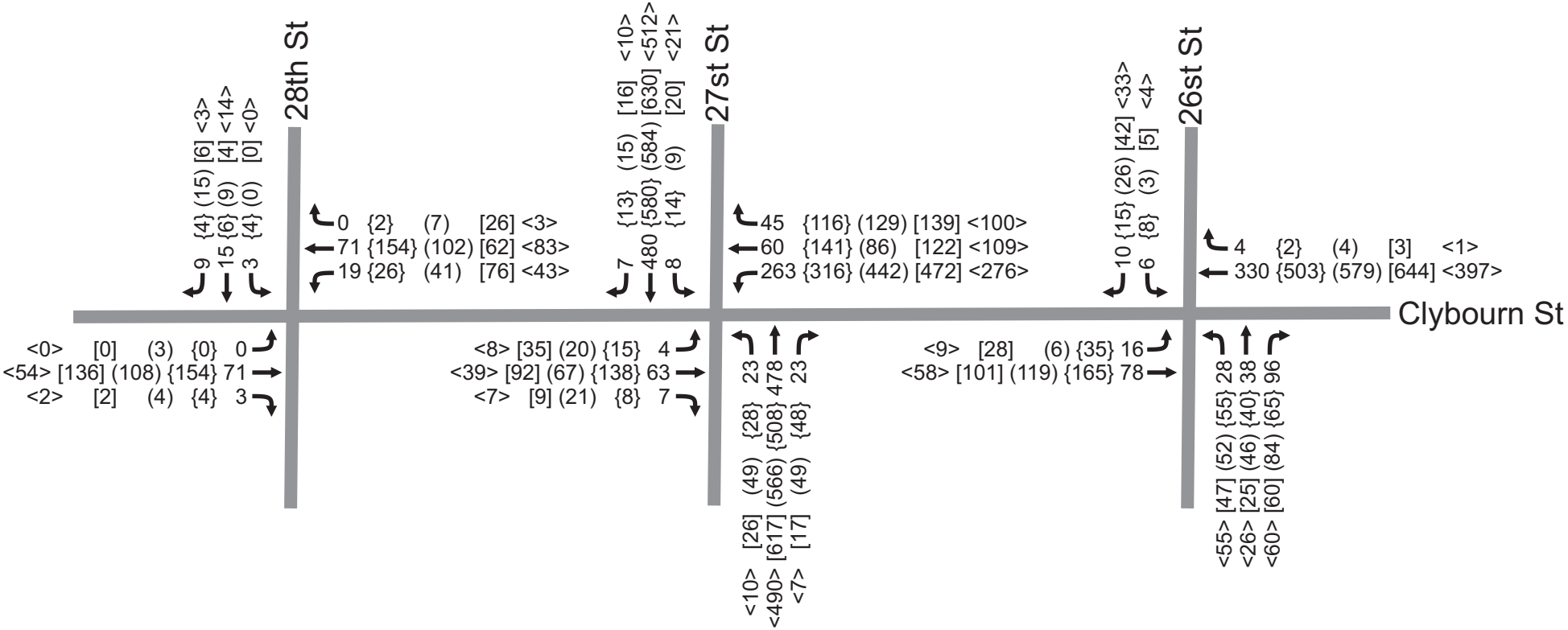
Version 3 12/14/20

I-94 East-West

Data Collection Project

2019 Existing PM Hourly Balanced Volumes

25th-28th St Interchange



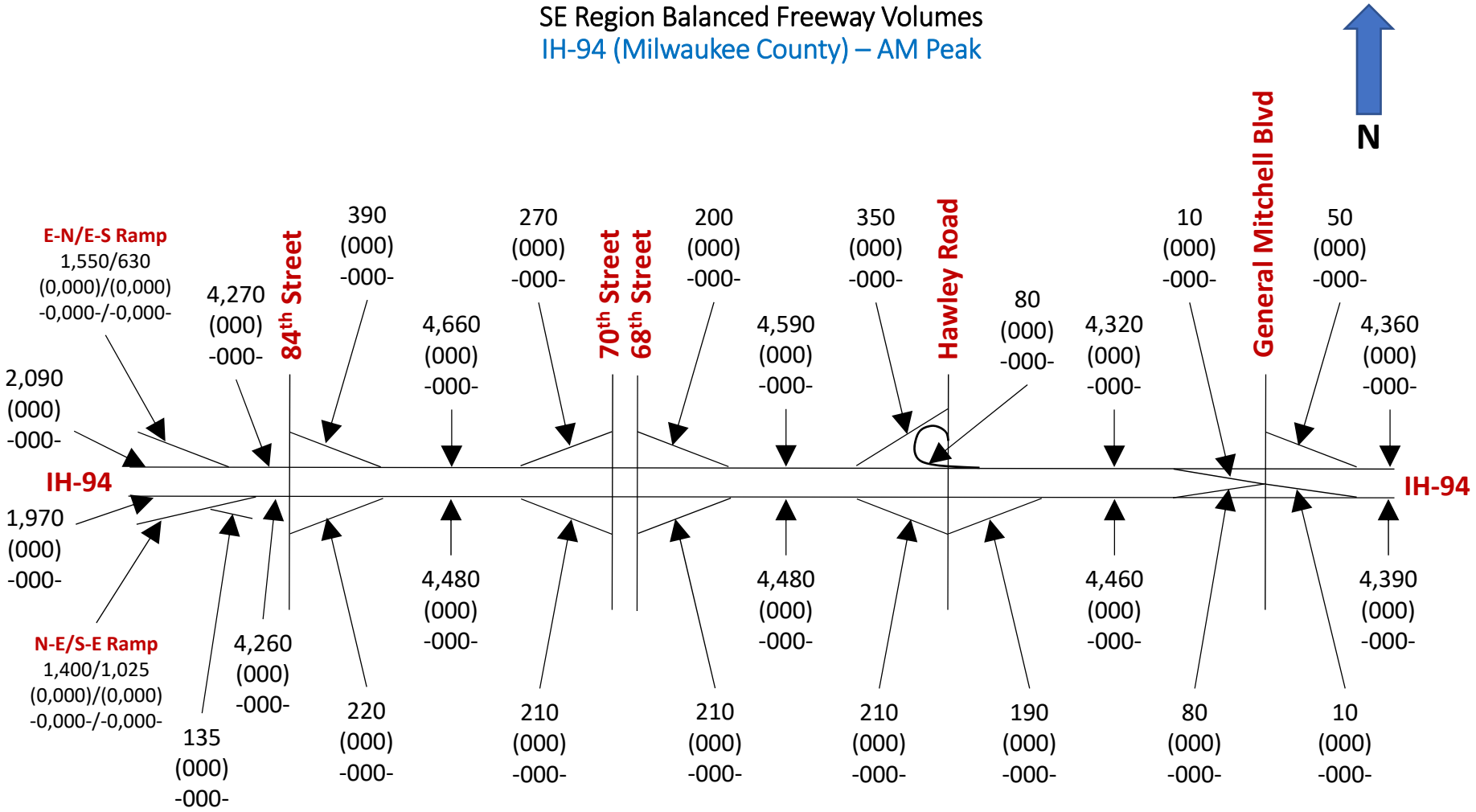
1:30-2:30PM
{2:30-3:30PM} - Peak Hour
(3:30-4:30PM)
[4:30-5:30PM]
<5:30-6:30PM>

Version 3 12/14/20

Appendix B – WisDOT Balanced Volumes

SE Region Balanced Freeway Volumes

IH-94 (Milwaukee County) – AM Peak



Peak Hour: 5:30 – 6:30 AM

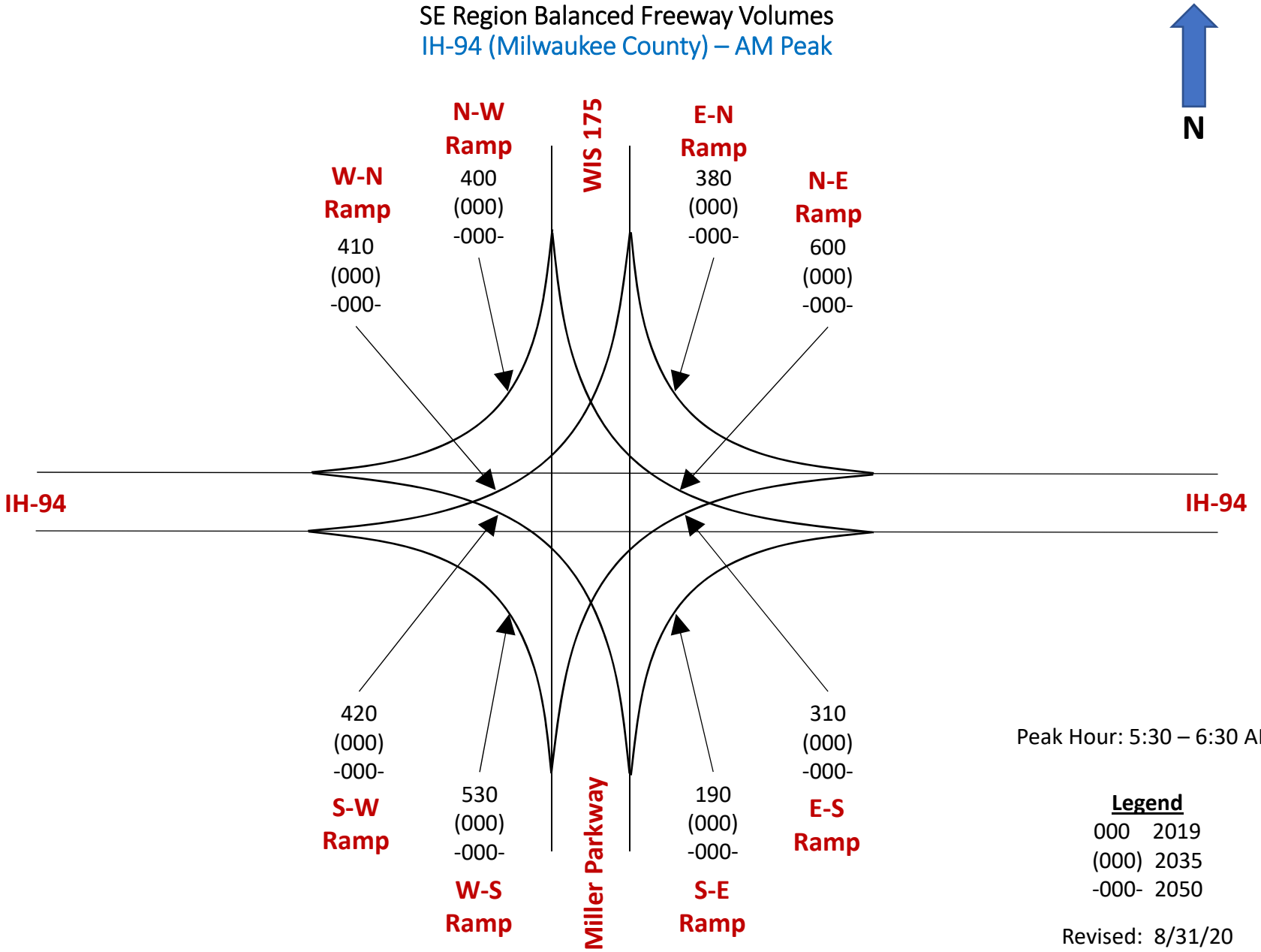
Legend

000 2019
(000) 2035
-000- 2050

Revised: 8/31/20

SE Region Balanced Freeway Volumes

IH-94 (Milwaukee County) – AM Peak



Peak Hour: 5:30 – 6:30 AM

Legend

000 2019

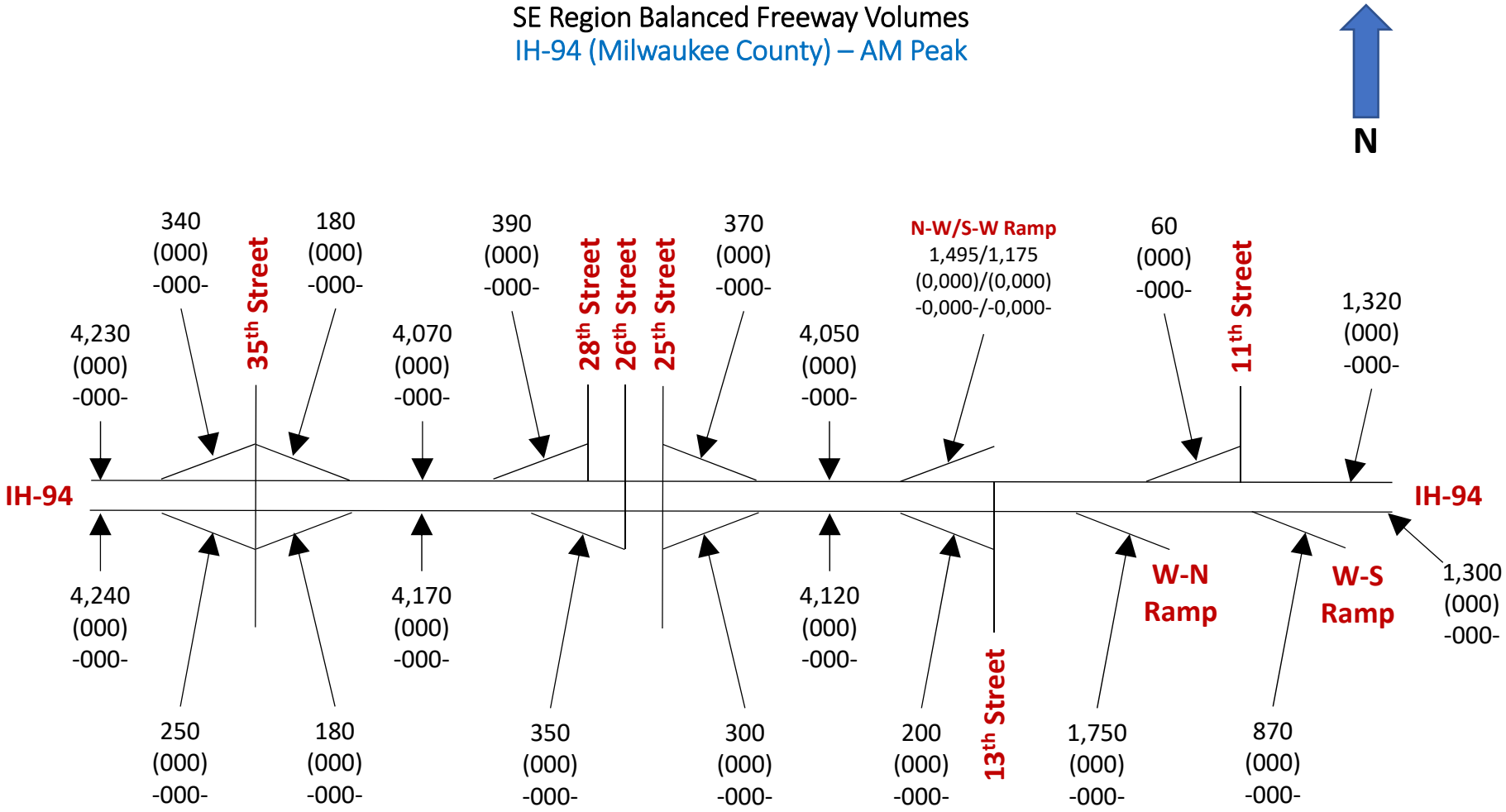
(000) 2035

-000- 2050

Revised: 8/31/20

SE Region Balanced Freeway Volumes

IH-94 (Milwaukee County) – AM Peak



Peak Hour: 5:30 – 6:30 AM

Legend

000 2019

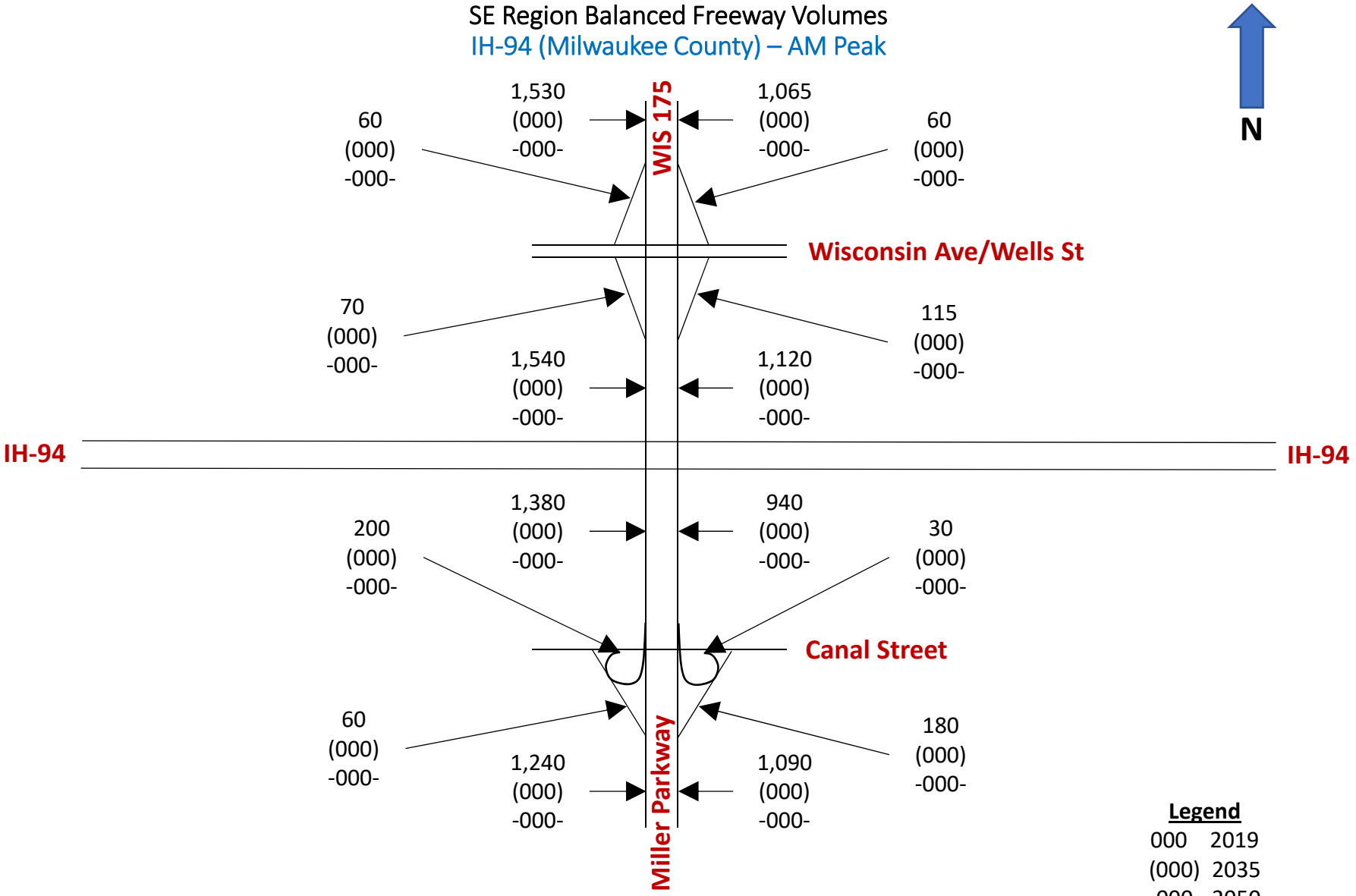
(000) 2035

-000- 2050

Revised: 8/31/20

SE Region Balanced Freeway Volumes

IH-94 (Milwaukee County) – AM Peak



Peak Hour: 5:30 – 6:30 AM

Legend

000 2019

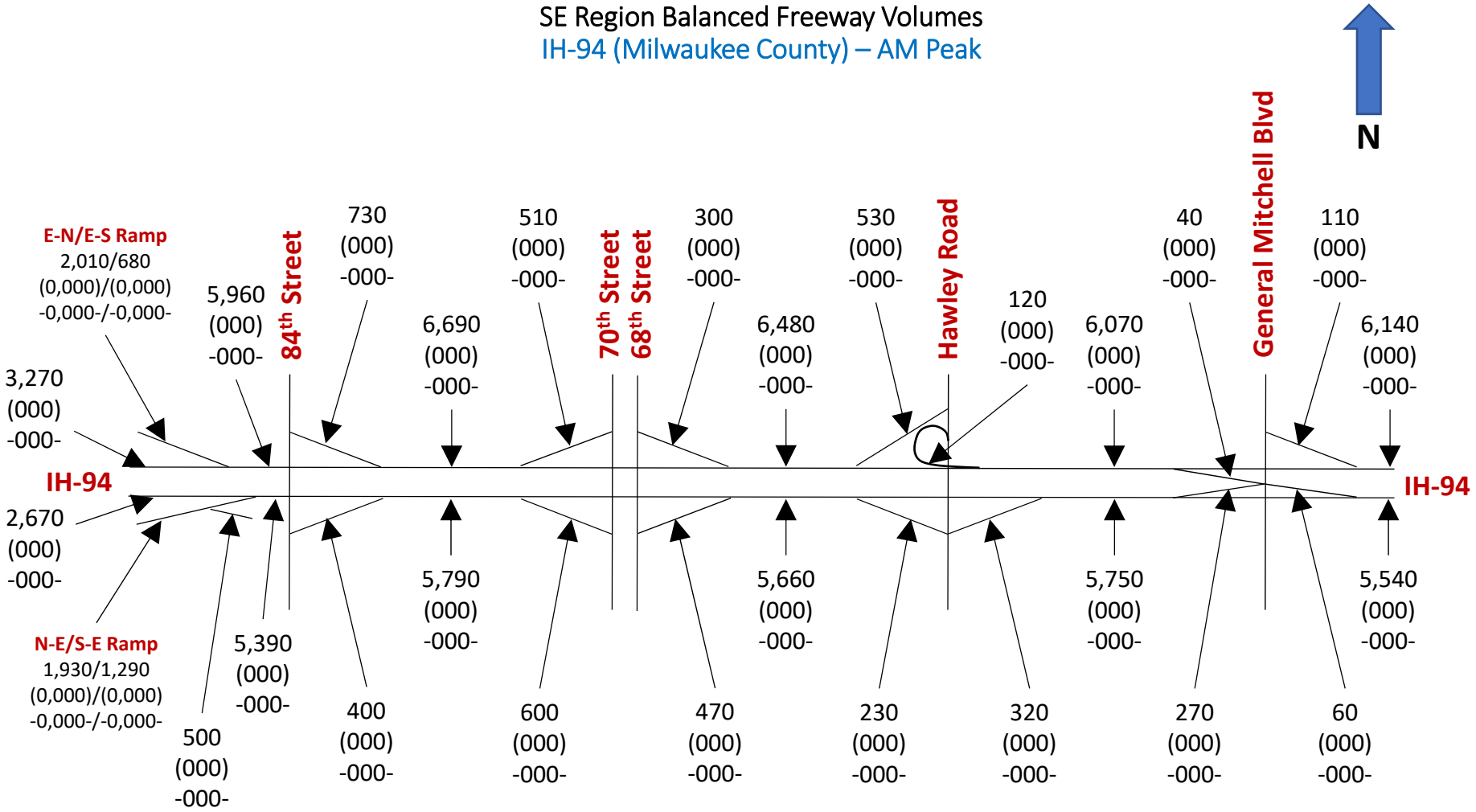
(000) 2035

-000- 2050

Revised: 8/31/20

SE Region Balanced Freeway Volumes

IH-94 (Milwaukee County) – AM Peak



Peak Hour: 6:30 – 7:30 AM

Legend

000 2019

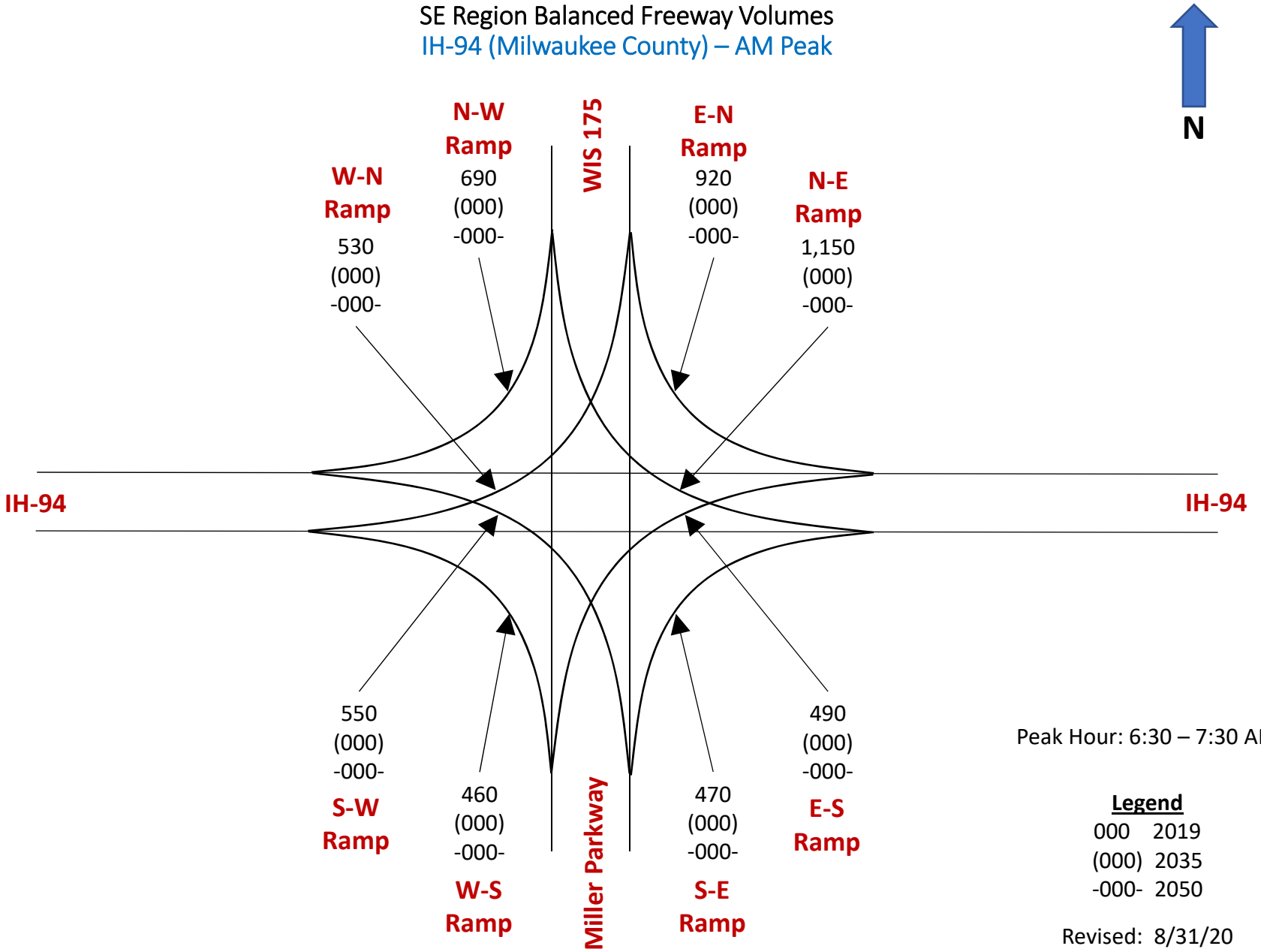
(000) 2035

-000- 2050

Revised: 8/31/20

SE Region Balanced Freeway Volumes

IH-94 (Milwaukee County) – AM Peak



Peak Hour: 6:30 – 7:30 AM

Legend

000 2019

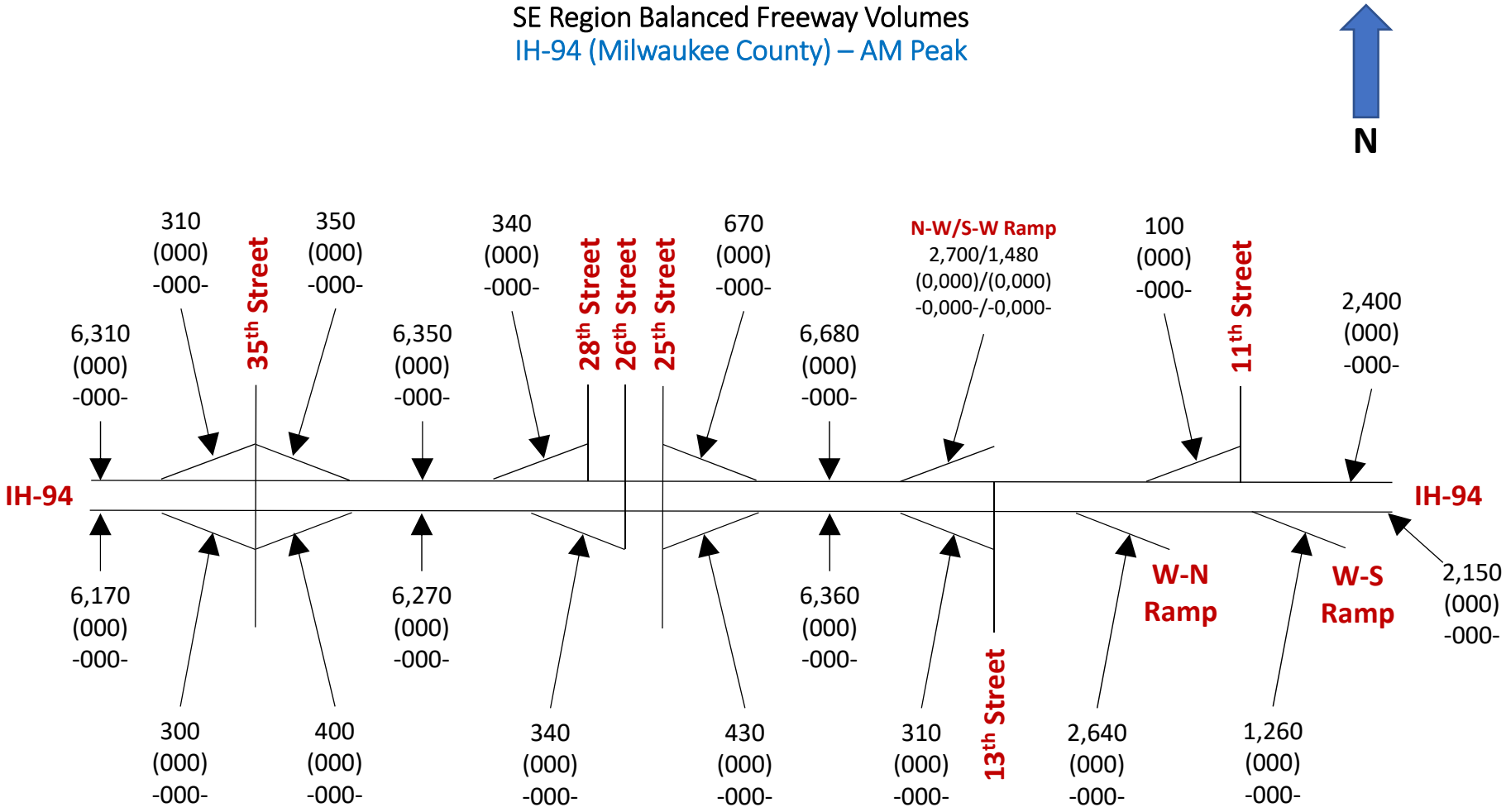
(000) 2035

-000- 2050

Revised: 8/31/20

SE Region Balanced Freeway Volumes

IH-94 (Milwaukee County) – AM Peak



Peak Hour: 6:30 – 7:30 AM

Legend

000 2019

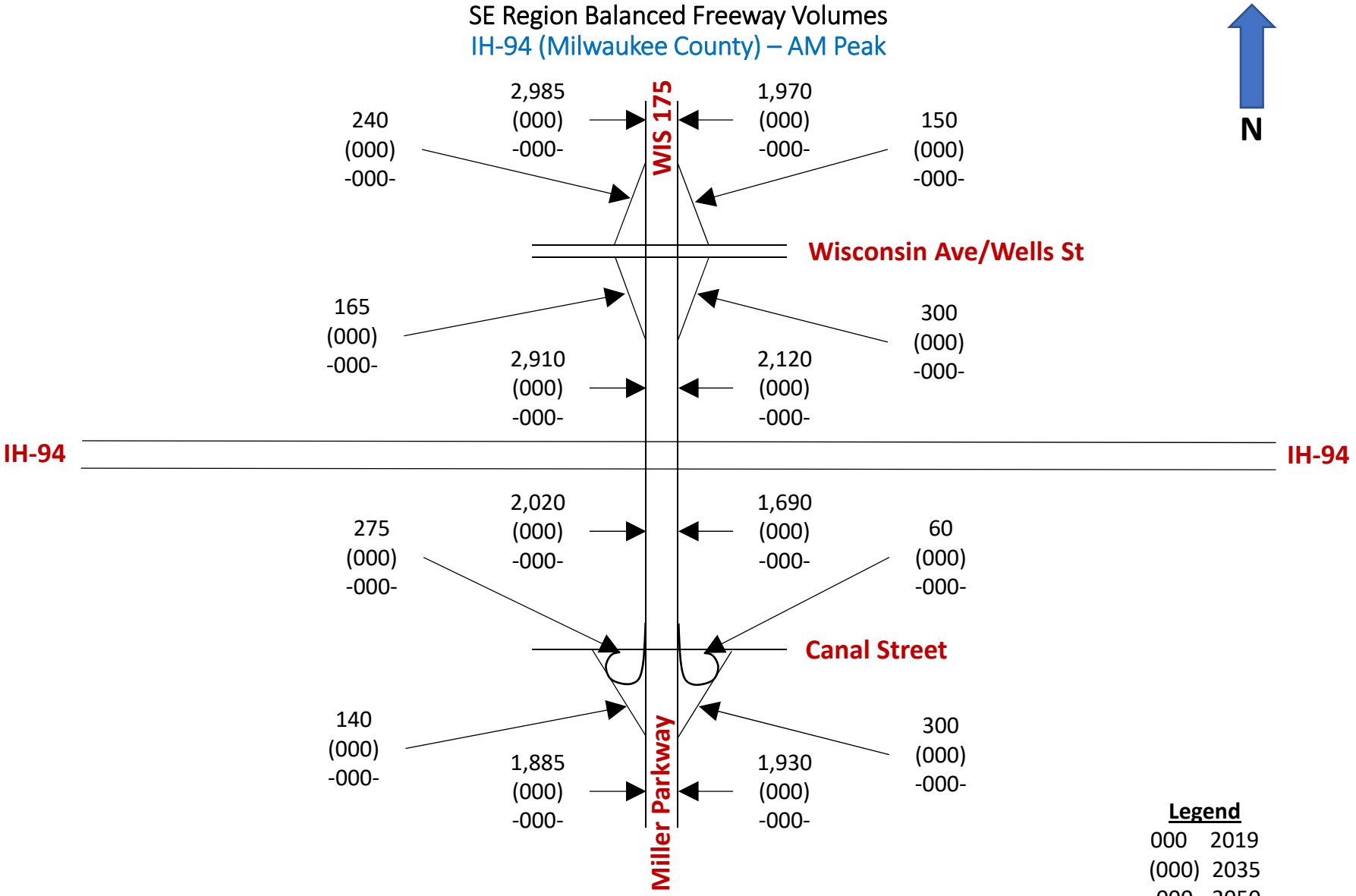
(000) 2035

-000- 2050

Revised: 8/31/20

SE Region Balanced Freeway Volumes

IH-94 (Milwaukee County) – AM Peak



Peak Hour: 6:30 – 7:30 AM

Legend

000 2019

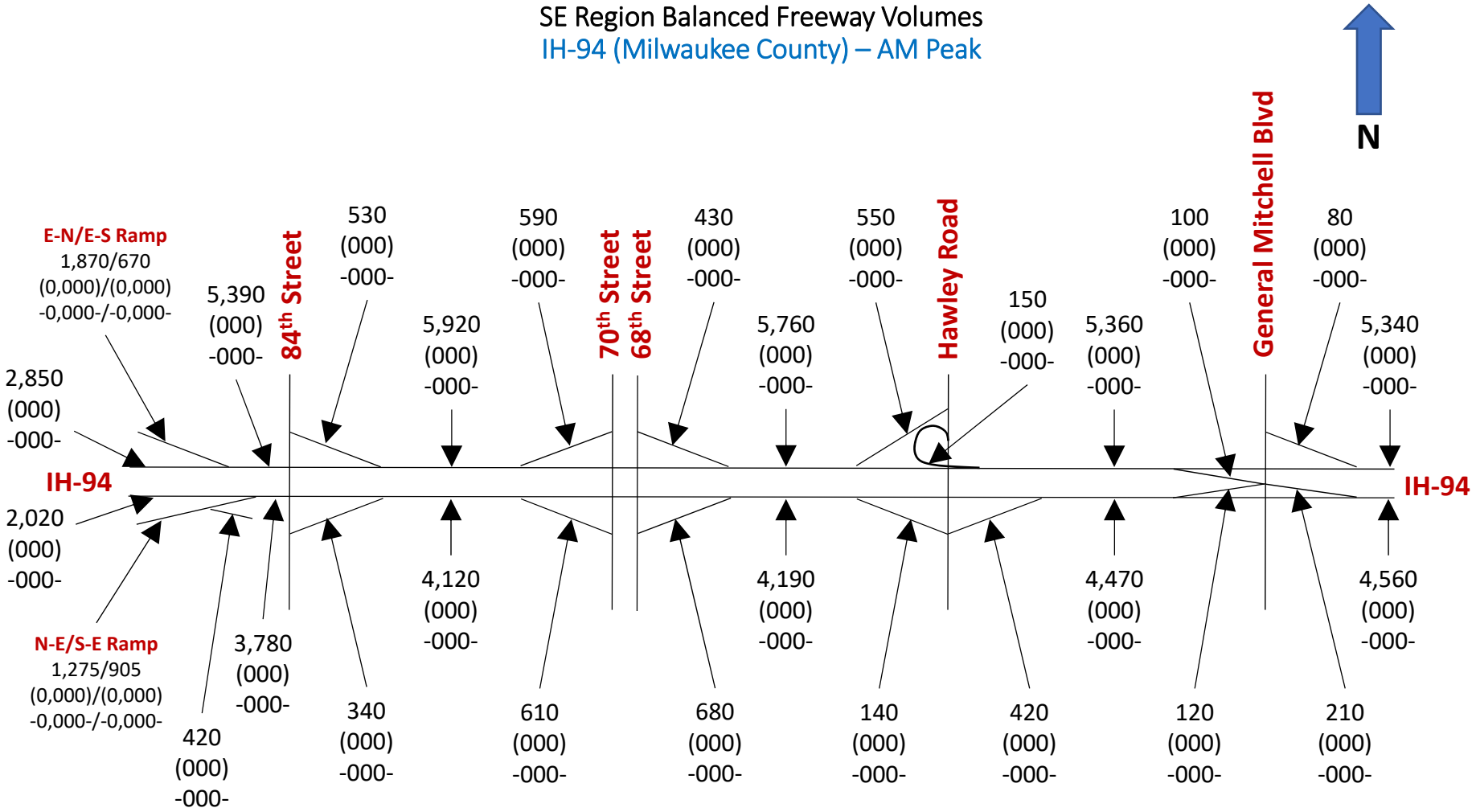
(000) 2035

-000- 2050

Revised: 8/31/20

SE Region Balanced Freeway Volumes

IH-94 (Milwaukee County) – AM Peak



Peak Hour: 7:30 – 8:30 AM

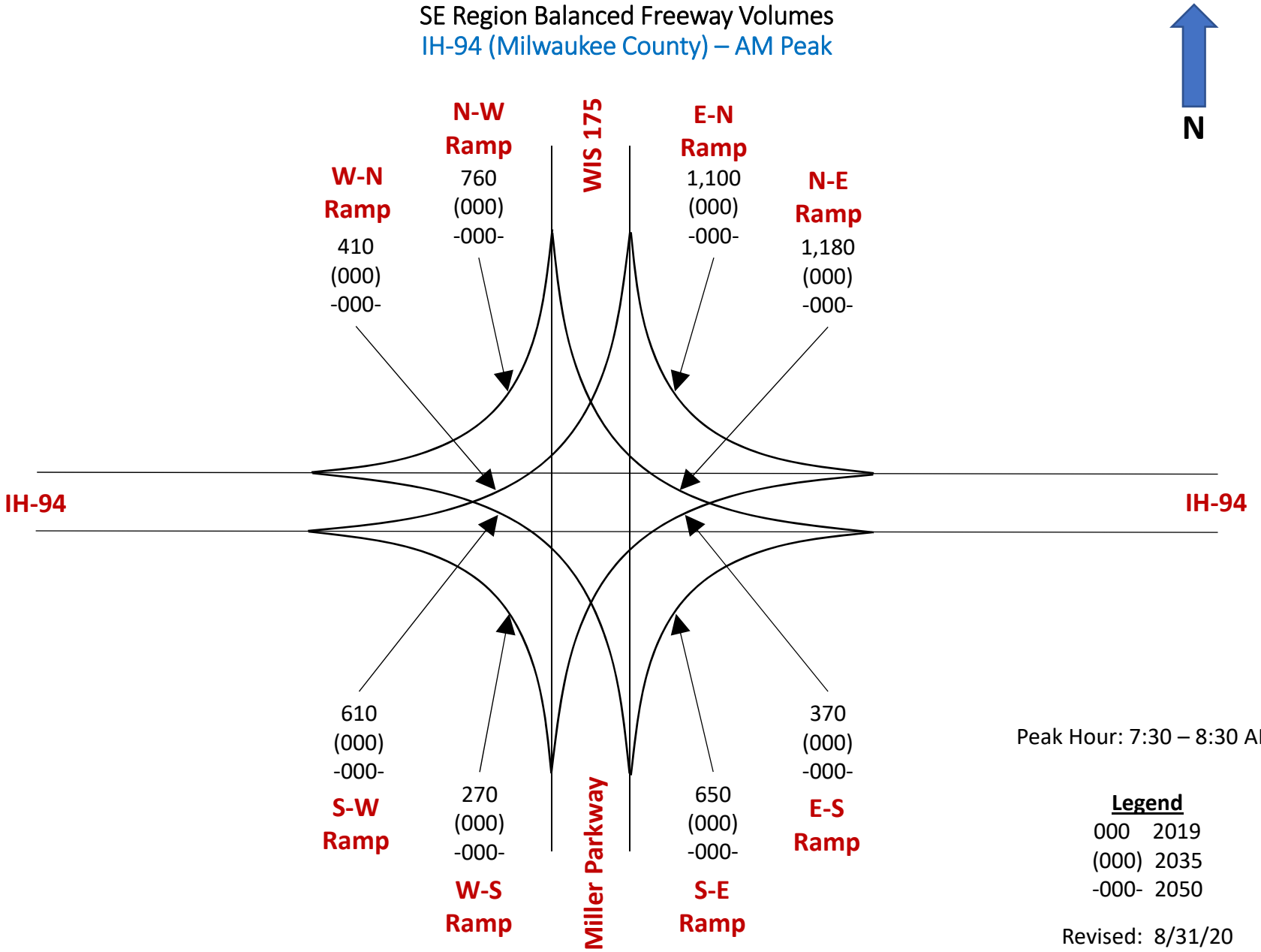
Legend

000 2019
(000) 2035
-000- 2050

Revised: 8/31/20

SE Region Balanced Freeway Volumes

IH-94 (Milwaukee County) – AM Peak



Peak Hour: 7:30 – 8:30 AM

Legend

000 2019

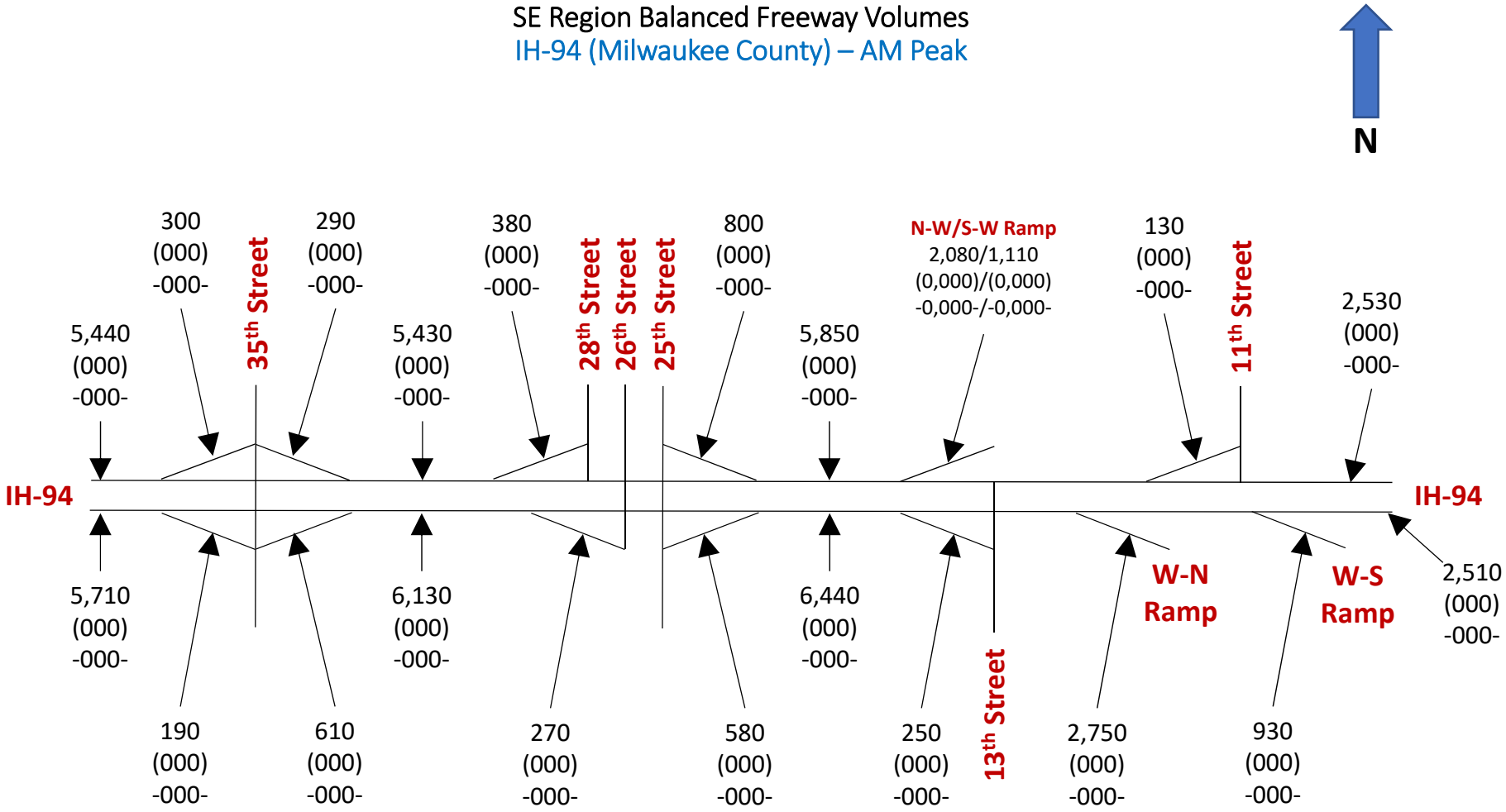
(000) 2035

-000- 2050

Revised: 8/31/20

SE Region Balanced Freeway Volumes

IH-94 (Milwaukee County) – AM Peak



Peak Hour: 7:30 – 8:30 AM

Legend

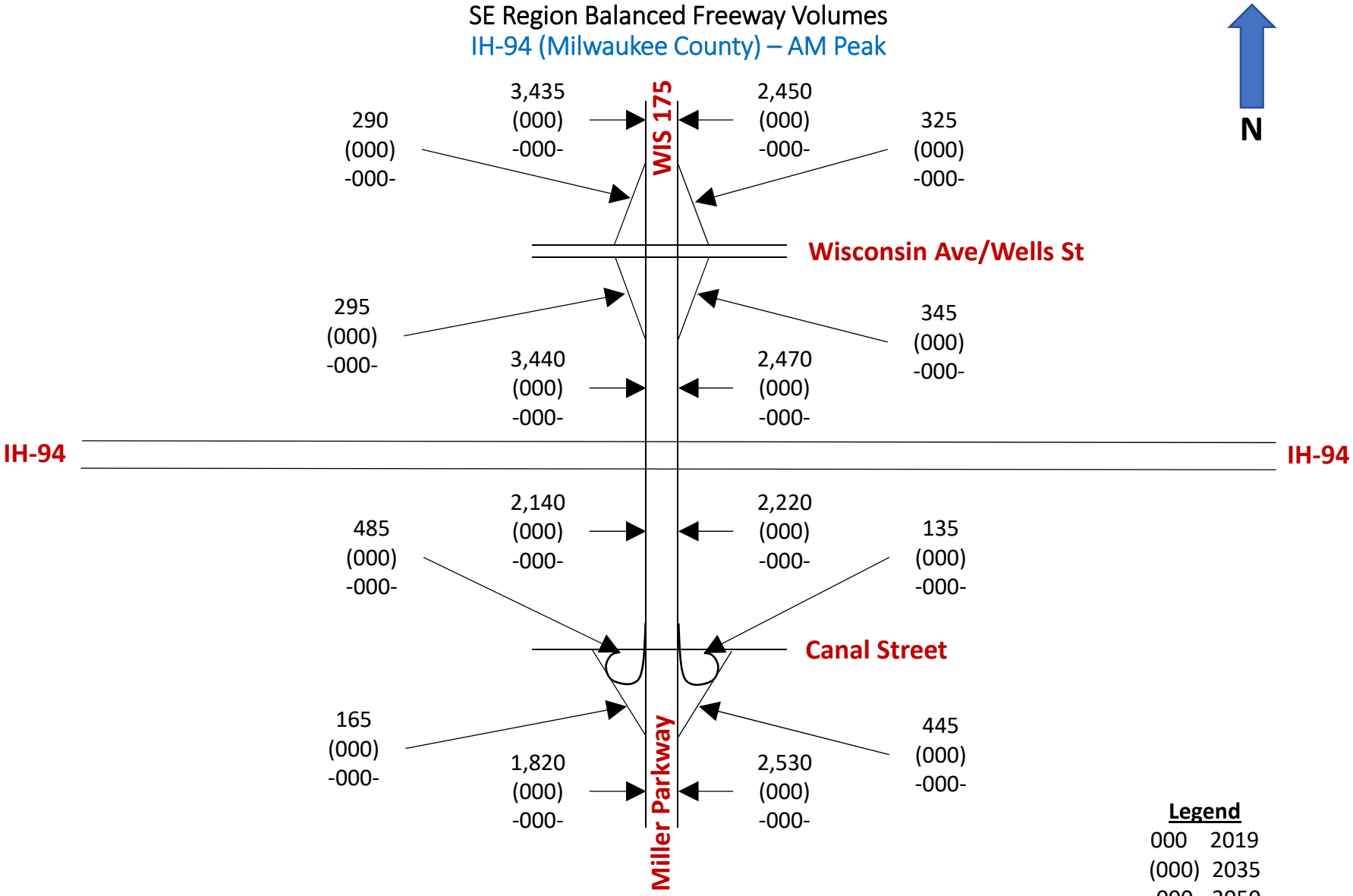
000 2019

(000) 2035

-000- 2050

Revised: 8/31/20

SE Region Balanced Freeway Volumes
IH-94 (Milwaukee County) – AM Peak



Peak Hour: 7:30 – 8:30 AM

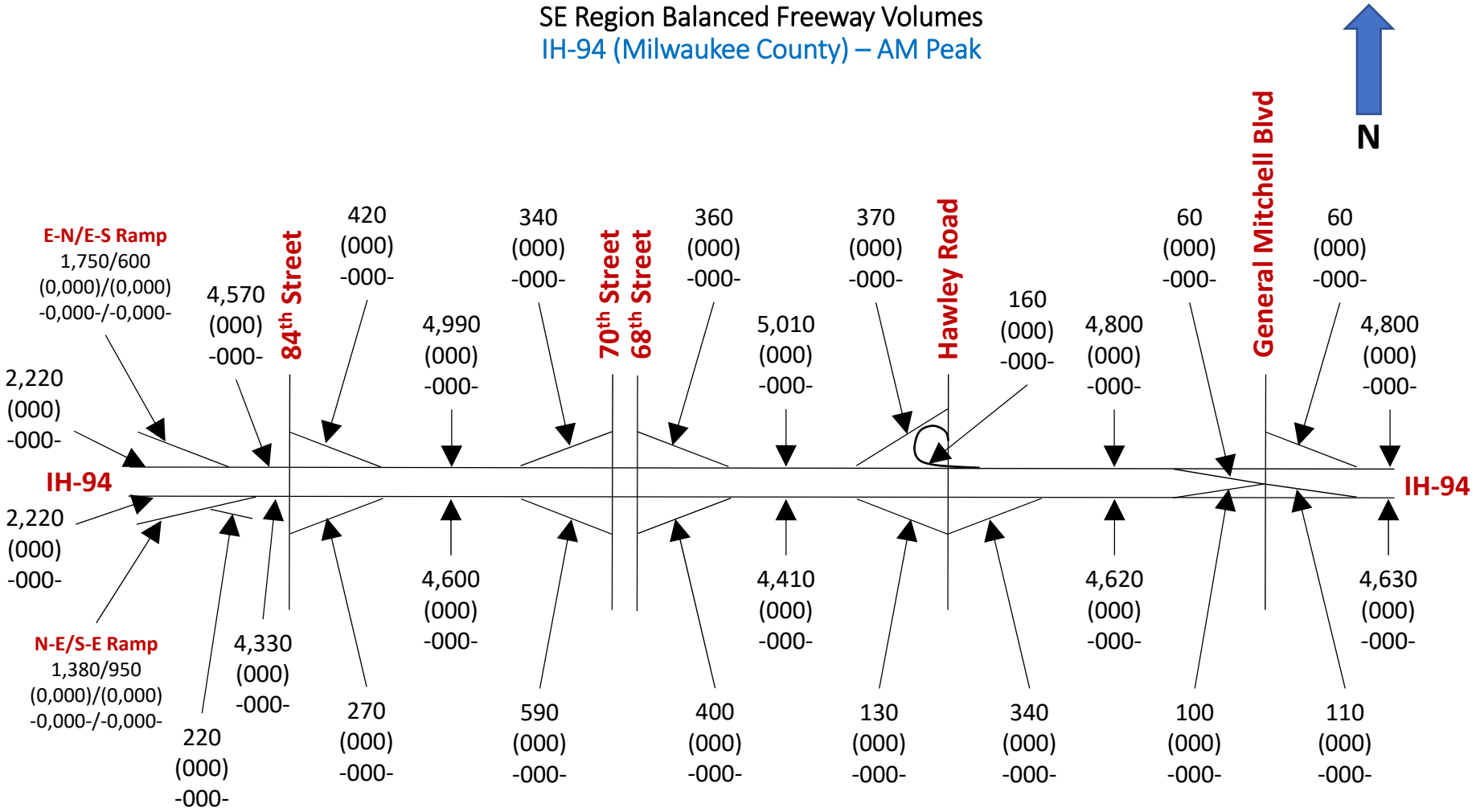
Legend

000 2019
(000) 2035
-000- 2050

Revised: 8/31/20

SE Region Balanced Freeway Volumes

IH-94 (Milwaukee County) – AM Peak



Peak Hour: 8:30 – 9:30 AM

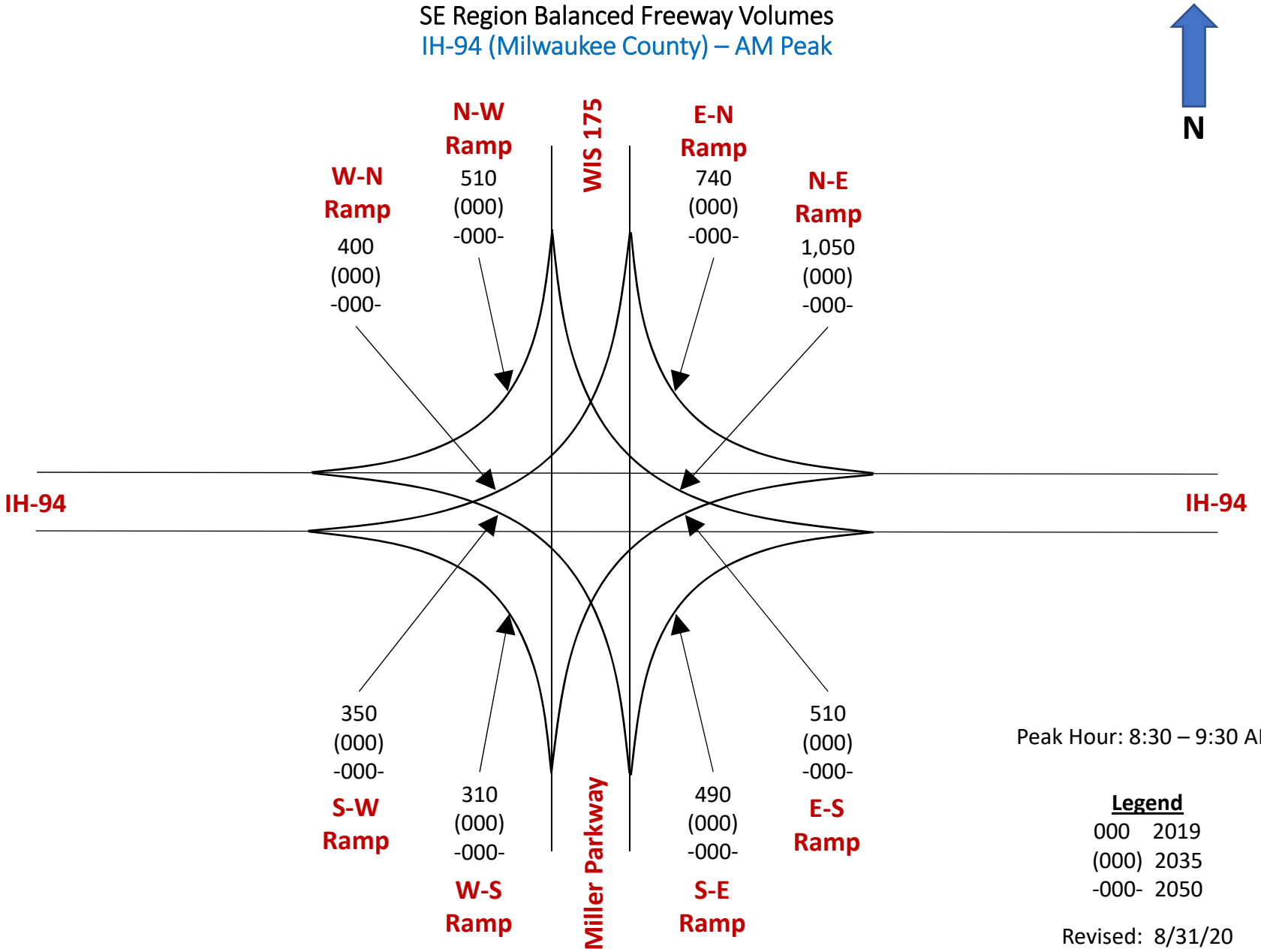
Legend

000 2019
(000) 2035
-000- 2050

Revised: 8/31/20

SE Region Balanced Freeway Volumes

IH-94 (Milwaukee County) – AM Peak



Peak Hour: 8:30 – 9:30 AM

Legend

000 2019

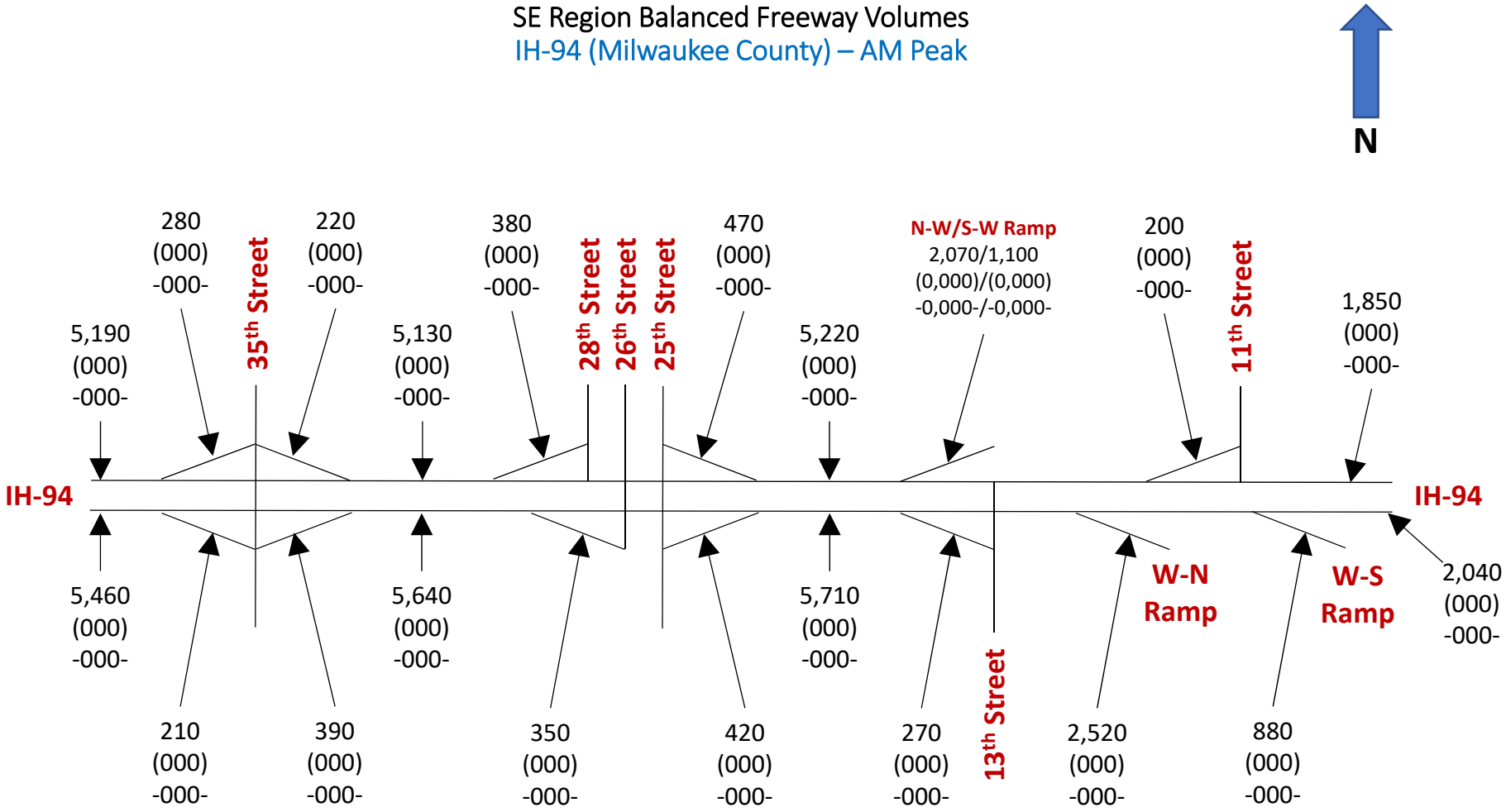
(000) 2035

-000- 2050

Revised: 8/31/20

SE Region Balanced Freeway Volumes

IH-94 (Milwaukee County) – AM Peak



Peak Hour: 8:30 – 9:30 AM

Legend

000 2019

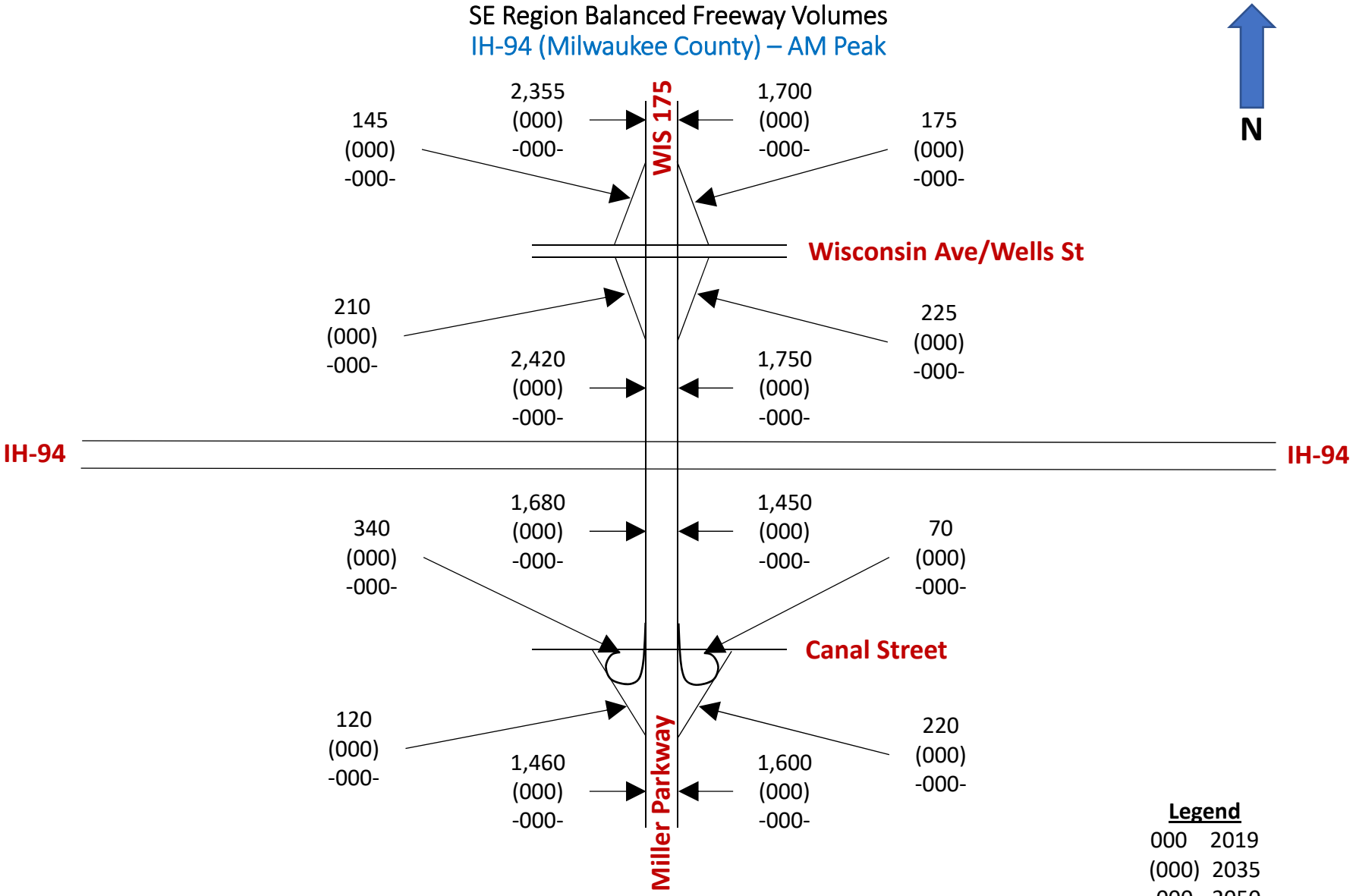
(000) 2035

-000- 2050

Revised: 8/31/20

SE Region Balanced Freeway Volumes

IH-94 (Milwaukee County) – AM Peak



Peak Hour: 8:30 – 9:30 AM

Legend

000 2019

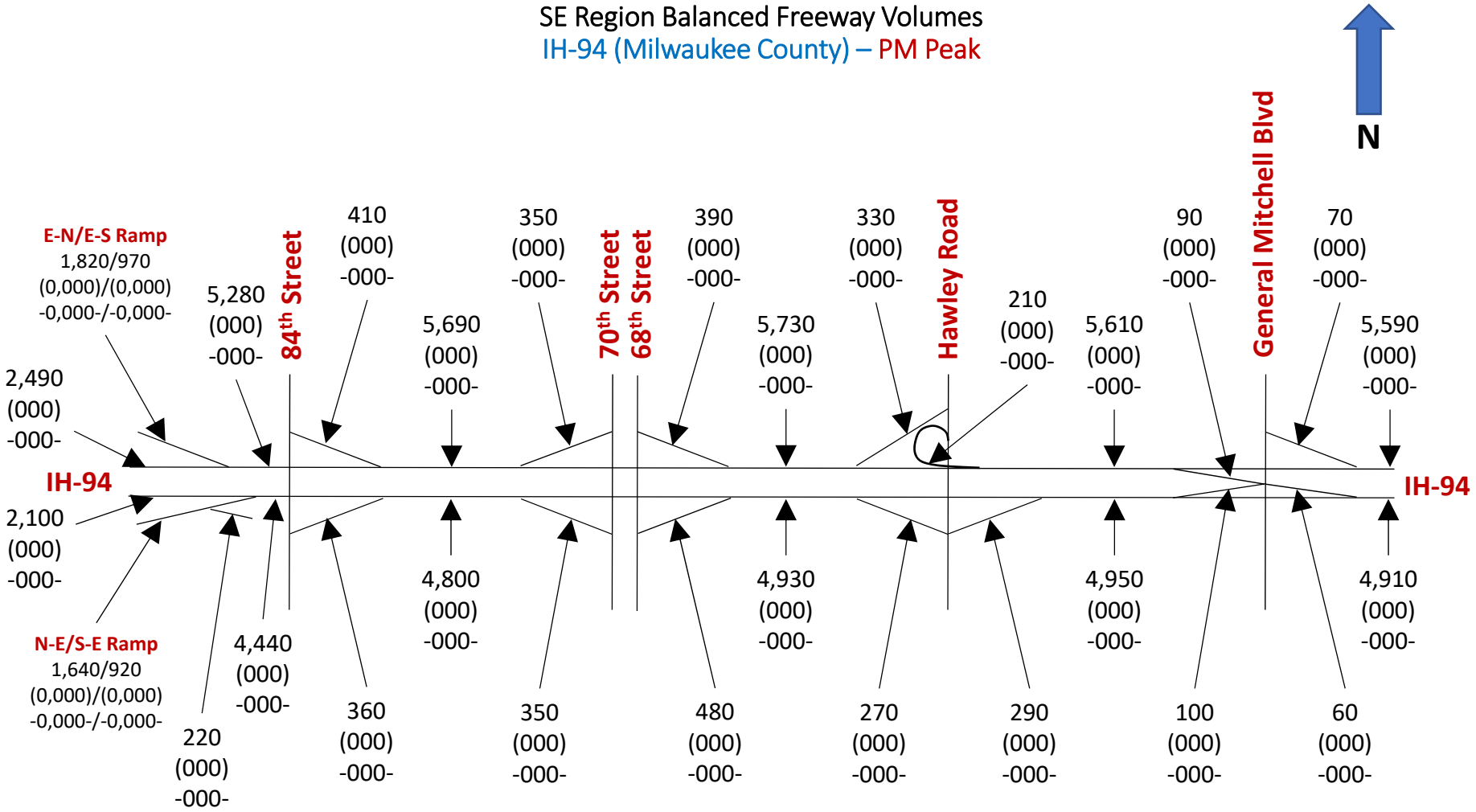
(000) 2035

-000- 2050

Revised: 8/31/20

SE Region Balanced Freeway Volumes

IH-94 (Milwaukee County) – PM Peak



Peak Hour: 1:30 – 2:30 PM

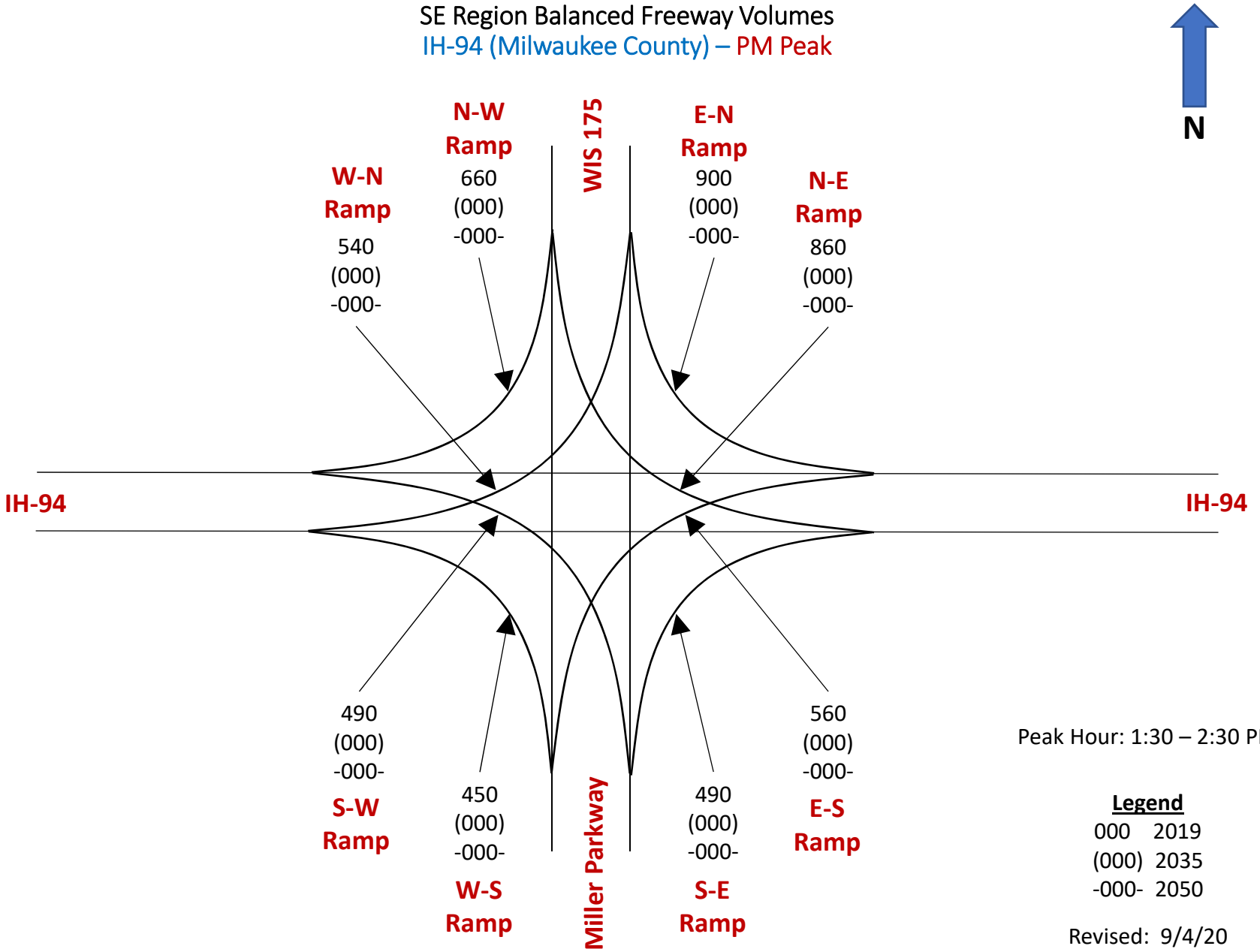
Legend

000 2019
(000) 2035
-000- 2050

Revised: 9/4/20

SE Region Balanced Freeway Volumes

IH-94 (Milwaukee County) – PM Peak



Peak Hour: 1:30 – 2:30 PM

Legend

000 2019

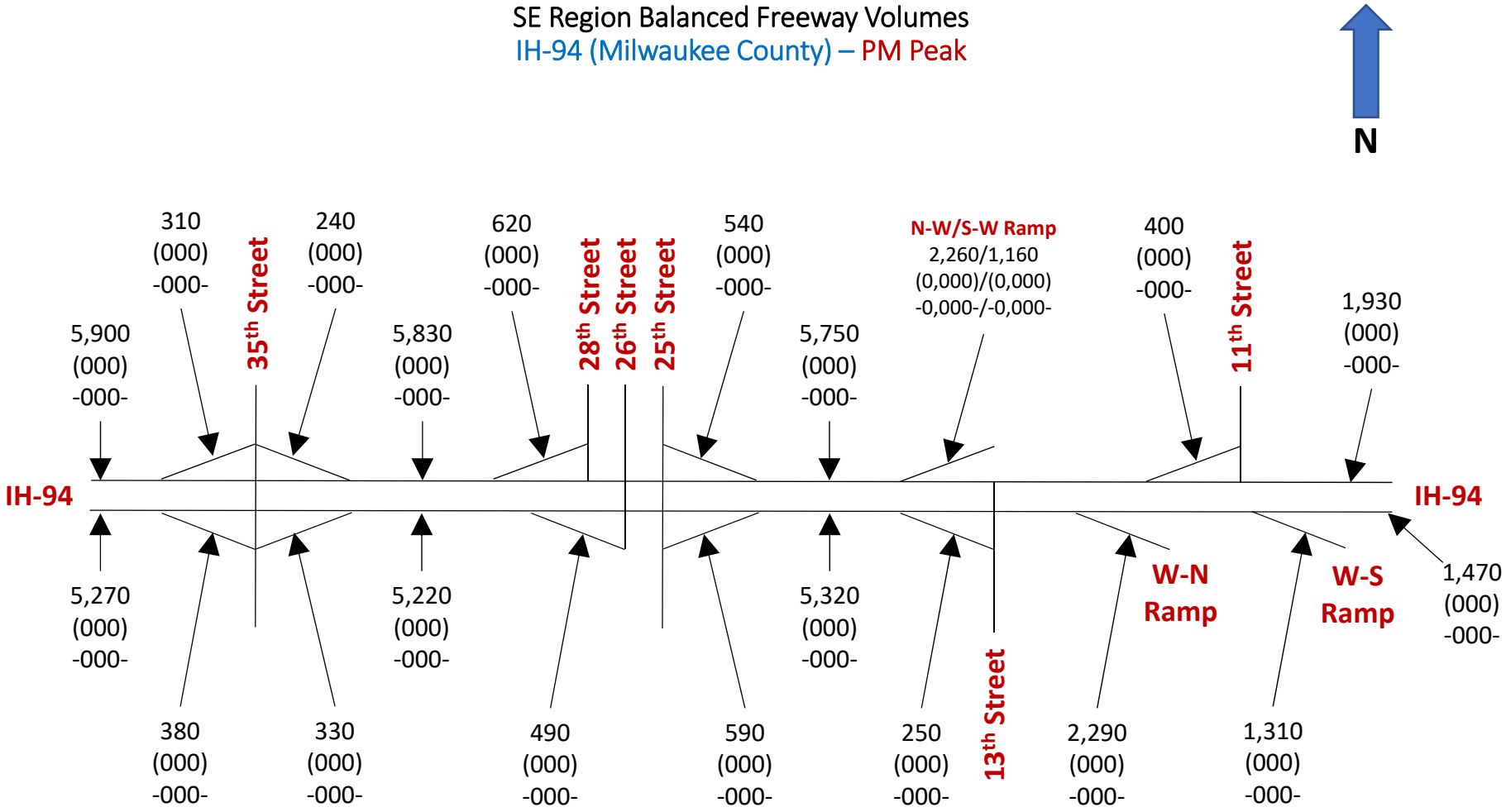
(000) 2035

-000- 2050

Revised: 9/4/20

SE Region Balanced Freeway Volumes

IH-94 (Milwaukee County) – PM Peak



Peak Hour: 1:30 – 2:30 PM

Legend

000 2019

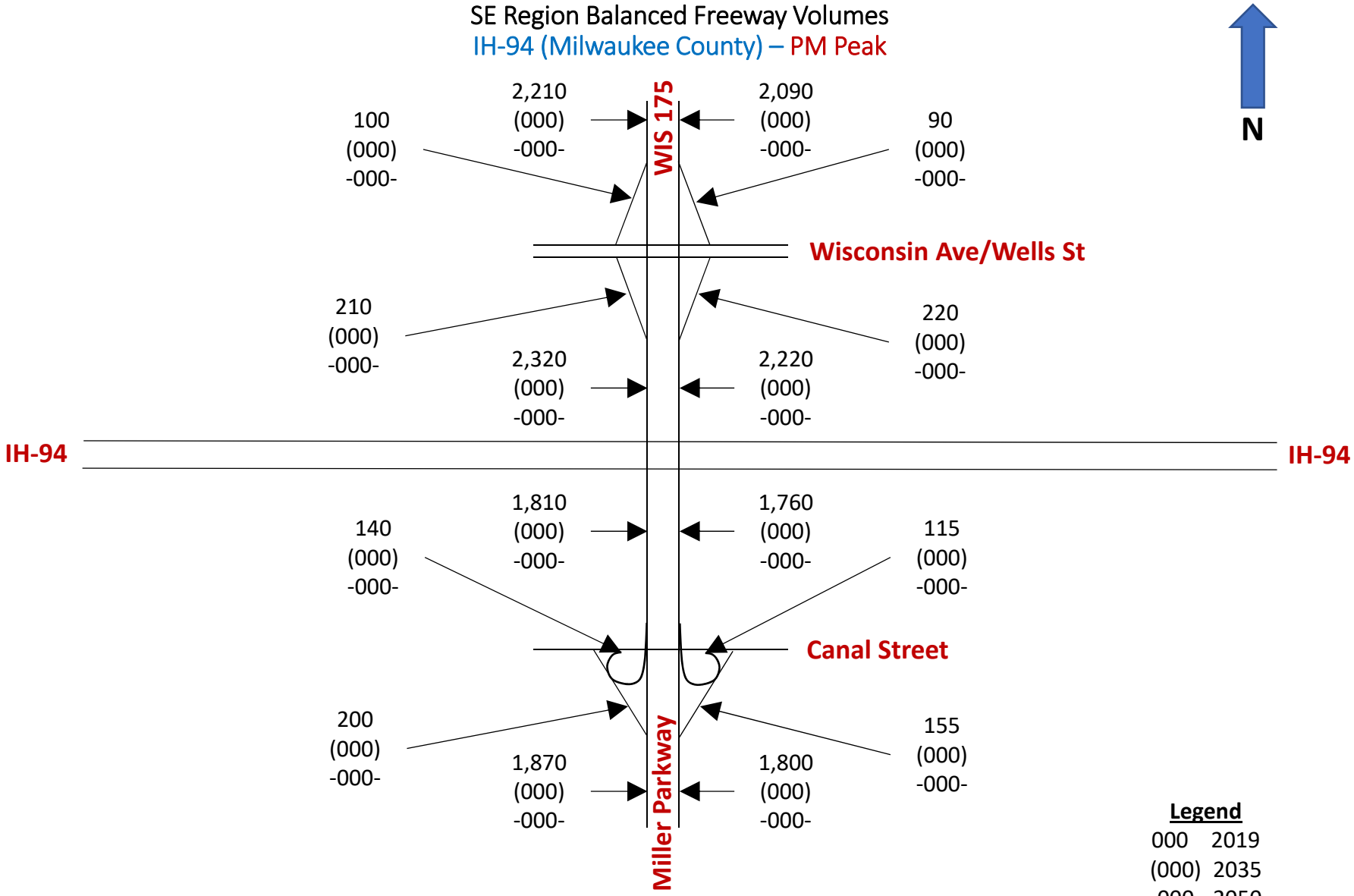
(000) 2035

-000- 2050

Revised: 9/4/20

SE Region Balanced Freeway Volumes

IH-94 (Milwaukee County) – PM Peak



Peak Hour: 1:30 – 2:30 PM

Legend

000 2019

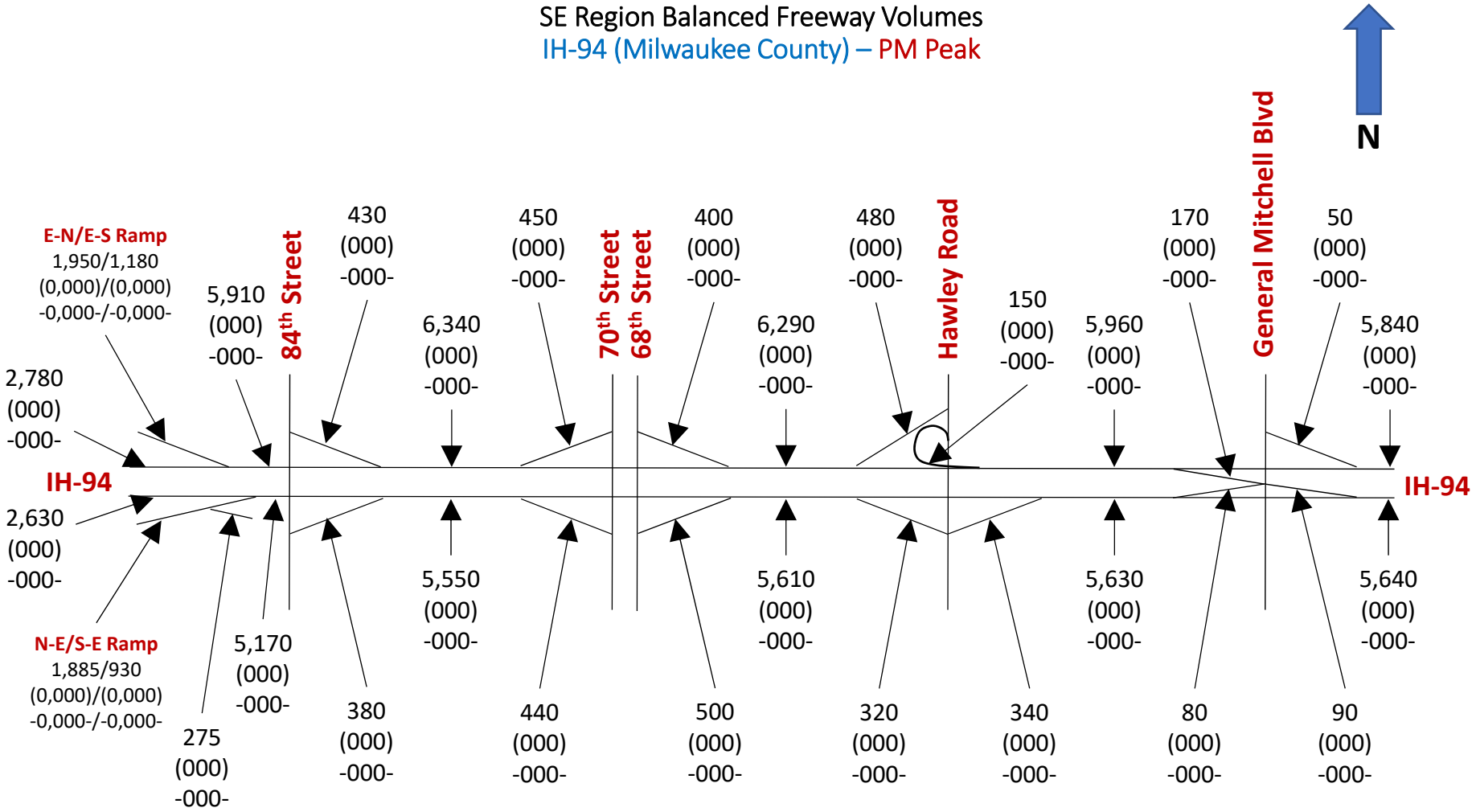
(000) 2035

-000- 2050

Revised: 9/4/20

SE Region Balanced Freeway Volumes

IH-94 (Milwaukee County) – PM Peak



Peak Hour: 2:30 – 3:30 PM

Legend

000 2019

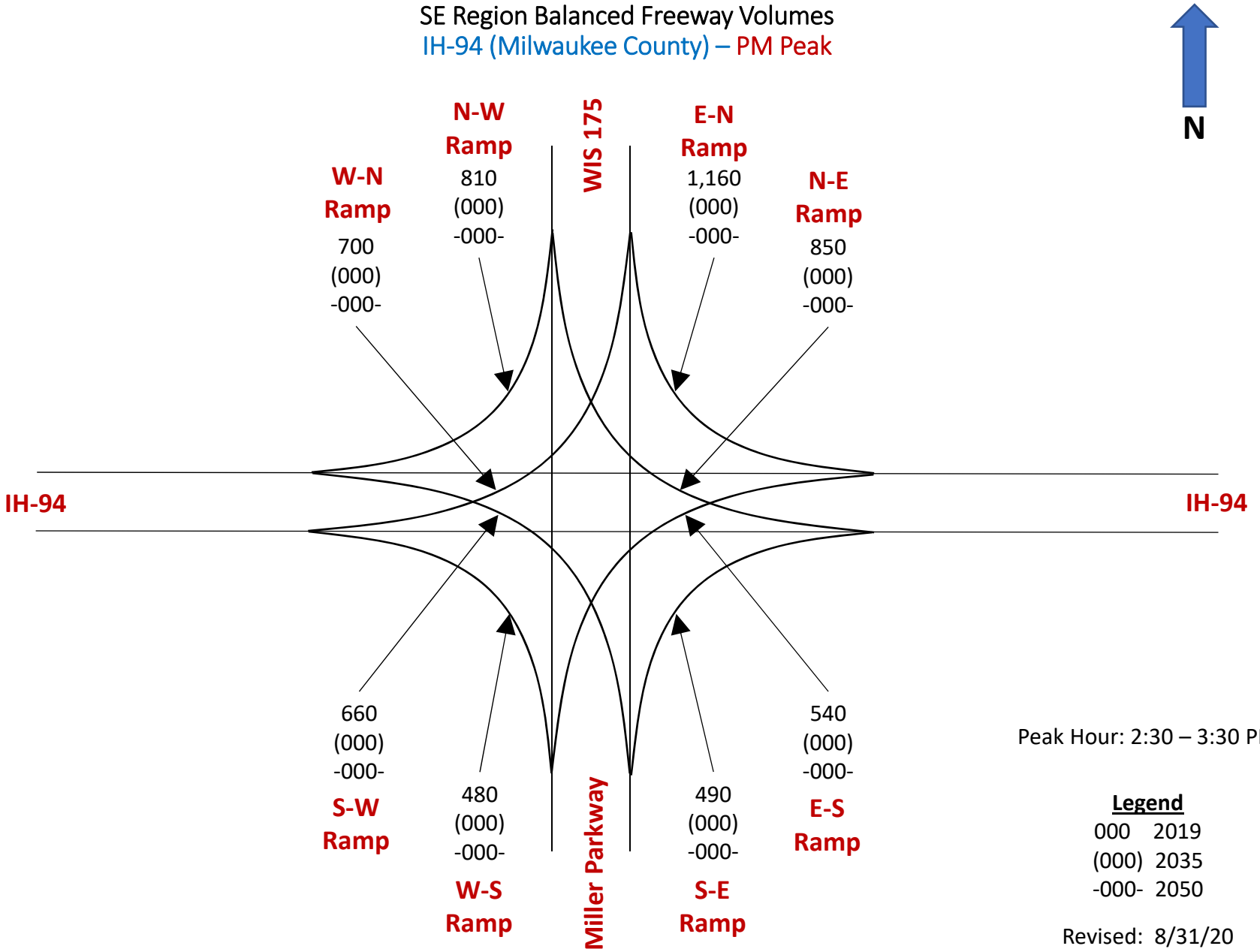
(000) 2035

-000- 2050

Revised: 8/31/20

SE Region Balanced Freeway Volumes

IH-94 (Milwaukee County) – PM Peak



Peak Hour: 2:30 – 3:30 PM

Legend

000 2019

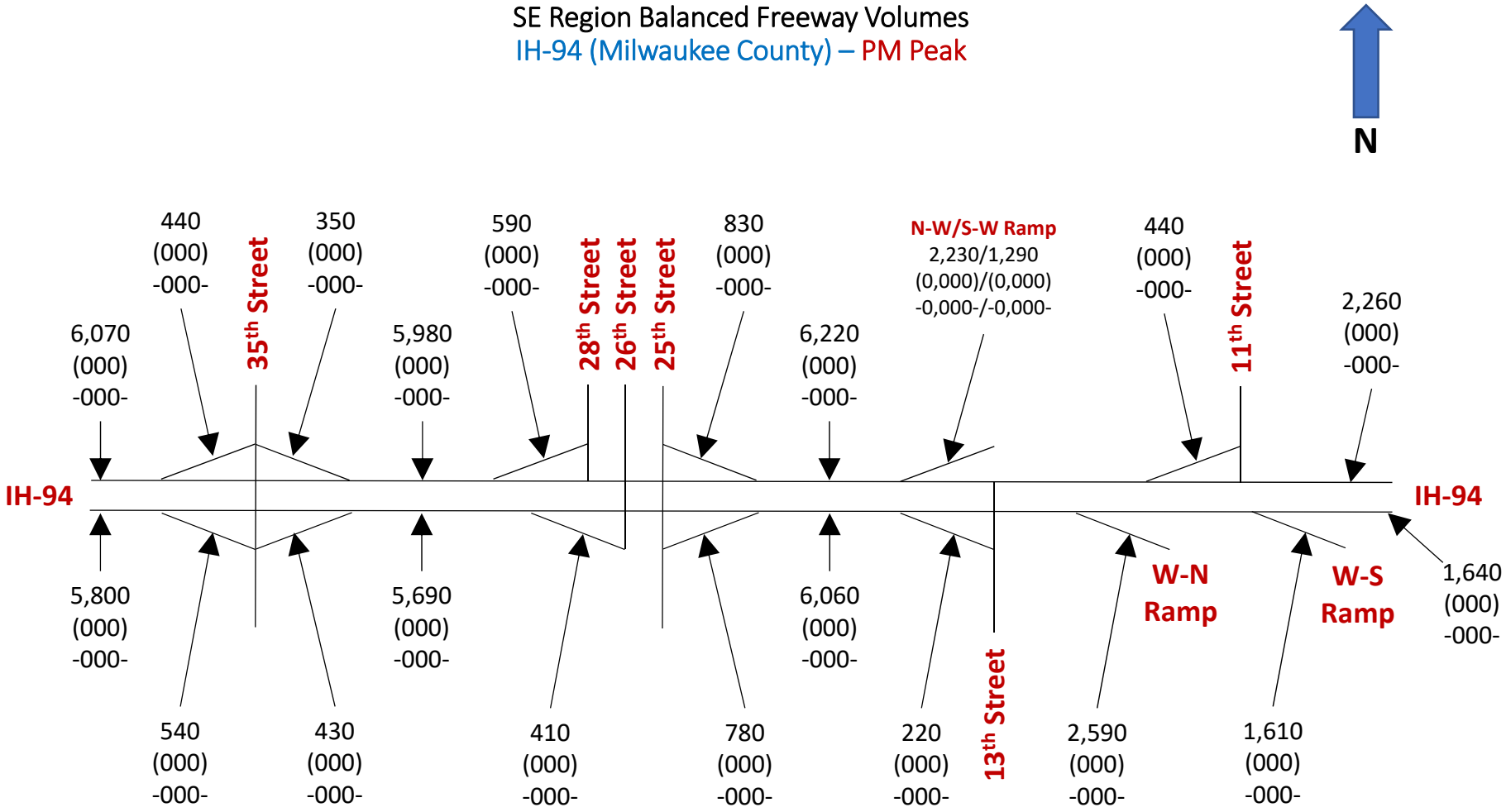
(000) 2035

-000- 2050

Revised: 8/31/20

SE Region Balanced Freeway Volumes

IH-94 (Milwaukee County) – PM Peak



Peak Hour: 2:30 – 3:30 PM

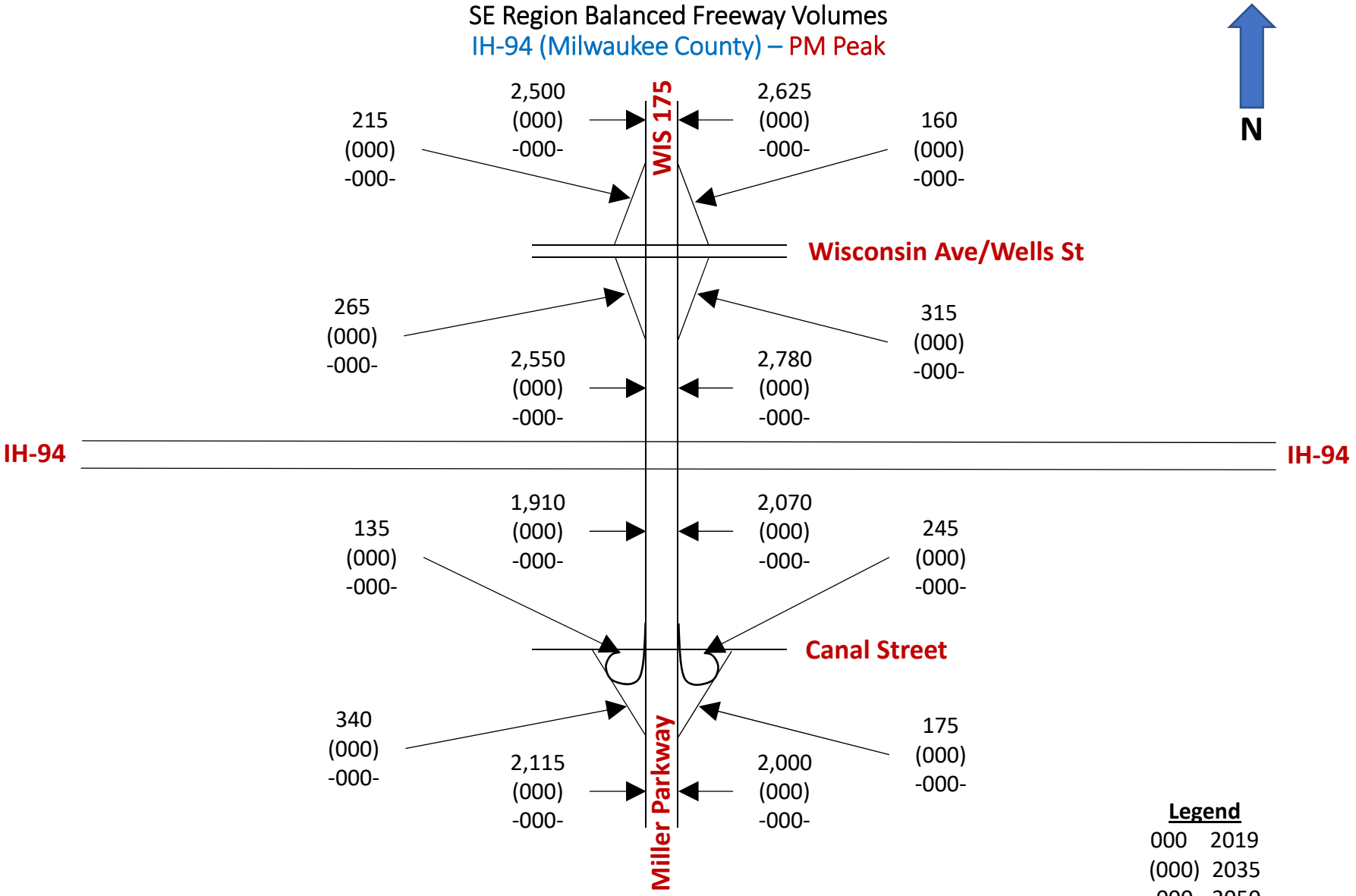
Legend

000	2019
(000)	2035
-000-	2050

Revised: 8/31/20

SE Region Balanced Freeway Volumes

IH-94 (Milwaukee County) – PM Peak



Peak Hour: 2:30 – 3:30 PM

Legend

000 2019

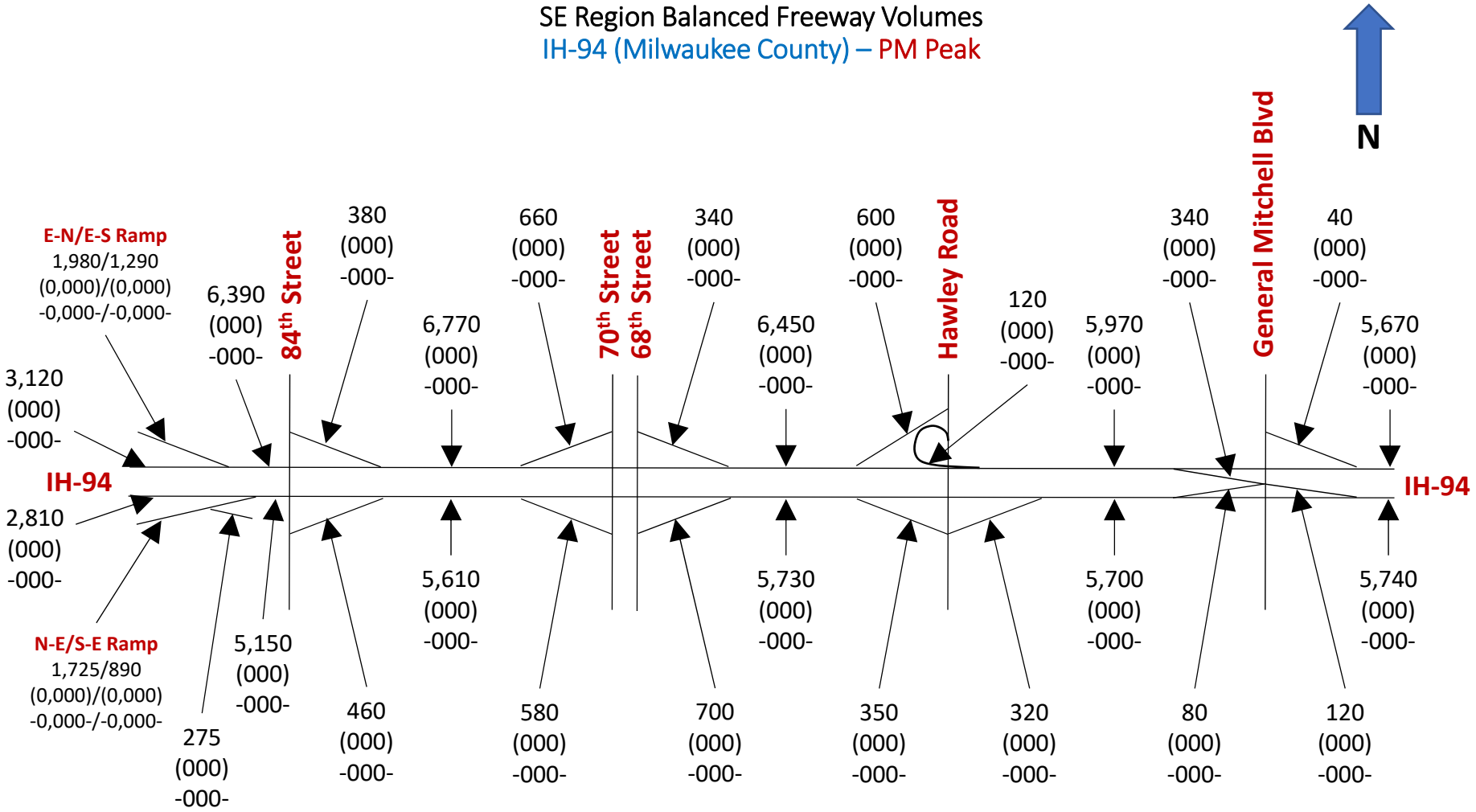
(000) 2035

-000- 2050

Revised: 8/31/20

SE Region Balanced Freeway Volumes

IH-94 (Milwaukee County) – PM Peak



Peak Hour: 3:30 – 4:30 PM

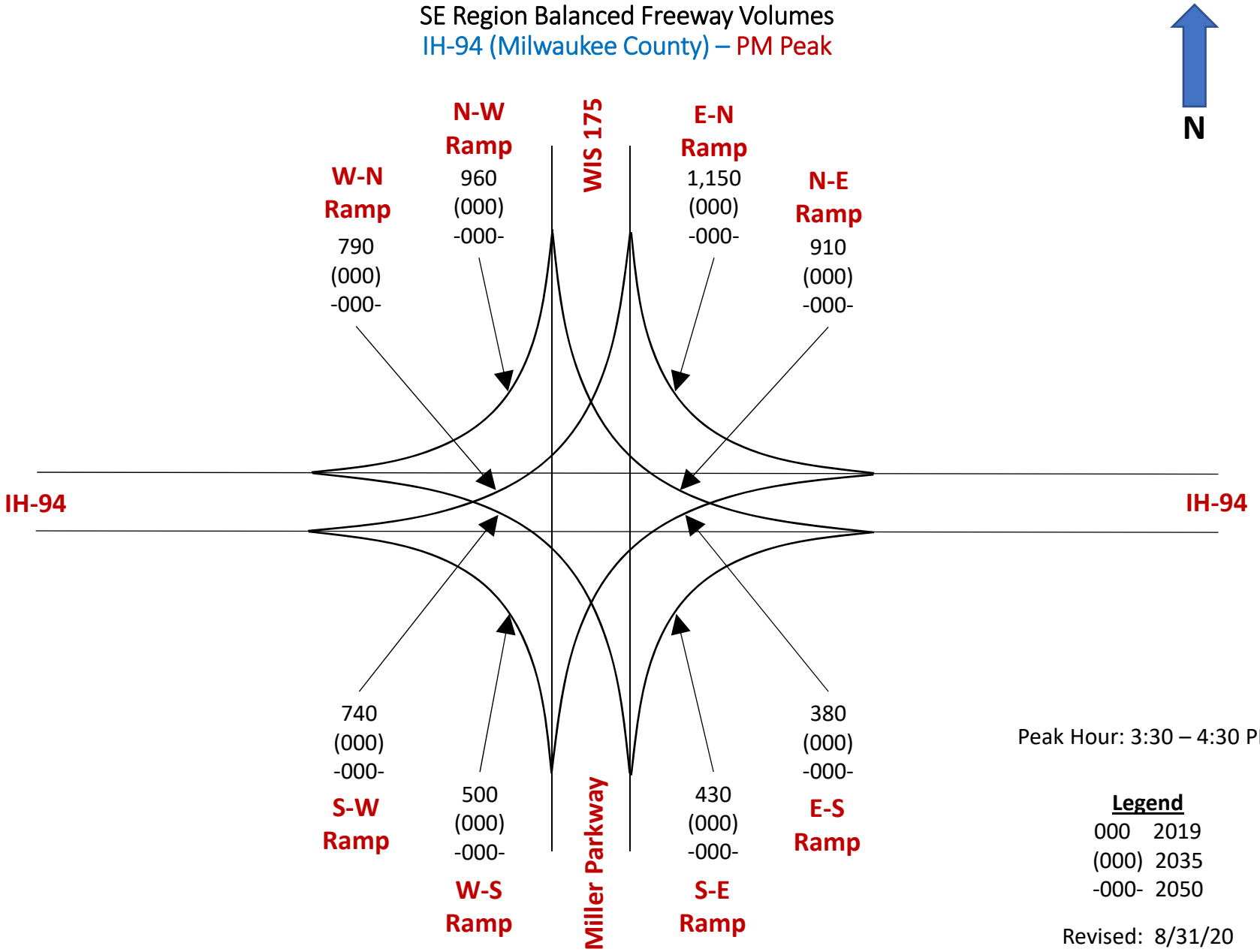
Legend

000 2019
(000) 2035
-000- 2050

Revised: 8/31/20

SE Region Balanced Freeway Volumes

IH-94 (Milwaukee County) – PM Peak



Peak Hour: 3:30 – 4:30 PM

Legend

000 2019

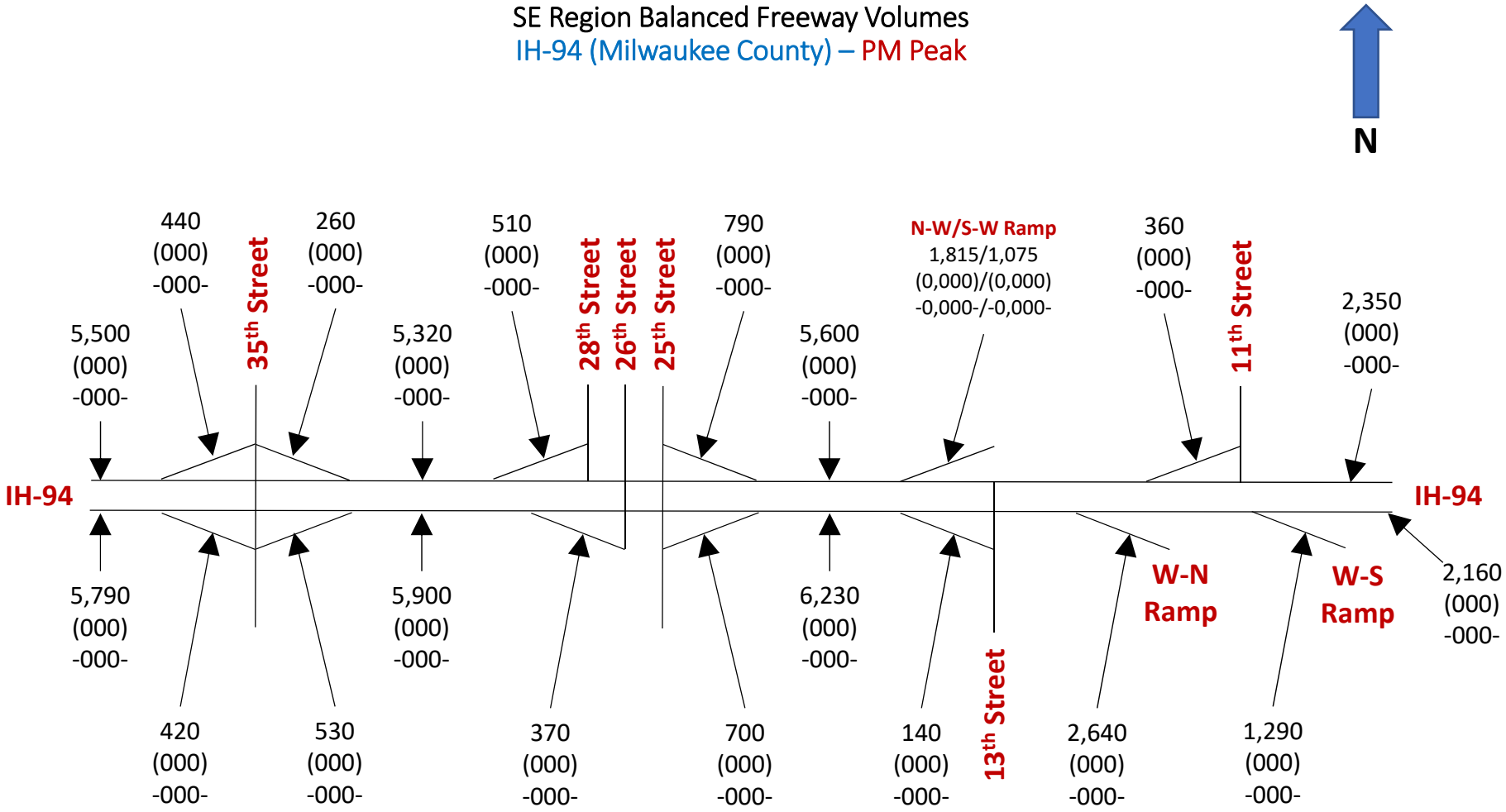
(000) 2035

-000- 2050

Revised: 8/31/20

SE Region Balanced Freeway Volumes

IH-94 (Milwaukee County) – PM Peak



Peak Hour: 3:30 – 4:30 PM

Legend

000 2019

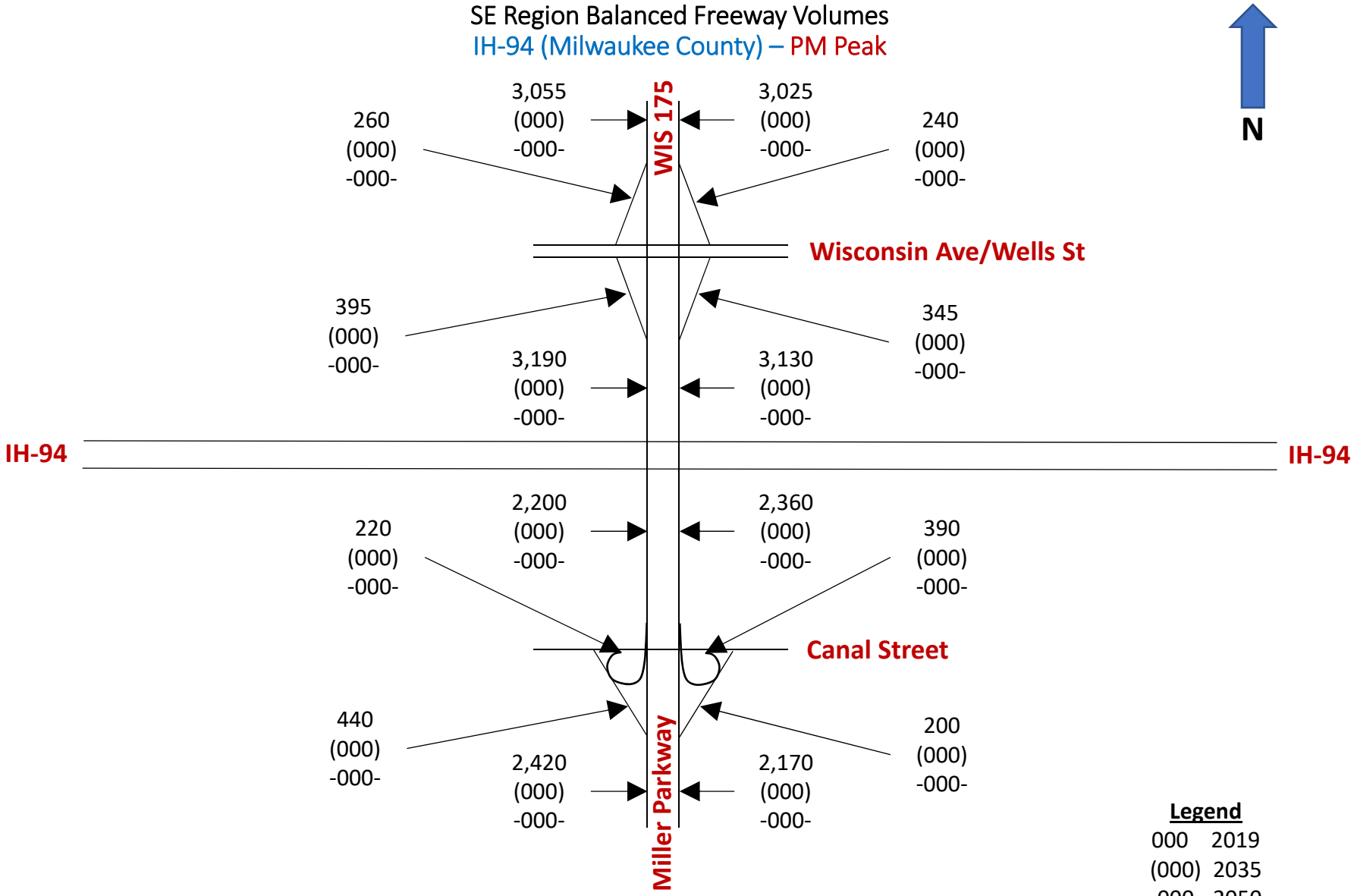
(000) 2035

-000- 2050

Revised: 8/31/20

SE Region Balanced Freeway Volumes

IH-94 (Milwaukee County) – PM Peak



Peak Hour: 3:30 – 4:30 PM

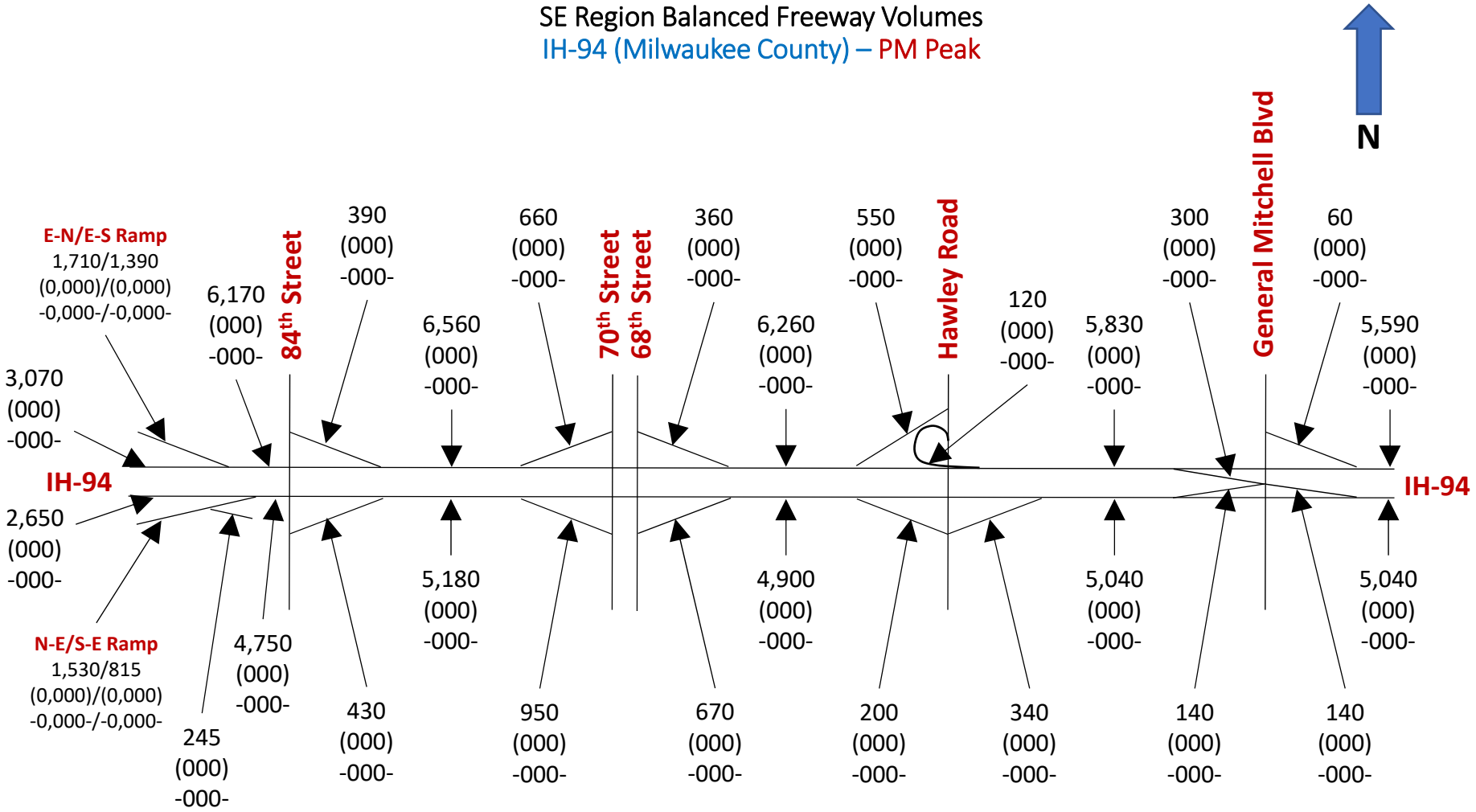
Legend

000 2019
(000) 2035
-000- 2050

Revised: 8/31/20

SE Region Balanced Freeway Volumes

IH-94 (Milwaukee County) – PM Peak



Peak Hour: 4:30 – 5:30 PM

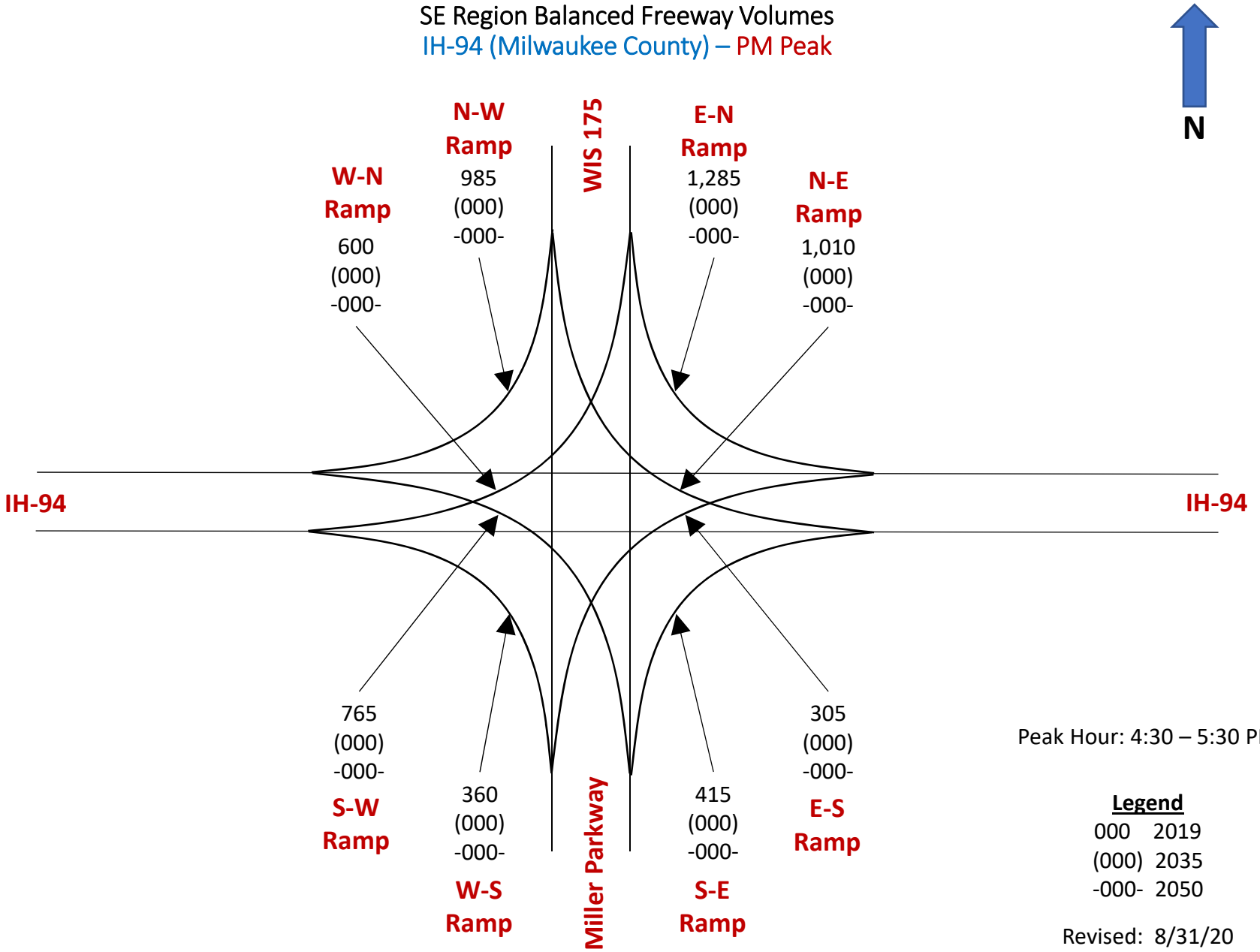
Legend

000 2019
(000) 2035
-000- 2050

Revised: 8/31/20

SE Region Balanced Freeway Volumes

IH-94 (Milwaukee County) – PM Peak



Peak Hour: 4:30 – 5:30 PM

Legend

000 2019

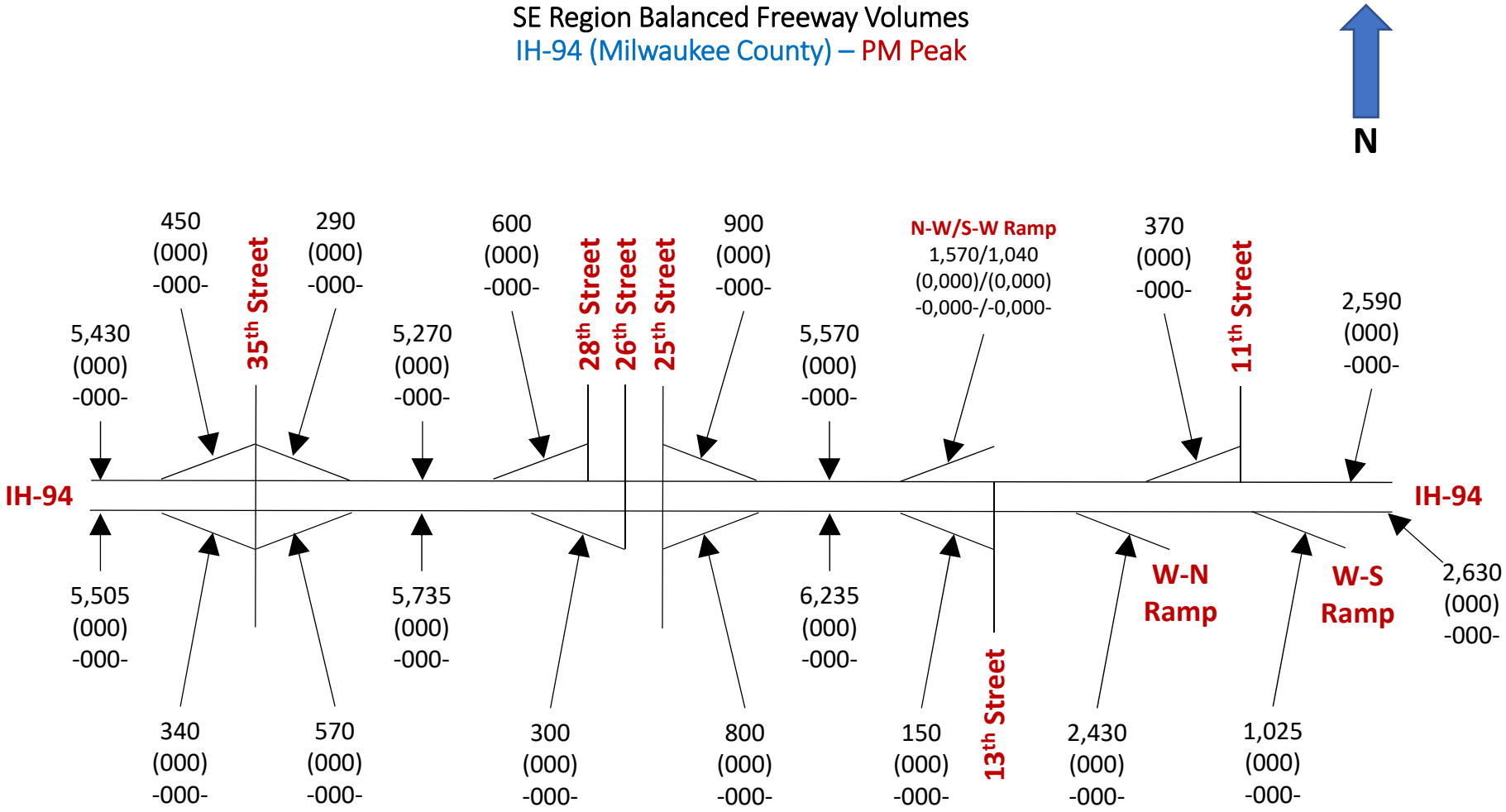
(000) 2035

-000- 2050

Revised: 8/31/20

SE Region Balanced Freeway Volumes

IH-94 (Milwaukee County) – PM Peak



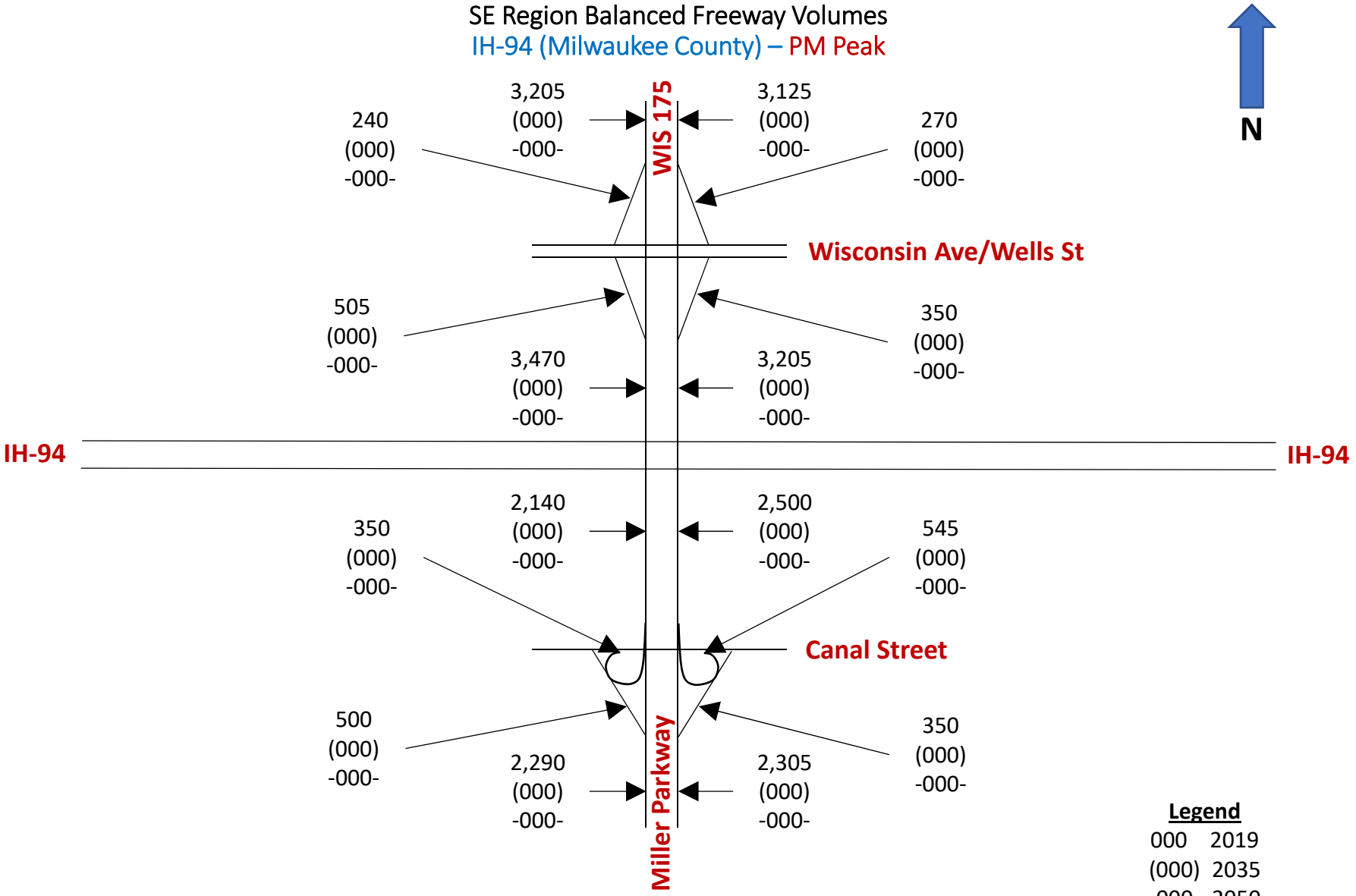
Peak Hour: 4:30 – 5:30 PM

Legend

000 2019
(000) 2035
-000- 2050

Revised: 8/31/20

SE Region Balanced Freeway Volumes
IH-94 (Milwaukee County) – PM Peak



Peak Hour: 4:30 – 5:30 PM

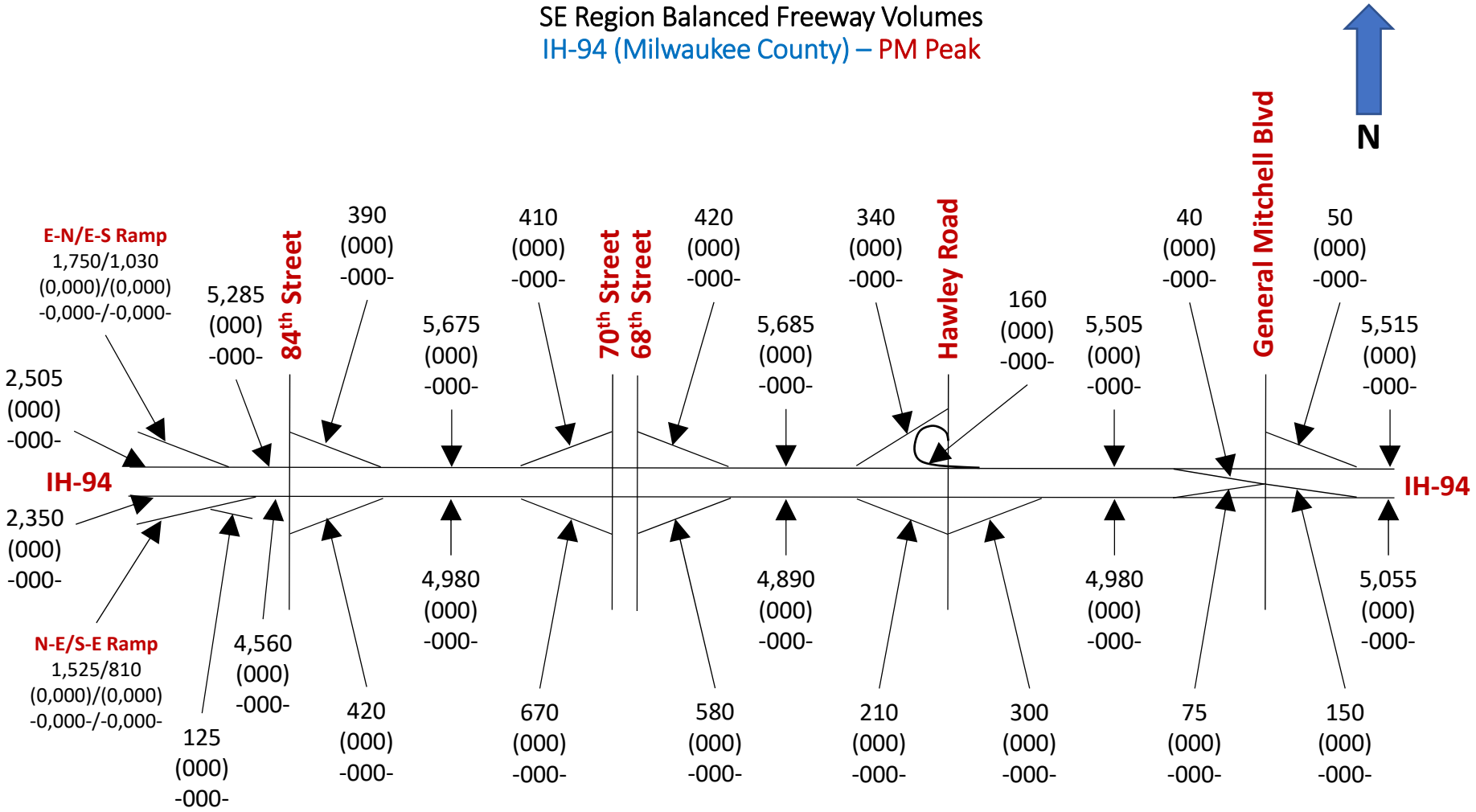
Legend

000 2019
(000) 2035
-000- 2050

Revised: 8/31/20

SE Region Balanced Freeway Volumes

IH-94 (Milwaukee County) – PM Peak



Peak Hour: 5:30 – 6:30 PM

Legend

000 2019

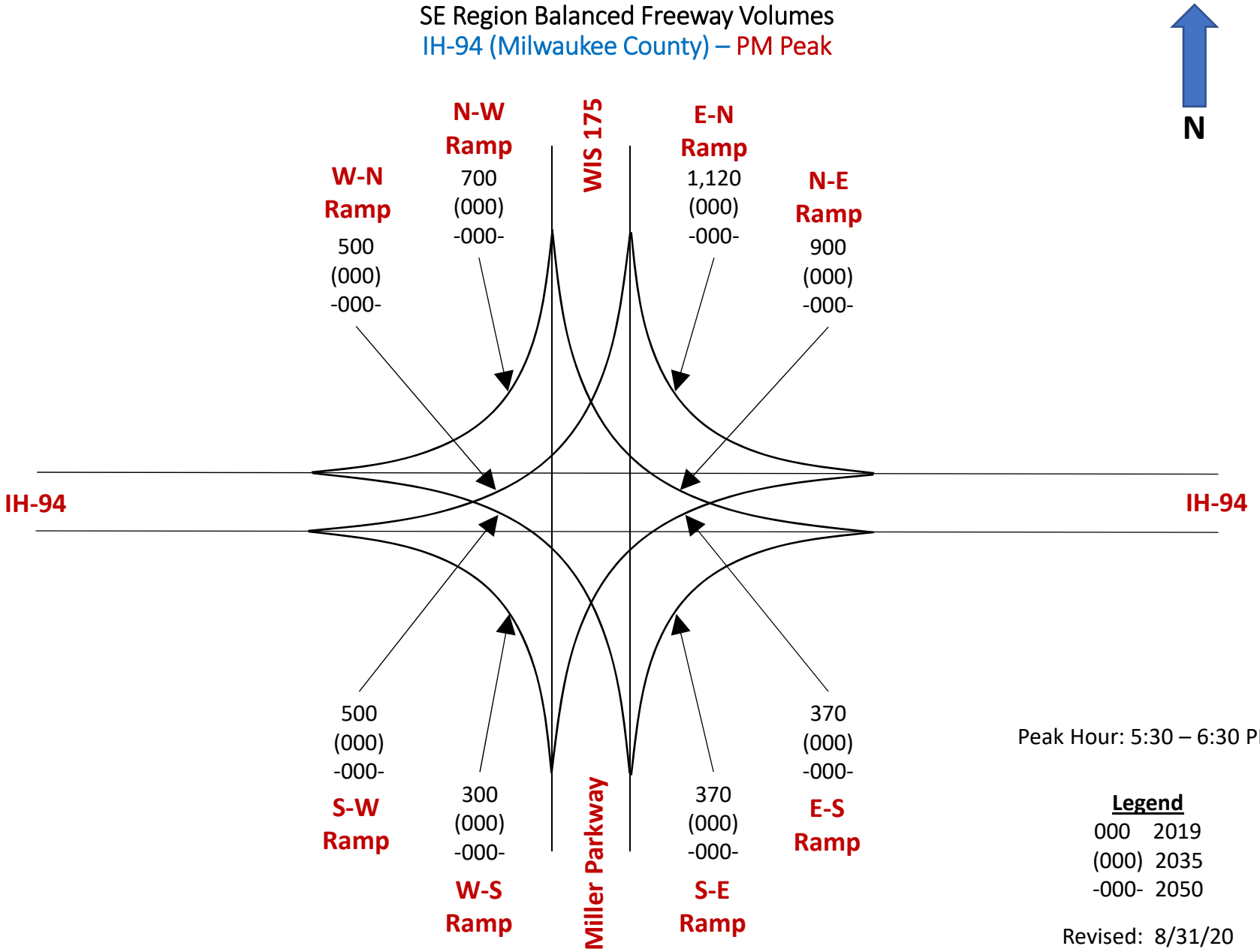
(000) 2035

-000- 2050

Revised: 8/31/20

SE Region Balanced Freeway Volumes

IH-94 (Milwaukee County) – PM Peak



Peak Hour: 5:30 – 6:30 PM

Legend

000 2019

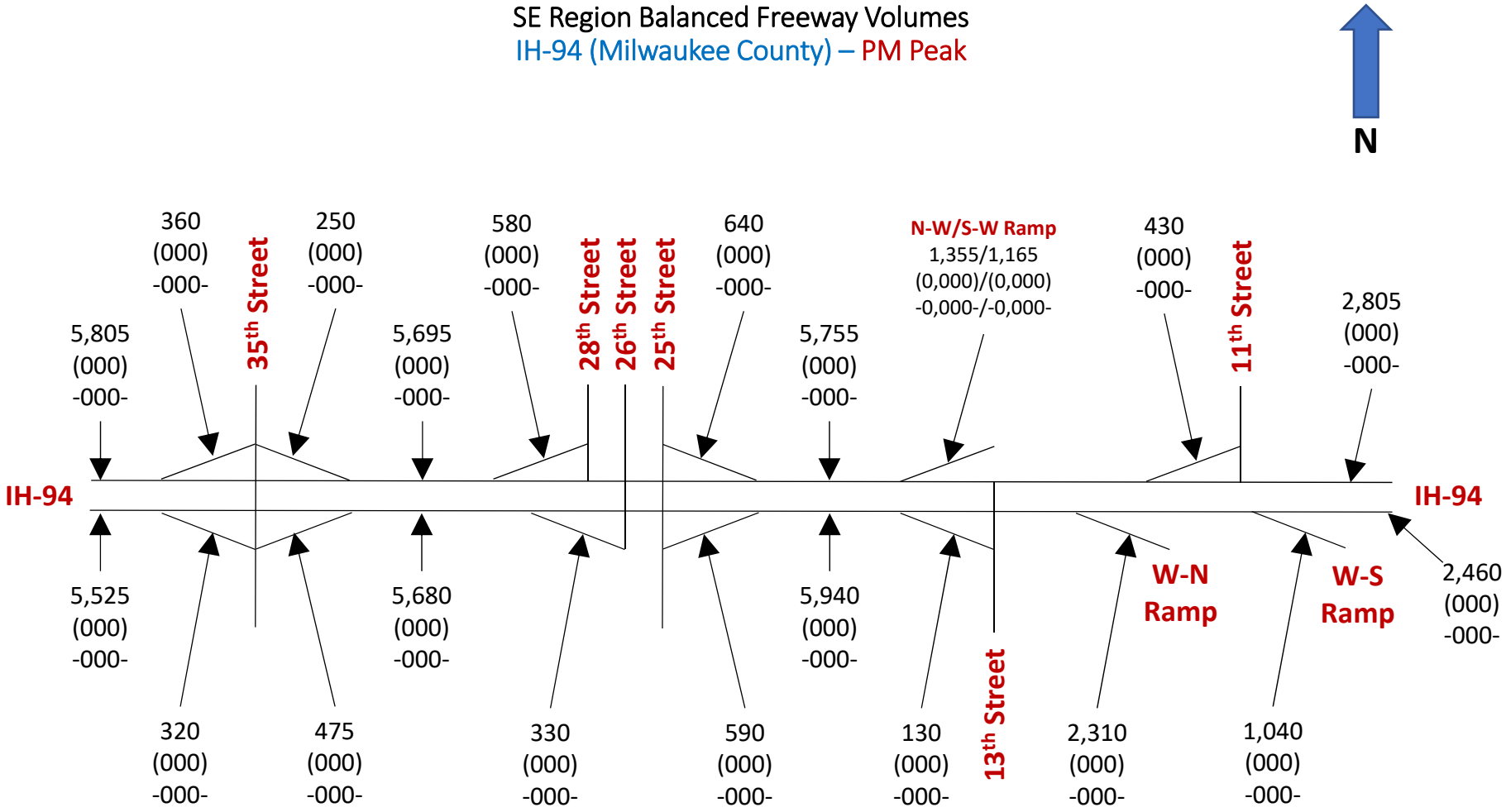
(000) 2035

-000- 2050

Revised: 8/31/20

SE Region Balanced Freeway Volumes

IH-94 (Milwaukee County) – PM Peak



Peak Hour: 5:30 – 6:30 PM

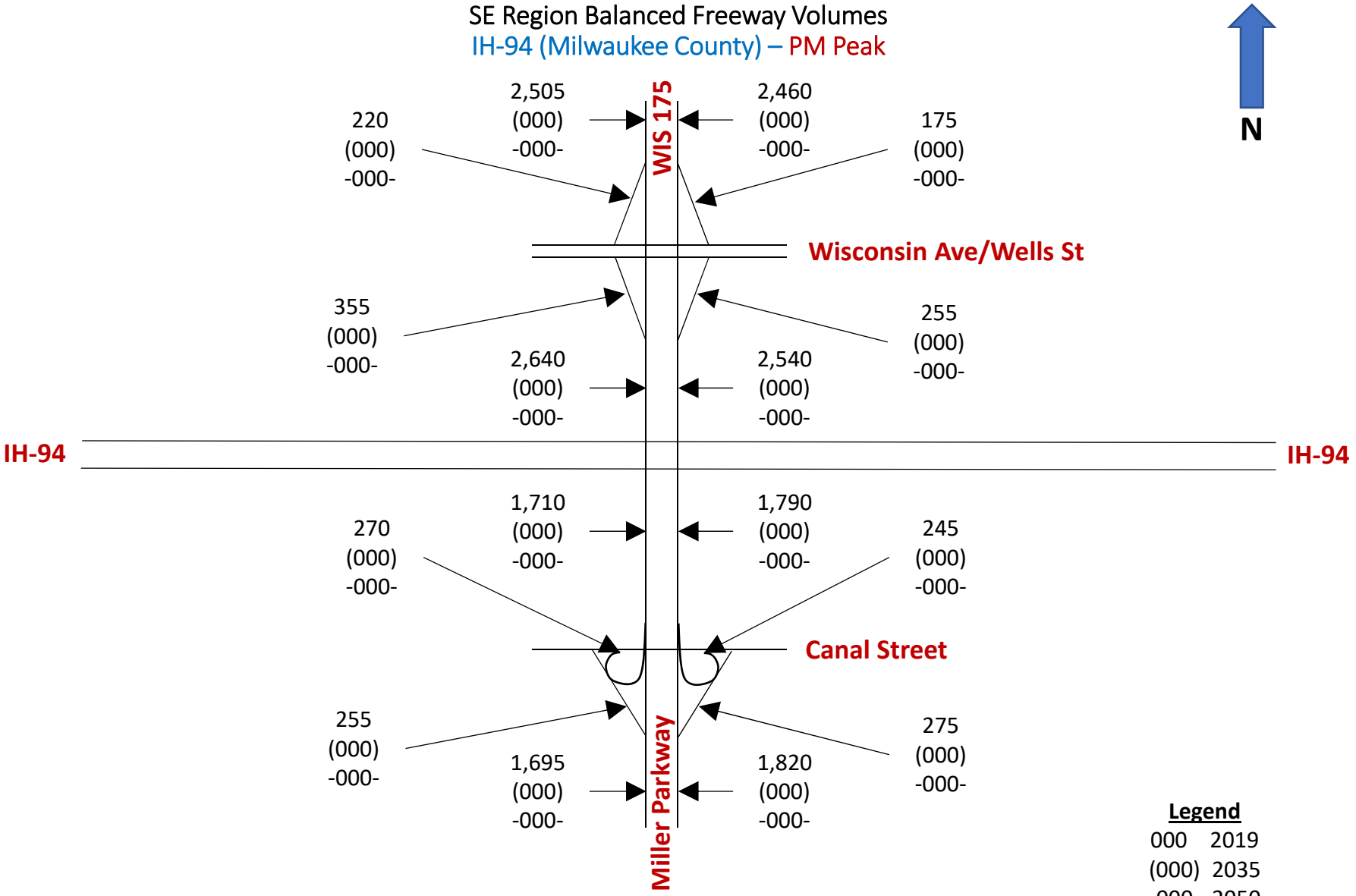
Legend

000	2019
(000)	2035
-000-	2050

Revised: 8/31/20

SE Region Balanced Freeway Volumes

IH-94 (Milwaukee County) – PM Peak



Peak Hour: 5:30 – 6:30 PM

Legend

000 2019

(000) 2035

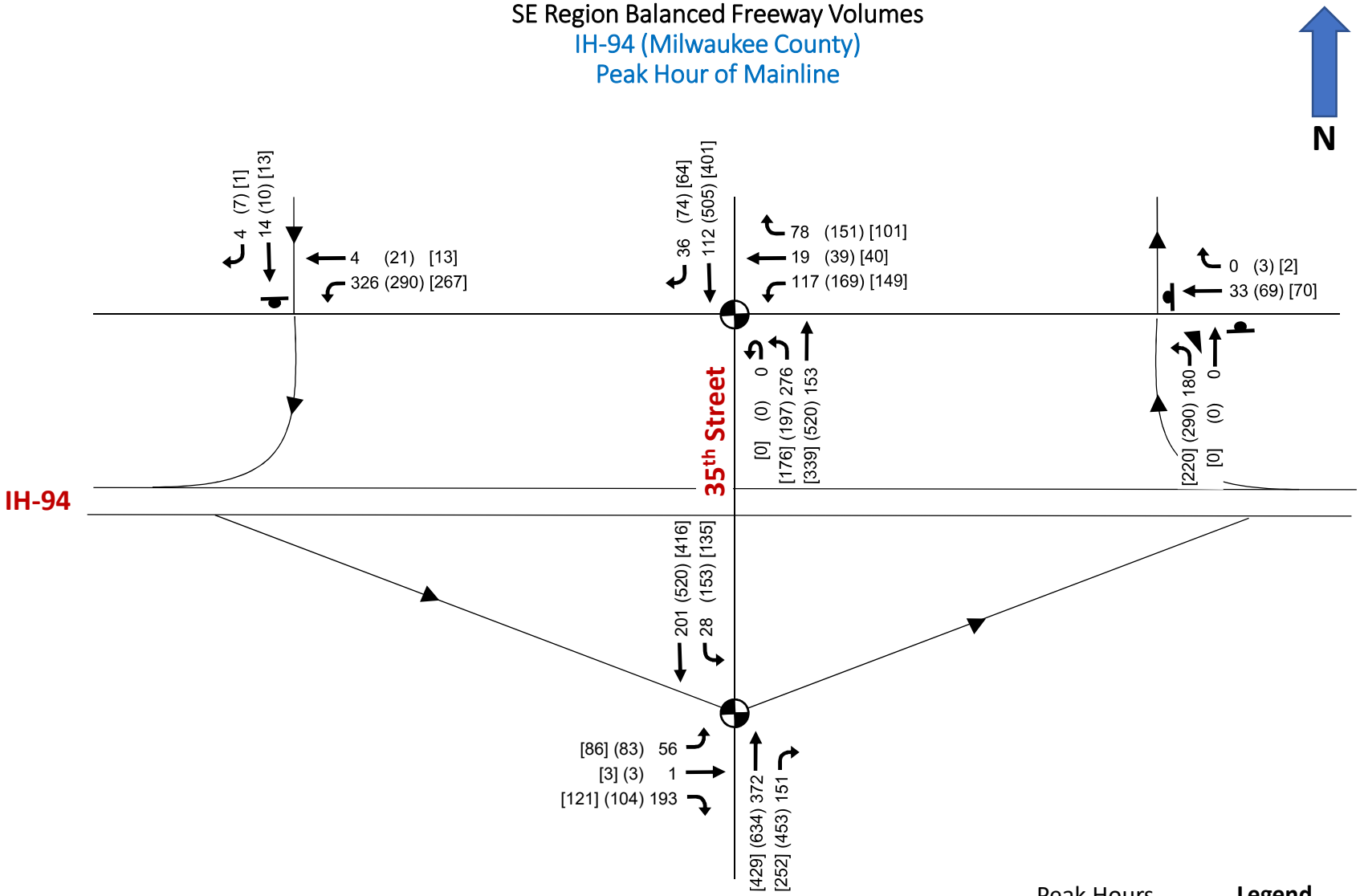
-000- 2050

Revised: 8/31/20

SE Region Balanced Freeway Volumes

IH-94 (Milwaukee County)

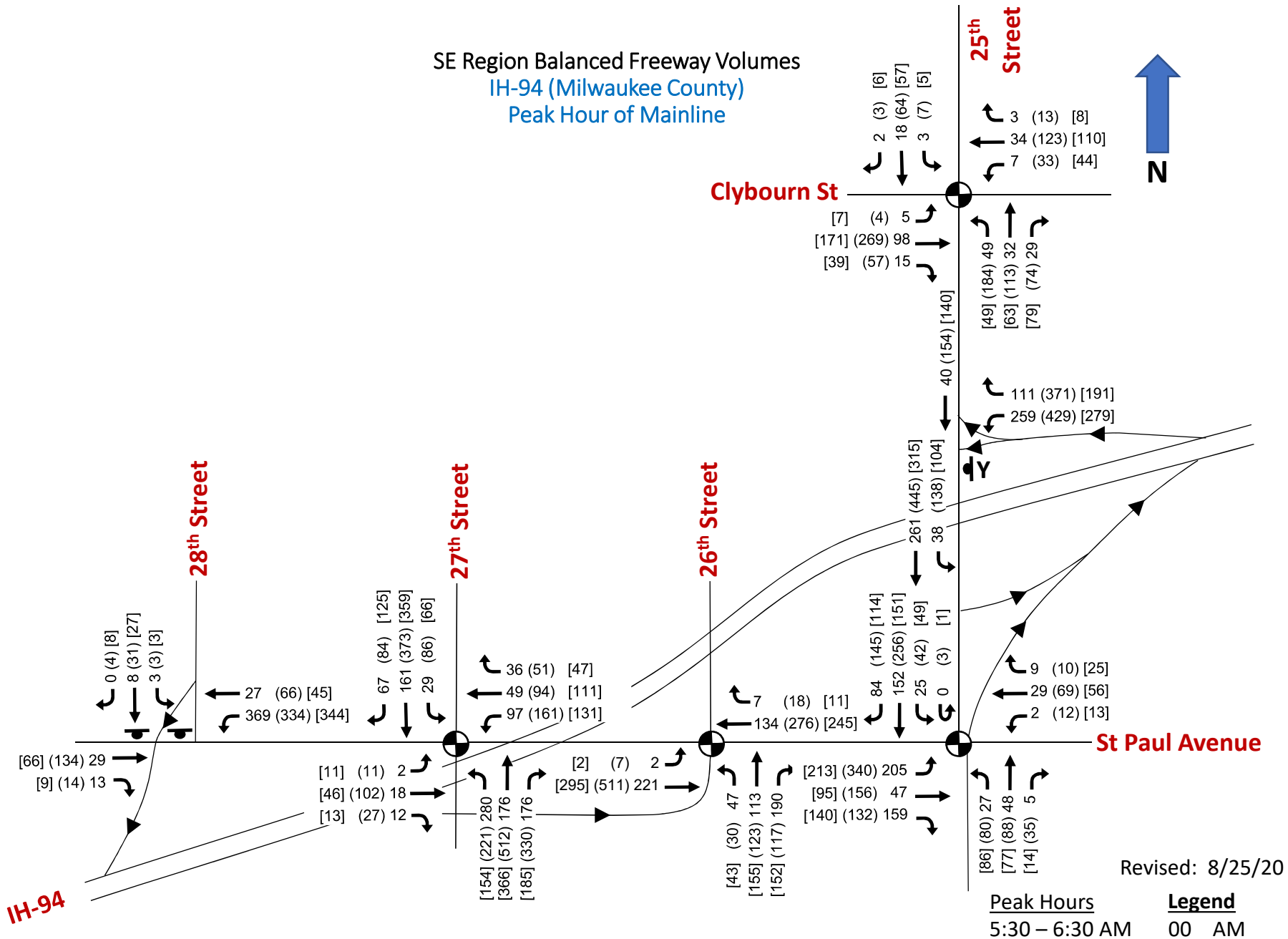
Peak Hour of Mainline



Peak Hours	Legend
5:30 – 6:30 AM	00 AM
7:30 – 8:30 AM	(00) AM
8:30 – 9:30 AM	[00] AM

Revised: 8/25/20

SE Region Balanced Freeway Volumes
IH-94 (Milwaukee County)
Peak Hour of Mainline



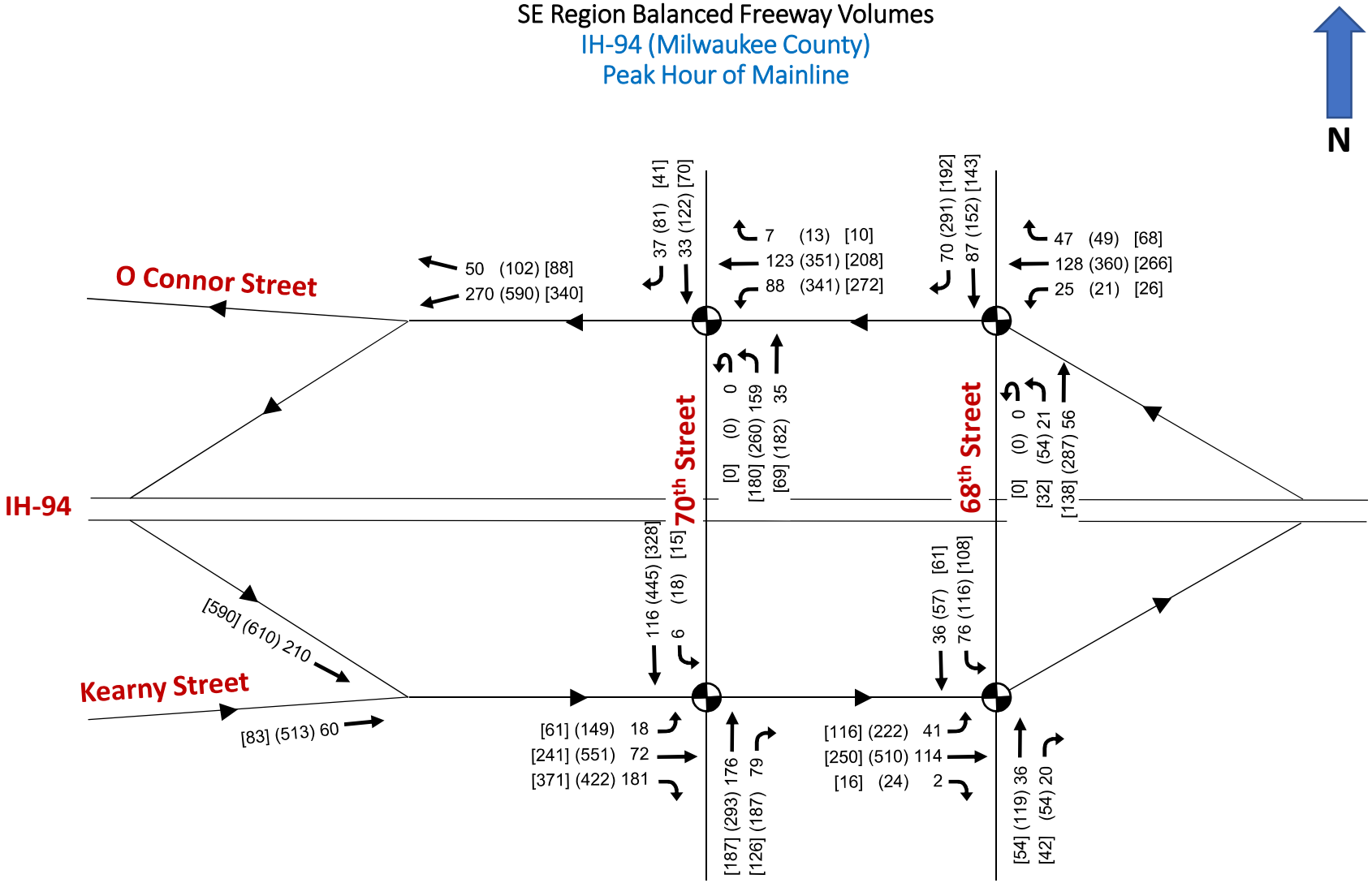
Revised: 8/25/20

Peak Hours	Legend
5:30 – 6:30 AM	00 AM
7:30 – 8:30 AM	(00) AM
8:30 – 9:30 AM	[00] AM

SE Region Balanced Freeway Volumes

IH-94 (Milwaukee County)

Peak Hour of Mainline



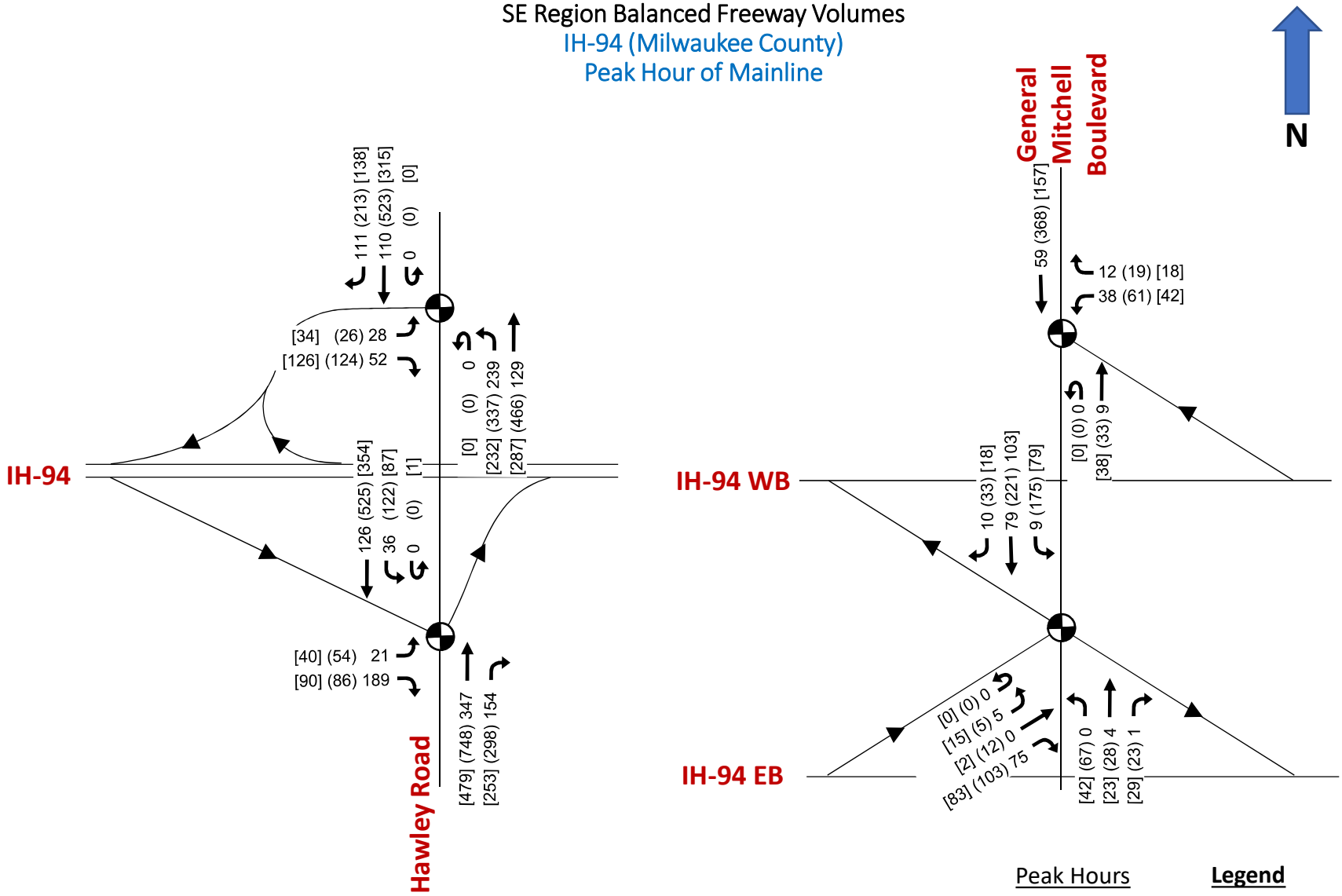
Peak Hours	Legend
5:30 – 6:30 AM	00 AM
7:30 – 8:30 AM	(00) AM
8:30 – 9:30 AM	[00] AM

Revised: 8/25/20

SE Region Balanced Freeway Volumes

IH-94 (Milwaukee County)

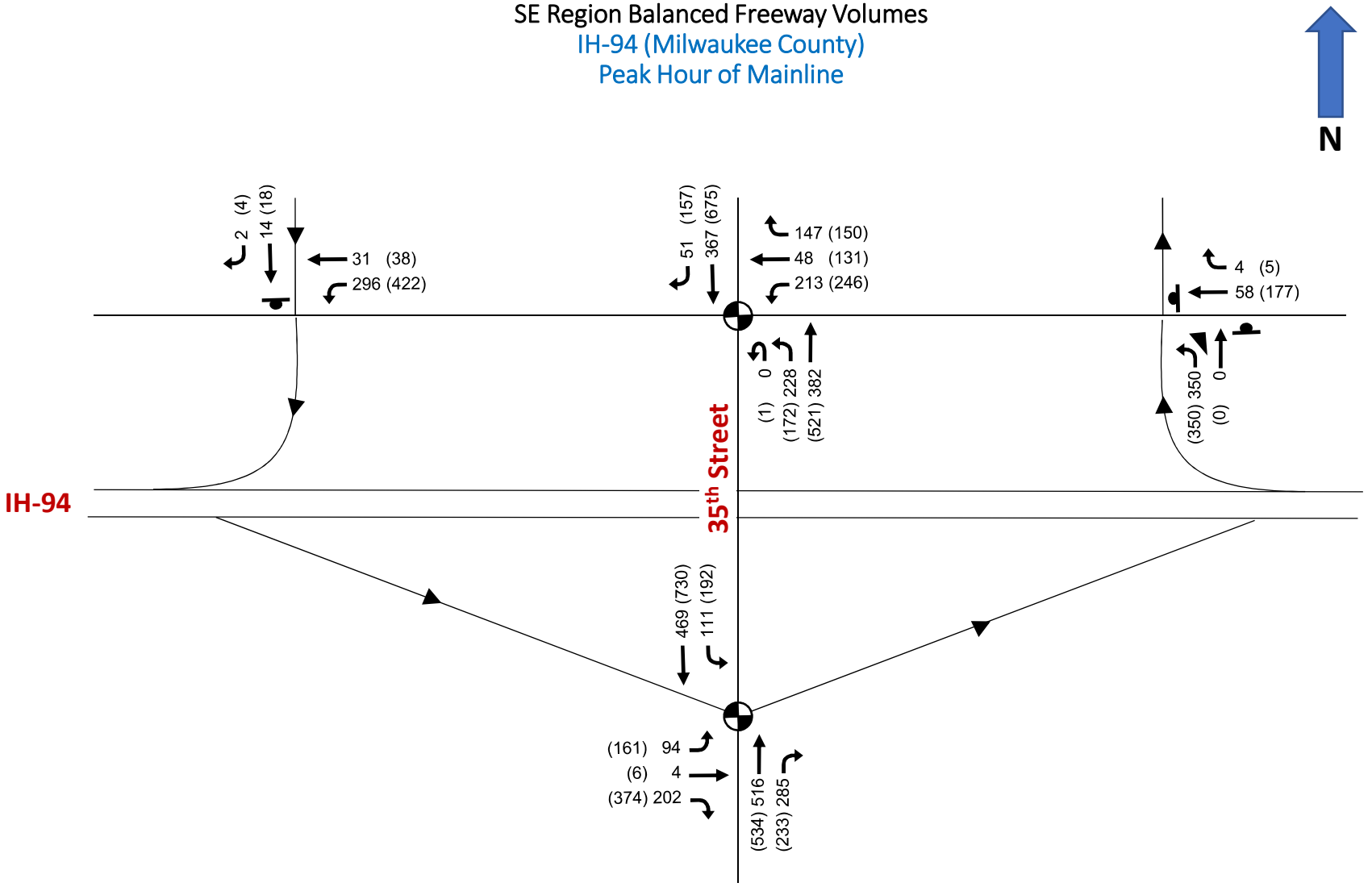
Peak Hour of Mainline



Peak Hours	**Legend**
5:30 – 6:30 AM	00 AM
7:30 – 8:30 AM	(00) AM
8:30 – 9:30 AM	[00] AM

Revised: 8/25/20

SE Region Balanced Freeway Volumes
IH-94 (Milwaukee County)
Peak Hour of Mainline



Peak Hours
6:30 – 7:30 AM
2:30 – 3:30 PM

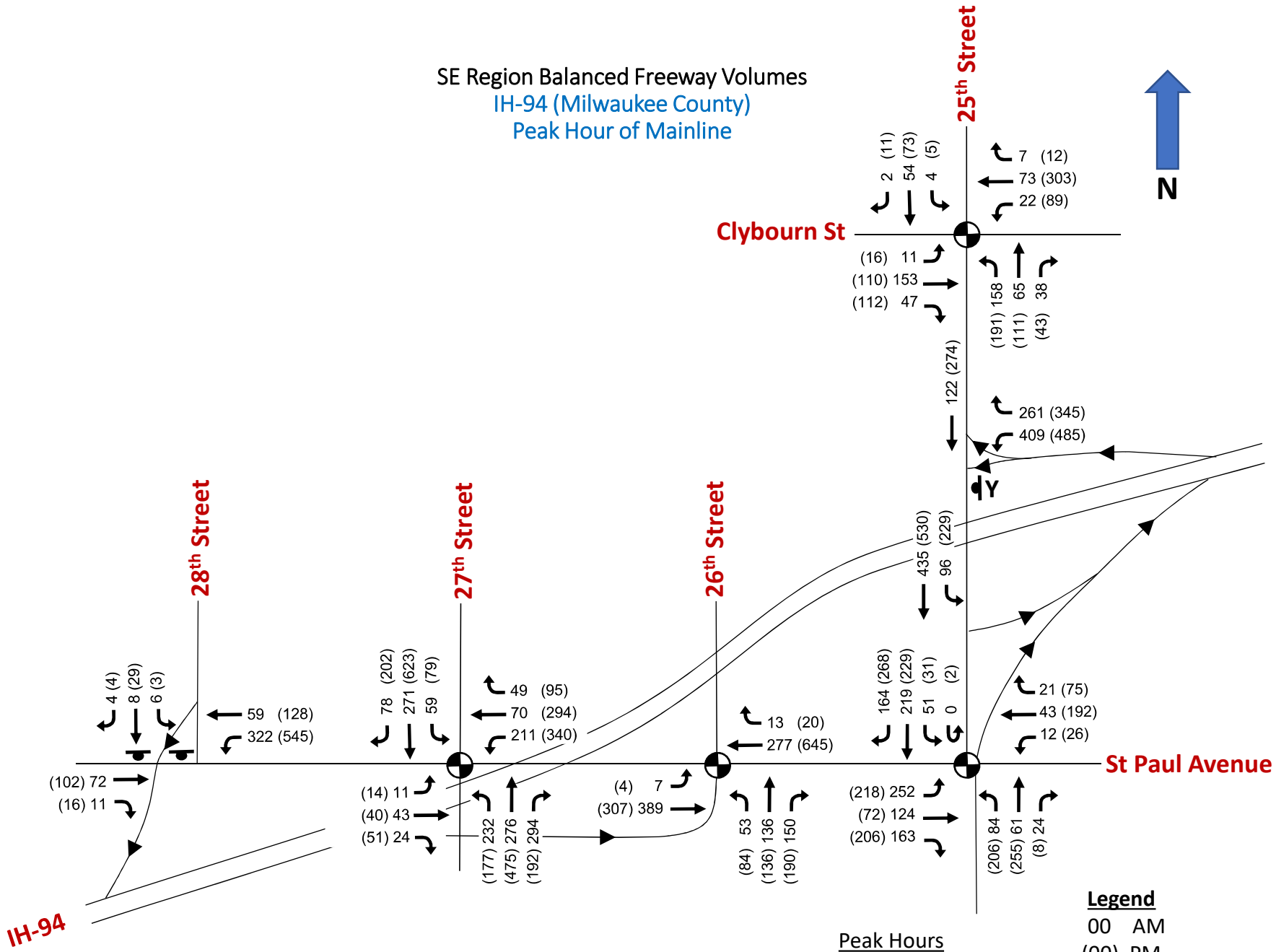
Legend
00 AM
(00) PM

Revised: 8/25/20

SE Region Balanced Freeway Volumes

IH-94 (Milwaukee County)

Peak Hour of Mainline



Peak Hours

6:30 – 7:30 AM

2:30 – 3:30 PM

Legend

00 AM

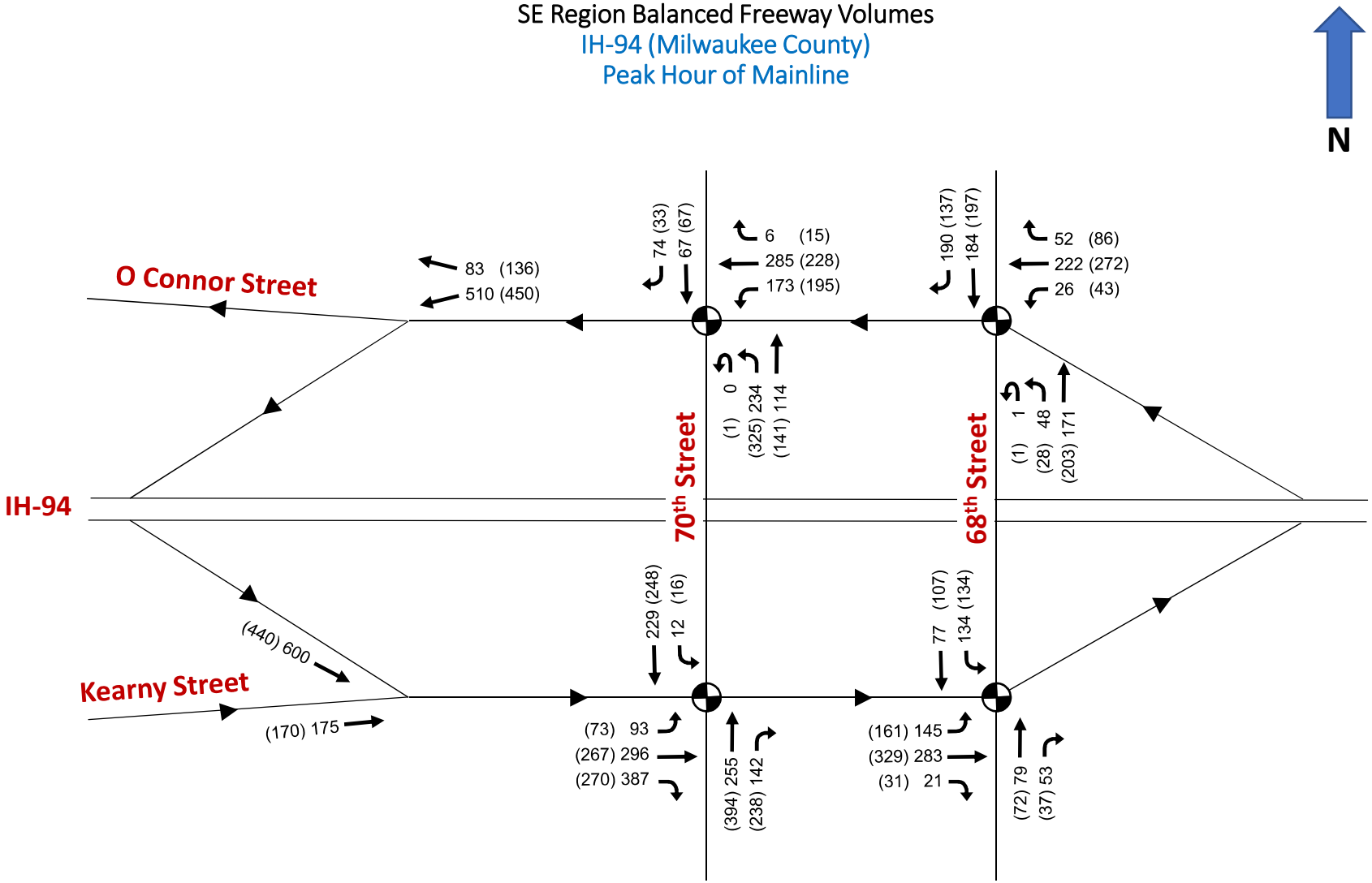
(00) PM

Revised: 8/25/20

SE Region Balanced Freeway Volumes

IH-94 (Milwaukee County)

Peak Hour of Mainline



Peak Hours

6:30 – 7:30 AM

2:30 – 3:30 PM

Legend

00 AM

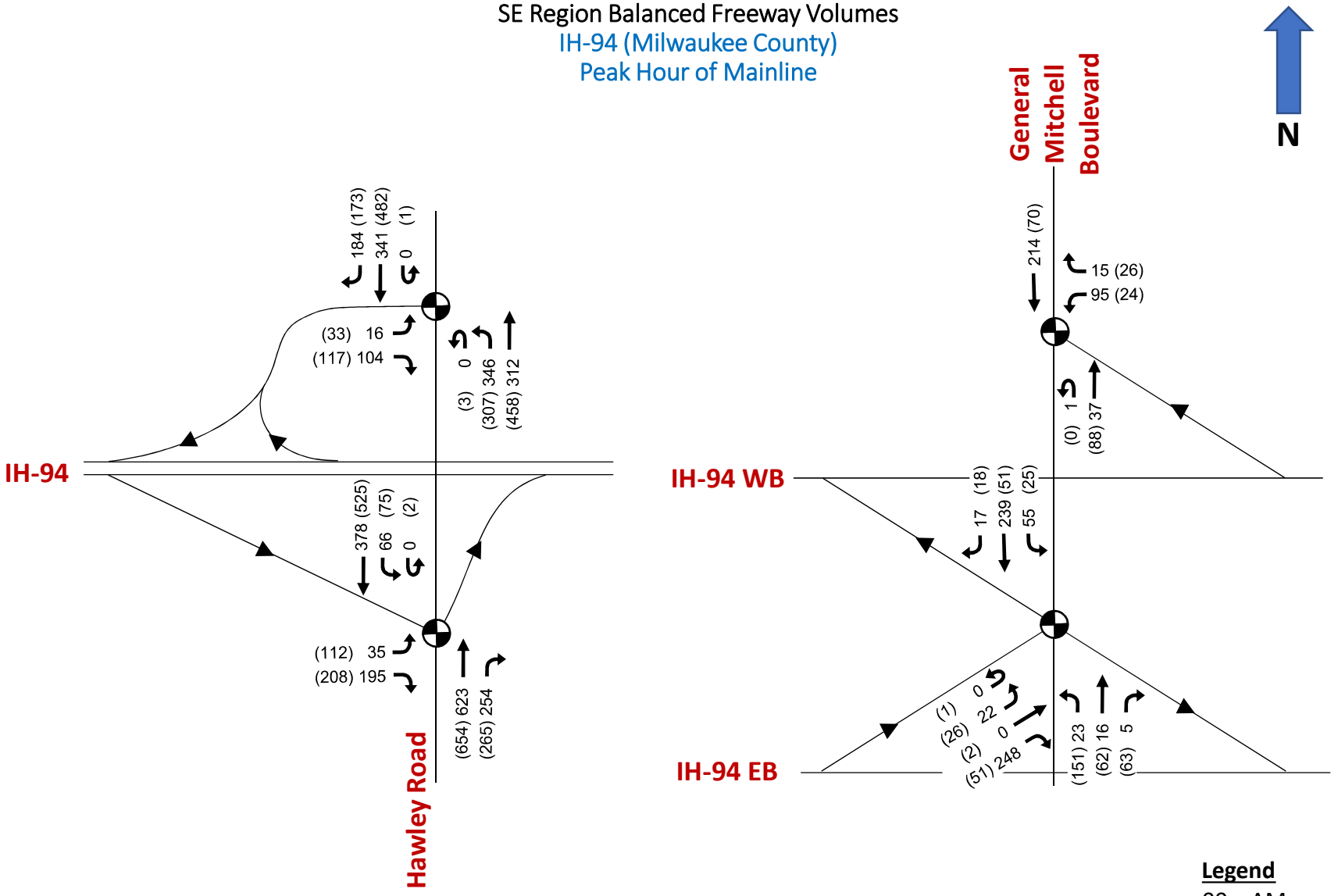
(00) PM

Revised: 8/25/20

SE Region Balanced Freeway Volumes

IH-94 (Milwaukee County)

Peak Hour of Mainline



Peak Hours

6:30 – 7:30 AM

2:30 – 3:30 PM

Legend

00 AM

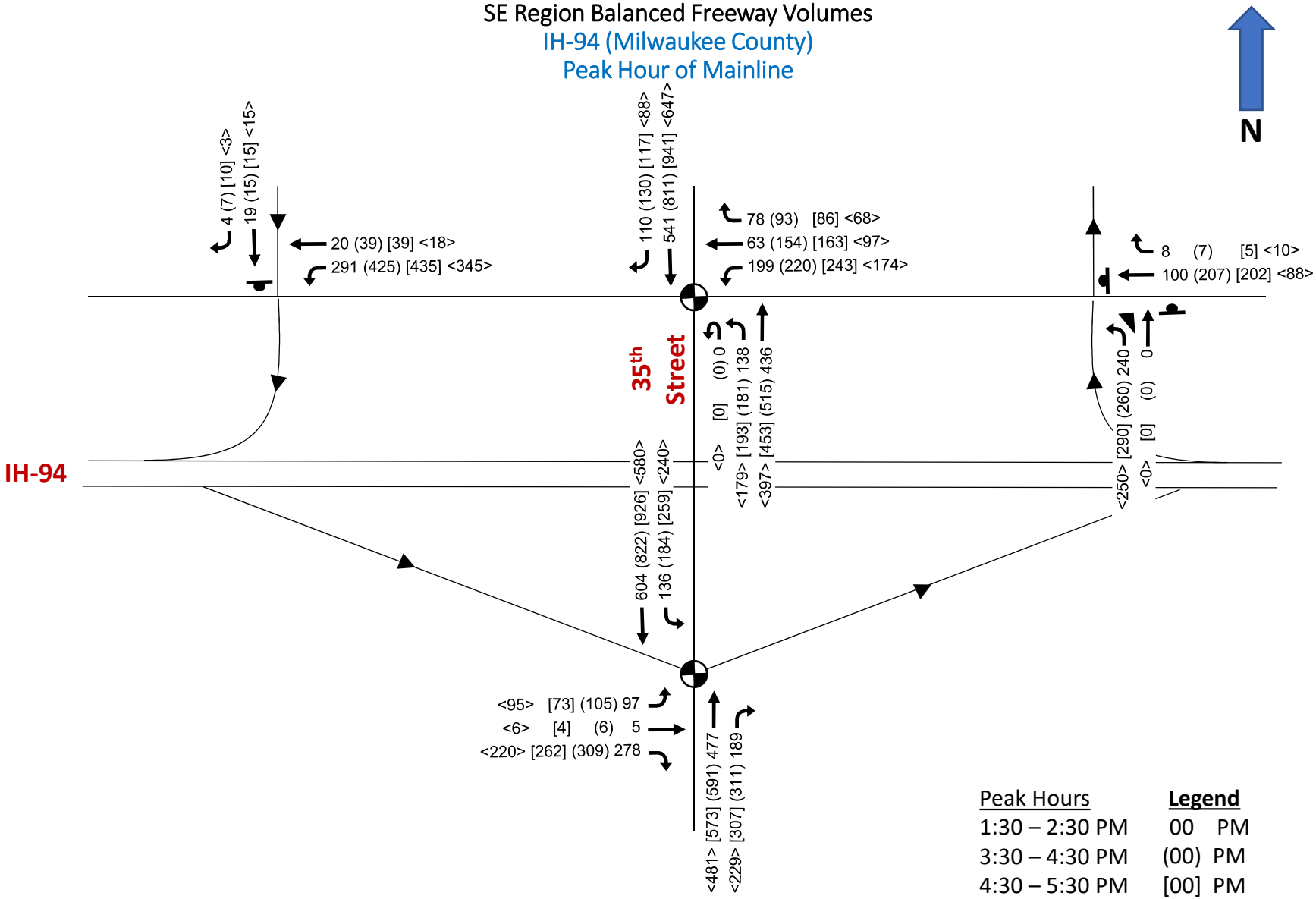
(00) PM

Revised: 8/25/20

SE Region Balanced Freeway Volumes

IH-94 (Milwaukee County)

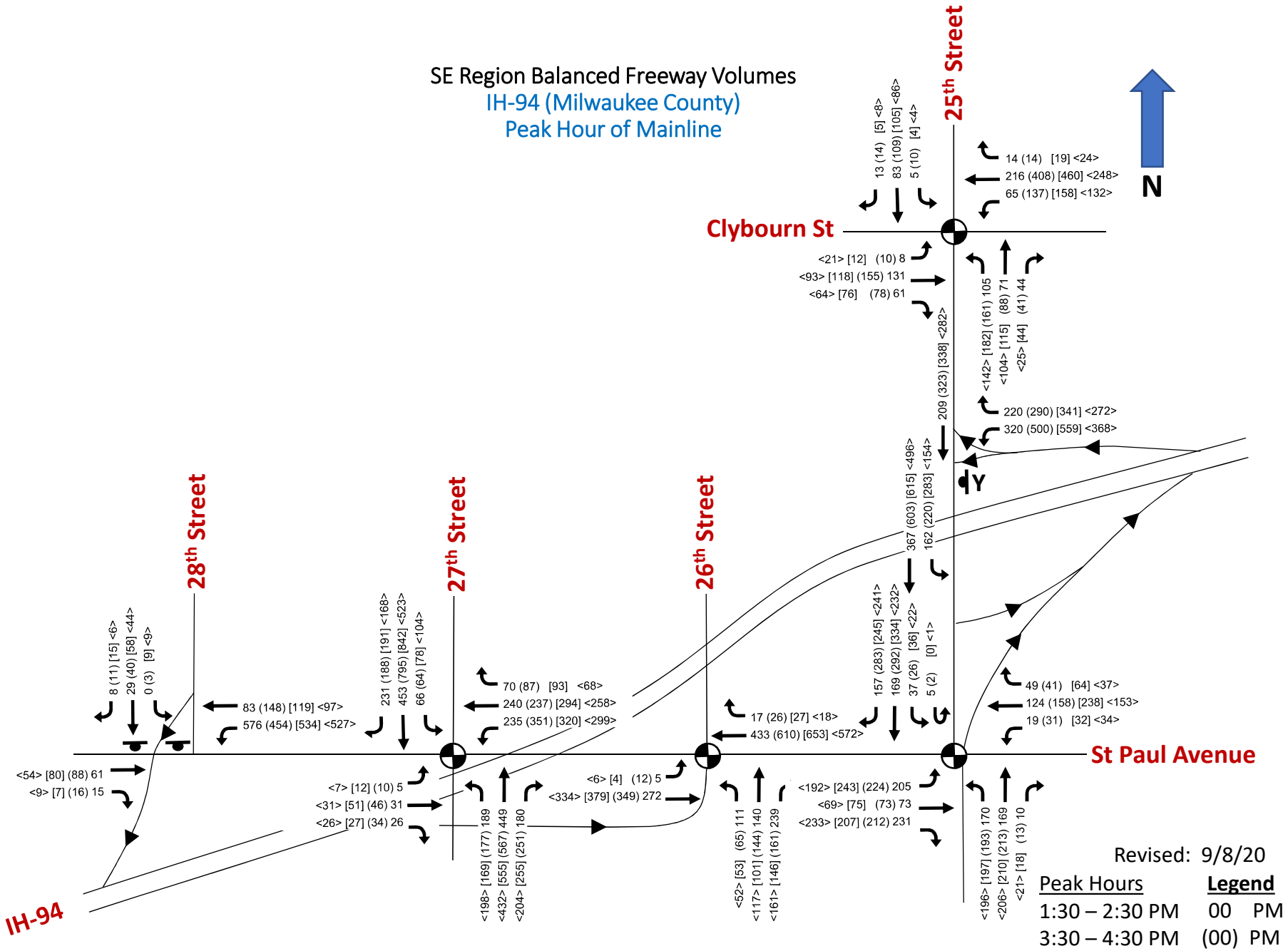
Peak Hour of Mainline



Peak Hours	Legend
1:30 – 2:30 PM	00 PM
3:30 – 4:30 PM	(00) PM
4:30 – 5:30 PM	[00] PM
5:30 – 6:30 PM	<XX> PM

Revised: 9/8/20

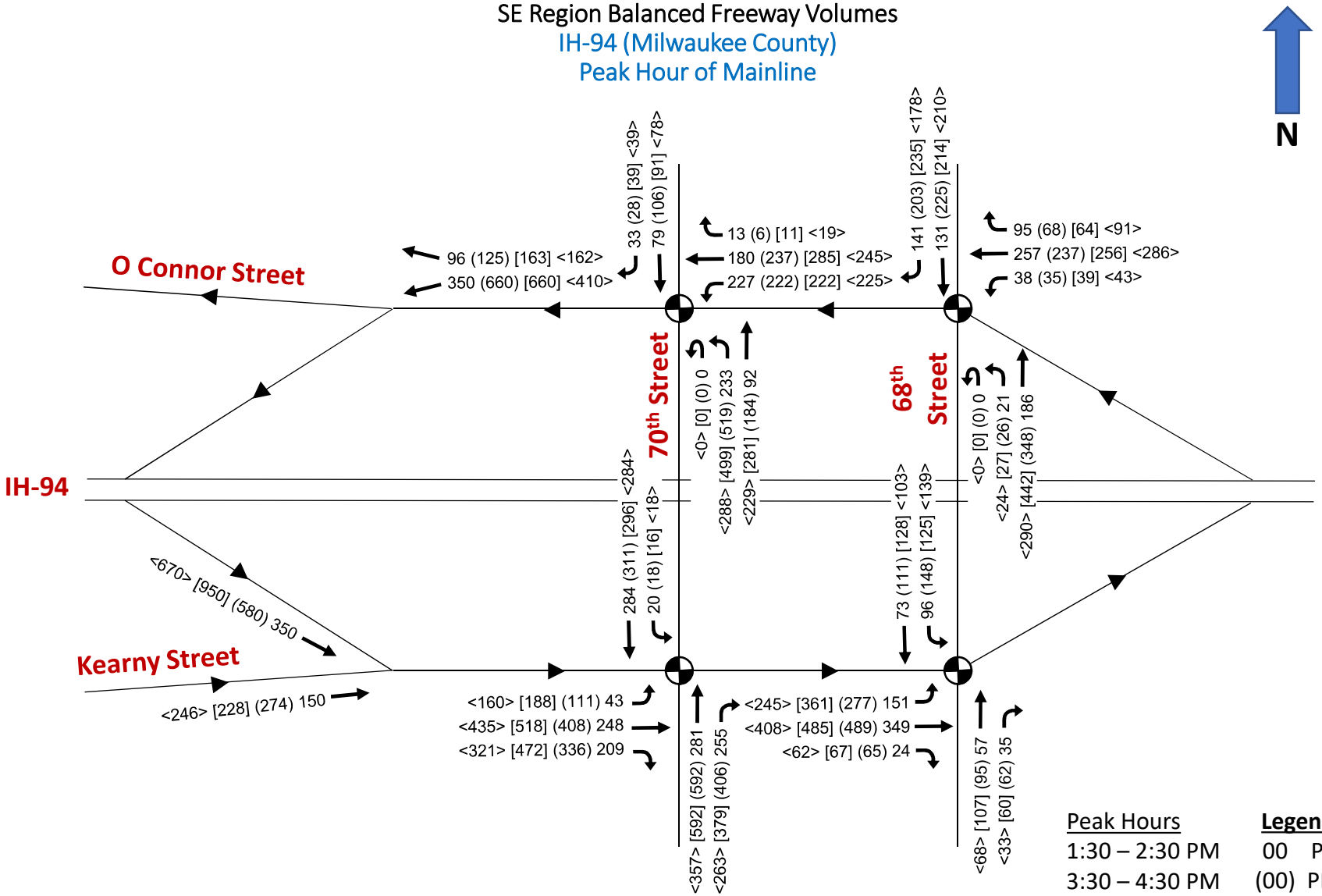
SE Region Balanced Freeway Volumes
IH-94 (Milwaukee County)
Peak Hour of Mainline



Revised: 9/8/20

Peak Hours	Legend
1:30 – 2:30 PM	00 PM
3:30 – 4:30 PM	(00) PM
4:30 – 5:30 PM	[00] PM
5:30 – 6:30 PM	<XX> PM

SE Region Balanced Freeway Volumes
IH-94 (Milwaukee County)
Peak Hour of Mainline



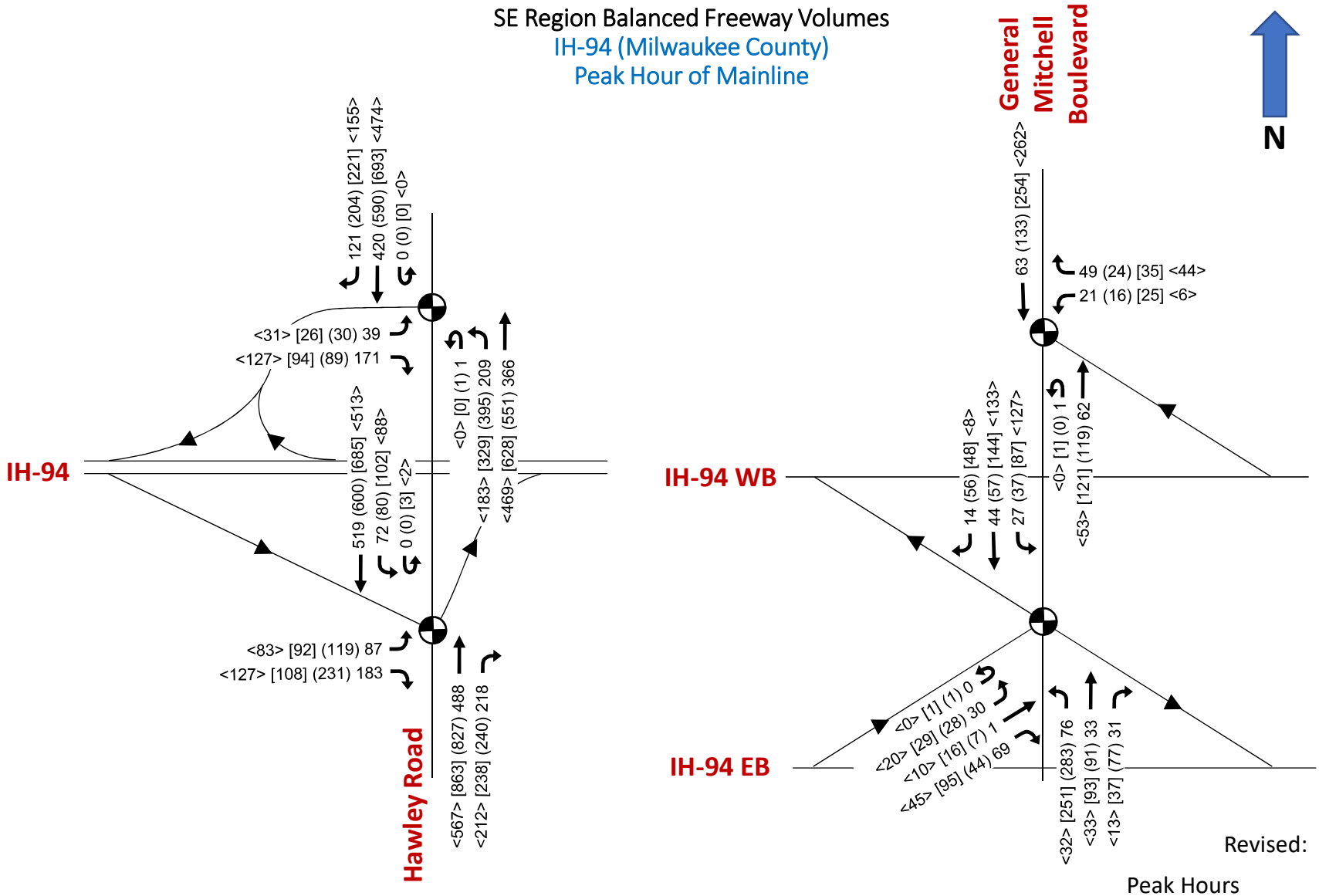
Peak Hours	Legend
1:30 – 2:30 PM	00 PM
3:30 – 4:30 PM	(00) PM
4:30 – 5:30 PM	[00] PM
5:30 – 6:30 PM	<XX> PM

Revised: 9/8/20

SE Region Balanced Freeway Volumes

IH-94 (Milwaukee County)

Peak Hour of Mainline



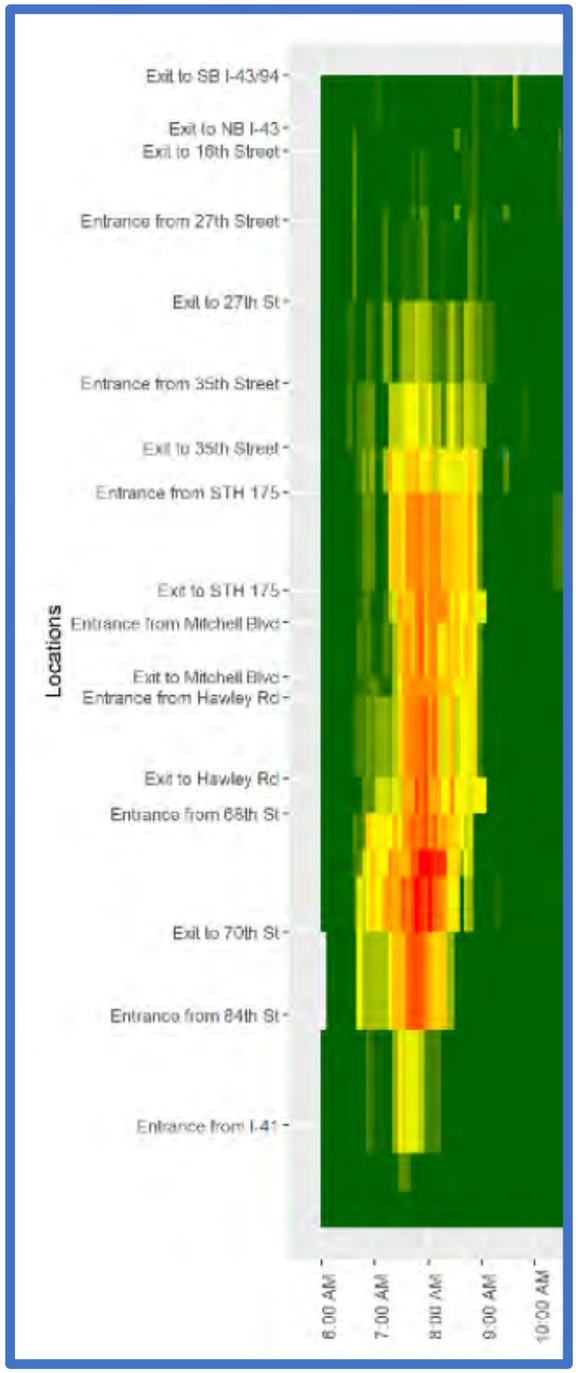
Revised: 9/8/20

Peak Hours	Legend
1:30 – 2:30 PM	00 PM
3:30 – 4:30 PM	(00) PM
4:30 – 5:30 PM	[00] PM
5:30 – 6:30 PM	<XX> PM

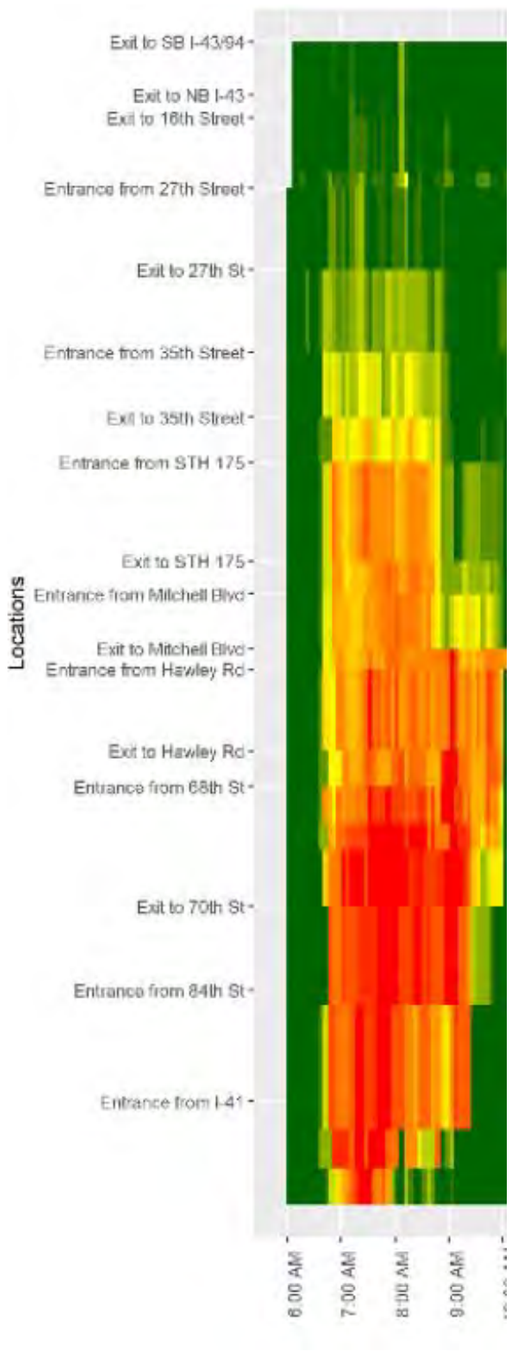
Appendix C – Cluster Analysis Speed Heat Maps

I-94 Eastbound: AM Peak Period

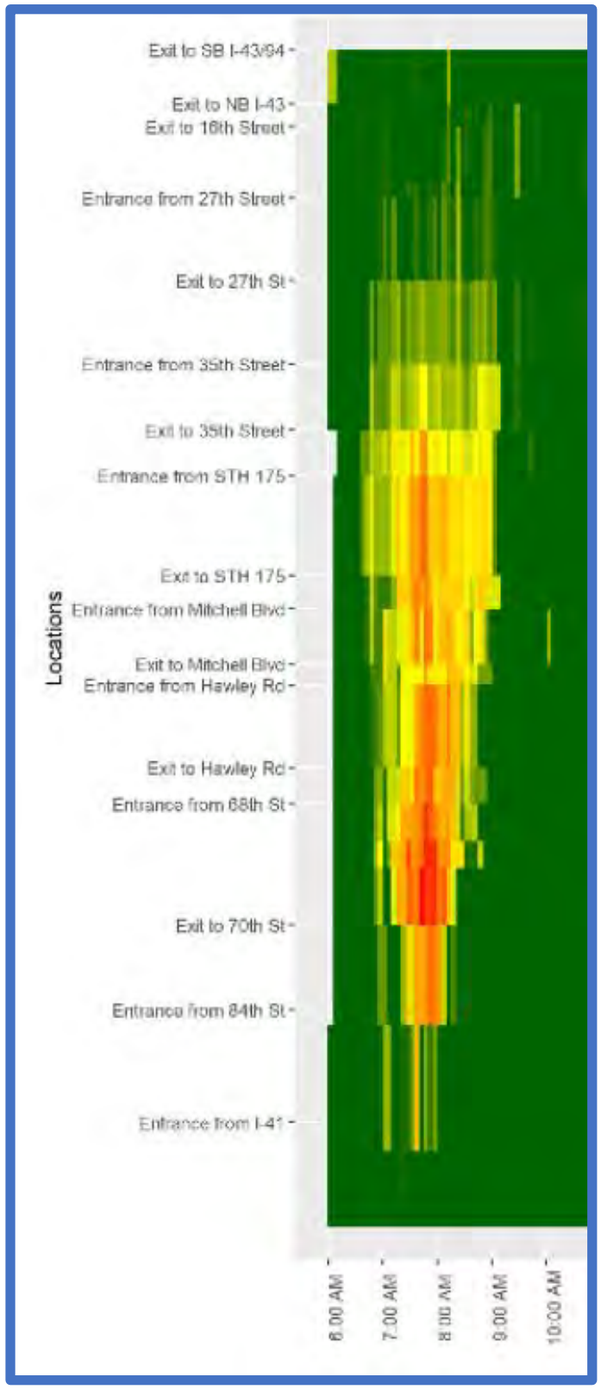
4/2/2019



4/3/2019

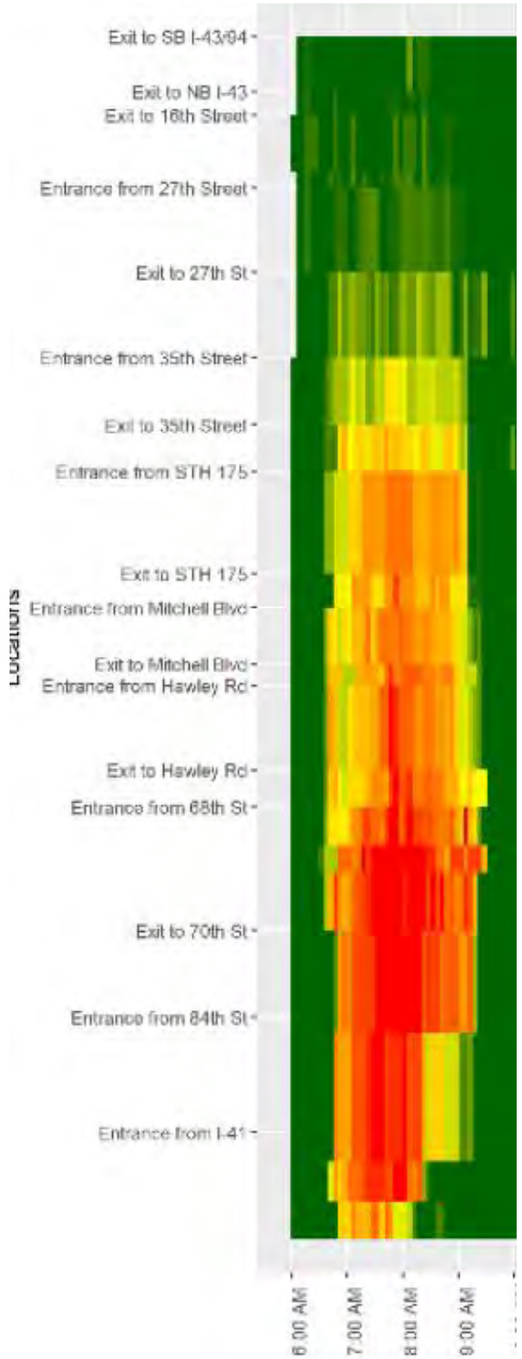


4/4/2019

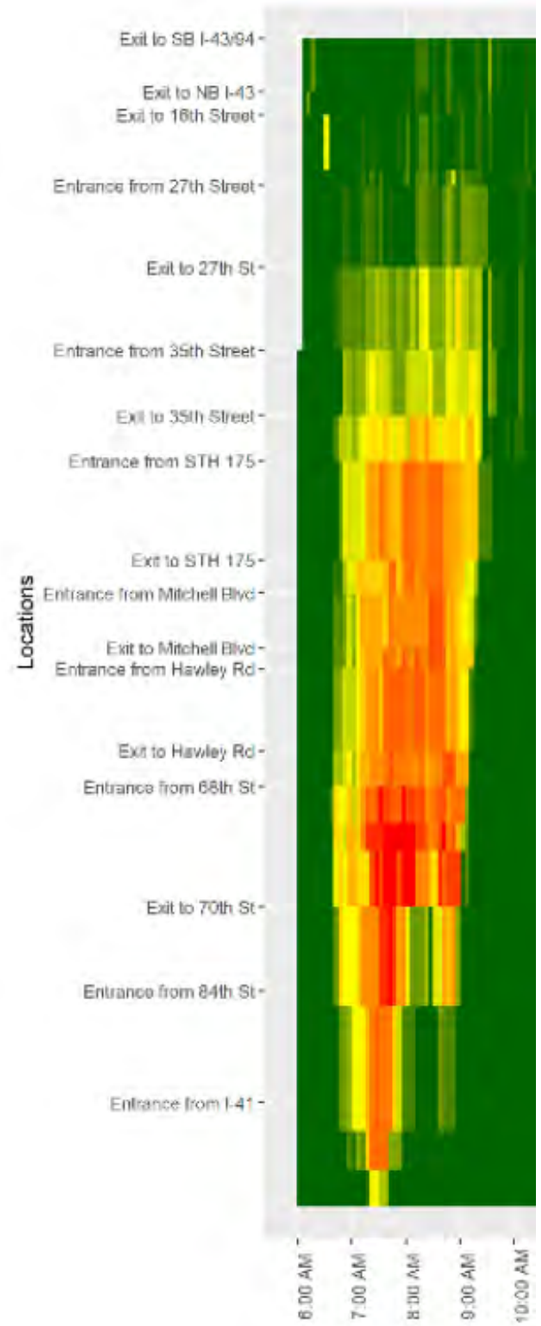


I-94 Eastbound: AM Peak Period

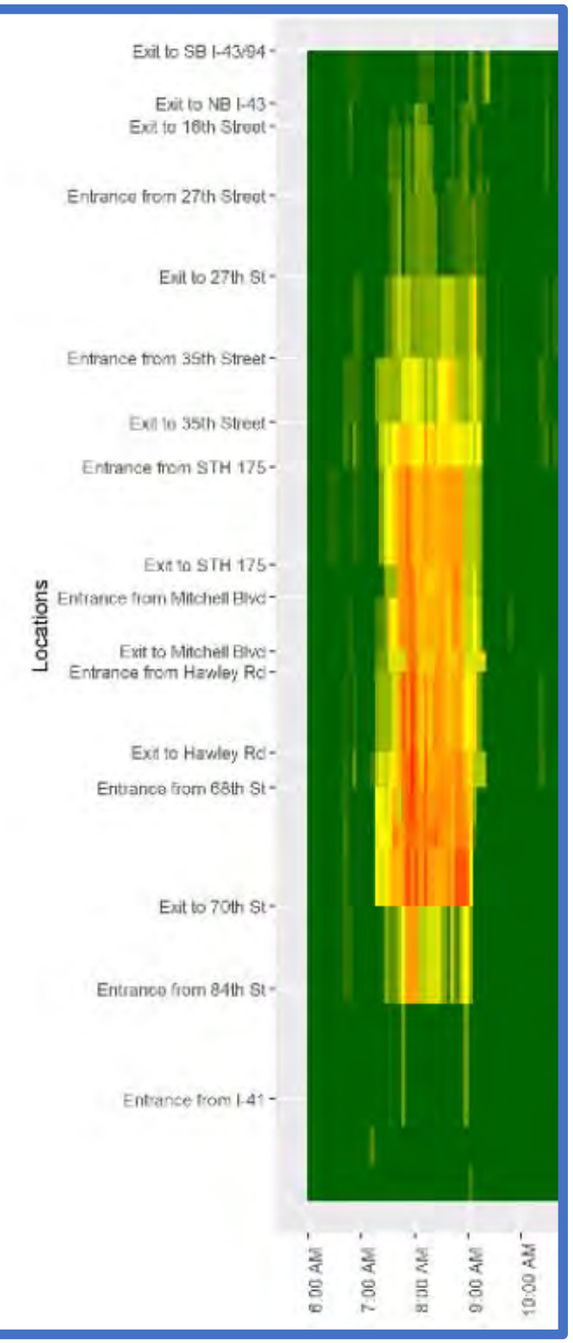
4/9/2019



4/10/2019

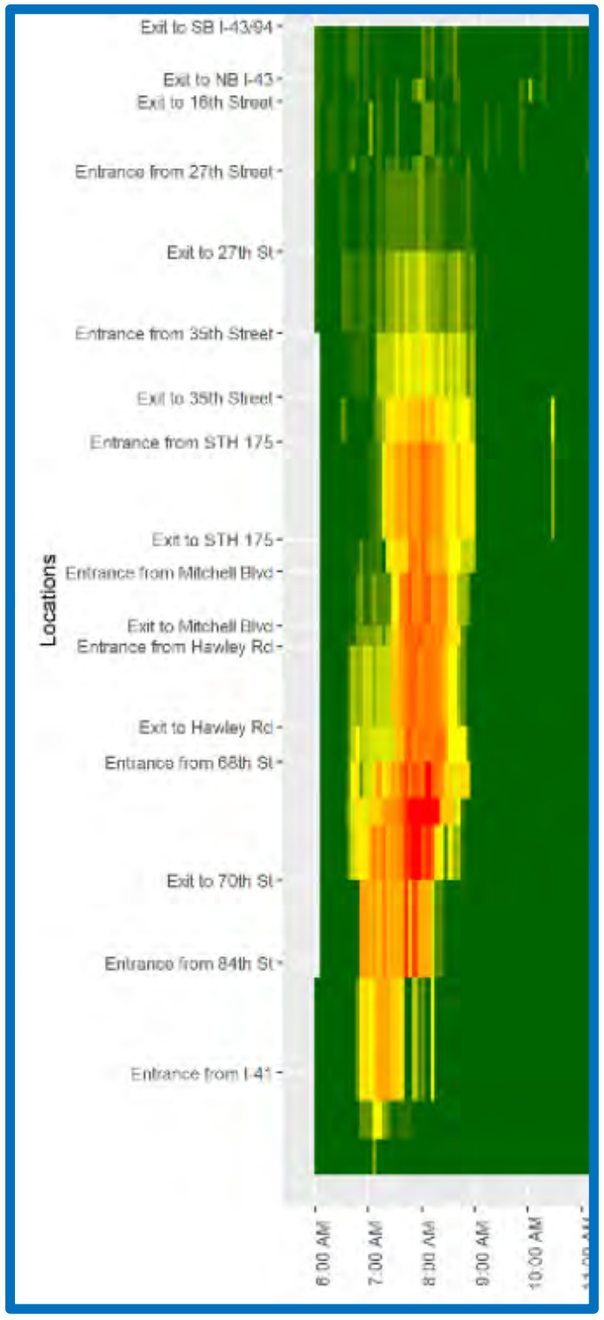


4/11/2019

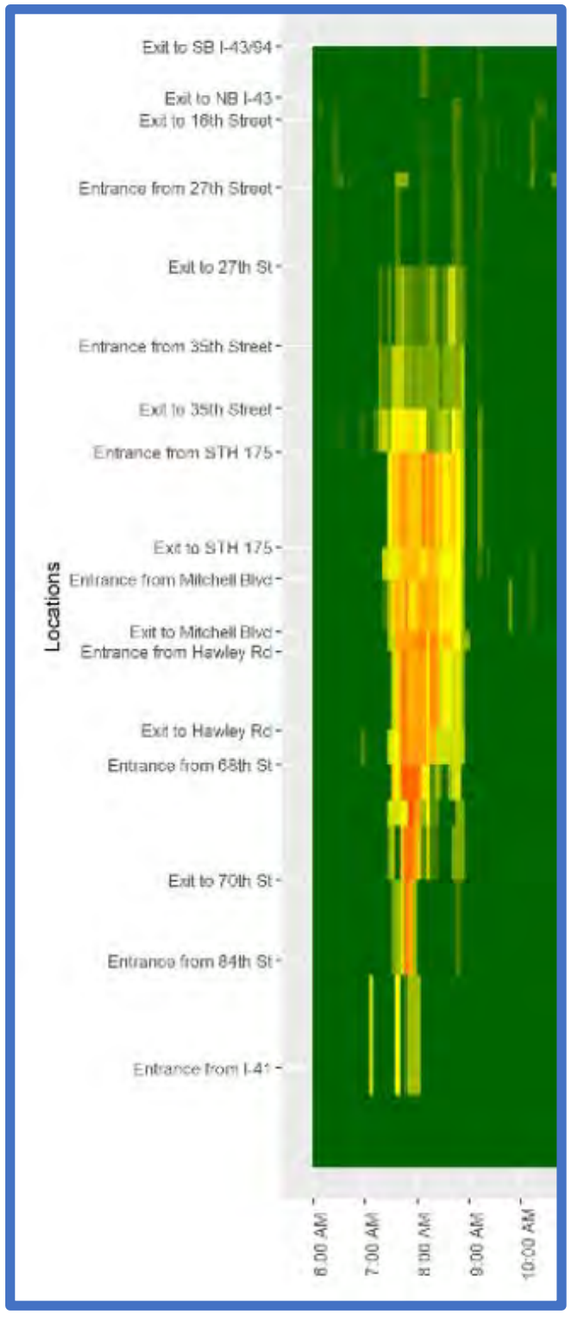


I-94 Eastbound: AM Peak Period

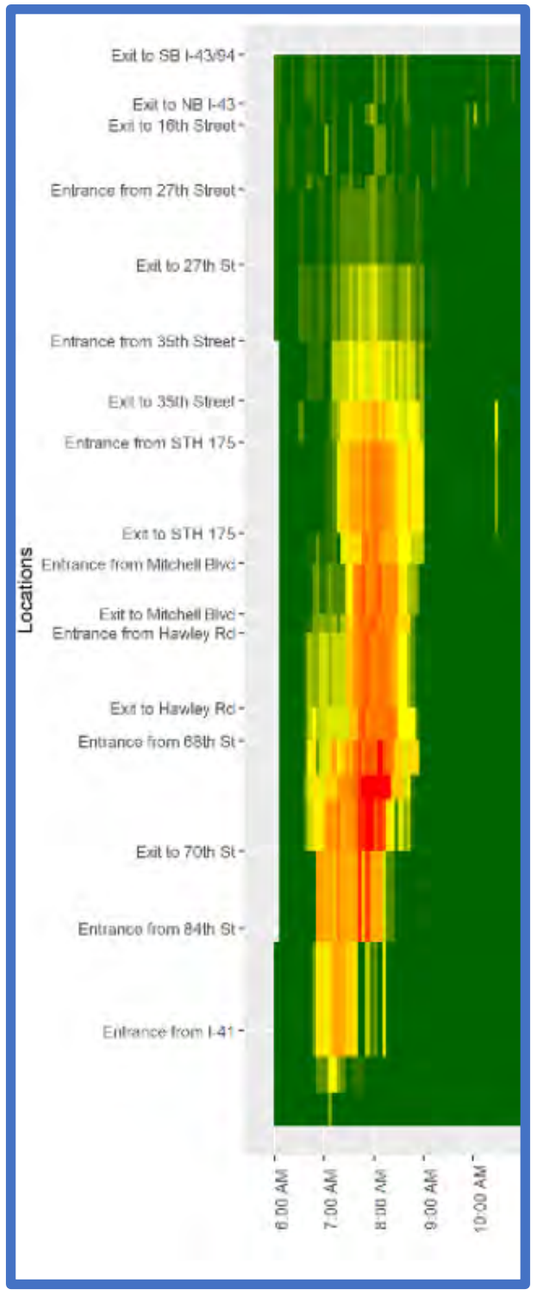
4/16/2019



4/17/2019

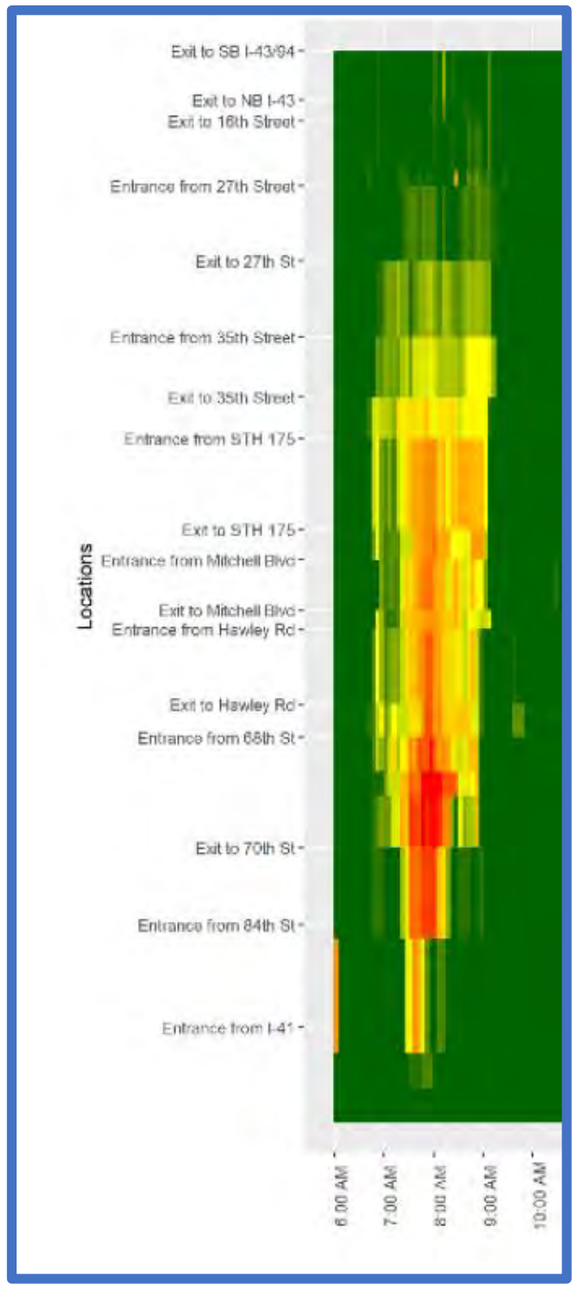


4/18/2019

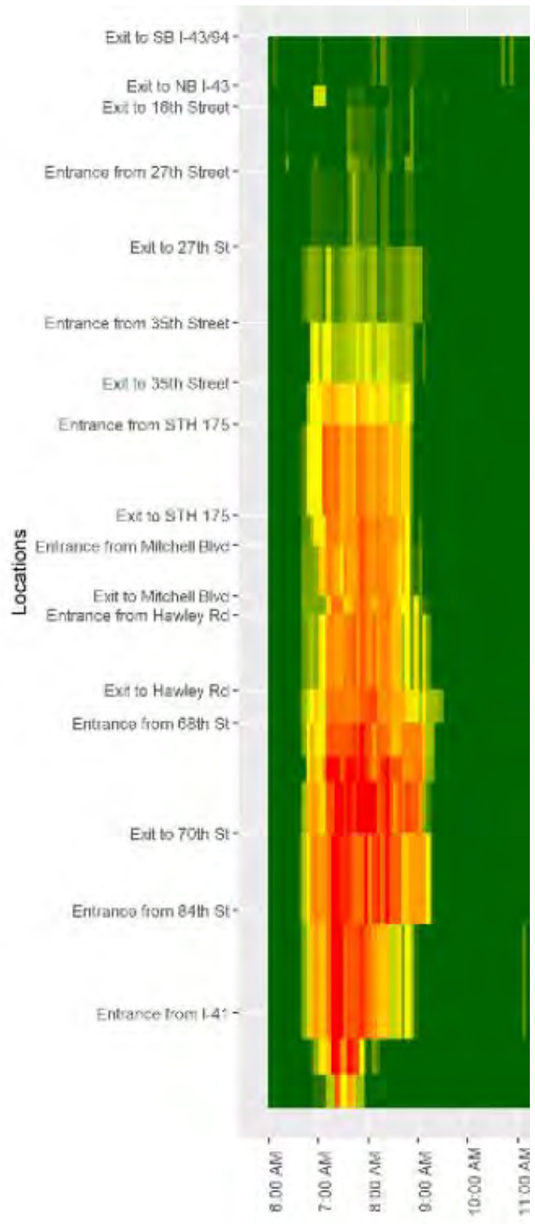


I-94 Eastbound: AM Peak Period

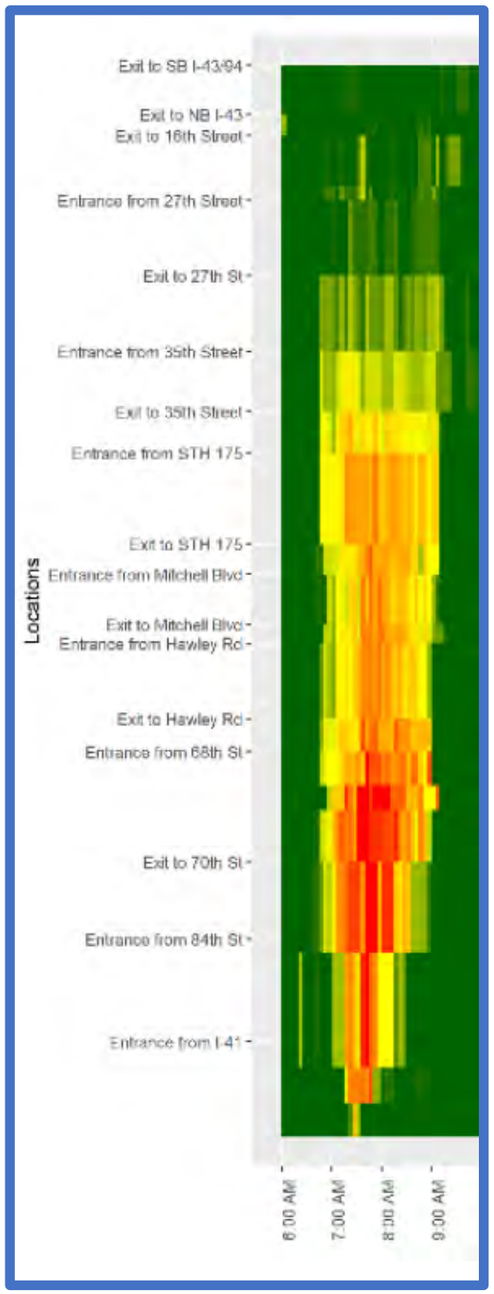
4/23/2019



4/24/2019

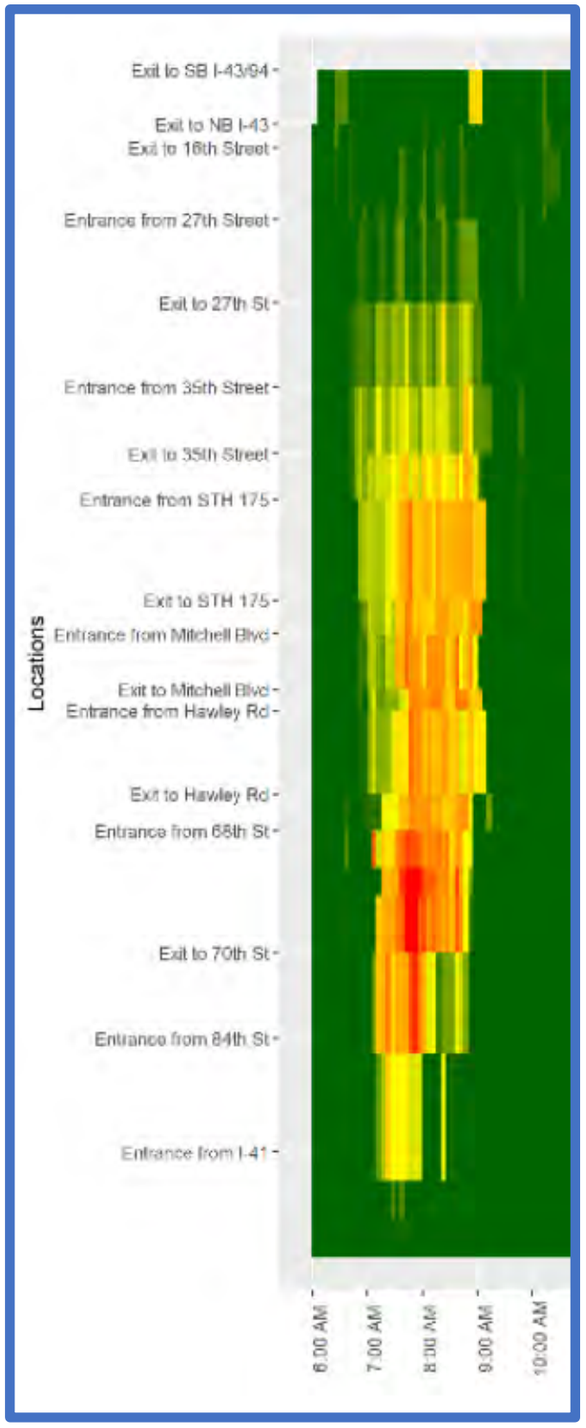


4/25/2019

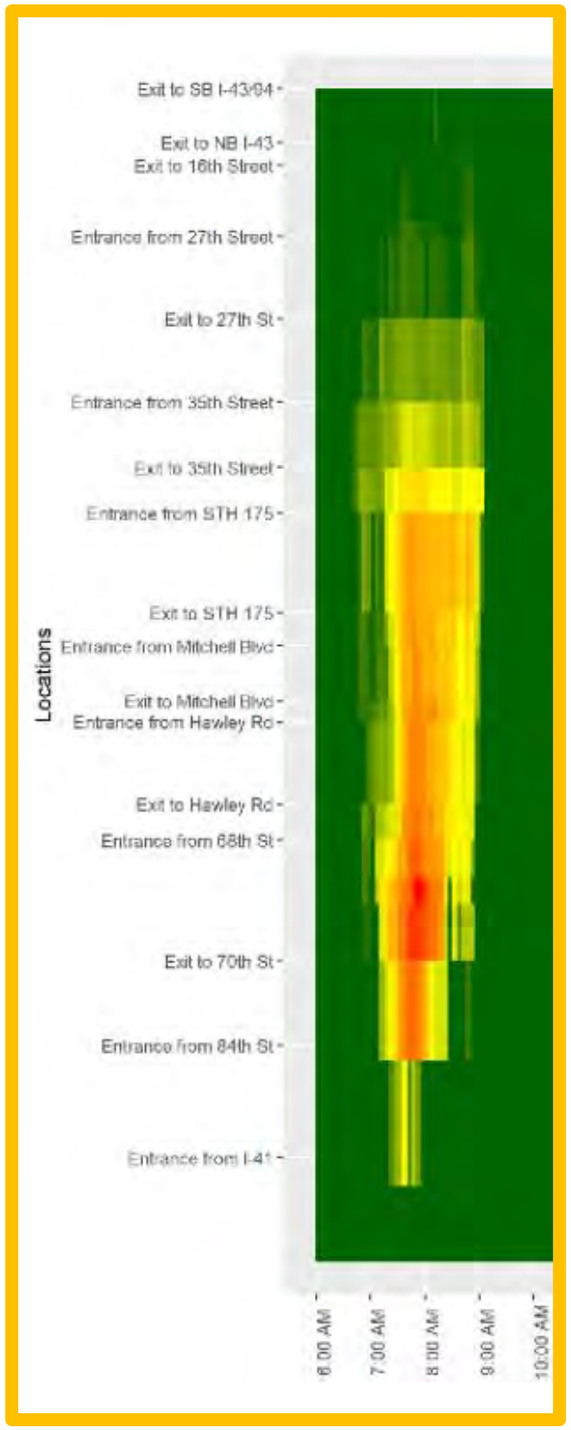


I-94 Eastbound: AM Peak Period

4/30/2019

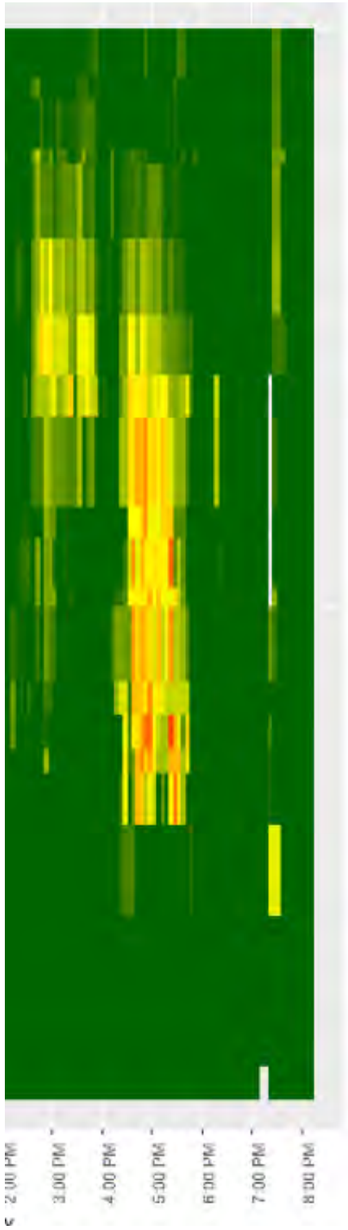


Median of selected days

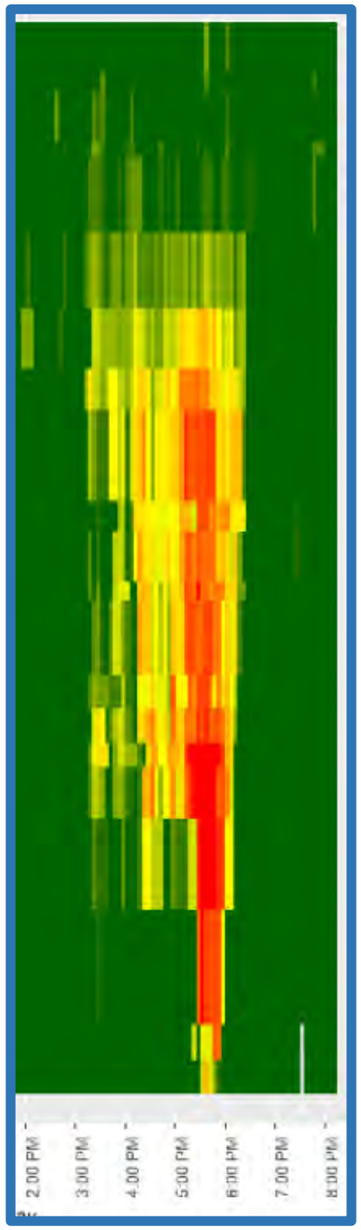


I-94 Eastbound: PM Peak Period

4/2/2019



4/3/2019



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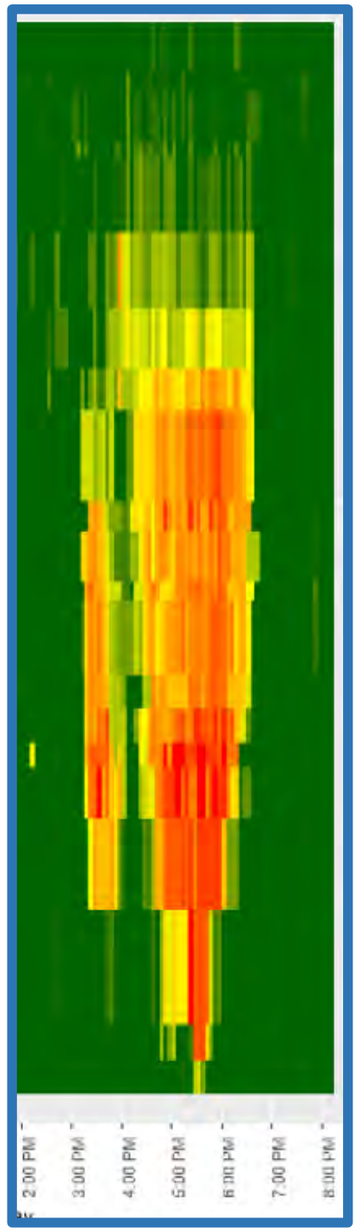

I-94 Eastbound: PM Peak Period

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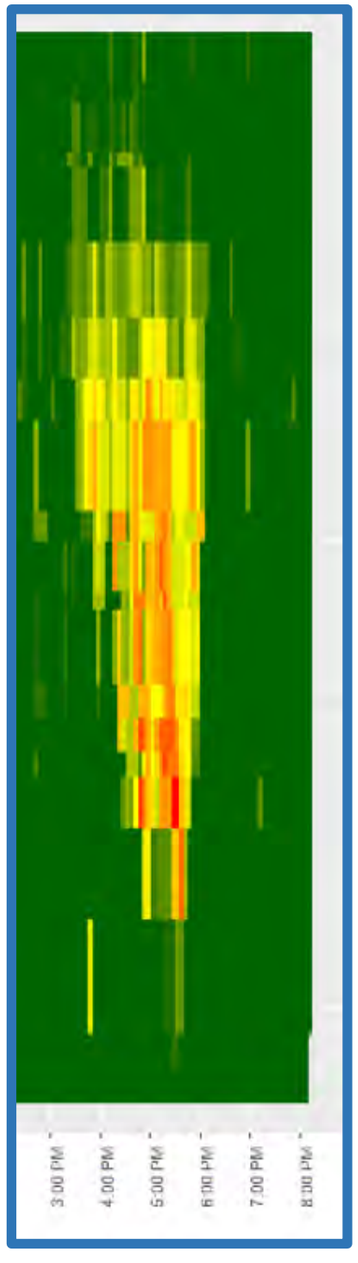

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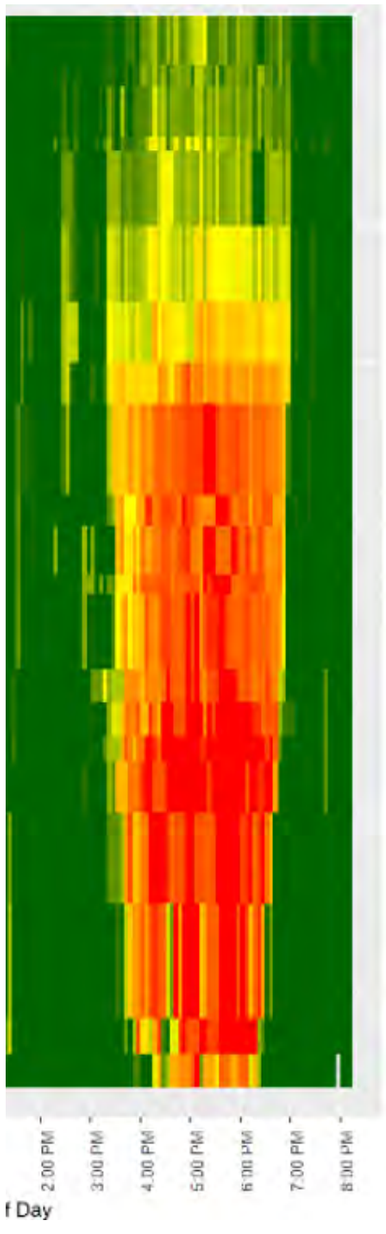

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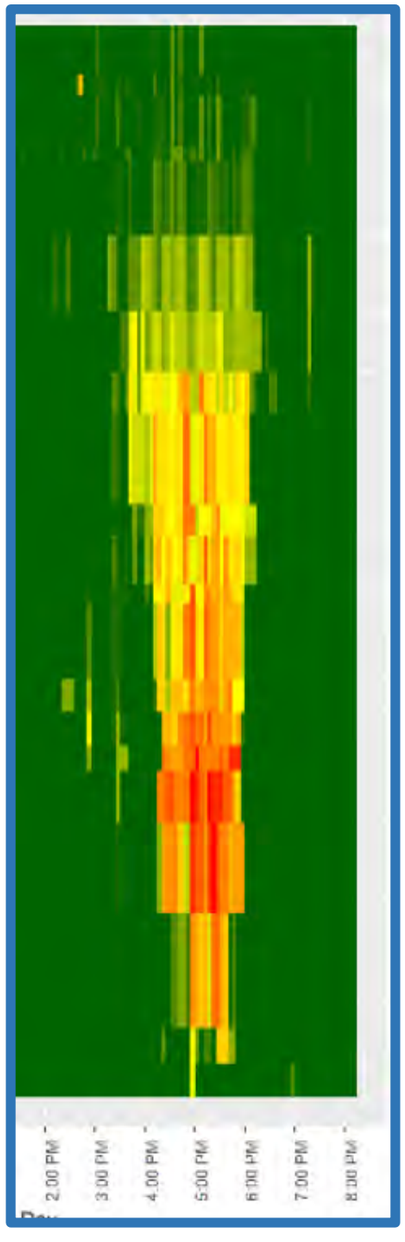

I-94 Eastbound: PM Peak Period

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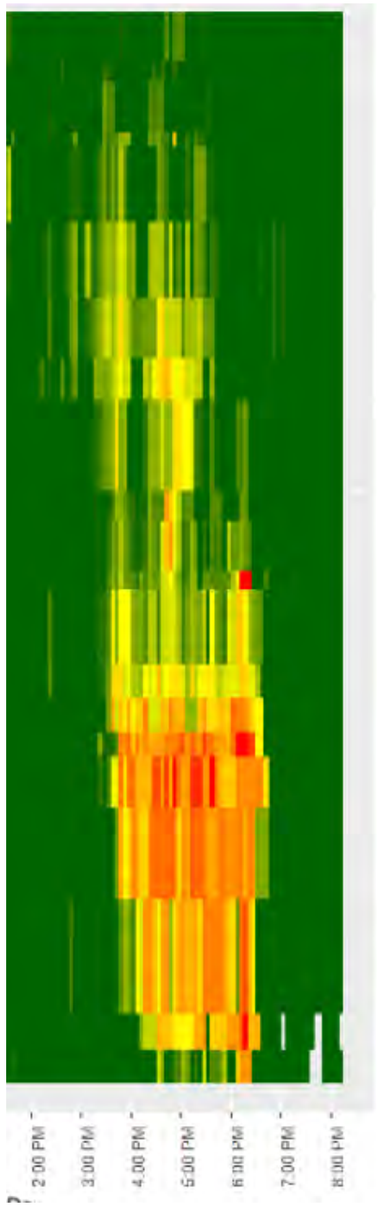

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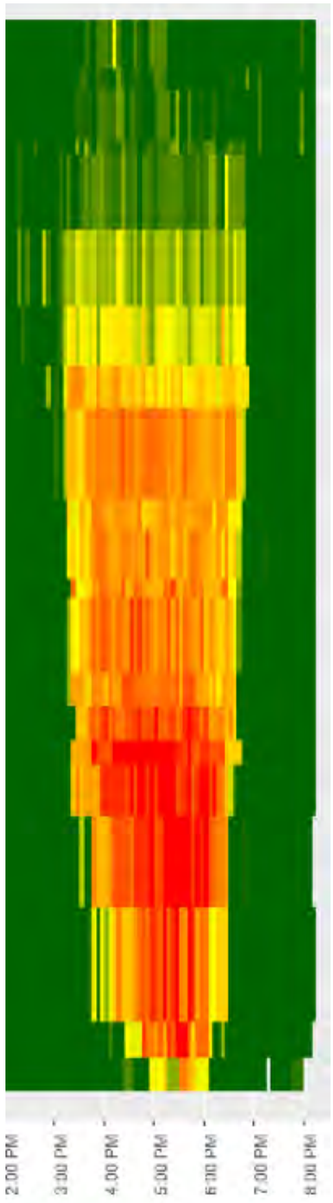

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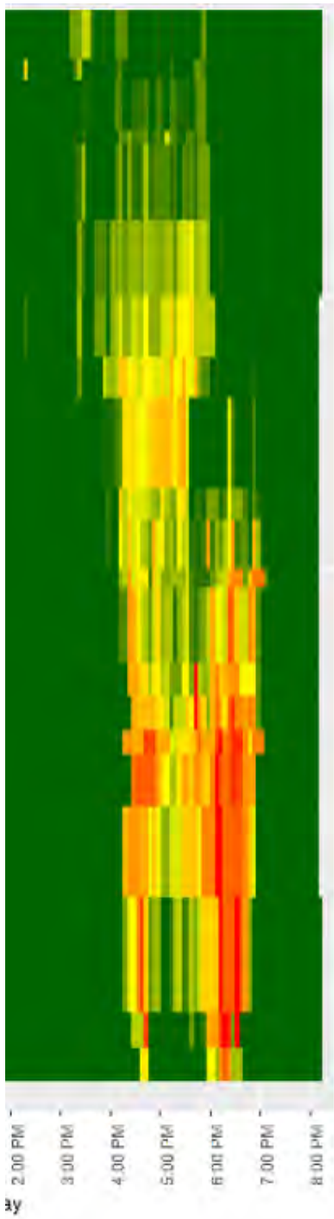

I-94 Eastbound: PM Peak Period

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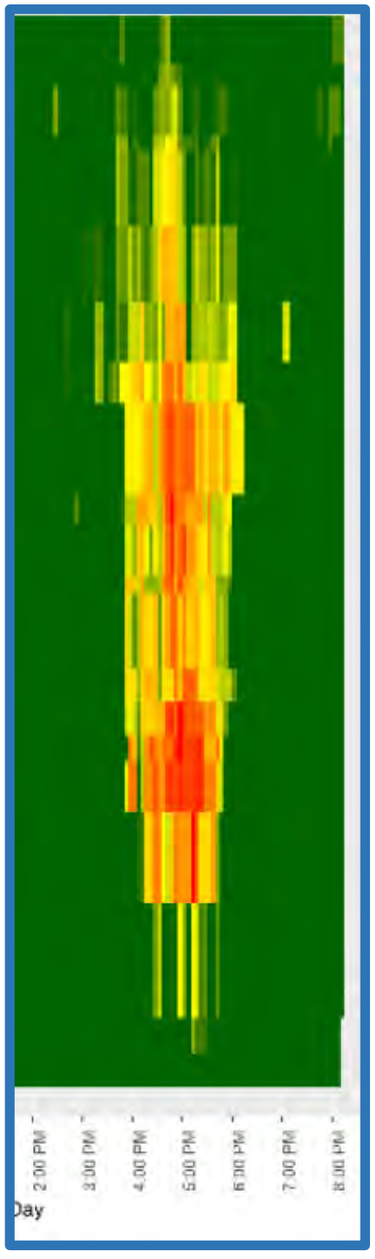

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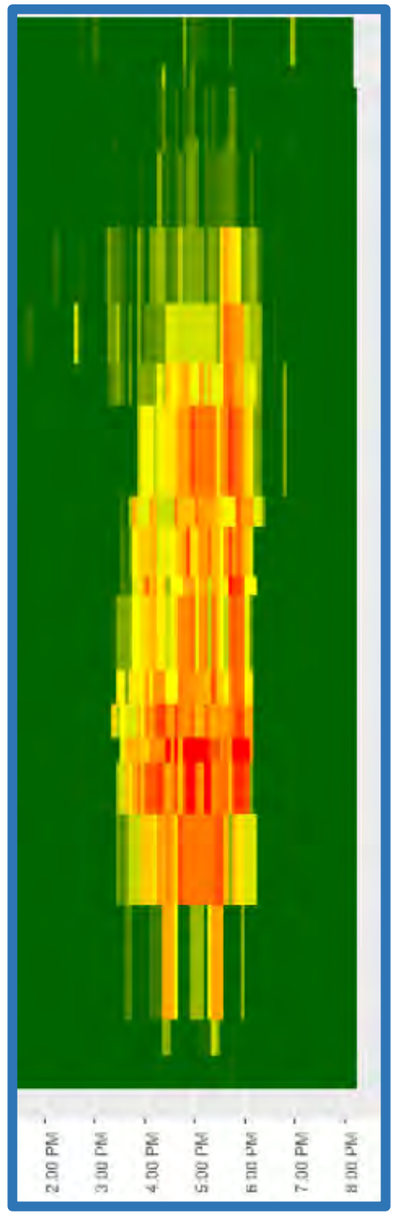

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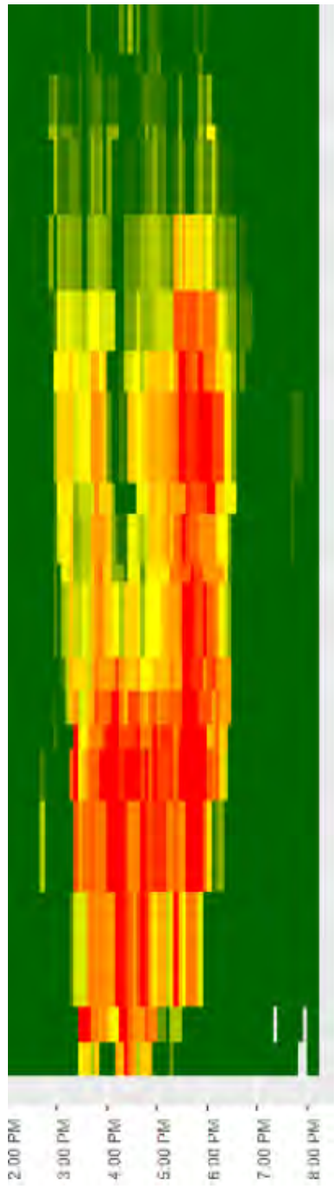

I-94 Eastbound: PM Peak Period

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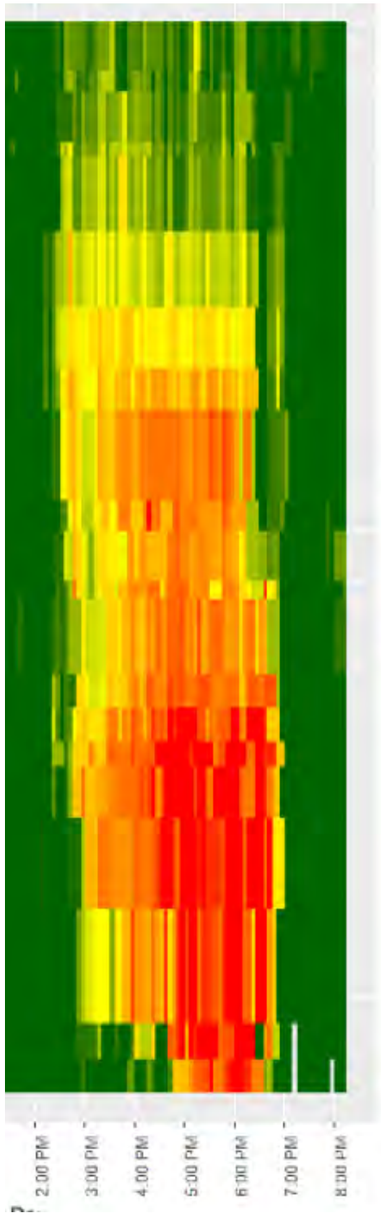

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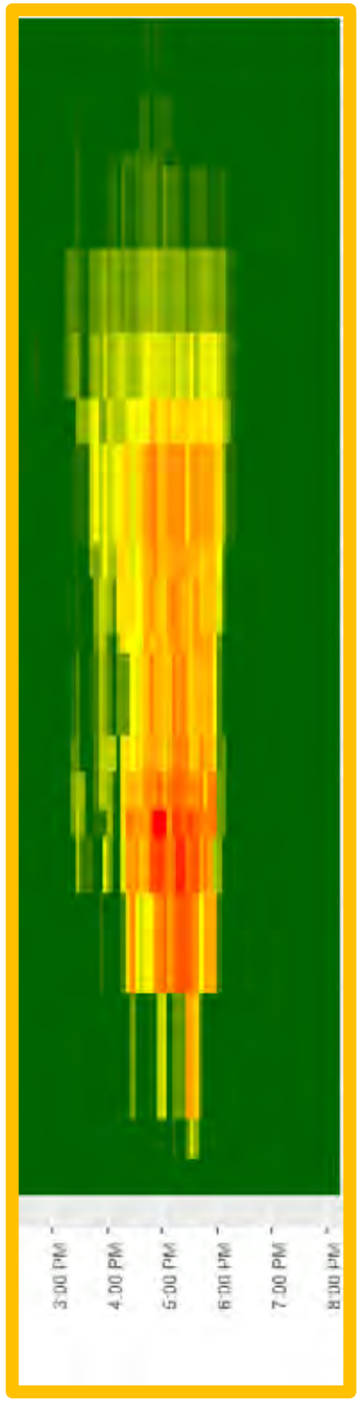
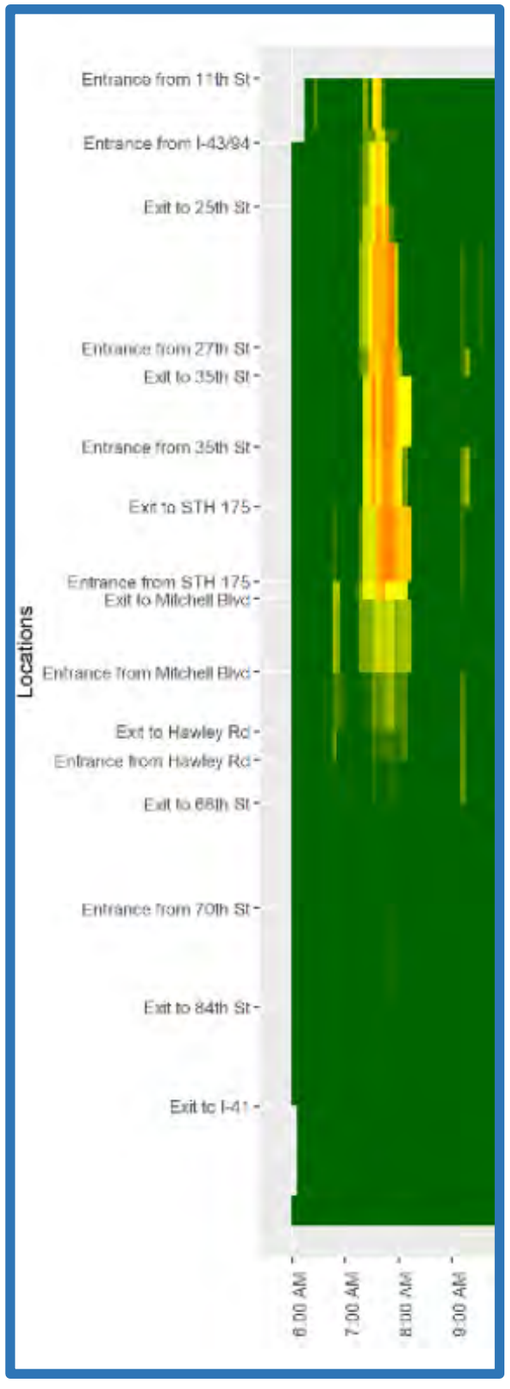


I-94 Westbound: AM Peak Period

4/2/2019



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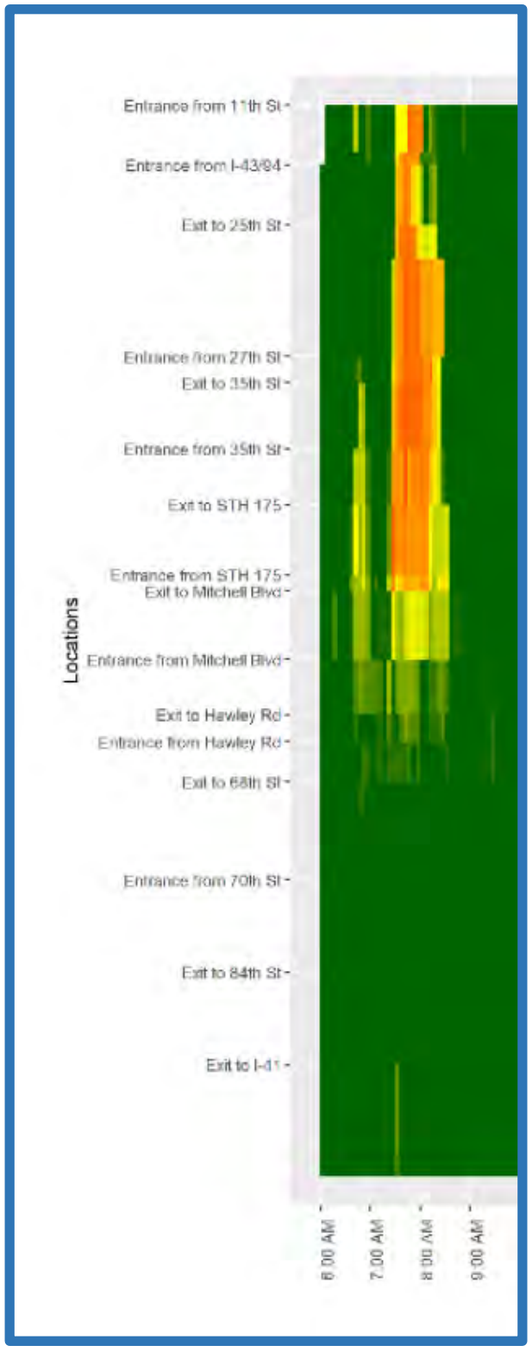

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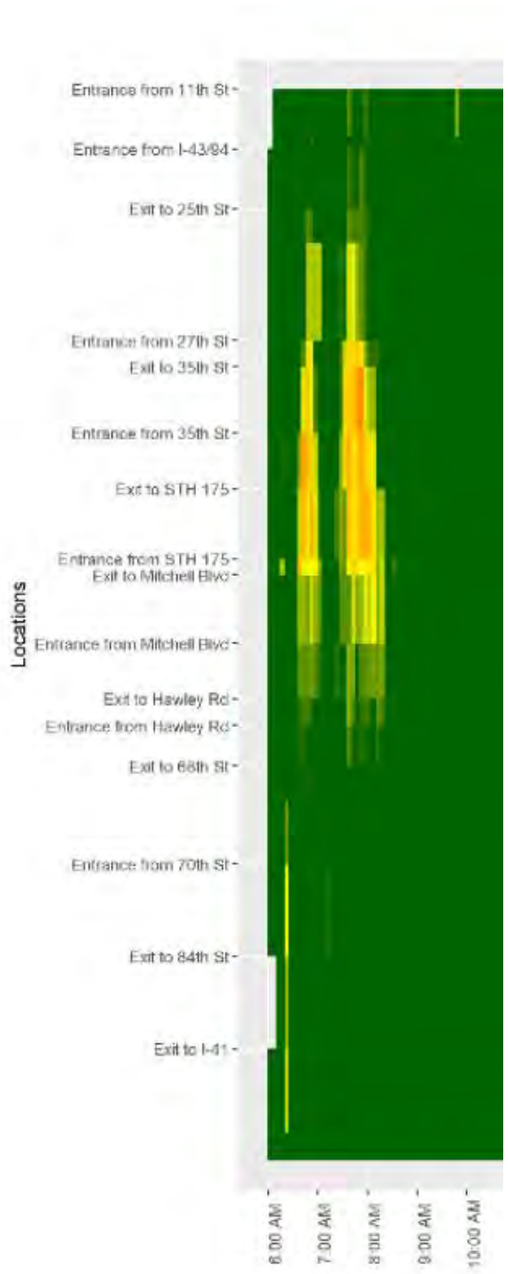

I-94 Westbound: AM Peak Period

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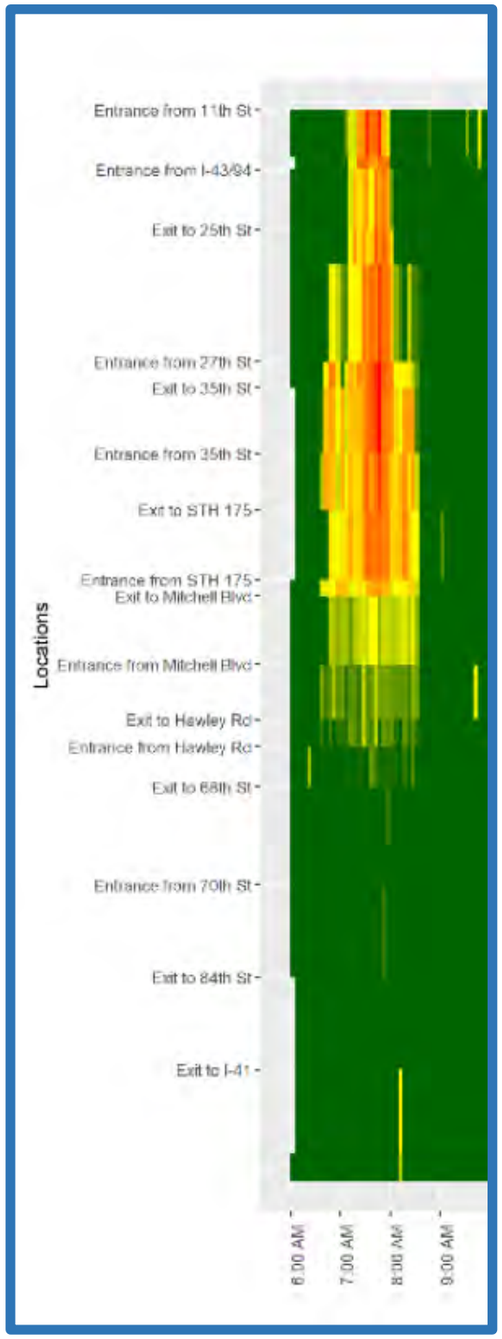

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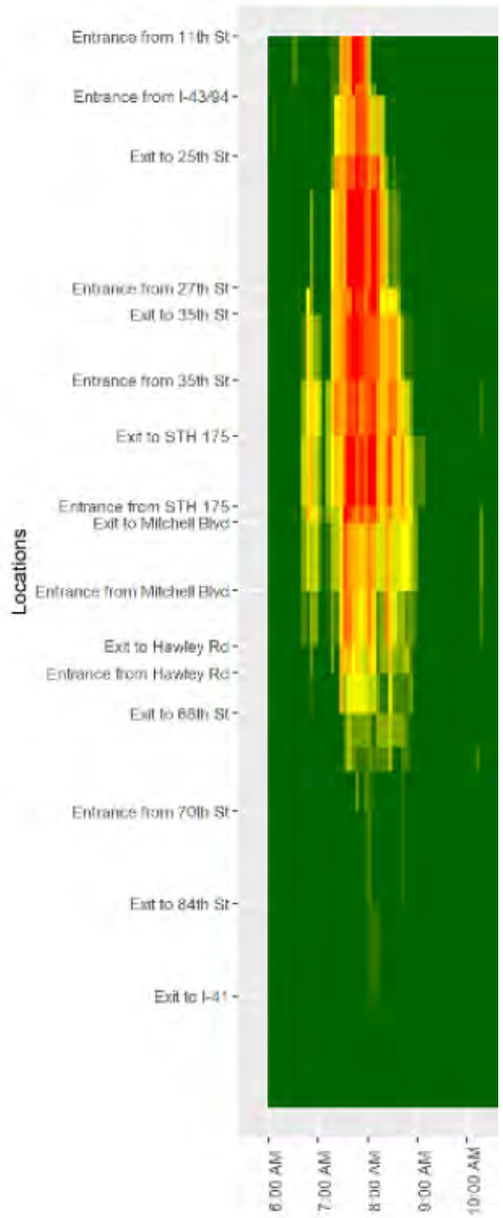

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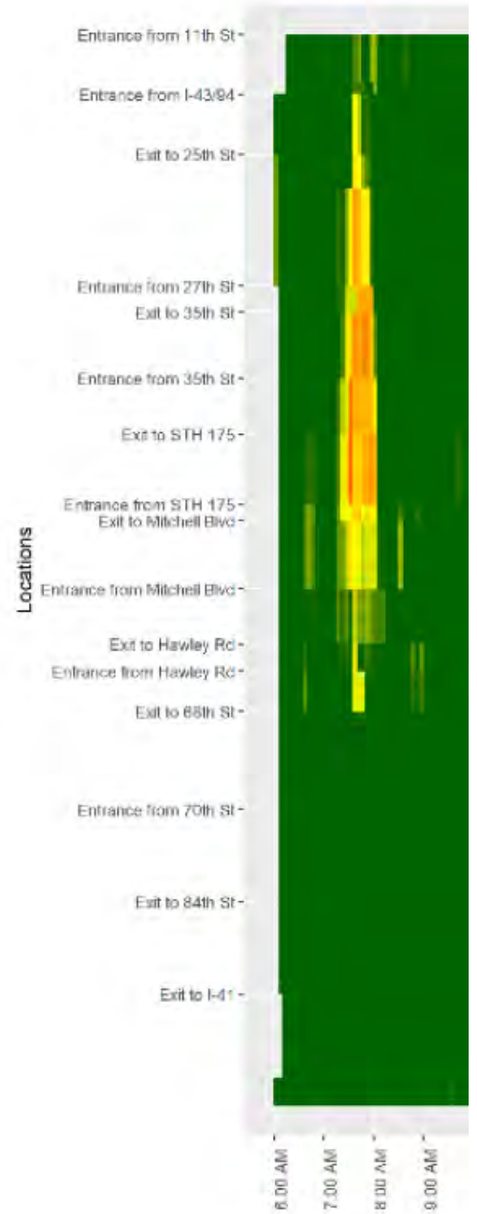

I-94 Westbound: AM Peak Period

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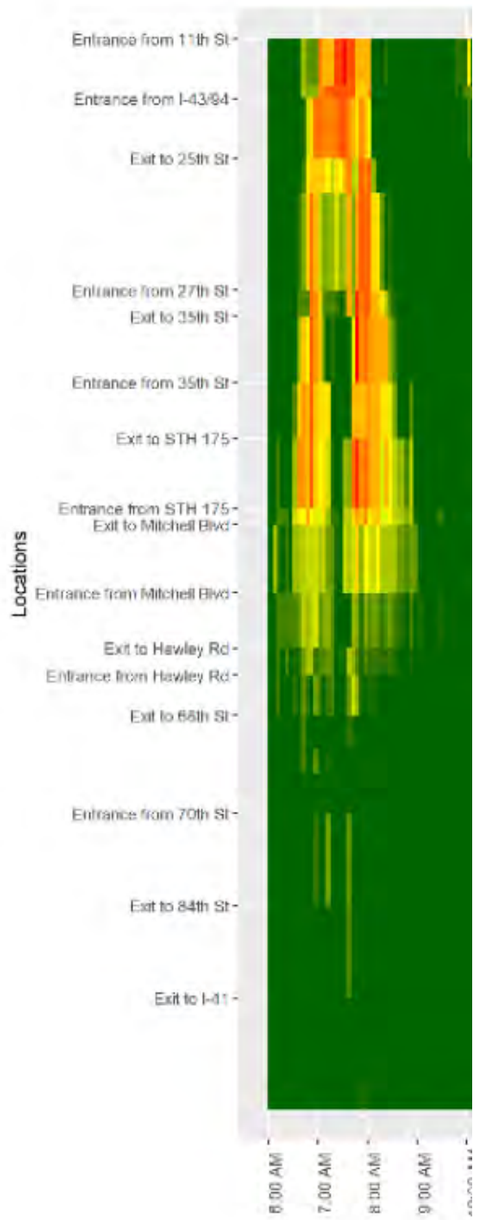

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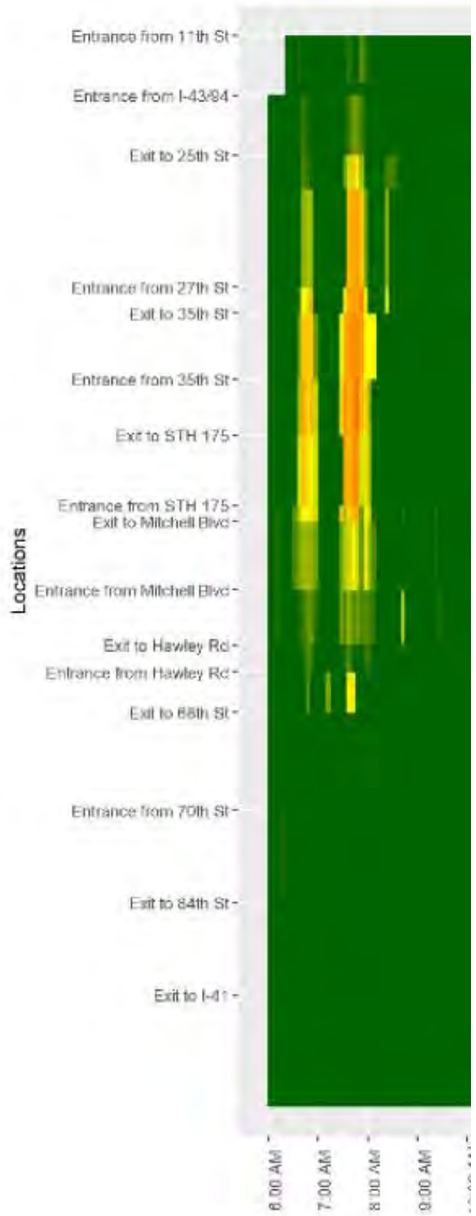

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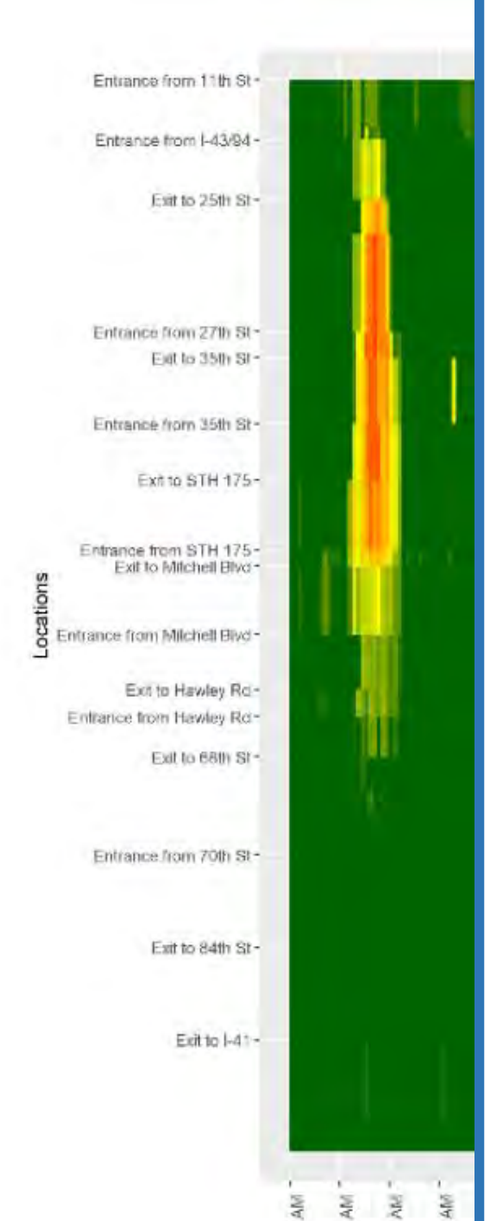

I-94 Westbound: AM Peak Period

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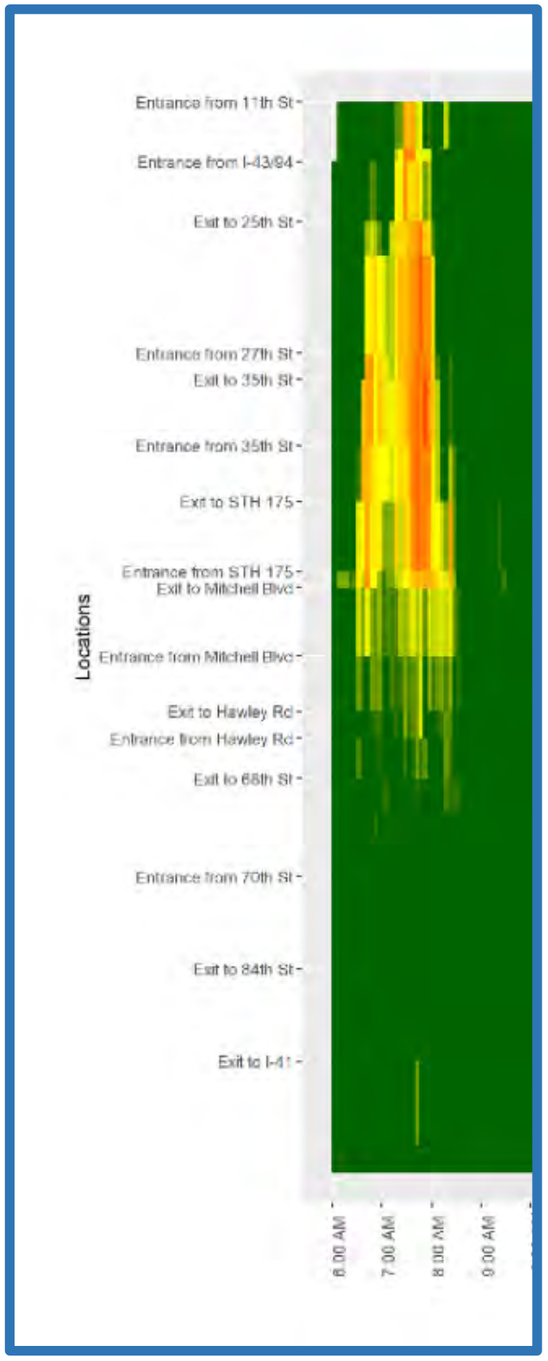

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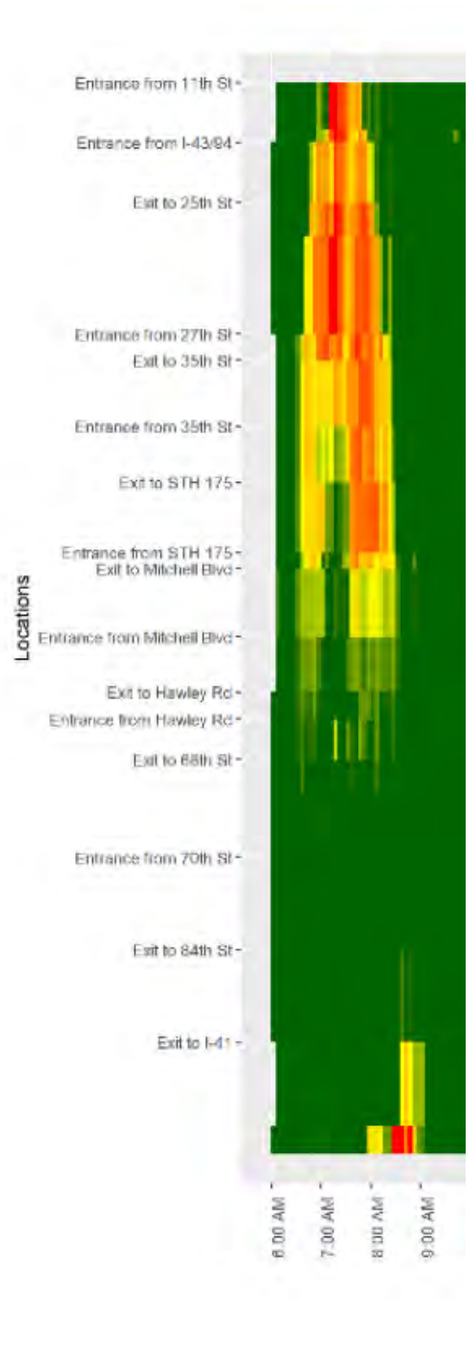

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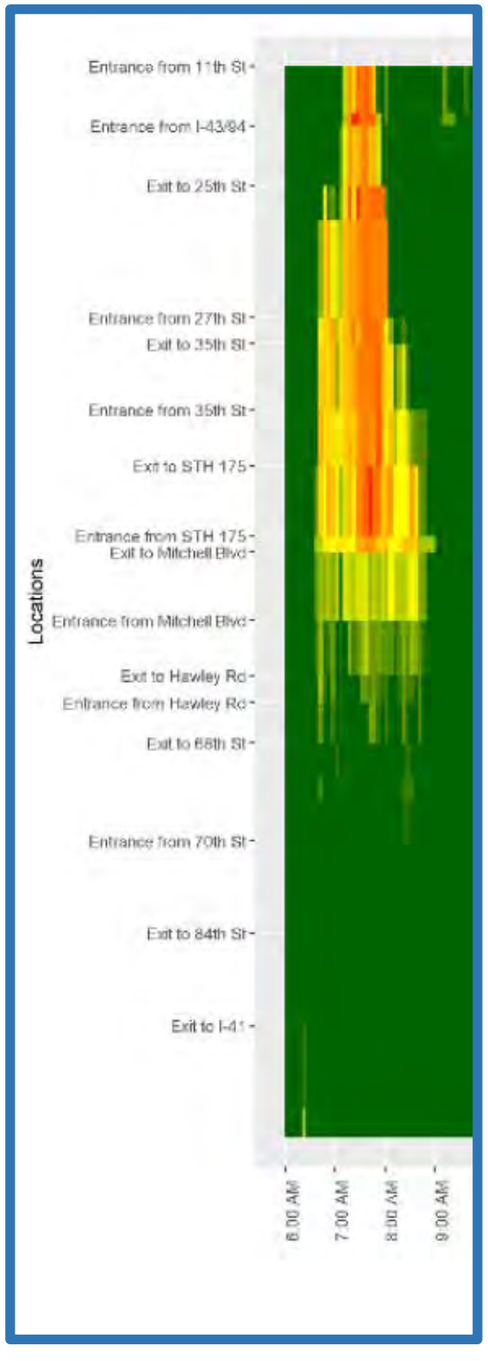

I-94 Westbound: AM Peak Period

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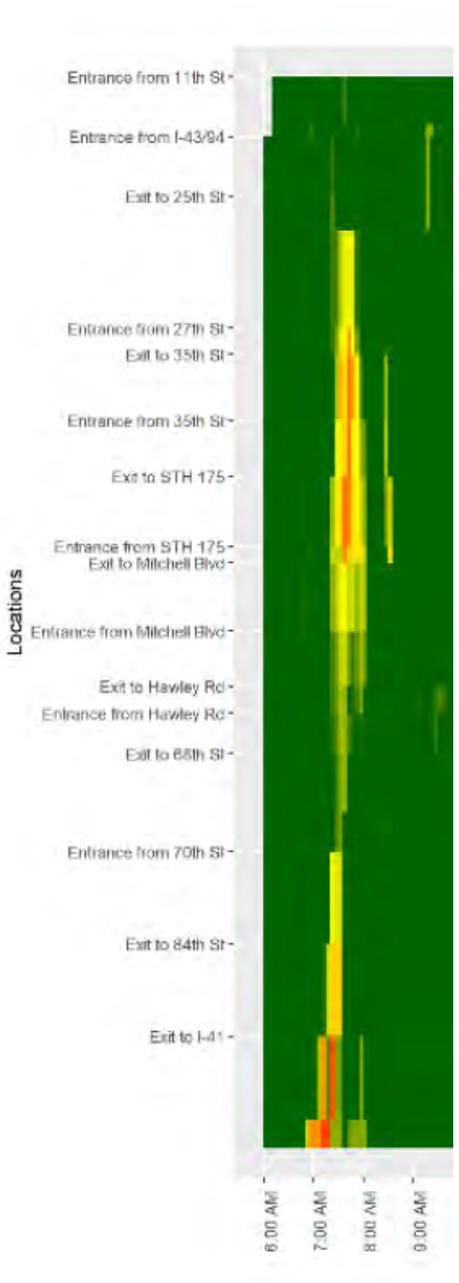

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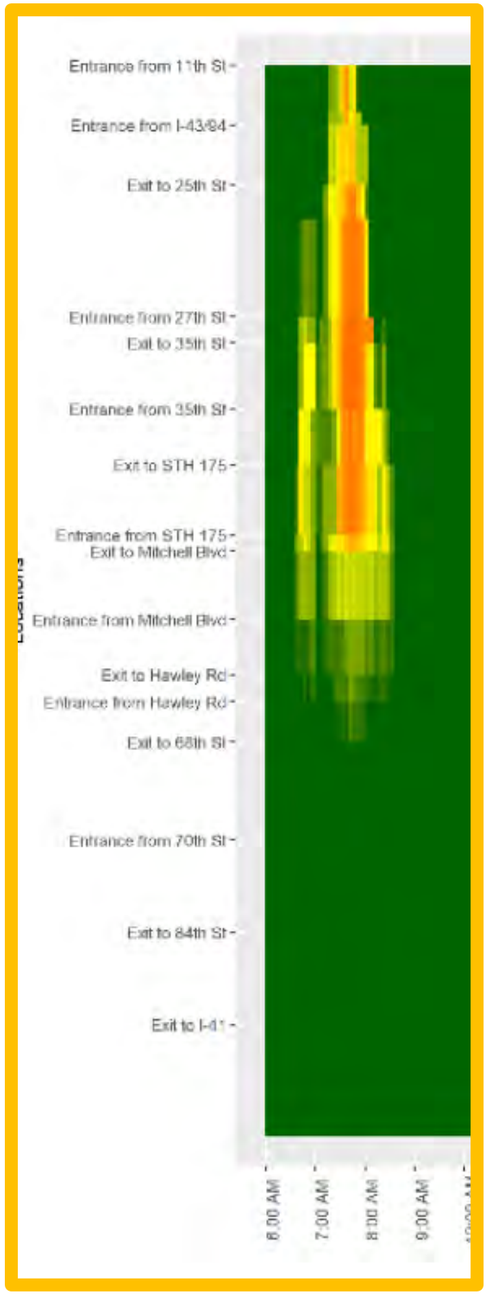
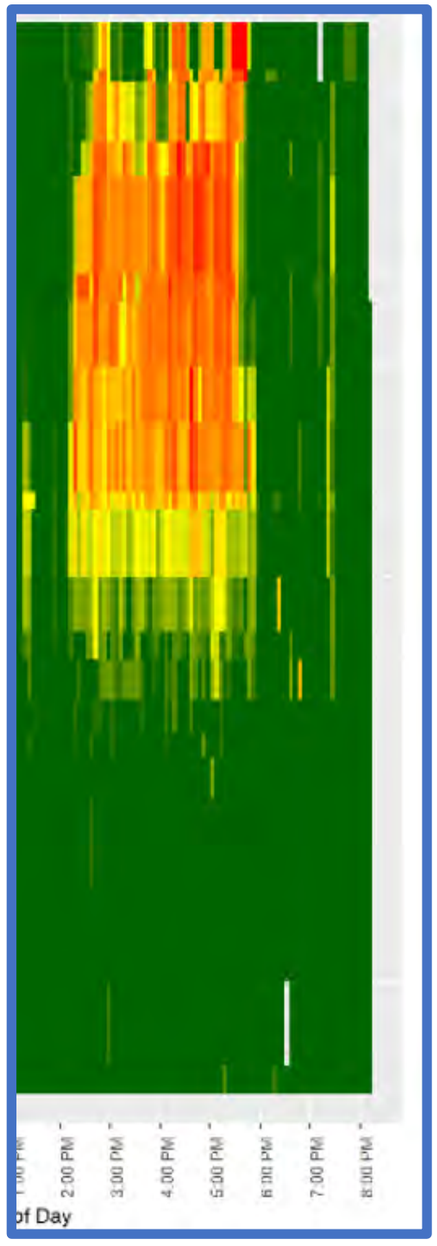


I-94 Westbound: PM Peak Period

4/2/2019



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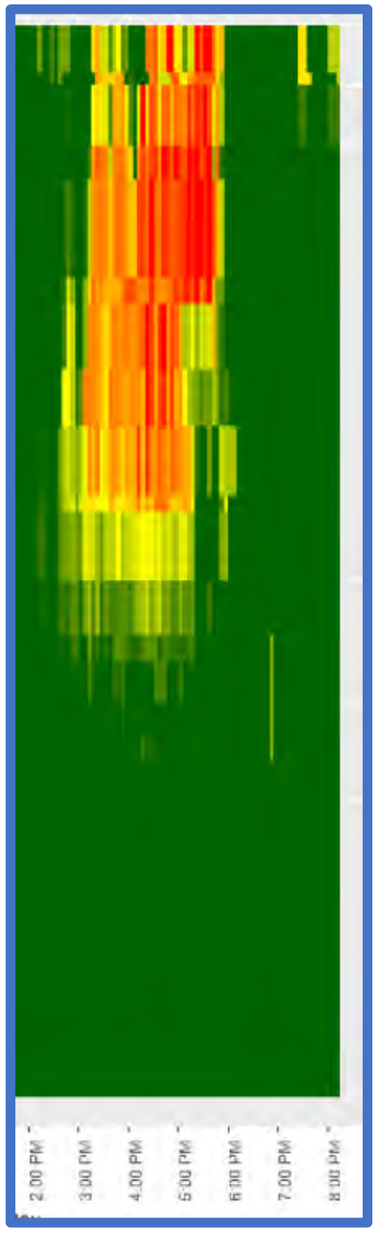

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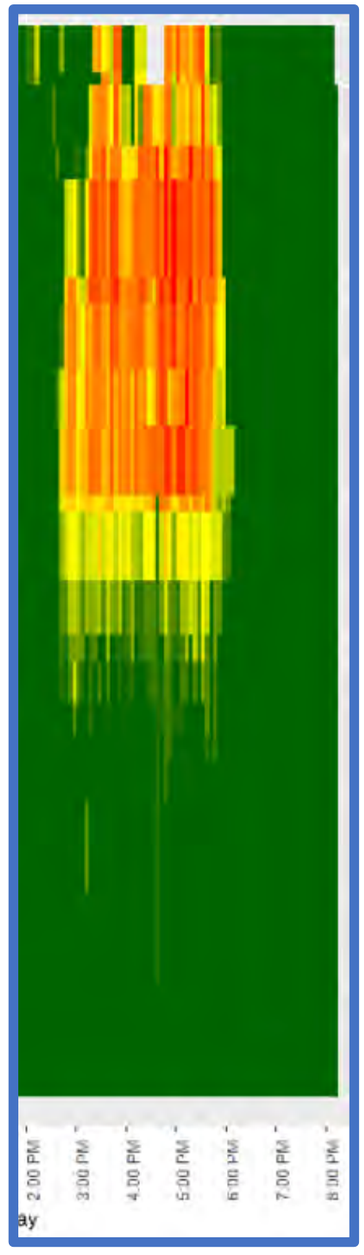

I-94 Westbound: PM Peak Period

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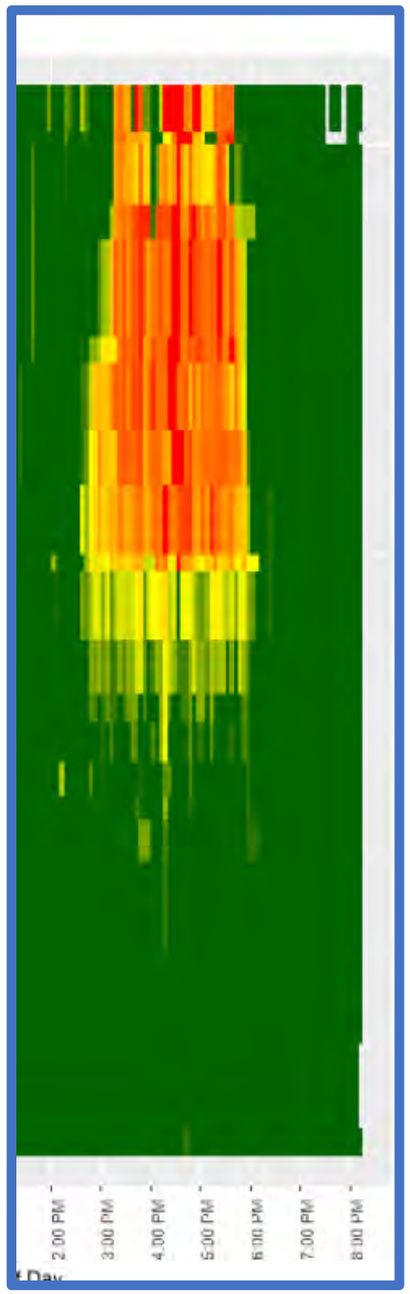

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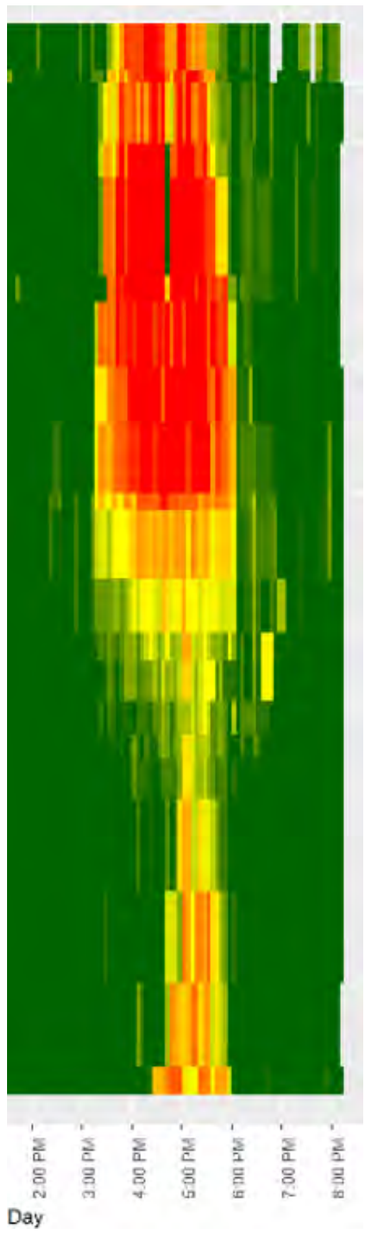

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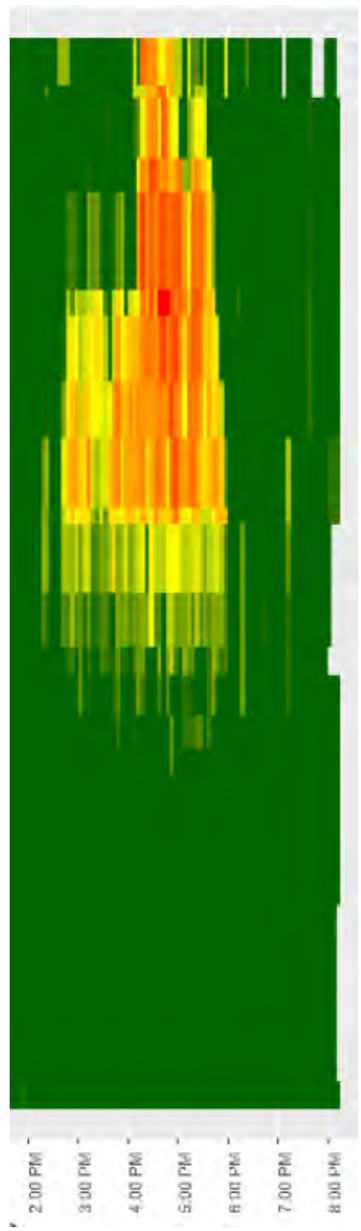

I-94 Westbound: PM Peak Period

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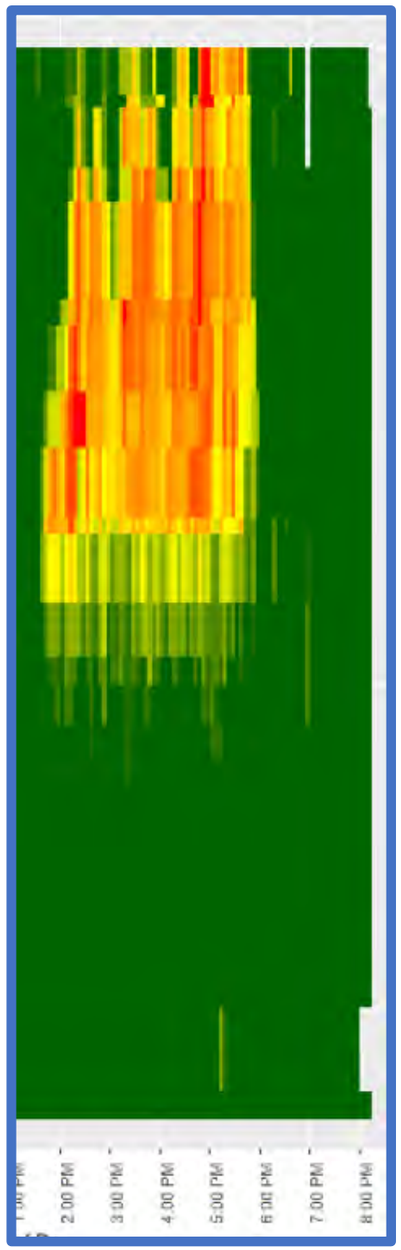

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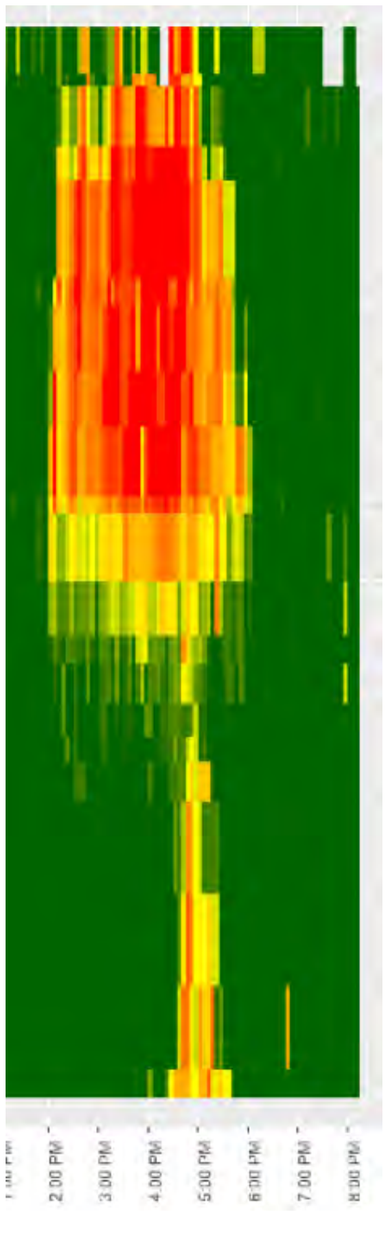

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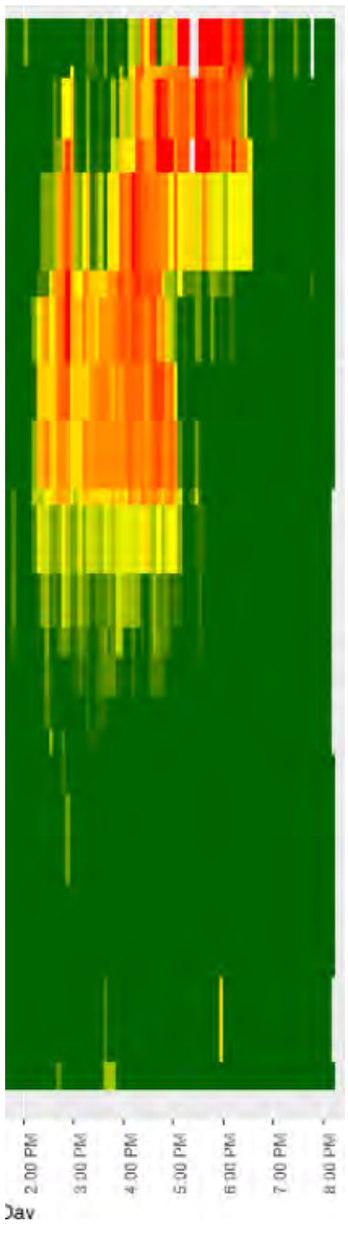

I-94 Westbound: PM Peak Period

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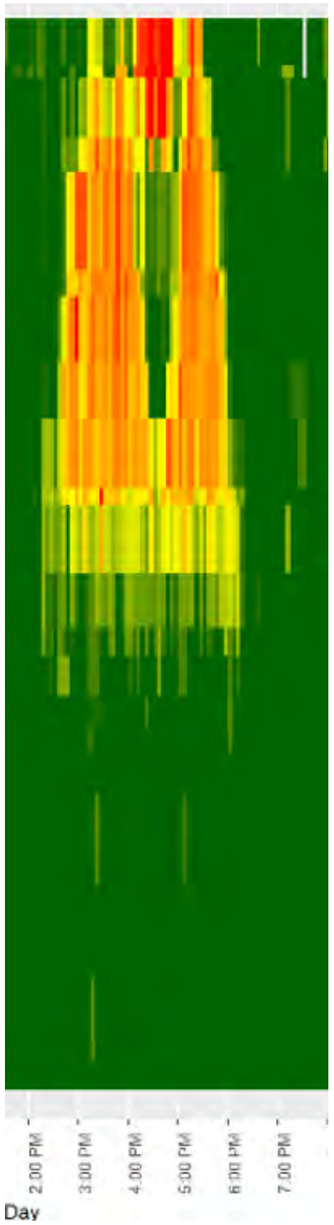

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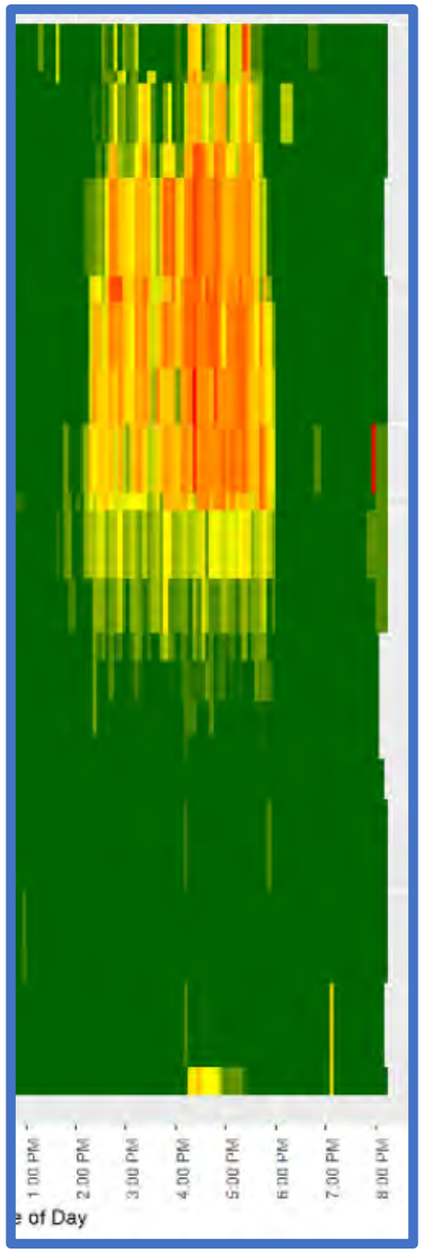

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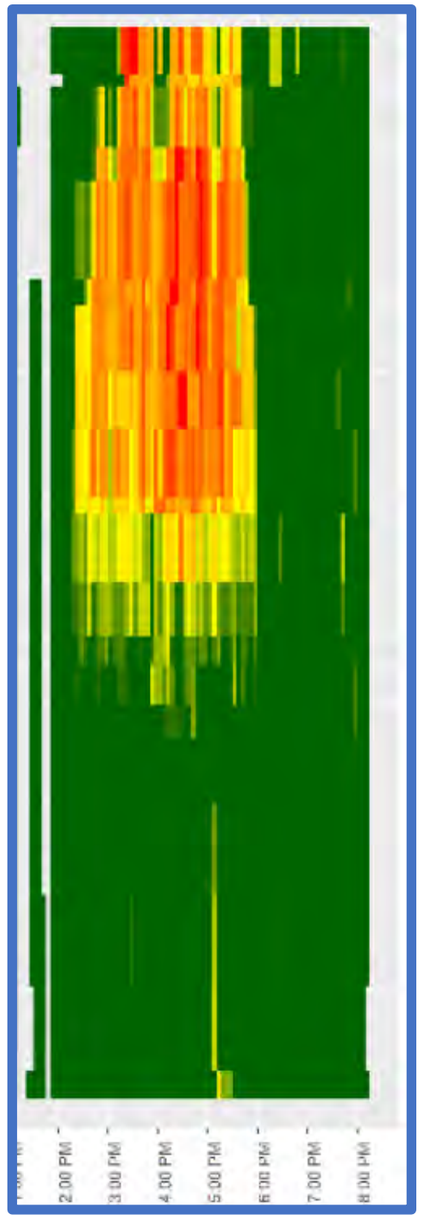
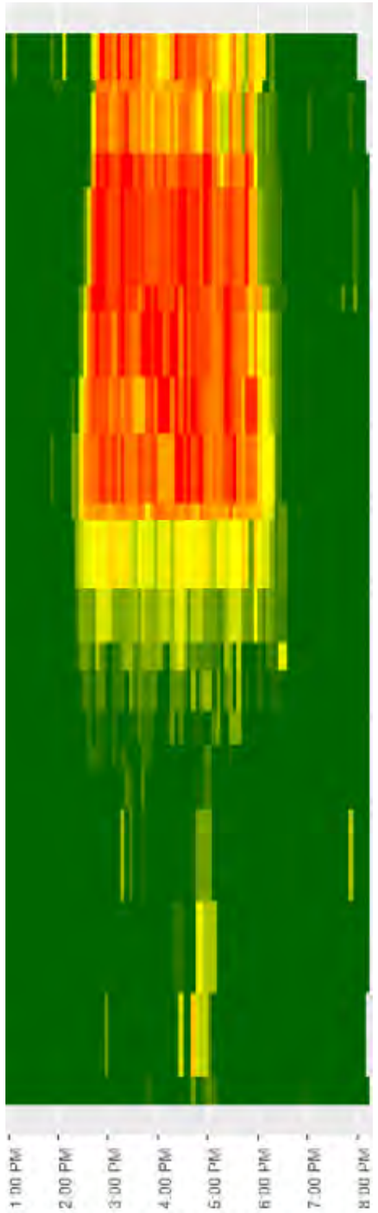


I-94 Westbound: PM Peak Period

4/30/2019



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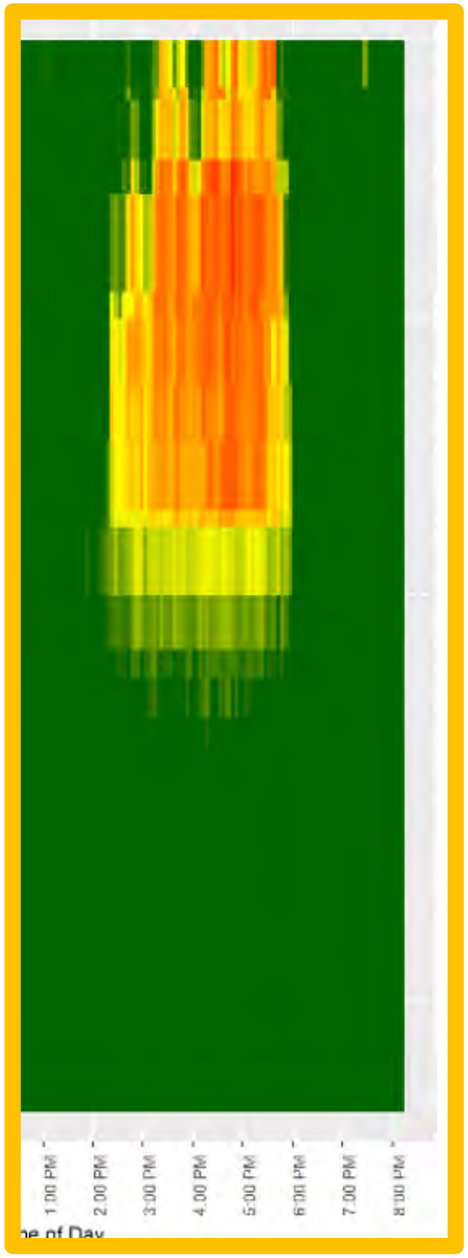


Appendix D – Volume-Speed Alignment Memo

Introduction

HNTB is currently working on existing VISSIM model calibration of the Interstate 94 East-West (I-94 EW) corridor. To properly represent the development of reoccurring congestion and its recovery, the existing conditions model simulates 2019 conditions for five (5) hours in the AM peak period (5-10AM) and six (6) hours in the PM peak period (1-7PM). The VISSIM network includes I-94 from the Zoo Interchange to the Marquette Interchange, including the Stadium Interchange with Miller Park Way/Wisconsin State Highway 175 (WIS 175), six (6) service interchanges along I-94, and two (2) service interchanges on Miller Park Way/WIS 175. The Wisconsin Department of Transportation (WisDOT) provided HNTB balanced hourly volumes for freeway mainlines, system ramps, service ramps, and ramp terminal intersections within the I-94 model limits. The volumes correspond to the AM and PM analysis periods (5:30-9:30AM and 1:30-6:30PM respectively) and were utilized by HNTB as part of the development of 15-minute trip tables and target volumes for VISSIM model validation.

During the calibration process, HNTB identified areas of the VISSIM models where model speeds during the last analysis hour in both peaks did not recover to free-flow conditions as quickly as field speed data from the "typical day". These locations were predominately back of queue areas on I-94 in both directions which are formed due to congestion at the Stadium Interchange and can vary significantly day to day in the field. A review of the field typical day speed data collected by HNTB, in conjunction with the balanced volumes provided by WisDOT, identified some potential inconsistencies in the two data sets which may explain the lack of quick speed recovery in the current iterations of the VISSIM models.

The purpose of this document is to identify instances where the balanced volumes and target speed data sets do not align, discuss the potential reasons for inconsistencies, and propose a methodology to bring them into better alignment for the purposes of VISSIM model calibration and reporting.

Speed Data Review

HNTB gathered weekday field speed data from April 2019 for the I-94 corridor from the National Performance Management Research Dataset (NPMRDS). HNTB developed a representative typical day to be used for model speed and travel time validation using a statistical cluster analysis of volumes, speeds, weather, accident data, and visual inspection of speed profiles. The cluster analysis procedure followed Federal Highway Administration (FHWA) Traffic Analysis Toolbox III (TAT 3) guidelines. **Table 1** on the following page summarizes the days/directions identified as typical. The median day for each direction and peak period (listed below) was then identified and utilized for VISSIM model speed and travel time validation:

- I-94 EB AM: 4/30/2019
- I-94 EB PM: 4/24/2019
- I-94 WB AM/PM: 4/25/2019

Table 1 – Cluster Analysis Typical Day Summary

Date	AM Peak Period		PM Peak Period	
	I-94 EB	I-94 WB	I-94 EB	I-94 WB
4/2/2019	✓	✓	✗	✓
4/3/2019	✗	✓	✓	✓
4/4/2019	✓	✗	✓	✓
4/9/2019	✗	✓	✓	✓
4/10/2019	✗	✗	✗	✗
4/11/2019	✓	✗	✓	✗
4/16/2019	✓	✗	✗	✗
4/17/2019	✓	✗	✗	✗
4/18/2019	✓	✓	✗	✗
4/23/2019	✓	✓	✓	✗
4/24/2019	✗	✗	✓	✓
4/25/2019	✓	✓	✗	✓
4/30/2019	✓	✗	✗	✗

As noted previously, WisDOT provided balanced hourly volumes for the I-94 model limits which were largely based on count data from April 2019 as noted below:

- Zoo Interchange to 84th Street: 4/9/2019 – 4/10/2019
- 84th Street to 68th Street: 4/9/2019 – 4/10/2019
- 68th Street to Hawley Road: 4/9/2019 – 4/10/2019
- Hawley Road to Stadium Interchange: 4/3/2019 – 4/4/2019
- Thru the Stadium Interchange: 4/9/2019 – 4/10/2019
- Stadium Interchange to 35th Street: 4/9/2019 – 4/11/2019
- 35th Street to 25th Street: 4/10/2019
- 25th Street to Marquette Interchange: 4/9/2019 – 4/10/2019

As the majority of the locations utilized volume data from April 9th and 10th, HNTB focused on comparing field speed data from those days during the review. HNTB plotted 4/9/2019 and 4/10/2019 NPMRDS speed data against the typical day speeds for all I-94 speed segments in the model (**Appendix A**). As indicated in **Table 1**, April 9th was identified as one of typical days for the corridor in both directions/peaks except for I-94 eastbound (EB) during the AM peak period. However, April 10th was entirely excluded from the typical day cluster due to incidents in each direction during the AM peak period and mixed rain/snow precipitation during the PM peak period.

As shown in the comparisons in **Appendix A** (and example speed profiles for segment EB1 in **Figures 1 and 2**), these two days have some significant differences in peak period speeds at back of queue locations, such as EB1-2 and WB2-1 due to a combination of day to day variation, crashes, and weather. As noted previously, the back of queue locations tend to vary considerably day to day as indicated by the wide purple shaded area which indicates one standard deviation from the typical day represented by the purple line.

Figure 1 – I-94 EB1: Zoo Interchange to 84th Street AM Speed Comparison

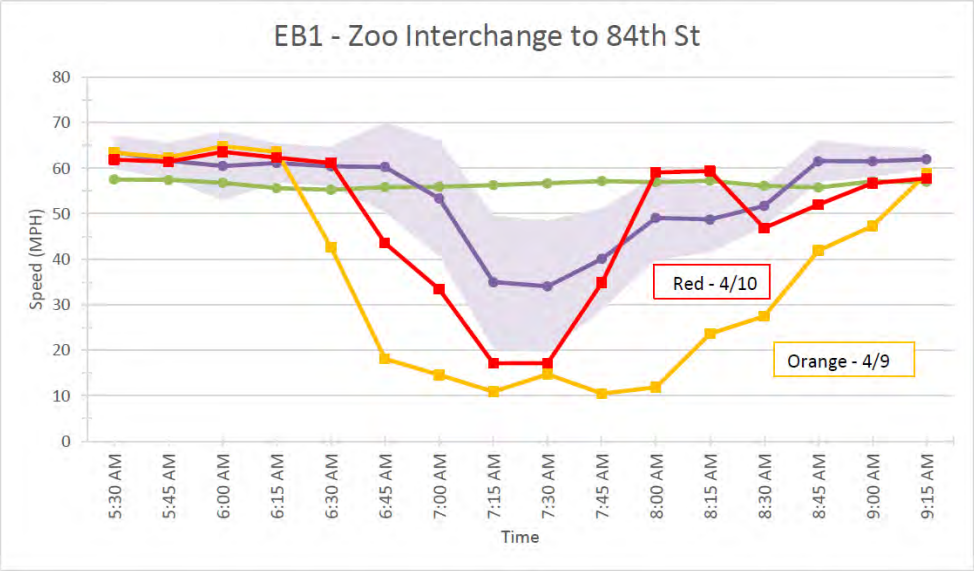
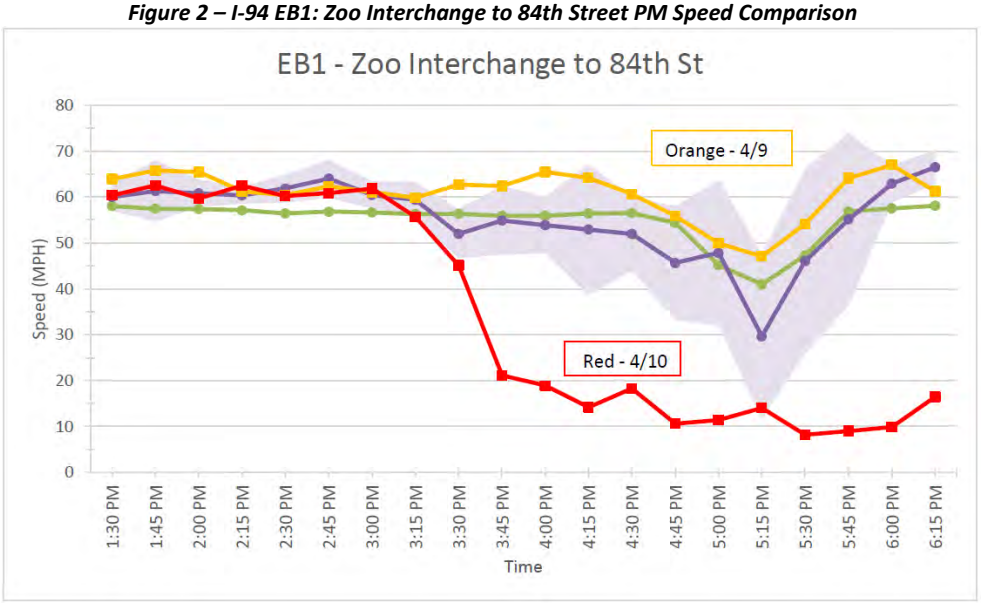


Figure 2 – I-94 EB1: Zoo Interchange to 84th Street PM Speed Comparison



Most notably, speeds on both April 9th and 10th show a slower recovery in the final AM hour along I-94 EB in comparison to the typical day. This slower recovery more closely mimics the draft AM VISSIM model speeds (green line), which is an indication that the balanced volumes in the final hour directly impact the duration and magnitude of recovery speed from congested conditions. April 9th and 10th

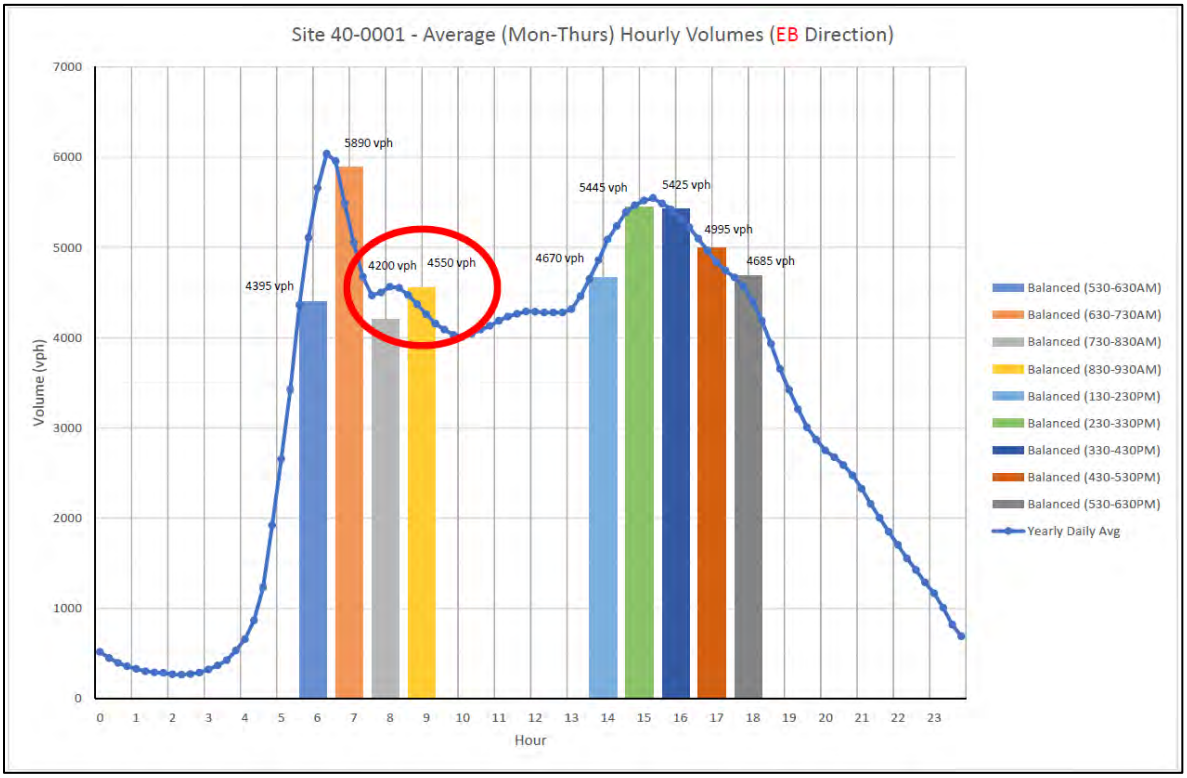
speed profiles are generally in agreement along I-94 westbound (WB) during the AM peak period. There are more differences in the data sets during the PM peak period, particularly for April 10th, which suggests that the weather on that day during the afternoon/evening period significantly effected operations.

The speed comparison suggests that April 9th is the most similar to the selected typical days of the two days where count data was utilized by WisDOT. April 9th speed data also seems to align slightly better with the current iteration of the VISSIM model at some locations and along I-94 EB during the last hour of the AM period.

Volume Data and Balancing Review

WisDOT also provided HNTB with a memo discussing the balancing process and comparisons of balanced hourly volumes to yearly averages at four count stations along I-94. HNTB reviewed the yearly volume profiles in comparison to the balanced hourly volumes and found that there were some locations where the raw volume hour to hour relationship was modified when balanced. Two examples are indicated **Figure 3** (below) and **Figure 5** (on the following page). **Figure 3** shows that the last AM balanced hour volume (8:30-9:30AM) is greater than the preceding hour (circled in red) which does not match the yearly profile.

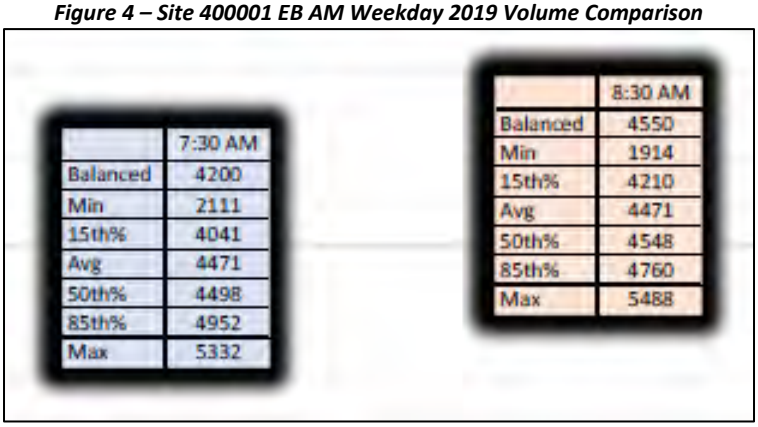
Figure 3 – I-94 EB at 92nd Street



Source: *1060-27-04 Peak Hour Traffic Volume Development Methodologies Appendix 2 (10/22/2020)*

The comparison provided by WisDOT of 2019 hourly volumes with the balanced volume for the final AM analysis hour shows a wide range of volumes for the 8:30AM hour at this station, which also suggests a significant day to day variability at this back of queue location (**Figure 4**). The average volume for the third AM hour is equal to the final AM hour based on WisDOT data, but volume balancing likely necessitated the final AM hour to be shifted up due to other downstream factors.

Figure 4 – Site 400001 EB AM Weekday 2019 Volume Comparison



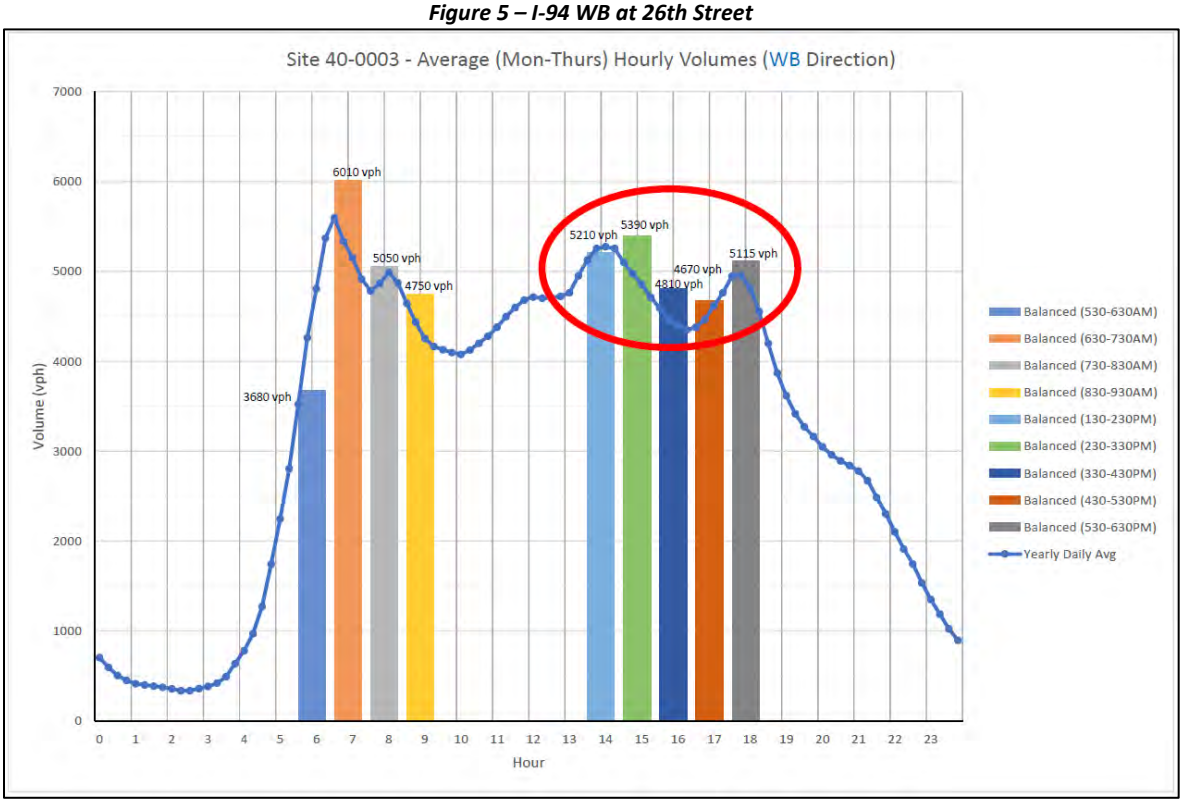
	7:30 AM
Balanced	4200
Min	2111
15th%	4041
Avg	4471
50th%	4498
85th%	4952
Max	5332

	8:30 AM
Balanced	4550
Min	1914
15th%	4210
Avg	4471
50th%	4548
85th%	4760
Max	5488

Source: *1060-27-04 Peak Hour Traffic Volume Development Methodologies Appendix 3 (10/22/2020)*

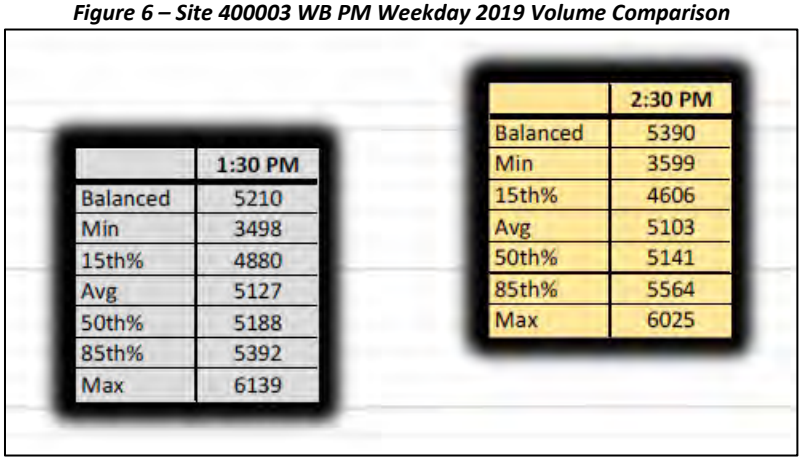
Figure 4 indicates that the second PM balanced hour (2:30-3:30PM) is greater than the first PM hour which is different than the yearly profile.

Figure 5 – I-94 WB at 26th Street



Source: *1060-27-04 Peak Hour Traffic Volume Development Methodologies Appendix 2 (10/22/2020)*

Figure 6 – Site 400003 WB PM Weekday 2019 Volume Comparison



	1:30 PM
Balanced	5210
Min	3498
15th%	4880
Avg	5127
50th%	5188
85th%	5392
Max	6139

	2:30 PM
Balanced	5390
Min	3599
15th%	4606
Avg	5103
50th%	5141
85th%	5564
Max	6025

Source: *1060-27-04 Peak Hour Traffic Volume Development Methodologies Appendix 3 (10/22/2020)*

The comparison of the first and second PM hours at this location (**Figure 6**) shows that the average volume in the second hour should be less than the first hour but that volume balancing likely required an adjustment in this area due to other factors.

It should be noted that the westbound balanced volume and yearly volume profile at the end of the PM analysis period are consistent (**Figure 5**) and could be due to a release of downstream congestion (possibly due to reduced Stadium Interchange system ramp demand in the final PM hour) as indicated by the sharp speed recovery in **Appendix A**.

The review of the balanced volumes and yearly profiles suggests that the balanced volume profiles and field speed profiles may not be aligned at all locations, especially during the final hours of the AM and PM analysis periods. This is consistent with the current version of the VISSIM models which indicates that sharp speed recovery cannot be achieved with the balanced target volumes.

Recommended Methodology

In order to bring the balanced target volumes and field speeds for model validation into closer alignment, HNTB proposes to proceed with each of the following adjustments:

1. *Utilize April 9th, 2019 speed and travel time data for model validation*

   This change will bring the model volumes and speeds/travel times into closer alignment for validation purposes. As noted previously, April 9th was mostly included in the typical day cluster and using data from this day does not invalidate the cluster analysis methodology or results. HNTB recommends that April 9th data also be utilized for I-94 EB AM validation for consistency with the other periods.

2. *Factor final hour external trips to achieve speed recovery*

   As noted previously, there is a disconnect between the balanced volumes and field speed data particularly during the final hour of both peak periods which has limited the ability of the model to replicate rapid speed recovery to free-flow conditions at all locations. As such, HNTB proposes to factor the external trip pairs of the four 15-minute trip tables in the final analysis period. This approach both limits the amount of change in each trip table to only the longer end

to end trip pairs and allows for the model to replicate more rapid recovery speeds due to reduced demand in the final analysis hours. Model calibration would utilize the factored trip tables. Model validation for the final analysis hours would be based on the factored target volumes, but the validation sheets would report both unfactored and factored volumes for comparison purposes.

3. *Develop an envelope of calibrated model results*

   As noted in step #2, the existing models would be calibrated and validated based on the factored trip tables developed for the final analysis hours. In addition, the calibrated models would also be run with the unfactored final hour trip tables to determine the range of operations from the calibrated VISSIM models. The unfactored and factored model results would be treated as the calibrated model result envelope boundaries. Note that the unfactored model results and envelope would only be compared to the April 2019 typical weekday speed and travel time ranges to make sure the envelope of model operations is reasonable relative to the range of observed field conditions. As indicated previously, only the factored model results would be used to calculate calibrated model validation metrics.

Conclusion

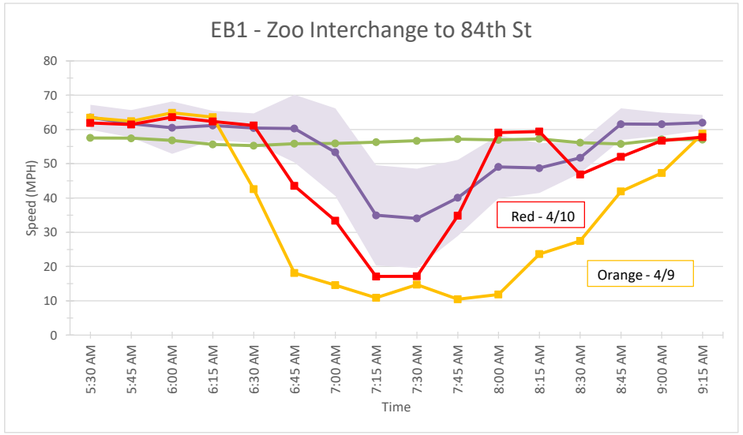
After discussion with WisDOT reviewing all the data presented in this document, HNTB and WisDOT agreed to proceed with all aspects of the proposed methodology. HNTB will adjust the target speed and travel times to April 9th 2019 data from NPMRDS, factor the final AM/PM analysis hour trip tables, document the performance of the calibrated VISSIM models with the unfactored trip tables, and develop an envelope of calibrated model results to compare against the range of April 2019 typical weekday conditions. Special attention will be made to what the unfactored and factored datasets represent during the transition to forecasting and modeling future conditions.

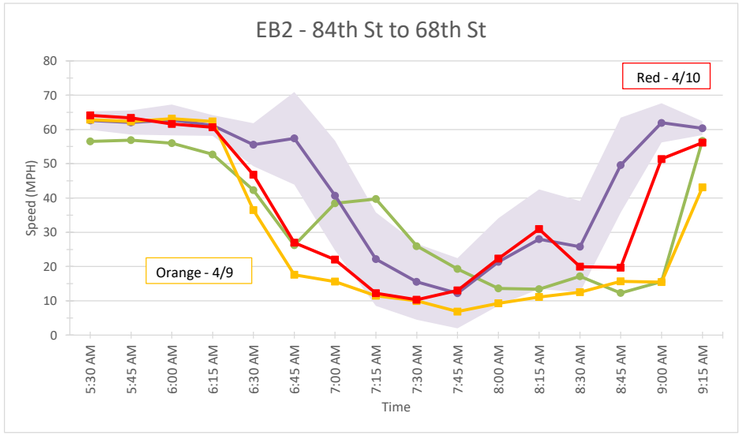
Appendix A – April 9th and 10th 2019 Speed Comparisons

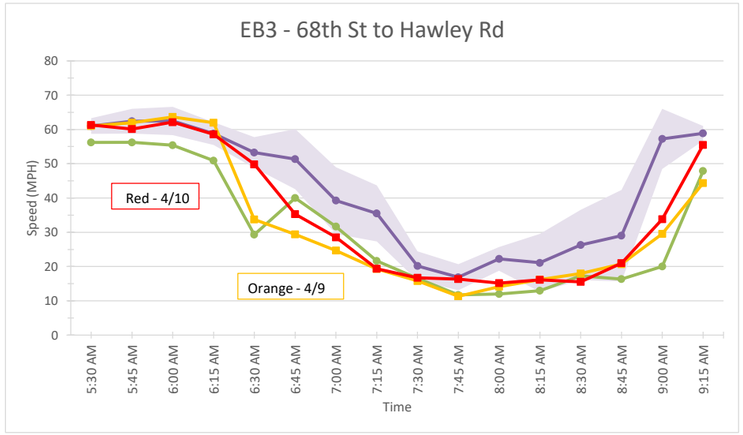
I-94 East-West Data Collection Project

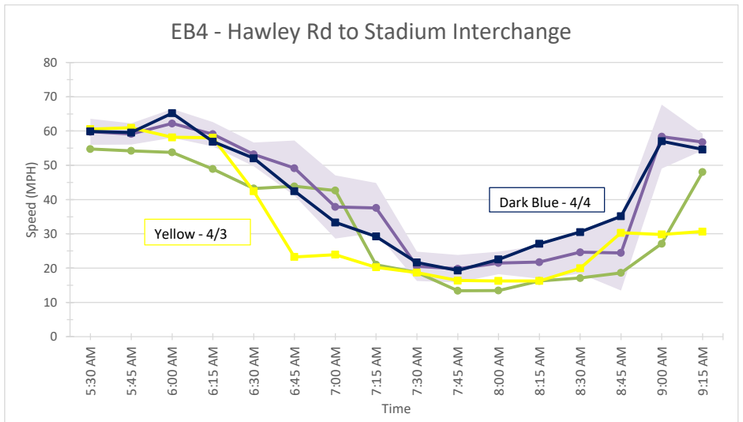
Existing (2019) AM Peak Period Validation

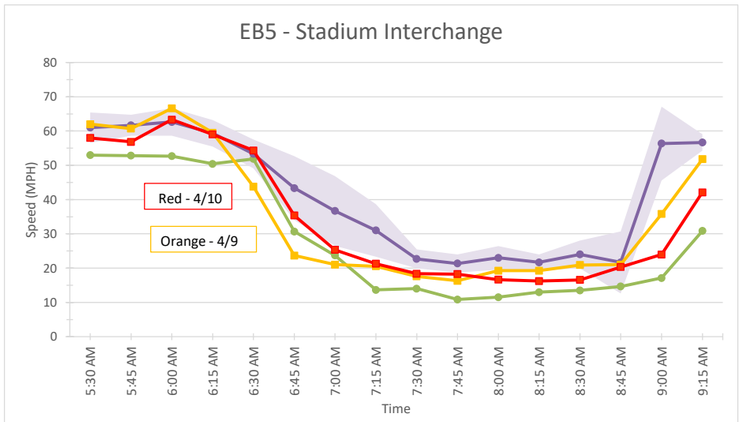
Freeway I-94 EB Mainline Speed Profiles

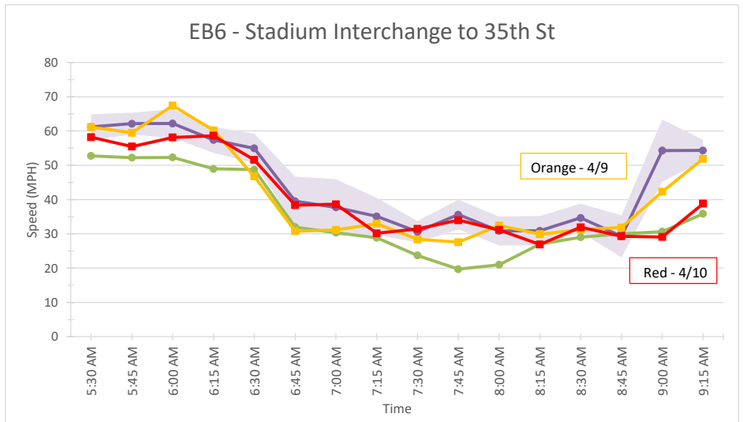


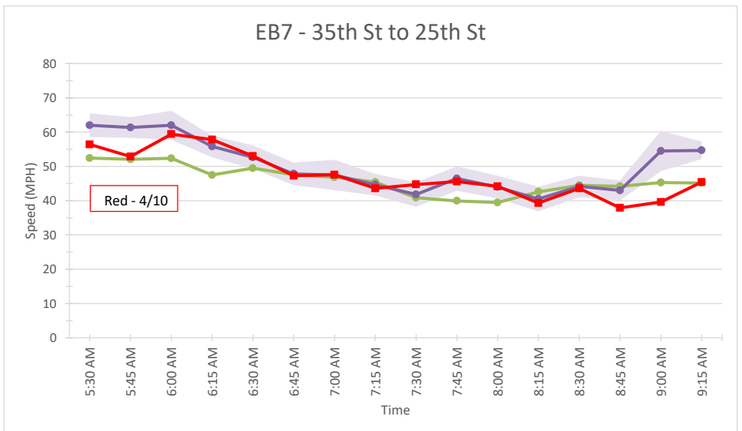


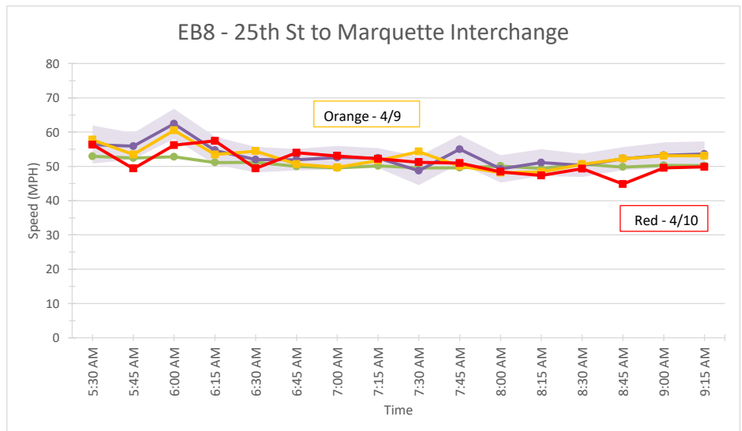








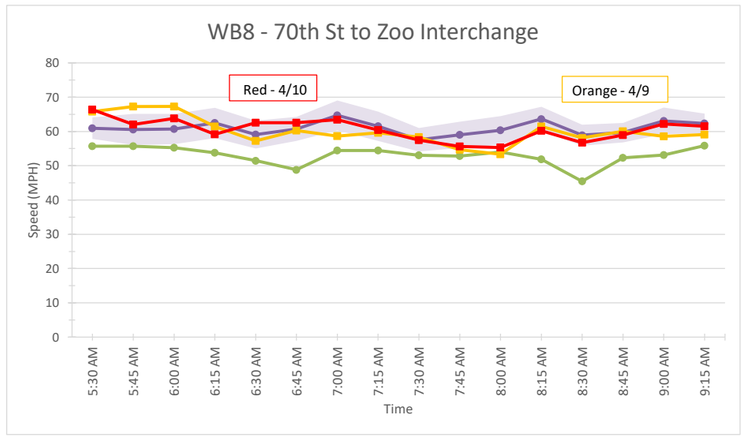


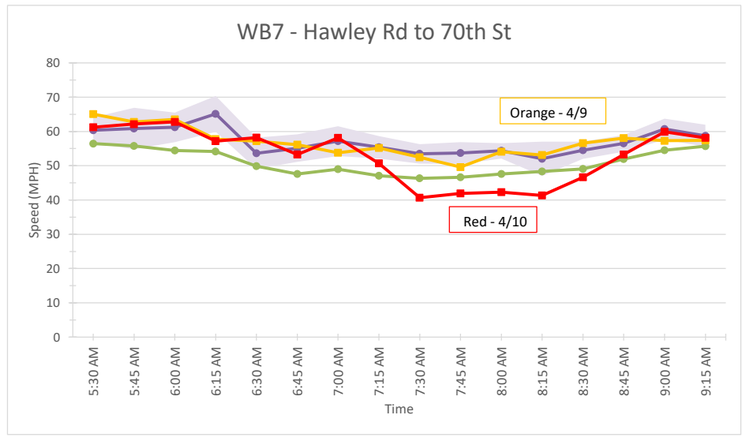


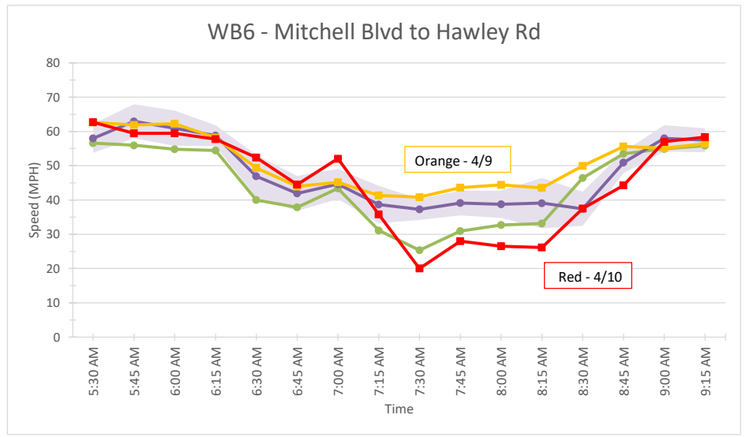
1 Standard Deviation (NPMRDS - Selected Apr 30) VISSIM Field (NPMRDS - Selected Apr 30)

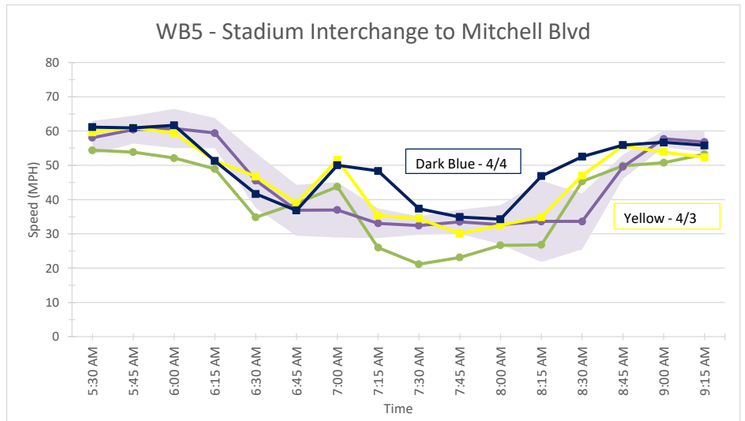
I-94 Eastbound

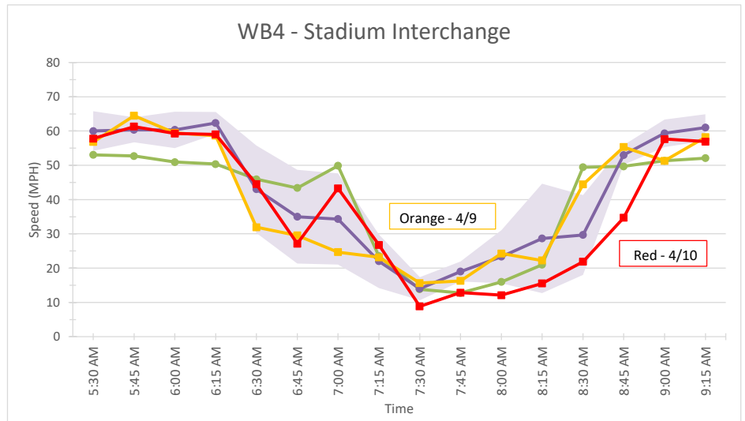
I-94 East-West Data Collection Project
Existing (2019) AM Peak Period Validation
Freeway I-94 WB Mainline Speed Profiles

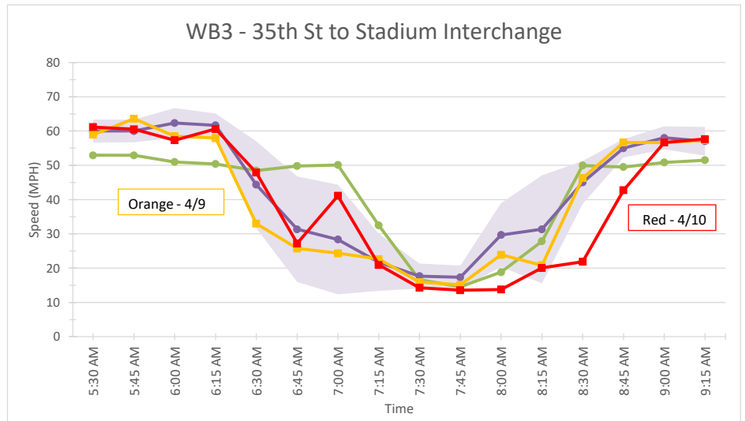


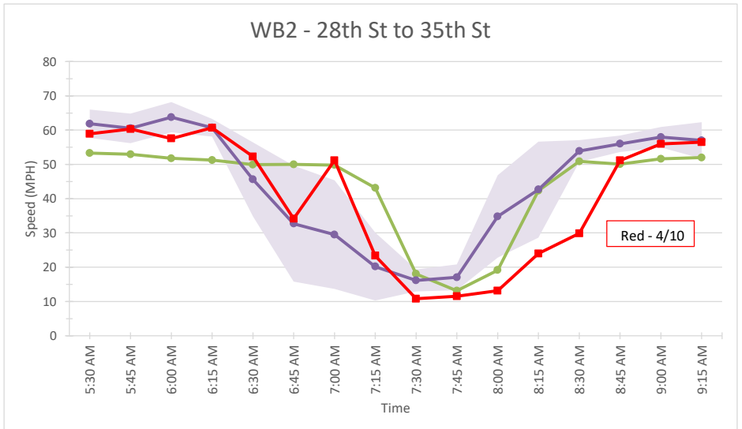


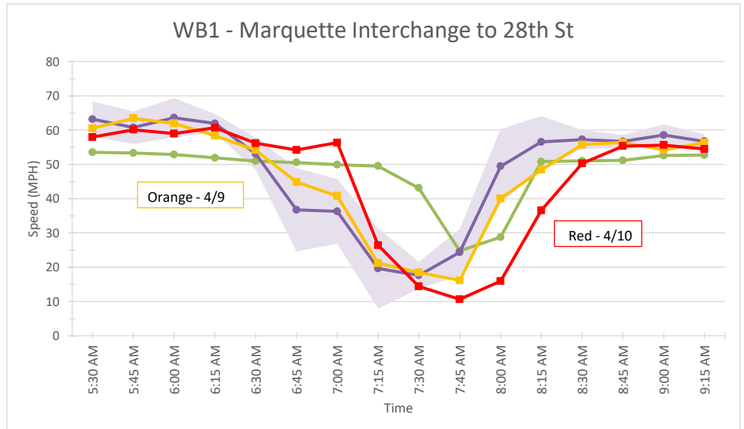








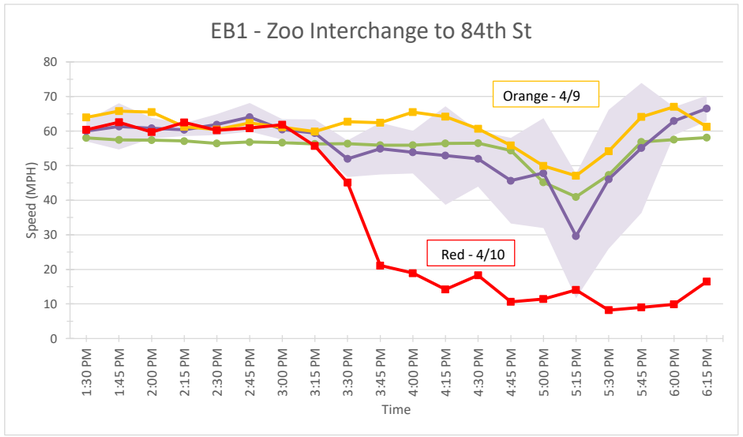


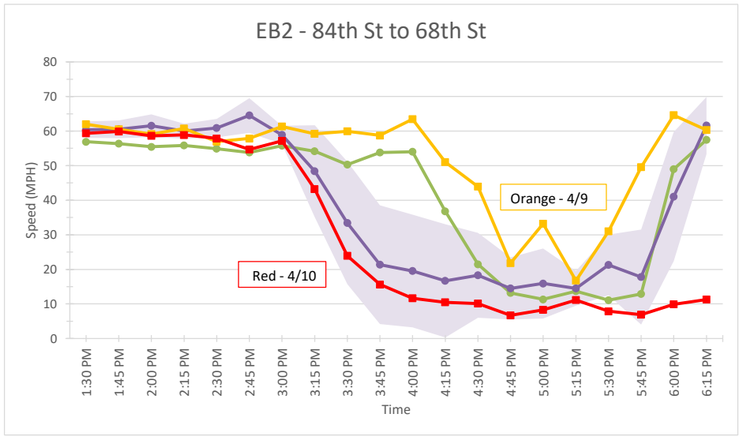


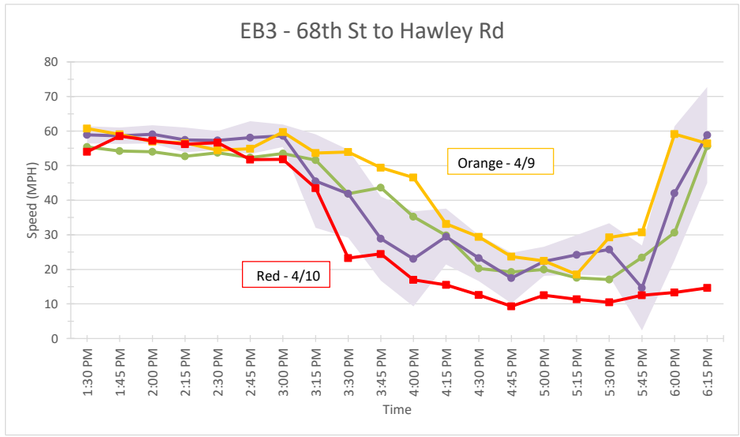
1 Standard Deviation (NPMRDS - Selected Apr 25) VISSIM Field (NPMRDS - Selected Apr 25)

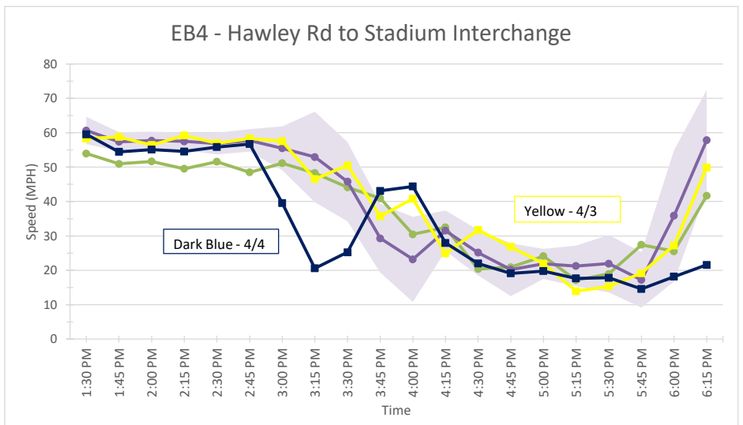
I-94 Westbound

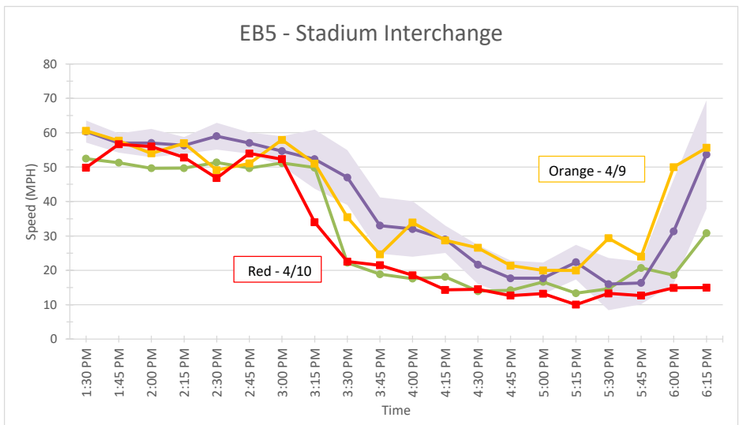
I-94 East-West Data Collection Project
Existing (2019) PM Peak Period Validation
Freeway I-94 EB Mainline Speed Profiles

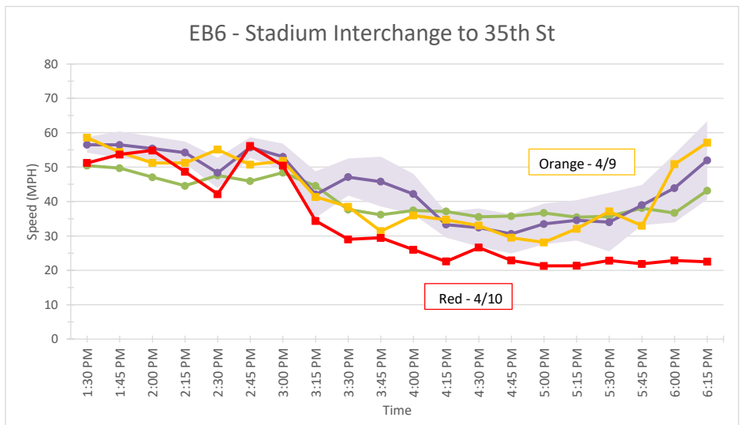


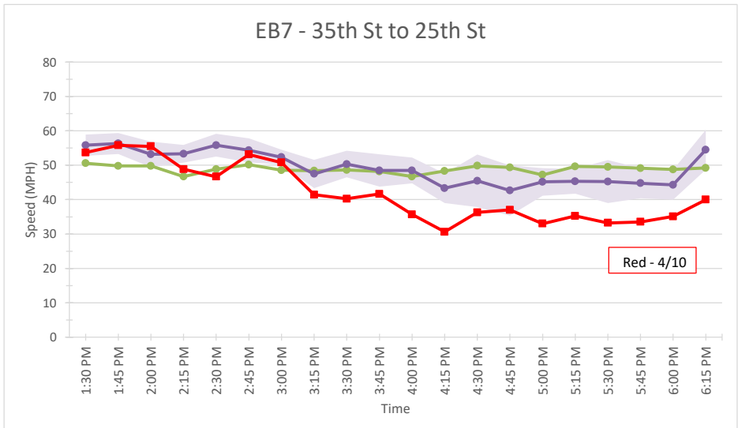


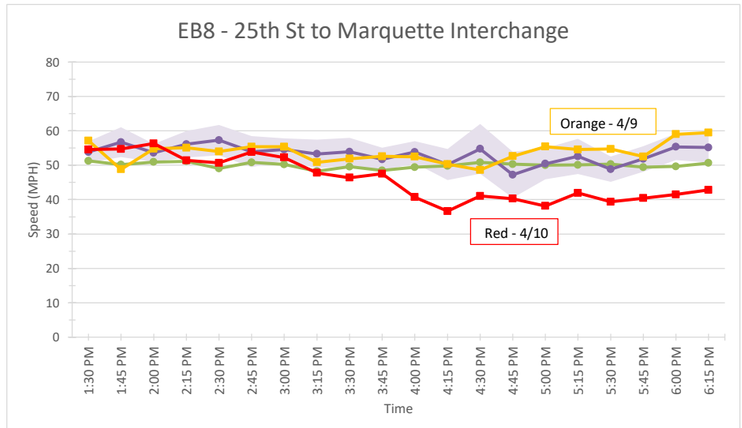








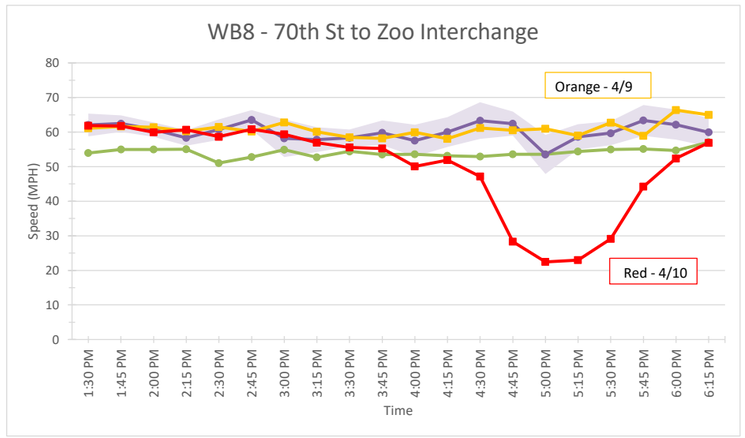


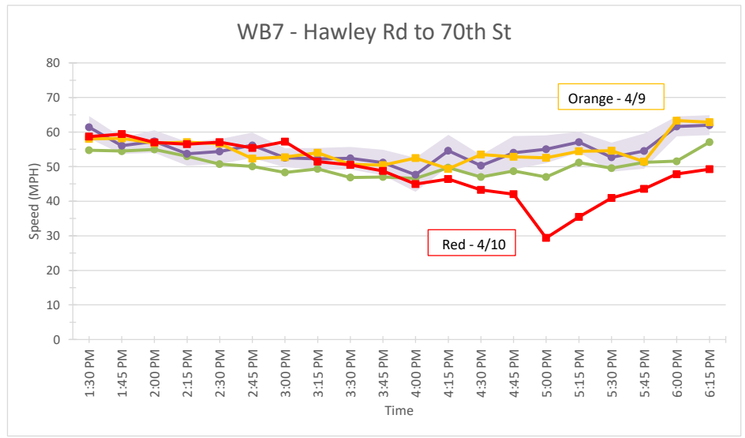


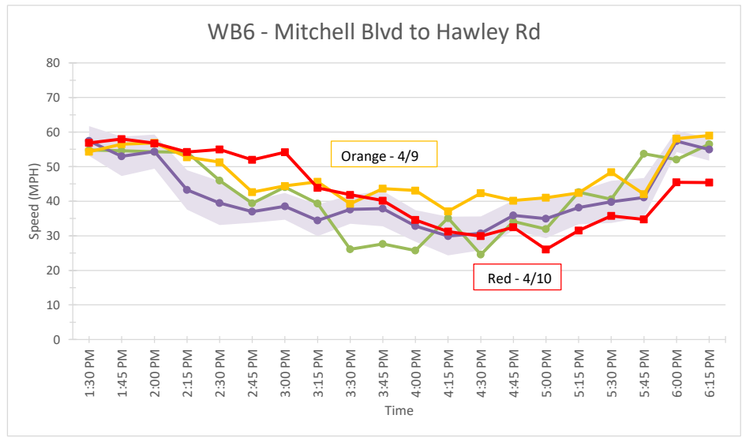
1 Standard Deviation (NPMRDS - Selected Apr 24) VISSIM Field (NPMRDS - Selected Apr 24)

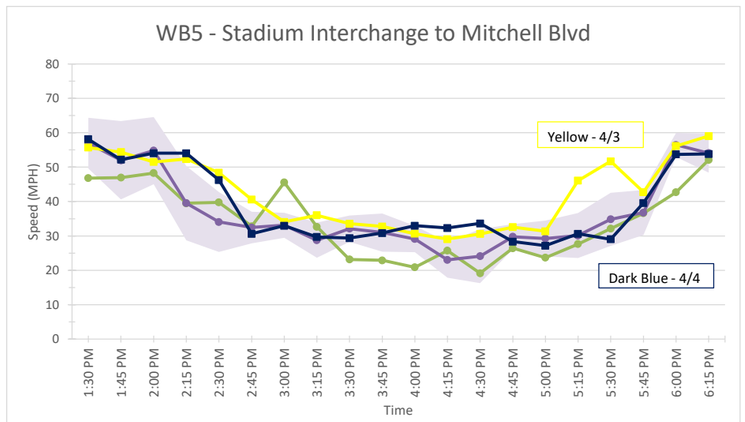
I-94 Eastbound

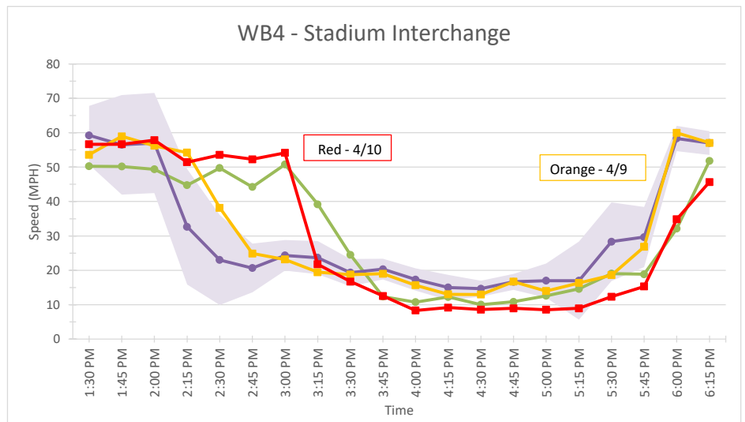
I-94 East-West Data Collection Project
Existing (2019) PM Peak Period Validation
Freeway I-94 WB Mainline Speed Profiles

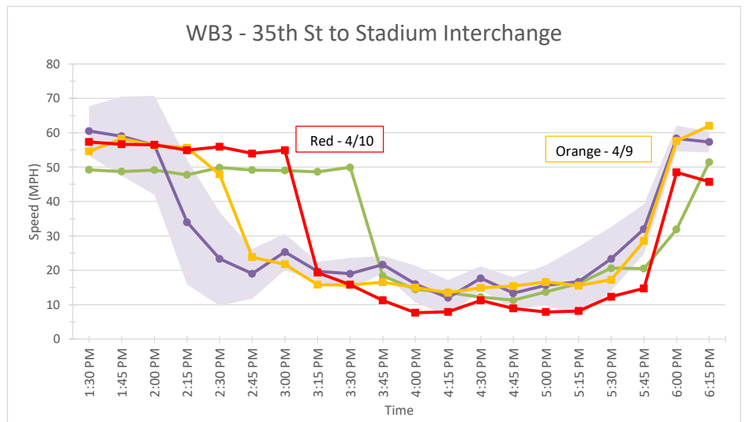


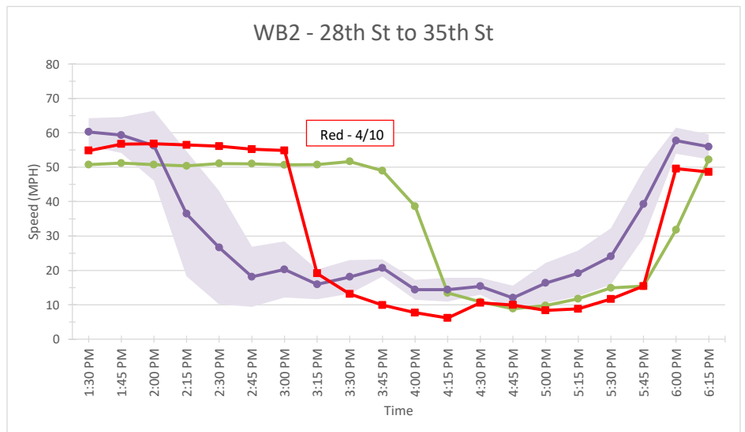


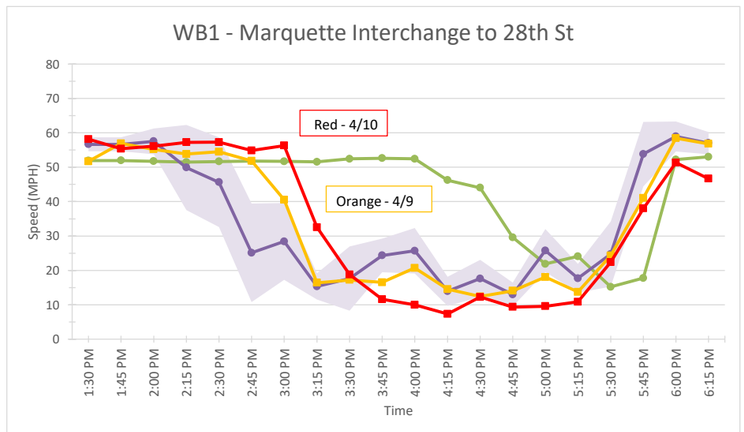












1 Standard Deviation (NPMRDS - Selected Apr 25) VISSIM Field (NPMRDS - Selected Apr 25)

I-94 Westbound

DRAFT - Version 1

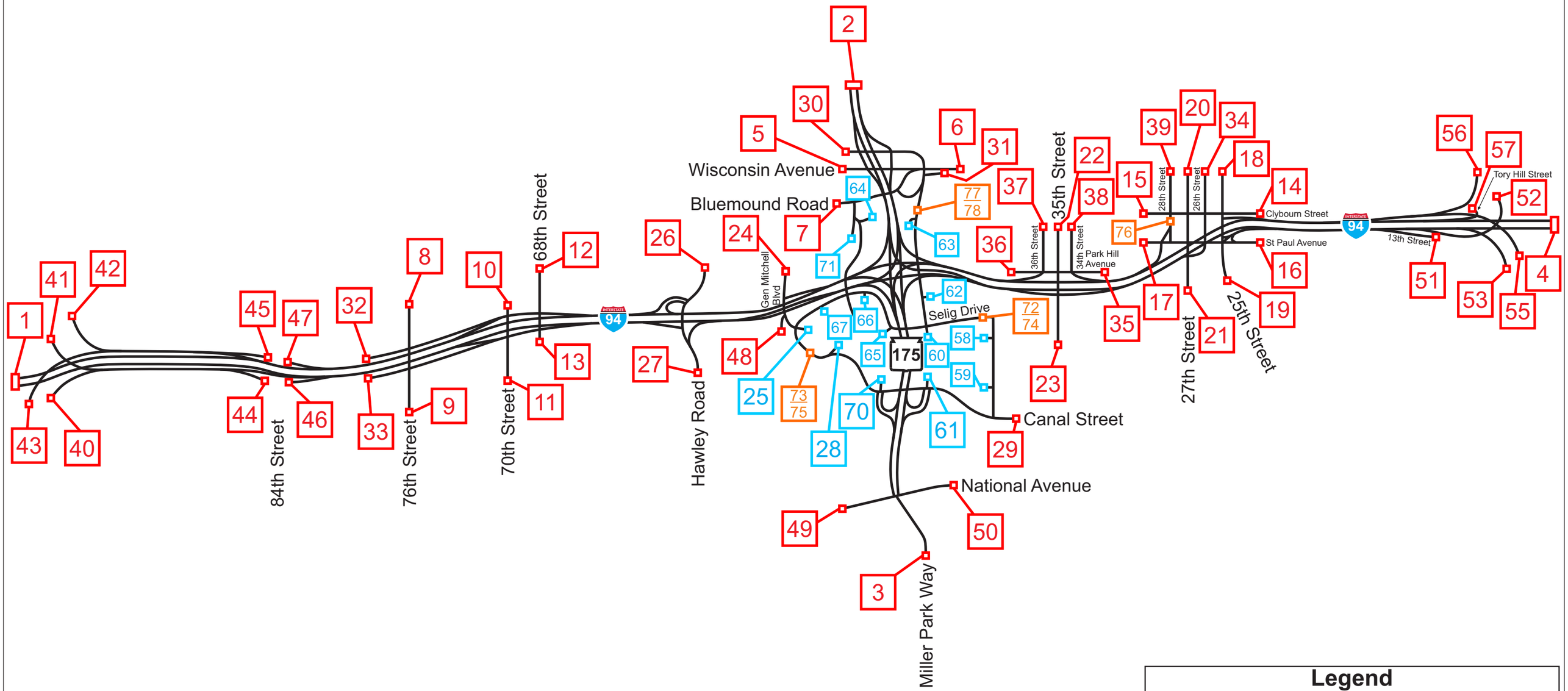
12/1/2020

Appendix E – VISSIM Zone Structure

I-94 East-West

Data Collection Project

VISSIM Zone Structure



DRAFT 12/18/20

Appendix F – VISSIM Ramp Meter Calculations

I-94 East-West Data Collection Project

Existing AM Peak Period VISSIM Modeling

Ramp Meter Calculations

Location	**84th St**
Direction	**EB**
WisDOT ID	**40-0004**
ML Lanes	**4**
ML FID	**1006**

Time	Flow Rate (vphpl)	Meter Rate (vph)	Meter Rate (sec/veh)	Min Green (sec)	Red (sec)	VISSIM Sim Time (sec)	VISSIM Signal Program
5:30 AM	818	-	-	-	-	1800	7
5:45 AM	955	-	-	-	-	2700	7
6:00 AM	1021	-	-	-	-	3600	7
6:15 AM	1463	900	4.0	1.8	2.2	4500	1
6:30 AM	1443	900	4.0	1.8	2.2	5400	1
6:45 AM	1409	900	4.0	1.8	2.2	6300	1
7:00 AM	1319	900	4.0	1.8	2.2	7200	1
7:15 AM	1218	900	4.0	1.8	2.2	8100	1
7:30 AM	989	900	4.0	1.8	2.2	9000	1
7:45 AM	897	900	4.0	1.8	2.2	9900	1
8:00 AM	910	900	4.0	1.8	2.2	10800	1
8:15 AM	986	900	4.0	1.8	2.2	11700	1
8:30 AM	1182	900	4.0	1.8	2.2	12600	1
8:45 AM	1152	900	4.0	1.8	2.2	13500	1
9:00 AM	979	-	-	-	-	14400	7
9:15 AM	1024	-	-	-	-	15300	7

Flow Rate (vphpl)	Meter Rate (vph)
101	900
1700	800
1800	700
1900	600
1975	500
2150	450

Time	Plan
0:00 - 6:15	Green Rest
6:15 - 9:00	**Responsive**
9:00 - 14:00	Green Rest

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Existing AM Peak Period VISSIM Modeling

Ramp Meter Calculations

Location	**68th St**
Direction	**EB**
WisDOT ID	**40-0007**
ML Lanes	**3**
ML FID	**1010**

Time	Flow Rate (vphpl)	Meter Rate (vph)	Meter Rate (sec/veh)	Min Green (sec)	Red (sec)	VISSIM Sim Time (sec)	VISSIM Signal Program
5:30 AM	1098	-	-	-	-	1800	7
5:45 AM	1263	-	-	-	-	2700	7
6:00 AM	1368	-	-	-	-	3600	7
6:15 AM	1963	740	4.9	1.8	3.1	4500	1
6:30 AM	1915	740	4.9	1.8	3.1	5400	1
6:45 AM	1779	740	4.9	1.8	3.1	6300	1
7:00 AM	1686	740	4.9	1.8	3.1	7200	1
7:15 AM	1537	740	4.9	1.8	3.1	8100	1
7:30 AM	1259	740	4.9	1.8	3.1	9000	1
7:45 AM	1118	740	4.9	1.8	3.1	9900	1
8:00 AM	1102	740	4.9	1.8	3.1	10800	1
8:15 AM	1205	740	4.9	1.8	3.1	11700	1
8:30 AM	1442	740	4.9	1.8	3.1	12600	1
8:45 AM	1394	740	4.9	1.8	3.1	13500	1
9:00 AM	1216	-	-	-	-	14400	7
9:15 AM	1316	-	-	-	-	15300	7

Flow Rate (vphpl)	Meter Rate (vph)
Fixed	740

Time	Plan
0:00 - 6:15	Green Rest
6:15 - 9:00	**Fixed Rate**
9:00 - 14:00	Green Rest

I-94 East-West Data Collection Project

Existing AM Peak Period VISSIM Modeling

Ramp Meter Calculations

Location	**Hawley Rd**
Direction	**EB**
WisDOT ID	**40-0005**
ML Lanes	**3**
ML FID	**1014**

Time	Flow Rate (vphpl)	Meter Rate (vph)	Meter Rate (sec/veh)	Min Green (sec)	Red (sec)	VISSIM Sim Time (sec)	VISSIM Signal Program
5:30 AM	1106	-	-	-	-	1800	7
5:45 AM	1262	-	-	-	-	2700	7
6:00 AM	1376	-	-	-	-	3600	7
6:15 AM	1948	600	6.0	1.8	4.2	4500	4
6:30 AM	1919	600	6.0	1.8	4.2	5400	4
6:45 AM	1841	700	5.1	1.8	3.3	6300	3
7:00 AM	1789	800	4.5	1.8	2.7	7200	2
7:15 AM	1688	900	4.0	1.8	2.2	8100	1
7:30 AM	1490	900	4.0	1.8	2.2	9000	1
7:45 AM	1309	900	4.0	1.8	2.2	9900	1
8:00 AM	1262	900	4.0	1.8	2.2	10800	1
8:15 AM	1344	900	4.0	1.8	2.2	11700	1
8:30 AM	1563	900	4.0	1.8	2.2	12600	1
8:45 AM	1474	900	4.0	1.8	2.2	13500	1
9:00 AM	1303	-	-	-	-	14400	7
9:15 AM	1386	-	-	-	-	15300	7

Flow Rate (vphpl)	Meter Rate (vph)
101	900
1700	800
1800	700
1900	600
1975	500
2150	450

Time	Plan
0:00 - 6:15	Green Rest
6:15 - 9:00	**Responsive**
9:00 - 14:00	Green Rest

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I-94 East-West Data Collection Project

Existing AM Peak Period VISSIM Modeling

Ramp Meter Calculations

Location	**Mitchell Blvd**
Direction	**EB**
WisDOT ID	**40-0082**
ML Lanes	**3**
ML FID	**1018**

Time	Flow Rate (vphpl)	Meter Rate (vph)	Meter Rate (sec/veh)	Min Green (sec)	Red (sec)	VISSIM Sim Time (sec)	VISSIM Signal Program
5:30 AM	1145	-	-	-	-	1800	7
5:45 AM	1300	-	-	-	-	2700	7
6:00 AM	1412	-	-	-	-	3600	7
6:15 AM	1981	450	8.0	2.0	6.0	4500	5
6:30 AM	1941	500	7.2	2.0	5.2	5400	4
6:45 AM	1836	600	6.0	2.0	4.0	6300	3
7:00 AM	1803	600	6.0	2.0	4.0	7200	3
7:15 AM	1726	700	5.1	2.0	3.1	8100	2
7:30 AM	1607	800	4.5	2.0	2.5	9000	1
7:45 AM	1422	800	4.5	2.0	2.5	9900	1
8:00 AM	1357	800	4.5	2.0	2.5	10800	1
8:15 AM	1418	800	4.5	2.0	2.5	11700	1
8:30 AM	1642	800	4.5	2.0	2.5	12600	1
8:45 AM	1554	800	4.5	2.0	2.5	13500	1
9:00 AM	1384	-	-	-	-	14400	7
9:15 AM	1464	-	-	-	-	15300	7

Flow Rate (vphpl)	Meter Rate (vph)
101	800
1700	700
1800	600
1900	500
1975	450
2150	400

Time	Plan
0:00 - 6:15	Green Rest
6:15 - 9:00	**Responsive**
9:00 - 14:00	Green Rest

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I-94 East-West Data Collection Project

Existing AM Peak Period VISSIM Modeling

Ramp Meter Calculations

Location	**Stadium Int S-E**
Direction	**EB**
WisDOT ID	**40-0077**
ML Lanes	**3**
ML FID	**1024**

Time	Flow Rate (vphpl)	Meter Rate (vph)	Meter Rate (sec/veh)	Min Green (sec)	Red (sec)	VISSIM Sim Time (sec)	VISSIM Signal Program
5:30 AM	922	-	-	-	-	1800	7
5:45 AM	1002	-	-	-	-	2700	7
6:00 AM	1100	-	-	-	-	3600	7
6:15 AM	1574	740	4.9	1.5	3.4	4500	1
6:30 AM	1589	740	4.9	1.5	3.4	5400	1
6:45 AM	1495	740	4.9	1.5	3.4	6300	1
7:00 AM	1505	740	4.9	1.5	3.4	7200	1
7:15 AM	1475	740	4.9	1.5	3.4	8100	1
7:30 AM	1417	740	4.9	1.5	3.4	9000	1
7:45 AM	1280	740	4.9	1.5	3.4	9900	1
8:00 AM	1234	740	4.9	1.5	3.4	10800	1
8:15 AM	1242	740	4.9	1.5	3.4	11700	1
8:30 AM	1496	740	4.9	1.5	3.4	12600	1
8:45 AM	1358	740	4.9	1.5	3.4	13500	1
9:00 AM	1140	-	-	-	-	14400	7
9:15 AM	1243	-	-	-	-	15300	7

Flow Rate (vphpl)	Meter Rate (vph)
Fixed	740

Time	Plan
0:00 - 6:15	Green Rest
6:15 - 9:00	**Fixed Rate**
9:00 - 14:00	Green Rest

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I-94 East-West Data Collection Project

Existing AM Peak Period VISSIM Modeling

Ramp Meter Calculations

Location	**Stadium Int N-E**
Direction	**EB**
WisDOT ID	**40-0080**
ML Lanes	**3**
ML FID	**1026**

Time	Flow Rate (vphpl)	Meter Rate (vph)	Meter Rate (sec/veh)	Min Green (sec)	Red (sec)	VISSIM Sim Time (sec)	VISSIM Signal Program
5:30 AM	969	-	-	-	-	1800	7
5:45 AM	1064	-	-	-	-	2700	7
6:00 AM	1163	-	-	-	-	3600	7
6:15 AM	1655	660	5.5	1.8	3.7	4500	1
6:30 AM	1737	660	5.5	1.8	3.7	5400	1
6:45 AM	1626	660	5.5	1.8	3.7	6300	1
7:00 AM	1660	660	5.5	1.8	3.7	7200	1
7:15 AM	1671	660	5.5	1.8	3.7	8100	1
7:30 AM	1632	660	5.5	1.8	3.7	9000	1
7:45 AM	1518	660	5.5	1.8	3.7	9900	1
8:00 AM	1432	660	5.5	1.8	3.7	10800	1
8:15 AM	1457	660	5.5	1.8	3.7	11700	1
8:30 AM	1697	660	5.5	1.8	3.7	12600	1
8:45 AM	1521	660	5.5	1.8	3.7	13500	1
9:00 AM	1293	-	-	-	-	14400	7
9:15 AM	1379	-	-	-	-	15300	7

Flow Rate (vphpl)	Meter Rate (vph)
Fixed	660

Time	Plan
0:00 - 6:15	Green Rest
6:15 - 9:00	**Fixed Rate**
9:00 - 14:00	Green Rest

I-94 East-West Data Collection Project

Existing AM Peak Period VISSIM Modeling

Ramp Meter Calculations

Location	**35th St**
Direction	**EB**
WisDOT ID	**40-0006**
ML Lanes	**3**
ML FID	**1030**

Time	Flow Rate (vphpl)	Meter Rate (vph)	Meter Rate (sec/veh)	Min Green (sec)	Red (sec)	VISSIM Sim Time (sec)	VISSIM Signal Program
5:30 AM	1077	-	-	-	-	1800	7
5:45 AM	1193	-	-	-	-	2700	7
6:00 AM	1280	-	-	-	-	3600	7
6:15 AM	1769	700	5.1	1.8	3.3	4500	2
6:30 AM	1967	500	7.2	1.8	5.4	5400	4
6:45 AM	1876	600	6.0	1.8	4.2	6300	3
7:00 AM	1987	450	8.0	1.8	6.2	7200	5
7:15 AM	1994	450	8.0	1.8	6.2	8100	5
7:30 AM	1949	500	7.2	1.8	5.4	9000	4
7:45 AM	1835	600	6.0	1.8	4.2	9900	3
8:00 AM	1791	700	5.1	1.8	3.3	10800	2
8:15 AM	1782	700	5.1	1.8	3.3	11700	2
8:30 AM	2013	450	8.0	1.8	6.2	12600	5
8:45 AM	1852	600	6.0	1.8	4.2	13500	3
9:00 AM	1549	-	-	-	-	14400	7
9:15 AM	1596	-	-	-	-	15300	7

Flow Rate (vphpl)	Meter Rate (vph)
101	800
1700	700
1800	600
1900	500
1975	450
2150	400

Time	Plan
0:00 - 6:15	Green Rest
6:15 - 9:00	**Responsive**
9:00 - 14:00	Green Rest

I-94 East-West Data Collection Project

Existing AM Peak Period VISSIM Modeling

Ramp Meter Calculations

Location	**25th St**
Direction	**EB**
WisDOT ID	**40-0075**
ML Lanes	**3**
ML FID	**1035**

Time	Flow Rate (vphpl)	Meter Rate (vph)	Meter Rate (sec/veh)	Min Green (sec)	Red (sec)	VISSIM Sim Time (sec)	VISSIM Signal Program
5:30 AM	1039	-	-	-	-	1800	7
5:45 AM	1129	-	-	-	-	2700	7
6:00 AM	1239	-	-	-	-	3600	7
6:15 AM	1686	740	4.9	1.8	3.1	4500	1
6:30 AM	1939	740	4.9	1.8	3.1	5400	1
6:45 AM	1860	740	4.9	1.8	3.1	6300	1
7:00 AM	2026	740	4.9	1.8	3.1	7200	1
7:15 AM	2077	740	4.9	1.8	3.1	8100	1
7:30 AM	2099	740	4.9	1.8	3.1	9000	1
7:45 AM	2001	740	4.9	1.8	3.1	9900	1
8:00 AM	1875	740	4.9	1.8	3.1	10800	1
8:15 AM	1832	740	4.9	1.8	3.1	11700	1
8:30 AM	2052	740	4.9	1.8	3.1	12600	1
8:45 AM	1837	740	4.9	1.8	3.1	13500	1
9:00 AM	1558	-	-	-	-	14400	7
9:15 AM	1614	-	-	-	-	15300	7

Flow Rate (vphpl)	Meter Rate (vph)
Fixed	740

Time	Plan
0:00 - 6:15	Green Rest
6:15 - 9:00	**Fixed Rate**
9:00 - 14:00	Green Rest

I-94 East-West Data Collection Project

Existing AM Peak Period VISSIM Modeling

Ramp Meter Calculations

Location	**Tory Hill St/11th St**
Direction	**WB**
WisDOT ID	**40-0129**
ML Lanes	**2**
ML FID	**2001**

Time	Flow Rate (vphpl)	Meter Rate (vph)	Meter Rate (sec/veh)	Min Green (sec)	Red (sec)	VISSIM Sim Time (sec)	VISSIM Signal Program
5:30 AM	504	-	-	-	-	1800	7
5:45 AM	564	-	-	-	-	2700	7
6:00 AM	671	-	-	-	-	3600	7
6:15 AM	903	514	7.0	1.5	5.5	4500	3
6:30 AM	999	514	7.0	1.5	5.5	5400	3
6:45 AM	1094	514	7.0	1.5	5.5	6300	3
7:00 AM	1290	450	8.0	1.5	6.5	7200	4
7:15 AM	1416	400	9.0	1.5	7.5	8100	5
7:30 AM	1337	400	9.0	1.5	7.5	9000	5
7:45 AM	1458	400	9.0	1.5	7.5	9900	5
8:00 AM	1118	450	8.0	1.5	6.5	10800	4
8:15 AM	1145	450	8.0	1.5	6.5	11700	4
8:30 AM	1159	450	8.0	1.5	6.5	12600	4
8:45 AM	1028	514	7.0	1.5	5.5	13500	3
9:00 AM	746	-	-	-	-	14400	7
9:15 AM	768	-	-	-	-	15300	7

Flow Rate (vphpl)	Meter Rate (vph)
101	800
700	600
900	514
1100	450
1300	400
1500	300

Time	Plan
0:00 - 6:15	Green Rest
6:15 - 9:00	**Responsive**
9:00 - 14:00	Green Rest

I-94 East-West Data Collection Project

Existing AM Peak Period VISSIM Modeling

Ramp Meter Calculations

Location	**28th St**
Direction	**WB**
WisDOT ID	**40-0002**
ML Lanes	**3**
ML FID	**2009**

Time	Flow Rate (vphpl)	Meter Rate (vph)	Meter Rate (sec/veh)	Min Green (sec)	Red (sec)	VISSIM Sim Time (sec)	VISSIM Signal Program
5:30 AM	1019	-	-	-	-	1800	7
5:45 AM	1072	-	-	-	-	2700	7
6:00 AM	1186	-	-	-	-	3600	7
6:15 AM	1626	-	-	-	-	4500	7
6:30 AM	1879	514	7.0	1.5	3.0	5400	3
6:45 AM	1894	514	7.0	1.5	5.5	6300	3
7:00 AM	2069	400	9.0	1.5	7.5	7200	5
7:15 AM	2166	300	12.0	1.5	10.5	8100	6
7:30 AM	1680	800	4.5	1.5	3.0	9000	1
7:45 AM	1752	600	6.0	1.5	4.5	9900	2
8:00 AM	1611	800	4.5	1.5	3.0	10800	1
8:15 AM	1690	800	4.5	1.5	3.0	11700	1
8:30 AM	1782	600	6.0	1.5	4.5	12600	2
8:45 AM	1748	600	6.0	1.5	4.5	13500	2
9:00 AM	1413	-	-	-	-	14400	7
9:15 AM	1385	-	-	-	-	15300	7

Flow Rate (vphpl)	Meter Rate (vph)
101	800
1700	600
1800	514
1900	450
1975	400
2150	300

Time	Plan
0:00 - 6:30	Green Rest
6:30 - 9:00	**Responsive**
9:00 - 14:00	Green Rest

I-94 East-West Data Collection Project

Existing AM Peak Period VISSIM Modeling

Ramp Meter Calculations

Location	**35th St**
Direction	**WB**
WisDOT ID	**40-0076**
ML Lanes	**3**
ML FID	**2015**

Time	Flow Rate (vphpl)	Meter Rate (vph)	Meter Rate (sec/veh)	Min Green (sec)	Red (sec)	VISSIM Sim Time (sec)	VISSIM Signal Program
5:30 AM	1088	-	-	-	-	1800	7
5:45 AM	1116	-	-	-	-	2700	7
6:00 AM	1267	-	-	-	-	3600	7
6:15 AM	1714	-	-	-	-	4500	7
6:30 AM	1914	740	4.9	2.0	3.0	5400	1
6:45 AM	1871	740	4.9	2.0	2.9	6300	1
7:00 AM	2059	740	4.9	2.0	2.9	7200	1
7:15 AM	2154	740	4.9	2.0	2.9	8100	1
7:30 AM	1713	740	4.9	2.0	2.9	9000	1
7:45 AM	1762	740	4.9	2.0	2.9	9900	1
8:00 AM	1643	740	4.9	2.0	2.9	10800	1
8:15 AM	1735	740	4.9	2.0	2.9	11700	1
8:30 AM	1833	740	4.9	2.0	2.9	12600	1
8:45 AM	1798	740	4.9	2.0	2.9	13500	1
9:00 AM	1465	-	-	-	-	14400	7
9:15 AM	1444	-	-	-	-	15300	7

Flow Rate (vphpl)	Meter Rate (vph)
Fixed	740

Time	Plan
0:00 - 6:30	Green Rest
6:30 - 9:00	**Fixed Rate**
9:00 - 14:00	Green Rest

I-94 East-West Data Collection Project

Existing AM Peak Period VISSIM Modeling

Ramp Meter Calculations

Location	Stadium Int S-W
Direction	WB
WisDOT ID	40-0078
ML Lanes	3
ML FID	2022

Time	Flow Rate (vphpl)	Meter Rate (vph)	Meter Rate (sec/veh)	Min Green (sec)	Red (sec)	VISSIM Sim Time (sec)	VISSIM Signal Program
5:30 AM	1011	-	-	-	-	1800	7
5:45 AM	981	-	-	-	-	2700	7
6:00 AM	1154	-	-	-	-	3600	7
6:15 AM	1569	-	-	-	-	4500	7
6:30 AM	1628	900	4.0	1.5	3.0	5400	1
6:45 AM	1498	900	4.0	1.5	2.5	6300	1
7:00 AM	1658	900	4.0	1.5	2.5	7200	1
7:15 AM	1748	900	4.0	1.5	2.5	8100	1
7:30 AM	1351	900	4.0	1.5	2.5	9000	1
7:45 AM	1339	900	4.0	1.5	2.5	9900	1
8:00 AM	1263	900	4.0	1.5	2.5	10800	1
8:15 AM	1342	900	4.0	1.5	2.5	11700	1
8:30 AM	1490	900	4.0	1.5	2.5	12600	1
8:45 AM	1441	900	4.0	1.5	2.5	13500	1
9:00 AM	1160	-	-	-	-	14400	7
9:15 AM	1155	-	-	-	-	15300	7

Flow Rate (vphpl)	Meter Rate (vph)
Fixed	900

Time	Plan
0:00 - 6:30	Green Rest
6:30 - 9:00	**Fixed Rate**
9:00 - 14:00	Green Rest

I-94 East-West Data Collection Project

Existing AM Peak Period VISSIM Modeling

Ramp Meter Calculations

Location	Stadium Int N-W
Direction	WB
WisDOT ID	40-0079
ML Lanes	3
ML FID	2024

Time	Flow Rate (vphpl)	Meter Rate (vph)	Meter Rate (sec/veh)	Min Green (sec)	Red (sec)	VISSIM Sim Time (sec)	VISSIM Signal Program
5:30 AM	1154	-	-	-	-	1800	7
5:45 AM	1107	-	-	-	-	2700	7
6:00 AM	1277	-	-	-	-	3600	7
6:15 AM	1737	-	-	-	-	4500	7
6:30 AM	1831	900	4.0	1.5	3.0	5400	1
6:45 AM	1681	900	4.0	1.5	2.5	6300	1
7:00 AM	1816	900	4.0	1.5	2.5	7200	1
7:15 AM	1937	900	4.0	1.5	2.5	8100	1
7:30 AM	1594	900	4.0	1.5	2.5	9000	1
7:45 AM	1572	900	4.0	1.5	2.5	9900	1
8:00 AM	1453	900	4.0	1.5	2.5	10800	1
8:15 AM	1489	900	4.0	1.5	2.5	11700	1
8:30 AM	1618	900	4.0	1.5	2.5	12600	1
8:45 AM	1573	900	4.0	1.5	2.5	13500	1
9:00 AM	1268	-	-	-	-	14400	7
9:15 AM	1255	-	-	-	-	15300	7

Flow Rate (vphpl)	Meter Rate (vph)
Fixed	900

Time	Plan
0:00 - 6:30	Green Rest
6:30 - 9:00	**Fixed Rate**
9:00 - 14:00	Green Rest

I-94 East-West Data Collection Project

Existing AM Peak Period VISSIM Modeling

Ramp Meter Calculations

Location	Mitchell Blvd
Direction	WB
WisDOT ID	40-0081
ML Lanes	3
ML FID	2028

Time	Flow Rate (vphpl)	Meter Rate (vph)	Meter Rate (sec/veh)	Min Green (sec)	Red (sec)	VISSIM Sim Time (sec)	VISSIM Signal Program
5:30 AM	1262	-	-	-	-	1800	7
5:45 AM	1188	-	-	-	-	2700	7
6:00 AM	1400	-	-	-	-	3600	7
6:15 AM	1891	-	-	-	-	4500	7
6:30 AM	2039	450	8.0	2.0	3.0	5400	5
6:45 AM	1831	600	6.0	2.0	4.0	6300	3
7:00 AM	2003	450	8.0	2.0	6.0	7200	5
7:15 AM	2164	400	9.0	2.0	7.0	8100	6
7:30 AM	1859	600	6.0	2.0	4.0	9000	3
7:45 AM	1821	600	6.0	2.0	4.0	9900	3
8:00 AM	1663	800	4.5	2.0	2.5	10800	1
8:15 AM	1672	800	4.5	2.0	2.5	11700	1
8:30 AM	1785	700	5.1	2.0	3.1	12600	2
8:45 AM	1747	700	5.1	2.0	3.1	13500	2
9:00 AM	1401	-	-	-	-	14400	7
9:15 AM	1381	-	-	-	-	15300	7

Flow Rate (vphpl)	Meter Rate (vph)
101	800
1700	700
1800	600
1900	500
1975	450
2150	400

Time	Plan
0:00 - 6:30	Green Rest
6:30 - 9:00	**Responsive**
9:00 - 14:00	Green Rest

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Existing AM Peak Period VISSIM Modeling

Ramp Meter Calculations

Location	Hawley Rd
Direction	WB
WisDOT ID	40-0003
ML Lanes	3
ML FID	2033

Time	Flow Rate (vphpl)	Meter Rate (vph)	Meter Rate (sec/veh)	Min Green (sec)	Red (sec)	VISSIM Sim Time (sec)	VISSIM Signal Program
5:30 AM	1251	-	-	-	-	1800	7
5:45 AM	1169	-	-	-	-	2700	7
6:00 AM	1378	-	-	-	-	3600	7
6:15 AM	1850	-	-	-	-	4500	7
6:30 AM	2015	400	9.0	2.0	3.0	5400	5
6:45 AM	1807	514	7.0	2.0	5.0	6300	3
7:00 AM	1966	450	8.0	2.0	6.0	7200	4
7:15 AM	2143	400	9.0	2.0	7.0	8100	5
7:30 AM	1863	514	7.0	2.0	5.0	9000	3
7:45 AM	1823	514	7.0	2.0	5.0	9900	3
8:00 AM	1631	800	4.5	2.0	2.5	10800	1
8:15 AM	1630	800	4.5	2.0	2.5	11700	1
8:30 AM	1753	600	6.0	2.0	4.0	12600	2
8:45 AM	1702	600	6.0	2.0	4.0	13500	2
9:00 AM	1376	-	-	-	-	14400	7
9:15 AM	1348	-	-	-	-	15300	7

Flow Rate (vphpl)	Meter Rate (vph)
101	800
1700	600
1800	514
1900	450
1975	400
2150	300

Time	Plan
0:00 - 6:30	Green Rest
6:30 - 9:00	**Responsive**
9:00 - 14:00	Green Rest

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Existing AM Peak Period VISSIM Modeling

Ramp Meter Calculations

Location	**70th St**
Direction	**WB**
WisDOT ID	**40-0009**
ML Lanes	**4**
ML FID	**2037**

Time	Flow Rate (vphpl)	Meter Rate (vph)	Meter Rate (sec/veh)	Min Green (sec)	Red (sec)	VISSIM Sim Time (sec)	VISSIM Signal Program
5:30 AM	998	-	-	-	-	1800	7
5:45 AM	900	-	-	-	-	2700	7
6:00 AM	1064	-	-	-	-	3600	7
6:15 AM	1415	-	-	-	-	4500	7
6:30 AM	1591	800	4.5	1.8	3.0	5400	1
6:45 AM	1401	800	4.5	1.8	2.7	6300	1
7:00 AM	1521	800	4.5	1.8	2.7	7200	1
7:15 AM	1662	800	4.5	1.8	2.7	8100	1
7:30 AM	1461	800	4.5	1.8	2.7	9000	1
7:45 AM	1400	800	4.5	1.8	2.7	9900	1
8:00 AM	1241	800	4.5	1.8	2.7	10800	1
8:15 AM	1229	800	4.5	1.8	2.7	11700	1
8:30 AM	1326	800	4.5	1.8	2.7	12600	1
8:45 AM	1272	-	-	-	-	13500	7
9:00 AM	1024	-	-	-	-	14400	7
9:15 AM	1026	-	-	-	-	15300	7

Flow Rate (vphpl)	Meter Rate (vph)
101	800
1700	700
1800	600
1900	500
1975	450
2150	400

Time	Plan
0:00 - 6:30	Green Rest
6:30 - 8:45	**Responsive**
8:45 - 14:00	Green Rest

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Existing AM Peak Period VISSIM Modeling

Ramp Meter Calculations

Location	**84th St**
Direction	**WB**
WisDOT ID	**40-0010**
ML Lanes	**4**
ML FID	**2041**

Time	Flow Rate (vphpl)	Meter Rate (vph)	Meter Rate (sec/veh)	Min Green (sec)	Red (sec)	VISSIM Sim Time (sec)	VISSIM Signal Program
5:30 AM	1023	-	-	-	-	1800	7
5:45 AM	873	-	-	-	-	2700	7
6:00 AM	1025	-	-	-	-	3600	7
6:15 AM	1347	-	-	-	-	4500	7
6:30 AM	1542	500	7.2	1.5	3.0	5400	4
6:45 AM	1352	550	6.5	1.5	5.0	6300	3
7:00 AM	1443	500	7.2	1.5	5.7	7200	4
7:15 AM	1618	450	8.0	1.5	6.5	8100	5
7:30 AM	1491	500	7.2	1.5	5.7	9000	4
7:45 AM	1413	500	7.2	1.5	5.7	9900	4
8:00 AM	1245	550	6.5	1.5	5.0	10800	3
8:15 AM	1239	550	6.5	1.5	5.0	11700	3
8:30 AM	1332	550	6.5	1.5	5.0	12600	3
8:45 AM	1248	550	6.5	1.5	5.0	13500	3
9:00 AM	991	-	-	-	-	14400	7
9:15 AM	996	-	-	-	-	15300	7

Flow Rate (vphpl)	Meter Rate (vph)
101	800
900	700
1200	550
1400	500
1600	450
1700	400

Time	Plan
0:00 - 6:30	Green Rest
6:30 - 9:00	**Responsive**
9:00 - 14:00	Green Rest

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Existing PM Peak Period VISSIM Modeling

Ramp Meter Calculations

Location	**84th St**
Direction	**EB**
WisDOT ID	**40-0004**
ML Lanes	**4**
ML FID	**1006**

Time	Flow Rate (vphpl)	Meter Rate (vph)	Meter Rate (sec/veh)	Min Green (sec)	Red (sec)	VISSIM Sim Time (sec)	VISSIM Signal Program
1:30 PM	1052	-	-	-	-	1800	7
1:45 PM	1050	-	-	-	-	2700	7
2:00 PM	1109	900	4.0	1.8	2.2	3600	1
2:15 PM	1225	900	4.0	1.8	2.2	4500	1
2:30 PM	1254	900	4.0	1.8	2.2	5400	1
2:45 PM	1281	900	4.0	1.8	2.2	6300	1
3:00 PM	1234	900	4.0	1.8	2.2	7200	1
3:15 PM	1398	900	4.0	1.8	2.2	8100	1
3:30 PM	1270	900	4.0	1.8	2.2	9000	1
3:45 PM	1311	900	4.0	1.8	2.2	9900	1
4:00 PM	1274	900	4.0	1.8	2.2	10800	1
4:15 PM	1292	900	4.0	1.8	2.2	11700	1
4:30 PM	1215	900	4.0	1.8	2.2	12600	1
4:45 PM	1217	900	4.0	1.8	2.2	13500	1
5:00 PM	1178	900	4.0	1.8	2.2	14400	1
5:15 PM	1139	900	4.0	1.8	2.2	15300	1
5:30 PM	1175	900	4.0	1.8	2.2	16200	1
5:45 PM	1152	900	4.0	1.8	2.2	17100	1
6:00 PM	1160	-	-	-	-	18000	7
6:15 PM	1068	-	-	-	-	18900	7

Flow Rate (vphpl)	Meter Rate (vph)
101	900
1700	800
1800	720
1900	600
1975	514
2150	450

Time	Plan
9:00 - 14:00	Green Rest
14:00 - 18:00	**Responsive**
18:00 - 6:15	Green Rest

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Existing PM Peak Period VISSIM Modeling

Ramp Meter Calculations

Location	**68th St**
Direction	**EB**
WisDOT ID	**40-0007**
ML Lanes	**3**
ML FID	**1010**

Time	Flow Rate (vphpl)	Meter Rate (vph)	Meter Rate (sec/veh)	Min Green (sec)	Red (sec)	VISSIM Sim Time (sec)	VISSIM Signal Program
1:30 PM	1401	-	-	-	-	1800	7
1:45 PM	1409	-	-	-	-	2700	7
2:00 PM	1492	740	4.9	1.8	3.1	3600	1
2:15 PM	1626	740	4.9	1.8	3.1	4500	1
2:30 PM	1662	740	4.9	1.8	3.1	5400	1
2:45 PM	1688	740	4.9	1.8	3.1	6300	1
3:00 PM	1631	740	4.9	1.8	3.1	7200	1
3:15 PM	1826	740	4.9	1.8	3.1	8100	1
3:30 PM	1680	740	4.9	1.8	3.1	9000	1
3:45 PM	1686	740	4.9	1.8	3.1	9900	1
4:00 PM	1691	740	4.9	1.8	3.1	10800	1
4:15 PM	1644	740	4.9	1.8	3.1	11700	1
4:30 PM	1483	740	4.9	1.8	3.1	12600	1
4:45 PM	1432	740	4.9	1.8	3.1	13500	1
5:00 PM	1411	740	4.9	1.8	3.1	14400	1
5:15 PM	1315	740	4.9	1.8	3.1	15300	1
5:30 PM	1403	740	4.9	1.8	3.1	16200	1
5:45 PM	1439	740	4.9	1.8	3.1	17100	1
6:00 PM	1512	740	4.9	1.8	3.1	18000	1
6:15 PM	1388	740	4.9	1.8	3.1	18900	1

Flow Rate (vphpl)	Meter Rate (vph)
Fixed	740

Time	Plan
9:00 - 14:00	Green Rest
14:00 - 18:30	**Fixed Rate**
18:30 - 6:15	Green Rest

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Existing PM Peak Period VISSIM Modeling

Ramp Meter Calculations

Location	**Hawley Rd**
Direction	**EB**
WisDOT ID	**40-0005**
ML Lanes	**3**
ML FID	**1014**

Time	Flow Rate (vphpl)	Meter Rate (vph)	Meter Rate (sec/veh)	Min Green (sec)	Red (sec)	VISSIM Sim Time (sec)	VISSIM Signal Program
1:30 PM	1454	-	-	-	-	1800	7
1:45 PM	1480	-	-	-	-	2700	7
2:00 PM	1563	900	4.0	1.8	2.2	3600	1
2:15 PM	1712	800	4.5	1.8	2.7	4500	2
2:30 PM	1722	800	4.5	1.8	2.7	5400	2
2:45 PM	1723	800	4.5	1.8	2.7	6300	2
3:00 PM	1698	900	4.0	1.8	2.2	7200	1
3:15 PM	1907	600	6.0	1.8	4.2	8100	4
3:30 PM	1777	800	4.5	1.8	2.7	9000	2
3:45 PM	1786	800	4.5	1.8	2.7	9900	2
4:00 PM	1815	720	5.0	1.8	3.2	10800	3
4:15 PM	1792	800	4.5	1.8	2.7	11700	2
4:30 PM	1653	900	4.0	1.8	2.2	12600	1
4:45 PM	1583	900	4.0	1.8	2.2	13500	1
5:00 PM	1555	900	4.0	1.8	2.2	14400	1
5:15 PM	1476	900	4.0	1.8	2.2	15300	1
5:30 PM	1599	900	4.0	1.8	2.2	16200	1
5:45 PM	1551	900	4.0	1.8	2.2	17100	1
6:00 PM	1608	900	4.0	1.8	2.2	18000	1
6:15 PM	1477	900	4.0	1.8	2.2	18900	1

Flow Rate (vphpl)	Meter Rate (vph)
101	900
1700	800
1800	720
1900	600
1975	514
2150	450

Time	Plan
9:00 - 14:00	Green Rest
14:00 - 18:30	**Responsive**
18:30 - 6:15	Green Rest

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Existing PM Peak Period VISSIM Modeling

Ramp Meter Calculations

Location	**Mitchell Blvd**
Direction	**EB**
WisDOT ID	**40-0082**
ML Lanes	**3**
ML FID	**1018**

Time	Flow Rate (vphpl)	Meter Rate (vph)	Meter Rate (sec/veh)	Min Green (sec)	Red (sec)	VISSIM Sim Time (sec)	VISSIM Signal Program
1:30 PM	1515	-	-	-	-	1800	7
1:45 PM	1533	-	-	-	-	2700	7
2:00 PM	1630	900	4.0	1.8	2.2	3600	1
2:15 PM	1786	800	4.5	1.8	2.7	4500	2
2:30 PM	1815	720	5.0	1.8	3.2	5400	3
2:45 PM	1814	720	5.0	1.8	3.2	6300	3
3:00 PM	1764	800	4.5	1.8	2.7	7200	2
3:15 PM	2005	514	7.0	1.8	5.2	8100	5
3:30 PM	1883	720	5.0	1.8	3.2	9000	3
3:45 PM	1861	720	5.0	1.8	3.2	9900	3
4:00 PM	1892	720	5.0	1.8	3.2	10800	3
4:15 PM	1855	720	5.0	1.8	3.2	11700	3
4:30 PM	1732	800	4.5	1.8	2.7	12600	2
4:45 PM	1641	900	4.0	1.8	2.2	13500	1
5:00 PM	1639	900	4.0	1.8	2.2	14400	1
5:15 PM	1521	900	4.0	1.8	2.2	15300	1
5:30 PM	1674	900	4.0	1.8	2.2	16200	1
5:45 PM	1629	900	4.0	1.8	2.2	17100	1
6:00 PM	1674	900	4.0	1.8	2.2	18000	1
6:15 PM	1559	900	4.0	1.8	2.2	18900	1

Flow Rate (vphpl)	Meter Rate (vph)
101	900
1700	800
1800	720
1900	600
1975	514
2150	450

Time	Plan
9:00 - 14:00	Green Rest
14:00 - 18:30	**Responsive**
18:30 - 6:15	Green Rest

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Existing PM Peak Period VISSIM Modeling

Ramp Meter Calculations

Location	Stadium Int S-E
Direction	EB
WisDOT ID	40-0077
ML Lanes	3
ML FID	1024

Time	Flow Rate (vphpl)	Meter Rate (vph)	Meter Rate (sec/veh)	Min Green (sec)	Red (sec)	VISSIM Sim Time (sec)	VISSIM Signal Program
1:30 PM	1244	-	-	-	-	1800	7
1:45 PM	1249	-	-	-	-	2700	7
2:00 PM	1317	740	4.9	1.8	3.1	3600	1
2:15 PM	1415	740	4.9	1.8	3.1	4500	1
2:30 PM	1471	740	4.9	1.8	3.1	5400	1
2:45 PM	1438	740	4.9	1.8	3.1	6300	1
3:00 PM	1447	740	4.9	1.8	3.1	7200	1
3:15 PM	1590	740	4.9	1.8	3.1	8100	1
3:30 PM	1469	740	4.9	1.8	3.1	9000	1
3:45 PM	1440	740	4.9	1.8	3.1	9900	1
4:00 PM	1504	740	4.9	1.8	3.1	10800	1
4:15 PM	1523	740	4.9	1.8	3.1	11700	1
4:30 PM	1416	740	4.9	1.8	3.1	12600	1
4:45 PM	1358	740	4.9	1.8	3.1	13500	1
5:00 PM	1361	740	4.9	1.8	3.1	14400	1
5:15 PM	1305	740	4.9	1.8	3.1	15300	1
5:30 PM	1460	740	4.9	1.8	3.1	16200	1
5:45 PM	1380	740	4.9	1.8	3.1	17100	1
6:00 PM	1466	740	4.9	1.8	3.1	18000	1
6:15 PM	1362	740	4.9	1.8	3.1	18900	1

Flow Rate (vphpl)	Meter Rate (vph)
Fixed	740

Time	Plan
9:00 - 14:00	Green Rest
14:00 - 18:30	**Fixed Rate**
18:30 - 6:15	Green Rest

I-94 East-West Data Collection Project

Existing PM Peak Period VISSIM Modeling

Ramp Meter Calculations

Location	**Stadium Int N-E**
Direction	**EB**
WisDOT ID	**40-0080**
ML Lanes	**3**
ML FID	**1026**

Time	Flow Rate (vphpl)	Meter Rate (vph)	Meter Rate (sec/veh)	Min Green (sec)	Red (sec)	VISSIM Sim Time (sec)	VISSIM Signal Program
1:30 PM	1402	-	-	-	-	1800	7
1:45 PM	1424	-	-	-	-	2700	7
2:00 PM	1475	600	6.0	1.8	4.2	3600	1
2:15 PM	1578	600	6.0	1.8	4.2	4500	1
2:30 PM	1642	600	6.0	1.8	4.2	5400	1
2:45 PM	1607	600	6.0	1.8	4.2	6300	1
3:00 PM	1608	600	6.0	1.8	4.2	7200	1
3:15 PM	1743	600	6.0	1.8	4.2	8100	1
3:30 PM	1594	600	6.0	1.8	4.2	9000	1
3:45 PM	1590	600	6.0	1.8	4.2	9900	1
4:00 PM	1655	600	6.0	1.8	4.2	10800	1
4:15 PM	1670	600	6.0	1.8	4.2	11700	1
4:30 PM	1553	600	6.0	1.8	4.2	12600	1
4:45 PM	1508	600	6.0	1.8	4.2	13500	1
5:00 PM	1507	600	6.0	1.8	4.2	14400	1
5:15 PM	1427	600	6.0	1.8	4.2	15300	1
5:30 PM	1593	600	6.0	1.8	4.2	16200	1
5:45 PM	1510	600	6.0	1.8	4.2	17100	1
6:00 PM	1580	600	6.0	1.8	4.2	18000	1
6:15 PM	1479	600	6.0	1.8	4.2	18900	1

Flow Rate (vphpl)	Meter Rate (vph)
Fixed	600

Time	Plan
9:00 - 14:00	Green Rest
14:00 - 18:30	**Fixed Rate**
18:30 - 6:15	Green Rest

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Existing PM Peak Period VISSIM Modeling

Ramp Meter Calculations

Location	**35th St**
Direction	**EB**
WisDOT ID	**40-0006**
ML Lanes	**3**
ML FID	**1030**

Time	Flow Rate (vphpl)	Meter Rate (vph)	Meter Rate (sec/veh)	Min Green (sec)	Red (sec)	VISSIM Sim Time (sec)	VISSIM Signal Program
1:30 PM	1564	-	-	-	-	1800	7
1:45 PM	1597	-	-	-	-	2700	7
2:00 PM	1613	900	4.0	1.8	2.2	3600	1
2:15 PM	1747	800	4.5	1.8	2.7	4500	2
2:30 PM	1754	800	4.5	1.8	2.7	5400	2
2:45 PM	1677	900	4.0	1.8	2.2	6300	1
3:00 PM	1746	800	4.5	1.8	2.7	7200	2
3:15 PM	1842	720	5.0	1.8	3.2	8100	3
3:30 PM	1765	800	4.5	1.8	2.7	9000	2
3:45 PM	1736	800	4.5	1.8	2.7	9900	2
4:00 PM	1807	720	5.0	1.8	3.2	10800	3
4:15 PM	1853	720	5.0	1.8	3.2	11700	3
4:30 PM	1754	800	4.5	1.8	2.7	12600	2
4:45 PM	1735	800	4.5	1.8	2.7	13500	2
5:00 PM	1707	800	4.5	1.8	2.7	14400	2
5:15 PM	1689	900	4.0	1.8	2.2	15300	1
5:30 PM	1810	720	5.0	1.8	3.2	16200	3
5:45 PM	1721	800	4.5	1.8	2.7	17100	2
6:00 PM	1757	800	4.5	1.8	2.7	18000	2
6:15 PM	1648	900	4.0	1.8	2.2	18900	1

Flow Rate (vphpl)	Meter Rate (vph)
101	900
1700	800
1800	720
1900	600
1975	514
2150	450

Time	Plan
9:00 - 14:00	Green Rest
14:00 - 18:30	**Responsive**
18:30 - 6:15	Green Rest

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Existing PM Peak Period VISSIM Modeling

Ramp Meter Calculations

Location	**25th St**
Direction	**EB**
WisDOT ID	**40-0075**
ML Lanes	**3**
ML FID	**1035**

Time	Flow Rate (vphpl)	Meter Rate (vph)	Meter Rate (sec/veh)	Min Green (sec)	Red (sec)	VISSIM Sim Time (sec)	VISSIM Signal Program
1:30 PM	1496	-	-	-	-	1800	7
1:45 PM	1529	-	-	-	-	2700	7
2:00 PM	1581	740	4.9	1.8	3.1	3600	1
2:15 PM	1700	740	4.9	1.8	3.1	4500	1
2:30 PM	1722	740	4.9	1.8	3.1	5400	1
2:45 PM	1675	740	4.9	1.8	3.1	6300	1
3:00 PM	1777	740	4.9	1.8	3.1	7200	1
3:15 PM	1876	740	4.9	1.8	3.1	8100	1
3:30 PM	1793	740	4.9	1.8	3.1	9000	1
3:45 PM	1786	740	4.9	1.8	3.1	9900	1
4:00 PM	1869	740	4.9	1.8	3.1	10800	1
4:15 PM	1925	740	4.9	1.8	3.1	11700	1
4:30 PM	1846	740	4.9	1.8	3.1	12600	1
4:45 PM	1824	740	4.9	1.8	3.1	13500	1
5:00 PM	1794	740	4.9	1.8	3.1	14400	1
5:15 PM	1781	740	4.9	1.8	3.1	15300	1
5:30 PM	1884	740	4.9	1.8	3.1	16200	1
5:45 PM	1790	740	4.9	1.8	3.1	17100	1
6:00 PM	1795	740	4.9	1.8	3.1	18000	1
6:15 PM	1660	740	4.9	1.8	3.1	18900	1

Flow Rate (vphpl)	Meter Rate (vph)
Fixed	740

Time	Plan
9:00 - 14:00	Green Rest
14:00 - 18:30	**Fixed Rate**
18:30 - 6:15	Green Rest

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Existing PM Peak Period VISSIM Modeling

Ramp Meter Calculations

Location	**Tory Hill St/11th St**
Direction	**WB**
WisDOT ID	**40-0129**
ML Lanes	**2**
ML FID	**2001**

Time	Flow Rate (vphpl)	Meter Rate (vph)	Meter Rate (sec/veh)	Min Green (sec)	Red (sec)	VISSIM Sim Time (sec)	VISSIM Signal Program
1:30 PM	896	-	-	-	-	1800	7
1:45 PM	889	-	-	-	-	2700	7
2:00 PM	1053	900	4.0	1.8	2.2	3600	1
2:15 PM	1020	900	4.0	1.8	2.2	4500	1
2:30 PM	1046	900	4.0	1.8	2.2	5400	1
2:45 PM	1091	900	4.0	1.8	2.2	6300	1
3:00 PM	1103	900	4.0	1.8	2.2	7200	1
3:15 PM	1273	900	4.0	1.8	2.2	8100	1
3:30 PM	1064	900	4.0	1.8	2.2	9000	1
3:45 PM	1131	900	4.0	1.8	2.2	9900	1
4:00 PM	1174	900	4.0	1.8	2.2	10800	1
4:15 PM	1322	900	4.0	1.8	2.2	11700	1
4:30 PM	1136	900	4.0	1.8	2.2	12600	1
4:45 PM	1277	900	4.0	1.8	2.2	13500	1
5:00 PM	1154	900	4.0	1.8	2.2	14400	1
5:15 PM	1610	900	4.0	1.8	2.2	15300	1
5:30 PM	2023	514	7.0	1.8	5.2	16200	5
5:45 PM	1360	900	4.0	1.8	2.2	17100	1
6:00 PM	1076	900	4.0	1.8	2.2	18000	1
6:15 PM	1146	900	4.0	1.8	2.2	18900	1

Flow Rate (vphpl)	Meter Rate (vph)
101	900
1700	800
1800	720
1900	600
1975	514
2150	450

Time	Plan
9:00 - 14:00	Green Rest
14:00 - 18:45	**Responsive**
18:45 - 6:15	Green Rest

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I-94 East-West Data Collection Project

Existing PM Peak Period VISSIM Modeling

Ramp Meter Calculations

Location	**28th St**
Direction	**WB**
WisDOT ID	**40-0002**
ML Lanes	**3**
ML FID	**2009**

Time	Flow Rate (vphpl)	Meter Rate (vph)	Meter Rate (sec/veh)	Min Green (sec)	Red (sec)	VISSIM Sim Time (sec)	VISSIM Signal Program
1:30 PM	1659	-	-	-	-	1800	7
1:45 PM	1719	-	-	-	-	2700	7
2:00 PM	1770	-	-	-	-	3600	7
2:15 PM	1792	-	-	-	-	4500	7
2:30 PM	1798	-	-	-	-	5400	7
2:45 PM	1792	-	-	-	-	6300	7
3:00 PM	1802	720	5.0	1.5	3.5	7200	3
3:15 PM	1786	800	4.5	1.5	3.0	8100	2
3:30 PM	1631	900	4.0	1.5	2.5	9000	1
3:45 PM	1520	900	4.0	1.5	2.5	9900	1
4:00 PM	1626	900	4.0	1.5	2.5	10800	1
4:15 PM	1636	900	4.0	1.5	2.5	11700	1
4:30 PM	1384	900	4.0	1.5	2.5	12600	1
4:45 PM	1528	900	4.0	1.5	2.5	13500	1
5:00 PM	1459	900	4.0	1.5	2.5	14400	1
5:15 PM	1857	720	5.0	1.5	3.5	15300	3
5:30 PM	2145	514	7.0	1.5	5.5	16200	5
5:45 PM	1660	900	4.0	1.5	2.5	17100	1
6:00 PM	1451	-	-	-	-	18000	7
6:15 PM	1558	-	-	-	-	18900	7

Flow Rate (vphpl)	Meter Rate (vph)
101	900
1700	800
1800	720
1900	600
1975	514
2150	450

Time	Plan
9:00 - 15:00	Green Rest
15:00 - 18:00	**Responsive**
18:00 - 6:30	Green Rest

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I-94 East-West Data Collection Project

Existing PM Peak Period VISSIM Modeling

Ramp Meter Calculations

Location	**35th St**
Direction	**WB**
WisDOT ID	**40-0076**
ML Lanes	**3**
ML FID	**2015**

Time	Flow Rate (vphpl)	Meter Rate (vph)	Meter Rate (sec/veh)	Min Green (sec)	Red (sec)	VISSIM Sim Time (sec)	VISSIM Signal Program
1:30 PM	1814	-	-	-	-	1800	7
1:45 PM	1859	-	-	-	-	2700	7
2:00 PM	1877	-	-	-	-	3600	7
2:15 PM	1898	-	-	-	-	4500	7
2:30 PM	1923	-	-	-	-	5400	7
2:45 PM	1858	-	-	-	-	6300	7
3:00 PM	1882	740	4.9	1.5	3.4	7200	1
3:15 PM	1833	740	4.9	1.5	3.4	8100	1
3:30 PM	1720	740	4.9	1.5	3.4	9000	1
3:45 PM	1581	740	4.9	1.5	3.4	9900	1
4:00 PM	1716	740	4.9	1.5	3.4	10800	1
4:15 PM	1731	740	4.9	1.5	3.4	11700	1
4:30 PM	1508	740	4.9	1.5	3.4	12600	1
4:45 PM	1653	740	4.9	1.5	3.4	13500	1
5:00 PM	1556	740	4.9	1.5	3.4	14400	1
5:15 PM	1925	740	4.9	1.5	3.4	15300	1
5:30 PM	2233	740	4.9	1.5	3.4	16200	1
5:45 PM	1782	740	4.9	1.5	3.4	17100	1
6:00 PM	1583	-	-	-	-	18000	7
6:15 PM	1657	-	-	-	-	18900	7

Flow Rate (vphpl)	Meter Rate (vph)
Fixed	740

Time	Plan
9:00 - 15:00	Green Rest
15:00 - 18:00	**Fixed Rate**
18:00 - 6:30	Green Rest

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I-94 East-West Data Collection Project

Existing PM Peak Period VISSIM Modeling

Ramp Meter Calculations

Location	Stadium Int S-W
Direction	WB
WisDOT ID	40-0078
ML Lanes	3
ML FID	2022

Time	Flow Rate (vphpl)	Meter Rate (vph)	Meter Rate (sec/veh)	Min Green (sec)	Red (sec)	VISSIM Sim Time (sec)	VISSIM Signal Program
1:30 PM	1471	-	-	-	-	1800	7
1:45 PM	1521	-	-	-	-	2700	7
2:00 PM	1420	-	-	-	-	3600	7
2:15 PM	1502	-	-	-	-	4500	7
2:30 PM	1529	-	-	-	-	5400	7
2:45 PM	1392	-	-	-	-	6300	7
3:00 PM	1437	900	4.0	1.5	2.5	7200	1
3:15 PM	1466	900	4.0	1.5	2.5	8100	1
3:30 PM	1372	900	4.0	1.5	2.5	9000	1
3:45 PM	1231	900	4.0	1.5	2.5	9900	1
4:00 PM	1320	900	4.0	1.5	2.5	10800	1
4:15 PM	1371	900	4.0	1.5	2.5	11700	1
4:30 PM	1101	900	4.0	1.5	2.5	12600	1
4:45 PM	1307	900	4.0	1.5	2.5	13500	1
5:00 PM	1186	900	4.0	1.5	2.5	14400	1
5:15 PM	1527	900	4.0	1.5	2.5	15300	1
5:30 PM	1809	900	4.0	1.5	2.5	16200	1
5:45 PM	1323	900	4.0	1.5	2.5	17100	1
6:00 PM	1272	-	-	-	-	18000	7
6:15 PM	1344	-	-	-	-	18900	7

Flow Rate (vphpl)	Meter Rate (vph)
Fixed	900

Time	Plan
9:00 - 15:00	Green Rest
15:00 - 18:00	**Fixed Rate**
18:00 - 6:30	Green Rest

I-94 East-West Data Collection Project

Existing PM Peak Period VISSIM Modeling

Ramp Meter Calculations

Location	Stadium Int N-W
Direction	WB
WisDOT ID	40-0079
ML Lanes	3
ML FID	2024

Time	Flow Rate (vphpl)	Meter Rate (vph)	Meter Rate (sec/veh)	Min Green (sec)	Red (sec)	VISSIM Sim Time (sec)	VISSIM Signal Program
1:30 PM	1638	-	-	-	-	1800	7
1:45 PM	1669	-	-	-	-	2700	7
2:00 PM	1569	-	-	-	-	3600	7
2:15 PM	1692	-	-	-	-	4500	7
2:30 PM	1735	-	-	-	-	5400	7
2:45 PM	1614	-	-	-	-	6300	7
3:00 PM	1672	900	4.0	1.5	2.5	7200	1
3:15 PM	1685	900	4.0	1.5	2.5	8100	1
3:30 PM	1623	900	4.0	1.5	2.5	9000	1
3:45 PM	1473	900	4.0	1.5	2.5	9900	1
4:00 PM	1588	900	4.0	1.5	2.5	10800	1
4:15 PM	1596	900	4.0	1.5	2.5	11700	1
4:30 PM	1374	900	4.0	1.5	2.5	12600	1
4:45 PM	1551	900	4.0	1.5	2.5	13500	1
5:00 PM	1467	900	4.0	1.5	2.5	14400	1
5:15 PM	1749	900	4.0	1.5	2.5	15300	1
5:30 PM	1989	900	4.0	1.5	2.5	16200	1
5:45 PM	1514	900	4.0	1.5	2.5	17100	1
6:00 PM	1411	-	-	-	-	18000	7
6:15 PM	1501	-	-	-	-	18900	7

Flow Rate (vphpl)	Meter Rate (vph)
Fixed	900

Time	Plan
9:00 - 15:00	Green Rest
15:00 - 18:00	**Fixed Rate**
18:00 - 6:30	Green Rest

I-94 East-West Data Collection Project

Existing PM Peak Period VISSIM Modeling

Ramp Meter Calculations

Location	Mitchell Blvd
Direction	WB
WisDOT ID	40-0081
ML Lanes	3
ML FID	2028

Time	Flow Rate (vphpl)	Meter Rate (vph)	Meter Rate (sec/veh)	Min Green (sec)	Red (sec)	VISSIM Sim Time (sec)	VISSIM Signal Program
1:30 PM	1830	-	-	-	-	1800	7
1:45 PM	1858	-	-	-	-	2700	7
2:00 PM	1771	-	-	-	-	3600	7
2:15 PM	1896	-	-	-	-	4500	7
2:30 PM	1974	-	-	-	-	5400	7
2:45 PM	1846	-	-	-	-	6300	7
3:00 PM	1967	600	6.0	1.5	4.5	7200	4
3:15 PM	1933	600	6.0	1.5	4.5	8100	4
3:30 PM	1909	600	6.0	1.5	4.5	9000	4
3:45 PM	1752	800	4.5	1.5	3.0	9900	2
4:00 PM	1912	600	6.0	1.5	4.5	10800	4
4:15 PM	1928	600	6.0	1.5	4.5	11700	4
4:30 PM	1703	800	4.5	1.5	3.0	12600	2
4:45 PM	1939	600	6.0	1.5	4.5	13500	4
5:00 PM	1748	800	4.5	1.5	3.0	14400	2
5:15 PM	1983	514	7.0	1.5	5.5	15300	5
5:30 PM	2221	450	8.0	1.5	6.5	16200	6
5:45 PM	1766	800	4.5	1.5	3.0	17100	2
6:00 PM	1619	-	-	-	-	18000	7
6:15 PM	1675	-	-	-	-	18900	7

Flow Rate (vphpl)	Meter Rate (vph)
101	900
1700	800
1800	720
1900	600
1975	514
2150	450

Time	Plan
9:00 - 15:00	Green Rest
15:00 - 18:00	**Responsive**
18:00 - 6:30	Green Rest

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Existing PM Peak Period VISSIM Modeling

Ramp Meter Calculations

Location	Hawley Rd
Direction	WB
WisDOT ID	40-0003
ML Lanes	3
ML FID	2033

Time	Flow Rate (vphpl)	Meter Rate (vph)	Meter Rate (sec/veh)	Min Green (sec)	Red (sec)	VISSIM Sim Time (sec)	VISSIM Signal Program
1:30 PM	1779	-	-	-	-	1800	7
1:45 PM	1808	-	-	-	-	2700	7
2:00 PM	1731	-	-	-	-	3600	7
2:15 PM	1877	-	-	-	-	4500	7
2:30 PM	1969	-	-	-	-	5400	7
2:45 PM	1836	-	-	-	-	6300	7
3:00 PM	1976	514	7.0	1.5	5.5	7200	5
3:15 PM	1965	600	6.0	1.5	4.5	8100	4
3:30 PM	1971	600	6.0	1.5	4.5	9000	4
3:45 PM	1809	720	5.0	1.5	3.5	9900	3
4:00 PM	1996	514	7.0	1.5	5.5	10800	5
4:15 PM	2017	514	7.0	1.5	5.5	11700	5
4:30 PM	1793	800	4.5	1.5	3.0	12600	2
4:45 PM	1991	514	7.0	1.5	5.5	13500	5
5:00 PM	1803	720	5.0	1.5	3.5	14400	3
5:15 PM	2025	514	7.0	1.5	5.5	15300	5
5:30 PM	2205	450	8.0	1.5	6.5	16200	6
5:45 PM	1737	800	4.5	1.5	3.0	17100	2
6:00 PM	1569	-	-	-	-	18000	7
6:15 PM	1611	-	-	-	-	18900	7

Flow Rate (vphpl)	Meter Rate (vph)
101	900
1700	800
1800	720
1900	600
1975	514
2150	450

Time	Plan
9:00 - 15:00	Green Rest
15:00 - 18:00	**Responsive**
18:00 - 6:30	Green Rest

I-94 East-West Data Collection Project

Existing PM Peak Period VISSIM Modeling

Ramp Meter Calculations

Location	**70th St**
Direction	**WB**
WisDOT ID	**40-0009**
ML Lanes	**4**
ML FID	**2037**

Time	Flow Rate (vphpl)	Meter Rate (vph)	Meter Rate (sec/veh)	Min Green (sec)	Red (sec)	VISSIM Sim Time (sec)	VISSIM Signal Program
1:30 PM	1312	-	-	-	-	1800	7
1:45 PM	1334	-	-	-	-	2700	7
2:00 PM	1290	-	-	-	-	3600	7
2:15 PM	1399	-	-	-	-	4500	7
2:30 PM	1500	-	-	-	-	5400	7
2:45 PM	1398	-	-	-	-	6300	7
3:00 PM	1486	900	4.0	1.5	2.5	7200	1
3:15 PM	1501	900	4.0	1.5	2.5	8100	1
3:30 PM	1539	900	4.0	1.5	2.5	9000	1
3:45 PM	1418	900	4.0	1.5	2.5	9900	1
4:00 PM	1571	900	4.0	1.5	2.5	10800	1
4:15 PM	1575	900	4.0	1.5	2.5	11700	1
4:30 PM	1431	900	4.0	1.5	2.5	12600	1
4:45 PM	1538	900	4.0	1.5	2.5	13500	1
5:00 PM	1396	900	4.0	1.5	2.5	14400	1
5:15 PM	1533	900	4.0	1.5	2.5	15300	1
5:30 PM	1635	900	4.0	1.5	2.5	16200	1
5:45 PM	1279	900	4.0	1.5	2.5	17100	1
6:00 PM	1169	-	-	-	-	18000	7
6:15 PM	1178	-	-	-	-	18900	7

Flow Rate (vphpl)	Meter Rate (vph)
101	900
1700	800
1800	720
1900	600
1975	514
2150	450

Time	Plan
8:45 - 15:00	Green Rest
15:00 - 18:00	**Responsive**
18:00 - 6:30	Green Rest

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I-94 East-West Data Collection Project

Existing PM Peak Period VISSIM Modeling

Ramp Meter Calculations

Location	**84th St**
Direction	**WB**
WisDOT ID	**40-0010**
ML Lanes	**4**
ML FID	**2041**

Time	Flow Rate (vphpl)	Meter Rate (vph)	Meter Rate (sec/veh)	Min Green (sec)	Red (sec)	VISSIM Sim Time (sec)	VISSIM Signal Program
1:30 PM	1297	-	-	-	-	1800	7
1:45 PM	1320	-	-	-	-	2700	7
2:00 PM	1274	900	4.0	1.5	2.5	3600	1
2:15 PM	1383	900	4.0	1.5	2.5	4500	1
2:30 PM	1501	900	4.0	1.5	2.5	5400	1
2:45 PM	1397	900	4.0	1.5	2.5	6300	1
3:00 PM	1495	900	4.0	1.5	2.5	7200	1
3:15 PM	1513	900	4.0	1.5	2.5	8100	1
3:30 PM	1594	900	4.0	1.5	2.5	9000	1
3:45 PM	1475	900	4.0	1.5	2.5	9900	1
4:00 PM	1660	900	4.0	1.5	2.5	10800	1
4:15 PM	1648	900	4.0	1.5	2.5	11700	1
4:30 PM	1517	900	4.0	1.5	2.5	12600	1
4:45 PM	1588	900	4.0	1.5	2.5	13500	1
5:00 PM	1474	900	4.0	1.5	2.5	14400	1
5:15 PM	1586	900	4.0	1.5	2.5	15300	1
5:30 PM	1641	900	4.0	1.5	2.5	16200	1
5:45 PM	1298	900	4.0	1.5	2.5	17100	1
6:00 PM	1169	900	4.0	1.5	2.5	18000	1
6:15 PM	1171	900	4.0	1.5	2.5	18900	1

Flow Rate (vphpl)	Meter Rate (vph)
101	900
1700	800
1800	720
1900	600
1975	514
2150	450

Time	Plan
9:00 - 14:00	Green Rest
14:00 - 18:30	**Responsive**
18:30 - 6:30	Green Rest

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Appendix G – Number of Runs Calculations

Initial Runs Worksheet		
Run Number	Seed	Volume
1	199	3518.0
2	409	3515.0
3	619	3516.0
4	829	3488.0
5	1039	3467.0
6	1249	3515.0
7	1459	3508.0

Average (Mean):	3503.9
Margin of Error (E):	80.60
Tolerance % Used:	2.3%
$Z_{critical}$ (95% CI)	1.96
Standard Deviation (σ):	19.25
Estimated Number of Runs:	1

Bureau of Traffic Operations
10/12/2017

Instructions:
1). Enter the name of the Measure of Effectiveness (MOE) being examined into the yellow-highlighted cell with "MOE" in the Initial Runs Worksheet.
2). For the selected MOE, enter the field observations into the tan-highlighted cells in the Variability Analysis of Field Data Worksheet.
3). Using the seeds specified in the Initial Runs Worksheet, conduct seven initial model runs. Document the results for the specified MOE in the blue-highlighted cells .
4). Statistical outliers will be eliminated if they exist. The remaining non-outliers will be valid runs. If the "Estimated Number of Runs" is less than or equal to the number of valid runs, the cell displaying the estimated number of runs in the Initial Runs Worksheet will be highlighted in green, indicating that the criteria are met and no further model runs are required. However, if the estimated number of runs is greater than the number of valid runs, the cell will be highlighted in yellow, indicating that further runs are required. If this is the case, continue on to Step 5.
5). Using the seeds specified in the Additional Runs Worksheet, run the model until the required number of model runs is reached. Document the results for each model run with the specified seed in the purple-highlighted cells. If 30 model runs have been completed and the required number of model runs is not satisfied, please contact BTO to discuss further options. Note that the first seven runs should be the same as that reported in the initial runs worksheet.

Additional Runs Worksheet		
Run Number	Seed	Volume
1	199	
2	409	
3	619	
4	829	
5	1039	
6	1249	
7	1459	
8	1669	
9	1879	
10	2089	
11	7	
12	157	
13	307	
14	457	
15	607	
16	757	
17	907	
18	5	
19	11	
20	17	
21	23	
22	29	
23	13	
24	103	
25	193	
26	283	
27	373	
28	463	
29	28657	
30	514229	

Average (Mean):	N/A
Margin of Error (E):	N/A
Tolerance % Used:	N/A
$Z_{critical}$ (95% CI)	1.96
Standard Deviation (σ):	N/A
Required Number of Runs:	N/A

Variability Analysis of Field Data Worksheet	
Field Observation (Measurement)	
Observation #	Volume
1	3,726.0
2	3,593.0
3	3,554.0
4	3,417.0
5	3,566.0
6	3,502.0
7	3,379.0
8	3,456.0
9	3,398.0
10	3,774.0
11	3,693.0
12	3,623.0
13	3,862.0
14	
15	
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17	
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Average (Mean):	3,580.2
Margin of Error (E):	82.40
Tolerance error percentage (e):	2.3%
$Z_{critical}$ (95% CI):	1.96
Standard Deviation:	151.57
Sample Size:	13

Field Data Notes	
Location:	I-94 EB at 26th St
Dates:	April 2019 Weekdays
Times:	5:30-6:30AM
Sources:	VSPOC

Initial Runs Worksheet

Run Number	Seed	Volume
1	199	5430.0
2	409	5431.0
3	619	5385.0
4	829	5405.0
5	1039	5451.0
6	1249	5534.0
7	1459	5331.0

Average (Mean):	5423.9
Margin of Error (E):	134.80
Tolerance % Used:	2.5%
$Z_{critical}$ (95% CI)	1.96
Standard Deviation (σ):	62.51
Estimated Number of Runs:	1

Bureau of Traffic Operations
10/12/2017

Instructions:

1). Enter the name of the Measure of Effectiveness (MOE) being examined into the yellow-highlighted cell with "MOE" in the Initial Runs Worksheet.

2). For the selected MOE, enter the field observations into the tan-highlighted cells in the Variability Analysis of Field Data Worksheet.

3). Using the seeds specified in the Initial Runs Worksheet, conduct seven initial model runs. Document the results for the specified MOE in the blue-highlighted cells .

4). Statistical outliers will be eliminated if they exist. The remaining non-outliers will be valid runs. If the "Estimated Number of Runs" is less than or equal to the number of valid runs, the cell displaying the estimated number of runs in the Initial Runs Worksheet will be highlighted in green, indicating that the criteria are met and no further model runs are required. However, if the estimated number of runs is greater than the number of valid runs, the cell will be highlighted in yellow, indicating that further runs are required. If this is the case, continue on to Step 5.

5). Using the seeds specified in the Additional Runs Worksheet, run the model until the required number of model runs is reached. Document the results for each model run with the specified seed in the purple-highlighted cells. If 30 model runs have been completed and the required number of model runs is not satisfied, please contact BTO to discuss further options. Note that the first seven runs should be the same as that reported in the initial runs worksheet.

Additional Runs Worksheet

Run Number	Seed	Volume
1	199	
2	409	
3	619	
4	829	
5	1039	
6	1249	
7	1459	
8	1669	
9	1879	
10	2089	
11	7	
12	157	
13	307	
14	457	
15	607	
16	757	
17	907	
18	5	
19	11	
20	17	
21	23	
22	29	
23	13	
24	103	
25	193	
26	283	
27	373	
28	463	
29	28657	
30	514229	

Average (Mean):	N/A
Margin of Error (E):	N/A
Tolerance % Used:	N/A
$Z_{critical}$ (95% CI)	1.96
Standard Deviation (σ):	N/A
Required Number of Runs:	N/A

Variability Analysis of Field Data Worksheet

Field Observation (Measurement)

Observation #	Volume
1	5,813.0
2	5,422.0
3	5,505.0
4	5,140.0
5	5,476.0
6	5,509.0
7	5,083.0
8	5,395.0
9	5,569.0
10	5,774.0
11	5,420.0
12	5,609.0
13	5,999.0
14	
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Average (Mean):	5,516.5
Margin of Error (E):	137.06
Tolerance error percentage (e):	2.5%
$Z_{critical}$ (95% CI):	1.96
Standard Deviation:	252.13
Sample Size:	13

Field Data Notes	
Location:	I-94 EB at 26th St
Dates:	April 2019 Weekdays
Times:	6:30-7:30AM
Sources:	VSPOC

Initial Runs Worksheet

Run Number	Seed	Volume
1	199	5691.0
2	409	5729.0
3	619	~~5643.0~~
4	829	5732.0
5	1039	5707.0
6	1249	5706.0
7	1459	5718.0

Average (Mean):	5703.7
Margin of Error (E):	133.90
Tolerance % Used:	2.3%
$Z_{critical}$ (95% CI)	1.96
Standard Deviation (σ):	30.3
Estimated Number of Runs:	1
Recalculated Mean:	5713.8
Recalculated E:	134.10
Recalculated σ:	15.54

Bureau of Traffic Operations
10/12/2017

Instructions:

1). Enter the name of the Measure of Effectiveness (MOE) being examined into the yellow-highlighted cell with "MOE" in the Initial Runs Worksheet.

2). For the selected MOE, enter the field observations into the tan-highlighted cells in the Variability Analysis of Field Data Worksheet.

3). Using the seeds specified in the Initial Runs Worksheet, conduct seven initial model runs. Document the results for the specified MOE in the blue-highlighted cells .

4). Statistical outliers will be eliminated if they exist. The remaining non-outliers will be valid runs. If the "Estimated Number of Runs" is less than or equal to the number of valid runs, the cell displaying the estimated number of runs in the Initial Runs Worksheet will be highlighted in green, indicating that the criteria are met and no further model runs are required. However, if the estimated number of runs is greater than the number of valid runs, the cell will be highlighted in yellow, indicating that further runs are required. If this is the case, continue on to Step 5.

5). Using the seeds specified in the Additional Runs Worksheet, run the model until the required number of model runs is reached. Document the results for each model run with the specified seed in the purple-highlighted cells. If 30 model runs have been completed and the required number of model runs is not satisfied, please contact BTO to discuss further options. Note that the first seven runs should be the same as that reported in the initial runs worksheet.

Additional Runs Worksheet

Run Number	Seed	Volume
1	199	
2	409	
3	619	
4	829	
5	1039	
6	1249	
7	1459	
8	1669	
9	1879	
10	2089	
11	7	
12	157	
13	307	
14	457	
15	607	
16	757	
17	907	
18	5	
19	11	
20	17	
21	23	
22	29	
23	13	
24	103	
25	193	
26	283	
27	373	
28	463	
29	28657	
30	514229	

Average (Mean):	N/A
Margin of Error (E):	N/A
Tolerance % Used:	N/A
$Z_{critical}$ (95% CI)	1.96
Standard Deviation (σ):	N/A
Required Number of Runs:	N/A

Variability Analysis of Field Data Worksheet

Field Observation (Measurement)

Observation #	Volume
1	6,196.0
2	5,814.0
3	6,036.0
4	5,666.0
5	5,600.0
6	5,853.0
7	5,590.0
8	5,734.0
9	6,077.0
10	6,249.0
11	5,987.0
12	6,151.0
13	6,361.0
14	
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Average (Mean):	5,947.2
Margin of Error (E):	139.60
Tolerance error percentage (e):	2.3%
$Z_{critical}$ (95% CI):	1.96
Standard Deviation:	256.80
Sample Size:	13

Field Data Notes	
Location:	I-94 EB at 26th St
Dates:	April 2019 Weekdays
Times:	7:30-8:30AM
Sources:	VSPOC

Initial Runs Worksheet

Run Number	Seed	Volume
1	199	5203.0
2	409	5170.0
3	619	5319.0
4	829	5242.0
5	1039	5185.0
6	1249	5109.0
7	1459	5283.0

Average (Mean):	5215.9
Margin of Error (E):	126.60
Tolerance % Used:	2.4%
$Z_{critical}$ (95% CI)	1.96
Standard Deviation (σ):	71.26
Estimated Number of Runs:	2

Bureau of Traffic Operations
10/12/2017

Instructions:

1). Enter the name of the Measure of Effectiveness (MOE) being examined into the yellow-highlighted cell with "MOE" in the Initial Runs Worksheet.

2). For the selected MOE, enter the field observations into the tan-highlighted cells in the Variability Analysis of Field Data Worksheet.

3). Using the seeds specified in the Initial Runs Worksheet, conduct seven initial model runs. Document the results for the specified MOE in the blue-highlighted cells .

4). Statistical outliers will be eliminated if they exist. The remaining non-outliers will be valid runs. If the "Estimated Number of Runs" is less than or equal to the number of valid runs, the cell displaying the estimated number of runs in the Initial Runs Worksheet will be highlighted in green, indicating that the criteria are met and no further model runs are required. However, if the estimated number of runs is greater than the number of valid runs, the cell will be highlighted in yellow, indicating that further runs are required. If this is the case, continue on to Step 5.

5). Using the seeds specified in the Additional Runs Worksheet, run the model until the required number of model runs is reached. Document the results for each model run with the specified seed in the purple-highlighted cells. If 30 model runs have been completed and the required number of model runs is not satisfied, please contact BTO to discuss further options. Note that the first seven runs should be the same as that reported in the initial runs worksheet.

Additional Runs Worksheet

Run Number	Seed	Volume
1	199	
2	409	
3	619	
4	829	
5	1039	
6	1249	
7	1459	
8	1669	
9	1879	
10	2089	
11	7	
12	157	
13	307	
14	457	
15	607	
16	757	
17	907	
18	5	
19	11	
20	17	
21	23	
22	29	
23	13	
24	103	
25	193	
26	283	
27	373	
28	463	
29	28657	
30	514229	

Average (Mean):	N/A
Margin of Error (E):	N/A
Tolerance % Used:	N/A
$Z_{critical}$ (95% CI)	1.96
Standard Deviation (σ):	N/A
Required Number of Runs:	N/A

Variability Analysis of Field Data Worksheet

Field Observation (Measurement)

Observation #	Volume
1	5,403.0
2	4,978.0
3	5,364.0
4	5,124.0
5	4,885.0
6	5,121.0
7	5,020.0
8	4,963.0
9	5,342.0
10	5,568.0
11	5,207.0
12	5,496.0
13	5,526.0
14	
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Average (Mean):	5,230.5
Margin of Error (E):	126.96
Tolerance error percentage (e):	2.4%
$Z_{critical}$ (95% CI):	1.96
Standard Deviation:	233.56
Sample Size:	13

Field Data Notes	
Location:	I-94 EB at 26th St
Dates:	April 2019 Weekdays
Times:	8:30-9:30AM
Sources:	VSPOC

Initial Runs Worksheet		
Run Number	Seed	Volume
1	199	4582.0
2	409	4582.0
3	619	4574.0
4	829	4639.0
5	1039	4642.0
6	1249	4599.0
7	1459	4607.0

Average (Mean):	4603.6
Margin of Error (E):	113.80
Tolerance % Used:	2.5%
$Z_{critical}$ (95% CI)	1.96
Standard Deviation (σ):	27.6
Estimated Number of Runs:	1

Bureau of Traffic Operations
10/12/2017

Instructions:
1). Enter the name of the Measure of Effectiveness (MOE) being examined into the yellow-highlighted cell with "MOE" in the Initial Runs Worksheet.
2). For the selected MOE, enter the field observations into the tan-highlighted cells in the Variability Analysis of Field Data Worksheet.
3). Using the seeds specified in the Initial Runs Worksheet, conduct seven initial model runs. Document the results for the specified MOE in the blue-highlighted cells .
4). Statistical outliers will be eliminated if they exist. The remaining non-outliers will be valid runs. If the "Estimated Number of Runs" is less than or equal to the number of valid runs, the cell displaying the estimated number of runs in the Initial Runs Worksheet will be highlighted in green, indicating that the criteria are met and no further model runs are required. However, if the estimated number of runs is greater than the number of valid runs, the cell will be highlighted in yellow, indicating that further runs are required. If this is the case, continue on to Step 5.
5). Using the seeds specified in the Additional Runs Worksheet, run the model until the required number of model runs is reached. Document the results for each model run with the specified seed in the purple-highlighted cells. If 30 model runs have been completed and the required number of model runs is not satisfied, please contact BTO to discuss further options. Note that the first seven runs should be the same as that reported in the initial runs worksheet.

Additional Runs Worksheet		
Run Number	Seed	Volume
1	199	
2	409	
3	619	
4	829	
5	1039	
6	1249	
7	1459	
8	1669	
9	1879	
10	2089	
11	7	
12	157	
13	307	
14	457	
15	607	
16	757	
17	907	
18	5	
19	11	
20	17	
21	23	
22	29	
23	13	
24	103	
25	193	
26	283	
27	373	
28	463	
29	28657	
30	514229	

Average (Mean):	N/A
Margin of Error (E):	N/A
Tolerance % Used:	N/A
$Z_{critical}$ (95% CI)	1.96
Standard Deviation (σ):	N/A
Required Number of Runs:	N/A

Variability Analysis of Field Data Worksheet	
Field Observation (Measurement)	
Observation #	Volume
1	4,212.0
2	4,125.0
3	4,653.0
4	4,499.0
5	4,574.0
6	4,580.0
7	4,396.0
8	4,526.0
9	4,704.0
10	4,671.0
11	4,769.0
12	4,848.0
13	4,622.0
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Average (Mean):	4,552.2
Margin of Error (E):	112.52
Tolerance error percentage (e):	2.5%
$Z_{critical}$ (95% CI):	1.96
Standard Deviation:	206.98
Sample Size:	13

Field Data Notes	
Location:	I-94 EB at 26th St
Dates:	April 2019 Weekdays
Times:	1:30-2:30PM
Sources:	VSPOC

Initial Runs Worksheet		
Run Number	Seed	Volume
1	199	5207.0
2	409	5207.0
3	619	5224.0
4	829	5151.0
5	1039	5138.0
6	1249	5241.0
7	1459	5193.0

Average (Mean):	5194.4
Margin of Error (E):	91.50
Tolerance % Used:	1.8%
$Z_{critical}$ (95% CI)	1.96
Standard Deviation (σ):	37.49
Estimated Number of Runs:	1

Bureau of Traffic Operations
10/12/2017

Instructions:
1). Enter the name of the Measure of Effectiveness (MOE) being examined into the yellow-highlighted cell with "MOE" in the Initial Runs Worksheet.
2). For the selected MOE, enter the field observations into the tan-highlighted cells in the Variability Analysis of Field Data Worksheet.
3). Using the seeds specified in the Initial Runs Worksheet, conduct seven initial model runs. Document the results for the specified MOE in the blue-highlighted cells .
4). Statistical outliers will be eliminated if they exist. The remaining non-outliers will be valid runs. If the "Estimated Number of Runs" is less than or equal to the number of valid runs, the cell displaying the estimated number of runs in the Initial Runs Worksheet will be highlighted in green, indicating that the criteria are met and no further model runs are required. However, if the estimated number of runs is greater than the number of valid runs, the cell will be highlighted in yellow, indicating that further runs are required. If this is the case, continue on to Step 5.
5). Using the seeds specified in the Additional Runs Worksheet, run the model until the required number of model runs is reached. Document the results for each model run with the specified seed in the purple-highlighted cells. If 30 model runs have been completed and the required number of model runs is not satisfied, please contact BTO to discuss further options. Note that the first seven runs should be the same as that reported in the initial runs worksheet.

Additional Runs Worksheet		
Run Number	Seed	Volume
1	199	
2	409	
3	619	
4	829	
5	1039	
6	1249	
7	1459	
8	1669	
9	1879	
10	2089	
11	7	
12	157	
13	307	
14	457	
15	607	
16	757	
17	907	
18	5	
19	11	
20	17	
21	23	
22	29	
23	13	
24	103	
25	193	
26	283	
27	373	
28	463	
29	28657	
30	514229	

Average (Mean):	N/A
Margin of Error (E):	N/A
Tolerance % Used:	N/A
$Z_{critical}$ (95% CI)	1.96
Standard Deviation (σ):	N/A
Required Number of Runs:	N/A

Variability Analysis of Field Data Worksheet	
Field Observation (Measurement)	
Observation #	Volume
1	4,986.0
2	5,007.0
3	4,899.0
4	4,954.0
5	4,976.0
6	5,086.0
7	4,830.0
8	4,972.0
9	5,261.0
10	5,129.0
11	5,220.0
12	5,223.0
13	4,702.0
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Average (Mean):	5,018.8
Margin of Error (E):	88.39
Tolerance error percentage (e):	1.8%
$Z_{critical}$ (95% CI):	1.96
Standard Deviation:	162.61
Sample Size:	13

Field Data Notes	
Location:	I-94 EB at 26th St
Dates:	April 2019 Weekdays
Times:	2:30-3:30PM
Sources:	VSPOC

Initial Runs Worksheet

Run Number	Seed	Volume
1	199	5309.0
2	409	5309.0
3	619	5419.0
4	829	5360.0
5	1039	5368.0
6	1249	5299.0
7	1459	5351.0

Average (Mean):	5345.0
Margin of Error (E):	155.00
Tolerance % Used:	2.9%
$Z_{critical}$ (95% CI)	1.96
Standard Deviation (σ):	42.77
Estimated Number of Runs:	1

Bureau of Traffic Operations
10/12/2017

Instructions:

1). Enter the name of the Measure of Effectiveness (MOE) being examined into the yellow-highlighted cell with "MOE" in the Initial Runs Worksheet.

2). For the selected MOE, enter the field observations into the tan-highlighted cells in the Variability Analysis of Field Data Worksheet.

3). Using the seeds specified in the Initial Runs Worksheet, conduct seven initial model runs. Document the results for the specified MOE in the blue-highlighted cells .

4). Statistical outliers will be eliminated if they exist. The remaining non-outliers will be valid runs. If the "Estimated Number of Runs" is less than or equal to the number of valid runs, the cell displaying the estimated number of runs in the Initial Runs Worksheet will be highlighted in green, indicating that the criteria are met and no further model runs are required. However, if the estimated number of runs is greater than the number of valid runs, the cell will be highlighted in yellow, indicating that further runs are required. If this is the case, continue on to Step 5.

5). Using the seeds specified in the Additional Runs Worksheet, run the model until the required number of model runs is reached. Document the results for each model run with the specified seed in the purple-highlighted cells. If 30 model runs have been completed and the required number of model runs is not satisfied, please contact BTO to discuss further options. Note that the first seven runs should be the same as that reported in the initial runs worksheet.

Additional Runs Worksheet

Run Number	Seed	Volume
1	199	
2	409	
3	619	
4	829	
5	1039	
6	1249	
7	1459	
8	1669	
9	1879	
10	2089	
11	7	
12	157	
13	307	
14	457	
15	607	
16	757	
17	907	
18	5	
19	11	
20	17	
21	23	
22	29	
23	13	
24	103	
25	193	
26	283	
27	373	
28	463	
29	28657	
30	514229	

Average (Mean):	N/A
Margin of Error (E):	N/A
Tolerance % Used:	N/A
$Z_{critical}$ (95% CI)	1.96
Standard Deviation (σ):	N/A
Required Number of Runs:	N/A

Variability Analysis of Field Data Worksheet

Field Observation (Measurement)

Observation #	Volume
1	5,562.0
2	5,414.0
3	5,202.0
4	5,283.0
5	4,666.0
6	5,432.0
7	5,182.0
8	5,380.0
9	5,655.0
10	5,316.0
11	5,528.0
12	5,441.0
13	4,821.0
14	
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Average (Mean):	5,298.6
Margin of Error (E):	153.66
Tolerance error percentage (e):	2.9%
$Z_{critical}$ (95% CI):	1.96
Standard Deviation:	282.67
Sample Size:	13

Field Data Notes	
Location:	I-94 EB at 26th St
Dates:	April 2019 Weekdays
Times:	3:30-4:30PM
Sources:	VSPOC

Initial Runs Worksheet

Run Number	Seed	Volume
1	199	5475.0
2	409	5475.0
3	619	~~5355.0~~
4	829	5442.0
5	1039	5459.0
6	1249	5465.0
7	1459	5439.0

Average (Mean):	5444.3
Margin of Error (E):	532.10
Tolerance % Used:	9.8%
$Z_{critical}$ (95% CI)	1.96
Standard Deviation (σ):	41.91
Estimated Number of Runs:	1
Recalculated Mean:	5459.2
Recalculated E:	533.50
Recalculated σ:	15.73

Bureau of Traffic Operations
10/12/2017

Instructions:

1). Enter the name of the Measure of Effectiveness (MOE) being examined into the yellow-highlighted cell with "MOE" in the Initial Runs Worksheet.

2). For the selected MOE, enter the field observations into the tan-highlighted cells in the Variability Analysis of Field Data Worksheet.

3). Using the seeds specified in the Initial Runs Worksheet, conduct seven initial model runs. Document the results for the specified MOE in the blue-highlighted cells .

4). Statistical outliers will be eliminated if they exist. The remaining non-outliers will be valid runs. If the "Estimated Number of Runs" is less than or equal to the number of valid runs, the cell displaying the estimated number of runs in the Initial Runs Worksheet will be highlighted in green, indicating that the criteria are met and no further model runs are required. However, if the estimated number of runs is greater than the number of valid runs, the cell will be highlighted in yellow, indicating that further runs are required. If this is the case, continue on to Step 5.

5). Using the seeds specified in the Additional Runs Worksheet, run the model until the required number of model runs is reached. Document the results for each model run with the specified seed in the purple-highlighted cells. If 30 model runs have been completed and the required number of model runs is not satisfied, please contact BTO to discuss further options. Note that the first seven runs should be the same as that reported in the initial runs worksheet.

Additional Runs Worksheet

Run Number	Seed	Volume
1	199	
2	409	
3	619	
4	829	
5	1039	
6	1249	
7	1459	
8	1669	
9	1879	
10	2089	
11	7	
12	157	
13	307	
14	457	
15	607	
16	757	
17	907	
18	5	
19	11	
20	17	
21	23	
22	29	
23	13	
24	103	
25	193	
26	283	
27	373	
28	463	
29	28657	
30	514229	

Average (Mean):	N/A
Margin of Error (E):	N/A
Tolerance % Used:	N/A
$Z_{critical}$ (95% CI)	1.96
Standard Deviation (σ):	N/A
Required Number of Runs:	N/A

Variability Analysis of Field Data Worksheet

Field Observation (Measurement)

Observation #	Volume
1	5,759.0
2	5,206.0
3	5,133.0
4	5,459.0
5	2,162.0
6	5,480.0
7	5,275.0
8	5,679.0
9	5,613.0
10	5,509.0
11	5,449.0
12	5,084.0
13	5,031.0
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Average (Mean):	5,141.5
Margin of Error (E):	502.47
Tolerance error percentage (e):	9.8%
$Z_{critical}$ (95% CI):	1.96
Standard Deviation:	924.32
Sample Size:	13

Field Data Notes	
Location:	I-94 EB at 26th St
Dates:	April 2019 Weekdays
Times:	4:30-5:30PM
Sources:	VSPOC

Initial Runs Worksheet		
Run Number	Seed	Volume
1	199	5294.0
2	409	5294.0
3	619	5263.0
4	829	5303.0
5	1039	5258.0
6	1249	5313.0
7	1459	5286.0

Average (Mean):	5287.3
Margin of Error (E):	593.20
Tolerance % Used:	11.2%
$Z_{critical}$ (95% CI)	1.96
Standard Deviation (σ):	20.2
Estimated Number of Runs:	1

Bureau of Traffic Operations
10/12/2017

Instructions:
1). Enter the name of the Measure of Effectiveness (MOE) being examined into the yellow-highlighted cell with "MOE" in the Initial Runs Worksheet.
2). For the selected MOE, enter the field observations into the tan-highlighted cells in the Variability Analysis of Field Data Worksheet.
3). Using the seeds specified in the Initial Runs Worksheet, conduct seven initial model runs. Document the results for the specified MOE in the blue-highlighted cells .
4). Statistical outliers will be eliminated if they exist. The remaining non-outliers will be valid runs. If the "Estimated Number of Runs" is less than or equal to the number of valid runs, the cell displaying the estimated number of runs in the Initial Runs Worksheet will be highlighted in green, indicating that the criteria are met and no further model runs are required. However, if the estimated number of runs is greater than the number of valid runs, the cell will be highlighted in yellow, indicating that further runs are required. If this is the case, continue on to Step 5.
5). Using the seeds specified in the Additional Runs Worksheet, run the model until the required number of model runs is reached. Document the results for each model run with the specified seed in the purple-highlighted cells. If 30 model runs have been completed and the required number of model runs is not satisfied, please contact BTO to discuss further options. Note that the first seven runs should be the same as that reported in the initial runs worksheet.

Additional Runs Worksheet		
Run Number	Seed	Volume
1	199	
2	409	
3	619	
4	829	
5	1039	
6	1249	
7	1459	
8	1669	
9	1879	
10	2089	
11	7	
12	157	
13	307	
14	457	
15	607	
16	757	
17	907	
18	5	
19	11	
20	17	
21	23	
22	29	
23	13	
24	103	
25	193	
26	283	
27	373	
28	463	
29	28657	
30	514229	

Average (Mean):	N/A
Margin of Error (E):	N/A
Tolerance % Used:	N/A
$Z_{critical}$ (95% CI)	1.96
Standard Deviation (σ):	N/A
Required Number of Runs:	N/A

Variability Analysis of Field Data Worksheet	
Field Observation (Measurement)	
Observation #	Volume
1	5,073.0
2	4,898.0
3	4,845.0
4	5,136.0
5	1,580.0
6	5,069.0
7	4,794.0
8	5,642.0
9	4,802.0
10	5,197.0
11	5,122.0
12	4,965.0
13	4,999.0
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Average (Mean):	4,778.6
Margin of Error (E):	536.10
Tolerance error percentage (e):	11.2%
$Z_{critical}$ (95% CI):	1.96
Standard Deviation:	986.20
Sample Size:	13

Field Data Notes	
Location:	I-94 EB at 26th St
Dates:	April 2019 Weekdays
Times:	5:30-6:30PM
Sources:	VSPOC

Initial Runs Worksheet		
Run Number	Seed	Volume
1	199	3584.0
2	409	3597.0
3	619	3590.0
4	829	3599.0
5	1039	3617.0
6	1249	3620.0
7	1459	3621.0

Average (Mean):	3604.0
Margin of Error (E):	185.00
Tolerance % Used:	5.1%
$Z_{critical}$ (95% CI)	1.96
Standard Deviation (σ):	15.19
Estimated Number of Runs:	1

Bureau of Traffic Operations
10/12/2017

Instructions:
1). Enter the name of the Measure of Effectiveness (MOE) being examined into the yellow-highlighted cell with "MOE" in the Initial Runs Worksheet.
2). For the selected MOE, enter the field observations into the tan-highlighted cells in the Variability Analysis of Field Data Worksheet.
3). Using the seeds specified in the Initial Runs Worksheet, conduct seven initial model runs. Document the results for the specified MOE in the blue-highlighted cells .
4). Statistical outliers will be eliminated if they exist. The remaining non-outliers will be valid runs. If the "Estimated Number of Runs" is less than or equal to the number of valid runs, the cell displaying the estimated number of runs in the Initial Runs Worksheet will be highlighted in green, indicating that the criteria are met and no further model runs are required. However, if the estimated number of runs is greater than the number of valid runs, the cell will be highlighted in yellow, indicating that further runs are required. If this is the case, continue on to Step 5.
5). Using the seeds specified in the Additional Runs Worksheet, run the model until the required number of model runs is reached. Document the results for each model run with the specified seed in the purple-highlighted cells. If 30 model runs have been completed and the required number of model runs is not satisfied, please contact BTO to discuss further options. Note that the first seven runs should be the same as that reported in the initial runs worksheet.

Additional Runs Worksheet		
Run Number	Seed	Volume
1	199	
2	409	
3	619	
4	829	
5	1039	
6	1249	
7	1459	
8	1669	
9	1879	
10	2089	
11	7	
12	157	
13	307	
14	457	
15	607	
16	757	
17	907	
18	5	
19	11	
20	17	
21	23	
22	29	
23	13	
24	103	
25	193	
26	283	
27	373	
28	463	
29	28657	
30	514229	

Average (Mean):	N/A
Margin of Error (E):	N/A
Tolerance % Used:	N/A
$Z_{critical}$ (95% CI)	1.96
Standard Deviation (σ):	N/A
Required Number of Runs:	N/A

Variability Analysis of Field Data Worksheet	
Field Observation (Measurement)	
Observation #	Volume
1	2,679.0
2	3,342.0
3	3,198.0
4	3,367.0
5	3,261.0
6	3,216.0
7	2,905.0
8	3,203.0
9	3,177.0
10	3,617.0
11	3,473.0
12	3,227.0
13	2,547.0
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Average (Mean):	3,170.2
Margin of Error (E):	162.70
Tolerance error percentage (e):	5.1%
$Z_{critical}$ (95% CI):	1.96
Standard Deviation:	299.31
Sample Size:	13

Field Data Notes	
Location:	I-94 WB at 26th St
Dates:	April 2019 Weekdays
Times:	5:30-6:30AM
Sources:	VSPOC

Initial Runs Worksheet		
Run Number	Seed	Volume
1	199	5821.0
2	409	5819.0
3	619	5813.0
4	829	5753.0
5	1039	5760.0
6	1249	5722.0
7	1459	5794.0

Average (Mean):	5783.1
Margin of Error (E):	257.30
Tolerance % Used:	4.4%
$Z_{critical}$ (95% CI)	1.96
Standard Deviation (σ):	38.54
Estimated Number of Runs:	1

Bureau of Traffic Operations
10/12/2017

Instructions:
1). Enter the name of the Measure of Effectiveness (MOE) being examined into the yellow-highlighted cell with "MOE" in the Initial Runs Worksheet.
2). For the selected MOE, enter the field observations into the tan-highlighted cells in the Variability Analysis of Field Data Worksheet.
3). Using the seeds specified in the Initial Runs Worksheet, conduct seven initial model runs. Document the results for the specified MOE in the blue-highlighted cells .
4). Statistical outliers will be eliminated if they exist. The remaining non-outliers will be valid runs. If the "Estimated Number of Runs" is less than or equal to the number of valid runs, the cell displaying the estimated number of runs in the Initial Runs Worksheet will be highlighted in green, indicating that the criteria are met and no further model runs are required. However, if the estimated number of runs is greater than the number of valid runs, the cell will be highlighted in yellow, indicating that further runs are required. If this is the case, continue on to Step 5.
5). Using the seeds specified in the Additional Runs Worksheet, run the model until the required number of model runs is reached. Document the results for each model run with the specified seed in the purple-highlighted cells. If 30 model runs have been completed and the required number of model runs is not satisfied, please contact BTO to discuss further options. Note that the first seven runs should be the same as that reported in the initial runs worksheet.

Additional Runs Worksheet		
Run Number	Seed	Volume
1	199	
2	409	
3	619	
4	829	
5	1039	
6	1249	
7	1459	
8	1669	
9	1879	
10	2089	
11	7	
12	157	
13	307	
14	457	
15	607	
16	757	
17	907	
18	5	
19	11	
20	17	
21	23	
22	29	
23	13	
24	103	
25	193	
26	283	
27	373	
28	463	
29	28657	
30	514229	

Average (Mean):	N/A
Margin of Error (E):	N/A
Tolerance % Used:	N/A
$Z_{critical}$ (95% CI)	1.96
Standard Deviation (σ):	N/A
Required Number of Runs:	N/A

Variability Analysis of Field Data Worksheet	
Field Observation (Measurement)	
Observation #	Volume
1	4,763.0
2	4,916.0
3	4,909.0
4	4,809.0
5	4,635.0
6	4,853.0
7	4,097.0
8	4,861.0
9	4,583.0
10	5,239.0
11	4,623.0
12	3,753.0
13	4,507.0
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Average (Mean):	4,657.5
Margin of Error (E):	207.24
Tolerance error percentage (e):	4.4%
$Z_{critical}$ (95% CI):	1.96
Standard Deviation:	381.24
Sample Size:	13

Field Data Notes	
Location:	I-94 WB at 26th St
Dates:	April 2019 Weekdays
Times:	6:30-7:30AM
Sources:	VSPOC

Initial Runs Worksheet		
Run Number	Seed	Volume
1	199	5111.0
2	409	5142.0
3	619	5073.0
4	829	5123.0
5	1039	5061.0
6	1249	5068.0
7	1459	5163.0

Average (Mean):	5105.9
Margin of Error (E):	299.60
Tolerance % Used:	5.9%
$Z_{critical}$ (95% CI)	1.96
Standard Deviation (σ):	39.62
Estimated Number of Runs:	1

Bureau of Traffic Operations
10/12/2017

Instructions:
1). Enter the name of the Measure of Effectiveness (MOE) being examined into the yellow-highlighted cell with "MOE" in the Initial Runs Worksheet.
2). For the selected MOE, enter the field observations into the tan-highlighted cells in the Variability Analysis of Field Data Worksheet.
3). Using the seeds specified in the Initial Runs Worksheet, conduct seven initial model runs. Document the results for the specified MOE in the blue-highlighted cells .
4). Statistical outliers will be eliminated if they exist. The remaining non-outliers will be valid runs. If the "Estimated Number of Runs" is less than or equal to the number of valid runs, the cell displaying the estimated number of runs in the Initial Runs Worksheet will be highlighted in green, indicating that the criteria are met and no further model runs are required. However, if the estimated number of runs is greater than the number of valid runs, the cell will be highlighted in yellow, indicating that further runs are required. If this is the case, continue on to Step 5.
5). Using the seeds specified in the Additional Runs Worksheet, run the model until the required number of model runs is reached. Document the results for each model run with the specified seed in the purple-highlighted cells. If 30 model runs have been completed and the required number of model runs is not satisfied, please contact BTO to discuss further options. Note that the first seven runs should be the same as that reported in the initial runs worksheet.

Additional Runs Worksheet		
Run Number	Seed	Volume
1	199	
2	409	
3	619	
4	829	
5	1039	
6	1249	
7	1459	
8	1669	
9	1879	
10	2089	
11	7	
12	157	
13	307	
14	457	
15	607	
16	757	
17	907	
18	5	
19	11	
20	17	
21	23	
22	29	
23	13	
24	103	
25	193	
26	283	
27	373	
28	463	
29	28657	
30	514229	

Average (Mean):	N/A
Margin of Error (E):	N/A
Tolerance % Used:	N/A
$Z_{critical}$ (95% CI)	1.96
Standard Deviation (σ):	N/A
Required Number of Runs:	N/A

Variability Analysis of Field Data Worksheet	
Field Observation (Measurement)	
Observation #	Volume
1	4,980.0
2	4,966.0
3	5,059.0
4	4,703.0
5	4,493.0
6	4,854.0
7	4,445.0
8	4,928.0
9	4,056.0
10	5,027.0
11	4,588.0
12	3,392.0
13	5,298.0
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Average (Mean):	4,676.1
Margin of Error (E):	274.37
Tolerance error percentage (e):	5.9%
$Z_{critical}$ (95% CI):	1.96
Standard Deviation:	504.72
Sample Size:	13

Field Data Notes	
Location:	I-94 WB at 26th St
Dates:	April 2019 Weekdays
Times:	7:30-8:30AM
Sources:	VSPOC

Initial Runs Worksheet		
Run Number	Seed	Volume
1	199	4192.0
2	409	4134.0
3	619	4228.0
4	829	4198.0
5	1039	4261.0
6	1249	4297.0
7	1459	4143.0

Average (Mean):	4207.6
Margin of Error (E):	215.30
Tolerance % Used:	5.1%
$Z_{critical}$ (95% CI)	1.96
Standard Deviation (σ):	59.42
Estimated Number of Runs:	1

Bureau of Traffic Operations
10/12/2017

Instructions:
1). Enter the name of the Measure of Effectiveness (MOE) being examined into the yellow-highlighted cell with "MOE" in the Initial Runs Worksheet.
2). For the selected MOE, enter the field observations into the tan-highlighted cells in the Variability Analysis of Field Data Worksheet.
3). Using the seeds specified in the Initial Runs Worksheet, conduct seven initial model runs. Document the results for the specified MOE in the blue-highlighted cells .
4). Statistical outliers will be eliminated if they exist. The remaining non-outliers will be valid runs. If the "Estimated Number of Runs" is less than or equal to the number of valid runs, the cell displaying the estimated number of runs in the Initial Runs Worksheet will be highlighted in green, indicating that the criteria are met and no further model runs are required. However, if the estimated number of runs is greater than the number of valid runs, the cell will be highlighted in yellow, indicating that further runs are required. If this is the case, continue on to Step 5.
5). Using the seeds specified in the Additional Runs Worksheet, run the model until the required number of model runs is reached. Document the results for each model run with the specified seed in the purple-highlighted cells. If 30 model runs have been completed and the required number of model runs is not satisfied, please contact BTO to discuss further options. Note that the first seven runs should be the same as that reported in the initial runs worksheet.

Additional Runs Worksheet		
Run Number	Seed	Volume
1	199	
2	409	
3	619	
4	829	
5	1039	
6	1249	
7	1459	
8	1669	
9	1879	
10	2089	
11	7	
12	157	
13	307	
14	457	
15	607	
16	757	
17	907	
18	5	
19	11	
20	17	
21	23	
22	29	
23	13	
24	103	
25	193	
26	283	
27	373	
28	463	
29	28657	
30	514229	

Average (Mean):	N/A
Margin of Error (E):	N/A
Tolerance % Used:	N/A
$Z_{critical}$ (95% CI)	1.96
Standard Deviation (σ):	N/A
Required Number of Runs:	N/A

Variability Analysis of Field Data Worksheet	
Field Observation (Measurement)	
Observation #	Volume
1	3,957.0
2	4,017.0
3	4,119.0
4	4,057.0
5	3,960.0
6	3,887.0
7	4,013.0
8	4,134.0
9	2,851.0
10	3,953.0
11	4,298.0
12	3,607.0
13	4,290.0
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Average (Mean):	3,934.1
Margin of Error (E):	201.29
Tolerance error percentage (e):	5.1%
$Z_{critical}$ (95% CI):	1.96
Standard Deviation:	370.28
Sample Size:	13

Field Data Notes	
Location:	I-94 WB at 26th St
Dates:	April 2019 Weekdays
Times:	8:30-9:30AM
Sources:	VSPOC

Initial Runs Worksheet		
Run Number	Seed	Volume
1	199	4760.0
2	409	4760.0
3	619	4647.0
4	829	4609.0
5	1039	4556.0
6	1249	4637.0
7	1459	4642.0

Average (Mean):	4658.7
Margin of Error (E):	195.00
Tolerance % Used:	4.2%
$Z_{critical}$ (95% CI)	1.96
Standard Deviation (σ):	75.75
Estimated Number of Runs:	1

Bureau of Traffic Operations
10/12/2017

Instructions:
1). Enter the name of the Measure of Effectiveness (MOE) being examined into the yellow-highlighted cell with "MOE" in the Initial Runs Worksheet.
2). For the selected MOE, enter the field observations into the tan-highlighted cells in the Variability Analysis of Field Data Worksheet.
3). Using the seeds specified in the Initial Runs Worksheet, conduct seven initial model runs. Document the results for the specified MOE in the blue-highlighted cells .
4). Statistical outliers will be eliminated if they exist. The remaining non-outliers will be valid runs. If the "Estimated Number of Runs" is less than or equal to the number of valid runs, the cell displaying the estimated number of runs in the Initial Runs Worksheet will be highlighted in green, indicating that the criteria are met and no further model runs are required. However, if the estimated number of runs is greater than the number of valid runs, the cell will be highlighted in yellow, indicating that further runs are required. If this is the case, continue on to Step 5.
5). Using the seeds specified in the Additional Runs Worksheet, run the model until the required number of model runs is reached. Document the results for each model run with the specified seed in the purple-highlighted cells. If 30 model runs have been completed and the required number of model runs is not satisfied, please contact BTO to discuss further options. Note that the first seven runs should be the same as that reported in the initial runs worksheet.

Additional Runs Worksheet		
Run Number	Seed	Volume
1	199	
2	409	
3	619	
4	829	
5	1039	
6	1249	
7	1459	
8	1669	
9	1879	
10	2089	
11	7	
12	157	
13	307	
14	457	
15	607	
16	757	
17	907	
18	5	
19	11	
20	17	
21	23	
22	29	
23	13	
24	103	
25	193	
26	283	
27	373	
28	463	
29	28657	
30	514229	

Average (Mean):	N/A
Margin of Error (E):	N/A
Tolerance % Used:	N/A
$Z_{critical}$ (95% CI)	1.96
Standard Deviation (σ):	N/A
Required Number of Runs:	N/A

Variability Analysis of Field Data Worksheet	
Field Observation (Measurement)	
Observation #	Volume
1	4,341.0
2	4,391.0
3	4,499.0
4	4,627.0
5	4,416.0
6	4,478.0
7	4,331.0
8	4,285.0
9	3,855.0
10	4,734.0
11	4,874.0
12	4,734.0
13	3,662.0
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Average (Mean):	4,402.1
Margin of Error (E):	184.25
Tolerance error percentage (e):	4.2%
$Z_{critical}$ (95% CI):	1.96
Standard Deviation:	338.95
Sample Size:	13

Field Data Notes	
Location:	I-94 WB at 26th St
Dates:	April 2019 Weekdays
Times:	1:30-2:30PM
Sources:	VSPOC

Initial Runs Worksheet		
Run Number	Seed	Volume
1	199	5282.0
2	409	5282.0
3	619	5371.0
4	829	5396.0
5	1039	5369.0
6	1249	5369.0
7	1459	5357.0

Average (Mean):	5346.6
Margin of Error (E):	368.30
Tolerance % Used:	6.9%
$Z_{critical}$ (95% CI)	1.96
Standard Deviation (σ):	45.63
Estimated Number of Runs:	1

Bureau of Traffic Operations
10/12/2017

Instructions:
1). Enter the name of the Measure of Effectiveness (MOE) being examined into the yellow-highlighted cell with "MOE" in the Initial Runs Worksheet.
2). For the selected MOE, enter the field observations into the tan-highlighted cells in the Variability Analysis of Field Data Worksheet.
3). Using the seeds specified in the Initial Runs Worksheet, conduct seven initial model runs. Document the results for the specified MOE in the blue-highlighted cells .
4). Statistical outliers will be eliminated if they exist. The remaining non-outliers will be valid runs. If the "Estimated Number of Runs" is less than or equal to the number of valid runs, the cell displaying the estimated number of runs in the Initial Runs Worksheet will be highlighted in green, indicating that the criteria are met and no further model runs are required. However, if the estimated number of runs is greater than the number of valid runs, the cell will be highlighted in yellow, indicating that further runs are required. If this is the case, continue on to Step 5.
5). Using the seeds specified in the Additional Runs Worksheet, run the model until the required number of model runs is reached. Document the results for each model run with the specified seed in the purple-highlighted cells. If 30 model runs have been completed and the required number of model runs is not satisfied, please contact BTO to discuss further options. Note that the first seven runs should be the same as that reported in the initial runs worksheet.

Additional Runs Worksheet		
Run Number	Seed	Volume
1	199	
2	409	
3	619	
4	829	
5	1039	
6	1249	
7	1459	
8	1669	
9	1879	
10	2089	
11	7	
12	157	
13	307	
14	457	
15	607	
16	757	
17	907	
18	5	
19	11	
20	17	
21	23	
22	29	
23	13	
24	103	
25	193	
26	283	
27	373	
28	463	
29	28657	
30	514229	

Average (Mean):	N/A
Margin of Error (E):	N/A
Tolerance % Used:	N/A
$Z_{critical}$ (95% CI)	1.96
Standard Deviation (σ):	N/A
Required Number of Runs:	N/A

Variability Analysis of Field Data Worksheet	
Field Observation (Measurement)	
Observation #	Volume
1	4,579.0
2	4,910.0
3	4,736.0
4	4,929.0
5	4,687.0
6	4,941.0
7	4,772.0
8	4,211.0
9	4,021.0
10	4,961.0
11	5,071.0
12	5,039.0
13	2,965.0
14	
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Average (Mean):	4,601.7
Margin of Error (E):	317.03
Tolerance error percentage (e):	6.9%
$Z_{critical}$ (95% CI):	1.96
Standard Deviation:	583.19
Sample Size:	13

Field Data Notes	
Location:	I-94 WB at 26th St
Dates:	April 2019 Weekdays
Times:	2:30-3:30PM
Sources:	VSPOC

Initial Runs Worksheet		
Run Number	Seed	Volume
1	199	4483.0
2	409	4483.0
3	619	4547.0
4	829	4569.0
5	1039	4552.0
6	1249	4480.0
7	1459	4526.0

Average (Mean):	4520.0
Margin of Error (E):	276.60
Tolerance % Used:	6.1%
$Z_{critical}$ (95% CI)	1.96
Standard Deviation (σ):	37.7
Estimated Number of Runs:	1

Bureau of Traffic Operations
10/12/2017

Instructions:
1). Enter the name of the Measure of Effectiveness (MOE) being examined into the yellow-highlighted cell with "MOE" in the Initial Runs Worksheet.
2). For the selected MOE, enter the field observations into the tan-highlighted cells in the Variability Analysis of Field Data Worksheet.
3). Using the seeds specified in the Initial Runs Worksheet, conduct seven initial model runs. Document the results for the specified MOE in the blue-highlighted cells .
4). Statistical outliers will be eliminated if they exist. The remaining non-outliers will be valid runs. If the "Estimated Number of Runs" is less than or equal to the number of valid runs, the cell displaying the estimated number of runs in the Initial Runs Worksheet will be highlighted in green, indicating that the criteria are met and no further model runs are required. However, if the estimated number of runs is greater than the number of valid runs, the cell will be highlighted in yellow, indicating that further runs are required. If this is the case, continue on to Step 5.
5). Using the seeds specified in the Additional Runs Worksheet, run the model until the required number of model runs is reached. Document the results for each model run with the specified seed in the purple-highlighted cells. If 30 model runs have been completed and the required number of model runs is not satisfied, please contact BTO to discuss further options. Note that the first seven runs should be the same as that reported in the initial runs worksheet.

Additional Runs Worksheet		
Run Number	Seed	Volume
1	199	
2	409	
3	619	
4	829	
5	1039	
6	1249	
7	1459	
8	1669	
9	1879	
10	2089	
11	7	
12	157	
13	307	
14	457	
15	607	
16	757	
17	907	
18	5	
19	11	
20	17	
21	23	
22	29	
23	13	
24	103	
25	193	
26	283	
27	373	
28	463	
29	28657	
30	514229	

Average (Mean):	N/A
Margin of Error (E):	N/A
Tolerance % Used:	N/A
$Z_{critical}$ (95% CI)	1.96
Standard Deviation (σ):	N/A
Required Number of Runs:	N/A

Variability Analysis of Field Data Worksheet

Field Observation (Measurement)	
Observation #	Volume
1	4,431.0
2	4,681.0
3	4,373.0
4	4,479.0
5	3,731.0
6	4,797.0
7	4,767.0
8	3,695.0
9	4,557.0
10	4,423.0
11	4,097.0
12	4,780.0
13	3,241.0
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Average (Mean):	4,311.7
Margin of Error (E):	263.85
Tolerance error percentage (e):	6.1%
$Z_{critical}$ (95% CI):	1.96
Standard Deviation:	485.38
Sample Size:	13

Field Data Notes	
Location:	I-94 WB at 26th St
Dates:	April 2019 Weekdays
Times:	3:30-4:30PM
Sources:	VSPOC

Initial Runs Worksheet		
Run Number	Seed	Volume
1	199	4238.0
2	409	4238.0
3	619	4171.0
4	829	4196.0
5	1039	4257.0
6	1249	4237.0
7	1459	4220.0

Average (Mean):	4222.4
Margin of Error (E):	245.00
Tolerance % Used:	5.8%
$Z_{critical}$ (95% CI)	1.96
Standard Deviation (σ):	29.56
Estimated Number of Runs:	1

Bureau of Traffic Operations
10/12/2017

Instructions:
1). Enter the name of the Measure of Effectiveness (MOE) being examined into the yellow-highlighted cell with "MOE" in the Initial Runs Worksheet.
2). For the selected MOE, enter the field observations into the tan-highlighted cells in the Variability Analysis of Field Data Worksheet.
3). Using the seeds specified in the Initial Runs Worksheet, conduct seven initial model runs. Document the results for the specified MOE in the blue-highlighted cells .
4). Statistical outliers will be eliminated if they exist. The remaining non-outliers will be valid runs. If the "Estimated Number of Runs" is less than or equal to the number of valid runs, the cell displaying the estimated number of runs in the Initial Runs Worksheet will be highlighted in green, indicating that the criteria are met and no further model runs are required. However, if the estimated number of runs is greater than the number of valid runs, the cell will be highlighted in yellow, indicating that further runs are required. If this is the case, continue on to Step 5.
5). Using the seeds specified in the Additional Runs Worksheet, run the model until the required number of model runs is reached. Document the results for each model run with the specified seed in the purple-highlighted cells. If 30 model runs have been completed and the required number of model runs is not satisfied, please contact BTO to discuss further options. Note that the first seven runs should be the same as that reported in the initial runs worksheet.

Additional Runs Worksheet		
Run Number	Seed	Volume
1	199	
2	409	
3	619	
4	829	
5	1039	
6	1249	
7	1459	
8	1669	
9	1879	
10	2089	
11	7	
12	157	
13	307	
14	457	
15	607	
16	757	
17	907	
18	5	
19	11	
20	17	
21	23	
22	29	
23	13	
24	103	
25	193	
26	283	
27	373	
28	463	
29	28657	
30	514229	

Average (Mean):	N/A
Margin of Error (E):	N/A
Tolerance % Used:	N/A
$Z_{critical}$ (95% CI)	1.96
Standard Deviation (σ):	N/A
Required Number of Runs:	N/A

Variability Analysis of Field Data Worksheet	
Field Observation (Measurement)	
Observation #	Volume
1	3,933.0
2	4,427.0
3	4,157.0
4	4,357.0
5	4,461.0
6	4,565.0
7	4,902.0
8	3,811.0
9	4,836.0
10	4,541.0
11	3,239.0
12	4,641.0
13	4,037.0
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Average (Mean):	4,300.5
Margin of Error (E):	249.54
Tolerance error percentage (e):	5.8%
$Z_{critical}$ (95% CI):	1.96
Standard Deviation:	459.05
Sample Size:	13

Field Data Notes	
Location:	I-94 WB at 26th St
Dates:	April 2019 Weekdays
Times:	4:30-5:30PM
Sources:	VSPOC

Initial Runs Worksheet		
Run Number	Seed	Volume
1	199	4760.0
2	409	4760.0
3	619	4647.0
4	829	4609.0
5	1039	4556.0
6	1249	4637.0
7	1459	4642.0

Average (Mean):	4658.7
Margin of Error (E):	307.10
Tolerance % Used:	6.6%
$Z_{critical}$ (95% CI)	1.96
Standard Deviation (σ):	75.75
Estimated Number of Runs:	1

Bureau of Traffic Operations
10/12/2017

Instructions:
1). Enter the name of the Measure of Effectiveness (MOE) being examined into the yellow-highlighted cell with "MOE" in the Initial Runs Worksheet.
2). For the selected MOE, enter the field observations into the tan-highlighted cells in the Variability Analysis of Field Data Worksheet.
3). Using the seeds specified in the Initial Runs Worksheet, conduct seven initial model runs. Document the results for the specified MOE in the blue-highlighted cells .
4). Statistical outliers will be eliminated if they exist. The remaining non-outliers will be valid runs. If the "Estimated Number of Runs" is less than or equal to the number of valid runs, the cell displaying the estimated number of runs in the Initial Runs Worksheet will be highlighted in green, indicating that the criteria are met and no further model runs are required. However, if the estimated number of runs is greater than the number of valid runs, the cell will be highlighted in yellow, indicating that further runs are required. If this is the case, continue on to Step 5.
5). Using the seeds specified in the Additional Runs Worksheet, run the model until the required number of model runs is reached. Document the results for each model run with the specified seed in the purple-highlighted cells. If 30 model runs have been completed and the required number of model runs is not satisfied, please contact BTO to discuss further options. Note that the first seven runs should be the same as that reported in the initial runs worksheet.

Additional Runs Worksheet		
Run Number	Seed	Volume
1	199	
2	409	
3	619	
4	829	
5	1039	
6	1249	
7	1459	
8	1669	
9	1879	
10	2089	
11	7	
12	157	
13	307	
14	457	
15	607	
16	757	
17	907	
18	5	
19	11	
20	17	
21	23	
22	29	
23	13	
24	103	
25	193	
26	283	
27	373	
28	463	
29	28657	
30	514229	

Average (Mean):	N/A
Margin of Error (E):	N/A
Tolerance % Used:	N/A
$Z_{critical}$ (95% CI)	1.96
Standard Deviation (σ):	N/A
Required Number of Runs:	N/A

Variability Analysis of Field Data Worksheet	
Field Observation (Measurement)	
Observation #	Volume
1	3,168.0
2	3,983.0
3	4,222.0
4	4,294.0
5	4,291.5
6	4,289.0
7	4,671.0
8	3,603.0
9	4,982.0
10	4,676.0
11	3,511.0
12	4,327.0
13	4,426.0
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Average (Mean):	4,188.0
Margin of Error (E):	276.03
Tolerance error percentage (e):	6.6%
$Z_{critical}$ (95% CI):	1.96
Standard Deviation:	507.78
Sample Size:	13

Field Data Notes	
Location:	I-94 WB at 26th St
Dates:	April 2019 Weekdays
Times:	5:30-6:30PM
Sources:	VSPOC

Initial Runs Worksheet		
Run Number	Seed	Volume
1	199	4203.0
2	409	4255.0
3	619	4246.0
4	829	4251.0
5	1039	4209.0
6	1249	4272.0
7	1459	4249.0

Average (Mean):	4240.7
Margin of Error (E):	61.50
Tolerance % Used:	1.5%
$Z_{critical}$ (95% CI)	1.96
Standard Deviation (σ):	25.21
Estimated Number of Runs:	1

Bureau of Traffic Operations
10/12/2017

Instructions:
1). Enter the name of the Measure of Effectiveness (MOE) being examined into the yellow-highlighted cell with "MOE" in the Initial Runs Worksheet.
2). For the selected MOE, enter the field observations into the tan-highlighted cells in the Variability Analysis of Field Data Worksheet.
3). Using the seeds specified in the Initial Runs Worksheet, conduct seven initial model runs. Document the results for the specified MOE in the blue-highlighted cells .
4). Statistical outliers will be eliminated if they exist. The remaining non-outliers will be valid runs. If the "Estimated Number of Runs" is less than or equal to the number of valid runs, the cell displaying the estimated number of runs in the Initial Runs Worksheet will be highlighted in green, indicating that the criteria are met and no further model runs are required. However, if the estimated number of runs is greater than the number of valid runs, the cell will be highlighted in yellow, indicating that further runs are required. If this is the case, continue on to Step 5.
5). Using the seeds specified in the Additional Runs Worksheet, run the model until the required number of model runs is reached. Document the results for each model run with the specified seed in the purple-highlighted cells. If 30 model runs have been completed and the required number of model runs is not satisfied, please contact BTO to discuss further options. Note that the first seven runs should be the same as that reported in the initial runs worksheet.

Additional Runs Worksheet		
Run Number	Seed	Volume
1	199	
2	409	
3	619	
4	829	
5	1039	
6	1249	
7	1459	
8	1669	
9	1879	
10	2089	
11	7	
12	157	
13	307	
14	457	
15	607	
16	757	
17	907	
18	5	
19	11	
20	17	
21	23	
22	29	
23	13	
24	103	
25	193	
26	283	
27	373	
28	463	
29	28657	
30	514229	

Average (Mean):	N/A
Margin of Error (E):	N/A
Tolerance % Used:	N/A
$Z_{critical}$ (95% CI)	1.96
Standard Deviation (σ):	N/A
Required Number of Runs:	N/A

Variability Analysis of Field Data Worksheet	
Field Observation (Measurement)	
Observation #	Volume
1	3,719.0
2	3,564.0
3	3,795.0
4	3,609.0
5	3,747.0
6	3,552.0
7	3,623.0
8	3,678.0
9	3,606.0
10	3,590.5
11	3,575.0
12	3,676.0
13	3,872.0
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Average (Mean):	3,662.0
Margin of Error (E):	53.12
Tolerance error percentage (e):	1.5%
$Z_{critical}$ (95% CI):	1.96
Standard Deviation:	97.71
Sample Size:	13

Field Data Notes	
Location:	I-94 EB btwn 68th St & Hawley Rd
Dates:	April 2019 Weekdays
Times:	5:30-6:30AM
Sources:	VSPOC

Initial Runs Worksheet		
Run Number	Seed	Volume
1	199	5498.0
2	409	5375.0
3	619	5396.0
4	829	5350.0
5	1039	5432.0
6	1249	5582.0
7	1459	5312.0

Average (Mean):	5420.7
Margin of Error (E):	147.40
Tolerance % Used:	2.7%
$Z_{critical}$ (95% CI)	1.96
Standard Deviation (σ):	92.77
Estimated Number of Runs:	2

Bureau of Traffic Operations
10/12/2017

Instructions:
1). Enter the name of the Measure of Effectiveness (MOE) being examined into the yellow-highlighted cell with "MOE" in the Initial Runs Worksheet.
2). For the selected MOE, enter the field observations into the tan-highlighted cells in the Variability Analysis of Field Data Worksheet.
3). Using the seeds specified in the Initial Runs Worksheet, conduct seven initial model runs. Document the results for the specified MOE in the blue-highlighted cells .
4). Statistical outliers will be eliminated if they exist. The remaining non-outliers will be valid runs. If the "Estimated Number of Runs" is less than or equal to the number of valid runs, the cell displaying the estimated number of runs in the Initial Runs Worksheet will be highlighted in green, indicating that the criteria are met and no further model runs are required. However, if the estimated number of runs is greater than the number of valid runs, the cell will be highlighted in yellow, indicating that further runs are required. If this is the case, continue on to Step 5.
5). Using the seeds specified in the Additional Runs Worksheet, run the model until the required number of model runs is reached. Document the results for each model run with the specified seed in the purple-highlighted cells. If 30 model runs have been completed and the required number of model runs is not satisfied, please contact BTO to discuss further options. Note that the first seven runs should be the same as that reported in the initial runs worksheet.

Additional Runs Worksheet		
Run Number	Seed	Volume
1	199	
2	409	
3	619	
4	829	
5	1039	
6	1249	
7	1459	
8	1669	
9	1879	
10	2089	
11	7	
12	157	
13	307	
14	457	
15	607	
16	757	
17	907	
18	5	
19	11	
20	17	
21	23	
22	29	
23	13	
24	103	
25	193	
26	283	
27	373	
28	463	
29	28657	
30	514229	

Average (Mean):	N/A
Margin of Error (E):	N/A
Tolerance % Used:	N/A
$Z_{critical}$ (95% CI)	1.96
Standard Deviation (σ):	N/A
Required Number of Runs:	N/A

Variability Analysis of Field Data Worksheet	
Field Observation (Measurement)	
Observation #	Volume
1	4,983.0
2	4,441.0
3	5,051.0
4	4,491.0
5	4,856.0
6	4,974.0
7	4,724.0
8	5,116.0
9	4,987.0
10	4,738.5
11	4,490.0
12	4,714.0
13	5,119.0
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Average (Mean):	4,821.9
Margin of Error (E):	131.08
Tolerance error percentage (e):	2.7%
$Z_{critical}$ (95% CI):	1.96
Standard Deviation:	241.12
Sample Size:	13

Field Data Notes	
Location:	I-94 EB btwn 68th St & Hawley Rd
Dates:	April 2019 Weekdays
Times:	6:30-7:30AM
Sources:	VSPOC

Initial Runs Worksheet		
Run Number	Seed	Volume
1	199	3988.0
2	409	4097.0
3	619	3938.0
4	829	4111.0
5	1039	4132.0
6	1249	4014.0
7	1459	4096.0

Average (Mean):	4053.7
Margin of Error (E):	153.10
Tolerance % Used:	3.8%
$Z_{critical}$ (95% CI)	1.96
Standard Deviation (σ):	73.44
Estimated Number of Runs:	1

Bureau of Traffic Operations
10/12/2017

Instructions:
1). Enter the name of the Measure of Effectiveness (MOE) being examined into the yellow-highlighted cell with "MOE" in the Initial Runs Worksheet.
2). For the selected MOE, enter the field observations into the tan-highlighted cells in the Variability Analysis of Field Data Worksheet.
3). Using the seeds specified in the Initial Runs Worksheet, conduct seven initial model runs. Document the results for the specified MOE in the blue-highlighted cells .
4). Statistical outliers will be eliminated if they exist. The remaining non-outliers will be valid runs. If the "Estimated Number of Runs" is less than or equal to the number of valid runs, the cell displaying the estimated number of runs in the Initial Runs Worksheet will be highlighted in green, indicating that the criteria are met and no further model runs are required. However, if the estimated number of runs is greater than the number of valid runs, the cell will be highlighted in yellow, indicating that further runs are required. If this is the case, continue on to Step 5.
5). Using the seeds specified in the Additional Runs Worksheet, run the model until the required number of model runs is reached. Document the results for each model run with the specified seed in the purple-highlighted cells. If 30 model runs have been completed and the required number of model runs is not satisfied, please contact BTO to discuss further options. Note that the first seven runs should be the same as that reported in the initial runs worksheet.

Additional Runs Worksheet		
Run Number	Seed	Volume
1	199	
2	409	
3	619	
4	829	
5	1039	
6	1249	
7	1459	
8	1669	
9	1879	
10	2089	
11	7	
12	157	
13	307	
14	457	
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16	757	
17	907	
18	5	
19	11	
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21	23	
22	29	
23	13	
24	103	
25	193	
26	283	
27	373	
28	463	
29	28657	
30	514229	

Average (Mean):	N/A
Margin of Error (E):	N/A
Tolerance % Used:	N/A
$Z_{critical}$ (95% CI)	1.96
Standard Deviation (σ):	N/A
Required Number of Runs:	N/A

Variability Analysis of Field Data Worksheet	
Field Observation (Measurement)	
Observation #	Volume
1	4,774.0
2	3,947.0
3	4,832.0
4	4,139.0
5	4,232.0
6	4,726.0
7	4,404.0
8	4,903.0
9	4,839.0
10	4,527.0
11	4,215.0
12	4,352.0
13	4,705.0
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Average (Mean):	4,507.3
Margin of Error (E):	170.18
Tolerance error percentage (e):	3.8%
$Z_{critical}$ (95% CI):	1.96
Standard Deviation:	313.06
Sample Size:	13

Field Data Notes	
Location:	I-94 EB btwn 68th St & Hawley Rd
Dates:	April 2019 Weekdays
Times:	7:30-8:30AM
Sources:	VSPOC

Initial Runs Worksheet		
Run Number	Seed	Volume
1	199	4043.0
2	409	3990.0
3	619	4186.0
4	829	4077.0
5	1039	3904.0
6	1249	3901.0
7	1459	4083.0

Average (Mean):	4026.3
Margin of Error (E):	116.80
Tolerance % Used:	2.9%
$Z_{critical}$ (95% CI)	1.96
Standard Deviation (σ):	102.91
Estimated Number of Runs:	3

Bureau of Traffic Operations
10/12/2017

Instructions:
1). Enter the name of the Measure of Effectiveness (MOE) being examined into the yellow-highlighted cell with "MOE" in the Initial Runs Worksheet.
2). For the selected MOE, enter the field observations into the tan-highlighted cells in the Variability Analysis of Field Data Worksheet.
3). Using the seeds specified in the Initial Runs Worksheet, conduct seven initial model runs. Document the results for the specified MOE in the blue-highlighted cells .
4). Statistical outliers will be eliminated if they exist. The remaining non-outliers will be valid runs. If the "Estimated Number of Runs" is less than or equal to the number of valid runs, the cell displaying the estimated number of runs in the Initial Runs Worksheet will be highlighted in green, indicating that the criteria are met and no further model runs are required. However, if the estimated number of runs is greater than the number of valid runs, the cell will be highlighted in yellow, indicating that further runs are required. If this is the case, continue on to Step 5.
5). Using the seeds specified in the Additional Runs Worksheet, run the model until the required number of model runs is reached. Document the results for each model run with the specified seed in the purple-highlighted cells. If 30 model runs have been completed and the required number of model runs is not satisfied, please contact BTO to discuss further options. Note that the first seven runs should be the same as that reported in the initial runs worksheet.

Additional Runs Worksheet		
Run Number	Seed	Volume
1	199	
2	409	
3	619	
4	829	
5	1039	
6	1249	
7	1459	
8	1669	
9	1879	
10	2089	
11	7	
12	157	
13	307	
14	457	
15	607	
16	757	
17	907	
18	5	
19	11	
20	17	
21	23	
22	29	
23	13	
24	103	
25	193	
26	283	
27	373	
28	463	
29	28657	
30	514229	

Average (Mean):	N/A
Margin of Error (E):	N/A
Tolerance % Used:	N/A
$Z_{critical}$ (95% CI)	1.96
Standard Deviation (σ):	N/A
Required Number of Runs:	N/A

Variability Analysis of Field Data Worksheet	
Field Observation (Measurement)	
Observation #	Volume
1	4,516.0
2	3,843.0
3	4,674.0
4	4,166.0
5	3,936.0
6	4,287.0
7	4,241.0
8	4,509.0
9	4,347.0
10	4,302.0
11	4,257.0
12	4,174.0
13	4,434.0
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Average (Mean):	4,283.5
Margin of Error (E):	124.31
Tolerance error percentage (e):	2.9%
$Z_{critical}$ (95% CI):	1.96
Standard Deviation:	228.68
Sample Size:	13

Field Data Notes	
Location:	I-94 EB btwn 68th St & Hawley Rd
Dates:	April 2019 Weekdays
Times:	8:30-9:30AM
Sources:	VSPOC

Initial Runs Worksheet		
Run Number	Seed	Volume
1	199	4831.0
2	409	4831.0
3	619	4862.0
4	829	4893.0
5	1039	4884.0
6	1249	4856.0
7	1459	4865.0

Average (Mean):	4860.3
Margin of Error (E):	136.00
Tolerance % Used:	2.8%
$Z_{critical}$ (95% CI)	1.96
Standard Deviation (σ):	23.77
Estimated Number of Runs:	1

Bureau of Traffic Operations
10/12/2017

Instructions:
1). Enter the name of the Measure of Effectiveness (MOE) being examined into the yellow-highlighted cell with "MOE" in the Initial Runs Worksheet.
2). For the selected MOE, enter the field observations into the tan-highlighted cells in the Variability Analysis of Field Data Worksheet.
3). Using the seeds specified in the Initial Runs Worksheet, conduct seven initial model runs. Document the results for the specified MOE in the blue-highlighted cells .
4). Statistical outliers will be eliminated if they exist. The remaining non-outliers will be valid runs. If the "Estimated Number of Runs" is less than or equal to the number of valid runs, the cell displaying the estimated number of runs in the Initial Runs Worksheet will be highlighted in green, indicating that the criteria are met and no further model runs are required. However, if the estimated number of runs is greater than the number of valid runs, the cell will be highlighted in yellow, indicating that further runs are required. If this is the case, continue on to Step 5.
5). Using the seeds specified in the Additional Runs Worksheet, run the model until the required number of model runs is reached. Document the results for each model run with the specified seed in the purple-highlighted cells. If 30 model runs have been completed and the required number of model runs is not satisfied, please contact BTO to discuss further options. Note that the first seven runs should be the same as that reported in the initial runs worksheet.

Additional Runs Worksheet		
Run Number	Seed	Volume
1	199	
2	409	
3	619	
4	829	
5	1039	
6	1249	
7	1459	
8	1669	
9	1879	
10	2089	
11	7	
12	157	
13	307	
14	457	
15	607	
16	757	
17	907	
18	5	
19	11	
20	17	
21	23	
22	29	
23	13	
24	103	
25	193	
26	283	
27	373	
28	463	
29	28657	
30	514229	

Average (Mean):	N/A
Margin of Error (E):	N/A
Tolerance % Used:	N/A
$Z_{critical}$ (95% CI)	1.96
Standard Deviation (σ):	N/A
Required Number of Runs:	N/A

Variability Analysis of Field Data Worksheet	
Field Observation (Measurement)	
Observation #	Volume
1	4,477.0
2	3,922.0
3	4,757.0
4	4,471.0
5	4,618.0
6	4,565.0
7	4,441.0
8	4,538.0
9	4,644.0
10	4,048.0
11	4,443.0
12	4,541.0
13	4,444.0
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Average (Mean):	4,454.5
Margin of Error (E):	124.64
Tolerance error percentage (e):	2.8%
$Z_{critical}$ (95% CI):	1.96
Standard Deviation:	229.28
Sample Size:	13

Field Data Notes	
Location:	I-94 EB btwn 68th St & Hawley Rd
Dates:	April 2019 Weekdays
Times:	1:30-2:30PM
Sources:	VSPOC

Initial Runs Worksheet		
Run Number	Seed	Volume
1	199	5557.0
2	409	5557.0
3	619	5513.0
4	829	5521.0
5	1039	5568.0
6	1249	5571.0
7	1459	5546.0

Average (Mean):	5547.6
Margin of Error (E):	125.10
Tolerance % Used:	2.3%
$Z_{critical}$ (95% CI)	1.96
Standard Deviation (σ):	22.54
Estimated Number of Runs:	1

Bureau of Traffic Operations
10/12/2017

Instructions:
1). Enter the name of the Measure of Effectiveness (MOE) being examined into the yellow-highlighted cell with "MOE" in the Initial Runs Worksheet.
2). For the selected MOE, enter the field observations into the tan-highlighted cells in the Variability Analysis of Field Data Worksheet.
3). Using the seeds specified in the Initial Runs Worksheet, conduct seven initial model runs. Document the results for the specified MOE in the blue-highlighted cells .
4). Statistical outliers will be eliminated if they exist. The remaining non-outliers will be valid runs. If the "Estimated Number of Runs" is less than or equal to the number of valid runs, the cell displaying the estimated number of runs in the Initial Runs Worksheet will be highlighted in green, indicating that the criteria are met and no further model runs are required. However, if the estimated number of runs is greater than the number of valid runs, the cell will be highlighted in yellow, indicating that further runs are required. If this is the case, continue on to Step 5.
5). Using the seeds specified in the Additional Runs Worksheet, run the model until the required number of model runs is reached. Document the results for each model run with the specified seed in the purple-highlighted cells. If 30 model runs have been completed and the required number of model runs is not satisfied, please contact BTO to discuss further options. Note that the first seven runs should be the same as that reported in the initial runs worksheet.

Additional Runs Worksheet		
Run Number	Seed	Volume
1	199	
2	409	
3	619	
4	829	
5	1039	
6	1249	
7	1459	
8	1669	
9	1879	
10	2089	
11	7	
12	157	
13	307	
14	457	
15	607	
16	757	
17	907	
18	5	
19	11	
20	17	
21	23	
22	29	
23	13	
24	103	
25	193	
26	283	
27	373	
28	463	
29	28657	
30	514229	

Average (Mean):	N/A
Margin of Error (E):	N/A
Tolerance % Used:	N/A
$Z_{critical}$ (95% CI)	1.96
Standard Deviation (σ):	N/A
Required Number of Runs:	N/A

Variability Analysis of Field Data Worksheet	
Field Observation (Measurement)	
Observation #	Volume
1	4,922.0
2	5,057.0
3	4,928.0
4	5,008.0
5	4,863.0
6	5,132.0
7	4,952.0
8	4,849.0
9	5,216.0
10	4,530.0
11	4,834.0
12	4,778.0
13	4,525.0
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Average (Mean):	4,891.8
Margin of Error (E):	110.28
Tolerance error percentage (e):	2.3%
$Z_{critical}$ (95% CI):	1.96
Standard Deviation:	202.86
Sample Size:	13

Field Data Notes	
Location:	I-94 EB btwn 68th St & Hawley Rd
Dates:	April 2019 Weekdays
Times:	2:30-3:30PM
Sources:	VSPOC

Initial Runs Worksheet		
Run Number	Seed	Volume
1	199	5718.0
2	409	5718.0
3	619	5787.0
4	829	5711.0
5	1039	5687.0
6	1249	5599.0
7	1459	5700.0

Average (Mean):	5702.9
Margin of Error (E):	288.60
Tolerance % Used:	5.1%
$Z_{critical}$ (95% CI)	1.96
Standard Deviation (σ):	55.75
Estimated Number of Runs:	1

Bureau of Traffic Operations
10/12/2017

Instructions:
1). Enter the name of the Measure of Effectiveness (MOE) being examined into the yellow-highlighted cell with "MOE" in the Initial Runs Worksheet.
2). For the selected MOE, enter the field observations into the tan-highlighted cells in the Variability Analysis of Field Data Worksheet.
3). Using the seeds specified in the Initial Runs Worksheet, conduct seven initial model runs. Document the results for the specified MOE in the blue-highlighted cells .
4). Statistical outliers will be eliminated if they exist. The remaining non-outliers will be valid runs. If the "Estimated Number of Runs" is less than or equal to the number of valid runs, the cell displaying the estimated number of runs in the Initial Runs Worksheet will be highlighted in green, indicating that the criteria are met and no further model runs are required. However, if the estimated number of runs is greater than the number of valid runs, the cell will be highlighted in yellow, indicating that further runs are required. If this is the case, continue on to Step 5.
5). Using the seeds specified in the Additional Runs Worksheet, run the model until the required number of model runs is reached. Document the results for each model run with the specified seed in the purple-highlighted cells. If 30 model runs have been completed and the required number of model runs is not satisfied, please contact BTO to discuss further options. Note that the first seven runs should be the same as that reported in the initial runs worksheet.

Additional Runs Worksheet		
Run Number	Seed	Volume
1	199	
2	409	
3	619	
4	829	
5	1039	
6	1249	
7	1459	
8	1669	
9	1879	
10	2089	
11	7	
12	157	
13	307	
14	457	
15	607	
16	757	
17	907	
18	5	
19	11	
20	17	
21	23	
22	29	
23	13	
24	103	
25	193	
26	283	
27	373	
28	463	
29	28657	
30	514229	

Average (Mean):	N/A
Margin of Error (E):	N/A
Tolerance % Used:	N/A
$Z_{critical}$ (95% CI)	1.96
Standard Deviation (σ):	N/A
Required Number of Runs:	N/A

Variability Analysis of Field Data Worksheet

Field Observation (Measurement)	
Observation #	Volume
1	5,109.0
2	5,223.0
3	4,890.0
4	5,135.0
5	4,006.0
6	5,161.0
7	5,170.0
8	4,474.0
9	5,340.0
10	4,777.0
11	4,749.0
12	4,319.0
13	4,110.0
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Average (Mean):	4,804.8
Margin of Error (E):	243.14
Tolerance error percentage (e):	5.1%
$Z_{critical}$ (95% CI):	1.96
Standard Deviation:	447.27
Sample Size:	13

Field Data Notes	
Location:	I-94 EB btwn 68th St & Hawley Rd
Dates:	April 2019 Weekdays
Times:	3:30-4:30PM
Sources:	VSPOC

Initial Runs Worksheet		
Run Number	Seed	Volume
1	199	4962.0
2	409	4962.0
3	619	4941.0
4	829	4984.0
5	1039	5024.0
6	1249	5063.0
7	1459	4995.0

Average (Mean):	4990.1
Margin of Error (E):	381.90
Tolerance % Used:	7.7%
$Z_{critical}$ (95% CI)	1.96
Standard Deviation (σ):	41.86
Estimated Number of Runs:	1

Bureau of Traffic Operations
10/12/2017

Instructions:
1). Enter the name of the Measure of Effectiveness (MOE) being examined into the yellow-highlighted cell with "MOE" in the Initial Runs Worksheet.
2). For the selected MOE, enter the field observations into the tan-highlighted cells in the Variability Analysis of Field Data Worksheet.
3). Using the seeds specified in the Initial Runs Worksheet, conduct seven initial model runs. Document the results for the specified MOE in the blue-highlighted cells .
4). Statistical outliers will be eliminated if they exist. The remaining non-outliers will be valid runs. If the "Estimated Number of Runs" is less than or equal to the number of valid runs, the cell displaying the estimated number of runs in the Initial Runs Worksheet will be highlighted in green, indicating that the criteria are met and no further model runs are required. However, if the estimated number of runs is greater than the number of valid runs, the cell will be highlighted in yellow, indicating that further runs are required. If this is the case, continue on to Step 5.
5). Using the seeds specified in the Additional Runs Worksheet, run the model until the required number of model runs is reached. Document the results for each model run with the specified seed in the purple-highlighted cells. If 30 model runs have been completed and the required number of model runs is not satisfied, please contact BTO to discuss further options. Note that the first seven runs should be the same as that reported in the initial runs worksheet.

Additional Runs Worksheet		
Run Number	Seed	Volume
1	199	
2	409	
3	619	
4	829	
5	1039	
6	1249	
7	1459	
8	1669	
9	1879	
10	2089	
11	7	
12	157	
13	307	
14	457	
15	607	
16	757	
17	907	
18	5	
19	11	
20	17	
21	23	
22	29	
23	13	
24	103	
25	193	
26	283	
27	373	
28	463	
29	28657	
30	514229	

Average (Mean):	N/A
Margin of Error (E):	N/A
Tolerance % Used:	N/A
$Z_{critical}$ (95% CI)	1.96
Standard Deviation (σ):	N/A
Required Number of Runs:	N/A

Variability Analysis of Field Data Worksheet	
Field Observation (Measurement)	
Observation #	Volume
1	4,990.0
2	4,687.0
3	4,579.0
4	4,894.0
5	2,877.0
6	4,802.0
7	5,129.0
8	4,171.0
9	5,172.0
10	4,541.0
11	4,435.0
12	3,974.0
13	3,893.0
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Average (Mean):	4,472.6
Margin of Error (E):	342.32
Tolerance error percentage (e):	7.7%
$Z_{critical}$ (95% CI):	1.96
Standard Deviation:	629.72
Sample Size:	13

Field Data Notes	
Location:	I-94 EB btwn 68th St & Hawley Rd
Dates:	April 2019 Weekdays
Times:	4:30-5:30PM
Sources:	VSPOC

Initial Runs Worksheet		
Run Number	Seed	Volume
1	199	4627.0
2	409	4627.0
3	619	4545.0
4	829	4563.0
5	1039	4519.0
6	1249	4549.0
7	1459	4561.0

Average (Mean):	4570.1
Margin of Error (E):	276.90
Tolerance % Used:	6.1%
$Z_{critical}$ (95% CI)	1.96
Standard Deviation (σ):	41.42
Estimated Number of Runs:	1

Bureau of Traffic Operations
10/12/2017

Instructions:
1). Enter the name of the Measure of Effectiveness (MOE) being examined into the yellow-highlighted cell with "MOE" in the Initial Runs Worksheet.
2). For the selected MOE, enter the field observations into the tan-highlighted cells in the Variability Analysis of Field Data Worksheet.
3). Using the seeds specified in the Initial Runs Worksheet, conduct seven initial model runs. Document the results for the specified MOE in the blue-highlighted cells .
4). Statistical outliers will be eliminated if they exist. The remaining non-outliers will be valid runs. If the "Estimated Number of Runs" is less than or equal to the number of valid runs, the cell displaying the estimated number of runs in the Initial Runs Worksheet will be highlighted in green, indicating that the criteria are met and no further model runs are required. However, if the estimated number of runs is greater than the number of valid runs, the cell will be highlighted in yellow, indicating that further runs are required. If this is the case, continue on to Step 5.
5). Using the seeds specified in the Additional Runs Worksheet, run the model until the required number of model runs is reached. Document the results for each model run with the specified seed in the purple-highlighted cells. If 30 model runs have been completed and the required number of model runs is not satisfied, please contact BTO to discuss further options. Note that the first seven runs should be the same as that reported in the initial runs worksheet.

Additional Runs Worksheet		
Run Number	Seed	Volume
1	199	
2	409	
3	619	
4	829	
5	1039	
6	1249	
7	1459	
8	1669	
9	1879	
10	2089	
11	7	
12	157	
13	307	
14	457	
15	607	
16	757	
17	907	
18	5	
19	11	
20	17	
21	23	
22	29	
23	13	
24	103	
25	193	
26	283	
27	373	
28	463	
29	28657	
30	514229	

Average (Mean):	N/A
Margin of Error (E):	N/A
Tolerance % Used:	N/A
$Z_{critical}$ (95% CI)	1.96
Standard Deviation (σ):	N/A
Required Number of Runs:	N/A

Variability Analysis of Field Data Worksheet	
Field Observation (Measurement)	
Observation #	Volume
1	4,504.0
2	4,317.0
3	4,195.0
4	4,650.0
5	2,946.0
6	4,439.0
7	4,835.0
8	4,245.0
9	4,847.0
10	4,376.0
11	4,331.0
12	4,078.0
13	4,028.0
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Average (Mean):	4,291.6
Margin of Error (E):	260.02
Tolerance error percentage (e):	6.1%
$Z_{critical}$ (95% CI):	1.96
Standard Deviation:	478.33
Sample Size:	13

Field Data Notes	
Location:	I-94 EB btwn 68th St & Hawley Rd
Dates:	April 2019 Weekdays
Times:	5:30-6:30PM
Sources:	VSPOC

Initial Runs Worksheet		
Run Number	**Seed**	**Volume**
1	199	4342.0
2	409	4351.0
3	619	4332.0
4	829	4389.0
5	1039	4355.0
6	1249	4361.0
7	1459	4357.0

Average (Mean):	4355.3
Margin of Error (E):	45.70
Tolerance % Used:	1.0%
$Z_{critical}$ (95% CI)	1.96
Standard Deviation (σ):	17.84
Estimated Number of Runs:	1

Bureau of Traffic Operations
10/12/2017

Instructions:
1). Enter the name of the Measure of Effectiveness (MOE) being examined into the yellow-highlighted cell with "MOE" in the Initial Runs Worksheet.
2). For the selected MOE, enter the field observations into the tan-highlighted cells in the Variability Analysis of Field Data Worksheet.
3). Using the seeds specified in the Initial Runs Worksheet, conduct seven initial model runs. Document the results for the specified MOE in the blue-highlighted cells .
4). Statistical outliers will be eliminated if they exist. The remaining non-outliers will be valid runs. If the "Estimated Number of Runs" is less than or equal to the number of valid runs, the cell displaying the estimated number of runs in the Initial Runs Worksheet will be highlighted in green, indicating that the criteria are met and no further model runs are required. However, if the estimated number of runs is greater than the number of valid runs, the cell will be highlighted in yellow, indicating that further runs are required. If this is the case, continue on to Step 5.
5). Using the seeds specified in the Additional Runs Worksheet, run the model until the required number of model runs is reached. Document the results for each model run with the specified seed in the purple-highlighted cells. If 30 model runs have been completed and the required number of model runs is not satisfied, please contact BTO to discuss further options. Note that the first seven runs should be the same as that reported in the initial runs worksheet.

Additional Runs Worksheet		
Run Number	**Seed**	**Volume**
1	199	
2	409	
3	619	
4	829	
5	1039	
6	1249	
7	1459	
8	1669	
9	1879	
10	2089	
11	7	
12	157	
13	307	
14	457	
15	607	
16	757	
17	907	
18	5	
19	11	
20	17	
21	23	
22	29	
23	13	
24	103	
25	193	
26	283	
27	373	
28	463	
29	28657	
30	514229	

Average (Mean):	N/A
Margin of Error (E):	N/A
Tolerance % Used:	N/A
$Z_{critical}$ (95% CI)	1.96
Standard Deviation (σ):	N/A
Required Number of Runs:	N/A

Variability Analysis of Field Data Worksheet	
Field Observation (Measurement)	
Observation #	**Volume**
1	4,452.0
2	4,543.0
3	4,463.0
4	4,512.0
5	4,371.0
6	4,335.0
7	4,639.0
8	4,463.0
9	4,426.0
10	4,470.0
11	4,514.0
12	4,542.0
13	4,615.0
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Average (Mean):	4,488.1
Margin of Error (E):	47.06
Tolerance error percentage (e):	1.0%
$Z_{critical}$ (95% CI):	1.96
Standard Deviation:	86.57
Sample Size:	13

Field Data Notes	
Location:	I-94 WB btwn Hawley Rd & 68th St
Dates:	April 2019 Weekdays
Times:	5:30-6:30AM
Sources:	VSPOC

Initial Runs Worksheet		
Run Number	Seed	Volume
1	199	6053.0
2	409	6031.0
3	619	6087.0
4	829	6055.0
5	1039	6024.0
6	1249	6027.0
7	1459	6063.0

Average (Mean):	6048.6
Margin of Error (E):	82.60
Tolerance % Used:	1.4%
$Z_{critical}$ (95% CI)	1.96
Standard Deviation (σ):	22.82
Estimated Number of Runs:	1

Bureau of Traffic Operations
10/12/2017

Instructions:
1). Enter the name of the Measure of Effectiveness (MOE) being examined into the yellow-highlighted cell with "MOE" in the Initial Runs Worksheet.
2). For the selected MOE, enter the field observations into the tan-highlighted cells in the Variability Analysis of Field Data Worksheet.
3). Using the seeds specified in the Initial Runs Worksheet, conduct seven initial model runs. Document the results for the specified MOE in the blue-highlighted cells .
4). Statistical outliers will be eliminated if they exist. The remaining non-outliers will be valid runs. If the "Estimated Number of Runs" is less than or equal to the number of valid runs, the cell displaying the estimated number of runs in the Initial Runs Worksheet will be highlighted in green, indicating that the criteria are met and no further model runs are required. However, if the estimated number of runs is greater than the number of valid runs, the cell will be highlighted in yellow, indicating that further runs are required. If this is the case, continue on to Step 5.
5). Using the seeds specified in the Additional Runs Worksheet, run the model until the required number of model runs is reached. Document the results for each model run with the specified seed in the purple-highlighted cells. If 30 model runs have been completed and the required number of model runs is not satisfied, please contact BTO to discuss further options. Note that the first seven runs should be the same as that reported in the initial runs worksheet.

Additional Runs Worksheet		
Run Number	Seed	Volume
1	199	
2	409	
3	619	
4	829	
5	1039	
6	1249	
7	1459	
8	1669	
9	1879	
10	2089	
11	7	
12	157	
13	307	
14	457	
15	607	
16	757	
17	907	
18	5	
19	11	
20	17	
21	23	
22	29	
23	13	
24	103	
25	193	
26	283	
27	373	
28	463	
29	28657	
30	514229	

Average (Mean):	N/A
Margin of Error (E):	N/A
Tolerance % Used:	N/A
$Z_{critical}$ (95% CI)	1.96
Standard Deviation (σ):	N/A
Required Number of Runs:	N/A

Variability Analysis of Field Data Worksheet	
Field Observation (Measurement)	
Observation #	Volume
1	6,061.0
2	6,169.0
3	6,025.0
4	6,092.0
5	5,607.0
6	6,007.0
7	6,127.0
8	6,112.0
9	5,973.0
10	5,952.5
11	5,932.0
12	6,141.0
13	6,187.0
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Average (Mean):	6,029.7
Margin of Error (E):	82.38
Tolerance error percentage (e):	1.4%
$Z_{critical}$ (95% CI):	1.96
Standard Deviation:	151.54
Sample Size:	13

Field Data Notes	
Location:	I-94 WB btwn Hawley Rd & 68th St
Dates:	April 2019 Weekdays
Times:	6:30-7:30AM
Sources:	VSPOC

Initial Runs Worksheet

Run Number	Seed	Volume
1	199	5975.0
2	409	5968.0
3	619	5907.0
4	829	5933.0
5	1039	5929.0
6	1249	5927.0
7	1459	5998.0

Average (Mean):	5948.1
Margin of Error (E):	112.90
Tolerance % Used:	1.9%
$Z_{critical}$ (95% CI)	1.96
Standard Deviation (σ):	32.5
Estimated Number of Runs:	1

Bureau of Traffic Operations
10/12/2017

Instructions:

1). Enter the name of the Measure of Effectiveness (MOE) being examined into the yellow-highlighted cell with "MOE" in the Initial Runs Worksheet.

2). For the selected MOE, enter the field observations into the tan-highlighted cells in the Variability Analysis of Field Data Worksheet.

3). Using the seeds specified in the Initial Runs Worksheet, conduct seven initial model runs. Document the results for the specified MOE in the blue-highlighted cells .

4). Statistical outliers will be eliminated if they exist. The remaining non-outliers will be valid runs. If the "Estimated Number of Runs" is less than or equal to the number of valid runs, the cell displaying the estimated number of runs in the Initial Runs Worksheet will be highlighted in green, indicating that the criteria are met and no further model runs are required. However, if the estimated number of runs is greater than the number of valid runs, the cell will be highlighted in yellow, indicating that further runs are required. If this is the case, continue on to Step 5.

5). Using the seeds specified in the Additional Runs Worksheet, run the model until the required number of model runs is reached. Document the results for each model run with the specified seed in the purple-highlighted cells. If 30 model runs have been completed and the required number of model runs is not satisfied, please contact BTO to discuss further options. Note that the first seven runs should be the same as that reported in the initial runs worksheet.

Additional Runs Worksheet

Run Number	Seed	Volume
1	199	
2	409	
3	619	
4	829	
5	1039	
6	1249	
7	1459	
8	1669	
9	1879	
10	2089	
11	7	
12	157	
13	307	
14	457	
15	607	
16	757	
17	907	
18	5	
19	11	
20	17	
21	23	
22	29	
23	13	
24	103	
25	193	
26	283	
27	373	
28	463	
29	28657	
30	514229	

Average (Mean):	N/A
Margin of Error (E):	N/A
Tolerance % Used:	N/A
$Z_{critical}$ (95% CI)	1.96
Standard Deviation (σ):	N/A
Required Number of Runs:	N/A

Variability Analysis of Field Data Worksheet

Field Observation (Measurement)

Observation #	Volume
1	6,148.0
2	6,161.0
3	6,099.0
4	6,054.0
5	5,371.0
6	6,029.0
7	6,168.0
8	6,160.0
9	5,998.0
10	5,977.5
11	5,957.0
12	6,121.0
13	6,117.0
14	
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Average (Mean):	6,027.7
Margin of Error (E):	114.41
Tolerance error percentage (e):	1.9%
$Z_{critical}$ (95% CI):	1.96
Standard Deviation:	210.46
Sample Size:	13

Field Data Notes	
Location:	I-94 WB btwn Hawley Rd & 68th St
Dates:	April 2019 Weekdays
Times:	7:30-8:30AM
Sources:	VSPOC

Initial Runs Worksheet

Run Number	Seed	Volume
1	199	4790.0
2	409	4815.0
3	619	4853.0
4	829	4804.0
5	1039	4890.0
6	1249	4977.0
7	1459	4774.0

Average (Mean):	4843.3
Margin of Error (E):	63.20
Tolerance % Used:	1.3%
$Z_{critical}$ (95% CI)	1.96
Standard Deviation (σ):	70.87
Estimated Number of Runs:	5

Bureau of Traffic Operations
10/12/2017

Instructions:

1). Enter the name of the Measure of Effectiveness (MOE) being examined into the yellow-highlighted cell with "MOE" in the Initial Runs Worksheet.

2). For the selected MOE, enter the field observations into the tan-highlighted cells in the Variability Analysis of Field Data Worksheet.

3). Using the seeds specified in the Initial Runs Worksheet, conduct seven initial model runs. Document the results for the specified MOE in the blue-highlighted cells .

4). Statistical outliers will be eliminated if they exist. The remaining non-outliers will be valid runs. If the "Estimated Number of Runs" is less than or equal to the number of valid runs, the cell displaying the estimated number of runs in the Initial Runs Worksheet will be highlighted in green, indicating that the criteria are met and no further model runs are required. However, if the estimated number of runs is greater than the number of valid runs, the cell will be highlighted in yellow, indicating that further runs are required. If this is the case, continue on to Step 5.

5). Using the seeds specified in the Additional Runs Worksheet, run the model until the required number of model runs is reached. Document the results for each model run with the specified seed in the purple-highlighted cells. If 30 model runs have been completed and the required number of model runs is not satisfied, please contact BTO to discuss further options. Note that the first seven runs should be the same as that reported in the initial runs worksheet.

Additional Runs Worksheet

Run Number	Seed	Volume
1	199	
2	409	
3	619	
4	829	
5	1039	
6	1249	
7	1459	
8	1669	
9	1879	
10	2089	
11	7	
12	157	
13	307	
14	457	
15	607	
16	757	
17	907	
18	5	
19	11	
20	17	
21	23	
22	29	
23	13	
24	103	
25	193	
26	283	
27	373	
28	463	
29	28657	
30	514229	

Average (Mean):	N/A
Margin of Error (E):	N/A
Tolerance % Used:	N/A
$Z_{critical}$ (95% CI)	1.96
Standard Deviation (σ):	N/A
Required Number of Runs:	N/A

Variability Analysis of Field Data Worksheet

Field Observation (Measurement)

Observation #	Volume
1	5,204.0
2	5,354.0
3	5,223.0
4	5,225.0
5	4,839.0
6	5,133.0
7	5,318.0
8	5,277.0
9	5,228.0
10	5,238.0
11	5,248.0
12	5,169.0
13	5,257.0
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Average (Mean):	5,208.7
Margin of Error (E):	67.92
Tolerance error percentage (e):	1.3%
$Z_{critical}$ (95% CI):	1.96
Standard Deviation:	124.94
Sample Size:	13

Field Data Notes	
Location:	I-94 WB btwn Hawley Rd & 68th St
Dates:	April 2019 Weekdays
Times:	8:30-9:30AM
Sources:	VSPOC

Initial Runs Worksheet

Run Number	Seed	Volume
1	199	5612.0
2	409	5612.0
3	619	5668.0
4	829	5639.0
5	1039	5599.0
6	1249	5617.0
7	1459	5627.0

Average (Mean):	5624.9
Margin of Error (E):	134.80
Tolerance % Used:	2.4%
$Z_{critical}$ (95% CI)	1.96
Standard Deviation (σ):	22.83
Estimated Number of Runs:	1

Bureau of Traffic Operations
10/12/2017

Instructions:

1). Enter the name of the Measure of Effectiveness (MOE) being examined into the yellow-highlighted cell with "MOE" in the Initial Runs Worksheet.

2). For the selected MOE, enter the field observations into the tan-highlighted cells in the Variability Analysis of Field Data Worksheet.

3). Using the seeds specified in the Initial Runs Worksheet, conduct seven initial model runs. Document the results for the specified MOE in the blue-highlighted cells .

4). Statistical outliers will be eliminated if they exist. The remaining non-outliers will be valid runs. If the "Estimated Number of Runs" is less than or equal to the number of valid runs, the cell displaying the estimated number of runs in the Initial Runs Worksheet will be highlighted in green, indicating that the criteria are met and no further model runs are required. However, if the estimated number of runs is greater than the number of valid runs, the cell will be highlighted in yellow, indicating that further runs are required. If this is the case, continue on to Step 5.

5). Using the seeds specified in the Additional Runs Worksheet, run the model until the required number of model runs is reached. Document the results for each model run with the specified seed in the purple-highlighted cells. If 30 model runs have been completed and the required number of model runs is not satisfied, please contact BTO to discuss further options. Note that the first seven runs should be the same as that reported in the initial runs worksheet.

Additional Runs Worksheet

Run Number	Seed	Volume
1	199	
2	409	
3	619	
4	829	
5	1039	
6	1249	
7	1459	
8	1669	
9	1879	
10	2089	
11	7	
12	157	
13	307	
14	457	
15	607	
16	757	
17	907	
18	5	
19	11	
20	17	
21	23	
22	29	
23	13	
24	103	
25	193	
26	283	
27	373	
28	463	
29	28657	
30	514229	

Average (Mean):	N/A
Margin of Error (E):	N/A
Tolerance % Used:	N/A
$Z_{critical}$ (95% CI)	1.96
Standard Deviation (σ):	N/A
Required Number of Runs:	N/A

Variability Analysis of Field Data Worksheet

Field Observation (Measurement)

Observation #	Volume
1	5,310.0
2	5,050.0
3	5,763.0
4	5,680.0
5	5,717.0
6	5,634.0
7	5,391.0
8	5,404.0
9	5,747.0
10	5,126.0
11	5,656.0
12	5,733.0
13	5,619.0
14	
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Average (Mean):	5,525.4
Margin of Error (E):	132.38
Tolerance error percentage (e):	2.4%
$Z_{critical}$ (95% CI):	1.96
Standard Deviation:	243.52
Sample Size:	13

Field Data Notes	
Location:	I-94 WB btwn Hawley Rd & 68th St
Dates:	April 2019 Weekdays
Times:	1:30-2:30PM
Sources:	VSPOC

Initial Runs Worksheet

Run Number	Seed	Volume
1	199	5977.0
2	409	5977.0
3	619	6038.0
4	829	6041.0
5	1039	6040.0
6	1249	6044.0
7	1459	6028.0

Average (Mean):	6020.7
Margin of Error (E):	106.10
Tolerance % Used:	1.8%
$Z_{critical}$ (95% CI)	1.96
Standard Deviation (σ):	30.27
Estimated Number of Runs:	1

Bureau of Traffic Operations
10/12/2017

Instructions:

1). Enter the name of the Measure of Effectiveness (MOE) being examined into the yellow-highlighted cell with "MOE" in the Initial Runs Worksheet.

2). For the selected MOE, enter the field observations into the tan-highlighted cells in the Variability Analysis of Field Data Worksheet.

3). Using the seeds specified in the Initial Runs Worksheet, conduct seven initial model runs. Document the results for the specified MOE in the blue-highlighted cells .

4). Statistical outliers will be eliminated if they exist. The remaining non-outliers will be valid runs. If the "Estimated Number of Runs" is less than or equal to the number of valid runs, the cell displaying the estimated number of runs in the Initial Runs Worksheet will be highlighted in green, indicating that the criteria are met and no further model runs are required. However, if the estimated number of runs is greater than the number of valid runs, the cell will be highlighted in yellow, indicating that further runs are required. If this is the case, continue on to Step 5.

5). Using the seeds specified in the Additional Runs Worksheet, run the model until the required number of model runs is reached. Document the results for each model run with the specified seed in the purple-highlighted cells. If 30 model runs have been completed and the required number of model runs is not satisfied, please contact BTO to discuss further options. Note that the first seven runs should be the same as that reported in the initial runs worksheet.

Additional Runs Worksheet

Run Number	Seed	Volume
1	199	
2	409	
3	619	
4	829	
5	1039	
6	1249	
7	1459	
8	1669	
9	1879	
10	2089	
11	7	
12	157	
13	307	
14	457	
15	607	
16	757	
17	907	
18	5	
19	11	
20	17	
21	23	
22	29	
23	13	
24	103	
25	193	
26	283	
27	373	
28	463	
29	28657	
30	514229	

Average (Mean):	N/A
Margin of Error (E):	N/A
Tolerance % Used:	N/A
$Z_{critical}$ (95% CI)	1.96
Standard Deviation (σ):	N/A
Required Number of Runs:	N/A

Variability Analysis of Field Data Worksheet

Field Observation (Measurement)

Observation #	Volume
1	5,793.0
2	6,210.0
3	6,184.0
4	6,201.0
5	6,023.0
6	6,244.0
7	5,970.0
8	5,756.0
9	6,042.0
10	5,630.0
11	6,108.0
12	6,117.0
13	5,889.0
14	
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Average (Mean):	6,012.8
Margin of Error (E):	105.96
Tolerance error percentage (e):	1.8%
$Z_{critical}$ (95% CI):	1.96
Standard Deviation:	194.91
Sample Size:	13

Field Data Notes	
Location:	I-94 WB btwn Hawley Rd & 68th St
Dates:	April 2019 Weekdays
Times:	2:30-3:30PM
Sources:	VSPOC

Initial Runs Worksheet		
Run Number	Seed	Volume
1	199	6033.0
2	409	6033.0
3	619	6054.0
4	829	6112.0
5	1039	6068.0
6	1249	6082.0
7	1459	6070.0

Average (Mean):	6064.6
Margin of Error (E):	413.00
Tolerance % Used:	6.8%
$Z_{critical}$ (95% CI)	1.96
Standard Deviation (σ):	27.99
Estimated Number of Runs:	1

Bureau of Traffic Operations
10/12/2017

Instructions:
1). Enter the name of the Measure of Effectiveness (MOE) being examined into the yellow-highlighted cell with "MOE" in the Initial Runs Worksheet.
2). For the selected MOE, enter the field observations into the tan-highlighted cells in the Variability Analysis of Field Data Worksheet.
3). Using the seeds specified in the Initial Runs Worksheet, conduct seven initial model runs. Document the results for the specified MOE in the blue-highlighted cells .
4). Statistical outliers will be eliminated if they exist. The remaining non-outliers will be valid runs. If the "Estimated Number of Runs" is less than or equal to the number of valid runs, the cell displaying the estimated number of runs in the Initial Runs Worksheet will be highlighted in green, indicating that the criteria are met and no further model runs are required. However, if the estimated number of runs is greater than the number of valid runs, the cell will be highlighted in yellow, indicating that further runs are required. If this is the case, continue on to Step 5.
5). Using the seeds specified in the Additional Runs Worksheet, run the model until the required number of model runs is reached. Document the results for each model run with the specified seed in the purple-highlighted cells. If 30 model runs have been completed and the required number of model runs is not satisfied, please contact BTO to discuss further options. Note that the first seven runs should be the same as that reported in the initial runs worksheet.

Additional Runs Worksheet		
Run Number	Seed	Volume
1	199	
2	409	
3	619	
4	829	
5	1039	
6	1249	
7	1459	
8	1669	
9	1879	
10	2089	
11	7	
12	157	
13	307	
14	457	
15	607	
16	757	
17	907	
18	5	
19	11	
20	17	
21	23	
22	29	
23	13	
24	103	
25	193	
26	283	
27	373	
28	463	
29	28657	
30	514229	

Average (Mean):	N/A
Margin of Error (E):	N/A
Tolerance % Used:	N/A
$Z_{critical}$ (95% CI)	1.96
Standard Deviation (σ):	N/A
Required Number of Runs:	N/A

Variability Analysis of Field Data Worksheet	
Field Observation (Measurement)	
Observation #	Volume
1	6,268.0
2	6,345.0
3	6,306.0
4	6,274.0
5	3,555.0
6	6,409.0
7	6,322.0
8	5,946.0
9	6,224.0
10	6,267.0
11	6,260.0
12	6,314.0
13	6,079.0
14	
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Average (Mean):	6,043.8
Margin of Error (E):	411.63
Tolerance error percentage (e):	6.8%
$Z_{critical}$ (95% CI):	1.96
Standard Deviation:	757.21
Sample Size:	13

Field Data Notes	
Location:	I-94 WB btwn Hawley Rd & 68th St
Dates:	April 2019 Weekdays
Times:	3:30-4:30PM
Sources:	VSPOC

Initial Runs Worksheet

Run Number	Seed	Volume
1	199	6108.0
2	409	6108.0
3	619	6084.0
4	829	6006.0
5	1039	6110.0
6	1249	6029.0
7	1459	6068.0

Average (Mean):	6073.3
Margin of Error (E):	739.20
Tolerance % Used:	12.2%
$Z_{critical}$ (95% CI)	1.96
Standard Deviation (σ):	41.61
Estimated Number of Runs:	1

Bureau of Traffic Operations
10/12/2017

Instructions:
1). Enter the name of the Measure of Effectiveness (MOE) being examined into the yellow-highlighted cell with "MOE" in the Initial Runs Worksheet.
2). For the selected MOE, enter the field observations into the tan-highlighted cells in the Variability Analysis of Field Data Worksheet.
3). Using the seeds specified in the Initial Runs Worksheet, conduct seven initial model runs. Document the results for the specified MOE in the blue-highlighted cells .
4). Statistical outliers will be eliminated if they exist. The remaining non-outliers will be valid runs. If the "Estimated Number of Runs" is less than or equal to the number of valid runs, the cell displaying the estimated number of runs in the Initial Runs Worksheet will be highlighted in green, indicating that the criteria are met and no further model runs are required. However, if the estimated number of runs is greater than the number of valid runs, the cell will be highlighted in yellow, indicating that further runs are required. If this is the case, continue on to Step 5.
5). Using the seeds specified in the Additional Runs Worksheet, run the model until the required number of model runs is reached. Document the results for each model run with the specified seed in the purple-highlighted cells. If 30 model runs have been completed and the required number of model runs is not satisfied, please contact BTO to discuss further options. Note that the first seven runs should be the same as that reported in the initial runs worksheet.

Additional Runs Worksheet

Run Number	Seed	Volume
1	199	
2	409	
3	619	
4	829	
5	1039	
6	1249	
7	1459	
8	1669	
9	1879	
10	2089	
11	7	
12	157	
13	307	
14	457	
15	607	
16	757	
17	907	
18	5	
19	11	
20	17	
21	23	
22	29	
23	13	
24	103	
25	193	
26	283	
27	373	
28	463	
29	28657	
30	514229	

Average (Mean):	N/A
Margin of Error (E):	N/A
Tolerance % Used:	N/A
$Z_{critical}$ (95% CI)	1.96
Standard Deviation (σ):	N/A
Required Number of Runs:	N/A

Variability Analysis of Field Data Worksheet

Field Observation (Measurement)

Observation #	Volume
1	6,325.0
2	6,271.0
3	6,215.0
4	6,238.0
5	1,507.0
6	6,190.0
7	6,339.0
8	5,867.0
9	6,021.0
10	6,267.0
11	6,142.0
12	6,275.0
13	6,063.0
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Average (Mean):	5,824.6
Margin of Error (E):	708.94
Tolerance error percentage (e):	12.2%
$Z_{critical}$ (95% CI):	1.96
Standard Deviation:	1,304.14
Sample Size:	13

Field Data Notes	
Location:	I-94 WB btwn Hawley Rd & 68th St
Dates:	April 2019 Weekdays
Times:	4:30-5:30PM
Sources:	VSPOC

Initial Runs Worksheet		
Run Number	Seed	Volume
1	199	5732.0
2	409	5732.0
3	619	5617.0
4	829	5611.0
5	1039	5604.0
6	1249	5698.0
7	1459	5652.0

Average (Mean):	5663.7
Margin of Error (E):	399.40
Tolerance % Used:	7.1%
$Z_{critical}$ (95% CI)	1.96
Standard Deviation (σ):	56.52
Estimated Number of Runs:	1

Bureau of Traffic Operations
10/12/2017

Instructions:
1). Enter the name of the Measure of Effectiveness (MOE) being examined into the yellow-highlighted cell with "MOE" in the Initial Runs Worksheet.
2). For the selected MOE, enter the field observations into the tan-highlighted cells in the Variability Analysis of Field Data Worksheet.
3). Using the seeds specified in the Initial Runs Worksheet, conduct seven initial model runs. Document the results for the specified MOE in the blue-highlighted cells .
4). Statistical outliers will be eliminated if they exist. The remaining non-outliers will be valid runs. If the "Estimated Number of Runs" is less than or equal to the number of valid runs, the cell displaying the estimated number of runs in the Initial Runs Worksheet will be highlighted in green, indicating that the criteria are met and no further model runs are required. However, if the estimated number of runs is greater than the number of valid runs, the cell will be highlighted in yellow, indicating that further runs are required. If this is the case, continue on to Step 5.
5). Using the seeds specified in the Additional Runs Worksheet, run the model until the required number of model runs is reached. Document the results for each model run with the specified seed in the purple-highlighted cells. If 30 model runs have been completed and the required number of model runs is not satisfied, please contact BTO to discuss further options. Note that the first seven runs should be the same as that reported in the initial runs worksheet.

Additional Runs Worksheet		
Run Number	Seed	Volume
1	199	
2	409	
3	619	
4	829	
5	1039	
6	1249	
7	1459	
8	1669	
9	1879	
10	2089	
11	7	
12	157	
13	307	
14	457	
15	607	
16	757	
17	907	
18	5	
19	11	
20	17	
21	23	
22	29	
23	13	
24	103	
25	193	
26	283	
27	373	
28	463	
29	28657	
30	514229	

Average (Mean):	N/A
Margin of Error (E):	N/A
Tolerance % Used:	N/A
$Z_{critical}$ (95% CI)	1.96
Standard Deviation (σ):	N/A
Required Number of Runs:	N/A

Variability Analysis of Field Data Worksheet	
Field Observation (Measurement)	
Observation #	Volume
1	5,482.0
2	5,401.0
3	5,571.0
4	5,635.0
5	3,046.0
6	5,393.0
7	5,490.0
8	5,410.0
9	5,230.0
10	5,585.0
11	5,469.0
12	5,648.0
13	5,573.0
14	
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Average (Mean):	5,302.5
Margin of Error (E):	373.88
Tolerance error percentage (e):	7.1%
$Z_{critical}$ (95% CI):	1.96
Standard Deviation:	687.79
Sample Size:	13

Field Data Notes	
Location:	I-94 WB btwn Hawley Rd & 68th St
Dates:	April 2019 Weekdays
Times:	5:30-6:30PM
Sources:	VSPOC

Appendix H – VISSIM Model Validation Tables

I-94 East-West Data Collection Project

Existing (2019) AM Peak Period Validation

Freeway Mainline and Ramp Volumes

Segments				Existing AM Peak Period Hourly Vols (5:30-9:30AM)																				
				5:30-6:30AM					6:30-7:30AM (Peak)					7:30-8:30AM					8:30-9:30AM					
																			Target					
Forecast ID	Link ID	Description	Type	Target	VISSIM	RMSPE	RNSE	OK?	Target	VISSIM	RMSPE	RNSE	OK?	Target	VISSIM	RMSPE	RNSE	OK?	Unfactored	Factored	VISSIM	RMSPE	RNSE	OK?
1000	144	Zoo Int W-E System Movment (I-94 EB)	Mainline	1970	1951	1%	0.4	OK	2670	2670	0%	0.0	OK	2020	2016	0%	0.1	OK	2220	1720	1725	0%	0.1	OK
1001	147	Zoo Int N-E System Ramp (I-41 NB/894 WB to I-94 EB)	Sys Ramp	1400	1396	0%	0.1	OK	1930	1935	0%	0.1	OK	1275	1277	0%	0.1	OK	1380	1140	1146	1%	0.2	OK
1002	149	Zoo Int S-E System Ramp (I-41 SB to I-94 EB)	Sys Ramp	1025	1021	0%	0.1	OK	1290	1292	0%	0.1	OK	905	908	0%	0.1	OK	950	780	783	0%	0.1	OK
1003	453	Zoo Int N-E/S-E System Ramps	Sys Ramp	2425	2403	1%	0.4	OK	3220	3226	0%	0.1	OK	2180	2191	1%	0.2	OK	2330	1920	1932	1%	0.3	OK
1004	454	84th St EB Exit Ramp (slip)	Ramp	135	140	4%	0.4	OK	500	492	2%	0.4	OK	420	432	3%	0.6	OK	220	220	229	4%	0.6	OK
1006	1	I-94 EB btwn Zoo Int and 84th St Entr Ramp	Mainline	4260	4228	1%	0.5	OK	5390	5379	0%	0.1	OK	3780	3707	2%	1.2	OK	4330	3420	3504	2%	1.4	OK
1007	463	84th St EB Entr Ramp	Ramp	220	216	2%	0.3	OK	400	398	1%	0.1	OK	340	339	0%	0.1	OK	270	270	273	1%	0.2	OK
1008	2	I-94 EB btwn 84th St Entr Ramp and 70th St Exit Ramp	Mainline	4480	4444	1%	0.5	OK	5790	5630	3%	2.1	OK	4120	3997	3%	1.9	OK	4600	3690	3777	2%	1.4	OK
1009	127	70th St EB Exit Ramp	Ramp	210	205	2%	0.3	OK	600	567	6%	1.3	NO	610	584	4%	1.1	OK	590	590	637	8%	1.9	NO
1010	3	I-94 EB btwn 70th St Exit Ramp and 68th St Entr Ramp	Mainline	4270	4239	1%	0.5	OK	5190	5029	3%	2.2	OK	3510	3395	3%	1.9	OK	4010	3100	3140	1%	0.7	OK
1011	423	68th St EB Entr Ramp	Ramp	210	208	1%	0.1	OK	470	453	4%	0.8	OK	680	678	0%	0.1	OK	400	400	391	2%	0.5	OK
1012	424	I-94 EB btwn 68th St Entr Ramp and Hawley Rd Exit Ramp	Mainline	4480	4447	1%	0.5	OK	5660	5482	3%	2.4	OK	4190	4053	3%	2.1	OK	4410	3500	3531	1%	0.5	OK
1013	174	Hawley Rd EB Exit Ramp	Ramp	210	198	6%	0.8	NO	230	230	0%	0.0	OK	140	132	6%	0.7	OK	130	130	156	20%	2.3	NO
1014	426	I-94 EB btwn Hawley Rd Exit and Entr Ramps	Mainline	4270	4249	0%	0.3	OK	5430	5252	3%	2.4	OK	4050	3924	3%	2.0	OK	4280	3370	3375	0%	0.1	OK
1015	385	Hawley Rd EB Entr Ramp	Ramp	190	187	2%	0.2	OK	320	316	1%	0.2	OK	420	414	1%	0.3	OK	340	340	340	0%	0.0	OK
1016	11	I-94 EB btwn Hawley Rd Entr Ramp and Gen Mitchell Blvd Exit Ramp	Mainline	4460	4436	1%	0.4	OK	5750	5568	3%	2.4	OK	4470	4320	3%	2.2	OK	4620	3710	3715	0%	0.1	OK
1017	206	Gen Mitchell Blvd EB Exit Ramp	Ramp	80	79	1%	0.1	OK	270	254	6%	1.0	NO	120	121	1%	0.1	OK	100	100	111	11%	1.1	NO
1018	52	I-94 EB btwn Gen Mitchell Blvd Exit and Entr Ramps	Mainline	4380	4357	1%	0.3	OK	5480	5314	3%	2.2	OK	4350	4212	3%	2.1	OK	4520	3610	3604	0%	0.1	OK
1019	209	Gen Mitchell Blvd EB Entr Ramp	Ramp	10	13	26%	0.9	NO	60	42	35%	2.3	NO	210	182	13%	1.9	NO	110	110	94	15%	1.5	NO
1020	18	I-94 EB btwn Gen Mitchell Blvd Entr Ramp and Stadium Int	Mainline	4390	4370	0%	0.3	OK	5540	5356	3%	2.5	OK	4560	4384	4%	2.6	OK	4630	3720	3698	1%	0.4	OK
1021	221	Stadium Int W-S System Ramp (I-94 EB to Miller Park Way SB)	Sys Ramp	530	510	4%	0.9	OK	460	435	5%	1.2	OK	270	257	5%	0.8	OK	310	265	304	15%	2.4	NO
1023	226	Stadium Int W-N System Ramp (I-94 EB to WIS 175 NB)	Sys Ramp	410	380	7%	1.5	NO	530	506	5%	1.0	OK	410	390	5%	1.0	OK	400	335	399	19%	3.3	NO
1024	70	Stadium Int W-E System Movement (I-94 EB)	Mainline	3450	3480	1%	0.5	OK	4550	4415	3%	2.0	OK	3880	3738	4%	2.3	OK	3920	3120	2995	4%	2.2	OK
1025	103	Stadium Int S-E System Ramp (Miller Park Way NB to I-94 EB)	Sys Ramp	190	183	4%	0.5	OK	470	453	4%	0.8	OK	650	639	2%	0.4	OK	490	490	497	1%	0.3	OK
1027	114	Stadium Int N-E System Ramp (WIS 175 SB to I-94 EB)	Sys Ramp	600	589	2%	0.4	OK	1150	1132	2%	0.5	OK	1180	1171	1%	0.3	OK	1050	1050	1066	2%	0.5	OK
1028	21	I-94 EB btwn Stadium Int and 35th St Exit Ramp	Mainline	4240	4252	0%	0.2	OK	6170	6000	3%	2.2	OK	5710	5548	3%	2.1	OK	5460	4660	4558	2%	1.5	OK
1029	342	35th St EB Exit Ramp	Ramp	250	229	8%	1.3	NO	300	280	7%	1.2	NO	190	190	0%	0.0	OK	210	210	215	2%	0.3	OK
1030	27	I-94 EB btwn 35th St Exit and Entr Ramps	Mainline	3990	4023	1%	0.5	OK	5870	5720	3%	2.0	OK	5520	5358	3%	2.2	OK	5250	4450	4343	2%	1.6	OK
1031	227	35th St EB Entr Ramp	Ramp	180	162	10%	1.3	NO	400	375	6%	1.3	NO	610	601	1%	0.4	OK	390	390	368	6%	1.1	NO
1032	28	I-94 EB btwn 35th St Entr Ramp and 26th St Exit Ramp	Mainline	4170	4185	0%	0.2	OK	6270	6095	3%	2.2	OK	6130	5959	3%	2.2	OK	5640	4840	4711	3%	1.9	OK
1033	356	26th St EB Exit Ramp	Ramp	350	303	13%	2.5	NO	340	319	6%	1.1	NO	270	233	14%	2.3	NO	350	350	348	1%	0.1	OK
1035	33	I-94 EB btwn 26th St Exit Ramp and 25th St Entr Ramp	Mainline	3820	3882	2%	1.0	OK	5930	5776	3%	2.0	OK	5860	5726	2%	1.8	OK	5290	4490	4363	3%	1.9	OK
1036	373	25th St EB Entr Ramp	Ramp	300	298	1%	0.1	OK	430	434	1%	0.2	OK	580	589	2%	0.4	OK	420	420	434	3%	0.7	OK
1037	35	I-94 EB btwn 25th St Entr Ramp and 13th St Exit Ramp	Mainline	4120	4180	1%	0.9	OK	6360	6210	2%	1.9	OK	6440	6315	2%	1.6	OK	5710	4910	4797	2%	1.6	OK
1038	34	13th St EB Exit Ramp	Ramp	200	188	6%	0.8	NO	310	277	11%	1.9	NO	250	251	0%	0.1	OK	270	270	291	8%	1.3	NO
1040	343	Marquette Int W-N System Ramp (I-94 EB to I-43 NB)	Sys Ramp	1750	1782	2%	0.8	OK	2640	2589	2%	1.0	OK	2750	2666	3%	1.6	OK	2520	2130	2087	2%	0.9	OK
1042	181	Marquette Int W-S System Ramp (I-94 EB to I-43 SB/94 EB)	Sys Ramp	870	886	2%	0.5	OK	1260	1236	2%	0.7	OK	930	971	4%	1.3	OK	880	800	861	8%	2.2	NO
1043	180	Marquette Int W-E System Movement (I-94 EB to I-794 EB)	Mainline	1300	1324	2%	0.7	OK	2150	2108	2%	0.9	OK	2510	2407	3%	1.7	OK	2040	1710	1558	9%	2.7	NO
2001	659	Marquette Int E-W System Movement (I-794 WB to I-94 WB)	Mainline	1320	1320	0%	0.0	OK	2400	2393	0%	0.1	OK	2530	2528	0%	0.0	OK	1850	1650	1562	5%	2.2	OK
2002	470	Tory Hill St WB Entr Ramp	Ramp	60	59	2%	0.1	OK	100	96	4%	0.4	OK	130	131	1%	0.1	OK	200	200	199	1%	0.1	OK
2003	40	I-94 WB btwn Tory Hill St Entr Ramp and Marquette Int S-W/N-W System Ramps	Mainline	1380	1366	1%	0.4	OK	2500	2468	1%	0.6	OK	2660	2641	1%	0.4	OK	2050	1850	1750	5%	2.3	OK
2004	465	Marquette Int S-W System Ramp (I-43 NB/94 WB to I-94 WB)	Sys Ramp	1175	1165	1%	0.3	OK	1480	1473	0%	0.2	OK	1110	1111	0%	0.0	OK	1100	990	943	5%	1.5	OK
2005	663	Marquette Int N-W System Ramp (I-43 SB to I-94 WB)	Sys Ramp	1495	1484	1%	0.3	OK	2700	2685	1%	0.3	OK	2080	2073	0%	0.2	OK	2070	1870	1776	5%	2.2	OK
2006	39	Marq Int S-W/N-W System Ramps	Sys Ramp	2670	2639	1%	0.6	OK	4180	4147	1%	0.5	OK	3190	3185	0%	0.1	OK	3170	2860	2718	5%	2.7	OK
2007	41	I-94 WB btwn Marquette Int and 25th St Exit Ramp	Mainline	4050	4011	1%	0.6	OK	6680	6635	1%	0.6	OK	5850	5880	1%	0.4	OK	5220	4710	4507	4%	3.0	OK
2008	689	25th St WB Exit Ramp	Ramp	370	402	9%	1.2	NO	670	692	3%	0.8	OK	800	722	10%	2.8	NO	470	470	415	12%	2.5	NO
2009	386	I-94 WB btwn 25th St Exit Ramp and 28th St Entr Ramp	Mainline	3680	3609	2%	1.2	OK	6010	5943	1%	0.9	OK	5050	5158	2%	1.5	OK	4750	4240	4092	3%	2.3	OK
2010	246	28th St WB Entr Ramp	Ramp	390	352	10%	1.9	NO	340	303	11%	2.0	NO	380	351	8%	1.5	NO	380	380	338	11%	2.2	NO
2012	50	I-94 WB btwn 28th St Entr Ramp and 35th St Exit Ramp	Mainline	4070	3961	3%	1.7	OK	6350	6246	2%	1.3	OK	5430	5509	1%	1.1	OK	5130	4620	3167	31%	21.4	NO
2013	352	35th St WB Exit Ramp	Ramp	180	166	8%	1.0	NO	350	332	5%	1.0	OK	290	287	1%	0.2	OK	220	220	216	2%	0.3	OK
2015	53	I-94 WB btwn 35th St Exit and Entr Ramps	Mainline	3890	3771	3%	1.9	OK	6000	5914	1%	1.1	OK	5140	5222	2%	1.1	OK	4910	4400	4286	3%	1.7	OK
2016	351	35th St WB Entr Ramp	Ramp	340	342	1%	0.1	OK	310	311	0%	0.1	OK	300	306	2%	0.3	OK	280	280	290	4%	0.6	OK
2018	54	I-94 WB btwn 35th St Entr Ramp and Stadium Int	Mainline	4230	4090	3%	2.2	OK	6310	6225	1%	1.1	OK	5440	5528	2%	1.2	OK	5190	4680	4593	2%	1.3	OK
2019	331	Stadium Int E-N System Ramp (I-94 WB to WIS 175 NB)	Sys Ramp	380	369	3%	0.6	OK	920	869	6%	1.7	NO	1100	1116	1%	0.5	OK	740	665	672	1%	0.3	OK
2021	333	Stadium Int E-S System Ramp (I-94 WB to Miller Park Way SB)	Sys Ramp	310	296	5%	0.8	OK	490	466	5%	1.1	OK	370	370	0%	0.0	OK	510	455	434	5%	1.0	OK
2022	59	Stadium Int E-W System Movement (I-94 WB)	Mainline	4340	3408	4%	2.2	OK	4900	4890	0%	0.1	OK	3970	4042	2%	1.1	OK	3940	3560	3555	0%	0.1	OK
2023	126	Stadium Int S-W System Ramp (Miller Park Way NB to I-94 WB)	Sys Ramp	420	400	5%	1.0	OK	550	524	5%	1.1	OK	610	600	2%	0.4	OK	350	350	345	1%	0.3	OK
2025	278	Stadium Int N-W System Ramp (WIS 175 SB to I-94 WB)	Sys Ramp	400	394	2%	0.3	OK	690	681	1%	0.3	OK	760	763	0%	0.1	OK	510	510	514	1%	0.2	OK
2026	61	I-94 WB btwn Stadium Int and Gen Mitchell Blvd Exit Ramp	Mainline	4360	4202	4%	2.4	OK	6140	6095	1%	0.6	OK	5340	5405	1%	0.9	OK	4800	4420	4404	0%	0.2	OK
2027	210	Gen Mitchell Blvd WB Exit Ramp	Ramp	50	37	26%	1.8	NO	110	78	29%	3.1	NO	80	55	31%	2.8	NO	60	60	39	35%	2.7	NO
2028	62	I-94 WB btwn Gen Mitchell Blvd Exit and Entr Ramps	Mainline	4310	4165	3%	2.2	OK	6030	6017	0%	0.2	OK	5260	5350	2%	1.2	OK	4740	4360	4443	2%	1.3	OK
2029	680	Gen Mitchell Blvd WB Entr Ramp	Ramp	10	8	20%	0.6	NO	40	41	3%	0.2	OK	100	99	1%	0.1	OK	60	60	59	2%	0.1	OK
2030	69	I-94 WB btwn Gen Mitchell Blvd Entr Ramp and Hawley Rd Exit Ramp	Mainline	4320	4173	3%	2.2	OK	6070	6058	0%	0.2	OK	5360	5449	2%	1.2	OK	4800	4420	4514	2%	1.4	OK
2031	10220	Hawley Rd WB Exit Ramp	Ramp	80	70	13%	1.1	NO	120	115	4%	0.5	OK	150	140	7%	0.8	OK	160	160	162	1%	0.2	OK
2033	71	I-94 WB btwn Hawley Rd Exit and Entr Ramps	Mainline	4240	4103	3%	2.1	OK	5950	5943	0%	0.1	OK	5210	5309	2%	1.4	OK	4640	4260	4367	3%	1.6	OK
2034	201	Hawley Rd WB Entr Ramp	Ramp	350	350	0%	0.0	OK	530	523	1%	0.3	OK	550	555	1%	0.2	OK	370	370	377	2%	0.4	OK
2035	74	I-94 WB btwn Hawley Rd Entr Ramp and 68th St Exit Ramp	Mainline	4590	4453	3%	2.0	OK	6480	6466	0%	0.2	OK	5760	5864	2%	1.4	OK	5010	4630	4744	2%	1.7	OK
2036	164	68th St WB Exit Ramp	Ramp	200	186	7%	1.0	NO	300	275	8%	1.4	NO	430	430	0%	0.0	OK	360	360	380	6%	1.1	NO
2037	431	I-94 WB btwn 68th St Exit Ramp and 70th St Entr Ramp	Mainline	4390	4267	3%	1.9	OK	6180	6191	0%	0.1	OK	5330	5434	2%	1.4	OK	4650	4270	4410	3%	2.1	OK
2038	173	70th St WB Entr Ramp	Ramp	270	275	2%	0.3	OK	510	499	2%	0.5	OK	590	589	0%	0.0	OK	340	340	351	3%	0.6	OK
2039	80	I-94 WB btwn 70th St Entr Ramp and 84th St Exit Ramp	Mainline	4660	4542	3%	1.7	OK	6690	6690	0%	0.0	OK	5920	6023	2%	1.3	OK	4990	4610	4777	4%	2.5	OK
2040	459	84th St WB Exit Ramp	Ramp	390	384	2%	0.3	OK	730	675	8%	2.0	NO	530	565	7%	1.5	NO	420	420	446	6%	1.3	NO
2041	81	I-94 WB btwn 84th St Exit Ramp and 84th St Entr Ramp	Mainline	4270	4158	3%	1.7	OK	5960	6015	1%	0.7	OK	5390	5458	1%	0.9	OK	4570	4190	4348	4%	2.4	OK
2042	685	84th St WB Entr Ramp	Ramp	130	139	7%	0.8	NO	260	268	3%	0.5	OK	320	329	3%	0.5	OK	200	200	210	5%	0.7	OK
2043	444	I-94 WB btwn 84th St Entr Ramp and Zoo Int	Mainline	4400	4297	2%	1.6	OK	6220	6283	1%	0.8	OK	5710	5787	1%	1.0	OK	4770	4390	4557	4%	2.5	OK
2044	445	Zoo Int E-N/E-S System Ramps	Sys Ramp	2310	2185	5%	2.6	OK	2950	2826	4%	2.3	OK	2860	2846	0%	0.3	OK	2550	2365	2415	2%	1.0	OK
2045	448	Zoo Int E-N System Ramp (I-94 WB to I-41 NB)	Sys Ramp	1640	1553	5%	2.1	OK	2200	2112	4%	1.9	OK	2110	2127	1%	0.4	OK	1900	1755	1837	5%	2.0	OK
2046	447	Zoo Int E-S System Ramp (I-94 WB to I-41 SB/894 EB)	Mainline	670	632	6%	1.5	NO	750	714	5%	1.3	OK	750	775	3%	0.9	OK	650	610	634	4%	1.0	OK
2047	446	Zoo Int E-W System Movement (I-94 WB)	Mainline	2090	2112	1%	0.5	OK	3270	3457	6%	3.1	NO	2850	2941	3%	1.7	OK	2220	2025	2113	4%	2.0	OK
3004	84	Miller Park Way north of National Ave	Mainline	1090	1070	2%	0.6	OK	1930	1909	1%	0.5	OK	2530	2502	1%	0.6	OK	1600	1600	1625	2%	0.6	OK
3005	228	Canal St NB Exit Ramp	Ramp	180	177	2%	0.2	OK	300	299	0%	0.1	OK	445	442	1%	0.1	OK	220	220	224	2%	0.3	OK
3006	87	Miller Park Way btwn Canal St Exit and Entr Ramps	Mainline	910	893	2%	0.6	OK	1630	1597	2%	0.8	OK	2085	2059	1%	0.6	OK	1380	1380	1398	1%	0.5	OK
3007	675	Canal St NB Entr Ramp	Ramp	30	25	17%	0.9	NO	60	42	30%	2.3	NO	135	106	21%	2.5	NO	70	70	50	29%	2.4	NO
3009	90	Miller Park Way NB btwn Canal St and Stadium Int	Mainline	940	912	3%	0.9	OK	1690	1632	3%	1.4	OK	2220	2176	2%	0.9	OK	1450	1450	1452	0%	0.1	OK
3011	95	Stadium Int S-N System Movement (Miller Park Way NB)	Mainline	330	324	2%	0.3	OK	670	650	3%	0.8	OK	960	935	3%	0.8	OK	610	610	612	0%	0.1	OK
3013	224	WIS 175 NB btwn Stadium Int and Wisconsin Ave	Mainline	1120	1073	4%	1.4	OK	2120	2029	4%	2.0	OK	2470	2443	1%	0.5	OK	1750	1750	1693	3%	1.4	OK
3014	293	Wisconsin Ave NB Exit Ramp	Ramp	115	102	11%	1.2	NO	300	275	8%	1.4	NO	345	330	4%	0.8	OK	225	225	243	8%	1.2	NO
3015	143	WIS 175 NB btwn Wisconsin Ave Exit Ramp and Wells St Entr Ramp	Mainline	1005	971	3%	1.1	OK	1820	1754	4%	1.5	OK	2125	2103	1%	0.5	OK	1525	1525	1458	4%	1.7	OK
3016	673	Wells St NB Entr Ramp	Ramp	60	58	3%	0.3	OK	150	147	2%	0.2	OK	325	325	0%	0.0	OK	175	175	179	2%	0.3	OK
3017	104	WIS 175 NB north of Wells St	Mainline	1065	1029	3%	1.1	OK	1970	1899	4%	1.6	OK	2450	2418	1%	0.6	OK	1700	1700	1651	3%	1.2	OK
4001	594	WIS 175 SB north of Wells St	Mainline	1530	1525	0%	0.1	OK	2985	2980	0%	0.1	OK	3435	3436	0%	0.0	OK	2355	2355	2353	0%	0.0	OK
4002	119	Wells St SB Exit Ramp	Ramp	60	60	0%	0.0	OK	240	238	1%	0.1	OK	290	292	1%	0.1	OK	145	145	145	0%	0.0	OK
4003	108	WIS 175 SB btwn Wells St Exit Ramp and Wisconsin Ave Entr Ramp	Mainline	1470	1459	1%	0.3	OK	2745	2731	1%	0.3	OK	3145	3141	0%	0.1	OK	2210	2210	2211	0%	0.0	OK
4004	674	Wisconsin Ave SB Entr Ramp	Ramp	70	63	10%	0.8	NO	165	163	1%	0.2	OK	295	278	6%	1.0	NO	210	210	206	2%	0.3	OK
4005	111	WIS 175 SB btwn Wisconsin Ave and Stadium Int	Mainline	1540	1514	2%	0.7	OK	2910	2879	1%	0.6	OK	3440	3406	1%	0.6	OK	2420	2420	2416	0%	0.1	OK
4007	115	Stadium Int N-S System Movement (WIS 175 SB)	Mainline	540	528	2%	0.5	OK	1070	1055	1%	0.5	OK	1500	1484	1%	0.4	OK	860	860	863	0%	0.1	OK
4009	120	Miller Park Way SB btwn Stadium Int and Canal St	Mainline	1380	1322	4%	1.6	OK	2020	1951	3%	1.5	OK	2140	2102	2%	0.8	OK	1680	1680	1599	5%	2.0	OK
4010	249	Canal St SB Exit Ramp	Ramp	200	185	8%	1.1	NO	275	239	13%	2.2	NO	485	443	9%	1.9	NO	340	340	332	2%	0.4	OK
4012	122	Miller Park Way SB btwn Canal St Exit and Entr Ramps	Mainline	1180	1132	4%	1.4	OK	1745	1709	2%	0.9	OK	1655	1658	0%	0.1	OK	1340	1340	1267	5%	2.0	OK
4013	260	Canal St SB Entr Ramp	Ramp	60	58	3%	0.3	OK	140	137	2%	0.3	OK	165	167	1%	0.2	OK	120	120	120	0%	0.0	OK
4014	124	Miller Park Way SB north of National Ave	Mainline	1240	1190	4%	1.4	OK	1885	1847	2%	0.9	OK	1820	1827	0%	0.2	OK	1460	1460	1391	5%	1.8	OK

WisDOT TEOpS Validation

Test	Target	I-94 Eastbound				I-94 Westbound				Miller Park Way NB/WIS 175 NB				Miller Park Way SB/WIS 175 SB			
		5:30 AM	6:30 AM	7:30 AM	8:30 AM*	5:30 AM	6:30 AM	7:30 AM	8:30 AM*	5:30 AM	6:30 AM	7:30 AM	8:30 AM*	5:30 AM	6:30 AM	7:30 AM	8:30 AM*
Tier 1	RMSPE < 5%	6.2%	6.1%	4.1%	6.7%	6.7%	5.8%	5.6%	8.5%	6.6%	9.7%	6.7%	9.2%	4.5%	4.3%	3.2%	2.8%
Tier 2	RNSE < 3 for 85% of links	100.0%	100.0%	-	94.7%	100.0%	95.1%	100.0%	97.6%	100.0%	100.0%	100.0%	100.0%	-	-	-	-

*Last hour validation based on factored model speeds vs typical day (April 9th)

FINAL

2/5/2021

I-94 East-West Data Collection Project

Existing (2019) AM Peak Period Validation

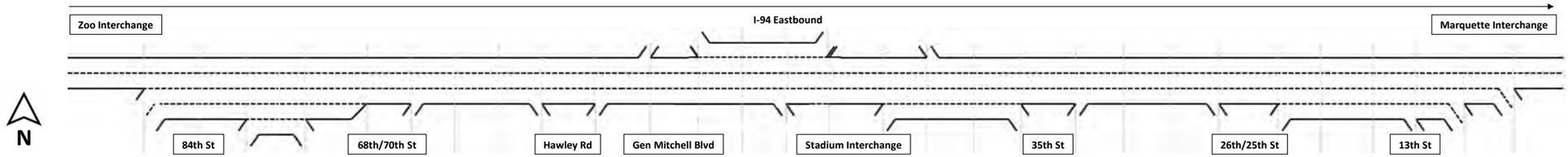
Freeway Truck Percentages

Segments				Existing AM Peak Period (5:30-9:30AM) Truck %							
				5:30-6:30AM		6:30-7:30AM		7:30-8:30AM		8:30-9:30AM	
Forecast ID	Link ID	Description	Type	Target	VISSIM	Target2	VISSIM2	Target3	VISSIM3	Target4	VISSIM4
1008	144	Zoo Int W-E System Movment (I-94 EB)	Mainline	8%	7%	6%	7%	6%	8%	10%	7%
1001	147	Zoo Int N-E System Ramp (I-41 NB/894 WB to I-94 EB)	Sys Ramp	6%	6%	6%	8%	6%	10%	8%	8%
1002	149	Zoo Int S-E System Ramp (I-41 SB to I-94 EB)	Sys Ramp	3%	3%	2%	3%	2%	3%	5%	4%
1000	2	I-94 EB btwn 84th St Entr Ramp and 70th St Exit Ramp	Mainline	6%	6%	11%	11%	11%	13%	10%	7%
1020	18	I-94 EB btwn Gen Mitchell Blvd Entr Ramp and Stadium Int	Mainline	5%	5%	7%	6%	7%	7%	8%	6%
1021	221	Stadium Int W-S System Ramp (I-94 EB to Miller Park Way SB)	Sys Ramp	5%	5%	7%	6%	7%	10%	11%	9%
1023	226	Stadium Int W-N System Ramp (I-94 EB to WIS 175 NB)	Sys Ramp	4%	4%	3%	3%	3%	3%	6%	5%
1025	103	Stadium Int S-E System Ramp (Miller Park Way NB to I-94 EB)	Sys Ramp	9%	8%	9%	7%	9%	5%	8%	6%
1027	114	Stadium Int N-E System Ramp (WIS 175 SB to I-94 EB)	Sys Ramp	1%	1%	3%	2%	3%	2%	4%	3%
1037	35	I-94 EB btwn 25th St Entr Ramp and 13th St Exit Ramp	Mainline	5%	5%	5%	6%	5%	5%	6%	5%
1040	343	Marquette Int W-N System Ramp (I-94 EB to I-43 NB)	Sys Ramp	8%	8%	9%	9%	9%	8%	9%	8%
1042	181	Marquette Int W-S System Ramp (I-94 EB to I-43 SB/94 EB)	Sys Ramp	5%	5%	5%	5%	5%	4%	8%	6%
2004	465	Marquette Int S-W System Ramp (I-43 NB/94 WB to I-94 WB)	Sys Ramp	6%	4%	6%	4%	6%	4%	8%	6%
2005	663	Marquette Int N-W System Ramp (I-43 SB to I-94 WB)	Sys Ramp	9%	7%	10%	7%	10%	7%	11%	7%
2007	41	I-94 WB btwn Marquette Int and 25th St Exit Ramp	Mainline	4%	5%	4%	5%	4%	5%	5%	6%
2019	331	Stadium Int E-N System Ramp (I-94 WB to WIS 175 NB)	Sys Ramp	4%	4%	3%	3%	3%	2%	3%	3%
2021	333	Stadium Int E-S System Ramp (I-94 WB to Miller Park Way SB)	Sys Ramp	4%	4%	3%	3%	3%	3%	5%	5%
2023	126	Stadium Int S-W System Ramp (Miller Park Way NB to I-94 WB)	Sys Ramp	5%	4%	5%	5%	5%	3%	11%	10%
2025	278	Stadium Int N-W System Ramp (WIS 175 SB to I-94 WB)	Sys Ramp	11%	10%	8%	7%	8%	7%	10%	8%
2026	61	I-94 WB btwn Stadium Int and Gen Mitchell Blvd Exit Ramp	Mainline	6%	5%	6%	5%	6%	6%	8%	7%
2039	80	I-94 WB btwn 70th St Entr Ramp and 84th St Exit Ramp	Mainline	5%	5%	5%	5%	5%	5%	7%	7%
2045	448	Zoo Int E-N System Ramp (I-94 WB to I-41 NB)	Sys Ramp	4%	5%	5%	6%	5%	7%	8%	8%
2046	447	Zoo Int E-S System Ramp (I-94 WB to I-41 SB/894 EB)	Sys Ramp	6%	6%	4%	5%	4%	5%	6%	6%
2047	446	Zoo Int E-W System Movement (I-94 WB)	Mainline	4%	4%	3%	4%	3%	4%	7%	6%
3011	95	Stadium Int S-N System Movement (Miller Park Way NB)	Mainline	7%	7%	6%	6%	6%	3%	5%	5%
4007	115	Stadium Int N-S System Movement (WIS 175 SB)	Mainline	2%	2%	3%	2%	3%	2%	4%	3%

I-94 East-West Data Collection Project

Existing (2019) AM Peak Period Validation

I-94 Eastbound Freeway Operations



MOE	ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
	Segment	Zoo Int W-E System Movement	Zoo Int S-E/N-E System Ramps	Zoo Int S-E/N-E System Ramps to 84th St Entr Ramp	84th St Entr Ramp to 70th St Exit Ramp	70th St Exit Ramp to Lane Merge	Lane Merge to 68th St Entr Ramp	68th St Entr Ramp	68th St Entr Ramp to Hawley Rd Exit Ramp	Hawley Rd Exit Ramp	Hawley Rd Exit Ramp to Hawley Rd Entr Ramp	Hawley Rd Entr Ramp to Gen Mitchell Blvd Exit Ramp	Gen Mitchell Blvd Exit Ramp to Gen Mitchell Blvd Entr Ramp	Gen Mitchell Blvd Entr Ramp to Stadium Int W-N System Ramp	Stadium Int E-S System Ramp	Stadium Int W-N System Ramp	Stadium Int W-E System Movement	Stadium Int S-E System Ramp	Stadium Int N-E System Ramp	35th St Exit Ramp	35th St Exit Ramp to 35th St Entr Ramp	35th St Entr Ramp	35th St Entr Ramp to 26th St Exit Ramp	26th St Exit Ramp	26th St Exit Ramp to 25th St Entr Ramp	25th St Entr Ramp	25th St Entr Ramp to 13th St Exit Ramp	13th St Exit Ramp	Marquette Int W-N System Ramp	Marquette Int W-S System Ramp	Marquette Int W-E System Movement
	Type	B	M	B	W	B	B	M	O	D	B	W	B	W/D*			B	W/M*			B	M	O	D	B	B			D	D	D	B
Speed (MPH)	5:30 AM	64	64	63	63	62	63	63	62	60	63	62	62	56	53	54	57	56	56	56	56	56	55	54	56	57	56	56	57	58	58
	5:45 AM	64	63	63	63	61	63	62	61	60	62	60	61	55	51	53	56	56	56	55	55	55	54	52	56	56	56	56	56	57	57
	6:00 AM	64	63	63	62	61	63	62	61	59	61	59	61	55	52	54	56	56	55	55	55	55	54	53	55	56	55	56	56	57	57
	6:15 AM	62	62	57	34	48	60	61	59	57	60	55	58	53	50	52	55	55	53	52	54	53	52	50	54	55	55	55	55	56	57
	6:30 AM	62	61	29	22	45	60	59	56	54	57	50	56	52	50	50	45	37	35	44	52	51	50	49	53	54	54	54	55	56	57
	6:45 AM	62	54	30	25	45	55	51	49	48	46	40	37	30	27	27	18	17	21	44	54	53	51	50	53	53	53	53	54	56	57
	7:00 AM	62	62	46	30	29	27	23	26	26	24	22	23	20	19	19	14	15	20	44	54	53	51	49	53	54	54	54	55	56	56
	7:15 AM	62	41	19	14	16	15	15	18	18	17	18	18	17	16	16	12	15	19	44	54	53	50	50	53	54	54	54	55	56	56
	7:30 AM	57	20	9	10	12	11	12	16	16	15	16	17	17	16	16	13	15	19	44	54	52	49	50	53	53	53	53	54	56	56
	7:45 AM	55	17	8	8	9	10	10	15	14	13	15	16	16	15	15	12	14	19	43	52	49	47	48	53	54	53	54	54	56	56
	8:00 AM	55	13	7	8	9	10	10	14	13	13	13	14	14	15	15	12	14	19	42	50	49	48	48	53	54	54	54	54	55	55
	8:15 AM	41	13	7	9	10	10	11	14	14	13	14	15	15	15	14	12	14	19	43	54	52	49	48	53	54	54	54	54	56	56
	8:30 AM	35	10	8	10	12	12	12	15	15	14	15	16	15	15	15	12	14	19	43	54	53	51	50	53	54	54	54	55	56	56
	8:45 AM	51	25	11	12	14	14	14	16	16	15	16	17	17	16	15	13	15	20	44	54	52	50	49	53	54	54	54	54	56	56
	9:00 AM	64	57	41	28	21	18	17	20	20	19	20	22	21	21	21	15	17	21	43	54	52	50	49	53	54	53	54	55	56	56
	9:15 AM	64	64	64	63	63	64	60	61	60	56	53	51	43	41	40	32	29	32	48	54	53	51	50	54	54	54	54	55	56	57
Density (pcphpl)	5:30 AM	11.9	13.1	13.1	11.0	13.2	17.1	18.3	18.5	18.8	17.1	13.8	17.7	15.0			15.5	13.9			17.9	19.0	19.1	19.7	17.2	14.3	14.3	13.7	13.3	9.5	7.9
	5:45 AM	14.1	15.9	15.8	13.3	16.0	20.8	22.3	22.7	23.0	21.2	17.3	22.0	18.7			18.8	17.0			22.1	23.1	23.4	24.6	20.7	16.8	16.9	16.3	15.8	11.5	10.1
	6:00 AM	15.5	16.8	17.0	14.4	17.6	22.8	24.1	24.6	25.2	23.4	18.8	24.0	20.1			20.0	18.2			23.7	24.9	25.2	26.1	22.9	18.1	18.3	17.5	17.1	11.9	10.4
	6:15 AM	24.5	24.4	26.4	*36.3*	30.2	31.3	32.4	33.4	34.0	31.2	26.1	32.3	26.7			26.9	24.3			30.8	32.2	32.7	33.8	28.6	22.6	22.6	21.7	21.3	15.1	13.3
	6:30 AM	23.3	25.0	***52.2***	***58.1***	33.1	32.7	*35.6*	*37.2*	*38.0*	34.5	31.2	*35.6*	29.0			*35.4*	35.9			*36.3*	*39.3*	*40.0*	*40.3*	34.6	27.8	28.0	26.9	26.1	17.8	16.0
	6:45 AM	23.5	27.6	***49.8***	***53.0***	32.9	*35.2*	*41.2*	*42.5*	***43.4***	*42.3*	*37.9*	***51.3***	***48.0***			***85.3***	***50.1***			34.8	*37.6*	*38.9*	*39.7*	*35.0*	28.6	28.9	27.8	26.3	18.7	16.6
	7:00 AM	22.8	22.9	31.1	*41.0*	*44.8*	***64.0***	***78.9***	***69.3***	***68.6***	***73.9***	***61.7***	***76.1***	***65.6***			***104.3***	***51.5***			*35.1*	*38.6*	*39.9*	*41.1*	*35.9*	28.4	28.5	27.4	26.8	19.6	18.6
	7:15 AM	22.7	33.2	***63.3***	***73.6***	***70.2***	***96.9***	***111.4***	***89.6***	***89.0***	***91.0***	***71.5***	***90.2***	***72.0***			***109.9***	***52.5***			*35.0*	*38.9*	*40.5*	*40.9*	*36.8*	29.3	29.4	28.3	27.8	20.4	19.1
	7:30 AM	20.6	***56.2***	***116.7***	***92.4***	***84.3***	***112.8***	***132.6***	***92.4***	***96.0***	***100.6***	***77.0***	***92.4***	***73.3***			***106.2***	***52.5***			34.7	*40.6*	*43.1*	*42.5*	*38.5*	32.0	32.4	31.2	30.1	21.2	21.0
	7:45 AM	19.4	***58.0***	***120.0***	***100.3***	***94.8***	***119.3***	***139.7***	***98.5***	***101.3***	***105.6***	***80.1***	***96.8***	***75.7***			***110.2***	***53.3***			*36.5*	***44.0***	***45.5***	***44.5***	*38.7*	31.7	31.8	30.5	30.0	21.6	22.6
	8:00 AM	18.3	***83.8***	***135.7***	***101.1***	***97.3***	***121.1***	***139.7***	***103.6***	***105.6***	***108.9***	***83.6***	***102.7***	***78.7***			***112.8***	***53.9***			*37.6*	***43.1***	*43.8*	***43.5***	*38.0*	30.9	31.0	29.8	29.2	21.0	23.2
	8:15 AM	27.1	***79.0***	***130.5***	***97.6***	***90.8***	***118.1***	***130.5***	***101.0***	***103.6***	***107.4***	***81.6***	***101.2***	***78.1***			***112.7***	***53.5***			*35.3*	*39.5*	*41.5*	*42.4*	*36.8*	29.6	29.7	28.5	28.0	19.7	22.2
	8:30 AM	29.6	***107.4***	***128.3***	***93.1***	***84.0***	***108.7***	***122.6***	***99.9***	***99.0***	***103.7***	***78.4***	***97.7***	***77.4***			***110.8***	***53.0***			*35.1*	*39.0*	*40.4*	*41.4*	*36.6*	29.4	29.5	28.4	28.0	19.4	21.2
	8:45 AM	19.3	***44.5***	***98.7***	***81.6***	***75.6***	***101.0***	***113.8***	***98.3***	***94.2***	***98.9***	***77.2***	***94.3***	***72.3***			***105.7***	***51.9***			*35.1*	*39.0*	*40.4*	*41.5*	*35.5*	28.9	29.1	27.9	27.1	19.1	20.5
	9:00 AM	13.6	15.1	21.7	29.6	***45.7***	***76.5***	***90.1***	***80.0***	***78.6***	***82.7***	***63.7***	***75.7***	***61.6***			***96.8***	***51.1***			*35.5*	*38.9*	*40.2*	*41.5*	34.9	27.9	28.3	27.1	25.7	17.5	18.1
	9:15 AM	13.2	13.4	13.4	11.7	12.9	16.9	19.7	19.7	19.9	20.7	18.4	25.2	23.7			*36.8*	31.6			30.6	33.1	34.4	*35.4*	31.1	25.5	25.8	24.8	23.6	16.0	15.6
Level of Service (LOS)	5:30 AM	B	B	B	B	B	B	B	C	B	B	B	B	B			B	B			B	B	C	B	B	B	B	B	B	A	A
	5:45 AM	B	B	B	B	B	C	C	C	C	C	B	C	B			C	B			C	C	C	C	C	B	B	B	B	B	A
	6:00 AM	B	B	B	B	B	C	C	C	C	C	B	C	C			C	B			C	C	C	C	C	C	C	B	B	B	A
	6:15 AM	C	C	D	*E*	D	D	D	D	D	D	C	D	C			D	C			D	D	D	D	D	C	C	C	C	B	B
	6:30 AM	C	C	***F***	***F***	D	D	*E*	*E*	*E*	D	D	*E*	D			*E*	*E*			*E*	*E*	*E*	*E*	D	D	D	C	C	B	B
	6:45 AM	C	C	***F***	***F***	D	*E*	*E*	*E*	***F***	*E*	*E*	***F***	***F***			***F***	***F***			D	*E*	*E*	*E*	*E*	D	D	C	C	B	B
	7:00 AM	C	C	D	*E*	*E*	***F***	***F***	***F***	***F***	***F***	***F***	***F***	***F***			***F***	***F***			*E*	*E*	*E*	*E*	*E*	D	D	C	C	B	C
	7:15 AM	C	D	***F***	***F***	***F***	***F***	***F***	***F***	***F***	***F***	***F***	***F***	***F***			***F***	***F***			*E*	*E*	*E*	*E*	*E*	D	D	D	C	C	C
	7:30 AM	C	***F***	***F***	***F***	***F***	***F***	***F***	***F***	***F***	***F***	***F***	***F***	***F***			***F***	***F***			D	*E*	*E*	*E*	*E*	D	D	D	D	C	C
	7:45 AM	C	***F***	***F***	***F***	***F***	***F***	***F***	***F***	***F***	***F***	***F***	***F***	***F***			***F***	***F***			*E*	***F***	***F***	***F***	*E*	D	D	D	D	C	C
	8:00 AM	C	***F***	***F***	***F***	***F***	***F***	***F***	***F***	***F***	***F***	***F***	***F***	***F***			***F***	***F***			*E*	***F***	*E*	***F***	*E*	D	D	D	D	C	C
	8:15 AM	D	***F***	***F***	***F***	***F***	***F***	***F***	***F***	***F***	***F***	***F***	***F***	***F***			***F***	***F***			*E*	*E*	*E*	*E*	*E*	D	D	D	D	B	C
	8:30 AM	D	***F***	***F***	***F***	***F***	***F***	***F***	***F***	***F***	***F***	***F***	***F***	***F***			***F***	***F***			*E*	*E*	*E*	*E*	*E*	D	D	D	D	B	C
	8:45 AM	C	***F***	***F***	***F***	***F***	***F***	***F***	***F***	***F***	***F***	***F***	***F***	***F***			***F***	***F***			*E*	*E*	*E*	*E*	*E*	D	D	C	C	B	C
	9:00 AM	B	B	C	D	***F***	***F***	***F***	***F***	***F***	***F***	***F***	***F***	***F***			***F***	***F***			*E*	*E*	*E*	*E*	D	D	D	C	C	B	C
	9:15 AM	B	B	B	B	B	B	B	C	B	C	B	C	C			*E*	D			D	D	D	*E*	D	C	C	C	C	B	B

B - Basic Segment
M - Ramp Merge Segment
D - Ramp Diverge Segment
W - Weave Segment

*Overlapping HCM segment - analyzed as a weave

Legend (HCM6)				
LOS	Speed (MPH)	Density (pcphpl)		
		Basic	Ramp	Weave
A	> 55	0-11	0-10	0-10
B		11-18	10-20	10-20
C	50-55	18-26	20-28	20-28
D	40-50	26-35	28-35	28-35
E	30-40	35-45	35-43	35-43
F	20-30 0-20	45+	43+	43+

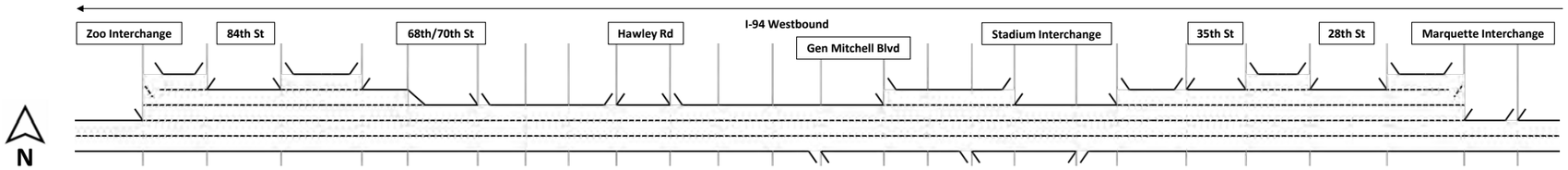
FINAL

2/5/2021

I-94 East-West Data Collection Project

Existing (2019) AM Peak Period Validation

I-94 Westbound Freeway Operations



MOE	ID	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
	Segment	Zoo Int E-W System Movement	84th St Entr Ramp to Zoo Int E-N/E-S System Ramps	84th St Exit Ramp to 84th St Entr Ramp	70th St Entr Ramp to 84th St Exit Ramp	Lane Add to 70th St Entr Ramp	68th St Exit Ramp to Lane Add	68th St Exit Ramp	Hawley Rd Entr Ramp to 68th St Exit Ramp	Hawley Rd Entr Ramp	Hawley Rd Exit Ramp to Hawley Rd Entr Ramp	Hawley Rd Exit Ramp	Gen Mitchell Blvd Entr Ramp to Hawley Rd Exit Ramp	Gen Mitchell Blvd Entr Ramp	Gen Mitchell Blvd Exit Ramp to Gen Mitchell Blvd Entr Ramp	Gen Mitchell Blvd Exit Ramp	Stadium Int S-W System Ramp	Stadium Int N-W System Ramp	Stadium Int E-W System Movement	Stadium Int E-S System Ramp	35th St Entr Ramp to Stadium Int E-N System Ramp	35th St Exit Ramp to 35th St Entr Ramp	28th St Entr Ramp to 35th St Exit Ramp	25th St Exit Ramp to 28th St Entr Ramp	Marquette Int N-W/S-W System Ramps to 25th St Exit Ramp	11th St Entr Ramp	Marquette Int E-W System Movement
	Type	B	W	B	W	B	B	D	O	M	B	D	O	M	B	W/M*			B	D	W/M*	B	W	B	W	M	B
Speed (MPH)	5:30 AM	63	63	63	63	63	62	59	60	59	62	62	62	62	61	55	54	55	56	54	56	56	56	57	57	58	58
	5:45 AM	63	63	63	63	63	62	58	59	59	62	62	62	62	61	55	54	55	56	54	56	56	56	57	57	58	58
	6:00 AM	62	62	62	63	63	61	58	58	58	62	62	62	62	60	54	54	55	56	53	55	56	56	56	57	57	58
	6:15 AM	61	61	61	62	62	60	53	53	53	59	60	60	60	56	45	44	48	54	50	54	54	54	55	56	57	57
	6:30 AM	61	60	61	62	62	58	49	44	39	47	52	57	58	52	36	27	27	35	47	53	53	53	54	55	57	57
	6:45 AM	60	60	60	62	62	58	47	42	34	39	43	47	52	51	32	23	21	24	39	46	50	51	53	55	56	56
	7:00 AM	60	61	61	62	62	58	46	39	29	32	36	39	43	45	34	24	23	29	42	49	52	52	53	55	55	56
	7:15 AM	61	61	61	62	62	58	47	39	26	26	30	31	33	37	30	19	18	16	24	27	28	30	34	52	55	55
	7:30 AM	60	61	61	62	62	58	46	39	26	24	28	29	31	32	26	16	15	13	17	19	18	18	15	33	54	56
	7:45 AM	60	61	61	62	62	57	46	39	26	25	26	27	26	29	25	16	14	12	16	18	16	15	12	19	41	53
	8:00 AM	61	61	61	62	62	58	46	39	28	30	39	44	46	43	30	18	17	15	21	22	19	19	14	15	37	55
	8:15 AM	61	60	61	62	62	57	45	40	30	33	38	41	43	44	32	21	20	19	29	30	29	28	21	31	53	56
	8:30 AM	61	60	61	62	62	58	46	41	33	38	45	49	49	48	36	28	27	28	36	40	45	47	47	56	56	57
	8:45 AM	62	61	62	62	62	60	52	52	52	60	60	60	60	58	51	51	52	55	51	54	55	55	55	56	56	57
	9:00 AM	63	62	62	63	63	61	54	56	56	62	61	61	61	60	54	52	54	56	53	55	56	55	56	57	57	58
	9:15 AM	63	63	63	63	63	62	56	57	57	62	61	62	62	60	54	54	54	56	53	55	56	55	56	57	57	58
Density (pcphpl)	5:30 AM	14.1	12.4	15.3	12.8	14.9	20.4	22.3	26.3	18.2	19.2	19.5	19.6	19.6	20.2	16.5			17.5	20.0	15.7	14.4	8.6	13.7	11.9	9.3	9.0
	5:45 AM	14.5	12.5	15.2	13.2	15.5	21.0	23.2	27.2	18.6	20.0	20.4	20.3	20.2	20.6	16.7			18.1	21.1	16.6	15.4	9.3	14.9	13.5	10.5	10.0
	6:00 AM	16.1	13.7	16.4	14.2	17.0	23.2	25.8	30.5	21.0	22.3	22.9	22.8	22.7	23.4	19.2			20.9	24.1	19.0	17.5	10.4	16.5	14.2	12.5	11.9
	6:15 AM	20.8	17.3	21.2	18.8	22.2	30.9	*36.3*	*43.1*	29.4	30.9	30.8	30.8	30.8	33.5	30.6			28.9	34.1	25.9	23.6	14.1	22.7	19.7	17.1	16.3
	6:30 AM	24.9	20.1	24.2	21.1	24.3	34.8	*42.9*	***56.5***	***43.7***	*41.0*	*38.0*	*35.2*	34.4	*37.9*	***47.6***			***46.3***	*38.2*	29.0	27.7	16.6	27.0	22.8	18.8	17.9
	6:45 AM	26.6	20.6	24.7	21.5	25.0	*35.8*	***45.2***	***60.7***	***51.4***	***50.2***	***46.8***	*43.1*	*38.5*	*39.7*	***56.8***			***66.8***	***45.4***	33.6	29.1	17.3	27.8	24.4	20.7	20.0
	7:00 AM	26.7	20.0	23.9	21.2	24.5	*35.2*	***46.7***	***65.5***	***60.3***	***61.1***	***55.0***	***51.2***	***46.7***	*44.1*	***53.3***			***57.1***	***44.6***	33.4	30.5	18.2	30.2	25.8	24.5	23.4
	7:15 AM	26.2	20.4	24.0	21.3	24.2	34.6	***45.2***	***63.8***	***64.7***	***72.6***	***65.2***	***63.0***	***59.3***	***52.7***	***63.2***			***93.7***	***70.5***	***57.3***	***52.4***	30.5	***47.8***	29.7	27.4	26.2
	7:30 AM	27.3	21.1	24.7	21.5	23.9	34.2	***45.5***	***64.1***	***66.2***	***76.9***	***68.5***	***66.3***	***62.3***	***58.7***	***70.1***			***105.9***	***89.0***	***73.8***	***73.5***	***44.0***	***91.0***	*39.5*	26.5	24.8
	7:45 AM	27.0	20.9	24.4	21.1	23.6	34.1	***45.6***	***63.3***	***64.5***	***75.1***	***72.1***	***71.4***	***72.1***	***64.8***	***72.9***			***111.1***	***92.6***	***77.5***	***78.3***	***49.3***	***100.9***	***62.2***	*37.8*	28.1
	8:00 AM	25.5	20.3	24.2	21.0	24.0	34.4	***46.1***	***64.7***	***61.8***	***65.8***	***52.2***	***45.5***	***43.7***	***45.7***	***64.6***			***96.7***	***77.4***	***66.0***	***70.5***	***43.0***	***94.3***	***77.2***	34.6	20.9
	8:15 AM	24.7	20.3	24.2	20.8	23.9	34.4	***47.8***	***63.9***	***56.9***	***59.3***	***54.1***	***48.8***	***46.6***	***45.2***	***59.4***			***84.9***	***62.1***	***53.9***	***53.5***	33.1	***72.9***	*39.1*	23.6	21.0
	8:30 AM	23.2	20.2	24.1	20.6	23.7	34.0	***45.6***	***60.4***	***50.4***	***49.9***	***43.8***	*40.4*	*39.5*	*40.7*	***45.3***			***55.6***	***47.1***	*36.8*	30.0	16.6	25.9	18.9	19.4	17.7
	8:45 AM	19.0	16.7	19.7	16.9	19.6	27.1	34.0	*40.3*	27.6	27.1	28.0	28.0	27.5	28.5	23.7			23.8	28.7	23.3	21.8	13.1	21.1	18.5	18.0	15.7
	9:00 AM	15.9	14.2	16.8	14.6	17.0	23.2	28.5	32.6	22.4	22.9	24.0	23.8	23.8	23.8	19.5			20.4	24.5	20.2	18.8	11.2	17.7	15.6	13.6	11.4
	9:15 AM	14.8	13.0	15.5	13.5	15.8	21.5	25.4	29.6	20.4	21.2	22.1	22.0	21.9	22.3	18.3			19.5	23.5	19.2	17.6	10.6	16.8	14.8	13.8	11.8
Level of Service (LOS)	5:30 AM	B	B	B	B	B	C	C	D	B	C	B	C	B	C	B			B	C	B	B	A	B	B	A	A
	5:45 AM	B	B	B	B	B	C	C	D	B	C	C	C	C	C	B			C	C	B	B	A	B	B	B	A
	6:00 AM	B	B	B	B	B	C	C	D	C	C	C	C	C	C	B			C	C	B	B	B	B	B	B	B
	6:15 AM	C	B	C	B	C	D	*E*	*E*	D	D	D	D	D	D	D			D	D	C	C	B	C	B	B	B
	6:30 AM	C	C	C	C	C	D	*E*	***F***	***F***	*E*	*E*	*E*	D	*E*	***F***			***F***	*E*	D	D	B	D	C	B	B
	6:45 AM	D	C	C	C	C	*E*	***F***	***F***	***F***	***F***	***F***	*E*	*E*	*E*	***F***			***F***	***F***	D	D	B	D	C	C	C
	7:00 AM	D	C	C	C	C	*E*	***F***	***F***	***F***	***F***	***F***	***F***	***F***	*E*	***F***			***F***	***F***	D	D	B	D	C	C	C
	7:15 AM	D	C	C	C	C	D	***F***	***F***	***F***	***F***	***F***	***F***	***F***	***F***	***F***			***F***	***F***	***F***	***F***	D	***F***	D	C	D
	7:30 AM	D	C	C	C	C	D	***F***	***F***	***F***	***F***	***F***	***F***	***F***	***F***	***F***			***F***	***F***	***F***	***F***	***F***	***F***	*E*	C	C
	7:45 AM	D	C	C	C	C	D	***F***	***F***	***F***	***F***	***F***	***F***	***F***	***F***	***F***			***F***	***F***	***F***	***F***	***F***	***F***	***F***	*E*	D
	8:00 AM	C	C	C	C	C	D	***F***	***F***	***F***	***F***	***F***	***F***	***F***	***F***	***F***			***F***	***F***	***F***	***F***	***F***	***F***	***F***	D	C
	8:15 AM	C	C	C	C	C	D	***F***	***F***	***F***	***F***	***F***	***F***	***F***	***F***	***F***			***F***	***F***	***F***	***F***	D	***F***	*E*	C	C
	8:30 AM	C	C	C	C	C	D	***F***	***F***	***F***	***F***	***F***	*E*	*E*	*E*	***F***			***F***	***F***	*E*	D	B	C	B	B	B
	8:45 AM	C	B	C	B	C	D	D	*E*	C	D	D	D	C	D	C			C	D	C	C	B	C	B	B	B
	9:00 AM	B	B	B	B	B	C	D	D	C	C	C	C	C	C	B			C	C	C	C	B	B	B	B	B
	9:15 AM	B	B	B	B	B	C	C	D	C	C	C	C	C	C	B			C	C	B	B	B	B	B	B	B

B - Basic Segment
M - Ramp Merge Segment
D - Ramp Diverge Segment
W - Weave Segment

*Overlapping HCM segment - analyzed as a weave

Legend (HCM6)				
LOS	Speed (MPH)	Density (pcphpl)		
		Basic	Ramp	Weave
A	> 55	0-11	0-10	0-10
B		11-18	10-20	10-20
C	50-55	18-26	20-28	20-28
D	40-50	26-35	28-35	28-35
E	30-40	35-45	35-43	35-43
F	20-30 0-20	45+	43+	43+

FINAL

2/5/2021

I-94 East-West Data Collection Project

Existing (2019) AM Peak Period Validation

Intersection Turning Movement Volumes

Intersections								Existing AM Peak Period Hourly Vols (5:30-9:30AM)											
								5:30-6:30AM			6:30-7:30AM (Peak)			7:30-8:30AM			8:30-9:30AM		
Forecast ID	Node	Int Name	FID Turn	Node Turn	From Link	To Link	Mvmt	Target	VISSIM	RNSE	Target	VISSIM	RNSE	Target	VISSIM	RNSE	Target	VISSIM	RNSE
1	103	76th St & O'Connor St	1NBL	103NBL	414	418	NBL	40	43	0.4	93	93	0.0	89	90	0.1	60	61	0.1
1	103	76th St & O'Connor St	1NBT	103NBT	414	417	NBT	76	75	0.1	176	175	0.1	258	257	0.1	96	100	0.4
1	103	76th St & O'Connor St	1WBL	103WBL	171	135	WBL	4	3	0.6	13	11	0.6	41	39	0.3	39	40	0.1
1	103	76th St & O'Connor St	1WBT	103WBT	171	418	WBT	29	23	1.2	33	31	0.3	23	25	0.4	22	23	0.2
1	103	76th St & O'Connor St	1WBR	103WBR	171	417	WBR	17	14	0.8	33	29	0.8	38	38	0.1	28	28	0.1
1	103	76th St & O'Connor St	1SBT	103SBT	415	135	SBT	33	34	0.1	159	156	0.2	263	258	0.3	31	34	0.5
1	103	76th St & O'Connor St	1SBR	103SBR	415	418	SBR	9	9	0.1	30	30	0.1	30	30	0.0	17	18	0.3
2	104	76th St & Kearney St	2EBL	104EBL	175	414	EBL	18	19	0.2	54	54	0.1	69	70	0.2	5	7	0.8
2	104	76th St & Kearney St	2EBT	104EBT	175	427	EBT	21	20	0.2	111	107	0.3	289	288	0.1	28	33	1.0
2	104	76th St & Kearney St	2EBR	104EBR	175	413	EBR	16	16	0.0	58	59	0.1	72	71	0.1	66	68	0.2
2	104	76th St & Kearney St	2NBT	104NBT	136	414	NBT	98	99	0.1	215	215	0.0	278	277	0.1	151	154	0.2
2	104	76th St & Kearney St	2NBR	104NBR	136	427	NBR	38	39	0.2	37	37	0.0	161	158	0.2	35	38	0.5
2	104	76th St & Kearney St	2SBL	104SBL	135	427	SBL	2	1	0.4	27	26	0.2	63	59	0.5	20	21	0.3
2	104	76th St & Kearney St	2SBT	104SBT	135	413	SBT	35	35	0.1	145	140	0.4	241	238	0.2	50	53	0.4
3	105	70th St & O'Connor St (I-94 WB Entr Ramp)	3NBL	105NBL	156	128	NBL	159	159	0.0	234	231	0.2	260	258	0.1	180	186	0.4
3	105	70th St & O'Connor St (I-94 WB Entr Ramp)	3NBT	105NBT	156	79	NBT	35	34	0.2	114	108	0.6	182	177	0.4	68	76	0.9
3	105	70th St & O'Connor St (I-94 WB Entr Ramp)	3WBL	105WBL	75	419	WBL	88	78	1.1	173	158	1.1	341	337	0.2	272	291	1.1
3	105	70th St & O'Connor St (I-94 WB Entr Ramp)	3WBT	105WBT	75	128	WBT	124	125	0.1	281	272	0.5	351	354	0.2	208	209	0.1
3	105	70th St & O'Connor St (I-94 WB Entr Ramp)	3WBR	105WBR	75	79	WBR	7	6	0.3	6	6	0.1	13	13	0.1	10	12	0.5
3	105	70th St & O'Connor St (I-94 WB Entr Ramp)	3SBT	105SBT	194	419	SBT	33	32	0.1	67	64	0.3	122	124	0.2	70	69	0.1
3	105	70th St & O'Connor St (I-94 WB Entr Ramp)	3SBR	105SBR	194	128	SBR	37	34	0.6	74	74	0.0	81	83	0.2	41	41	0.1
4	106	70th St & Kearney St (I-94 EB Exit Ramp)	4EBL	106EBL	133	156	EBL	18	16	0.4	93	87	0.6	149	142	0.6	61	71	1.3
4	106	70th St & Kearney St (I-94 EB Exit Ramp)	4EBT	106EBT	133	141	EBT	72	72	0.0	295	277	1.1	552	543	0.4	241	242	0.1
4	106	70th St & Kearney St (I-94 EB Exit Ramp)	4EBR	106EBR	133	153	EBR	181	175	0.5	387	371	0.8	422	400	1.1	371	427	2.9
4	106	70th St & Kearney St (I-94 EB Exit Ramp)	4NBT	106NBT	231	156	NBT	176	177	0.1	255	253	0.1	293	292	0.1	187	189	0.2
4	106	70th St & Kearney St (I-94 EB Exit Ramp)	4NBR	106NBR	231	141	NBR	79	82	0.3	142	144	0.2	187	190	0.2	126	129	0.3
4	106	70th St & Kearney St (I-94 EB Exit Ramp)	4SBL	106SBL	419	141	SBL	6	5	0.3	12	11	0.4	18	19	0.3	15	13	0.4
4	106	70th St & Kearney St (I-94 EB Exit Ramp)	4SBT	106SBT	419	153	SBT	115	104	1.0	228	210	1.2	445	441	0.2	327	348	1.2
5	107	68th St & O'Connor St (I-94 WB Exit Ramp)	5NBL	107NBL	161	75	NBL	21	20	0.3	48	48	0.0	54	55	0.1	32	33	0.1
5	107	68th St & O'Connor St (I-94 WB Exit Ramp)	5NBT	107NBT	16	17	NBT	56	55	0.2	176	161	1.1	287	292	0.3	138	150	1.0
5	107	68th St & O'Connor St (I-94 WB Exit Ramp)	5WBL	107WBL	165	20	WBL	25	18	1.4	26	23	0.5	21	21	0.1	26	28	0.4
5	107	68th St & O'Connor St (I-94 WB Exit Ramp)	5WBT	107WBT	165	75	WBT	128	125	0.2	222	202	1.3	360	358	0.1	266	286	1.2
5	107	68th St & O'Connor St (I-94 WB Exit Ramp)	5WBR	107WBR	165	17	WBR	47	42	0.7	52	50	0.3	49	49	0.0	68	67	0.2
5	107	68th St & O'Connor St (I-94 WB Exit Ramp)	5SBT	107SBT	455	20,162	SBT	87	86	0.1	184	182	0.1	152	152	0.0	143	142	0.0
5	107	68th St & O'Connor St (I-94 WB Exit Ramp)	5SBR	107SBR	455	75	SBR	70	65	0.5	190	189	0.1	291	292	0.1	192	189	0.2
6	108	68th St & Kearney St (I-94 EB Entr Ramp)	6EBL	108EBL	141	16	EBL	41	38	0.4	145	132	1.1	222	225	0.2	116	131	1.4
6	108	68th St & Kearney St (I-94 EB Entr Ramp)	6EBT	108EBT	141	142	EBT	114	117	0.2	283	273	0.6	511	506	0.2	250	239	0.7
6	108	68th St & Kearney St (I-94 EB Entr Ramp)	6EBR	108EBR	141	15	EBR	2	3	0.6	21	17	0.8	24	22	0.3	16	20	1.1
6	108	68th St & Kearney St (I-94 EB Entr Ramp)	6NBT	108NBT	412	161,16	NBT	36	36	0.0	79	78	0.2	119	122	0.2	54	52	0.3
6	108	68th St & Kearney St (I-94 EB Entr Ramp)	6NBR	108NBR	412	142	NBR	20	21	0.3	53	52	0.1	54	55	0.1	42	45	0.4
6	108	68th St & Kearney St (I-94 EB Entr Ramp)	6SBL	108SBL	162	142	SBL	76	71	0.5	134	131	0.2	116	114	0.2	108	107	0.1
6	108	68th St & Kearney St (I-94 EB Entr Ramp)	6SBT	108SBT	20	15	SBT	36	33	0.5	76	74	0.2	57	59	0.2	61	64	0.4
7	120	Hawley Rd & I-94 WB Ramps	7EBL	120EBL	196	205	EBL	28	22	1.2	16	18	0.4	26	23	0.6	34	32	0.4
7	120	Hawley Rd & I-94 WB Ramps	7EBR	120EBR	196	203	EBR	52	47	0.7	104	97	0.7	124	117	0.6	126	131	0.5
7	120	Hawley Rd & I-94 WB Ramps	7NBL	120NBL	184	200	NBL	239	241	0.2	346	344	0.1	337	338	0.0	232	237	0.3
7	120	Hawley Rd & I-94 WB Ramps	7NBT	120NBT	184	205	NBT	129	126	0.2	312	308	0.2	465	460	0.2	287	296	0.5
7	120	Hawley Rd & I-94 WB Ramps	7SBT	120SBT	582	203	SBT	110	110	0.0	341	339	0.1	523	523	0.0	315	317	0.1
7	120	Hawley Rd & I-94 WB Ramps	7SBR	120SBR	582	200	SBR	111	109	0.2	184	183	0.0	213	216	0.2	138	138	0.0
8	54	Hawley Rd & I-94 EB Exit Ramp	8EBL	54EBL	682	184	EBL	21	19	0.5	35	33	0.3	54	48	0.8	40	47	1.1
8	54	Hawley Rd & I-94 EB Exit Ramp	8EBR	54EBR	682	178	EBR	189	180	0.6	195	197	0.1	86	84	0.2	90	109	2.0
8	54	Hawley Rd & I-94 EB Exit Ramp	8NBT	54NBT	216	184	NBT	347	350	0.2	623	624	0.0	748	747	0.0	479	483	0.2
8	54	Hawley Rd & I-94 EB Exit Ramp	8SBT	54SBT	203	178,185	SBT	162	158	0.3	445	435	0.5	647	641	0.3	441	449	0.4
9	121	Hawley Rd & I-94 EB Entr Ramp	9NBT	121NBT	670	216	NBT	347	350	0.2	623	624	0.0	748	747	0.0	479	483	0.2
9	121	Hawley Rd & I-94 EB Entr Ramp	9NBR	121NBR	187	179	NBR	154	153	0.1	254	252	0.1	298	292	0.4	253	251	0.1
9	121	Hawley Rd & I-94 EB Entr Ramp	9SBL	121SBL	185	179	SBL	36	36	0.1	66	65	0.1	122	122	0.0	87	89	0.2
9	121	Hawley Rd & I-94 EB Entr Ramp	9SBT	121SBT	178	191	SBT	315	301	0.8	574	565	0.4	611	604	0.3	444	469	1.2
10	109	Gen Mitchell Blvd & I-94 WB Exit Ramp	10NBT	109NBT	217	195	NBT	9	9	0.1	38	37	0.2	33	33	0.1	38	38	0.1
10	109	Gen Mitchell Blvd & I-94 WB Exit Ramp	10WBL	109WBL	223	433,212	WBL	38	26	1.9	95	65	5.0	61	43	2.4	42	22	5.0
10	109	Gen Mitchell Blvd & I-94 WB Exit Ramp	10WBR	109WBR	223	195	WBR	12	10	0.7	15	12	0.7	19	13	1.3	18	17	0.3
10	109	Gen Mitchell Blvd & I-94 WB Exit Ramp	10SBT	109SBT	587	433,212	SBT	59	57	0.3	214	216	0.1	368	369	0.0	157	155	0.1
11	110	Gen Mitchell Blvd & I-94 EB Ramps/WB Entr Ramp	11EBL	110EBL	681	217	EBL	5	4	0.4	22	20	0.3	5	5	0.1	15	15	0.1
11	110	Gen Mitchell Blvd & I-94 EB Ramps/WB Entr Ramp	11EBT	110EBT	681	435	EBT	0	0	0.0	0	0	0.0	12	0	5.0	2	0	1.4
11	110	Gen Mitchell Blvd & I-94 EB Ramps/WB Entr Ramp	11EBR	110EBR	681	214	EBR	75	74	0.1	248	234	0.9	103	117	1.4	83	97	1.5
11	110	Gen Mitchell Blvd & I-94 EB Ramps/WB Entr Ramp	11NBL	110NBL	438	215	NBL	0	0	0.0	23	24	0.1	67	66	0.1	42	41	0.2
11	110	Gen Mitchell Blvd & I-94 EB Ramps/WB Entr Ramp	11NBT	110NBT	213	217	NBT	4	5	0.3	16	17	0.1	28	28	0.0	23	23	0.0
11	110	Gen Mitchell Blvd & I-94 EB Ramps/WB Entr Ramp	11NBR	110NBR	213	435	NBR	1	12	5.0	5	8	1.3	23	31	1.6	29	32	0.6
11	110	Gen Mitchell Blvd & I-94 EB Ramps/WB Entr Ramp	11SBL	110SBL	433	435	SBL	9	0	2.9	55	34	2.9	175	152	1.8	79	60	2.2
11	110	Gen Mitchell Blvd & I-94 EB Ramps/WB Entr Ramp	11SBT	110SBT	212	214	SBT	78	75	0.4	237	229	0.5	221	226	0.4	102	101	0.1
11	110	Gen Mitchell Blvd & I-94 EB Ramps/WB Entr Ramp	11SBR	110SBR	212	215	SBR	10	8	0.6	17	18	0.3	33	33	0.0	18	17	0.1
28	140	Canal St & Miller Park Way SB Ramps	28EBL	140EBL	669	263	EBL	0	0	0.0	0	0	0.0	7	7	0.1	5	5	0.2
28	140	Canal St & Miller Park Way SB Ramps	28EBT	140EBT	669	330	EBT	21	21	0.0	44	44	0.0	86	86	0.0	41	41	0.1
28	140	Canal St & Miller Park Way SB Ramps	28EBR	140EBR	669	257	EBR	10	10	0.1	28	27	0.1	23	24	0.2	13	13	0.1
28	140	Canal St & Miller Park Way SB Ramps	28NBL	140NBL	10093	291	NBL	8	8	0.1	12	10	0.6	3	5	0.9	0	0	0.0
28	140	Canal St & Miller Park Way SB Ramps	28NBT	140NBT	10093	263	NBT	8	8	0.1	8	7	0.4	48	46	0.3	36	37	0.2
28	140	Canal St & Miller Park Way SB Ramps	28NBR	140NBR	10093	330	NBR	184	172	0.9	255	227	1.7	434	400	1.7	304	303	0.1
28	140	Canal St & Miller Park Way SB Ramps	28WBL	140WBL	88	257	WBL	50	48	0.3	105	104	0.1	142	142	0.0	107	106	0.1
28	140	Canal St & Miller Park Way SB Ramps	28WBT	140WBT	88	291	WBT	26	28	0.5	43	47	0.7	41	46	0.8	33	36	0.5
28	140	Canal St & Miller Park Way SB Ramps	28WBR	140WBR	88	263	WBR	1	1	0.4	2	2	0.3	2	2	0.1	4	4	0.1
28	140	Canal St & Miller Park Way SB Ramps	28SBL	140SBL	264	330	SBL	0	0	0.0	0	0	0.0	1	1	0.1	0	0	0.0
28	140	Canal St & Miller Park Way SB Ramps	28SBT	140SBT	264	257	SBT	0	0	0.0	7	7	0.2	0	0	0.0	0	0	0.0
28	140	Canal St & Miller Park Way SB Ramps	28SBR	140SBR	264	291	SBR	0	0	0.0	0	0	0.0	1	1	0.1	2	2	0.3
33	153	Wells St & WIS 175 SB Exit Ramp (46th St)	33EBT	153EBT	593	247	EBT	12	14	0.7	24	32	1.7	77	81	0.4	94	96	0.3
33	153	Wells St & WIS 175 SB Exit Ramp (46th St)	33EBR	153EBR	593	312	EBR	52	48	0.6	24	21	0.6	64	59	0.7	43	43	0.0
33	153	Wells St & WIS 175 SB Exit Ramp (46th St)	33WBL	153WBL	250	312	WBL	15	4	2.8	20	8	2.6	15	11	1.1	37	14	5.0
33	153	Wells St & WIS 175 SB Exit Ramp (46th St)	33WBT	153WBT	250	225	WBT	58	58	0.0	55	53	0.3	35	34	0.1	41	40	0.1
33	153	Wells St & WIS 175 SB Exit Ramp (46th St)	33SBL	153SBL	319	247	SBL	17	18	0.1	56	53	0.4	27	27	0.0	27	28	0.1
33	153	Wells St & WIS 175 SB Exit Ramp (46th St)	33SBT	153SBT	319	312	SBT	26	25	0.3	83	81	0.2	160	163	0.2	72	73	0.1
33	153	Wells St & WIS 175 SB Exit Ramp (46th St)	33SBR	153SBR	319	225	SBR	17	17	0.0	101	101	0.0	103	104	0.1	46	45	0.1
30	155	Wisconsin Ave & 46th St (WIS 175 SB Entr Ramp)	30EBT	155EBT	590	313	EBT	234	232	0.1	560	557	0.1	660	666	0.2	362	364	0.1
30	155	Wisconsin Ave & 46th St (WIS 175 SB Entr Ramp)	30EBR	155EBR	590	314	EBR	38	36	0.3	83	82	0.1	183	178	0.4	134	133	0.0
30	155	Wisconsin Ave & 46th St (WIS 175 SB Entr Ramp)	30WBL	155WBL	318	314	WBL	23	20	0.6	72	71	0.1	89	79	1.0	67	64	0.3
30	155	Wisconsin Ave & 46th St (WIS 175 SB Entr Ramp)	30WBT	155WBT	318	316	WBT	295	297	0.1	731	716	0.6	399	417	0.9	242	255	0.8
30	155	Wisconsin Ave & 46th St (WIS 175 SB Entr Ramp)	30SBL	155SBL	312	313	SBL	63	55	1.0	74	63	1.2	149	144	0.4	130	114	1.4
30	155	Wisconsin Ave & 46th St (WIS 175 SB Entr Ramp)	30SBT	155SBT	312	314	SBT	9	7	0.6	10	10	0.0	23	21	0.5	9	9	0.0
30	155	Wisconsin Ave & 46th St (WIS 175 SB Entr Ramp)	30SBR	155SBR	312	316	SBR	21	14	1.6	43	37	0.9	67	67	0.0	13	7	1.5
27	139	Miller Park Way & National Ave	27EBL	139EBL	610	484	EBL	231	219	0.8	482	478	0.2	493	499	0.3	320	321	0.1
27	139	Miller Park Way & National Ave	27EBT	139EBT	610	478	EBT	48	47	0.1	208	202	0.4	247	251	0.3	137	139	0.2
27	139	Miller Park Way & National Ave	27EBR	139EBR	610	482	EBR	8	8	0.0	24	24	0.1	21	22	0.2	7	8	0.4
27	139	Miller Park Way & National Ave	27NBL	139NBL	609	481	NBL	33	34	0.1	97	94	0.3	164	159	0.4	97	103	0.6
27	139	Miller Park Way & National Ave	27NBT	139NBT	609	484	NBT	681	675	0.2	1186	1184	0.1	1668	1633	0.9	1139	1167	0.8
27	139	Miller Park Way & National Ave	27NBR	139NBR	609	478	NBR	11	11	0.1	19	19	0.0	79	78	0.1	58	60	0.2
27	139	Miller Park Way & National Ave	27WBL	139WBL	612	482	WBL	10	10	0.0	68	64	0.5	94	95	0.1	47	49	0.2
27	139	Miller Park Way & National Ave	27WBT	139WBT	612	481	WBT	62	63	0.1	200	193	0.5	158	161	0.3	99	102	0.3
27	139	Miller Park Way & National Ave	27WBR	139WBR	612	484	WBR	178	175	0.2	262	258	0.2	369	372	0.2	141	140	0.1
27	139	Miller Park Way & National Ave	27SBL	139SBL	124	478	SBL	177	163	1.1	194	201	0.5	231	228	0.2	140	136	0.3
27	139	Miller Park Way & National Ave	27SBT	139SBT	124	482	SBT	711	676	1.3	1028	1015	0.4	1136	1129	0.2	937	888	1.6
27	139	Miller Park Way & National Ave	27SBR	139SBR	124	481	SBR	352	334	1.0	663	644	0.7	453	468	0.7	383	359	1.2
34	154	Wells St & 45th Pl (WIS 175 NB Entr Ramp)	34EBL	154EBL	247	317	EBL	2	2	0.2	29	29	0.1	73	73	0.0	71	72	0.1
34	154	Wells St & 45th Pl (WIS 175 NB Entr Ramp)	34EBT	154EBT	247	248	EBT	27	29	0.4	51	57	0.8	31	35	0.6	50	52	0.3
34	154	Wells St & 45th Pl (WIS 175 NB Entr Ramp)	34NBL	154NBL	304	250	NBL	65	53	1.5	55	43	1.6	29	25	0.8	52	29	5.0
34	154	Wells St & 45th Pl (WIS 175 NB Entr Ramp)	34NBT	154NBT	304	317	NBT	35	34	0.1	99	98	0.1	184	185	0.1	51	54	0.4
34	154	Wells St & 45th Pl (WIS 175 NB Entr Ramp)	34NBR	154NBR	304	248	NBR	22	10	2.6	35	26	1.4	12	11	0.4	24	6	5.0
34	154	Wells St & 45th Pl (WIS 175 NB Entr Ramp)	34WBT	154WBT	306	250	WBT	8	9	0.3	20	18	0.4	21	20	0.2	26	26	0.1
34	154	Wells St & 45th Pl (WIS 175 NB Entr Ramp)	34WBR	154WBR	306	317	WBR	23	22	0.1	22	22	0.0	68	67	0.1	53	53	0.0
31	156	Wisconsin Ave & WIS 175 NB Exit Ramp (45th Pl)	31EBL	156EBL	313	304	EBL	14	13	0.3	54	54	0.0	83	83	0.0	14	8	1.7
31	156	Wisconsin Ave & WIS 175 NB Exit Ramp (45th Pl)	31EBT	156EBT	313	272	EBT	283	275	0.5	580	565	0.6	726	727	0.0	478	471	0.3
31	156	Wisconsin Ave & WIS 175 NB Exit Ramp (45th Pl)	31NBL	156NBL	294	318	NBL	55	49	0.8	130	117	1.1	103	105	0.2	76	80	0.4
31	156	Wisconsin Ave & WIS 175 NB Exit Ramp (45th Pl)	31NBT	156NBT	294	304	NBT	19	9	2.4	25	15	1.9	18	13	1.2	14	4	2.7
31	156	Wisconsin Ave & WIS 175 NB Exit Ramp (45th Pl)	31NBR	156NBR	294	272	NBR	41	44	0.4	145	140	0.4	224	213	0.7	135	163	2.4
31	156	Wisconsin Ave & WIS 175 NB Exit Ramp (45th Pl)	31WBT	156WBT	302	318	WBT	263	268	0.3	673	673	0.0	385	388	0.2	233	238	0.4
31	156	Wisconsin Ave & WIS 175 NB Exit Ramp (45th Pl)	31WBR	156WBR	307	304	WBR	89	77	1.3	110	100	1.0	124	124	0.0	99	76	2.3

FINAL

2/5/2021

I-94 East-West Data Collection Project

Existing (2019) AM Peak Period Validation

Intersection Turning Movement Volumes

Intersections							Existing AM Peak Period Hourly Vols (5:30-9:30AM)											
							5:30-6:30AM			6:30-7:30AM (Peak)			7:30-8:30AM			8:30-9:30AM		
Forecast ID	Node	Int Name	FID Turn	Node Turn	From Link	To Link	Mvmt	Target	VISSIM	RNSE	Target	VISSIM	RNSE	Target	VISSIM	RNSE	Target	VISSIM	RNSE
29	141	Canal St & Miller Park Way NB Ramps	29EBL	141EBL	258	83	EBL	1	2	0.3	5	5	0.1	4	4	0.1	8	7	0.2
29	141	Canal St & Miller Park Way NB Ramps	29EBT	141EBT	241	244	EBT	184	179	0.3	254	242	0.8	432	427	0.3	298	315	1.0
29	141	Canal St & Miller Park Way NB Ramps	29EBR	141EBR	241	675	EBR	20	10	2.2	40	25	2.3	85	55	4.5	39	23	2.5
29	141	Canal St & Miller Park Way NB Ramps	29NBL	141NBL	677	88	NBL	7	8	0.4	11	15	1.2	13	18	1.5	28	27	0.2
29	141	Canal St & Miller Park Way NB Ramps	29NBT	141NBT	677	83	NBT	4	4	0.0	6	6	0.1	7	7	0.1	14	14	0.1
29	141	Canal St & Miller Park Way NB Ramps	29NBR	141NBR	677	244	NBR	169	166	0.2	283	277	0.4	425	423	0.1	178	189	0.8
29	141	Canal St & Miller Park Way NB Ramps	29WBL	141WBL	117	675	WBL	10	8	0.6	19	16	0.8	41	41	0.1	25	21	0.9
29	141	Canal St & Miller Park Way NB Ramps	29WBT	141WBT	117	88	WBT	68	67	0.1	131	130	0.1	167	168	0.1	111	112	0.1
29	141	Canal St & Miller Park Way NB Ramps	29WBR	141WBR	117	83	WBR	0	0	0.0	1	1	0.1	0	0	0.0	0	0	0.0
29	141	Canal St & Miller Park Way NB Ramps	29SBL	141SBL	232	244	SBL	0	0	0.0	1	1	0.0	0	0	0.0	1	1	0.0
29	141	Canal St & Miller Park Way NB Ramps	29SBT	141SBT	232	675	SBT	0	0	0.0	1	1	0.0	9	9	0.0	6	6	0.2
29	141	Canal St & Miller Park Way NB Ramps	29SBR	141SBR	232	88	SBR	2	2	0.0	8	8	0.1	5	5	0.2	5	5	0.0
32	157	Wisconsin Ave & Bluemound Rd (45th St)	32EBT	157EBT	272	323	EBT	310	303	0.4	631	619	0.5	906	892	0.5	593	618	1.0
32	157	Wisconsin Ave & Bluemound Rd (45th St)	32EBR	157EBR	272	301	EBR	14	15	0.4	94	84	1.0	44	45	0.2	20	19	0.1
32	157	Wisconsin Ave & Bluemound Rd (45th St)	32NBR	157NBR	303	323	NBR	134	133	0.1	300	298	0.1	352	350	0.1	204	207	0.2
32	157	Wisconsin Ave & Bluemound Rd (45th St)	32WBL	157WBL	300	301	WBL	33	41	1.5	148	154	0.5	84	89	0.5	38	61	2.2
32	157	Wisconsin Ave & Bluemound Rd (45th St)	32WBT	157WBT	596	302,307	WBT	352	345	0.4	783	773	0.4	509	511	0.1	332	315	1.0
13	158	36th St & Park Hill Ave	13WBL	158WBL	119	348	WBL	326	329	0.2	296	299	0.2	290	296	0.3	267	278	0.7
13	158	36th St & Park Hill Ave	13WBT	158WBT	119	349	WBT	4	4	0.1	31	30	0.3	20	20	0.0	13	12	0.4
13	158	36th St & Park Hill Ave	13SBT	158SBT	629	348	SBT	14	13	0.2	14	14	0.1	10	8	0.5	13	12	0.2
13	158	36th St & Park Hill Ave	13SBR	158SBR	629	349	SBR	4	4	0.1	2	2	0.0	7	7	0.1	1	1	0.0
14	159	35th St & Park Hill Ave	14NBL	159NBL	219	119	NBL	276	277	0.1	228	228	0.0	197	199	0.2	176	178	0.2
14	159	35th St & Park Hill Ave	14NBT	159NBT	219	123	NBT	152	155	0.3	382	380	0.1	520	527	0.3	339	360	1.1
14	159	35th St & Park Hill Ave	14WBL	159WBL	340	239	WBL	117	113	0.3	213	205	0.6	169	173	0.3	149	151	0.1
14	159	35th St & Park Hill Ave	14WBT	159WBT	340	119	WBT	18	20	0.4	48	47	0.1	39	41	0.3	40	42	0.3
14	159	35th St & Park Hill Ave	14WBR	159WBR	121	123	WBR	78	66	1.4	147	137	0.8	151	143	0.7	101	93	0.8
14	159	35th St & Park Hill Ave	14SBT	159SBT	630	239	SBT	112	111	0.1	367	360	0.4	505	509	0.2	401	399	0.1
14	159	35th St & Park Hill Ave	14SBR	159SBR	630	119	SBR	36	37	0.1	51	53	0.3	74	76	0.2	64	70	0.8
16	160	35th St & I-94 EB Ramps	16EBL	160EBL	341	219	EBL	56	46	1.4	94	86	0.8	83	79	0.4	86	93	0.8
16	160	35th St & I-94 EB Ramps	16EBT	160EBT	341	346	EBT	0	0	0.0	4	0	2.0	3	0	1.7	3	0	1.7
16	160	35th St & I-94 EB Ramps	16EBR	160EBR	341	230	EBR	194	185	0.6	202	197	0.4	104	111	0.7	121	123	0.2
16	160	35th St & I-94 EB Ramps	16NBT	160NBT	634	219	NBT	372	387	0.8	516	522	0.2	634	646	0.5	429	448	0.9
16	160	35th St & I-94 EB Ramps	16NBR	160NBR	634	346	NBR	152	137	1.2	285	272	0.8	453	447	0.3	252	237	0.9
16	160	35th St & I-94 EB Ramps	16SBL	160SBL	239	346	SBL	28	25	0.5	111	104	0.6	153	155	0.1	135	128	0.6
16	160	35th St & I-94 EB Ramps	16SBT	160SBT	239	230	SBT	201	200	0.1	469	458	0.5	521	528	0.3	415	418	0.2
15	68	34th St & Park Hill Ave	15NBL	68NBL	679	340,121	NBL	180	165	1.1	350	332	1.0	290	287	0.2	220	216	0.3
15	68	34th St & Park Hill Ave	15WBT	68WBT	633	340,121	WBT	33	34	0.2	58	59	0.1	69	70	0.1	70	70	0.0
15	68	34th St & Park Hill Ave	15WBR	68WBR	633	355	WBR	0	0	0.0	4	4	0.2	3	3	0.2	2	2	0.1
17	72	28th St & Clybourn St	17EBL	72EBL	638	406	EBL	0	0	0.0	0	0	0.0	0	0	0.0	0	0	0.0
17	72	28th St & Clybourn St	17EBT	72EBT	638	411	EBT	32	33	0.3	72	72	0.0	175	176	0.1	83	81	0.2
17	72	28th St & Clybourn St	17EBR	72EBR	638	379	EBR	1	1	0.0	1	1	0.3	11	9	0.5	4	3	0.4
17	72	28th St & Clybourn St	17WBL	72WBL	380	379	WBL	8	7	0.3	14	13	0.3	18	18	0.0	26	25	0.3
17	72	28th St & Clybourn St	17WBT	72WBT	380	402	WBT	28	28	0.0	56	57	0.2	42	43	0.2	31	32	0.2
17	72	28th St & Clybourn St	17WBR	72WBR	380	406	WBR	1	1	0.3	3	3	0.2	16	17	0.2	2	1	0.4
17	72	28th St & Clybourn St	17SBL	72SBL	640	411	SBL	2	2	0.1	2	1	0.8	2	2	0.1	4	5	0.3
17	72	28th St & Clybourn St	17SBT	72SBT	640	379	SBT	2	2	0.1	3	3	0.1	9	9	0.1	8	8	0.1
17	72	28th St & Clybourn St	17SBR	72SBR	640	402	SBR	1	1	0.1	2	2	0.2	3	3	0.2	3	3	0.2
23	69	28th St & St Paul Ave (I-94 WB Entr Ramp)	23EBT	69EBT	256	360	EBT	29	34	1.0	72	82	1.1	134	146	1.1	66	73	0.8
23	69	28th St & St Paul Ave (I-94 WB Entr Ramp)	23EBR	69EBR	256	403	EBR	13	7	1.5	11	0	4.7	14	2	3.3	9	2	2.4
23	69	28th St & St Paul Ave (I-94 WB Entr Ramp)	23WBL	69WBL	280	403	WBL	369	340	1.5	322	301	1.2	334	324	0.5	344	311	1.8
23	69	28th St & St Paul Ave (I-94 WB Entr Ramp)	23WBT	69WBT	280	399	WBT	25	25	0.1	59	58	0.2	65	66	0.2	45	44	0.1
23	69	28th St & St Paul Ave (I-94 WB Entr Ramp)	23SBL	69SBL	379	360	SBL	3	2	0.3	6	7	0.2	3	12	3.4	3	5	1.2
23	69	28th St & St Paul Ave (I-94 WB Entr Ramp)	23SBT	69SBT	379	403	SBT	8	7	0.4	8	7	0.4	31	20	2.0	27	23	0.7
23	69	28th St & St Paul Ave (I-94 WB Entr Ramp)	23SBR	69SBR	379	399	SBR	0	0	0.0	4	4	0.1	4	4	0.1	8	8	0.1
18	73	27th St & Clybourn St	18EBL	73EBL	411	397	EBL	2	3	0.6	9	9	0.1	4	4	0.2	7	6	0.2
18	73	27th St & Clybourn St	18EBT	73EBT	411	400	EBT	23	22	0.1	60	50	1.2	159	154	0.4	70	68	0.2
18	73	27th St & Clybourn St	18EBR	73EBR	411	393	EBR	9	10	0.2	5	14	2.0	14	19	1.2	10	12	0.5
18	73	27th St & Clybourn St	18NBL	73NBL	378	380	NBL	15	15	0.1	22	21	0.2	12	12	0.1	20	18	0.5
18	73	27th St & Clybourn St	18NBT	73NBT	378	397	NBT	190	190	0.0	277	278	0.1	487	479	0.3	373	373	0.0
18	73	27th St & Clybourn St	18NBR	73NBR	378	400	NBR	9	11	0.5	37	26	1.8	75	72	0.3	31	28	0.6
18	73	27th St & Clybourn St	18WBL	73WBL	365	393	WBL	65	31	4.5	155	92	5.8	146	127	1.6	126	91	4.2
18	73	27th St & Clybourn St	18WBT	73WBT	365	380	WBT	18	17	0.2	43	43	0.0	54	56	0.2	25	27	0.5
18	73	27th St & Clybourn St	18WBR	73WBR	365	397	WBR	22	20	0.4	46	44	0.3	120	122	0.1	47	45	0.3
18	73	27th St & Clybourn St	18SBL	73SBL	642	400	SBL	2	12	4.2	2	7	2.1	18	21	0.8	14	30	4.0
18	73	27th St & Clybourn St	18SBT	73SBT	642	393	SBT	183	173	0.7	248	242	0.4	383	378	0.2	414	395	1.0
18	73	27th St & Clybourn St	18SBR	73SBR	642	380	SBR	4	4	0.0	8	9	0.4	10	11	0.3	14	13	0.4
24	152	27th St & St Paul Ave	24EBL	152EBL	360	378	EBL	2	2	0.3	11	12	0.3	11	14	0.8	11	11	0.1
24	152	27th St & St Paul Ave	24EBT	152EBT	360	283	EBT	18	22	0.9	43	51	1.2	99	118	1.9	45	55	1.5
24	152	27th St & St Paul Ave	24EBR	152EBR	360	395	EBR	12	12	0.1	24	25	0.2	27	27	0.1	13	13	0.1
24	152	27th St & St Paul Ave	24NBL	152NBL	654	280	NBL	280	280	0.0	232	231	0.1	221	222	0.0	154	153	0.1
24	152	27th St & St Paul Ave	24NBT	152NBT	654	378	NBT	176	179	0.2	276	267	0.5	512	505	0.3	366	361	0.3
24	152	27th St & St Paul Ave	24NBR	152NBR	654	283	NBR	176	177	0.1	294	301	0.4	330	336	0.3	185	189	0.3
24	152	27th St & St Paul Ave	24WBL	152WBL	284	395	WBL	97	96	0.1	211	238	1.9	161	170	0.7	131	127	0.4
24	152	27th St & St Paul Ave	24WBT	152WBT	284	280	WBT	47	43	0.6	71	72	0.1	94	92	0.2	110	116	0.6
24	152	27th St & St Paul Ave	24WBR	152WBR	284	378	WBR	36	35	0.2	49	46	0.4	51	46	0.6	47	47	0.0
24	152	27th St & St Paul Ave	24SBL	152SBL	393	283	SBL	29	11	4.2	59	58	0.1	86	76	1.1	66	51	1.9
24	152	27th St & St Paul Ave	24SBT	152SBT	393	395	SBT	161	158	0.2	271	232	2.3	373	372	0.1	359	359	0.0
24	152	27th St & St Paul Ave	24SBR	152SBR	393	280	SBR	67	44	2.8	78	56	2.4	84	75	1.0	125	87	4.0
19	74	26th St & Clybourn St	19EBL	74EBL	400	389	EBL	4	4	0.1	7	7	0.1	21	21	0.0	5	5	0.0
19	74	26th St & Clybourn St	19EBT	74EBT	400	363	EBT	30	41	2.0	92	76	1.7	231	227	0.3	110	122	1.1
19	74	26th St & Clybourn St	19NBL	74NBL	377	365	NBL	24	1	4.6	19	2	2.8	14	1	4.6	32	2	4.6
19	74	26th St & Clybourn St	19NBT	74NBT	377	389	NBT	15	16	0.2	22	19	0.7	40	30	1.6	39	48	1.5
19	74	26th St & Clybourn St	19NBR	74NBR	377	363	NBR	83	74	0.9	116	83	3.0	94	65	3.0	97	100	0.3
19	74	26th St & Clybourn St	19WBT	74WBT	326	365	WBT	80	67	1.4	222	176	5.0	298	297	0.0	157	153	0.3
19	74	26th St & Clybourn St	19WBR	74WBR	326	389	WBR	6	6	0.1	11	10	0.2	16	17	0.3	7	7	0.2
19	74	26th St & Clybourn St	19SBL	74SBL	644	363	SBL	5	5	0.1	3	3	0.2	5	6	0.4	10	10	0.0
19	74	26th St & Clybourn St	19SBR	74SBR	644	365	SBR	1	0	0.9	3	2	0.7	8	7	0.4	9	8	0.2
25	150	26th St & St Paul Ave (I-94 EB Exit Ramp)	25EBL	150EBL	283	377	EBL	2	0	1.4	7	0	2.6	7	0	2.6	2	0	1.4
25	150	26th St & St Paul Ave (I-94 EB Exit Ramp)	25EBT	150EBT	283	286	EBT	221	211	0.7	389	410	1.0	508	530	1.0	294	294	0.0
25	150	26th St & St Paul Ave (I-94 EB Exit Ramp)	25NBL	150NBL	358	284	NBL	47	43	0.6	53	54	0.1	30	25	0.9	43	42	0.2
25	150	26th St & St Paul Ave (I-94 EB Exit Ramp)	25NBT	150NBT	358	377	NBT	113	89	2.3	137	102	4.1	123	95	2.5	155	148	0.6
25	150	26th St & St Paul Ave (I-94 EB Exit Ramp)	25NBR	150NBR	358	286	NBR	190	173	1.2	150	170	1.6	117	113	0.3	152	168	1.3
25	150	26th St & St Paul Ave (I-94 EB Exit Ramp)	25WBT	150WBT	288	284	WBT	133	133	0.0	278	305	1.6	276	280	0.2	245	247	0.2
25	150	26th St & St Paul Ave (I-94 EB Exit Ramp)	25WBR	150WBR	288	377	WBR	7	0	2.5	13	2	5.0	18	0	5.0	11	2	2.7
20	145	25th St & Clybourn St	20EBL	145EBL	363	382	EBL	5	6	0.3	11	12	0.3	4	4	0.1	7	6	0.5
20	145	25th St & Clybourn St	20EBT	145EBT	363	353	EBT	98	98	0.0	153	140	1.0	269	266	0.2	171	185	1.1
20	145	25th St & Clybourn St	20EBR	145EBR	363	374	EBR	15	17	0.6	47	9	3.0	57	27	4.0	39	40	0.1
20	145	25th St & Clybourn St	20NBL	145NBL	387	326	NBL	49	44	0.8	158	113	3.0	184	188	0.3	49	50	0.2
20	145	25th St & Clybourn St	20NBT	145NBT	387	382	NBT	33	32	0.1	65	61	0.5	113	116	0.3	63	64	0.2
20	145	25th St & Clybourn St	20NBR	145NBR	42	353	NBR	29	27	0.3	38	39	0.1	74	72	0.2	79	81	0.2
20	145	25th St & Clybourn St	20WBL	145WBL	649	374	WBL	7	9	0.7	22	22	0.1	33	35	0.4	44	49	0.7
20	145	25th St & Clybourn St	20WBT	145WBT	649	326	WBT	34	29	0.8	73	72	0.1	123	122	0.1	110	107	0.3
20	145	25th St & Clybourn St	20WBR	145WBR	649	382	WBR	3	3	0.1	7	7	0.1	13	13	0.0	8	8	0.1
20	145	25th St & Clybourn St	20SBL	145SBL	646	353	SBL	2	2	0.0	4	4	0.0	3	3	0.0	6	6	0.1
20	145	25th St & Clybourn St	20SBT	145SBT	646	374	SBT	18	19	0.3	54	53	0.1	64	67	0.3	57	59	0.3
20	145	25th St & Clybourn St	20SBR	145SBR	646	326	SBR	3	0	1.6	2	2	0.0	7	4	1.0	5	2	1.4
21	146	25th St & I-94 WB Exit Ramp	21WBL	146WBL	689	10469	WBL	259	259	0.0	409	446	1.8	429	438	0.4	279	280	0.0
21	146	25th St & I-94 WB Exit Ramp	21WBR	146WBR	689	42,387	WBR	111	103	0.7	261	216	2.8	371	375	0.2	191	194	0.2
21	146	25th St & I-94 WB Exit Ramp	21SBT	146SBT	374	374	SBT	40	45	0.9	123	85	4.1	154	129	2.0	140	148	0.7
22	148	25th St & I-94 EB Entr Ramp	22SBL	148SBL	367	370	SBL	38	44	1.0	96	84	1.3	138	130	0.7	104	124	2.0
22	148	25th St & I-94 EB Entr Ramp	22SBT	148SBT	367	289-369	SBT	261	257	0.3	436	445	0.4	445	440	0.2	315	218	3.4
26	149	25th St & St Paul Ave	26EBL	149EBL	286	371	EBL	205	195	0.7	252	262	0.6	340	354	0.8	213	206	0.5
26	149	25th St & St Paul Ave	26EBT	149EBT	286	287	EBT	47	46	0.2	124	132	0.7	153	160	0.6	93	105	1.2
26	149	25th St & St Paul Ave	26EBR	149EBR	286	362	EBR	159	143	1.3	163	186	1.8	132	128	0.3	140	152	1.0
26	149	25th St & St Paul Ave	26NBL	149NBL	650	288	NBL	27	21	1.1	84	70	1.6	80	65	1.7	86	85	0.1
26	149	25th St & St Paul Ave	26NBT	149NBT	650	371	NBT	48	54	0.9	61	73	1.6	88	103	1.6	77	81	0.5
26	149	25th St & St Paul Ave	26NBR	149NBR	650	287	NBR	5	4	0.4	24	26	0.3	35	35	0.0	14	14	0.1
26	149	25th St & St Paul Ave	26WBL	149WBL	652	362	WBL	2	2	0.1	12	12	0.0	12	12	0.0	13	13	0.0
26	149	25th St & St Paul Ave	26WBT	149WBT	652	288	WBT	29	27	0.3	43	42	0.1	69	68	0.1	56	56	0.0
26	149	25th St & St Paul Ave	26WBR	149WBR	652	371	WBR	9	10	0.4	21	22	0.3	10	14	1.3	25	25	0.0
26	149	25th St & St Paul Ave	26SBL	149SBL	289	287	SBL	25	25	0.0	51	36	2.1	42	34	1.2	49	42	0.9
26	149	25th St & St Paul Ave	26SBT	149SBT	369	362	SBT	152	148	0.4	221	211	0.7	258	260	0.1	152	154	0.2
26	149	25th St & St Paul Ave	26SBR	149SBR	368	288	SBR	84	84	0.0	164	197	2.6	145	146	0.1	114	109	0.5

WisDOT TEOpS Validation

Test	Target	5:30 AM	6:30 AM	7:30 AM	8:30 AM
Tier 2	RNSE < 3 for 85% of links	98.0%	94.7%	97.1%	97.3%

FINAL

I-94 East-West Data Collection Project

Existing (2019) AM Peak Period Validation

Intersection Operations

Intersection						VISSIM				Mvmt Delay (sec/veh)				Mvmt LOS				App Delay (sec/veh)				App LOS				Int Delay (sec/veh)				Int LOS			
Node	Int Name	Ctrl Type	From Link	To Link	Mvmt	5:30 AM	6:30 AM	7:30 AM	8:30 AM	5:30 AM	6:30 AM	7:30 AM	8:30 AM	5:30 AM	6:30 AM	7:30 AM	8:30 AM	5:30 AM	6:30 AM	7:30 AM	8:30 AM	5:30 AM	6:30 AM	7:30 AM	8:30 AM	5:30 AM	6:30 AM	7:30 AM	8:30 AM	5:30 AM	6:30 AM	7:30 AM	8:30 AM
103	76th St & O'Connor St	Signal	414	418	NBL	43	93	90	61	4.9	8.2	11.1	6.8	A	A	B	A	4.2	5.9	6.2	4.9	A	A	A	A	8.2	10.5	11.8	8.7	A	B	B	A
103	76th St & O'Connor St	Signal	414	417	NBT	75	175	257	100	3.8	4.6	4.6	3.7	A	A	A	A																
103	76th St & O'Connor St	Signal	171	135	WBL	3	11	39	40	16.3	17.6	20.4	16.7	B	B	C	B	12.8	12.5	14.0	12.6	B	B	B	B								
103	76th St & O'Connor St	Signal	171	418	WBT	23	31	25	23	19.2	20.8	22.3	19.1	B	C	C	B																
103	76th St & O'Connor St	Signal	171	417	WBR	14	29	38	28	1.4	1.6	1.9	1.2	A	A	A	A																
103	76th St & O'Connor St	Signal	415	135	SBT	34	156	258	34	17.9	18.1	18.7	18.7	B	B	B	B	15.1	16.5	17.8	13.7	B	B	B	B								
103	76th St & O'Connor St	Signal	415	418	SBR	9	30	30	18	5.1	8.1	9.6	4.2	A	A	A	A																
104	76th St & Kearney St	Signal	175	414	EBL	19	54	70	7	9.3	12.6	14.2	7.8	A	B	B	A	8.2	11.0	13.1	7.1	A	B	B	A	10.6	12.1	12.1	13.7	B	B	B	B
104	76th St & Kearney St	Signal	175	427	EBT	20	107	288	33	11.1	13.5	14.0	13.2	B	B	B	B																
104	76th St & Kearney St	Signal	175	413	EBR	16	59	71	68	3.4	4.9	8.4	4.0	A	A	A	A																
104	76th St & Kearney St	Signal	136	414	NBT	99	215	277	154	17.6	19.8	19.7	18.8	B	B	B	B	12.9	17.1	13.9	15.4	B	B	B	B								
104	76th St & Kearney St	Signal	136	427	NBR	39	37	158	38	0.9	1.5	3.8	1.4	A	A	A	A																
104	76th St & Kearney St	Signal	135	427	SBL	1	26	59	21	5.3	7.5	8.3	6.9	A	A	A	A	5.7	5.9	8.1	18.9	A	A	A	B								
104	76th St & Kearney St	Signal	135	413	SBT	35	140	238	53	5.7	5.6	8.0	23.8	A	A	A	C																
105	70th St & O'Connor St (I-94 WB Entr Ramp)	Signal	156	128	NBL	159	231	258	186	5.6	6.8	8.0	6.3	A	A	A	A	5.5	7.4	7.5	7.0	A	A	A	A	12.8	14.7	20.8	20.0	B	B	C	B
105	70th St & O'Connor St (I-94 WB Entr Ramp)	Signal	156	79	NBT	34	108	177	76	5.1	8.6	6.7	8.8	A	A	A	A																
105	70th St & O'Connor St (I-94 WB Entr Ramp)	Signal	75	419	WBL	78	158	337	291	29.1	31.1	40.9	36.6	C	C	D	D	20.0	21.5	31.1	28.2	B	C	C	C								
105	70th St & O'Connor St (I-94 WB Entr Ramp)	Signal	75	128	WBT	125	272	354	209	15.1	16.3	22.7	17.8	B	B	C	B																
105	70th St & O'Connor St (I-94 WB Entr Ramp)	Signal	75	79	WBR	6	6	13	12	4.5	6.3	7.5	5.5	A	A	A	A																
105	70th St & O'Connor St (I-94 WB Entr Ramp)	Signal	194	419	SBT	32	64	124	69	18.4	18.2	18.8	17.6	B	B	B	B	11.1	11.3	13.6	12.7	B	B	B	B								
105	70th St & O'Connor St (I-94 WB Entr Ramp)	Signal	194	128	SBR	34	74	83	41	4.1	5.3	5.8	4.5	A	A	A	A																
106	70th St & Kearney St (I-94 EB Exit Ramp)	Signal	133	156	EBL	16	87	142	71	19.1	20.0	34.6	21.6	B	C	C	C	7.5	11.7	27.6	12.8	A	B	C	B	8.1	10.5	18.9	10.7	A	B	B	B
106	70th St & Kearney St (I-94 EB Exit Ramp)	Signal	133	141	EBT	72	277	543	242	17.0	18.4	34.8	20.5	B	B	C	C																
106	70th St & Kearney St (I-94 EB Exit Ramp)	Signal	133	153	EBR	175	371	400	427	2.6	4.8	15.3	7.0	A	A	B	A																
106	70th St & Kearney St (I-94 EB Exit Ramp)	Signal	231	156	NBT	177	253	292	189	12.8	14.1	14.5	14.1	B	B	B	B	9.2	10.0	10.8	9.3	A	A	B	A								
106	70th St & Kearney St (I-94 EB Exit Ramp)	Signal	231	141	NBR	82	144	190	129	1.2	2.7	5.0	2.2	A	A	A	A																
106	70th St & Kearney St (I-94 EB Exit Ramp)	Signal	419	141	SBL	5	11	19	13	5.5	6.6	7.3	5.3	A	A	A	A	6.8	7.2	6.9	7.8	A	A	A	A								
106	70th St & Kearney St (I-94 EB Exit Ramp)	Signal	419	153	SBT	104	210	441	348	6.9	7.3	6.9	7.9	A	A	A	A																
107	68th St & O'Connor St (I-94 WB Exit Ramp)	Signal	161	75	NBL	20	48	55	33	1.0	1.2	1.5	1.7	A	A	A	A	0.4	0.5	0.6	0.6	A	A	A	A	12.5	11.5	10.8	12.0	B	B	B	B
107	68th St & O'Connor St (I-94 WB Exit Ramp)	Signal	16	17	NBT	55	161	292	150	0.2	0.3	0.5	0.3	A	A	A	A																
107	68th St & O'Connor St (I-94 WB Exit Ramp)	Signal	165	20	WBL	18	23	21	28	20.2	20.4	20.8	19.4	C	C	C	B	15.7	17.2	19.4	18.0	B	B	B	B								
107	68th St & O'Connor St (I-94 WB Exit Ramp)	Signal	165	75	WBT	125	202	358	286	18.1	18.9	20.3	19.8	B	B	C	B																
107	68th St & O'Connor St (I-94 WB Exit Ramp)	Signal	165	17	WBR	42	50	49	67	6.9	8.8	11.5	9.4	A	A	B	A																
107	68th St & O'Connor St (I-94 WB Exit Ramp)	Signal	455	20,162	SBT	86	182	152	142	24.6	25.6	23.7	23.8	C	C	C	C	14.5	13.5	10.4	11.4	B	B	B	B								
107	68th St & O'Connor St (I-94 WB Exit Ramp)	Signal	455	75	SBR	65	189	292	189	1.0	1.8	3.5	2.1	A	A	A	A																
108	68th St & Kearney St (I-94 EB Entr Ramp)	Signal	141	16	EBL	38	132	225	131	7.6	4.4	13.5	2.7	A	A	B	A	11.7	9.6	14.1	9.5	B	A	B	A	10.8	11.0	16.1	9.7	B	B	B	A
108	68th St & Kearney St (I-94 EB Entr Ramp)	Signal	141	142	EBT	117	273	506	239	13.3	12.7	14.9	13.9	B	B	B	B																
108	68th St & Kearney St (I-94 EB Entr Ramp)	Signal	141	15	EBR	3	17	22	20	0.2	0.2	1.4	0.8	A	A	A	A																
108	68th St & Kearney St (I-94 EB Entr Ramp)	Signal	412	161,16	NBT	36	78	122	52	36.5	40.7	46.5	38.0	D	D	D	D	24.9	28.4	36.4	23.6	C	C	D	C								
108	68th St & Kearney St (I-94 EB Entr Ramp)	Signal	412	142	NBR	21	52	55	45	5.3	10.1	14.2	6.9	A	B	B	A																
108	68th St & Kearney St (I-94 EB Entr Ramp)	Signal	162	142	SBL	71	131	114	107	0.8	2.1	3.1	1.2	A	A	A	A	1.6	2.6	3.7	2.6	A	A	A	A								
108	68th St & Kearney St (I-94 EB Entr Ramp)	Signal	20	15	SBT	33	74	59	64	3.3	3.4	4.8	4.8	A	A	A	A																
120	Hawley Rd & I-94 WB Ramps	Signal	196	205	EBL	22	18	23	32	30.2	28.8	31.1	28.5	C	C	C	C	9.7	5.5	7.0	6.6	A	A	A	A	3.3	6.2	13.4	4.6	A	A	B	A
120	Hawley Rd & I-94 WB Ramps	Signal	196	203	EBR	47	97	117	131	0.3	1.3	2.3	1.4	A	A	A	A																
120	Hawley Rd & I-94 WB Ramps	Signal	184	200	NBL	241	344	338	237	4.2	16.3	47.7	10.5	A	B	D	B	3.1	9.1	21.0	5.7	A	A	C	A								
120	Hawley Rd & I-94 WB Ramps	Signal	184	205	NBT	126	308	460	296	1.1	1.1	1.4	1.9	A	A	A	A																
120	Hawley Rd & I-94 WB Ramps	Signal	582	203	SBT	110	339	523	317	1.6	1.2	2.0	2.2	A	A	A	A	1.5	2.8	6.4	2.6	A	A	A	A								
120	Hawley Rd & I-94 WB Ramps	Signal	582	200	SBR	109	183	216	138	1.4	5.8	16.9	3.5	A	A	B	A																
54	Hawley Rd & I-94 EB Exit Ramp	TWSC	682	184	EBL	19	33	48	47	7.4	10.8	23.1	10.6	A	B	C	B	7.1	8.6	12.8	8.2	A	A	B	A	-*	-*	-*	-*	-*	-*	-*	-*
54	Hawley Rd & I-94 EB Exit Ramp	TWSC	682	178	EBR	180	197	84	109	7.0	8.2	7.0	7.1	A	A	A	A																
54	Hawley Rd & I-94 EB Exit Ramp	TWSC	216	184	NBT	350	624	747	483	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*								
54	Hawley Rd & I-94 EB Exit Ramp	TWSC	203	178,185	SBT	158	435	641	449	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*								
121	Hawley Rd & I-94 EB Entr Ramp	TWSC	670	216	NBT	350	624	747	483	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*
121	Hawley Rd & I-94 EB Entr Ramp	TWSC	187	179	NBR	153	252	292	251	0.4	1.6	2.1	1.1	A	A	A	A	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*
121	Hawley Rd & I-94 EB Entr Ramp	TWSC	185	179	SBL	36	65	122	89	3.7	8.5	13.4	6.5	A	A	B	A																
121	Hawley Rd & I-94 EB Entr Ramp	TWSC	178	191	SBT	301	565	604	469	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*								
109	Gen Mitchell Blvd & I-94 WB Exit Ramp	TWSC	217	195	NBT	9	37	33	38	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*
109	Gen Mitchell Blvd & I-94 WB Exit Ramp	TWSC	223	433,212	WBL	26	65	43	22	5.0	6.4	7.3	6.0	A	A	A	A	5.1	6.3	7.0	5.9	A	A	A	A								
109	Gen Mitchell Blvd & I-94 WB Exit Ramp	TWSC	223	195	WBR	10	12	13	17	5.5	5.7	6.1	5.6	A	A	A	A																
109	Gen Mitchell Blvd & I-94 WB Exit Ramp	TWSC	587	433,212	SBT	0	0	0	0	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*								
110	Gen Mitchell Blvd & I-94 EB Ramps/WB Entr Ramp	TWSC	681	217	EBL	4	20	5	15	6.5	8.8	9.4	8.3	A	A	A	A	6.5	9.3	8.4	7.7	A	A	A	A	-*	-*	-*	-*	-*	-*	-*	-*
110	Gen Mitchell Blvd & I-94 EB Ramps/WB Entr Ramp	TWSC	681	435	EBT	0	0	0	0	0.0	0.0	0.0	0.0	A	A	A	A																
110	Gen Mitchell Blvd & I-94 EB Ramps/WB Entr Ramp	TWSC	681	214	EBR	74	234	117	97	6.6	9.3	8.3	7.6	A	A	A	A																
110	Gen Mitchell Blvd & I-94 EB Ramps/WB Entr Ramp	TWSC	438	215	NBL	0	24	66	41	0.0	5.3	5.7	1.5	A	A	A	A	-*	-*	-*	-*	-*	-*	-*	-*								
110	Gen Mitchell Blvd & I-94 EB Ramps/WB Entr Ramp	TWSC	213	217	NBT	5	17	28	23	-*	-*	-*	-*	-*	-*	-*	-*																
110	Gen Mitchell Blvd & I-94 EB Ramps/WB Entr Ramp	TWSC	213	435	NBR	12	8	31	32	0.0	0.0	0.3	0.0	A	A	A	A																
110	Gen Mitchell Blvd & I-94 EB Ramps/WB Entr Ramp	TWSC	433	435	SBL	0	34	152	60	0.1	0.8	1.4	0.8	A	A	A	A	-*	-*	-*	-*	-*	-*	-*	-*								
110	Gen Mitchell Blvd & I-94 EB Ramps/WB Entr Ramp	TWSC	212	214	SBT	75	229	226	101	-*	-*	-*	-*	-*	-*	-*	-*																
110	Gen Mitchell Blvd & I-94 EB Ramps/WB Entr Ramp	TWSC	212	215	SBR	8	18	33	17	0.4	1.0	1.3	0.7	A	A	A	A																
140	Canal St & Miller Park Way SB Ramps	Signal	669	263	EBL	0	0	7	5	0.0	0.0	13.2	14.3	A	A	B	B	12.4	13.0	14.6	15.2	B	B	B	B	4.1	7.0	8.0	6.5	A	A	A	A
140	Canal St & Miller Park Way SB Ramps	Signal	669	330	EBT	21	44	86	41	15.1	16.9	17.1	17.5	B	B	B	B																
140	Canal St & Miller Park Way SB Ramps	Signal	669	257	EBR	10	27	24	13	6.7	6.5	6.1	8.4	A	A	A	A																
140	Canal St & Miller Park Way SB Ramps	Signal	10093	291	NBL	8	10	5	0	7.2	10.5	14.1	3.7	A	B	B	A	1.7	2.7	4.1	3.4	A	A	A	A								
140	Canal St & Miller Park Way SB Ramps	Signal	10093	263	NBT	8	7	46	37	8.1	12.5	13.8	14.2	A	B	B	B																
140	Canal St & Miller Park Way SB Ramps	Signal	10093	330	NBR	172	227	400	303	1.1	2.1	2.9	2.1	A	A	A	A																
140	Canal St & Miller Park Way SB Ramps	Signal	88	257	WBL	48	104	142	106	6.7	9.6	12.7	9.7	A	A	B	A	6.6	10.1	13.1	10.2	A	B	B	B								
140	Canal St & Miller Park Way SB Ramps	Signal	88	291	WBT	28	47	46	36	6.4	11.4	14.8	12.6	A	B	B	B																
140	Canal St & Miller Park Way SB Ramps	Signal	88	263	WBR	1	2	2	4	1.7	4.0	2.6	3.1	A	A	A	A																
140	Canal St & Miller Park Way SB Ramps	Signal	264	330	SBL	0	0	1	0	22.7	0.0	17.9	12.2	C	A	B	B	22.7	26.9	11.5	6.4	C	C	B	A								
140	Canal St & Miller Park Way SB Ramps	Signal	264	257	SBT	0	7	0	0	0.0	26.9	8.3	0.0	A	C	A	A																
140	Canal St & Miller Park Way SB Ramps	Signal	264	291	SBR	0	0	1	2	0.0	0.0	5.8	5.8	A	A	A	A																
153	Wells St & WIS 175 SB Exit Ramp (46th St)	AWSC	593	247	EBT	14	32	81	96	8.2	9.4	10.4	9.6	A	A	B	A	5.7	7.8	8.8	8.3	A	A	A	A	6.1	5.8	7.1	7.1	A	A	A	A
153	Wells St & WIS 175 SB Exit Ramp (46th St)	AWSC	593	312	EBR	48	21	59	43	5.0	5.5	6.6	5.5	A	A	A	A																
153	Wells St & WIS 175 SB Exit Ramp (46th St)	AWSC	250	312	WBL	4	8	11	14	5.2	6.3	7.9	6.8	A	A	A	A	8.5	9.1	9.5	8.6	A	A	A	A								
153	Wells St & WIS 175 SB Exit Ramp (46th St)	AWSC	250	225	WBT	58	53	34	40	8.7	9.6	9.9	9.2	A	A	A	A																
153	Wells St & WIS 175 SB Exit Ramp (46th St)	AWSC	319	247	SBL	18	53	27	28	4.0	6.0	6.6	5.7	A	A	A	A	4.0	4.5	6.0	5.4	A	A	A	A								
153	Wells St & WIS 175 SB Exit Ramp (46th St)	AWSC	319	312	SBT	25	81	163	73	6.6	8.2	9.3	8.4	A	A	A	A																
153	Wells St & WIS 175 SB Exit Ramp (46th St)	AWSC	319	225	SBR	17	101	104	45	0.4	0.7	0.6	0.3	A	A	A	A																
155	Wisconsin Ave & 46th St (WIS 175 SB Entr Ramp)	Signal	590	313	EBT	232	557	666	364	2.8	3.9	4.6	4.3	A	A	A	A	2.6	3.6	4.2	3.8	A	A	A	A	4.7	3.9	6.5	7.2	A	A	A	A
155	Wisconsin Ave & 46th St (WIS 175 SB Entr Ramp)	Signal	590	314	EBR	36	82	178	133	1.5	2.0	2.6	2.5	A	A	A	A																
155	Wisconsin Ave & 46th St (WIS 175 SB Entr Ramp)	Signal	318	314	WBL	20	71	79	64	2.3	3.6	5.5	9.7	A	A	A	A	1.0	1.3	1.8	5.3	A	A	A	A								
155	Wisconsin Ave & 46th St (WIS 175 SB Entr Ramp)	Signal	318	316	WBT	297	716	417	255	0.9	1.0	1.1	4.1	A	A	A	A																
155	Wisconsin Ave & 46th St (WIS 175 SB Entr Ramp)	Signal	312	313	SBL	55	63	144	114	34.3	33.6	33.9	26.3	C	C	C	C	28.0	23.8	24.7	24.8	C	C	C	C								
155	Wisconsin Ave & 46th St (WIS 175 SB Entr Ramp)	Signal	312	314	SBT	7	10	21	9	30.7	37.6	33.3	25.7	C	D	C	C																
155	Wisconsin Ave & 46th St (WIS 175 SB Entr Ramp)	Signal	312	316	SBR	14	37	67	7	1.1	3.4	2.0	1.1	A	A	A	A																

Legend (HCM6)	
Delay (sec/veh)	
Signal	Stop
0-10	0-10
10-20	10-15
20-35	15-25
35-55	25-35
55-80	35-50
80+	50+

I-94 East-West Data Collection Project

Existing (2019) AM Peak Period Validation

Intersection Operations

Intersection						VISSIM				Mvmt Delay (sec/veh)				Mvmt LOS				App Delay (sec/veh)				App LOS				Int Delay (sec/veh)				Int LOS			
Node	Int Name	Ctrl Type	From Link	To Link	Mvmt	5:30 AM	6:30 AM	7:30 AM	8:30 AM	5:30 AM	6:30 AM	7:30 AM	8:30 AM	5:30 AM	6:30 AM	7:30 AM	8:30 AM	5:30 AM	6:30 AM	7:30 AM	8:30 AM	5:30 AM	6:30 AM	7:30 AM	8:30 AM	5:30 AM	6:30 AM	7:30 AM	8:30 AM	5:30 AM	6:30 AM	7:30 AM	8:30 AM
139	Miller Park Way & National Ave	Signal	610	484	EBL	219	478	499	321	36.4	53.8	53.6	36.1	D	D	D	D	32.7	50.6	50.7	33.1	C	D	D	C	23.4	32.6	45.8	33.1	C	C	D	C
139	Miller Park Way & National Ave	Signal	610	478	EBT	47	202	251	139	20.2	45.1	46.4	27.6	C	D	D	C																
139	Miller Park Way & National Ave	Signal	610	482	EBR	8	24	22	8	6.1	32.1	35.1	13.6	A	C	D	B																
139	Miller Park Way & National Ave	Signal	609	481	NBL	34	94	159	103	37.9	*59.4*	*100.7*	*59.9*	D	*E*	*F*	*E*	28.1	34.5	*64.9*	42.9	C	C	*E*	D								
139	Miller Park Way & National Ave	Signal	609	484	NBT	675	1184	1633	1167	28.1	32.9	*63.0*	43.2	C	C	*E*	D																
139	Miller Park Way & National Ave	Signal	609	478	NBR	11	19	78	60	1.3	6.1	31.8	7.4	A	A	C	A																
139	Miller Park Way & National Ave	Signal	612	482	WBL	10	64	95	49	48.0	*65.9*	*67.4*	47.6	D	*E*	*E*	D	16.2	35.3	35.9	26.2	B	D	D	C								
139	Miller Park Way & National Ave	Signal	612	481	WBT	63	193	161	102	39.6	*61.4*	*62.6*	42.3	D	*E*	*E*	D																
139	Miller Park Way & National Ave	Signal	612	484	WBR	175	258	372	140	6.0	8.3	16.3	7.0	A	A	B	A																
139	Miller Park Way & National Ave	Signal	124	478	SBL	163	201	228	136	42.6	*64.7*	*69.2*	45.5	D	*E*	*E*	D	19.8	23.7	27.4	25.1	B	C	C	C								
139	Miller Park Way & National Ave	Signal	124	482	SBT	676	1015	1129	888	21.6	26.4	28.0	29.3	C	C	C	C																
139	Miller Park Way & National Ave	Signal	124	481	SBR	334	644	468	359	5.2	6.5	5.8	6.9	A	A	A	A																
154	Wells St & 45th Pl (WIS 175 NB Entr Ramp)	AWSC	247	317	EBL	2	29	73	72	6.1	7.2	8.7	7.5	A	A	A	A	8.9	9.0	9.1	8.2	A	A	A	A	7.7	9.2	11.9	8.6	A	A	B	A
154	Wells St & 45th Pl (WIS 175 NB Entr Ramp)	AWSC	247	248	EBT	29	57	35	52	9.1	9.9	10.1	9.2	A	A	B	A																
154	Wells St & 45th Pl (WIS 175 NB Entr Ramp)	AWSC	304	250	NBL	53	43	25	29	7.0	8.6	12.4	8.6	A	A	B	A																
154	Wells St & 45th Pl (WIS 175 NB Entr Ramp)	AWSC	304	317	NBT	34	98	185	54	10.1	11.5	15.4	11.6	B	B	C	B	7.8	9.8	14.7	10.2	A	A	B	B								
154	Wells St & 45th Pl (WIS 175 NB Entr Ramp)	AWSC	304	248	NBR	10	26	11	6	4.6	5.4	6.0	4.2	A	A	A	A																
154	Wells St & 45th Pl (WIS 175 NB Entr Ramp)	AWSC	306	250	WBT	9	18	20	26	8.7	9.4	11.1	9.8	A	A	B	A	6.0	7.6	8.2	7.3	A	A	A	A								
154	Wells St & 45th Pl (WIS 175 NB Entr Ramp)	AWSC	306	317	WBR	22	22	67	53	4.9	6.1	7.3	6.1	A	A	A	A																
156	Wisconsin Ave & WIS 175 NB Exit Ramp (45th Pl)	TWSC	313	304	EBL	13	54	83	8	2.3	4.4	3.7	1.2	A	A	A	A	.*	.*	.*	.*	.*	.*	.*	.*	1.3	2.2	3.2	2.6	A	A	A	A
156	Wisconsin Ave & WIS 175 NB Exit Ramp (45th Pl)	TWSC	313	272	EBT	275	565	727	471	.*	.*	.*	.*	.*	.*	.*	.*																
156	Wisconsin Ave & WIS 175 NB Exit Ramp (45th Pl)	TWSC	294	318	NBL	49	117	105	80	8.5	13.9	13.5	9.7	A	B	B	A	8.7	12.3	14.8	10.9	A	B	B	B								
156	Wisconsin Ave & WIS 175 NB Exit Ramp (45th Pl)	TWSC	294	304	NBT	9	15	13	4	12.3	17.0	16.2	11.4	B	C	C	B																
156	Wisconsin Ave & WIS 175 NB Exit Ramp (45th Pl)	TWSC	294	272	NBR	44	140	213	163	8.3	10.5	15.4	11.5	A	B	C	B																
156	Wisconsin Ave & WIS 175 NB Exit Ramp (45th Pl)	TWSC	302	318	WBT	268	673	388	238	.*	.*	.*	.*	.*	.*	.*	.*	.*	.*	.*	.*	.*	.*	.*	.*								
156	Wisconsin Ave & WIS 175 NB Exit Ramp (45th Pl)	TWSC	307	304	WBR	77	100	124	76	0.0	0.1	0.3	0.0	A	A	A	A																
141	Canal St & Miller Park Way NB Ramps	Signal	258	83	EBL	1	5	4	7	6.8	11.8	14.5	10.0	A	B	B	B	5.6	8.2	12.7	7.4	A	A	B	A	5.4	7.3	11.0	7.0	A	A	B	A
141	Canal St & Miller Park Way NB Ramps	Signal	241	244	EBT	179	242	427	315	5.8	8.7	13.8	7.7	A	A	B	A																
141	Canal St & Miller Park Way NB Ramps	Signal	241	675	EBR	10	25	55	23	2.2	2.7	4.1	2.6	A	A	A	A																
141	Canal St & Miller Park Way NB Ramps	Signal	677	88	NBL	8	15	18	27	5.5	8.2	10.4	7.1	A	A	B	A	4.2	5.7	8.5	5.6	A	A	A	A								
141	Canal St & Miller Park Way NB Ramps	Signal	677	83	NBT	4	6	7	14	2.1	6.2	7.9	8.1	A	A	A	A																
141	Canal St & Miller Park Way NB Ramps	Signal	677	244	NBR	166	277	423	189	4.2	5.6	8.5	5.2	A	A	A	A																
141	Canal St & Miller Park Way NB Ramps	Signal	117	675	WBL	8	16	41	21	18.1	20.0	23.0	16.3	B	B	C	B																
141	Canal St & Miller Park Way NB Ramps	Signal	117	88	WBT	67	130	168	112	6.0	7.8	10.0	6.9	A	A	A	A	7.3	9.0	12.5	8.3	A	A	B	A								
141	Canal St & Miller Park Way NB Ramps	Signal	117	83	WBR	0	1	0	0	0.0	0.7	1.1	0.0	A	A	A	A																
141	Canal St & Miller Park Way NB Ramps	Signal	232	244	SBL	0	1	0	1	0.0	1.6	0.0	6.3	A	A	A	A																
141	Canal St & Miller Park Way NB Ramps	Signal	232	675	SBT	0	1	9	6	0.0	2.7	7.0	10.5	A	A	A	B	3.1	4.0	5.4	7.6	A	A	A	A								
141	Canal St & Miller Park Way NB Ramps	Signal	232	88	SBR	2	8	5	5	3.1	4.5	2.8	4.2	A	A	A	A																
157	Wisconsin Ave & Bluemound Rd (45th St)	Signal	272	323	EBT	303	619	892	618	19.7	20.6	21.2	23.4	B	C	C	C	18.8	18.2	20.2	22.7	B	B	C	C	13.3	13.5	15.1	16.5	B	B	B	B
157	Wisconsin Ave & Bluemound Rd (45th St)	Signal	272	301	EBR	15	84	45	19	0.9	1.0	0.6	1.2	A	A	A	A																
157	Wisconsin Ave & Bluemound Rd (45th St)	Signal	303	323	NBR	133	298	350	207	9.2	8.3	8.7	8.9	A	A	A	A	9.2	8.3	8.7	8.9	A	A	A	A								
157	Wisconsin Ave & Bluemound Rd (45th St)	Signal	300	301	WBL	41	154	89	61	10.0	10.8	10.4	9.8	B	B	B	A																
157	Wisconsin Ave & Bluemound Rd (45th St)	Signal	596	302,307	WBT	345	773	511	315	10.2	11.7	10.9	10.1	B	B	B	B	10.2	11.5	10.8	10.0	B	B	B	B								
158	36th St & Park Hill Ave	TWSC	119	348	WBL	329	299	296	278	0.4	0.6	0.6	0.5	A	A	A	A	.*	.*	.*	.*	.*	.*	.*	.*	.*	.*	.*	.*	.*	.*	.*	.*
158	36th St & Park Hill Ave	TWSC	119	349	WBT	4	30	20	12	.*	.*	.*	.*	.*	.*	.*	.*																
158	36th St & Park Hill Ave	TWSC	629	348	SBT	13	14	8	12	5.9	7.2	7.5	4.6	A	A	A	A	5.3	6.8	6.6	4.3	A	A	A	A								
158	36th St & Park Hill Ave	TWSC	629	349	SBR	4	2	7	1	3.6	4.0	5.4	1.3	A	A	A	A																
159	35th St & Park Hill Ave	Signal	219	119	NBL	277	228	199	178	5.3	6.9	7.7	8.4	A	A	A	A	4.5	4.5	4.6	4.8	A	A	A	A	9.6	11.3	11.1	11.2	A	B	B	B
159	35th St & Park Hill Ave	Signal	219	123	NBT	155	380	527	360	3.1	3.1	3.4	3.0	A	A	A	A																
159	35th St & Park Hill Ave	Signal	340	239	WBL	113	205	173	151	27.5	28.4	29.0	27.1	C	C	C	C	20.4	20.3	19.8	20.0	C	C	B	B								
159	35th St & Park Hill Ave	Signal	340	119	WBT	20	47	41	42	32.5	28.8	29.4	26.8	C	C	C	C																
159	35th St & Park Hill Ave	Signal	121	123	WBR	66	137	143	93	4.6	5.4	6.0	5.4	A	A	A	A																
159	35th St & Park Hill Ave	Signal	630	239	SBT	111	360	509	399	11.7	13.4	14.6	14.1	B	B	B	B	10.0	12.7	14.0	13.3	A	B	B	B								
159	35th St & Park Hill Ave	Signal	630	119	SBR	37	53	76	70	4.7	8.4	10.1	8.6	A	A	B	A																
160	35th St & I-94 EB Ramps	Signal	341	219	EBL	46	86	79	93	29.3	30.1	27.4	28.3	C	C	C	C	10.4	13.8	15.0	15.5	B	B	B	B	11.3	11.9	13.5	11.8	B	B	B	B
160	35th St & I-94 EB Ramps	Signal	341	346	EBT	0	0	0	0	0.0	0.0	0.0	0.0	A	A	A	A																
160	35th St & I-94 EB Ramps	Signal	341	230	EBR	185	197	111	123	5.7	6.7	6.1	5.8	A	A	A	A																
160	35th St & I-94 EB Ramps	Signal	634	219	NBT	387	522	646	448	15.2	15.1	16.6	14.4	B	B	B	B	11.7	11.3	13.2	10.6	B	B	B	B								
160	35th St & I-94 EB Ramps	Signal	634	346	NBR	137	272	447	237	1.8	4.0	8.4	3.3	A	A	A	A																

Legend (HCM6)	
Delay (sec/veh)	
Signal	Stop
0-10	0-10
10-20	10-15
20-35	15-25
35-55	25-35
55-80	35-50
80+	50+

Notes:

*Major thru movement, approach, and intersection delay/LOS not calculated for Two Way Stop Control (TWSC) intersections per 6th Edition HCM

I-94 East-West Data Collection Project

Existing (2019) AM Peak Period Validation

Freeway Mainline Speed Summary

		I-94 Eastbound - Avg Speed (MPH)							
	Corridor ID	EB1	EB2	EB3	EB4	EB5	EB6	EB7	EB8
	Segment	Zoo Interchange to 84th St	84th St to 68th St	68th St to Hawley Rd	Hawley Rd to Stadium Interchange	Stadium Interchange	Stadium Interchange to 35th St	35th St to 25th St	25th St to Marquette Interchange
VISSIM Factored Average	5:30 AM	64	63	63	60	57	56	56	57
	5:45 AM	64	62	62	58	56	55	55	56
	6:00 AM	63	61	61	58	56	55	55	56
	6:15 AM	60	43	60	56	55	54	54	55
	6:30 AM	46	34	57	53	43	44	52	54
	6:45 AM	42	35	48	34	17	33	53	53
	7:00 AM	55	27	24	21	14	32	52	54
	7:15 AM	29	15	17	17	12	32	52	54
	7:30 AM	15	11	14	16	13	32	51	53
	7:45 AM	12	9	13	15	12	31	50	54
	8:00 AM	11	8	12	14	12	30	50	54
	8:15 AM	11	9	13	14	12	31	51	54
	8:30 AM	10	10	14	15	12	31	53	54
	8:45 AM	15	12	15	16	13	32	52	54
	9:00 AM	44	19	18	21	15	33	52	54
	9:15 AM	63	63	55	45	29	41	53	54
Field - April 9, 2019 Selected Typical Weekday (NPMRDS)	5:30 AM	63	63	61	61	62	61	62	58
	5:45 AM	62	62	62	61	61	59	58	53
	6:00 AM	65	63	64	63	67	67	60	61
	6:15 AM	63	62	62	58	60	60	57	53
	6:30 AM	43	36	34	41	44	47	52	54
	6:45 AM	23	18	29	29	24	31	45	51
	7:00 AM	15	16	25	24	21	31	43	50
	7:15 AM	11	11	19	20	21	33	45	52
	7:30 AM	15	10	16	18	18	28	46	54
	7:45 AM	10	7	11	16	16	28	46	50
	8:00 AM	12	9	14	16	19	32	44	48
	8:15 AM	24	11	16	19	19	30	43	48
	8:30 AM	27	13	18	20	21	31	43	51
	8:45 AM	42	16	21	24	21	32	46	52
	9:00 AM	47	15	30	36	36	42	49	53
	9:15 AM	59	43	47	50	52	52	49	53
VISSIM Unfactored Average	5:30 AM	64	63	63	60	57	56	56	57
	5:45 AM	64	62	62	58	56	55	55	56
	6:00 AM	63	61	61	58	56	55	55	56
	6:15 AM	60	43	60	56	55	54	54	55
	6:30 AM	46	34	57	53	43	44	52	54
	6:45 AM	42	35	48	34	17	33	53	53
	7:00 AM	55	27	24	21	14	32	52	54
	7:15 AM	29	15	17	17	12	32	52	54
	7:30 AM	15	11	14	16	13	32	51	53
	7:45 AM	12	9	13	15	12	31	50	54
	8:00 AM	11	8	12	14	12	30	50	54
	8:15 AM	11	9	13	14	12	31	51	54
	8:30 AM	9	11	14	16	12	32	52	54
	8:45 AM	8	11	14	15	12	32	52	54
	9:00 AM	9	12	16	18	14	33	52	54
	9:15 AM	11	18	22	25	17	34	52	54
Field - April 2019 Weekday Maximum (NPMRDS)	5:30 AM	64	64	65	64	63	61	62	58
	5:45 AM	67	65	64	62	63	63	61	57
	6:00 AM	67	70	66	65	67	67	62	62
	6:15 AM	63	62	62	63	60	60	59	58
	6:30 AM	65	61	58	58	57	56	56	57
	6:45 AM	64	62	57	57	56	52	54	56
	7:00 AM	61	59	57	56	57	54	55	56
	7:15 AM	60	54	47	44	40	41	49	56
	7:30 AM	59	39	27	28	24	33	47	54
	7:45 AM	60	41	21	23	23	37	47	55
	8:00 AM	63	47	25	23	24	38	47	53
	8:15 AM	62	59	42	32	26	41	48	56
	8:30 AM	63	61	55	37	28	37	48	53
	8:45 AM	63	60	58	53	41	42	46	53
	9:00 AM	64	62	60	58	59	56	54	55
	9:15 AM	63	62	60	59	59	57	56	56
Field - April 2019 Weekday Minimum (NPMRDS)	5:30 AM	60	60	59	56	51	51	52	46
	5:45 AM	57	56	56	55	56	55	54	52
	6:00 AM	42	58	56	55	56	55	52	50
	6:15 AM	53	58	55	53	54	53	52	49
	6:30 AM	56	45	45	49	46	48	48	51
	6:45 AM	34	26	36	35	30	34	45	50
	7:00 AM	27	21	31	32	29	33	45	49
	7:15 AM	20	17	26	28	20	27	43	51
	7:30 AM	16	9	18	20	18	28	41	45
	7:45 AM	20	11	14	16	18	28	40	44
	8:00 AM	36	14	16	16	17	27	41	43
	8:15 AM	46	19	19	20	21	30	40	48
	8:30 AM	52	25	21	22	21	26	41	49
	8:45 AM	54	26	20	23	21	28	42	48
	9:00 AM	59	44	32	34	30	33	40	49
	9:15 AM	60	58	57	55	55	52	52	49

WisDOT TEOpS Validation

Test	Target	I-94 Eastbound				
		5:30 AM	6:30 AM	7:30 AM	8:30 AM*	Period
Tier 1	RMSPE < 10%	8.6%	***38.4%***	***19.8%***	***30.0%***	***26.6%***
Tier 2	± 20% of posted for 85% of locations	-	***78.1%***	96.9%	***78.1%***	85.9%

*Last hour validation based on factored model speeds vs typical day (April 9th)

Legend						
Speed (MPH)	55+	50-55	40-50	30-40	20-30	0-20
Color						

I-94 East-West Data Collection Project

Existing (2019) AM Peak Period Validation

Freeway Mainline Speed Summary

		I-94 Westbound - Avg Speed (MPH)							
	Corridor ID	WB8	WB7	WB6	WB5	WB4	WB3	WB2	WB1
	Segment	70th St to Zoo Interchange	Hawley Rd to 70th St	Mitchell Blvd to Hawley Rd	Stadium Interchange to Mitchell Blvd	Stadium Interchange	35th St to Stadium Interchange	28th St to 35th St	Marquette Interchange to 28th St
VISSIM Factored Average	5:30 AM	63	62	62	58	56	56	56	57
	5:45 AM	63	62	62	58	56	56	56	57
	6:00 AM	62	61	62	58	55	55	56	57
	6:15 AM	62	59	60	50	53	54	54	55
	6:30 AM	61	54	51	41	38	53	53	54
	6:45 AM	61	52	41	36	25	44	50	54
	7:00 AM	61	50	35	36	25	49	52	54
	7:15 AM	61	50	29	30	18	27	30	39
	7:30 AM	61	50	27	25	14	19	18	18
	7:45 AM	61	50	26	23	13	18	15	14
	8:00 AM	61	51	35	31	16	21	19	13
	8:15 AM	61	51	36	33	20	30	28	20
	8:30 AM	61	52	42	38	28	39	43	47
	8:45 AM	62	58	60	55	54	54	55	56
	9:00 AM	62	61	62	57	55	55	55	56
	9:15 AM	63	61	62	58	55	55	56	56
Field - April 9, 2019 Selected Typical Weekday (NPMRDS)	5:30 AM	66	65	63	61	57	59	59	61
	5:45 AM	67	63	62	61	64	64	64	63
	6:00 AM	67	64	62	62	59	59	59	62
	6:15 AM	61	58	58	58	59	58	58	58
	6:30 AM	57	57	49	42	32	33	40	54
	6:45 AM	60	56	42	35	30	26	22	45
	7:00 AM	59	54	43	38	25	24	26	41
	7:15 AM	60	55	40	34	23	23	21	21
	7:30 AM	58	52	39	30	16	16	14	18
	7:45 AM	55	50	42	33	16	15	12	16
	8:00 AM	53	54	43	34	24	24	24	40
	8:15 AM	61	53	42	32	22	21	26	48
	8:30 AM	58	57	50	47	44	46	53	56
	8:45 AM	60	58	56	54	55	57	57	56
	9:00 AM	59	57	55	56	51	57	56	54
	9:15 AM	59	57	56	56	58	57	57	56
VISSIM Unfactored Average	5:30 AM	63	62	62	58	56	56	56	57
	5:45 AM	63	62	62	58	56	56	56	57
	6:00 AM	62	61	62	58	55	55	56	57
	6:15 AM	62	59	60	50	53	54	54	55
	6:30 AM	61	54	51	41	38	53	53	54
	6:45 AM	61	52	41	36	25	44	50	54
	7:00 AM	61	50	35	36	25	49	52	54
	7:15 AM	61	50	29	30	18	27	30	39
	7:30 AM	61	50	27	25	14	19	18	18
	7:45 AM	61	50	26	23	13	18	15	14
	8:00 AM	61	51	35	31	16	21	19	13
	8:15 AM	61	51	36	33	20	30	28	20
	8:30 AM	60	52	46	36	23	35	35	43
	8:45 AM	61	55	55	43	36	48	47	53
	9:00 AM	62	59	60	53	52	55	55	56
	9:15 AM	62	61	61	57	55	54	55	56
Field - April 2019 Weekday Maximum (NPMRDS)	5:30 AM	66	65	63	61	64	62	62	63
	5:45 AM	67	71	65	62	64	64	65	65
	6:00 AM	67	64	62	62	60	62	63	63
	6:15 AM	65	65	59	59	62	62	61	62
	6:30 AM	62	57	54	53	56	59	60	59
	6:45 AM	63	58	55	52	58	58	58	60
	7:00 AM	64	58	55	53	57	60	60	58
	7:15 AM	61	57	51	39	34	33	38	48
	7:30 AM	59	55	45	34	21	22	20	24
	7:45 AM	62	54	44	35	22	22	20	31
	8:00 AM	62	56	51	42	33	39	46	57
	8:15 AM	64	62	59	58	60	58	58	58
	8:30 AM	61	58	55	54	57	58	59	59
	8:45 AM	63	60	58	57	57	57	58	58
	9:00 AM	63	61	59	58	59	58	58	58
	9:15 AM	62	60	58	57	61	59	58	59
Field - April 2019 Weekday Minimum (NPMRDS)	5:30 AM	61	58	58	58	57	58	57	53
	5:45 AM	57	57	56	56	58	59	57	57
	6:00 AM	60	58	56	53	53	55	57	56
	6:15 AM	59	55	55	51	56	57	57	56
	6:30 AM	57	53	47	33	26	27	30	49
	6:45 AM	60	53	42	35	24	26	22	35
	7:00 AM	59	54	43	36	25	24	26	35
	7:15 AM	56	52	40	33	21	21	20	19
	7:30 AM	55	50	39	30	14	16	14	17
	7:45 AM	55	50	41	30	16	15	12	16
	8:00 AM	53	54	43	32	20	18	17	29
	8:15 AM	58	51	42	32	22	21	26	40
	8:30 AM	58	54	43	33	27	45	53	55
	8:45 AM	59	56	52	49	52	55	56	56
	9:00 AM	56	56	52	52	51	52	55	54
	9:15 AM	59	52	50	52	54	50	48	56

WisDOT TEOpS Validation

Test	Target	I-94 Westbound				
		5:30 AM	6:30 AM	7:30 AM	8:30 AM*	Period
Tier 1	RMSPE < 10%	6.8%	***42.5%***	***24.5%***	***10.6%***	***25.3%***
Tier 2	± 20% of posted for 85% of locations	-	***84.4%***	90.6%	93.8%	92.2%

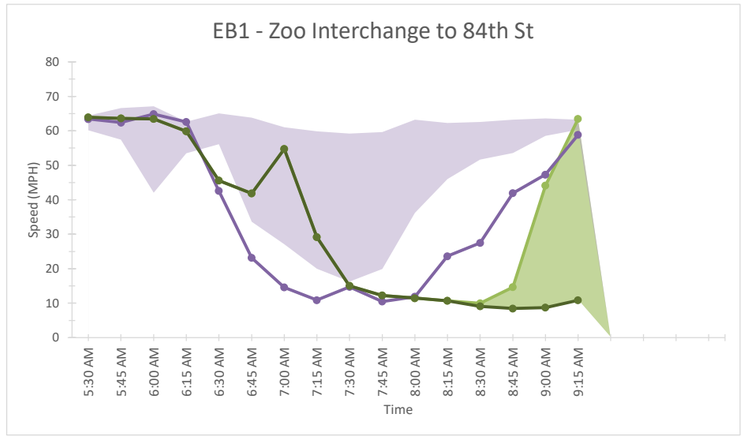
*Last hour validation based on factored model speeds vs typical day (April 9th)

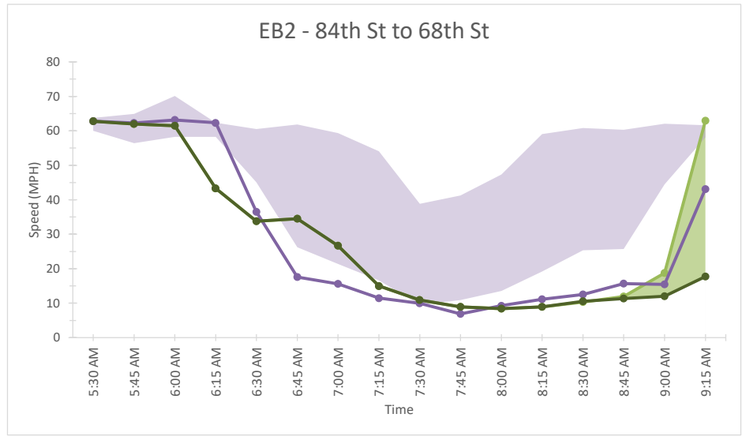
Legend						
Speed (MPH)	55+	50-55	40-50	30-40	20-30	0-20
Color						

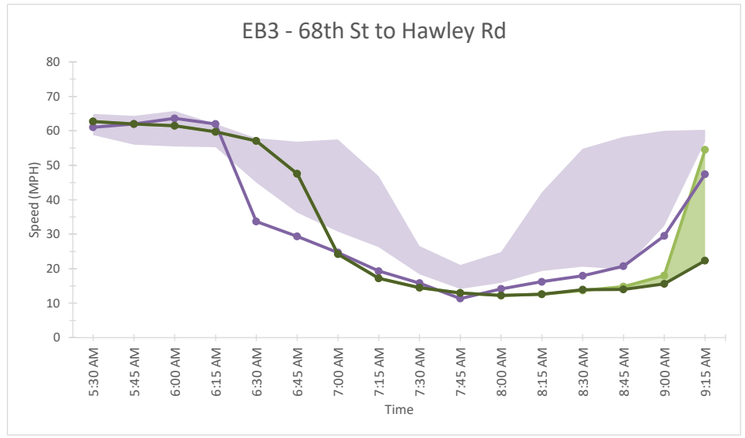
I-94 East-West Data Collection Project

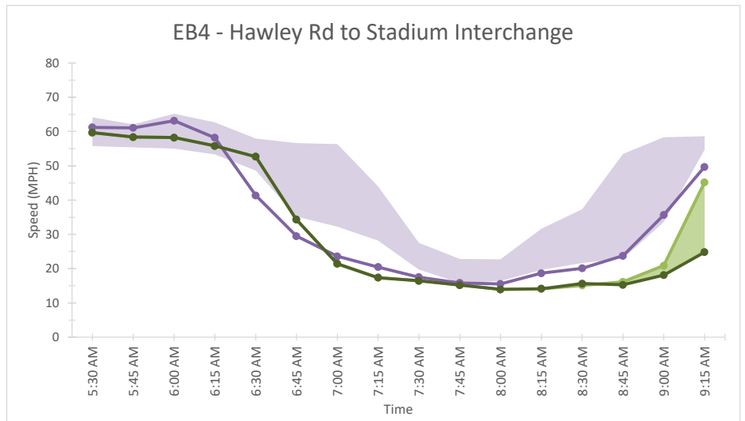
Existing (2019) AM Peak Period Validation

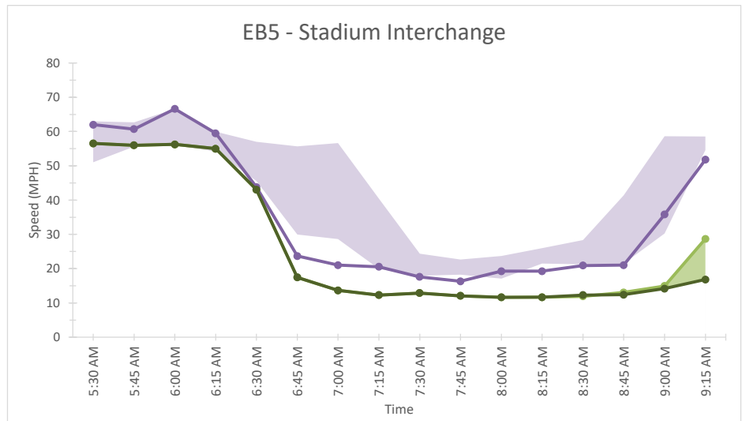
Freeway I-94 EB Mainline Speed Profiles

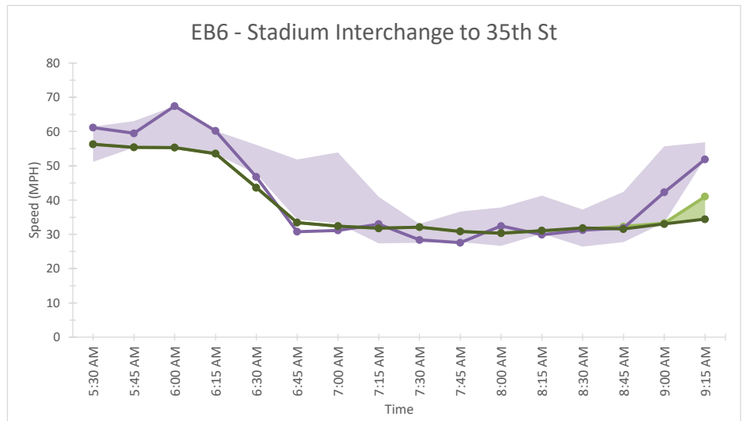


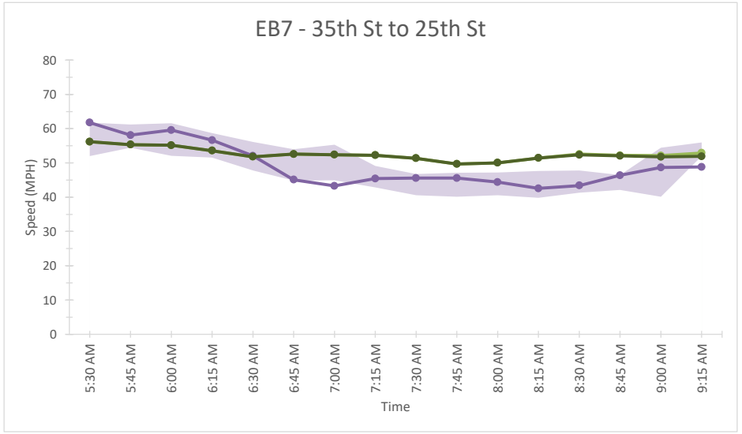


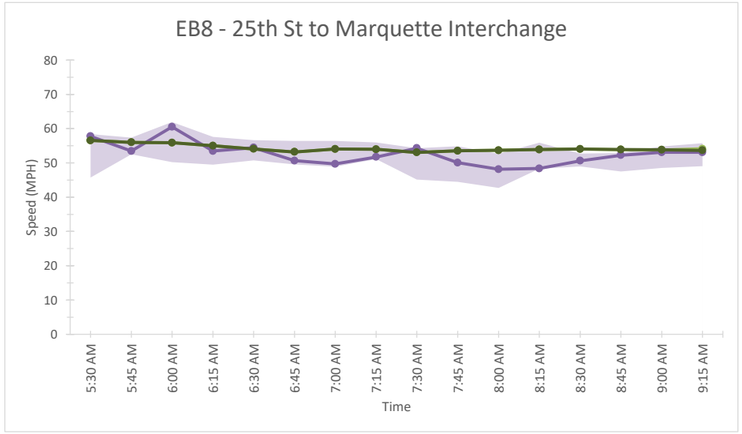












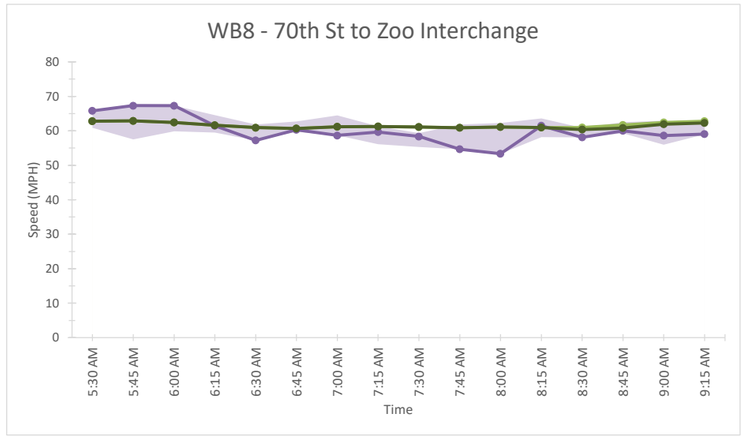
VISSIM Factored Avg — VISSIM Unfactored Avg — VISSIM Model Envelope — Field (NPMRDS - 4/9/2019) — Apr 2019 Typ Weekday Cluster Range

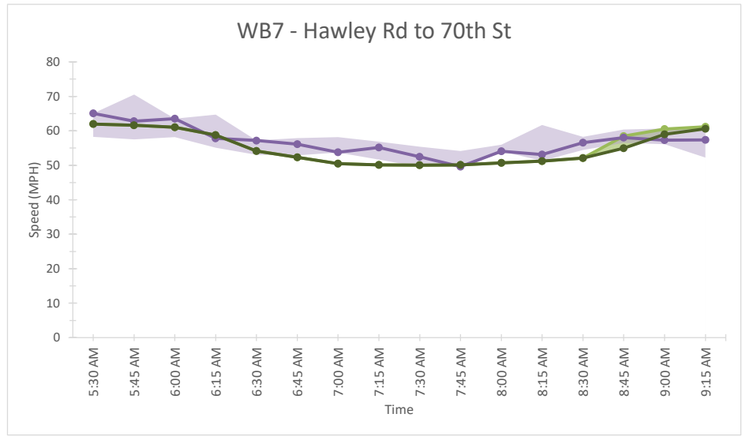
I-94 Eastbound

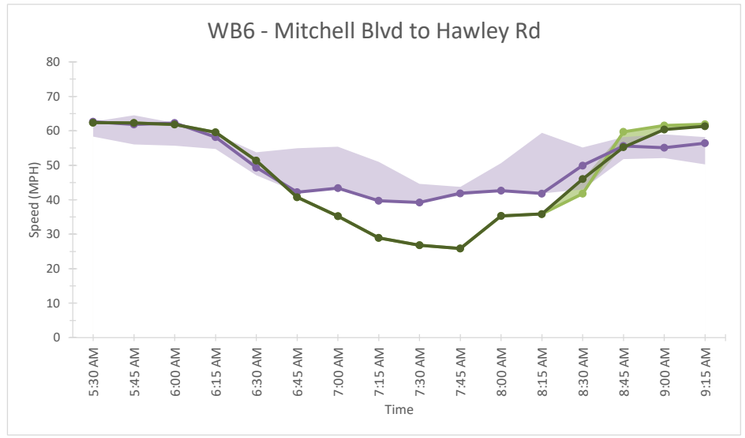
FINAL

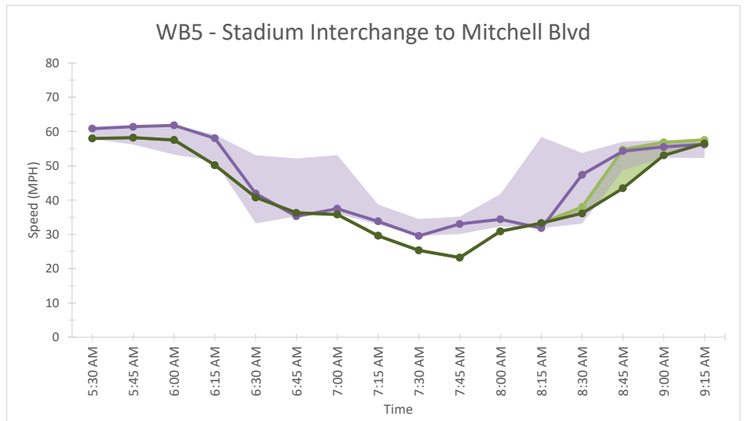
2/5/2021

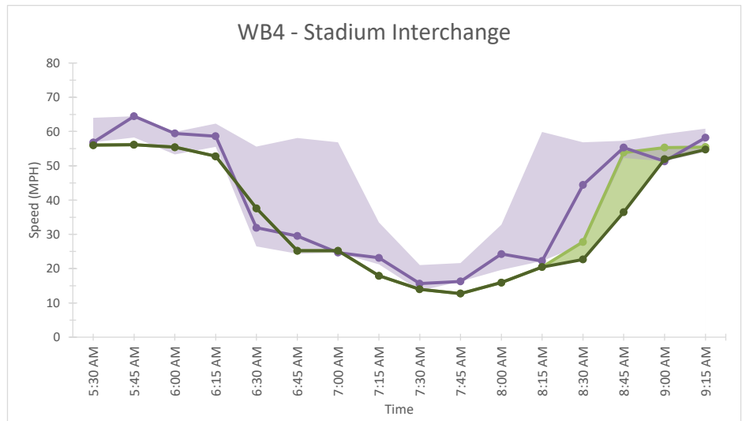
I-94 East-West Data Collection Project
Existing (2019) AM Peak Period Validation
Freeway I-94 WB Mainline Speed Profiles

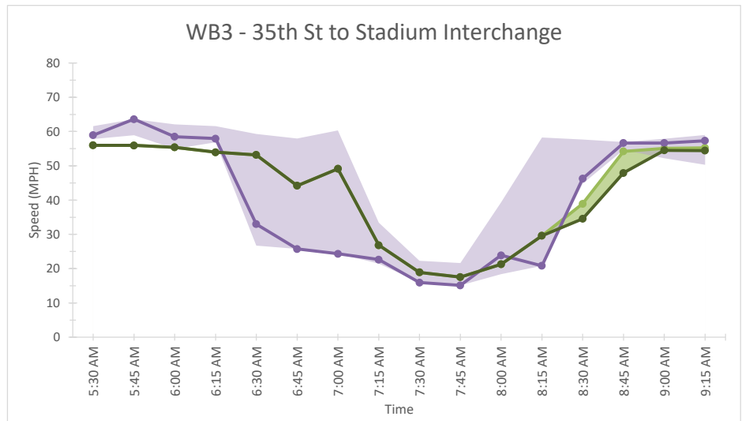


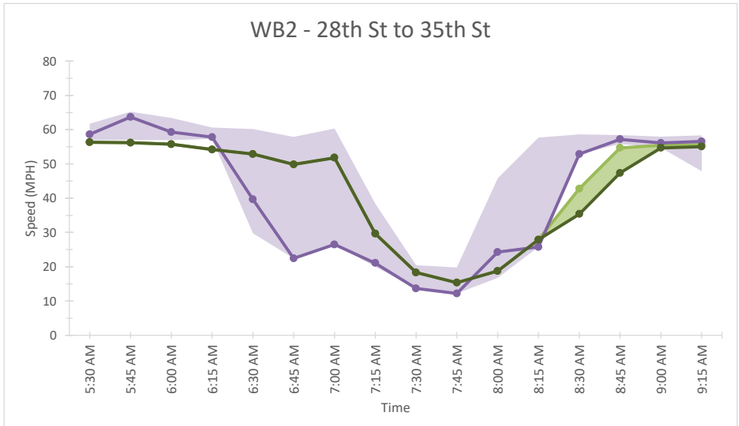


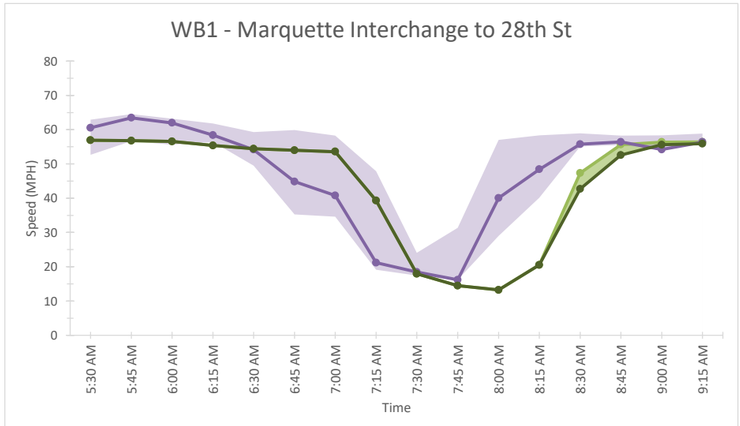












VISSIM Factored Avg — VISSIM Unfactored Avg — VISSIM Model Envelope — Field (NPMRDS - 4/9/2019) — Apr 2019 Typ Weekday Cluster Range

I-94 Westbound

FINAL

I-94 East-West Data Collection Project

Existing (2019) AM Peak Period Validation

Freeway Mainline Travel Times

Dir	Segment	Dist (mi)	Time	Avg Travel Time (min)						
				VISSIM Factored	Field - 4/9 (NPMRDS)	Field - 4/9 vs Factored		VISSIM Unfactored	Apr 2019 Typical Weekday Cluster (NPMRDS)	
						RMSPE	% Diff		Min	Max
I-94 Eastbound	Stadium Interchange to Marquette Interchange (EB6 to EB8)	1.7	5:30 AM	1.8	1.8	0%	2.3%	1.8	1.7	3.0
			5:45 AM	1.9	1.9	0%	2.7%	1.9	1.7	3.0
			6:00 AM	1.9	1.8	0%	5.6%	1.9	1.7	3.0
			6:15 AM	1.9	1.9	0%	1.1%	1.9	1.8	3.0
			6:30 AM	2.2	2.1	0%	4.8%	2.2	1.8	3.0
			6:45 AM	2.5	2.6	0%	-4.6%	2.5	1.9	3.0
			7:00 AM	2.5	2.7	0%	-6.7%	2.5	1.8	3.0
			7:15 AM	2.5	2.6	0%	-3.1%	2.5	2.1	3.2
			7:30 AM	2.5	2.7	0%	-6.7%	2.5	2.4	3.3
			7:45 AM	2.6	2.8	0%	-6.1%	2.6	2.3	3.3
			8:00 AM	2.6	2.6	0%	-1.1%	2.6	2.3	3.3
			8:15 AM	2.6	2.8	0%	-5.8%	2.6	2.2	3.2
			8:30 AM	2.5	2.7	0%	-6.0%	2.5	2.3	3.3
			8:45 AM	2.5	2.6	0%	-3.5%	2.5	2.2	3.2
			9:00 AM	2.5	2.4	0%	6.4%	2.5	1.9	3.2
			9:15 AM	2.2	2.1	0%	4.8%	2.4	1.8	3.0
	68th St to Stadium Interchange (EB3 to EB5)	1.5	5:30 AM	1.4	1.5	0%	-4.1%	1.4	1.4	3.0
			5:45 AM	1.4	1.5	0%	-4.8%	1.4	1.4	3.0
			6:00 AM	1.4	1.5	0%	-6.0%	1.4	1.4	3.0
			6:15 AM	1.5	1.5	0%	0.0%	1.5	1.5	3.0
			6:30 AM	1.7	1.8	0%	-5.6%	1.7	1.6	3.0
			6:45 AM	2.7	2.8	0%	-2.9%	2.7	1.6	3.0
			7:00 AM	4.3	3.8	2%	13.2%	4.3	1.6	3.8
			7:15 AM	5.2	4.8	1%	8.1%	5.2	2.0	4.8
			7:30 AM	5.6	5.3	0%	4.9%	5.6	3.5	5.3
			7:45 AM	6.3	6.5	0%	-2.5%	6.3	4.1	6.5
			8:00 AM	6.6	6.3	0%	5.1%	6.6	3.8	6.3
			8:15 AM	6.5	5.8	2%	13.0%	6.5	2.8	5.8
			8:30 AM	6.0	5.4	1%	11.3%	5.8	2.4	5.4
			8:45 AM	5.7	5.1	1%	12.2%	6.0	1.8	5.1
			9:00 AM	4.6	4.1	1%	11.9%	5.2	1.5	4.1
			9:15 AM	2.0	1.9	0%	7.0%	3.9	1.5	3.0
	Zoo Interchange to 68th St (EB1 to EB2)	1.8	5:30 AM	1.5	1.8	2%	-14.8%	1.5	1.7	2.0
			5:45 AM	1.6	1.8	1%	-10.6%	1.6	1.6	2.1
			6:00 AM	1.6	1.7	1%	-8.0%	1.6	1.5	2.2
			6:15 AM	2.0	2.0	0%	2.6%	2.0	1.7	2.0
			6:30 AM	2.5	2.9	2%	-12.3%	2.5	1.7	2.9
			6:45 AM	2.5	4.4	***18%***	***-42.9%***	2.5	1.7	4.4
			7:00 AM	2.6	6.9	***38%***	***-62.0%***	2.6	1.8	6.9
			7:15 AM	4.9	8.4	***17%***	***-41.8%***	4.9	1.9	8.4
			7:30 AM	7.7	8.3	1%	-7.2%	7.7	2.4	10.0
			7:45 AM	9.4	10.6	1%	-11.4%	9.4	2.4	10.6
			8:00 AM	10.0	10.4	0%	-3.8%	10.0	2.1	10.4
			8:15 AM	9.7	8.6	2%	12.9%	9.7	1.8	8.6
			8:30 AM	9.5	7.7	5%	***23.2%***	9.9	1.7	7.7
			8:45 AM	7.1	5.8	4%	***21.1%***	7.5	1.7	5.8
			9:00 AM	3.7	4.0	1%	-7.5%	5.1	1.7	4.0
			9:15 AM	1.9	2.0	0%	-4.5%	8.5	1.7	2.0
	Zoo Interchange to Marquette Interchange (EB1 to EB8)	5.0	5:30 AM	4.7	5.0	0%	-5.6%	4.7	4.8	8.0
			5:45 AM	4.9	5.1	0%	-4.1%	4.9	4.7	8.1
			6:00 AM	4.9	5.0	0%	-2.6%	4.9	4.6	8.2
			6:15 AM	5.4	5.3	0%	1.3%	5.4	5.0	8.0
			6:30 AM	6.4	6.8	0%	-5.2%	6.4	5.1	8.9
			6:45 AM	7.7	9.8	5%	***-21.3%***	7.7	5.2	10.4
			7:00 AM	9.4	13.3	9%	***-29.5%***	9.4	5.2	13.7
			7:15 AM	12.6	15.8	4%	***-20.3%***	12.6	6.0	16.4
			7:30 AM	15.8	16.3	0%	-3.2%	15.8	8.3	18.6
			7:45 AM	18.3	19.8	1%	-7.8%	18.3	8.8	20.4
			8:00 AM	19.2	19.3	0%	-0.6%	19.2	8.2	20.0
			8:15 AM	18.8	17.1	1%	9.9%	18.8	6.8	17.5
			8:30 AM	18.0	15.8	2%	14.2%	18.2	6.4	16.4
			8:45 AM	15.3	13.5	2%	13.0%	16.0	5.7	14.1
			9:00 AM	10.8	10.5	0%	3.3%	12.8	5.1	11.3
			9:15 AM	6.1	6.0	0%	2.3%	14.8	5.0	8.0

WisDOT TEOpS Validation

Test	Target	I-94 Eastbound				
		5:30 AM	6:30 AM	7:30 AM	8:30 AM*	Period
Tier 1	RMSPE < 10%	6.0%	***24.7%***	7.4%	***11.3%***	***14.4%***
Tier 2	TT ± 15% for 85% of routes	-	***63.0%***	-	88.0%	88.0%

*Last hour validation based on factored model speeds vs typical day (April 9th)

Legend						
Travel Time (min)	0-3	3-5	5-8	8-12	12-15	15+
Color						

FINAL

2/5/2021

I-94 East-West Data Collection Project

Existing (2019) AM Peak Period Validation

Freeway Mainline Travel Times

Dir	Segment	Dist (mi)	Time	Avg Travel Time (min)						
				VISSIM Factored	Field - 4/9 (NPMRDS)	Field - 4/9 vs Factored		VISSIM Unfactored	Apr 2019 Typical Weekday Cluster (NPMRDS)	
						RMSPE	% Diff		Min	Max
I-94 Westbound	Marquette Interchange to Stadium Interchange (WB1 to WB3)	1.7	5:30 AM	1.8	1.9	0%	-4.3%	1.8	1.7	3.1
			5:45 AM	1.8	1.8	0%	1.1%	1.8	1.6	3.0
			6:00 AM	1.8	1.9	0%	-2.7%	1.8	1.7	3.1
			6:15 AM	1.9	1.9	0%	-2.1%	1.9	1.7	3.1
			6:30 AM	2.0	2.2	1%	-9.9%	2.0	1.8	3.2
			6:45 AM	2.0	2.7	7%	***-26.7%***	2.0	1.8	4.1
			7:00 AM	2.4	3.0	4%	***-19.7%***	2.4	1.8	3.8
			7:15 AM	3.7	4.9	6%	***-24.5%***	3.7	2.5	5.5
			7:30 AM	6.4	6.9	0%	-7.0%	6.4	4.6	6.9
			7:45 AM	7.1	7.7	1%	-8.0%	7.1	4.3	7.7
			8:00 AM	6.6	3.7	***61%***	***78.4%***	6.6	2.1	5.0
			8:15 AM	4.4	3.4	8%	***28.3%***	4.4	1.8	3.6
			8:30 AM	2.3	2.1	1%	8.0%	2.6	1.8	3.1
			8:45 AM	1.9	2.0	0%	-3.6%	2.0	1.8	3.1
			9:00 AM	1.9	2.1	1%	-7.3%	1.9	1.8	3.1
			9:15 AM	1.9	2.0	0%	-4.0%	1.9	1.8	3.0
	Stadium Interchange to Hawley Rd (WB4 to WB6)	1.2	5:30 AM	1.3	1.5	2%	-11.0%	1.3	1.2	3.0
			5:45 AM	1.3	1.5	1%	-11.0%	1.3	1.1	3.0
			6:00 AM	1.3	1.5	2%	-13.3%	1.3	1.2	3.0
			6:15 AM	1.4	1.6	1%	-11.4%	1.4	1.2	3.0
			6:30 AM	1.9	2.1	1%	-9.5%	1.9	1.3	3.0
			6:45 AM	2.3	2.5	1%	-7.3%	2.3	1.3	3.0
			7:00 AM	2.4	2.5	0%	-4.0%	2.4	1.3	3.0
			7:15 AM	3.2	2.9	1%	9.6%	3.2	1.8	4.9
			7:30 AM	3.7	3.7	0%	1.4%	3.7	2.4	6.9
			7:45 AM	4.0	3.4	3%	***16.6%***	4.0	2.3	7.7
			8:00 AM	3.0	3.0	0%	0.0%	3.0	1.8	3.7
			8:15 AM	3.0	3.0	0%	0.0%	3.0	1.2	3.4
			8:30 AM	2.2	2.3	0%	-2.2%	2.3	1.3	3.0
			8:45 AM	1.7	1.6	1%	9.7%	2.0	1.3	3.0
			9:00 AM	1.7	1.6	0%	6.3%	2.0	1.2	3.0
			9:15 AM	1.4	1.6	2%	-13.6%	1.7	1.2	3.0
	Hawley Rd to Zoo Interchange (WB7 to WB8)	2.1	5:30 AM	1.7	1.9	1%	-10.5%	1.7	1.9	2.4
			5:45 AM	1.7	1.9	1%	-10.5%	1.7	1.2	1.8
			6:00 AM	1.7	1.9	1%	-10.1%	1.7	1.9	2.4
			6:15 AM	1.8	2.1	2%	-12.6%	1.8	1.9	2.4
			6:30 AM	1.9	2.2	2%	-12.8%	1.9	2.1	2.4
			6:45 AM	2.0	2.1	0%	-5.2%	2.0	2.0	2.7
			7:00 AM	2.0	2.2	1%	-8.3%	2.0	2.0	3.0
			7:15 AM	2.0	2.2	1%	-7.4%	2.0	2.1	4.9
			7:30 AM	2.0	2.2	1%	-9.5%	2.0	2.2	6.9
			7:45 AM	2.0	2.4	2%	-14.9%	2.0	2.1	7.7
			8:00 AM	2.0	2.4	2%	-14.9%	2.0	2.1	3.7
			8:15 AM	2.0	2.3	1%	-11.1%	2.0	2.0	3.4
			8:30 AM	2.0	2.2	1%	-7.8%	2.0	2.1	2.4
			8:45 AM	1.9	2.1	1%	-10.0%	1.9	2.0	2.4
			9:00 AM	1.9	2.2	1%	-11.6%	1.9	2.0	2.5
			9:15 AM	1.9	2.1	1%	-10.8%	1.9	2.0	2.4
	Marquette Interchange to Zoo Interchange (WB1 to WB8)	5.0	5:30 AM	4.8	5.3	1%	-9.6%	4.8	4.8	8.5
			5:45 AM	4.8	5.1	0%	-6.6%	4.8	3.9	7.8
			6:00 AM	4.8	5.2	1%	-8.4%	4.8	4.8	8.5
			6:15 AM	5.1	5.6	1%	-8.6%	5.1	4.8	8.5
			6:30 AM	5.8	6.5	1%	-10.8%	5.8	5.2	8.6
			6:45 AM	6.3	7.3	2%	-13.9%	6.3	5.1	9.8
			7:00 AM	6.8	7.7	1%	-11.3%	6.8	5.1	9.8
			7:15 AM	8.9	10.0	1%	-10.8%	8.9	6.4	15.3
			7:30 AM	12.1	12.7	0%	-5.0%	12.1	9.2	20.6
			7:45 AM	13.1	13.5	0%	-3.0%	13.1	8.7	23.2
			8:00 AM	11.6	9.1	8%	***28.2%***	11.6	6.0	12.4
			8:15 AM	9.4	8.7	1%	8.3%	9.4	5.0	10.5
			8:30 AM	6.5	6.6	0%	-0.8%	6.9	5.2	8.5
			8:45 AM	5.5	5.6	0%	-2.3%	5.9	5.1	8.5
			9:00 AM	5.5	5.8	0%	-5.2%	5.8	5.0	8.6
			9:15 AM	5.2	5.7	1%	-9.2%	5.5	5.0	8.4

WisDOT TEOpS Validation

Test	Target	I-94 Westbound				
		5:30 AM	6:30 AM	7:30 AM	8:30 AM*	Period
Tier 1	RMSPE < 10%	9.5%	***13.5%***	***23.6%***	7.9%	***14.9%***
Tier 2	TT ± 15% for 85% of routes	-	***81.0%***	***75.0%***	-	88.0%

*Last hour validation based on factored model speeds vs typical day (April 9th)

Legend						
Travel Time (min)	0-3	3-5	5-8	8-12	12-15	15+
Color						

FINAL

2/5/2021

I-94 East-West Data Collection Project

Existing (2019) PM Peak Period Validation

Freeway Mainline and Ramp Volumes

Segments				Existing PM Peak Period Hourly Vols (1:30-6:30PM)																								
				1:30-2:30PM					2:30-3:30PM (Peak)					3:30-4:30PM					4:30-5:30PM					5:30-6:30PM					
																								Target					
Forecast ID	Link ID	Description	Type	Target	VISSIM	RMSPE	RNSE	OK?	Target	VISSIM	RMSPE	RNSE	OK?	Target	VISSIM	RMSPE	RNSE	OK?	Target	VISSIM	RMSPE	RNSE	OK?	Unfactored	Factored	VISSIM	RMSPE	RNSE	OK?
1000	144	Zoo Int W-E System Movment (I-94 EB)	Mainline	2100	2098	0%	0.0	OK	2630	2618	0%	0.2	OK	2810	2803	0%	0.1	OK	2650	2652	0%	0.0	OK	2350	2080	2091	1%	0.2	OK
1001	147	Zoo Int N-E System Ramp (I-41 NB/894 WB to I-94 EB)	Sys Ramp	1640	1635	0%	0.1	OK	1885	1884	0%	0.0	OK	1725	1729	0%	0.1	OK	1530	1532	0%	0.1	OK	1525	1380	1384	0%	0.1	OK
1002	149	Zoo Int S-E System Ramp (I-41 SB to I-94 EB)	Sys Ramp	920	921	0%	0.0	OK	930	933	0%	0.1	OK	890	891	0%	0.0	OK	815	815	0%	0.0	OK	810	740	743	0%	0.1	OK
1003	453	Zoo Int N-E/S-E System Ramps	Sys Ramp	2560	2555	0%	0.1	OK	2815	2811	0%	0.1	OK	2615	2622	0%	0.1	OK	2345	2349	0%	0.1	OK	2335	2120	2124	0%	0.1	OK
1004	454	84th St EB Exit Ramp (slip)	Ramp	220	224	2%	0.3	OK	275	278	1%	0.2	OK	275	278	1%	0.2	OK	245	246	0%	0.1	OK	125	125	134	7%	0.8	NO
1006	1	I-94 EB btwn Zoo Int and 84th St Entr Ramp	Mainline	4440	4430	0%	0.2	OK	5170	5134	1%	0.5	OK	5150	5132	0%	0.3	OK	4750	4747	0%	0.0	OK	4560	4075	4079	0%	0.1	OK
1007	463	84th St EB Entr Ramp	Ramp	360	358	1%	0.1	OK	380	382	1%	0.1	OK	460	462	0%	0.1	OK	430	434	1%	0.2	OK	420	420	425	1%	0.2	OK
1008	2	I-94 EB btwn 84th St Entr Ramp and 70th St Exit Ramp	Mainline	4800	4788	0%	0.2	OK	5550	5491	1%	0.8	OK	5610	5602	0%	0.1	OK	5180	5187	0%	0.1	OK	4980	4495	4524	1%	0.4	OK
1009	127	70th St EB Exit Ramp	Ramp	350	350	0%	0.0	OK	440	438	0%	0.1	OK	580	572	1%	0.3	OK	950	940	1%	0.3	OK	670	670	682	2%	0.5	OK
1010	3	I-94 EB btwn 70th St Exit Ramp and 68th St Entr Ramp	Mainline	4450	4438	0%	0.2	OK	5110	5039	1%	1.0	OK	5030	5043	0%	0.2	OK	4230	4261	1%	0.5	OK	4310	3825	3858	1%	0.5	OK
1011	423	68th St EB Entr Ramp	Ramp	480	475	1%	0.2	OK	500	500	0%	0.0	OK	700	687	2%	0.5	OK	670	680	1%	0.4	OK	580	580	584	1%	0.2	OK
1012	424	I-94 EB btwn 68th St Entr Ramp and Hawley Rd Exit Ramp	Mainline	4930	4913	0%	0.2	OK	5610	5525	2%	1.1	OK	5730	5718	0%	0.2	OK	4900	4956	1%	0.8	OK	4890	4405	4442	1%	0.6	OK
1013	174	Hawley Rd EB Exit Ramp	Ramp	270	269	0%	0.1	OK	320	313	2%	0.4	OK	350	344	2%	0.3	OK	200	208	4%	0.6	OK	210	210	209	0%	0.1	OK
1014	426	I-94 EB btwn Hawley Rd Exit and Entr Ramps	Mainline	4660	4644	0%	0.2	OK	5290	5206	2%	1.2	OK	5380	5366	0%	0.2	OK	4700	4740	1%	0.6	OK	4680	4195	4233	1%	0.6	OK
1015	385	Hawley Rd EB Entr Ramp	Ramp	290	289	0%	0.1	OK	340	336	1%	0.2	OK	320	325	2%	0.3	OK	340	335	1%	0.3	OK	300	300	295	2%	0.3	OK
1016	11	I-94 EB btwn Hawley Rd Entr Ramp and Gen Mitchell Blvd Exit Ramp	Mainline	4950	4933	0%	0.2	OK	5630	5542	2%	1.2	OK	5700	5670	1%	0.4	OK	5040	5065	0%	0.4	OK	4980	4495	4528	1%	0.5	OK
1017	206	Gen Mitchell Blvd EB Exit Ramp	Ramp	100	108	8%	0.8	NO	80	89	11%	1.0	NO	80	92	15%	1.3	NO	140	148	6%	0.7	NO	75	75	88	17%	1.5	NO
1018	52	I-94 EB btwn Gen Mitchell Blvd Exit and Entr Ramps	Mainline	4850	4825	1%	0.4	OK	5550	5453	2%	1.3	OK	5620	5557	1%	0.8	OK	4900	4936	1%	0.5	OK	4905	4420	4440	0%	0.3	OK
1019	209	Gen Mitchell Blvd EB Entr Ramp	Ramp	60	56	7%	0.5	NO	90	93	3%	0.3	OK	120	131	9%	1.0	NO	140	150	7%	0.8	NO	150	150	152	1%	0.2	OK
1020	18	I-94 EB btwn Gen Mitchell Blvd Entr Ramp and Stadium Int	Mainline	4910	4881	1%	0.4	OK	5640	5546	2%	1.3	OK	5740	5666	1%	1.0	OK	5040	5077	1%	0.5	OK	5055	4570	4592	0%	0.3	OK
1021	221	Stadium Int W-S System Ramp (I-94 EB to Miller Park Way SB)	Sys Ramp	450	436	3%	0.7	OK	480	476	1%	0.2	OK	500	498	0%	0.1	OK	360	354	2%	0.3	OK	300	275	285	4%	0.6	OK
1023	226	Stadium Int W-N System Ramp (I-94 EB to WIS 175 NB)	Sys Ramp	540	532	1%	0.3	OK	700	682	3%	0.7	OK	790	792	0%	0.1	OK	600	623	4%	0.9	OK	500	460	474	3%	0.7	OK
1024	70	Stadium Int W-E System Movement (I-94 EB)	Mainline	3920	3913	0%	0.1	OK	4460	4388	2%	1.1	OK	4450	4345	2%	1.6	OK	4080	4094	0%	0.2	OK	4255	4255	4011	6%	2.7	NO
1025	103	Stadium Int S-E System Ramp (Miller Park Way NB to I-94 EB)	Sys Ramp	490	477	3%	0.6	OK	490	492	0%	0.1	OK	430	420	2%	0.5	OK	415	406	2%	0.4	OK	370	370	383	4%	0.7	OK
1027	114	Stadium Int N-E System Ramp (WIS 175 SB to I-94 EB)	Sys Ramp	860	843	2%	0.6	OK	850	855	1%	0.2	OK	910	909	0%	0.0	OK	1010	998	1%	0.4	OK	900	900	912	1%	0.4	OK
1028	21	I-94 EB btwn Stadium Int and 35th St Exit Ramp	Mainline	5270	5233	1%	0.5	OK	5800	5735	1%	0.9	OK	5790	5674	2%	1.5	OK	5505	5495	0%	0.1	OK	5525	5525	5374	3%	2.0	OK
1029	342	35th St EB Exit Ramp	Ramp	380	363	4%	0.9	OK	540	525	3%	0.6	OK	420	421	0%	0.0	OK	340	341	0%	0.1	OK	320	320	325	2%	0.3	OK
1030	27	I-94 EB btwn 35th St Exit and Entr Ramps	Mainline	4890	4870	0%	0.3	OK	5260	5210	1%	0.7	OK	5370	5253	2%	1.6	OK	5165	5152	0%	0.2	OK	5205	5205	5049	3%	2.2	OK
1031	227	35th St EB Entr Ramp	Ramp	330	310	6%	1.1	NO	430	424	1%	0.3	OK	530	519	2%	0.5	OK	570	542	5%	1.2	OK	475	475	441	7%	1.6	NO
1032	28	I-94 EB btwn 35th St Entr Ramp and 26th St Exit Ramp	Mainline	5220	5180	1%	0.6	OK	5690	5634	1%	0.7	OK	5900	5772	2%	1.7	OK	5735	5671	1%	0.8	OK	5680	5680	5474	4%	2.7	OK
1033	356	26th St EB Exit Ramp	Ramp	490	439	10%	2.3	NO	410	394	4%	0.8	OK	370	334	10%	1.9	NO	300	270	10%	1.7	NO	330	330	290	12%	2.2	NO
1035	33	I-94 EB btwn 26th St Exit Ramp and 25th St Entr Ramp	Mainline	4730	4618	2%	1.6	OK	5280	5187	2%	1.3	OK	5530	5438	2%	1.2	OK	5435	5412	0%	0.3	OK	5350	5350	5207	3%	2.0	OK
1036	373	25th St EB Entr Ramp	Ramp	590	589	0%	0.0	OK	780	767	2%	0.5	OK	700	697	0%	0.1	OK	800	787	2%	0.5	OK	590	590	583	1%	0.3	OK
1037	35	I-94 EB btwn 25th St Entr Ramp and 13th St Exit Ramp	Mainline	5320	5217	2%	1.4	OK	6060	5975	1%	1.1	OK	6230	6135	2%	1.2	OK	6235	6223	0%	0.2	OK	5940	5940	5814	2%	1.6	OK
1038	34	13th St EB Exit Ramp	Ramp	250	255	2%	0.3	OK	220	216	2%	0.3	OK	140	145	4%	0.4	OK	150	153	2%	0.2	OK	130	130	134	3%	0.4	OK
1040	343	Marquette Int W-N System Ramp (I-94 EB to I-43 NB)	Sys Ramp	2290	2254	2%	0.8	OK	2590	2535	2%	1.1	OK	2640	2603	1%	0.7	OK	2430	2436	0%	0.1	OK	2310	2130	2245	5%	2.5	OK
1042	181	Marquette Int W-S System Ramp (I-94 EB to I-43 SB/94 EB)	Sys Ramp	1310	1259	4%	1.4	OK	1610	1595	1%	0.4	OK	1290	1290	0%	0.1	OK	1025	1053	3%	0.9	OK	1040	990	1010	2%	0.6	OK
1043	180	Marquette Int W-E System Movement (I-94 EB to I-794 EB)	Mainline	1470	1430	3%	1.0	OK	1640	1620	1%	0.5	OK	2160	2097	3%	1.4	OK	2630	2578	2%	1.0	OK	2740	2270	2438	7%	2.1	NO
2001	659	Marquette Int E-W System Movement (I-794 WB to I-94 WB)	Mainline	1930	1922	0%	0.2	OK	2260	2249	0%	0.2	OK	2350	2336	1%	0.3	OK	2590	2438	6%	3.0	NO	2805	2330	2376	2%	1.0	OK
2002	470	Tory Hill St WB Entr Ramp	Ramp	400	391	2%	0.5	OK	440	430	2%	0.5	OK	360	358	1%	0.1	OK	370	368	1%	0.1	OK	430	430	422	2%	0.4	OK
2003	40	I-94 WB btwn Tory Hill St Entr Ramp and Marquette Int S-W/N-W System Ramps	Mainline	2330	2299	1%	0.6	OK	2700	2661	1%	0.8	OK	2710	2660	2%	1.0	OK	2960	2806	5%	2.8	OK	3235	2760	2818	2%	1.1	OK
2004	465	Marquette Int S-W System Ramp (I-43 NB/94 WB to I-94 WB)	Sys Ramp	1160	1156	0%	0.1	OK	1290	1279	1%	0.3	OK	1075	1068	1%	0.2	OK	1040	1030	1%	0.3	OK	1165	850	848	0%	0.1	OK
2005	663	Marquette Int N-W System Ramp (I-43 SB to I-94 WB)	Sys Ramp	2260	2247	1%	0.3	OK	2230	2211	1%	0.4	OK	1815	1809	0%	0.1	OK	1570	1562	1%	0.2	OK	1355	1000	991	1%	0.3	OK
2006	39	Marq Int S-W/N-W System Ramps	Sys Ramp	3420	3392	1%	0.5	OK	3520	3491	1%	0.5	OK	2890	2871	1%	0.4	OK	2610	2587	1%	0.5	OK	2520	1850	1846	0%	0.1	OK
2007	41	I-94 WB btwn Marquette Int and 25th St Exit Ramp	Mainline	5750	5719	1%	0.4	OK	6220	6193	0%	0.3	OK	5600	5477	2%	1.6	OK	5570	5393	3%	2.4	OK	5755	4610	4664	1%	0.8	OK
2008	384	25th St WB Exit Ramp	Ramp	540	544	1%	0.2	OK	830	869	5%	1.4	OK	790	806	2%	0.6	OK	870	876	3%	0.8	OK	640	640	636	1%	0.2	OK
2009	386	I-94 WB btwn 25th St Exit Ramp and 28th St Entr Ramp	Mainline	5210	5175	1%	0.5	OK	5390	5324	1%	0.9	OK	4810	4671	3%	2.0	OK	4670	4517	3%	2.2	OK	5115	3970	4028	1%	0.9	OK
2010	246	28th St WB Entr Ramp	Ramp	620	576	7%	1.8	NO	590	540	8%	2.0	NO	510	471	8%	1.7	NO	600	563	6%	1.5	NO	580	580	547	6%	1.4	NO
2012	50	I-94 WB btwn 28th St Entr Ramp and 35th St Exit Ramp	Mainline	5830	5751	1%	1.0	OK	5980	5864	2%	1.5	OK	5320	5142	3%	2.4	OK	5270	5080	4%	2.6	OK	5695	4550	4575	1%	0.4	OK
2013	352	35th St WB Exit Ramp	Ramp	240	229	4%	0.7	OK	350	325	7%	1.3	NO	260	242	7%	1.1	NO	290	256	12%	2.0	NO	250	250	280	13%	1.9	NO
2015	53	I-94 WB btwn 35th St Exit and Entr Ramps	Mainline	5590	5507	1%	1.1	OK	5630	5539	2%	1.2	OK	5060	4899	3%	2.3	OK	4980	4824	3%	2.2	OK	5445	4300	4296	0%	0.1	OK
2016	351	35th St WB Entr Ramp	Ramp	310	319	3%	0.5	OK	440	453	3%	0.6	OK	440	456	4%	0.8	OK	450	466	4%	0.8	OK	360	360	377	5%	0.9	OK
2018	54	I-94 WB btwn 35th St Entr Ramp and Stadium Int	Mainline	5900	5804	2%	1.2	OK	6070	5992	1%	1.0	OK	5500	5355	3%	2.0	OK	5430	5219	4%	2.9	OK	5805	4660	4673	0%	0.2	OK
2019	331	Stadium Int E-N System Ramp (I-94 WB to WIS 175 NB)	Sys Ramp	900	880	2%	0.7	OK	1160	1118	4%	1.2	OK	1150	1083	6%	2.0	NO	1285	1238	4%	1.3	OK	1120	855	983	15%	4.4	NO
2021	333	Stadium Int E-S System Ramp (I-94 WB to Miller Park Way SB)	Sys Ramp	560	548	2%	0.5	OK	540	523	3%	0.7	OK	380	367	3%	0.7	OK	305	299	2%	0.3	OK	370	325	324	0%	0.1	OK
2022	59	Stadium Int E-W System Movement (I-94 WB)	Mainline	4440	4373	2%	1.0	OK	4370	4351	0%	0.3	OK	3970	3905	2%	1.0	OK	3840	3682	4%	2.5	OK	4315	3480	3366	3%	1.9	OK
2023	126	Stadium Int S-W System Ramp (Miller Park Way NB to I-94 WB)	Sys Ramp	490	479	2%	0.5	OK	660	649	2%	0.4	OK	740	724	2%	0.6	OK	765	747	2%	0.7	OK	500	500	514	3%	0.6	OK
2025	278	Stadium Int N-W System Ramp (WIS 175 SB to I-94 WB)	Sys Ramp	660	659	0%	0.0	OK	810	798	1%	0.4	OK	960	945	2%	0.5	OK	985	993	1%	0.3	OK	700	700	710	1%	0.4	OK
2026	61	I-94 WB btwn Stadium Int and Gen Mitchell Blvd Exit Ramp	Mainline	5590	5430	3%	2.1	OK	5840	5798	1%	0.5	OK	5670	5574	2%	1.3	OK	5590	5422	3%	2.2	OK	5515	4680	4590	2%	1.3	OK
2027	210	Gen Mitchell Blvd WB Exit Ramp	Ramp	70	56	20%	1.7	NO	50	38	24%	1.7	NO	40	25	38%	2.4	NO	60	63	5%	0.4	OK	50	50	52	4%	0.3	OK
2028	62	I-94 WB btwn Gen Mitchell Blvd Exit and Entr Ramps	Mainline	5520	5424	2%	1.3	OK	5790	5760	1%	0.4	OK	5630	5549	1%	1.1	OK	5530	5359	3%	2.3	OK	5465	4630	4538	2%	1.4	OK
2029	680	Gen Mitchell Blvd WB Entr Ramp	Ramp	90	88	2%	0.2	OK	170	170	0%	0.0	OK	340	332	2%	0.4	OK	300	303	1%	0.2	OK	40	40	44	10%	0.6	NO
2030	69	I-94 WB btwn Gen Mitchell Blvd Entr Ramp and Hawley Rd Exit Ramp	Mainline	5610	5507	2%	1.4	OK	5960	5930	1%	0.4	OK	5970	5881	1%	1.1	OK	5830	5662	3%	2.2	OK	5505	4670	4582	2%	1.3	OK
2031	10220	Hawley Rd WB Exit Ramp	Ramp	210	206	2%	0.3	OK	150	149	1%	0.1	OK	120	119	1%	0.1	OK	120	112	7%	0.7	NO	160	160	168	5%	0.6	OK
2033	71	I-94 WB btwn Hawley Rd Exit and Entr Ramps	Mainline	5400	5292	2%	1.5	OK	5810	5781	0%	0.4	OK	5850	5762	1%	1.1	OK	5710	5550	3%	2.1	OK	5345	4510	4414	2%	1.4	OK
2034	201	Hawley Rd WB Entr Ramp	Ramp	330	328	1%	0.1	OK	480	478	0%	0.1	OK	600	590	2%	0.4	OK	550	550	0%	0.0	OK	340	340	342	1%	0.1	OK
2035	74	I-94 WB btwn Hawley Rd Entr Ramp and 68th St Exit Ramp	Mainline	5730	5620	2%	1.5	OK	6290	6259	0%	0.4	OK	6450	6352	2%	1.2	OK	6260	6100	3%	2.0	OK	5685	4850	4756	2%	1.4	OK
2036	164	68th St WB Exit Ramp	Ramp	390	378	3%	0.6	OK	400	384	4%	0.8	OK	340	323	5%	0.9	OK	360	340	6%	1.1	NO	420	420	464	10%	2.1	NO
2037	431	I-94 WB btwn 68th St Exit Ramp and 70th St Entr Ramp	Mainline	5340	5238	2%	1.4	OK	5890	5875	0%	0.2	OK	6110	6029	1%	1.0	OK	5900	5767	2%	1.8	OK	5265	4430	4292	3%	2.1	OK
2038	173	70th St WB Entr Ramp	Ramp	350	347	1%	0.2	OK	450	445	1%	0.2	OK	660	647	2%	0.5	OK	660	660	0%	0.0	OK	410	410	421	3%	0.5	OK
2039	80	I-94 WB btwn 70th St Entr Ramp and 84th St Exit Ramp	Mainline	5690	5575	2%	1.5	OK	6340	6320	0%	0.2	OK	6770	6676	1%	1.1	OK	6560	6418	2%	1.8	OK	5675	4840	4713	3%	1.8	OK
2040	459	84th St WB Exit Ramp	Ramp	410	408	0%	0.1	OK	430	417	3%	0.6	OK	380	361	5%	1.0	OK	390	369	5%	1.1	OK	390	390	435	12%	2.3	NO
2041	81	I-94 WB btwn 84th St Exit Ramp and 84th St Entr Ramp	Mainline	5280	5167	2%	1.6	OK	5910	5903	0%	0.1	OK	6390	6315	1%	0.9	OK	6170	6049	2%	1.5	OK	5285	4450	4278	4%	2.6	OK
2042	685	84th St WB Entr Ramp	Ramp	210	219	4%	0.6	OK	260	269	3%	0.6	OK	320	329	3%	0.5	OK	330	336	2%	0.3	OK	280	280	290	4%	0.6	OK
2043	444	I-94 WB btwn 84th St Entr Ramp and Zoo Int	Mainline	5490	5372	2%	1.6	OK	6170	6172	0%	0.0	OK	6710	6644	1%	0.8	OK	6500	6385	2%	1.4	OK	5565	4730	4568	3%	2.4	OK
2044	445	Zoo Int E-N/E-S System Ramps	Sys Ramp	3000	2891	4%	2.0	OK	3390	3169	7%	2.2	NO	3590	3362	6%	2.0	NO	3430	3409	1%	0.4	OK	3060	2745	2928	7%	2.1	NO
2045	448	Zoo Int E-N System Ramp (I-94 WB to I-41 NB)	Sys Ramp	1960	1930	2%	0.7	OK	2110	2019	4%	2.0	OK	2170	2085	4%	1.8	OK	1890	1889	0%	0.0	OK	1930	1715	1782	4%	1.6	OK
2046	447	Zoo Int E-S System Ramp (I-94 WB to I-41 SB/894 EB)	Mainline	1040	1017	2%	0.7	OK	1280	1207	6%	2.0	OK	1420	1340	6%	2.1	NO	1540	1520	1%	0.5	OK	1130	1030	1146	11%	2.7	NO
2047	446	Zoo Int E-W System Movement (I-94 WB)	Mainline	2490	2434	2%	1.1	OK	2780	2651	5%	2.4	OK	3120	2899	7%	4.0	NO	3070	2976	3%	1.7	OK	2505	1985	1640	17%	2.8	NO
3004	84	Miller Park Way north of National Ave	Mainline	1800	1777	1%	0.5	OK	2000	1987	1%	0.3	OK	2170	2129	2%	0.9	OK	2305	2240	3%	1.4	OK	1820	1820	1898	4%	1.8	OK
3005	228	Canal St NB Exit Ramp	Ramp	155	153	1%	0.2	OK	175	169	3%	0.5	OK	200	186	7%	1.0	NO	350	322	8%	1.5	NO	275	275	293	7%	1.1	NO
3006	87	Miller Park Way btwn Canal St Exit and Entr Ramps	Mainline	1645	1621	1%	0.6	OK	1825	1806	1%	0.4	OK	1970	1948	1%	0.5	OK	1955	1910	2%	1.0	OK	1545	1545	1604	4%	1.5	OK
3007	675	Canal St NB Entr Ramp	Ramp	115	112	3%	0.3	OK	245	235	4%	0.6	OK	390	373	4%	0.9	OK	545	520	5%	1.1	OK	245	245	242	1%	0.2	OK
3009	90	Miller Park Way NB btwn Canal St and Stadium Int	Mainline	1760	1735	1%	0.6	OK	2070	2037	2%	0.7	OK	2360	2326	1%	0.7	OK	2500	2431	3%	1.4	OK	1790	1790	1852	3%	1.5	OK
3011	95	Stadium Int S-N System Movement (Miller Park Way NB)	Mainline	780	773	1%	0.3	OK	920	901	2%	0.6	OK	1190	1170	2%	0.6	OK	1320	1266	4%	1.5	OK	920	920	977	6%	1.9	NO
3013	224	WIS 175 NB btwn Stadium Int and Wisconsin Ave	Mainline	2220	2184	2%	0.8	OK	2780	2710	3%	1.3	OK	3130	3045	3%	1.5	OK	3205	3109	3%	1.7	OK	2540	2540	2446	4%	1.9	OK
3014	293	Wisconsin Ave NB Exit Ramp	Ramp	220	206	6%	0.9	NO	315	283	10%	1.8	NO	345	328	5%	0.9	OK	350	335	4%	0.8	OK	255	255	276	8%	1.3	NO
3015	143	WIS 175 NB btwn Wisconsin Ave Exit Ramp and Wells St Entr Ramp	Mainline	2000	1976	1%	0.5	OK	2465	2428	2%	0.7	OK	2785	2704	3%	1.5	OK	2855	2774	3%	1.5	OK	2285	2285	2164	5%	2.5	OK
3016	673	Wells St NB Entr Ramp	Ramp	90	81	10%	0.9	NO	160	161	1%	0.1	OK	240	241	0%	0.1	OK	270	267	1%	0.2	OK	175	175	180	3%	0.4	OK
3017	104	WIS 175 NB north of Wells St	Mainline	2090	2054	2%	0.8	OK	2625	2590	1%	0.7	OK	3025	2937	3%	1.6	OK	3125	3049	2%	1.4	OK	2460	2460	2343	5%	2.4	OK
4001	594	WIS 175 SB north of Wells St	Mainline	2210	2206	0%	0.1	OK	2500	2490	0%	0.2	OK	3055	3049	0%	0.1	OK	3205	3201	0%	0.1	OK	2505	2505	2503	0%	0.0	OK
4002	319	Wells St SB Exit Ramp	Ramp	100	99	1%	0.1	OK	215	202	6%	0.9	NO	260	260	0%	0.0	OK	240	240	0%	0.0	OK	220	220	222	1%	0.1	OK
4003	108	WIS 175 SB btwn Wells St Exit Ramp and Wisconsin Ave Entr Ramp	Mainline	2110	2103	0%	0.2	OK	2285	2287	0%	0.0	OK	2795	2784	0%	0.2	OK	2965	2957	0%	0.1	OK	2285	2285	2289	0%	0.1	OK
4004	674	Wisconsin Ave SB Entr Ramp	Ramp	210	211	0%	0.1	OK	265	261	2%	0.2	OK	395	390	1%	0.3	OK	505	494	2%	0.5	OK	355	355	358	1%	0.2	OK
4005	111	WIS 175 SB btwn Wisconsin Ave and Stadium Int	Mainline	2320	2304	1%	0.3	OK	2550	2542	0%	0.2	OK	3190	3164	1%	0.5	OK	3470	3438	1%	0.5	OK	2640	2640	2644	0%	0.1	OK
4007	115	Stadium Int N-S System Movement (WIS 175 SB)	Mainline	800	800	0%	0.0	OK	890	889	0%	0.0	OK	1320	1307	1%	0.4	OK	1475	1458	1%	0.4	OK	1040	1040	1047	1%	0.2	OK
4009	120	Miller Park Way SB btwn Stadium Int and Canal St	Mainline	1810	1776	2%	0.8	OK	1910	1884	1%	0.6	OK	2200	2160	2%	0.9	OK	2140	2103	2%	0.8	OK	1710	1710	1652	3%	1.4	OK
4010	249	Canal St SB Exit Ramp	Ramp	140	128	9%	1.0	NO	135	126	7%	0.8	NO	220	194	12%	1.8	NO	350	304	13%	2.5	NO	270	270	273	1%	0.2	OK
4012	122	Miller Park Way SB btwn Canal St Exit and Entr Ramps	Mainline	1670	1650	1%	0.5	OK	1775	1763	1%	0.3	OK	1980	1966	1%	0.3	OK	1790	1799	1%	0.2	OK	1440	1440	1378	4%	1.6	OK
4013	260	Can

I-94 East-West Data Collection Project

Existing (2019) PM Peak Period Validation

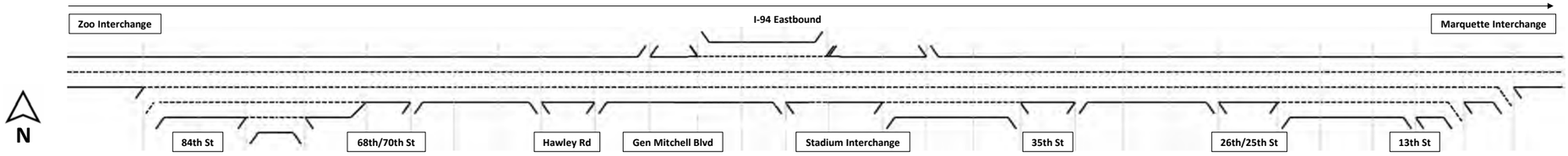
Freeway Truck Percentages

Segments				Existing PM Peak Period (1:30-6:30PM)									
				Truck %									
				1:30-2:30PM		2:30-3:30PM		3:30-4:30PM		4:30-5:30PM		5:30-6:30PM	
Forecast ID	Link ID	Description	Type	Target	VISSIM	Target2	VISSIM2	Target3	VISSIM3	Target4	VISSIM4	Target5	VISSIM5
1008	144	Zoo Int W-E System Movment (I-94 EB)	Mainline	8%	8%	11%	11%	11%	14%	12%	13%	11%	14%
1001	147	Zoo Int N-E System Ramp (I-41 NB/894 WB to I-94 EB)	Sys Ramp	6%	6%	4%	4%	4%	4%	3%	3%	3%	2%
1002	149	Zoo Int S-E System Ramp (I-41 SB to I-94 EB)	Sys Ramp	5%	4%	3%	3%	3%	2%	2%	2%	1%	1%
1000	2	I-94 EB btwn 84th St Entr Ramp and 70th St Exit Ramp	Mainline	6%	7%	6%	8%	6%	6%	6%	5%	8%	8%
1020	18	I-94 EB btwn Gen Mitchell Blvd Entr Ramp and Stadium Int	Mainline	5%	6%	7%	7%	7%	8%	9%	7%	9%	7%
1021	221	Stadium Int W-S System Ramp (I-94 EB to Miller Park Way SB)	Sys Ramp	7%	7%	5%	6%	5%	6%	5%	6%	6%	6%
1023	226	Stadium Int W-N System Ramp (I-94 EB to WIS 175 NB)	Sys Ramp	5%	5%	4%	5%	4%	4%	3%	3%	2%	2%
1025	103	Stadium Int S-E System Ramp (Miller Park Way NB to I-94 EB)	Sys Ramp	9%	8%	7%	6%	7%	3%	4%	2%	3%	2%
1027	114	Stadium Int N-E System Ramp (WIS 175 SB to I-94 EB)	Sys Ramp	4%	4%	4%	3%	4%	3%	4%	3%	3%	2%
1037	35	I-94 EB btwn 25th St Entr Ramp and 13th St Exit Ramp	Mainline	5%	6%	5%	6%	5%	7%	5%	6%	5%	6%
1040	343	Marquette Int W-N System Ramp (I-94 EB to I-43 NB)	Sys Ramp	8%	8%	8%	8%	8%	8%	7%	7%	7%	6%
1042	181	Marquette Int W-S System Ramp (I-94 EB to I-43 SB/94 EB)	Sys Ramp	7%	6%	5%	5%	5%	5%	4%	4%	3%	3%
2004	465	Marquette Int S-W System Ramp (I-43 NB/94 WB to I-94 WB)	Sys Ramp	7%	5%	6%	4%	6%	4%	4%	3%	3%	3%
2005	663	Marquette Int N-W System Ramp (I-43 SB to I-94 WB)	Sys Ramp	11%	8%	10%	7%	10%	7%	9%	7%	8%	6%
2007	41	I-94 WB btwn Marquette Int and 25th St Exit Ramp	Mainline	4%	5%	4%	5%	4%	4%	4%	4%	4%	4%
2019	331	Stadium Int E-N System Ramp (I-94 WB to WIS 175 NB)	Sys Ramp	2%	3%	2%	2%	2%	2%	1%	1%	1%	1%
2021	333	Stadium Int E-S System Ramp (I-94 WB to Miller Park Way SB)	Sys Ramp	4%	5%	3%	3%	3%	2%	2%	2%	2%	2%
2023	126	Stadium Int S-W System Ramp (Miller Park Way NB to I-94 WB)	Sys Ramp	8%	6%	6%	5%	6%	3%	4%	3%	4%	3%
2025	278	Stadium Int N-W System Ramp (WIS 175 SB to I-94 WB)	Sys Ramp	13%	10%	12%	10%	12%	10%	9%	7%	7%	6%
2026	61	I-94 WB btwn Stadium Int and Gen Mitchell Blvd Exit Ramp	Mainline	6%	6%	6%	6%	6%	6%	8%	5%	8%	5%
2039	80	I-94 WB btwn 70th St Entr Ramp and 84th St Exit Ramp	Mainline	5%	6%	5%	6%	5%	5%	5%	5%	6%	5%
2045	448	Zoo Int E-N System Ramp (I-94 WB to I-41 NB)	Sys Ramp	6%	6%	5%	6%	5%	6%	5%	5%	3%	5%
2046	447	Zoo Int E-S System Ramp (I-94 WB to I-41 SB/894 EB)	Sys Ramp	6%	6%	5%	6%	5%	5%	4%	5%	3%	5%
2047	446	Zoo Int E-W System Movement (I-94 WB)	Mainline	6%	6%	4%	5%	4%	5%	3%	4%	3%	4%
3011	95	Stadium Int S-N System Movement (Miller Park Way NB)	Mainline	4%	4%	3%	3%	3%	3%	3%	2%	2%	2%
4007	115	Stadium Int N-S System Movement (WIS 175 SB)	Mainline	4%	4%	4%	4%	4%	4%	4%	3%	3%	3%

I-94 East-West Data Collection Project

Existing (2019) PM Peak Period Validation

I-94 Eastbound Freeway Operations



MOE	ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
	Segment	Zoo Int W-E System Movement	Zoo Int S-E/N-E System Ramps	Zoo Int S-E/N-E System Ramps to 84th St Entr Ramp	84th St Entr Ramp to 70th St Exit Ramp	70th St Exit Ramp to Lane Merge	Lane Merge to 68th St Entr Ramp	68th St Entr Ramp	68th St Entr Ramp to Hawley Rd Exit Ramp	Hawley Rd Exit Ramp	Hawley Rd Exit Ramp to Hawley Rd Entr Ramp	Hawley Rd Entr Ramp to Gen Mitchell Blvd Exit Ramp	Gen Mitchell Blvd Exit Ramp to Gen Mitchell Blvd Entr Ramp	Gen Mitchell Blvd Entr Ramp to Stadium Int W-N system Ramp	Stadium Int E-S System Ramp	Stadium Int W-N System Ramp	Stadium Int W-E System Movement	Stadium Int S-E System Ramp	Stadium Int N-E System Ramp	35th St Exit Ramp	35th St Exit Ramp to 35th St Entr Ramp	35th St Entr Ramp	35th St Entr Ramp to 26th St Exit Ramp	26th St Exit Ramp	26th St Exit Ramp to 25th St Entr Ramp	25th St Entr Ramp	25th St Entr Ramp to 13th St Exit Ramp	13th St Exit Ramp	Marquette Int W-N System Ramp	Marquette Int W-S System Ramp	Marquette Int W-E System Movement
	Type	B	M	B	W	B	B	M	O	D	B	W	B	W/D*			B	W/M*			B	M	O	D	B	B		D	D	D	B
Speed (MPH)	1:30 PM	63	63	63	62	60	63	59	58	57	61	59	60	55	52	53	56	55	53	52	54	54	52	50	54	54	54	54	55	57	57
	1:45 PM	63	63	62	62	60	62	60	58	57	61	57	59	54	52	53	56	54	53	52	54	53	52	49	54	54	54	54	55	57	57
	2:00 PM	63	63	62	62	59	62	60	58	57	61	54	58	54	50	51	55	53	50	51	54	53	50	48	54	54	54	54	55	56	57
	2:15 PM	63	63	62	60	58	62	59	56	55	60	52	56	53	50	52	54	51	47	50	54	53	51	50	54	54	53	54	55	56	57
	2:30 PM	62	63	62	60	57	62	58	55	54	59	53	57	53	49	50	54	54	52	48	53	53	50	49	54	53	52	53	54	56	57
	2:45 PM	62	62	61	57	55	61	58	55	54	59	52	56	53	50	51	55	52	50	50	53	53	50	48	53	53	53	54	54	56	57
	3:00 PM	62	63	62	61	57	61	59	57	55	59	51	56	53	51	52	55	54	47	48	53	52	50	49	53	53	53	53	54	56	57
	3:15 PM	61	62	61	47	50	60	53	53	53	58	50	54	53	50	51	52	45	42	46	53	51	49	49	53	53	53	53	54	56	56
	3:30 PM	61	62	61	49	50	53	47	47	48	50	41	47	45	42	44	36	34	35	46	53	52	50	49	53	53	53	54	54	56	56
	3:45 PM	61	62	62	59	51	49	40	43	45	46	40	45	44	41	41	34	34	34	45	53	52	50	49	53	53	53	53	54	56	56
	4:00 PM	61	62	60	54	47	39	33	41	44	44	41	43	39	38	38	33	31	31	44	53	53	50	50	53	53	53	53	54	56	56
	4:15 PM	61	62	57	46	43	40	35	41	44	46	40	39	34	31	32	21	20	23	43	53	53	51	50	53	54	53	54	54	55	55
	4:30 PM	61	62	52	44	38	29	25	29	29	26	23	26	24	22	21	16	17	21	42	54	53	51	51	53	53	53	53	54	55	56
	4:45 PM	61	57	50	43	39	32	28	32	32	26	24	25	24	23	23	16	17	21	43	54	52	50	50	53	53	53	53	54	55	55
	5:00 PM	62	59	54	49	41	36	32	33	31	26	23	23	22	22	22	15	17	21	43	54	53	51	50	53	53	53	53	54	55	55
	5:15 PM	62	61	55	49	44	43	40	43	42	32	26	25	22	22	21	15	16	20	43	53	50	50	50	53	54	53	53	54	55	55
	5:30 PM	62	63	58	55	53	50	42	39	37	31	23	20	20	19	19	15	17	21	43	54	53	51	51	53	54	53	53	54	54	54
	5:45 PM	63	63	62	56	55	56	53	49	45	38	33	31	24	23	23	16	17	21	43	54	53	51	50	53	54	53	54	54	55	55
	6:00 PM	63	63	62	62	60	58	54	54	52	54	50	49	44	41	41	29	26	28	44	53	53	51	48	53	54	53	54	54	55	55
	6:15 PM	63	63	63	62	61	63	60	60	58	60	55	56	51	49	50	50	48	47	51	54	53	52	51	54	54	54	54	55	56	56
Density (pcphpl)	1:30 PM	17.4	17.6	17.6	15.3	18.3	23.4	27.4	27.7	27.9	24.6	20.4	25.9	21.9			23.0	23.4			29.3	31.4	32.3	33.6	28.1	23.9	24.1	23.1	22.1	14.2	11.5
	1:45 PM	17.4	17.7	17.8	15.6	18.7	24.0	27.9	28.7	29.1	25.8	22.0	27.4	22.8			23.6	24.4			30.9	33.4	34.5	*36.4*	29.7	24.9	25.1	24.1	23.3	15.9	12.6
	2:00 PM	17.4	18.7	18.8	16.6	19.9	25.1	28.8	29.6	30.0	26.9	23.8	29.1	24.3			24.8	25.3			31.0	34.0	*36.2*	*37.3*	30.4	25.7	25.8	24.6	24.1	17.1	13.0
	2:15 PM	19.8	20.9	21.0	18.6	22.6	28.1	32.3	33.8	34.1	30.2	27.3	33.3	26.9			27.1	28.3			33.3	*35.6*	*36.9*	*37.8*	32.0	27.0	27.3	26.2	25.5	18.5	13.5
	2:30 PM	21.8	21.2	21.4	18.8	23.3	28.7	33.1	34.8	*35.3*	30.8	27.3	33.5	27.9			28.2	29.1			34.5	*37.1*	*38.9*	*40.2*	33.9	30.4	30.6	29.3	28.4	20.0	14.7
	2:45 PM	22.9	21.8	22.0	20.2	24.3	29.0	33.5	*35.2*	*35.5*	30.8	28.1	33.9	27.5			27.9	28.3			33.5	*36.5*	*38.5*	*39.8*	33.5	28.6	28.6	*27.4*	26.9	19.3	14.2
	3:00 PM	22.6	21.4	21.6	19.0	23.3	28.9	32.8	34.0	34.7	31.0	28.4	34.4	27.7			28.6	29.6			34.4	*38.4*	*39.6*	*40.4*	34.9	30.0	30.3	29.1	28.4	20.2	14.6
	3:15 PM	27.0	24.4	24.7	27.3	28.7	32.0	*39.3*	*39.6*	*38.9*	33.7	31.1	*37.5*	29.7			31.3	33.5			*35.9*	*40.2*	*41.1*	*41.5*	*36.3*	30.9	31.0	29.6	29.1	20.9	16.5
	3:30 PM	25.1	22.4	22.8	25.1	28.8	*35.7*	*45.4*	*45.1*	*43.3*	*40.2*	*39.0*	*44.7*	*36.3*			*44.6*	*36.2*			*35.3*	*38.9*	*40.6*	*41.2*	*35.9*	30.9	30.9	29.6	29.4	20.9	18.0
	3:45 PM	26.5	22.7	22.9	20.8	27.1	*37.3*	*50.9*	*47.3*	*44.6*	*42.1*	*38.3*	*44.7*	*35.4*			*46.4*	*36.5*			*35.3*	*39.7*	*41.1*	*41.9*	*36.3*	30.0	30.3	29.1	28.9	20.9	19.3
	4:00 PM	25.7	22.6	23.3	22.6	29.4	*46.4*	*61.8*	*50.5*	*46.4*	*43.4*	*37.2*	*45.8*	*39.4*			*48.7*	*39.1*			*35.5*	*39.3*	*40.9*	*41.5*	*36.5*	31.0	31.0	29.8	29.6	21.5	20.1
	4:15 PM	27.5	22.4	24.4	26.0	31.4	*44.0*	*58.7*	*49.3*	*46.3*	*41.9*	*37.8*	*50.6*	*44.5*			*73.2*	*47.0*			34.9	*38.6*	*40.4*	*41.5*	*36.9*	30.4	30.6	29.4	29.5	22.1	22.5
	4:30 PM	24.9	21.7	25.3	26.2	31.7	*54.4*	*73.5*	*63.8*	*63.1*	*65.6*	*59.1*	*71.1*	*60.1*			*96.7*	*50.2*			34.5	*38.2*	*39.6*	*40.1*	*36.2*	31.4	31.6	30.3	30.2	23.0	23.2
	4:45 PM	25.2	23.4	27.0	26.7	31.1	*50.6*	*65.2*	*57.4*	*56.9*	*68.5*	*58.5*	*73.4*	*58.5*			*95.4*	*49.8*			34.8	*39.5*	*41.0*	*40.9*	*36.7*	31.1	31.2	29.9	29.9	22.8	24.0
	5:00 PM	25.2	22.0	23.6	23.1	28.5	*42.9*	*56.0*	*53.5*	*56.7*	*67.3*	*59.6*	*76.6*	*61.8*			*96.4*	*49.9*			34.4	*38.4*	*40.1*	*41.0*	*36.6*	31.4	31.6	30.4	30.4	24.5	27.4
	5:15 PM	24.1	20.4	22.4	22.1	25.2	34.5	*43.0*	*40.7*	*40.7*	*52.2*	*51.5*	*68.6*	*59.7*			*98.0*	*50.6*			34.6	*40.3*	*40.5*	*40.3*	*36.6*	30.3	30.8	29.6	29.5	23.6	26.9
	5:30 PM	20.8	18.4	20.1	18.8	19.8	27.8	*40.0*	*42.5*	*44.3*	*51.3*	*56.3*	*82.8*	*65.8*			*99.1*	*50.1*			34.4	*37.8*	*39.2*	*39.7*	*36.4*	30.2	30.4	29.2	29.3	24.1	27.5
	5:45 PM	20.4	17.8	18.0	17.5	19.2	25.1	30.8	33.3	*35.5*	*41.3*	*38.3*	*54.0*	*55.3*			*92.8*	*49.6*			34.3	*38.2*	*39.5*	*40.5*	*35.9*	29.4	29.8	28.6	28.6	23.4	26.6
	6:00 PM	18.5	17.9	18.0	16.0	18.4	25.0	30.2	30.7	31.1	28.8	25.0	34.0	29.6			*51.6*	*39.5*			34.9	*37.9*	*39.7*	*41.6*	*36.0*	29.2	29.5	28.4	28.4	22.3	23.5
	6:15 PM	17.2	16.3	16.4	14.5	16.6	21.5	25.2	25.4	25.9	24.4	21.4	27.3	23.5			27.2	26.3			31.4	34.3	*35.3*	*36.3*	32.0	26.4	26.5	25.5	25.6	19.3	19.4
Level of Service (LOS)	1:30 PM	B	B	B	B	C	C	C	D	C	C	C	C	C			C	D			D	D	D	D	D	C	C	C	C	B	B
	1:45 PM	B	B	B	B	C	C	C	D	D	C	C	D	C			C	C			D	D	D	*E*	D	C	C	C	C	B	B
	2:00 PM	B	B	C	B	C	C	D	D	D	D	C	D	C			C	C			D	D	*E*	*E*	D	C	C	C	C	B	B
	2:15 PM	C	C	C	B	C	D	D	D	D	D	C	D	C			D	D			D	*E*	*E*	*E*	D	D	D	C	C	B	B
	2:30 PM	C	C	C	B	C	D	D	D	*E*	D	C	D	C			D	D			D	*E*	*E*	*E*	D	D	D	D	D	C	B
	2:45 PM	C	C	C	C	C	D	D	*E*	*E*	D	D	D	C			D	D			D	*E*	*E*	*E*	D	D	D	C	C	B	B
	3:00 PM	C	C	C	B	C	D	D	D	D	D	D	D	C			D	D			D	*E*	*E*	*E*	D	D	D	D	D	C	B
	3:15 PM	D	C	C	C	D	D	*E*	*E*	*E*	D	D	*E*	D			D	D			*E*	*E*	*E*	*E*	*E*	D	D	D	D	C	B
	3:30 PM	C	C	C	C	D	*E*	*F*	*F*	*F*	*E*	*E*	*E*	*E*			*E*	*E*			*E*	*E*	*E*	*E*	*E*	D	D	D	D	C	C
	3:45 PM	D	C	C	C	D	*E*	*F*	*F*	*F*	*E*	*E*	*E*	*E*			*F*	*E*			*E*	*E*	*E*	*E*	*E*	D	D	D	D	C	C
	4:00 PM	C	C	C	C	D	*F*	*F*	*F*	*F*	*E*	*E*	*F*	*E*			*F*	*E*			*E*	*E*	*E*	*E*	*E*	D	D	D	D	C	C
	4:15 PM	D	C	C	C	D	*E*	*F*	*F*	*F*	*E*	*E*	*F*	*F*			*F*	*F*			D	*E*	*E*	*E*	*E*	D	D	D	D	C	C
	4:30 PM	C	C	C	C	D	*F*	*F*	*F*	*F*	*F*	*F*	*F*	*F*			*F*	*F*			D	*E*	*E*	*E*	*E*	D	D	D	D	C	C
	4:45 PM	C	C	D	C	D	*F*	*F*	*F*	*F*	*F*	*F*	*F*	*F*			*F*	*F*			D	*E*	*E*	*E*	*E*	D	D	D	D	C	C
	5:00 PM	C	C	C	C	D	*E*	*F*	*F*	*F*	*F*	*F*	*F*	*F*			*F*	*F*			D	*E*	*E*	*E*	*E*	D	D	D	D	C	D
	5:15 PM	C	C	C	C	C	D	*F*	*E*	*E*	*F*	*F*	*F*	*F*			*F*	*F*			D	*E*	*E*	*E*	*E*	D	D	D	D	C	D
	5:30 PM	C	B	C	B	C	D	*E*	*E*	*F*	*F*	*F*	*F*	*F*			*F*	*F*			D	*E*	*E*	*E*	*E*	D	D	D	D	C	D
	5:45 PM	C	B	C	B	C	C	D	D	*E*	*E*	*E*	*F*	*F*			*F*	*F*			D	*E*	*E*	*E*	*E*	D	D	D	D	C	D
	6:00 PM	C	B	C	B	C	C	D	D	D	D	C	D	D			*F*	*E*			D	*E*	*E*	*E*	*E*	D	D	D	C	C	C
	6:15 PM	B	B	B	B	B	C	C	C	C	C	C	D	C			D	C			D	D	*E*	*E*	D	D	D	C	C	B	C

B - Basic Segment
M - Ramp Merge Segment
D - Ramp Diverge Segment
W - Weave Segment

*Overlapping HCM segment - analyzed as a weave

Legend (HCM6)				
LOS	Speed (MPH)	Density (pcphpl)		
		Basic	Ramp	Weave
A	> 55	0-11	0-10	0-10
B		11-18	10-20	10-20
C	50-55	18-26	20-28	20-28
D	40-50	26-35	28-35	28-35
E	30-40	35-45	35-43	35-43
F	20-30 0-20	45+	43+	43+

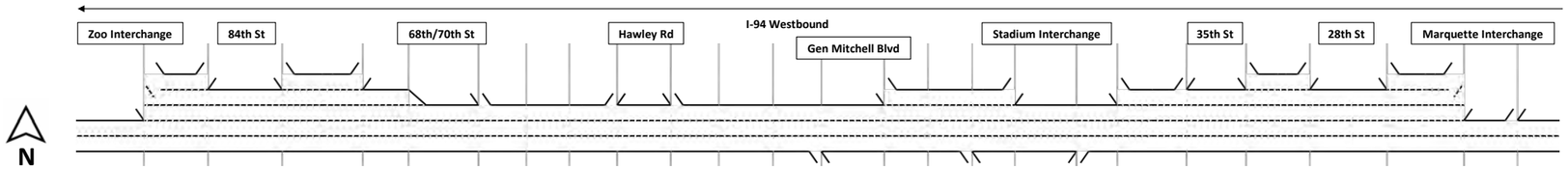
FINAL

2/5/2021

I-94 East-West Data Collection Project

Existing (2019) PM Peak Period Validation

I-94 Westbound Freeway Operations



MOE	ID	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
	Segment	Zoo Int E-W System Movement	84th St Entr Ramp to Zoo Int E-N/E-S System Ramps	84th St Exit Ramp to 84th St Entr Ramp	70th St Entr Ramp to 84th St Exit Ramp	Lane Add to 70th St Entr Ramp	68th St Exit Ramp to Lane Add	68th St Exit Ramp	Hawley Rd Entr Ramp to 68th St Exit Ramp	Hawley Rd Entr Ramp	Hawley Rd Exit Ramp to Hawley Rd Entr Ramp	Hawley Rd Exit Ramp	Gen Mitchell Blvd Entr Ramp to Hawley Rd Exit Ramp	Gen Mitchell Blvd Entr Ramp	Gen Mitchell Blvd Exit Ramp to Gen Mitchell Blvd Entr Ramp	Gen Mitchell Blvd Exit Ramp	Stadium Int S-W System Ramp	Stadium Int N-W System Ramp	Stadium Int E-W System Movement	Stadium Int E-S System Ramp	35th St Entr Ramp to Stadium Int E-N System Ramp	35th St Exit Ramp to 35th St Entr Ramp	28th St Entr Ramp to 35th St Exit Ramp	25th St Exit Ramp to 28th St Entr Ramp	Marquette Int N-W/S-W System Ramps to 25th St Exit Ramp	11th St Entr Ramp	Marquette Int E-W System Movement
	Type	B	W	B	W	B	B	D	O	M	B	D	O	M	B	W/M*			B	D	W/M*	B	W	B	W	M	B
Speed (MPH)	1:30 PM	62	61	61	62	62	60	52	53	54	60	59	59	59	55	40	36	40	51	49	53	54	54	55	56	56	57
	1:45 PM	62	61	61	62	62	59	52	52	53	60	58	59	59	55	44	39	40	47	48	52	54	53	55	56	56	57
	2:00 PM	61	61	61	62	62	59	51	52	54	60	59	59	59	55	43	40	41	47	49	53	54	53	55	56	55	57
	2:15 PM	61	61	61	62	62	59	50	50	50	59	59	58	58	55	39	31	30	40	46	51	54	53	54	55	55	57
	2:30 PM	61	60	60	62	62	58	48	44	37	48	54	54	55	53	34	22	20	21	31	36	47	53	54	56	55	57
	2:45 PM	61	60	60	61	62	59	49	46	41	51	56	57	57	53	31	19	16	15	23	24	26	41	53	56	55	57
	3:00 PM	61	61	61	62	62	58	46	42	36	47	54	56	56	52	31	18	16	14	22	23	23	33	51	56	55	57
	3:15 PM	61	61	61	62	62	58	48	45	41	48	52	54	55	51	31	19	16	14	21	19	16	19	35	55	55	56
	3:30 PM	61	60	60	61	62	58	47	40	29	33	42	46	49	49	31	18	15	13	19	18	14	13	27	55	55	57
	3:45 PM	61	61	60	61	62	57	47	40	27	26	30	32	33	39	28	17	14	12	17	16	12	13	25	55	55	56
	4:00 PM	61	60	61	61	62	58	47	39	26	25	28	28	26	32	26	15	13	10	14	15	11	11	21	46	55	56
	4:15 PM	60	60	60	61	62	57	47	39	27	27	30	29	26	30	26	15	12	11	14	14	11	10	10	22	32	46
	4:30 PM	60	60	60	61	62	57	46	39	26	27	30	29	25	33	25	16	12	10	13	13	10	9	8	14	24	31
	4:45 PM	60	60	60	61	62	57	46	39	27	26	28	27	25	30	26	16	12	10	13	13	10	9	8	10	18	21
	5:00 PM	61	61	61	62	62	56	44	38	29	31	37	38	38	43	29	17	14	11	15	15	11	9	8	9	12	14
	5:15 PM	61	60	61	61	62	57	46	42	36	39	44	44	43	45	30	18	16	13	19	18	13	12	10	11	11	9
	5:30 PM	60	61	61	62	62	59	50	49	49	55	58	59	59	53	32	20	18	16	21	20	16	15	12	15	22	17
	5:45 PM	61	61	61	62	62	59	47	49	52	60	60	60	59	53	32	19	17	15	22	21	16	14	11	19	30	24
	6:00 PM	61	61	61	62	62	58	46	47	48	57	58	60	60	55	36	22	20	18	25	23	19	20	25	45	54	54
	6:15 PM	63	62	62	63	63	62	54	57	58	61	60	61	61	58	47	41	40	44	51	52	54	55	57	57	56	57
Density (pcphpl)	1:30 PM	20.0	18.3	21.7	18.4	21.6	30.1	*37.0*	*43.3*	28.7	30.2	32.0	32.1	31.9	34.1	*35.5*			30.0	*35.0*	27.8	25.9	15.2	23.5	20.2	19.7	16.1
	1:45 PM	20.9	18.6	22.6	19.0	22.3	31.1	*38.5*	*45.5*	30.2	31.6	34.0	33.1	33.0	34.9	34.3			33.6	*36.9*	29.5	26.9	15.9	24.8	21.2	19.5	15.9
	2:00 PM	21.2	18.8	22.7	19.2	22.4	31.5	*39.2*	*45.6*	30.0	31.1	33.0	33.0	32.9	34.5	33.5			31.9	*35.1*	28.8	26.9	16.1	25.1	21.4	23.2	18.9
	2:15 PM	21.7	19.1	22.9	19.5	22.9	32.1	*40.1*	*47.8*	33.0	32.0	33.5	33.7	33.4	*35.3*	*41.7*			*38.1*	*38.6*	30.3	27.5	16.5	26.1	23.5	22.9	18.4
	2:30 PM	22.0	20.1	24.5	20.7	23.9	34.0	*43.5*	*56.7*	*46.3*	*40.1*	*37.1*	*37.0*	*36.0*	*37.0*	*54.8*			*69.7*	*55.3*	*44.0*	31.6	17.0	26.2	23.3	23.8	19.0
	2:45 PM	22.0	20.2	24.4	20.6	23.6	33.2	*42.6*	*53.5*	*41.3*	*37.3*	*35.7*	34.9	34.7	*36.8*	*62.9*			*97.8*	*70.2*	*62.4*	*55.4*	21.2	26.3	23.5	23.9	19.6
	3:00 PM	23.5	20.2	24.1	20.4	23.8	34.2	*45.9*	*59.2*	*47.1*	*41.5*	*36.7*	*35.4*	*35.0*	*37.2*	*64.1*			*101.3*	*73.5*	*66.2*	*61.9*	25.8	27.8	22.7	24.4	20.1
	3:15 PM	23.9	21.3	25.1	21.0	24.3	34.7	*44.6*	*56.3*	*42.2*	*40.6*	*38.5*	*37.8*	*36.8*	*37.8*	*63.4*			*100.7*	*76.4*	*77.2*	*84.3*	*43.6*	*42.7*	23.8	27.3	23.2
	3:30 PM	23.7	22.3	25.9	21.6	24.3	34.7	*45.4*	*62.5*	*59.5*	*58.2*	*47.9*	*44.1*	*41.5*	*38.9*	*65.6*			*105.2*	*80.9*	*80.3*	*93.8*	*58.0*	*53.6*	21.6	23.6	19.3
	3:45 PM	24.5	21.8	25.9	21.7	24.4	*35.1*	*45.4*	*62.9*	*62.4*	*73.2*	*65.3*	*62.4*	*59.1*	*48.9*	*67.8*			*109.5*	*84.7*	*86.1*	*100.8*	*59.9*	*56.3*	20.9	24.4	21.0
	4:00 PM	26.0	22.2	26.4	22.0	24.4	*35.0*	*44.9*	*64.3*	*64.7*	*74.9*	*69.2*	*69.3*	*73.5*	*58.1*	*72.4*			*118.1*	*95.0*	*89.0*	*104.6*	*64.3*	*61.9*	25.1	25.5	21.7
	4:15 PM	25.6	21.9	26.8	22.1	24.7	*35.6*	*45.4*	*64.1*	*62.9*	*71.3*	*66.2*	*68.6*	*74.7*	*60.7*	*73.4*			*116.7*	*94.6*	*89.9*	*104.6*	*69.7*	*116.7*	*50.6*	*45.5*	29.1
	4:30 PM	25.5	22.7	26.7	22.1	24.4	*35.0*	*45.7*	*64.9*	*65.1*	*71.5*	*65.4*	*68.0*	*76.9*	*55.8*	*74.5*			*120.8*	*97.5*	*99.5*	*111.3*	*75.1*	*131.1*	*77.9*	*54.6*	*37.3*
	4:45 PM	24.9	21.7	26.0	21.7	24.5	*35.4*	*46.1*	*64.2*	*63.5*	*74.3*	*69.1*	*71.5*	*78.4*	*61.2*	*75.1*			*121.5*	*99.5*	*100.8*	*113.9*	*75.6*	*133.6*	*102.2*	*74.2*	*55.8*
	5:00 PM	26.3	22.5	26.6	22.2	24.9	*36.3*	*49.3*	*67.5*	*60.1*	*64.5*	*55.1*	*52.8*	*52.8*	*44.6*	*69.4*			*112.8*	*93.0*	*91.7*	*108.6*	*74.9*	*132.3*	*114.2*	*99.5*	*72.1*
	5:15 PM	26.1	22.1	26.1	21.9	24.6	*35.4*	*46.6*	*60.9*	*48.5*	*51.2*	*45.8*	*45.6*	*46.8*	*42.5*	*64.6*			*104.9*	*80.8*	*81.4*	*96.7*	*65.7*	*119.9*	*105.1*	*124.0*	*127.8*
	5:30 PM	25.5	20.6	24.7	20.6	23.7	33.4	*41.2*	*50.3*	34.5	*35.4*	34.6	33.8	33.6	*37.1*	*60.9*			*95.2*	*74.5*	*76.5*	*88.6*	*56.2*	*111.1*	*77.9*	*83.1*	*95.8*
	5:45 PM	22.9	19.7	23.2	19.6	22.5	32.0	*43.1*	*49.4*	31.4	31.8	32.6	32.7	32.6	*36.2*	*61.6*			*97.1*	*73.4*	*70.3*	*87.2*	*58.8*	*112.5*	*60.9*	*62.8*	*67.0*
	6:00 PM	21.3	18.8	22.1	19.0	22.1	31.3	*44.0*	*50.7*	33.8	33.2	33.8	32.7	32.5	*35.5*	*54.2*			*83.6*	*63.6*	*62.2*	*67.3*	*35.4*	*40.9*	18.7	20.2	15.5
	6:15 PM	15.8	14.7	17.5	15.1	17.3	23.4	29.4	33.2	22.0	24.2	25.8	25.2	25.0	26.1	25.5			25.7	23.6	20.6	17.5	10.3	15.4	14.5	19.3	14.9
Level of Service (LOS)	1:30 PM	C	B	C	B	C	D	*E*	*E*	D	D	D	D	D	D	*E*			D	*E*	C	C	B	C	C	B	B
	1:45 PM	C	B	C	B	C	D	*E*	*F*	D	D	D	D	D	D	D			D	*E*	D	D	B	C	C	B	B
	2:00 PM	C	B	C	B	C	D	*E*	*F*	D	D	D	D	D	D	D			D	*E*	D	D	B	C	C	C	C
	2:15 PM	C	B	C	B	C	D	*E*	*F*	D	D	D	D	D	*E*	*E*			*E*	*E*	D	D	B	D	C	C	C
	2:30 PM	C	C	C	C	C	D	*F*	*F*	*F*	*E*	*E*	*E*	*E*	*E*	*F*			*F*	*F*	*F*	D	B	D	C	C	C
	2:45 PM	C	C	C	C	C	D	*E*	*F*	*E*	*E*	*E*	D	D	*E*	*F*			*F*	*F*	*F*	*F*	C	D	C	C	C
	3:00 PM	C	C	C	C	C	D	*F*	*F*	*F*	*E*	*E*	*E*	*E*	*E*	*F*			*F*	*F*	*F*	*F*	C	D	C	C	C
	3:15 PM	C	C	C	C	C	D	*F*	*F*	*E*	*E*	*E*	*E*	*E*	*E*	*F*			*F*	*F*	*F*	*F*	*F*	*E*	C	C	C
	3:30 PM	C	C	C	C	C	D	*F*	*F*	*F*	*F*	*F*	*E*	*E*	*E*	*F*			*F*	*F*	*F*	*F*	*F*	*F*	C	C	C
	3:45 PM	C	C	C	C	C	*E*	*F*	*F*	*F*	*F*	*F*	*F*	*F*	*F*	*F*			*F*	*F*	*F*	*F*	*F*	*F*	C	C	C
	4:00 PM	D	C	D	C	C	*E*	*F*	*F*	*F*	*F*	*F*	*F*	*F*	*F*	*F*			*F*	*F*	*F*	*F*	*F*	*F*	C	C	C
	4:15 PM	C	C	D	C	C	*E*	*F*	*F*	*F*	*F*	*F*	*F*	*F*	*F*	*F*			*F*	*F*	*F*	*F*	*F*	*F*	*F*	*F*	D
	4:30 PM	C	C	D	C	C	*E*	*F*	*F*	*F*	*F*	*F*	*F*	*F*	*F*	*F*			*F*	*F*	*F*	*F*	*F*	*F*	*F*	*F*	*E*
	4:45 PM	C	C	D	C	C	*E*	*F*	*F*	*F*	*F*	*F*	*F*	*F*	*F*	*F*			*F*	*F*	*F*	*F*	*F*	*F*	*F*	*F*	*F*
	5:00 PM	D	C	D	C	C	*E*	*F*	*F*	*F*	*F*	*F*	*F*	*F*	E	*F*			*F*	*F*	*F*	*F*	*F*	*F*	*F*	*F*	*F*
	5:15 PM	D	C	D	C	C	*E*	*F*	*F*	*F*	*F*	*F*	*F*	*F*	E	*F*			*F*	*F*	*F*	*F*	*F*	*F*	*F*	*F*	*F*
	5:30 PM	C	C	C	C	C	D	*E*	*F*	D	*E*	D	D	D	*E*	*F*			*F*	*F*	*F*	*F*	*F*	*F*	*F*	*F*	*F*
	5:45 PM	C	B	C	B	C	D	*F*	*F*	D	D	D	D	D	*E*	*F*			*F*	*F*	*F*	*F*	*F*	*F*	*F*	*F*	*F*
	6:00 PM	C	B	C	B	C	D	*F*	*F*	D	D	D	D	D	*E*	*F*			*F*	*F*	*F*	*F*	*E*	*E*	B	C	B
	6:15 PM	B	B	B	B	B	C	D	D	C	C	C	C	C	D	C			C	C	C	B	B	B	B	B	B

B - Basic Segment
M - Ramp Merge Segment
D - Ramp Diverge Segment
W - Weave Segment

*Overlapping HCM segment - analyzed as a weave

Legend (HCM6)				
LOS	Speed (MPH)	Density (pcphpl)		
		Basic	Ramp	Weave
A	> 55	0-11	0-10	0-10
B		11-18	10-20	10-20
C	50-55	18-26	20-28	20-28
D	40-50	26-35	28-35	28-35
E	30-40	35-45	35-43	35-43
F	20-30 0-20	45+	43+	43+

FINAL

2/5/2021

I-94 East-West Data Collection Project

Existing (2019) PM Peak Period Validation

Intersection Turning Movement Volumes

Intersections							Existing PM Peak Period Hourly Vols (1:30-6:30PM)														
							1:30-2:30PM			2:30-3:30PM (Peak)			3:30-4:30PM			4:30-5:30PM			5:30-6:30PM		
Forecast ID	Node	Int Name	FID Turn	Node Turn	From Link	To Link	Mvmt	Target	VISSIM	RNSE	Target	VISSIM	RNSE	Target	VISSIM	RNSE	Target	VISSIM	RNSE	Target	VISSIM	RNSE
1	103	76th St & O'Connor St	1NBL	103NBL	414	418	NBL	40	39	0.1	72	72	0.1	85	84	0.1	61	61	0.0	68	69	0.1
1	103	76th St & O'Connor St	1NBT	103NBT	414	417	NBT	70	71	0.2	114	112	0.1	149	150	0.1	95	94	0.1	73	73	0.0
1	103	76th St & O'Connor St	1WBL	103WBL	171	135	WBL	10	8	0.6	16	12	0.9	15	15	0.1	14	11	0.7	9	13	1.4
1	103	76th St & O'Connor St	1WBT	103WBT	171	418	WBT	49	46	0.4	64	60	0.5	65	64	0.1	102	94	0.8	124	131	0.6
1	103	76th St & O'Connor St	1WBR	103WBR	171	417	WBR	36	35	0.2	54	53	0.2	45	45	0.0	48	48	0.1	28	33	0.9
1	103	76th St & O'Connor St	1SBT	103SBT	415	135	SBT	167	167	0.0	192	191	0.1	293	290	0.2	376	374	0.1	254	255	0.1
1	103	76th St & O'Connor St	1SBR	103SBR	415	418	SBR	40	40	0.1	26	27	0.2	51	52	0.2	35	36	0.1	23	23	0.0
2	104	76th St & Kearney St	2EBL	104EBL	175	414	EBL	18	20	0.4	22	21	0.1	15	15	0.0	30	29	0.2	20	21	0.2
2	104	76th St & Kearney St	2EBT	104EBT	175	427	EBT	25	26	0.1	40	41	0.2	96	96	0.0	83	85	0.2	110	110	0.0
2	104	76th St & Kearney St	2EBR	104EBR	175	413	EBR	87	86	0.1	69	71	0.2	20	20	0.1	73	74	0.1	16	17	0.4
2	104	76th St & Kearney St	2NBT	104NBT	136	414	NBT	92	91	0.1	164	162	0.1	219	219	0.0	126	126	0.0	121	121	0.0
2	104	76th St & Kearney St	2NBR	104NBR	136	427	NBR	81	83	0.3	84	84	0.0	97	98	0.1	90	92	0.2	87	87	0.0
2	104	76th St & Kearney St	2SBL	104SBL	135	427	SBL	44	44	0.0	46	47	0.1	81	79	0.3	55	55	0.0	48	49	0.1
2	104	76th St & Kearney St	2SBT	104SBT	135	413	SBT	133	131	0.2	162	157	0.4	227	226	0.1	335	330	0.3	215	219	0.3
3	105	70th St & O'Connor St (I-94 WB Entr Ramp)	3NBL	105NBL	156	128	NBL	233	233	0.0	325	326	0.1	519	515	0.2	499	502	0.1	288	294	0.3
3	105	70th St & O'Connor St (I-94 WB Entr Ramp)	3NBT	105NBT	156	79	NBT	91	93	0.2	142	139	0.3	184	180	0.3	281	274	0.4	229	237	0.5
3	105	70th St & O'Connor St (I-94 WB Entr Ramp)	3WBL	105WBL	75	419	WBL	227	221	0.4	195	197	0.1	222	217	0.3	222	217	0.3	225	240	1.0
3	105	70th St & O'Connor St (I-94 WB Entr Ramp)	3WBT	105WBT	75	128	WBT	179	174	0.4	226	217	0.6	238	235	0.2	286	276	0.6	244	259	0.9
3	105	70th St & O'Connor St (I-94 WB Entr Ramp)	3WBR	105WBR	75	79	WBR	13	13	0.0	15	14	0.3	6	7	0.5	11	9	0.6	19	20	0.2
3	105	70th St & O'Connor St (I-94 WB Entr Ramp)	3SBT	105SBT	194	419	SBT	79	79	0.0	67	68	0.1	106	105	0.1	91	91	0.0	78	78	0.0
3	105	70th St & O'Connor St (I-94 WB Entr Ramp)	3SBR	105SBR	194	128	SBR	33	31	0.3	33	34	0.2	28	28	0.0	39	39	0.1	39	41	0.4
4	106	70th St & Kearney St (I-94 EB Exit Ramp)	4EBL	106EBL	133	156	EBL	43	46	0.5	73	73	0.0	111	107	0.4	188	183	0.4	160	166	0.5
4	106	70th St & Kearney St (I-94 EB Exit Ramp)	4EBT	106EBT	133	141	EBT	248	249	0.0	267	269	0.1	407	402	0.3	518	525	0.3	434	435	0.0
4	106	70th St & Kearney St (I-94 EB Exit Ramp)	4EBR	106EBR	133	153	EBR	209	208	0.0	270	267	0.2	336	332	0.2	472	463	0.4	321	336	0.8
4	106	70th St & Kearney St (I-94 EB Exit Ramp)	4NBT	106NBT	231	156	NBT	281	280	0.1	394	393	0.0	592	590	0.1	592	594	0.1	357	362	0.3
4	106	70th St & Kearney St (I-94 EB Exit Ramp)	4NBR	106NBR	231	141	NBR	256	258	0.1	238	238	0.0	406	401	0.2	379	381	0.1	263	266	0.2
4	106	70th St & Kearney St (I-94 EB Exit Ramp)	4SBL	106SBL	419	141	SBL	20	20	0.1	16	15	0.2	18	17	0.1	16	15	0.2	18	17	0.1
4	106	70th St & Kearney St (I-94 EB Exit Ramp)	4SBT	106SBT	419	153	SBT	286	281	0.3	246	249	0.2	310	305	0.3	297	293	0.2	285	300	0.9
5	107	68th St & O'Connor St (I-94 WB Exit Ramp)	5NBL	107NBL	161	75	NBL	21	21	0.0	28	27	0.1	26	26	0.1	27	27	0.1	24	24	0.0
5	107	68th St & O'Connor St (I-94 WB Exit Ramp)	5NBT	107NBT	16	17	NBT	187	184	0.2	205	208	0.2	346	341	0.3	441	447	0.3	289	290	0.1
5	107	68th St & O'Connor St (I-94 WB Exit Ramp)	5WBL	107WBL	165	20	WBL	38	32	0.9	43	43	0.0	35	27	1.4	39	41	0.3	43	41	0.3
5	107	68th St & O'Connor St (I-94 WB Exit Ramp)	5WBT	107WBT	165	75	WBT	257	247	0.7	271	261	0.6	237	231	0.4	257	242	0.9	286	316	1.8
5	107	68th St & O'Connor St (I-94 WB Exit Ramp)	5WBR	107WBR	165	17	WBR	95	99	0.4	86	79	0.7	68	65	0.3	64	56	1.0	91	107	1.6
5	107	68th St & O'Connor St (I-94 WB Exit Ramp)	5SBT	107SBT	455	20,162	SBT	131	131	0.0	197	197	0.0	225	224	0.1	214	216	0.1	210	209	0.0
5	107	68th St & O'Connor St (I-94 WB Exit Ramp)	5SBR	107SBR	455	75	SBR	141	143	0.2	137	137	0.0	203	203	0.0	235	234	0.1	178	179	0.1
6	108	68th St & Kearney St (I-94 EB Entr Ramp)	6EBL	108EBL	141	16	EBL	151	148	0.3	161	163	0.2	277	272	0.3	361	366	0.3	245	246	0.0
6	108	68th St & Kearney St (I-94 EB Entr Ramp)	6EBT	108EBT	141	142	EBT	349	348	0.1	329	330	0.1	489	479	0.5	485	493	0.4	408	412	0.2
6	108	68th St & Kearney St (I-94 EB Entr Ramp)	6EBR	108EBR	141	15	EBR	24	24	0.0	31	32	0.2	65	64	0.1	67	66	0.1	62	64	0.3
6	108	68th St & Kearney St (I-94 EB Entr Ramp)	6NBT	108NBT	412	161,16	NBT	57	57	0.0	72	72	0.0	95	95	0.0	107	108	0.1	68	68	0.0
6	108	68th St & Kearney St (I-94 EB Entr Ramp)	6NBR	108NBR	412	142	NBR	35	34	0.2	37	38	0.1	63	65	0.3	60	61	0.1	33	35	0.3
6	108	68th St & Kearney St (I-94 EB Entr Ramp)	6SBL	108SBL	162	142	SBL	96	94	0.2	134	132	0.2	148	146	0.2	125	126	0.1	139	136	0.3
6	108	68th St & Kearney St (I-94 EB Entr Ramp)	6SBT	108SBT	20	15	SBT	73	69	0.4	106	108	0.2	112	105	0.6	128	130	0.2	114	114	0.0
7	120	Hawley Rd & I-94 WB Ramps	7EBL	120EBL	196	205	EBL	39	38	0.1	33	32	0.2	30	30	0.0	26	19	1.3	31	36	0.8
7	120	Hawley Rd & I-94 WB Ramps	7EBR	120EBR	196	203	EBR	171	167	0.3	117	119	0.2	90	89	0.1	94	92	0.2	129	131	0.2
7	120	Hawley Rd & I-94 WB Ramps	7NBL	120NBL	184	200	NBL	209	206	0.2	307	307	0.0	395	391	0.2	329	330	0.1	183	185	0.1
7	120	Hawley Rd & I-94 WB Ramps	7NBT	120NBT	184	205	NBT	366	367	0.1	459	455	0.2	551	548	0.1	626	632	0.3	467	470	0.2
7	120	Hawley Rd & I-94 WB Ramps	7SBT	120SBT	582	203	SBT	420	423	0.2	482	481	0.1	590	589	0.1	693	691	0.1	474	474	0.0
7	120	Hawley Rd & I-94 WB Ramps	7SBR	120SBR	582	200	SBR	121	121	0.0	173	174	0.1	205	201	0.2	221	217	0.2	157	156	0.1
8	54	Hawley Rd & I-94 EB Exit Ramp	8EBL	54EBL	682	184	EBL	87	87	0.0	112	109	0.3	119	116	0.3	92	97	0.5	83	85	0.2
8	54	Hawley Rd & I-94 EB Exit Ramp	8EBR	54EBR	682	178	EBR	183	183	0.0	208	205	0.2	231	230	0.0	108	114	0.5	127	125	0.2
8	54	Hawley Rd & I-94 EB Exit Ramp	8NBT	54NBT	216	184	NBT	488	487	0.1	654	653	0.1	827	826	0.0	863	863	0.0	567	569	0.1
8	54	Hawley Rd & I-94 EB Exit Ramp	8SBT	54SBT	203	178,185	SBT	591	590	0.0	599	599	0.0	680	678	0.1	787	782	0.2	603	605	0.1
9	121	Hawley Rd & I-94 EB Entr Ramp	9NBT	121NBT	670	216	NBT	488	487	0.0	654	653	0.1	827	826	0.0	863	863	0.0	567	569	0.1
9	121	Hawley Rd & I-94 EB Entr Ramp	9NBR	121NBR	187	179	NBR	218	217	0.0	265	262	0.2	240	244	0.3	238	234	0.2	212	211	0.1
9	121	Hawley Rd & I-94 EB Entr Ramp	9SBL	121SBL	185	179	SBL	72	74	0.2	75	74	0.1	80	79	0.1	102	101	0.1	88	85	0.4
9	121	Hawley Rd & I-94 EB Entr Ramp	9SBT	121SBT	178	191	SBT	702	699	0.1	732	728	0.1	831	830	0.0	793	795	0.1	642	645	0.1
10	109	Gen Mitchell Blvd & I-94 WB Exit Ramp	10NBT	109NBT	217	195	NBT	63	63	0.1	88	84	0.4	119	120	0.1	122	123	0.1	53	50	0.4
10	109	Gen Mitchell Blvd & I-94 WB Exit Ramp	10WBL	109WBL	223	433,212	WBL	21	8	2.9	24	14	2.0	16	8	2.0	25	15	2.1	6	9	1.2
10	109	Gen Mitchell Blvd & I-94 WB Exit Ramp	10WBR	109WBR	223	195	WBR	49	48	0.1	26	24	0.4	24	18	1.2	35	37	0.4	44	44	0.0
10	109	Gen Mitchell Blvd & I-94 WB Exit Ramp	10SBT	109SBT	587	433,212	SBT	65	63	0.3	73	72	0.1	141	141	0.0	266	267	0.0	262	263	0.1
11	110	Gen Mitchell Blvd & I-94 EB Ramps/WB Entr Ramp	11EBL	110EBL	681	217	EBL	30	30	0.1	26	23	0.6	28	27	0.1	29	28	0.1	20	17	0.7
11	110	Gen Mitchell Blvd & I-94 EB Ramps/WB Entr Ramp	11EBT	110EBT	681	435	EBT	0	0	0.0	0	0	0.0	0	0	0.0	0	0	0.0	0	0	0.0
11	110	Gen Mitchell Blvd & I-94 EB Ramps/WB Entr Ramp	11EBR	110EBR	681	214	EBR	70	79	1.1	54	66	1.7	52	66	1.9	111	118	0.7	55	71	2.2
11	110	Gen Mitchell Blvd & I-94 EB Ramps/WB Entr Ramp	11NBL	110NBL	438	215	NBL	76	75	0.1	151	153	0.1	283	274	0.5	251	253	0.2	32	35	0.5
11	110	Gen Mitchell Blvd & I-94 EB Ramps/WB Entr Ramp	11NBT	110NBT	213	217	NBT	33	33	0.0	62	62	0.1	91	92	0.1	93	94	0.1	33	33	0.0
11	110	Gen Mitchell Blvd & I-94 EB Ramps/WB Entr Ramp	11NBR	110NBR	213	435	NBR	31	41	1.7	63	77	1.7	77	96	2.1	42	57	2.3	18	24	1.3
11	110	Gen Mitchell Blvd & I-94 EB Ramps/WB Entr Ramp	11SBL	110SBL	433	435	SBL	29	15	2.5	27	18	1.8	43	35	1.2	98	92	0.6	132	129	0.3
11	110	Gen Mitchell Blvd & I-94 EB Ramps/WB Entr Ramp	11SBT	110SBT	212	214	SBT	43	42	0.1	51	51	0.0	57	57	0.0	144	139	0.4	128	135	0.6
11	110	Gen Mitchell Blvd & I-94 EB Ramps/WB Entr Ramp	11SBR	110SBR	212	215	SBR	14	13	0.3	19	18	0.2	57	57	0.0	49	50	0.1	8	9	0.3
28	140	Canal St & Miller Park Way SB Ramps	28EBL	140EBL	669	263	EBL	0	0	0.0	1	1	0.4	1	1	0.4	0	0	0.0	0	0	0.0
28	140	Canal St & Miller Park Way SB Ramps	28EBT	140EBT	669	330	EBT	44	45	0.2	55	55	0.1	86	86	0.0	124	126	0.1	51	53	0.3
28	140	Canal St & Miller Park Way SB Ramps	28EBR	140EBR	669	257	EBR	24	24	0.1	17	18	0.2	25	25	0.0	37	36	0.1	25	25	0.0
28	140	Canal St & Miller Park Way SB Ramps	28NBL	140NBL	10093	291	NBL	7	8	0.5	8	8	0.1	28	24	0.8	11	8	0.8	25	26	0.3
28	140	Canal St & Miller Park Way SB Ramps	28NBT	140NBT	10093	263	NBT	2	2	0.1	0	0	0.0	4	3	0.4	6	5	0.4	5	6	0.6
28	140	Canal St & Miller Park Way SB Ramps	28NBR	140NBR	10093	330	NBR	131	121	0.9	127	120	0.6	188	169	1.4	333	297	1.9	240	249	0.6
28	140	Canal St & Miller Park Way SB Ramps	28WBL	140WBL	88	257	WBL	172	168	0.3	318	302	0.9	406	380	1.3	458	450	0.4	224	230	0.4
28	140	Canal St & Miller Park Way SB Ramps	28WBT	140WBT	88	291	WBT	25	28	0.5	22	24	0.4	38	38	0.1	166	163	0.3	47	57	1.4
28	140	Canal St & Miller Park Way SB Ramps	28WBR	140WBR	88	263	WBR	1	1	0.1	1	1	0.0	4	3	0.4	1	1	0.3	1	1	0.1
28	140	Canal St & Miller Park Way SB Ramps	28SBL	140SBL	264	330	SBL	3	3	0.2	2	3	0.5	2	2	0.2	11	11	0.1	2	3	0.7
28	140	Canal St & Miller Park Way SB Ramps	28SBT	140SBT	264	257	SBT	4	4	0.0	5	5	0.2	9	9	0.0	5	5	0.1	6	7	0.3
28	140	Canal St & Miller Park Way SB Ramps	28SBR	140SBR	264	291	SBR	2	2	0.1	3	3	0.0	3	3	0.2	19	19	0.1	3	3	0.2
33	153	Wells St & WIS 175 SB Exit Ramp (46th St)	33EBT	153EBT	593	247	EBT	43	51	1.2	61	68	1.0	106	109	0.2	156	158	0.1	115	117	0.2
33	153	Wells St & WIS 175 SB Exit Ramp (46th St)	33EBR	153EBR	593	312	EBR	50	44	0.8	43	36	1.1	31	27	0.7	68	65	0.4	68	67	0.1
33	153	Wells St & WIS 175 SB Exit Ramp (46th St)	33WBL	153WBL	250	312	WBL	12	14	0.5	9	11	0.7	57	28	2.1	58	17	2.1	51	26	2.1
33	153	Wells St & WIS 175 SB Exit Ramp (46th St)	33WBT	153WBT	250	225	WBT	16	18	0.8	50	44	0.9	48	46	0.2	78	76	0.2	60	61	0.2
33	153	Wells St & WIS 175 SB Exit Ramp (46th St)	33SBL	153SBL	319	247	SBL	2	2	0.0	63	51	1.5	74	74	0.0	61	60	0.1	54	55	0.1
33	153	Wells St & WIS 175 SB Exit Ramp (46th St)	33SBT	153SBT	319	312	SBT	51	51	0.0	99	101	0.2	108	109	0.1	77	78	0.1	72	73	0.1
33	153	Wells St & WIS 175 SB Exit Ramp (46th St)	33SBR	153SBR	319	225	SBR	47	46	0.1	53	48	0.7	78	77	0.1	102	102	0.0	94	95	0.1
30	155	Wisconsin Ave & 46th St (WIS 175 SB Entr Ramp)	30EBT	155EBT	590	313	EBT	216	215	0.1	273	276	0.2	343	343	0.0	447	449	0.1	494	495	0.0
30	155	Wisconsin Ave & 46th St (WIS 175 SB Entr Ramp)	30EBR	155EBR	590	314	EBR	131	129	0.2	107	109	0.2	148	149	0.0	183	181	0.1	153	154	0.1
30	155	Wisconsin Ave & 46th St (WIS 175 SB Entr Ramp)	30WBL	155WBL	318	314	WBL	64	67	0.3	133	128	0.4	224	220	0.2	293	288	0.3	156	159	0.2
30	155	Wisconsin Ave & 46th St (WIS 175 SB Entr Ramp)	30WBT	155WBT	318	316	WBT	223	218	0.3	240	237	0.2	338	347	0.5	440	457	0.8	405	437	1.6
30	155	Wisconsin Ave & 46th St (WIS 175 SB Entr Ramp)	30SBL	155SBL	312	313	SBL	48	41	1.0	63	60	0.4	102	88	1.4	115	98	1.6	81	76	0.5
30	155	Wisconsin Ave & 46th St (WIS 175 SB Entr Ramp)	30SBT	155SBT	312	314	SBT	15	16	0.3	25	26	0.1	23	21	0.4	29	26	0.6	46	44	0.3
30	155	Wisconsin Ave & 46th St (WIS 175 SB Entr Ramp)	30SBR	155SBR	312	316	SBR	50	51	0.1	63	62	0.2	71	54	2.0	59	36	2.1	64	46	2.3
27	139	Miller Park Way & National Ave	27EBL	139EBL	610	484	EBL	276	274	0.1	359	352	0.4	281	282	0.1	322	321	0.1	247	247	0.0
27	139	Miller Park Way & National Ave	27EBT	139EBT	610	478	EBT	154	155	0.1	171	169	0.2	102	108	0.6	192	194	0.1	196	196	0.0
27	139	Miller Park Way & National Ave	27EBR	139EBR	610	482	EBR	11	11	0.0	8	8	0.1	33	33	0.0	47	47	0.1	25	25	0.0
27	139	Miller Park Way & National Ave	27NBL	139NBL	609	481	NBL	59	59	0.0	62	62	0.0	63	65	0.2	111	106	0.5	71	78	0.8
27	139	Miller Park Way & National Ave	27NBT	139NBT	609	484	NBT	1261	1247	0.4	1344	1362	0.5	1456	1418	1.0	1514	1462	1.3	1245	1318	2.1
27	139	Miller Park Way & National Ave	27NBR	139NBR	609	478	NBR	88	89	0.1	76	77	0.1	71	71	0.0	101	98	0.3	74	79	0.5
27	139	Miller Park Way & National Ave	27WBL	139WBL	612	482	WBL	58	58	0.0	110	109	0.1	145	147	0.1	117	121	0.4	81	82	0.1
27	139	Miller Park Way & National Ave	27WBT	139WBT	612	481	WBT	239	238	0.0	297	297	0.0	351	360	0.5	326	334	0.4	256	258	0.1
27	139	Miller Park Way & National Ave	27WBR	139WBR	612	484	WBR	263	262	0.1	297	290	0.4	433	420	0.6	469	467	0.1	328	331	0.1
27	139	Miller Park Way & National Ave	27SBL	139SBL	124	478	SBL	179	177	0.1	167	164	0.2	180	178	0.2	268	229	2.4	196	226	2.2
27	139	Miller Park Way & National Ave	27SBT	139SBT	124	482	SBT	1272	1255	0.5	1261	1287	0.7	1554	1506	1.2	1414	1419	0.1	1058	1044	0.4
27	139	Miller Park Way & National Ave	27SBR	139SBR	124	481	SBR	419	415	0.2	687	655	1.2	686	669	0.6	608	611	0.1	441	425	0.8
34	154	Wells St & 45th Pl (WIS 175 NB Entr Ramp)	34EBL	154EBL	247	317	EBL	22	24	0.5	60	57	0.4	78	79	0.1	94	94	0.0	51	52	0.1
34	154	Wells St & 45th Pl (WIS 175 NB Entr Ramp)	34EBT	154EBT	247	248	EBT	23	28	1.1	64	62	0.2	102	104	0.2	123	123	0.0	118	119	0.1
34	154	Wells St & 45th Pl (WIS 175 NB Entr Ramp)	34NBL	154NBL	304	250	NBL	2	4	1.3	11	10	0.4	66	35	2.1	110	68	2.1	75	52	2.6
34	154	Wells St & 45th Pl (WIS 175 NB Entr Ramp)	34NBT	154NBT	304	317	NBT	44	31	1.9	81	82	0.1	128	128	0.0	133	132	0.1	87	91	0.4
34	154	Wells St & 45th Pl (WIS 175 NB Entr Ramp)	34NBR	154NBR	304	248	NBR	3	7	2.5	3	4	0.7	43	18	2.1	80	37	2.1	83	43	2.1
34	154	Wells St & 45th Pl (WIS 175 NB Entr Ramp)	34WBT	154WBT	306	250	WBT	26	29	0.5	48	45	0.5	39	40	0.1	26	25	0.2	36	35	0.1
34	154	Wells St & 45th Pl (WIS 175 NB Entr Ramp)	34WBR	154WBR	306	317	WBR	24	26	0.3	19	25	1.3	34	35	0.1	43	41	0.3	37	37	0.0
31	156	Wisconsin Ave & WIS 175 NB Exit Ramp (45th Pl)	31EBL	156EBL	313	304	EBL	2	5	2.4	6	11	2.2	35	37	0.4	59	55	0.6	50	50	0.1
31	156	Wisconsin Ave & WIS 175 NB Exit Ramp (45th Pl)	31EBT	156EBT	313	272	EBT	262	250	0.7	330	325	0.3	410	394	0.8	503	491	0.5	525	521	0.2
31	156	Wisconsin Ave & WIS 175 NB Exit Ramp (45th Pl)	31NBL	156NBL	294	318	NBL	95	92	0.3	132	126	0.5	133	125	0.7	123	116	0.6	82	95	1.4
31	156	Wisconsin Ave & WIS 175 NB Exit Ramp (45th Pl)	31NBT	156NBT	294	304	NBT	18	7	2.5	31	10	2.1	28	14	2.6	34	20	2.4	40	16	2.1
31	156	Wisconsin Ave & WIS 175 NB Exit Ramp (45th Pl)	31NBR	156NBR	294	272	NBR	107	108	0.1	152	148	0.3	184	190	0.5	193	200	0.5	133	165	2.8
31	156	Wisconsin Ave & WIS 175 NB Exit Ramp (45th Pl)	31WBT	156WBT	302	318	WBT	192	193	0.1	241	240	0.1	429	444	0.7	610	629	0.8	479	499	0.9
31	156	Wisconsin Ave & WIS 175 NB Exit Ramp (45th Pl)	31WBR	156WBR	307	304	WBR	29	30	0.2	58	74	2.1	174	131	2.1	230	165	2.1	155	116	2.1

FINAL

2/5/2021

I-94 East-West Data Collection Project

Existing (2019) PM Peak Period Validation

Intersection Turning Movement Volumes

Intersections							Existing PM Peak Period Hourly Vols (1:30-6:30PM)														
							1:30-2:30PM			2:30-3:30PM (Peak)			3:30-4:30PM			4:30-5:30PM			5:30-6:30PM		
Forecast ID	Node	Int Name	FID Turn	Node Turn	From Link	To Link	Mvmt	Target	VISSIM	RNSE	Target	VISSIM	RNSE	Target	VISSIM	RNSE	Target	VISSIM	RNSE	Target	VISSIM	RNSE
29	141	Canal St & Miller Park Way NB Ramps	29EBL	141EBL	258	83	EBL	5	6	0.6	4	4	0.1	1	3	1.9	7	8	0.5	1	2	1.0
29	141	Canal St & Miller Park Way NB Ramps	29EBT	141EBT	241	244	EBT	137	129	0.7	133	131	0.2	215	198	1.1	347	319	1.5	249	271	1.4
29	141	Canal St & Miller Park Way NB Ramps	29EBR	141EBR	241	675	EBR	36	34	0.3	47	42	0.8	60	55	0.6	114	101	1.3	43	39	0.6
29	141	Canal St & Miller Park Way NB Ramps	29NBL	141NBL	677	88	NBL	15	14	0.2	20	14	1.4	34	23	1.9	46	40	0.9	19	21	0.4
29	141	Canal St & Miller Park Way NB Ramps	29NBT	141NBT	677	83	NBT	6	6	0.0	8	8	0.0	7	7	0.2	9	8	0.5	9	10	0.3
29	141	Canal St & Miller Park Way NB Ramps	29NBR	141NBR	677	244	NBR	134	134	0.0	147	148	0.1	159	158	0.1	295	274	1.2	247	268	1.4
29	141	Canal St & Miller Park Way NB Ramps	29WBL	141WBL	117	675	WBL	72	71	0.1	190	185	0.4	330	318	0.7	423	411	0.6	193	194	0.1
29	141	Canal St & Miller Park Way NB Ramps	29WBT	141WBT	117	88	WBT	157	156	0.1	310	304	0.3	404	391	0.6	560	554	0.3	246	255	0.6
29	141	Canal St & Miller Park Way NB Ramps	29WBR	141WBR	117	83	WBR	2	1	0.4	1	0	0.9	1	0	1.0	1	0	1.0	1	0	1.0
29	141	Canal St & Miller Park Way NB Ramps	29SBL	141SBL	232	244	SBL	1	1	0.0	1	1	0.0	1	1	0.0	0	0	0.0	0	0	0.0
29	141	Canal St & Miller Park Way NB Ramps	29SBT	141SBT	232	675	SBT	7	7	0.1	8	7	0.3	0	0	0.0	8	8	0.1	9	9	0.0
29	141	Canal St & Miller Park Way NB Ramps	29SBR	141SBR	232	88	SBR	26	26	0.1	11	11	0.1	10	10	0.0	19	19	0.1	7	7	0.1
32	157	Wisconsin Ave & Bluemound Rd (45th St)	32EBT	157EBT	272	323	EBT	340	342	0.1	438	434	0.2	497	502	0.2	625	627	0.1	625	629	0.2
32	157	Wisconsin Ave & Bluemound Rd (45th St)	32EBR	157EBR	272	301	EBR	29	16	2.4	44	39	0.8	97	82	1.5	71	63	0.9	33	56	3.2
32	157	Wisconsin Ave & Bluemound Rd (45th St)	32NBR	157NBR	303	323	NBR	37	37	0.1	82	80	0.2	160	156	0.3	225	219	0.4	210	210	0.0
32	157	Wisconsin Ave & Bluemound Rd (45th St)	32WBL	157WBL	300	301	WBL	106	109	0.3	200	202	0.2	546	573	1.2	537	581	1.9	327	351	1.4
32	157	Wisconsin Ave & Bluemound Rd (45th St)	32WBT	157WBT	596	302,307	WBT	221	223	0.2	299	314	0.9	603	575	1.2	840	794	1.6	634	614	0.8
13	158	36th St & Park Hill Ave	13WBL	158WBL	119	348	WBL	291	302	0.6	422	439	0.8	425	443	0.9	435	452	0.8	345	359	0.8
13	158	36th St & Park Hill Ave	13WBT	158WBT	119	349	WBT	20	21	0.2	38	31	1.1	40	39	0.2	38	36	0.3	18	21	0.6
13	158	36th St & Park Hill Ave	13SBT	158SBT	629	348	SBT	19	18	0.2	18	18	0.0	15	15	0.0	15	15	0.1	15	14	0.3
13	158	36th St & Park Hill Ave	13SBR	158SBR	629	349	SBR	4	4	0.1	4	4	0.1	7	7	0.1	10	10	0.0	3	3	0.1
14	159	35th St & Park Hill Ave	14NBL	159NBL	219	119	NBL	138	138	0.0	172	174	0.2	181	187	0.4	193	196	0.2	179	181	0.2
14	159	35th St & Park Hill Ave	14NBT	159NBT	219	123	NBT	436	452	0.8	523	534	0.5	515	528	0.6	453	472	0.9	397	413	0.8
14	159	35th St & Park Hill Ave	14WBL	159WBL	340	239	WBL	199	192	0.5	246	239	0.5	220	210	0.7	243	220	1.5	174	199	1.9
14	159	35th St & Park Hill Ave	14WBT	159WBT	340	119	WBT	63	69	0.8	131	134	0.3	154	158	0.3	163	167	0.3	96	99	0.3
14	159	35th St & Park Hill Ave	14WBR	159WBR	121	123	WBR	78	66	1.4	150	128	1.8	93	80	1.4	86	68	1.9	68	65	0.3
14	159	35th St & Park Hill Ave	14SBT	159SBT	630	239	SBT	541	533	0.3	675	660	0.6	811	805	0.2	941	940	0.0	647	643	0.2
14	159	35th St & Park Hill Ave	14SBR	159SBR	630	119	SBR	110	115	0.5	157	161	0.3	130	137	0.6	117	125	0.8	88	100	1.2
16	160	35th St & I-94 EB Ramps	16EBL	160EBL	341	219	EBL	97	96	0.1	161	150	0.8	105	101	0.4	73	76	0.3	95	92	0.3
16	160	35th St & I-94 EB Ramps	16EBT	160EBT	341	346	EBT	0	0	0.0	0	0	0.0	0	0	0.0	0	0	0.0	0	0	0.0
16	160	35th St & I-94 EB Ramps	16EBR	160EBR	341	230	EBR	283	268	0.9	379	375	0.2	315	324	0.5	267	268	0.0	225	234	0.6
16	160	35th St & I-94 EB Ramps	16NBT	160NBT	634	219	NBT	477	494	0.8	534	560	1.1	591	613	0.9	573	591	0.8	481	502	1.0
16	160	35th St & I-94 EB Ramps	16NBR	160NBR	634	346	NBR	194	177	1.2	236	211	1.6	333	312	1.1	309	292	1.0	233	213	1.3
16	160	35th St & I-94 EB Ramps	16SBL	160SBL	239	346	SBL	136	123	1.1	194	179	1.1	197	187	0.7	261	251	0.6	242	227	1.0
16	160	35th St & I-94 EB Ramps	16SBT	160SBT	239	230	SBT	604	601	0.1	727	724	0.1	834	831	0.1	923	908	0.5	579	611	1.3
15	68	34th St & Park Hill Ave	15NBL	68NBL	679	340,121	NBL	240	226	0.9	350	323	1.5	260	240	1.3	290	253	2.2	250	276	1.7
15	68	34th St & Park Hill Ave	15WBT	68WBT	633	340,121	WBT	100	100	0.0	177	178	0.1	207	208	0.1	202	203	0.1	88	88	0.0
15	68	34th St & Park Hill Ave	15WBR	68WBR	633	355	WBR	8	9	0.2	5	4	0.3	7	7	0.1	5	5	0.1	10	10	0.1
17	72	28th St & Clybourn St	17EBL	72EBL	638	406	EBL	0	0	0.0	0	0	0.0	3	4	0.8	0	3	0.0	0	1	0.0
17	72	28th St & Clybourn St	17EBT	72EBT	638	411	EBT	71	59	1.4	77	75	0.2	108	108	0.0	136	133	0.3	54	54	0.0
17	72	28th St & Clybourn St	17EBR	72EBR	638	379	EBR	3	4	0.5	4	3	0.4	4	4	0.2	2	2	0.2	2	2	0.2
17	72	28th St & Clybourn St	17WBL	72WBL	380	379	WBL	19	18	0.1	26	23	0.5	41	39	0.4	76	73	0.3	43	44	0.2
17	72	28th St & Clybourn St	17WBT	72WBT	380	402	WBT	71	67	0.5	154	148	0.5	102	105	0.3	62	60	0.3	83	85	0.2
17	72	28th St & Clybourn St	17WBR	72WBR	380	406	WBR	0	0	0.0	2	2	0.1	7	6	0.3	26	22	0.9	3	3	0.2
17	72	28th St & Clybourn St	17SBL	72SBL	640	411	SBL	3	1	1.2	4	4	0.1	0	0	0.0	0	0	0.0	0	0	0.0
17	72	28th St & Clybourn St	17SBT	72SBT	640	379	SBT	15	15	0.1	6	6	0.1	9	9	0.1	4	4	0.1	14	14	0.1
17	72	28th St & Clybourn St	17SBR	72SBR	640	402	SBR	9	9	0.0	4	4	0.0	15	15	0.1	6	5	0.2	3	3	0.2
23	69	28th St & St Paul Ave (I-94 WB Entr Ramp)	23EBT	69EBT	256	360	EBT	61	66	0.7	102	107	0.5	88	97	1.0	80	87	0.8	54	56	0.3
23	69	28th St & St Paul Ave (I-94 WB Entr Ramp)	23EBR	69EBR	256	403	EBR	15	9	1.6	16	9	1.8	16	8	2.0	7	4	1.3	9	5	1.2
23	69	28th St & St Paul Ave (I-94 WB Entr Ramp)	23WBL	69WBL	280	403	WBL	576	535	1.7	545	501	1.9	454	422	1.5	535	499	1.6	527	495	1.4
23	69	28th St & St Paul Ave (I-94 WB Entr Ramp)	23WBT	69WBT	280	399	WBT	84	84	0.0	129	124	0.4	146	145	0.1	119	119	0.0	96	96	0.0
23	69	28th St & St Paul Ave (I-94 WB Entr Ramp)	23SBL	69SBL	379	360	SBL	0	2	0.0	3	4	0.7	3	5	0.9	9	10	0.2	9	9	0.0
23	69	28th St & St Paul Ave (I-94 WB Entr Ramp)	23SBT	69SBT	379	403	SBT	29	26	0.6	29	25	0.7	40	36	0.7	58	57	0.2	44	40	0.7
23	69	28th St & St Paul Ave (I-94 WB Entr Ramp)	23SBR	69SBR	379	399	SBR	8	8	0.1	4	4	0.1	11	11	0.0	15	14	0.2	6	7	0.2
18	73	27th St & Clybourn St	18EBL	73EBL	411	397	EBL	4	4	0.1	15	14	0.2	20	20	0.0	35	35	0.1	8	9	0.4
18	73	27th St & Clybourn St	18EBT	73EBT	411	400	EBT	63	52	1.4	58	28	4.2	67	50	2.1	92	74	1.9	39	27	1.9
18	73	27th St & Clybourn St	18EBR	73EBR	411	393	EBR	7	3	1.6	8	37	4.8	21	38	4.8	9	23	4.2	7	19	4.2
18	73	27th St & Clybourn St	18NBL	73NBL	378	380	NBL	23	23	0.1	28	32	0.8	49	51	0.3	26	30	0.7	10	14	1.3
18	73	27th St & Clybourn St	18NBT	73NBT	378	397	NBT	478	451	1.2	508	466	1.9	566	517	2.1	617	558	2.4	490	452	1.7
18	73	27th St & Clybourn St	18NBR	73NBR	378	400	NBR	23	18	1.0	48	38	1.9	49	37	1.8	17	16	0.3	7	6	0.4
18	73	27th St & Clybourn St	18WBL	73WBL	365	393	WBL	263	213	3.4	316	254	3.5	442	397	2.1	472	434	1.7	276	233	2.6
18	73	27th St & Clybourn St	18WBT	73WBT	365	380	WBT	60	56	0.6	141	129	1.0	86	85	0.2	122	110	1.1	109	107	0.2
18	73	27th St & Clybourn St	18WBR	73WBR	365	397	WBR	45	63	2.7	116	153	4.8	129	173	4.2	139	198	4.8	100	146	4.8
18	73	27th St & Clybourn St	18SBL	73SBL	642	400	SBL	8	18	4.8	14	8	1.6	9	17	2.6	20	31	2.6	21	36	4.8
18	73	27th St & Clybourn St	18SBT	73SBT	642	393	SBT	480	463	0.8	580	562	0.7	584	577	0.3	630	617	0.5	512	499	0.6
18	73	27th St & Clybourn St	18SBR	73SBR	642	380	SBR	7	7	0.1	13	12	0.2	15	15	0.0	16	16	0.1	10	10	0.1
24	152	27th St & St Paul Ave	24EBL	152EBL	360	378	EBL	5	6	0.5	14	14	0.0	10	11	0.4	12	13	0.2	7	7	0.1
24	152	27th St & St Paul Ave	24EBT	152EBT	360	283	EBT	30	37	1.3	40	45	0.8	47	56	1.4	50	54	0.6	30	32	0.4
24	152	27th St & St Paul Ave	24EBR	152EBR	360	395	EBR	26	26	0.1	51	50	0.1	34	35	0.2	27	29	0.5	26	26	0.0
24	152	27th St & St Paul Ave	24NBL	152NBL	654	280	NBL	189	187	0.1	177	178	0.1	177	176	0.1	169	167	0.1	198	196	0.1
24	152	27th St & St Paul Ave	24NBT	152NBT	654	378	NBT	449	443	0.3	475	463	0.6	567	556	0.4	555	556	0.1	432	431	0.0
24	152	27th St & St Paul Ave	24NBR	152NBR	654	283	NBR	180	186	0.4	192	202	0.7	251	259	0.5	255	257	0.1	204	206	0.1
24	152	27th St & St Paul Ave	24WBL	152WBL	284	395	WBL	235	224	0.7	340	313	1.5	351	337	0.7	320	305	0.9	299	298	0.0
24	152	27th St & St Paul Ave	24WBT	152WBT	284	280	WBT	240	234	0.4	295	289	0.3	235	235	0.0	294	292	0.1	257	267	0.6
24	152	27th St & St Paul Ave	24WBR	152WBR	284	378	WBR	70	42	4.8	95	55	4.8	87	40	4.8	93	32	4.8	68	33	4.8
24	152	27th St & St Paul Ave	24SBL	152SBL	393	283	SBL	66	38	4.8	79	50	4.8	64	48	2.0	78	64	1.6	104	87	1.7
24	152	27th St & St Paul Ave	24SBT	152SBT	393	395	SBT	453	444	0.4	623	643	0.8	795	804	0.3	842	854	0.4	523	542	0.8
24	152	27th St & St Paul Ave	24SBR	152SBR	393	280	SBR	231	196	2.3	202	159	4.8	188	156	2.3	191	158	2.4	168	128	4.8
19	74	26th St & Clybourn St	19EBL	74EBL	400	389	EBL	16	16	0.0	35	35	0.0	6	8	1.0	28	28	0.0	9	9	0.1
19	74	26th St & Clybourn St	19EBT	74EBT	400	363	EBT	78	83	0.5	85	60	2.8	119	96	2.1	101	94	0.7	58	60	0.3
19	74	26th St & Clybourn St	19NBL	74NBL	377	365	NBL	28	22	1.1	55	49	0.9	52	52	0.0	47	68	4.8	55	48	1.0
19	74	26th St & Clybourn St	19NBT	74NBT	377	389	NBT	38	39	0.1	40	38	0.3	46	41	0.7	25	28	0.5	26	26	0.1
19	74	26th St & Clybourn St	19NBR	74NBR	377	363	NBR	96	61	4.8	65	27	4.8	84	46	4.8	60	32	4.8	60	34	4.8
19	74	26th St & Clybourn St	19WBT	74WBT	326	365	WBT	330	302	1.5	503	473	1.3	579	578	0.0	644	631	0.5	397	407	0.5
19	74	26th St & Clybourn St	19WBR	74WBR	326	389	WBR	4	4	0.1	2	2	0.2	4	4	0.1	3	2	0.3	1	1	0.3
19	74	26th St & Clybourn St	19SBL	74SBL	644	363	SBL	6	7	0.3	8	8	0.1	3	4	0.3	5	6	0.3	4	4	0.1
19	74	26th St & Clybourn St	19SBR	74SBR	644	365	SBR	10	9	0.4	15	15	0.1	26	26	0.0	42	43	0.1	33	32	0.1
25	150	26th St & St Paul Ave (I-94 EB Exit Ramp)	25EBL	150EBL	283	377	EBL	5	0	2.2	4	0	2.0	12	0	4.8	4	0	2.0	6	0	2.4
25	150	26th St & St Paul Ave (I-94 EB Exit Ramp)	25EBT	150EBT	283	286	EBT	271	260	0.7	307	300	0.4	350	363	0.7	379	375	0.2	332	324	0.4
25	150	26th St & St Paul Ave (I-94 EB Exit Ramp)	25NBL	150NBL	358	284	NBL	111	103	0.8	84	95	1.2	65	74	1.2	53	62	1.3	52	65	1.8
25	150	26th St & St Paul Ave (I-94 EB Exit Ramp)	25NBT	150NBT	358	377	NBT	140	99	4.8	136	65	4.8	144	85	4.8	101	58	4.8	117	59	4.8
25	150	26th St & St Paul Ave (I-94 EB Exit Ramp)	25NBR	150NBR	358	286	NBR	239	246	0.4	190	211	1.5	161	172	0.9	146	155	0.7	161	172	0.8
25	150	26th St & St Paul Ave (I-94 EB Exit Ramp)	25WBT	150WBT	288	284	WBT	434	397	1.8	646	566	4.8	608	534	3.0	654	567	4.8	572	534	1.6
25	150	26th St & St Paul Ave (I-94 EB Exit Ramp)	25WBR	150WBR	288	377	WBR	17	23	1.5	20	49	4.8	26	54	4.8	27	68	4.8	18	49	4.8
20	145	25th St & Clybourn St	20EBL	145EBL	363	382	EBL	8	8	0.1	16	15	0.2	10	13	0.9	12	12	0.1	21	20	0.3
20	145	25th St & Clybourn St	20EBT	145EBT	363	353	EBT	111	108	0.3	30	36	1.1	118	111	0.7	78	81	0.4	37	37	0.0
20	145	25th St & Clybourn St	20EBR	145EBR	363	374	EBR	61	43	2.3	112	55	4.8	78	54	2.7	76	38	4.8	64	40	3.0
20	145	25th St & Clybourn St	20NBL	145NBL	387	326	NBL	105	94	1.0	191	184	0.5	161	158	0.2	182	170	0.9	142	149	0.6
20	145	25th St & Clybourn St	20NBT	145NBT	387	382	NBT	71	68	0.3	111	111	0.0	88	88	0.0	115	109	0.5	105	110	0.5
20	145	25th St & Clybourn St	20NBR	145NBR	42	353	NBR	44	42	0.3	43	44	0.1	41	38	0.5	44	43	0.2	25	29	0.9
20	145	25th St & Clybourn St	20WBL	145WBL	649	374	WBL	65	70	0.6	89	106	1.8	137	135	0.2	158	159	0.1	132	132	0.0
20	145	25th St & Clybourn St	20WBT	145WBT	649	326	WBT	216	207	0.6	303	285	1.1	408	408	0.0	460	457	0.1	248	255	0.4
20	145	25th St & Clybourn St	20WBR	145WBR	649	382	WBR	14	14	0.1	12	12	0.0	14	14	0.1	19	19	0.1	24	24	0.0
20	145	25th St & Clybourn St	20SBL	145SBL	646	353	SBL	5	5	0.0	5	5	0.1	10	11	0.2	4	4	0.0	4	4	0.0
20	145	25th St & Clybourn St	20SBT	145SBT	646	374	SBT	83	87	0.4	73	87	1.7	109	110	0.1	105	104	0.1	86	87	0.1
20	145	25th St & Clybourn St	20SBR	145SBR	646	326	SBR	13	9	1.2	11	6	1.4	14	14	0.0	5	5	0.1	8	6	0.6
21	146	25th St & I-94 WB Exit Ramp	21WBL	146WBL	689	10469	WBL	320	321	0.0	485	465	0.9	500	495	0.2	559	537	0.9	368	404	1.9
21	146	25th St & I-94 WB Exit Ramp	21WBR	146WBR	689	42,387	WBR	220	205	1.0	345	340	0.3	290	283	0.4	341	322	1.0	272	288	1.0
21	146	25th St & I-94 WB Exit Ramp	21SBT	146SBT	374	374	SBT	209	192	1.2	274	235	2.3	324	353	1.6	339	301	2.0	282	259	1.4
22	148	25th St & I-94 EB Entr Ramp	22SBL	148SBL	367	370	SBL	167	174	0.5	232	222	0.6	222	208	0.9	283	264	1.1	155	151	0.3
22	148	25th St & I-94 EB Entr Ramp	22SBT	148SBT	367	289-369	SBT	362	335	1.4	527	479	2.1	602	553	2.0	615	576	1.6	495	513	0.8
26	149	25th St & St Paul Ave	26EBL	149EBL	286	371	EBL	205	197	0.5	218	208	0.7	224	232	0.5	243	246	0.2	192	193	0.1
26	149	25th St & St Paul Ave	26EBT	149EBT	286	287	EBT	74	77	0.3	73	74	0.1	75	83	0.9	75	69	0.7	68	59	1.1
26	149	25th St & St Paul Ave	26EBR	149EBR	286	362	EBR	231	232	0.1	206	229	1.6	212	220	0.5	207	213	0.4	233	241	0.6
26	149	25th St & St Paul Ave	26NBL	149NBL	650	288	NBL	170	153	1.3	206	178	1.9	193	173	1.4	197	179	1.3	196	193	0.2
26	149	25th St & St Paul Ave	26NBT	149NBT	650	371	NBT	169	183	1.1	255	276	1.3	213	227	1.0	210	228	1.2	206	211	0.3
26	149	25th St & St Paul Ave	26NBR	149NBR	650	287	NBR	10	11	0.3	8	13	1.0	13	16	0.7	18	19	0.1	21	21	0.1
26	149	25th St & St Paul Ave	26WBL	149WBL	652	362	WBL	19	19	0.0	26	26	0.0	31	31	0.1	32	32	0.1	34	33	0.2
26	149	25th St & St Paul Ave	26WBT	149WBT	652	288	WBT	124	119	0.5	192	190	0.2	158	157	0.0	239	234	0.3	153	157	0.3
26	149	25th St & St Paul Ave	26WBR	149WBR	652	371	WBR	49	49	0.0	75	78	0.4	41	43	0.3	64	67	0.3	37	37	0.0
26	149	25th St & St Paul Ave	26SBL	149SBL	289	287	SBL	37	30	1.2	31	25	1.1	26	17	1.7	36	41	0.8	22	35	2.9
26	149	25th St & St Paul Ave	26SBT	149SBT	369	362	SBT	168	156	0.9	228	208	1.3	293	278	0.9	334	315	1.0	232	244	0.8
26	149	25th St & St Paul Ave	26SBR	149SBR	368	288	SBR	157	149	0.6	268	246	1.4	283	258	1.5	245	221	1.6	241	233	0.5

WisDOT TEOps Validation

Test	Target	1:30 PM	2:30 PM	3:30 PM	4:30 PM	5:30 PM
Tier 2	RNSE < 3 for 85% of links	97.5%	94.7%	95.5%	94.3%	96.5%

FINAL

2/5/2021

I-94 East-West Data Collection Project

Existing (2019) PM Peak Period Validation

Intersection Operations

Intersection						VISSIM					Mvmt Delay (sec/veh)					Mvmt LOS					App Delay (sec/veh)					App LOS					Int Delay (sec/veh)					Int LOS				
Node	Int Name	Ctrl Type	From Link	To Link	Mvmt	1:30-2:30 PM	2:30-3:30 PM	3:30-4:30 PM	4:30-5:30 PM	5:30-6:30 PM	1:30-2:30 PM	2:30-3:30 PM	3:30-4:30 PM	4:30-5:30 PM	5:30-6:30 PM	1:30-2:30 PM	2:30-3:30 PM	3:30-4:30 PM	4:30-5:30 PM	5:30-6:30 PM	1:30-2:30 PM	2:30-3:30 PM	3:30-4:30 PM	4:30-5:30 PM	5:30-6:30 PM	1:30-2:30 PM	2:30-3:30 PM	3:30-4:30 PM	4:30-5:30 PM	5:30-6:30 PM	1:30-2:30 PM	2:30-3:30 PM	3:30-4:30 PM	4:30-5:30 PM	5:30-6:30 PM	1:30-2:30 PM	2:30-3:30 PM	3:30-4:30 PM	4:30-5:30 PM	5:30-6:30 PM
103	76th St & O'Connor St	Signal	414	418	NBL	39	72	84	61	69	4.0	3.7	3.9	6.8	5.0	A	A	A	A	A	4.1	3.2	2.5	5.3	4.2	A	A	A	A	A										
103	76th St & O'Connor St	Signal	414	417	NBT	71	112	150	94	73	4.1	2.9	1.7	4.4	3.6	A	A	A	A	A																			
103	76th St & O'Connor St	Signal	171	135	WBL	8	12	15	11	13	7.4	7.5	9.3	9.7	8.7	A	A	A	A	A	7.2	7.5	8.5	9.0	10.6	A	A	A	A	B	11.3	9.9	10.8	14.0	12.3	B	A	B	B	B
103	76th St & O'Connor St	Signal	171	418	WBT	46	60	64	94	131	11.8	13.2	13.6	12.9	13.2	B	B	B	B	B																			
103	76th St & O'Connor St	Signal	171	417	WBR	35	53	45	48	33	1.0	0.9	1.0	1.1	0.9	A	A	A	A	A																			
103	76th St & O'Connor St	Signal	415	135	SBT	167	191	290	374	255	19.0	18.3	18.7	19.8	18.3	B	B	B	B	B	16.9	17.0	17.4	19.1	17.6	B	B	B	B	B										
103	76th St & O'Connor St	Signal	415	418	SBR	40	27	52	36	23	7.8	8.3	9.7	12.2	9.6	A	A	A	B	A																			
104	76th St & Kearney St	Signal	175	414	EBL	20	21	15	29	21	14.2	13.6	12.2	12.6	12.6	B	B	B	B	B	7.7	8.3	11.9	9.7	12.1	A	A	B	A	B	6.5	8.2	8.7	6.5	7.7	A	A	A	A	A
104	76th St & Kearney St	Signal	175	427	EBT	26	41	96	85	110	14.2	11.5	13.1	12.1	13.2	B	B	B	B	B																			
104	76th St & Kearney St	Signal	175	413	EBR	86	71	20	74	17	4.2	4.8	5.8	5.7	5.1	A	A	A	A	A																			
104	76th St & Kearney St	Signal	136	414	NBT	91	162	219	126	121	18.8	19.5	19.3	19.7	19.4	B	B	B	B	B	10.4	13.3	13.9	12.1	12.0	B	B	B	B	B										
104	76th St & Kearney St	Signal	136	427	NBR	83	84	98	92	87	1.2	1.4	1.9	1.6	1.6	A	A	A	A	A																			
104	76th St & Kearney St	Signal	135	427	SBL	44	47	79	55	49	1.7	1.6	2.1	1.9	2.4	A	A	A	A	A	1.7	2.1	1.9	1.9	1.8	A	A	A	A	A										
104	76th St & Kearney St	Signal	135	413	SBT	131	157	226	330	219	1.7	2.2	1.8	1.9	1.7	A	A	A	A	A																			
105	70th St & O'Connor St (I-94 WB Entr Ramp)	Signal	156	128	NBL	233	326	515	502	294	6.9	8.3	12.6	12.6	7.9	A	A	B	B	A	6.7	7.9	11.5	11.5	8.1	A	A	B	B	A	16.6	15.5	16.4	15.8	16.5	B	B	B	B	B
105	70th St & O'Connor St (I-94 WB Entr Ramp)	Signal	156	79	NBT	93	139	180	274	237	6.4	6.9	8.2	9.4	8.2	A	A	A	A	A																			
105	70th St & O'Connor St (I-94 WB Entr Ramp)	Signal	75	419	WBL	221	197	217	217	240	32.4	33.1	31.0	29.7	33.7	C	C	C	C	C	25.1	24.0	23.6	22.8	25.8	C	C	C	C	C										
105	70th St & O'Connor St (I-94 WB Entr Ramp)	Signal	75	128	WBT	174	217	235	276	259	17.3	16.9	17.3	17.8	19.9	B	B	B	B	B																			
105	70th St & O'Connor St (I-94 WB Entr Ramp)	Signal	75	79	WBR	13	14	7	9	20	5.4	6.3	6.4	8.1	8.2	A	A	A	A	A																			
105	70th St & O'Connor St (I-94 WB Entr Ramp)	Signal	194	419	SBT	79	68	105	91	78	18.4	19.3	19.9	18.1	18.6	B	B	B	B	B	14.5	14.4	16.9	14.2	13.8	B	B	B	B	B										
105	70th St & O'Connor St (I-94 WB Entr Ramp)	Signal	194	128	SBR	31	34	28	39	41	4.6	4.8	5.5	5.4	4.7	A	A	A	A	A																			
106	70th St & Kearney St (I-94 EB Exit Ramp)	Signal	133	156	EBL	46	73	107	183	166	21.1	22.2	28.2	39.0	32.1	C	C	C	D	C	14.4	14.4	17.4	26.6	22.9	B	B	B	C	C	10.7	12.0	15.3	25.0	16.5	B	B	B	C	B
106	70th St & Kearney St (I-94 EB Exit Ramp)	Signal	133	141	EBT	249	269	402	525	435	21.9	22.5	24.4	34.8	29.4	C	C	C	C	C																			
106	70th St & Kearney St (I-94 EB Exit Ramp)	Signal	133	153	EBR	208	267	332	463	336	3.9	4.2	5.4	12.3	10.1	A	A	A	B	B																			
106	70th St & Kearney St (I-94 EB Exit Ramp)	Signal	231	156	NBT	280	393	590	594	362	14.3	15.8	21.3	27.8	15.7	B	B	C	C	B	9.0	11.3	16.1	28.6	11.2	A	B	B	C	B										
106	70th St & Kearney St (I-94 EB Exit Ramp)	Signal	231	141	NBR	258	238	401	381	266	3.3	3.8	8.3	29.9	5.2	A	A	A	C	A																			
106	70th St & Kearney St (I-94 EB Exit Ramp)	Signal	419	141	SBL	20	15	17	15	17	8.2	10.5	17.4	17.9	10.2	A	B	B	B	B	7.6	8.0	7.5	7.7	7.9	A	A	A	A	A										
106	70th St & Kearney St (I-94 EB Exit Ramp)	Signal	419	153	SBT	281	249	305	293	300	7.5	7.9	7.0	7.2	7.8	A	A	A	A	A																			
107	68th St & O'Connor St (I-94 WB Exit Ramp)	Signal	161	75	NBL	21	27	26	27	24	1.4	1.3	1.5	1.3	1.7	A	A	A	A	A	0.4	0.5	0.6	0.6	0.6	A	A	A	A	A	11.8	12.6	10.9	9.7	12.4	B	B	B	A	B
107	68th St & O'Connor St (I-94 WB Exit Ramp)	Signal	16	17	NBT	184	208	341	447	290	0.3	0.4	0.5	0.6	0.5	A	A	A	A	A																			
107	68th St & O'Connor St (I-94 WB Exit Ramp)	Signal	165	20	WBL	32	43	27	41	41	20.8	19.5	17.6	19.3	17.9	C	B	B	B	B	16.8	17.5	17.3	17.1	18.1	B	B	B	B	B										
107	68th St & O'Connor St (I-94 WB Exit Ramp)	Signal	165	75	WBT	247	261	231	242	316	19.2	19.2	19.2	18.1	19.9	B	B	B	B	B																			
107	68th St & O'Connor St (I-94 WB Exit Ramp)	Signal	165	17	WBR	99	79	65	56	107	9.5	10.7	10.3	10.9	12.8	A	B	B	B	B																			
107	68th St & O'Connor St (I-94 WB Exit Ramp)	Signal	455	20,162	SBT	131	197	224	216	209	26.3	25.3	26.6	26.5	26.5	C	C	C	C	C	13.5	15.6	14.8	13.8	15.3	B	B	B	B	B										
107	68th St & O'Connor St (I-94 WB Exit Ramp)	Signal	455	75	SBR	143	137	203	234	179	1.7	1.7	1.9	2.1	2.1	A	A	A	A	A																			
108	68th St & Kearney St (I-94 EB Entr Ramp)	Signal	141	16	EBL	148	163	272	366	246	9.1	8.8	20.3	66.3	15.3	A	A	C	*E*	B	12.6	12.1	19.3	*56.1*	15.6	B	B	B	*E*	B	12.3	11.2	17.1	43.1	13.8	B	B	B	D	B
108	68th St & Kearney St (I-94 EB Entr Ramp)	Signal	141	142	EBT	348	330	479	493	412	14.8	14.7	21.1	54.8	17.9	B	B	C	D	B																			
108	68th St & Kearney St (I-94 EB Entr Ramp)	Signal	141	15	EBR	24	32	64	66	64	1.4	1.4	1.8	9.6	1.6	A	A	A	A	A																			
108	68th St & Kearney St (I-94 EB Entr Ramp)	Signal	412	161,16	NBT	57	72	95	108	68	39.8	34.1	40.4	45.0	37.8	D	C	D	D	D	27.5	25.1	28.3	32.9	27.7	C	C	C	C	C										
108	68th St & Kearney St (I-94 EB Entr Ramp)	Signal	412	142	NBR	34	38	65	61	35	7.0	7.9	10.6	11.6	8.2	A	A	B	B	A																			
108	68th St & Kearney St (I-94 EB Entr Ramp)	Signal	162	142	SBL	94	132	146	126	136	1.2	1.6	2.5	2.5	1.8	A	A	A	A	A	2.8	3.0	2.9	3.0	2.8	A	A	A	A	A										
108	68th St & Kearney St (I-94 EB Entr Ramp)	Signal	20	15	SBT	69	108	105	130	114	5.1	4.6	3.4	3.5	4.1	A	A	A	A	A																			
120	Hawley Rd & I-94 WB Ramps	Signal	196	205	EBL	38	32	30	19	36	27.0	27.9	31.3	30.5	27.7	C	C	C	C	C	6.8	7.4	9.8	7.6	7.2	A	A	A	A	A	3.9	5.1	10.8	11.2	4.0	A	A	B	B	A
120	Hawley Rd & I-94 WB Ramps	Signal	196	203	EBR	167	119	89	92	131	2.1	1.9	2.6	2.9	1.7	A	A	A	A	A																			
120	Hawley Rd & I-94 WB Ramps	Signal	184	200	NBL	206	307	391	330	185	8.9	14.5	36.6	49.2	10.2	A	B	D	D	B	4.4	6.9	16.4	17.9	4.4	A	A	B	B	A										
120	Hawley Rd & I-94 WB Ramps	Signal	184	205	NBT	367	455	548	632	470	1.9	1.8	1.9	1.6	2.2	A	A	A	A	A																			
120	Hawley Rd & I-94 WB Ramps	Signal	582	203	SBT	423	481	589	691	474	2.4	2.1	2.4	1.9	2.5	A	A	A	A	A	2.4	2.5	4.4	4.5	2.6	A	A	A	A	A										
120	Hawley Rd & I-94 WB Ramps	Signal	582	200	SBR	121	174	201	217	156	2.3	3.4	10.4	12.5	3.1	A	A	B	B	A																			
54	Hawley Rd & I-94 EB Exit Ramp	TWSC	682	184	EBL	87	109	116	97	85	10.7	12.1	15.8	*41.4*	11.0	B	B	C	*E*	B	9.3	10.0	11.1	24.1	8.6	A	B	B	C	A	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*
54	Hawley Rd & I-94 EB Exit Ramp	TWSC	682	178	EBR	183	205	230	114	125	8.7	8.9	8.7	9.3	7.0	A	A	A	A	A																			
54	Hawley Rd & I-94 EB Exit Ramp	TWSC	216	184	NBT	487	653	826	863	569	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*									
54	Hawley Rd & I-94 EB Exit Ramp	TWSC	203	178,185	SBT	590	599	678	782	605	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*									
121	Hawley Rd & I-94 EB Entr Ramp	TWSC	670	216	NBT	487	653	826	863	569	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*
121	Hawley Rd & I-94 EB Entr Ramp	TWSC	187	179	NBR	217	262	244	234	211	0.9	1.8	1.6	1.7	1.4	A	A	A	A	A	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*
121	Hawley Rd & I-94 EB Entr Ramp	TWSC	185	179	SBL	74	74	79	101	85	5.1	8.2	12.3	12.5	6.6	A	A	B	B	A																			
121	Hawley Rd & I-94 EB Entr Ramp	TWSC	178	191	SBT	699	728	830	795	645	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*									
109	Gen Mitchell Blvd & I-94 WB Exit Ramp	TWSC	217	195	NBT	63	84	120	123	50	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*
109	Gen Mitchell Blvd & I-94 WB Exit Ramp	TWSC	223	433,212	WBL	8	14	8	15	9	5.4	5.8	6.5	6.2	6.7	A	A	A	A	A	6.0	6.0	6.5	6.1	6.4	A	A	A	A	A	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*
109	Gen Mitchell Blvd & I-94 WB Exit Ramp	TWSC	223	195	WBR	48	24	18	32	44	6.1	6.1	6.5	6.1	6.4	A	A	A	A	A																			
109	Gen Mitchell Blvd & I-94 WB Exit Ramp	TWSC	587	433,212	SBT	0	0	0	0	0	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*									
110	Gen Mitchell Blvd & I-94 EB Ramps/WB Entr Ramp	TWSC	681	217	EBL	30	23	27	28	17	8.0	8.8	9.9	11.8	8.8	A	A	A	B	A	7.3	7.4	7.8	8.6	7.4	A	A	A	A	A	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*
110	Gen Mitchell Blvd & I-94 EB Ramps/WB Entr Ramp	TWSC	681	435	EBT	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	A	A	A	A	A																			
110	Gen Mitchell Blvd & I-94 EB Ramps/WB Entr Ramp	TWSC	681	214	EBR	79	66	66	118	71	7.0	6.8	6.9	7.9	7.0	A	A	A	A	A																			
110	Gen Mitchell Blvd & I-94 EB Ramps/WB Entr Ramp	TWSC	438	215	NBL	75	153	274	253	35	0.3	1.3	4.0	5.0	2.1	A	A	A	A	A	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*
110	Gen Mitchell Blvd & I-94 EB Ramps/WB Entr Ramp	TWSC	213	217	NBT	33	62	92	94	33	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*									
110	Gen Mitchell Blvd & I-94 EB Ramps/WB Entr Ramp	TWSC	213	435	NBR	41	77	96	57	24	0.0	0.1	0.2	0.2	0.1	A	A	A	A	A																			
110	Gen Mitchell Blvd & I-94 EB Ramps/WB Entr Ramp	TWSC	433	435	SBL	15	18	35	92	129	0.9	1.4	1.6	1.7	1.2	A	A	A	A	A	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*
110	Gen Mitchell Blvd & I-94 EB Ramps/WB Entr Ramp	TWSC	212	214	SBT	42	51	57	139	135	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*									
110	Gen Mitchell Blvd & I-94 EB Ramps/WB Entr Ramp	TWSC	212	215	SBR	13	18	57	50	9	0.4	0.8	1.7	1.7	0.7	A	A	A	A	A																			
140	Canal St & Miller Park Way SB Ramps	Signal	669	263	EBL	0	1	1	0	0	0.0	11.3	11.0	0.0	0.0	A	B	B	A	A	11.7	13.2	14.3	16.1	13.6	B	B	B	B	B	7.6	8.6	11.8	13.8	9.1	A	A	B	B	A
140	Canal St & Miller Park Way SB Ramps	Signal	669	330	EBT	45	55	86	126	53	13.7	14.8	15.6	18.2	16.7	B	B	B	B	B																			
140	Canal St & Miller Park Way SB Ramps	Signal	669	257	EBR	24	18	25	36	25	8.2	8.3	10.1	8.9	7.2	A	A	B	A	A																			
140	Canal St & Miller Park Way SB Ramps	Signal	10093	291	NBL	8	8	24	8	26	8.8	11.6	14.9	8.7	12.1	A	B	B	A	B	2.7	2.7	4.7	4.3	3.7	A	A	A	A	A										
140	Canal St & Miller Park Way SB Ramps	Signal	10093	263	NBT	2	0	3	5	6	5.2	0.0	15.7	15.1	17.0	A	A	B	B	B																			
140	Canal St & Miller Park Way SB Ramps	Signal	10093	330	NBR	121	120	169	297	249	2.2	2.2	3.0	4.0	2.5	A	A	A	A	A																			
140	Canal St & Miller Park Way SB Ramps	Signal	88	257	WBL	168	302	380	450	230	8.6	9.5	14.0	17.2	12.0	A	A	B	B	B	8.6	9.5	13.9	17.6	12.2	A	A	B	B	B										
140	Canal St & Miller Park Way SB Ramps	Signal	88	291	WBT	28	24	38	163	57	8.6	9.7	14.1	19.0	13.4	A	A	B	B	B																			
140	Canal St & Miller Park Way SB Ramps	Signal	88	263	WBR	1	1	3	1	1	2.5	1.4	2.9	3.7	3.4	A	A	A	A	A																			
140	Canal St & Miller Park Way SB Ramps	Signal	264	330	SBL	3	3	2	11	3	33.9	27.6	26.9	30.9	24.6	C	C	C	C	C	25.5	22.0	29.2	18.6	26.6	C	C	C	B	C										
140	Canal St & Miller Park Way SB Ramps	Signal	264	257	SBT	4	5	9	5	7	28.7	28.7	36.8	37.0	36.9	C	C	D	D	D																			
140	Canal St & Miller Park Way SB Ramps	Signal	264	291	SBR	2	3	3	19	3	5.9	6.7	6.4	6.9	7.4	A	A	A	A	A																			
153	Wells St & WIS 175 SB Exit Ramp (46th St)	AWSC	593	247	EBT	51	68	109	158	117	8.8	10.0	11.2	11.9	10.3	A	A	B	B	B	7.2	8.5	10.3	10.2	8.8	A	A	B	B	A	5.9	7.1	7.8	8.0	7.0	A	A	A	A	A
153	Wells St & WIS 175 SB Exit Ramp (46th St)	AWSC	593	312	EBR	44	36	27	65	67	5.3	5.7	6.6	6.2	6.1	A	A	A	A	A																			
153	Wells St & WIS 175 SB Exit Ramp (46th St)	AWSC	250	312	WBL	14	11	28	17	26	6.2	6.7	7.9	7.8	7.4	A	A	A	A	A	7.5	9.1	9.1	9.4	8.9	A	A	A	A	A										
153	Wells St & WIS 175 SB Exit Ramp (46th St)	AWSC	250	225	WBT	18	44	46	76	61	8.5	9.7	9.8	9.7	9.6	A	A	A	A	A																			
153	Wells St & WIS 175 SB Exit Ramp (46th St)	AWSC	319	247	SBL	2	51	74	60	55	3.6	6.0	7.4	7.6	6.3	A	A	A	A	A	4.0	5.8	6.1	5.4	4.7	A	A	A	A	A										
153	Wells St & WIS 175 SB Exit Ramp (46th St)	AWSC	319	312	SBT	51	101	109	78	73	7.3	8.3	9.2	9.8	9.1	A	A	A	A	A																			
153	Wells St & WIS 175 SB Exit Ramp (46th St)	AWSC	319	225	SBR	46	48	77	102	95	0.5	0.4	0.6	0.6	0.6	A	A	A	A	A																			
155	Wisconsin Ave & 46th St (WIS 175 SB Entr Ramp)	Signal	590	313	EBT	215	276	343	449	495	2.8	3.1	3.6	3.8	3.9	A	A	A	A	A	2.5	2.8	3.2	3.5	3.6	A	A	A	A	A	4.5	5.5	5.8	6.5	5.9	A	A	A	A	A
155	Wisconsin Ave & 46th St (WIS 175 SB Entr Ramp)	Signal	590	314	EBR	129	109	149	181	154	1.9	2.1	2.2	2.7	2.5	A	A	A	A	A																			
155	Wisconsin Ave & 46th St (WIS 175 SB Entr Ramp)	Signal	318	314	WBL	67	128	220	288	159	2.4	2.9	5.5	9.1	5.8	A	A	A	A	A	1.5	2.1	3.1	4.3	2.6	A	A	A	A	A										
155	Wisconsin Ave & 46th St (WIS 175 SB Entr Ramp)	Signal	318	316	WBT	218	237	347	457	437	1.2	1.7	1.6	1.3	1.5	A	A	A	A	A																			
155	Wisconsin Ave & 46th St (WIS 175 SB Entr Ramp)	Signal	312	313	SBL	41	60	88	98	76	34.2	33.8	33.7	35.5	36.4	C	C	C	D	D	19.3	20.7	23.4	28.0	27.1	B	C	C	C	C										
155	Wisconsin Ave & 46th St (WIS 175 SB Entr Ramp)	Signal	312	314	SBT	16	26	21	26	44	38.5	36.8	36.5	35.2	37.2	D	D	D	D	D																			
155	Wisconsin Ave & 46th St (WIS 175 SB Entr Ramp)	Signal	312	316	SBR	51	62	54	36	46	1.2	1.4	1.7	2.4	1.7	A	A	A	A	A																			

Legend (HCM6)	
Delay (sec/veh)	
Signal	Stop
0-10	0-10
10-20	10-15
20-35	15-25
35-55	25-35
55-80	35-50
80+	50+

I-94 East-West Data Collection Project

Existing (2019) PM Peak Period Validation

Intersection Operations

Intersection						VISSIM					Mvmt Delay (sec/veh)					Mvmt LOS					App Delay (sec/veh)					App LOS					Int Delay (sec/veh)					Int LOS				
Node	Int Name	Ctrl Type	From Link	To Link	Mvmt	1:30-2:30 PM	2:30-3:30 PM	3:30-4:30 PM	4:30-5:30 PM	5:30-6:30 PM	1:30-2:30 PM	2:30-3:30 PM	3:30-4:30 PM	4:30-5:30 PM	5:30-6:30 PM	1:30-2:30 PM	2:30-3:30 PM	3:30-4:30 PM	4:30-5:30 PM	5:30-6:30 PM	1:30-2:30 PM	2:30-3:30 PM	3:30-4:30 PM	4:30-5:30 PM	5:30-6:30 PM	1:30-2:30 PM	2:30-3:30 PM	3:30-4:30 PM	4:30-5:30 PM	5:30-6:30 PM	1:30-2:30 PM	2:30-3:30 PM	3:30-4:30 PM	4:30-5:30 PM	5:30-6:30 PM	1:30-2:30 PM	2:30-3:30 PM	3:30-4:30 PM	4:30-5:30 PM	5:30-6:30 PM
139	Miller Park Way & National Ave	Signal	610	484	EBL	274	352	282	321	247	32.8	37.8	38.2	38.5	34.7	C	D	D	D	C																			
139	Miller Park Way & National Ave	Signal	610	478	EBT	155	169	108	194	196	26.4	32.5	33.3	34.4	29.8	C	C	C	C	C	30.2	35.9	35.6	36.2	31.9	C	D	D	D	C										
139	Miller Park Way & National Ave	Signal	610	482	EBR	11	8	33	47	25	18.8	24.0	20.1	28.6	21.1	B	C	C	C	C																			
139	Miller Park Way & National Ave	Signal	609	481	NBL	59	62	65	106	78	***83.8***	***85.8***	***106.0***	***137.6***	***100.5***	***F***	***F***	***F***	***F***	***F***																			
139	Miller Park Way & National Ave	Signal	609	484	NBT	1247	1362	1418	1462	1318	*58.5*	*58.0*	*74.2*	***100.6***	*68.1*	*E*	*E*	*E*	***F***	*E*	***56.4***	***56.7***	***73.3***	***100.4***	***67.6***	***E***	***E***	***E***	***F***	***E***										
139	Miller Park Way & National Ave	Signal	609	478	NBR	89	77	71	98	79	8.8	10.4	24.8	*56.6*	27.2	A	B	C	*E*	C																			
139	Miller Park Way & National Ave	Signal	612	482	WBL	58	109	147	121	82	*57.9*	*64.9*	*69.5*	*69.2*	*66.1*	*E*	*E*	*E*	*E*	*E*																			
139	Miller Park Way & National Ave	Signal	612	481	WBT	238	297	360	334	258	51.0	*57.9*	*60.6*	*61.2*	*59.1*	D	*E*	*E*	*E*	*E*	31.7	38.6	40.8	41.5	36.4	C	D	D	D	D	38.8	40.2	46.6	*63.2*	*55.9*	D	D	D	*E*	*E*
139	Miller Park Way & National Ave	Signal	612	484	WBR	262	290	420	467	331	8.2	8.8	13.8	20.2	11.2	A	A	B	C	B																			
139	Miller Park Way & National Ave	Signal	124	478	SBL	177	164	178	229	226	54.6	*75.9*	*70.6*	***236.0***	***266.7***	D	*E*	*E*	***F***	***F***																			
139	Miller Park Way & National Ave	Signal	124	482	SBT	1255	1287	1506	1419	1044	34.0	35.8	39.7	40.3	37.2	C	D	D	D	D	29.7	30.0	33.2	51.4	*60.1*	C	C	C	D	*E*										
139	Miller Park Way & National Ave	Signal	124	481	SBR	415	655	669	611	425	6.0	7.2	8.7	8.4	6.3	A	A	A	A	A																			
154	Wells St & 45th Pl (WIS 175 NB Entr Ramp)	AWSC	247	317	EBL	24	57	79	94	52	6.5	7.2	8.1	9.1	8.1	A	A	A	A	A																			
154	Wells St & 45th Pl (WIS 175 NB Entr Ramp)	AWSC	247	248	EBT	28	62	104	123	119	8.9	9.2	10.7	11.8	10.8	A	A	B	B	B	7.8	8.3	9.6	10.7	10.0	A	A	A	B	A										
154	Wells St & 45th Pl (WIS 175 NB Entr Ramp)	AWSC	304	250	NBL	4	10	35	68	52	5.9	7.4	10.7	13.1	10.6	A	A	B	B	B																			
154	Wells St & 45th Pl (WIS 175 NB Entr Ramp)	AWSC	304	317	NBT	31	82	128	132	91	9.2	11.2	14.2	17.4	14.6	A	B	B	C	B	8.2	10.5	12.7	14.6	11.6	A	B	B	B	B	7.6	9.1	10.7	12.3	10.4	A	A	B	B	B
154	Wells St & 45th Pl (WIS 175 NB Entr Ramp)	AWSC	304	248	NBR	7	4	18	37	43	4.9	5.2	6.2	7.4	6.8	A	A	A	A	A																			
154	Wells St & 45th Pl (WIS 175 NB Entr Ramp)	AWSC	306	250	WBT	29	45	40	25	35	8.8	9.7	10.7	11.8	10.1	A	A	B	B	B	7.0	8.4	8.6	9.3	8.3	A	A	A	A	A										
154	Wells St & 45th Pl (WIS 175 NB Entr Ramp)	AWSC	306	317	WBR	26	25	35	41	37	5.0	5.9	6.1	7.7	6.6	A	A	A	A	A																			
156	Wisconsin Ave & WIS 175 NB Exit Ramp (45th Pl)	TWSC	313	304	EBL	5	11	37	55	50	1.1	1.9	3.8	6.5	3.8	A	A	A	A	A	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*										
156	Wisconsin Ave & WIS 175 NB Exit Ramp (45th Pl)	TWSC	313	272	EBT	250	325	394	491	521	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*																			
156	Wisconsin Ave & WIS 175 NB Exit Ramp (45th Pl)	TWSC	294	318	NBL	92	126	125	116	95	8.6	9.7	10.8	13.1	11.2	A	A	B	B	B																			
156	Wisconsin Ave & WIS 175 NB Exit Ramp (45th Pl)	TWSC	294	304	NBT	7	10	14	20	16	11.6	12.9	13.2	14.9	14.4	B	B	B	B	B	8.9	10.0	10.5	12.0	10.9	A	A	B	B	B	2.7	3.1	2.7	2.7	2.2	A	A	A	A	A
156	Wisconsin Ave & WIS 175 NB Exit Ramp (45th Pl)	TWSC	294	272	NBR	108	148	190	200	165	9.0	10.0	10.0	11.1	10.4	A	A	B	B	B																			
156	Wisconsin Ave & WIS 175 NB Exit Ramp (45th Pl)	TWSC	302	318	WBT	193	240	444	629	499	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*										
156	Wisconsin Ave & WIS 175 NB Exit Ramp (45th Pl)	TWSC	307	304	WBR	30	74	131	165	116	0.0	0.0	0.1	0.3	0.1	A	A	A	A	A																			
141	Canal St & Miller Park Way NB Ramps	Signal	258	83	EBL	6	4	3	8	2	6.6	9.9	6.2	21.5	5.7	A	A	A	C	A																			
141	Canal St & Miller Park Way NB Ramps	Signal	241	244	EBT	129	131	198	319	271	8.3	9.0	12.0	16.0	12.8	A	A	B	B	B	7.2	7.8	10.2	13.6	11.7	A	A	B	B	B										
141	Canal St & Miller Park Way NB Ramps	Signal	241	675	EBR	34	42	55	101	39	2.9	3.8	4.1	5.6	4.2	A	A	A	A	A																			
141	Canal St & Miller Park Way NB Ramps	Signal	677	88	NBL	14	14	23	40	21	9.8	11.9	13.1	15.6	12.4	A	B	B	B	B																			
141	Canal St & Miller Park Way NB Ramps	Signal	677	83	NBT	6	8	7	8	10	5.1	12.7	14.3	9.2	11.0	A	B	B	A	B	5.6	6.5	7.6	9.3	8.2	A	A	A	A	A										
141	Canal St & Miller Park Way NB Ramps	Signal	677	244	NBR	134	148	158	274	268	5.2	5.7	6.5	8.4	7.8	A	A	A	A	A																			
141	Canal St & Miller Park Way NB Ramps	Signal	117	675	WBL	71	185	318	411	194	13.6	13.7	14.5	18.9	16.4	B	B	B	B	B																			
141	Canal St & Miller Park Way NB Ramps	Signal	117	88	WBT	156	304	391	554	255	5.3	5.0	4.7	7.4	6.4	A	A	A	A	A	7.8	8.3	9.1	12.3	10.7	A	A	A	B	B	6.9	7.8	9.1	12.0	10.3	A	A	A	B	B
141	Canal St & Miller Park Way NB Ramps	Signal	117	83	WBR	1	0	0	0	0	1.0	0.2	0.0	0.0	0.0	A	A	A	A	A																			
141	Canal St & Miller Park Way NB Ramps	Signal	232	244	SBL	1	1	1	0	0	1.4	4.4	3.5	0.0	0.0	A	A	A	A	A																			
141	Canal St & Miller Park Way NB Ramps	Signal	232	675	SBT	7	7	0	8	9	10.3	11.0	0.0	13.4	11.9	B	B	A	B	B	5.9	8.7	4.8	8.3	9.2	A	A	A	A	A										
141	Canal St & Miller Park Way NB Ramps	Signal	232	88	SBR	26	11	10	19	7	4.9	3.5	4.9	6.1	5.8	A	A	A	A	A																			
157	Wisconsin Ave & Bluemound Rd (45th St)	Signal	272	323	EBT	342	434	502	627	629	20.4	20.0	20.6	20.6	22.1	C	B	C	C	C	19.5	18.4	18.2	19.1	20.5	B	B	B	B	C										
157	Wisconsin Ave & Bluemound Rd (45th St)	Signal	272	301	EBR	16	39	82	63	56	0.8	1.0	4.0	4.4	2.5	A	A	A	A	A																			
157	Wisconsin Ave & Bluemound Rd (45th St)	Signal	303	323	NBR	37	80	156	219	210	8.7	9.5	8.8	8.9	8.7	A	A	A	A	A	8.7	9.5	8.8	8.9	8.7	A	A	A	A	A	14.6	14.0	14.5	15.0	14.8	B	B	B	B	B
157	Wisconsin Ave & Bluemound Rd (45th St)	Signal	300	301	WBL	109	202	573	581	351	10.5	10.7	15.9	16.3	13.2	B	B	B	B	B	9.9	10.6	13.3	14.0	12.0	A	B	B	B	B										
157	Wisconsin Ave & Bluemound Rd (45th St)	Signal	596	302,307	WBT	223	314	575	794	614	9.5	10.6	10.7	12.3	11.4	A	B	B	B	B																			
158	36th St & Park Hill Ave	TWSC	119	348	WBL	302	439	443	452	359	0.3	0.9	1.9	1.2	0.5	A	A	A	A	A	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*										
158	36th St & Park Hill Ave	TWSC	119	349	WBT	21	31	39	36	21	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*																			
158	36th St & Park Hill Ave	TWSC	629	348	SBT	18	18	15	15	14	6.1	8.0	7.9	7.8	6.8	A	A	A	A	A	5.9	7.4	6.6	7.1	6.5	A	A	A	A	A	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*
158	36th St & Park Hill Ave	TWSC	629	349	SBR	4	4	7	10	3	5.1	4.6	3.9	6.1	5.2	A	A	A	A	A																			
159	35th St & Park Hill Ave	Signal	219	119	NBL	138	174	187	196	181	7.9	10.3	11.1	14.5	8.5	A	B	B	B	A	4.2	4.4	4.2	5.5	4.4	A	A	A	A	A										
159	35th St & Park Hill Ave	Signal	219	123	NBT	452	534	528	472	413	3.1	2.5	1.7	1.7	2.6	A	A	A	A	A																			
159	35th St & Park Hill Ave	Signal	340	239	WBL	192	239	210	220	199	28.5	30.3	29.3	29.7	29.0	C	C	C	C	C																			
159	35th St & Park Hill Ave	Signal	340	119	WBT	69	134	158	167	99	30.4	30.2	30.6	31.1	29.0	C	C	C	C	C	24.1	23.9	25.5	26.6	24.6	C	C	C	C	C	12.9	14.1	14.6	16.5	13.8	B	B	B	B	B
159	35th St & Park Hill Ave	Signal	121	123	WBR	66	128	80	68	65	4.6	5.6	5.1	5.2	4.8	A	A	A	A	A																			
159	35th St & Park Hill Ave	Signal	630	239	SBT	533	660	805	940	643	16.1	17.3	17.9	19.6	16.7	B	B	B	B	B																			
159	35th St & Park Hill Ave	Signal	630	119	SBR	115	161	137	125	100	10.8	12.5	13.8	15.8	11.6	B	B	B	B	B	15.2	16.4	17.3	19.1	16.0	B	B	B	B	B										
160	35th St & I-94 EB Ramps	Signal	341	219	EBL	96	150	101	76	92	30.6	30.5	29.1	28.6	28.8	C	C	C	C	C																			
160	35th St & I-94 EB Ramps	Signal	341	346	EBT	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	A	A	A	A	A	15.2	19.2	16.1	14.8	13.3	B	B	B	B	B										
160	35th St & I-94 EB Ramps	Signal	341	230	EBR	268	375	324	268	234	9.6	14.6	12.1	10.8	7.2	A	B	B	B	A																			
160	35th St & I-94 EB Ramps	Signal	634	219	NBT	494	560	613	591	502	13.8	14.0	14.8	15.2	14.0	B	B	B	B	B																			
160	35th St & I-94 EB Ramps	Signal	634	346	NBR	177	211	312	292	213	3.0	4.5	6.3	5.9	4.2	A	A	A	A	A	10.9	11.4	11.9	12.1	11.1	B	B	B	B	B	12.4	14.6	13.3	12.9	11.8	B	B	B	B	B

Legend (HCM6)	
Delay (sec/veh)	
Signal	Stop
0-10	0-10
10-20	10-15
20-35	15-25
35-55	25-35
55-80	35-50
80+	50+

Notes:

*Major thru movement, approach, and intersection delay/LOS not calculated for Two Way Stop Control (TWSC) intersections per 6th Edition HCM

I-94 East-West Data Collection Project

Existing (2019) PM Peak Period Validation

Freeway Mainline Speed Summary

		I-94 Eastbound - Avg Speed (MPH)							
	Corridor ID	EB1	EB2	EB3	EB4	EB5	EB6	EB7	EB8
	Segment	Zoo Interchange to 84th St	84th St to 68th St	68th St to Hawley Rd	Hawley Rd to Stadium Interchange	Stadium Interchange	Stadium Interchange to 35th St	35th St to 25th St	25th St to Marquette Interchange
VISSIM Factored Average	1:30 PM	63	61	60	58	56	54	54	54
	1:45 PM	63	61	60	57	56	53	53	54
	2:00 PM	63	60	60	56	55	52	52	54
	2:15 PM	63	59	59	54	54	50	53	54
	2:30 PM	62	58	58	54	54	52	52	53
	2:45 PM	62	56	58	54	54	51	52	53
	3:00 PM	62	59	59	53	55	50	52	53
	3:15 PM	61	50	57	53	52	47	52	53
	3:30 PM	61	48	48	44	30	40	52	53
	3:45 PM	62	53	42	40	25	40	52	53
	4:00 PM	61	44	39	38	25	39	52	53
	4:15 PM	59	37	40	37	20	35	52	54
	4:30 PM	55	29	24	23	16	33	53	53
	4:45 PM	47	29	26	24	16	34	52	53
	5:00 PM	51	31	24	23	15	33	52	53
	5:15 PM	54	33	29	23	15	33	51	54
	5:30 PM	59	40	27	20	15	33	53	54
	5:45 PM	62	46	34	25	16	34	52	54
	6:00 PM	63	60	47	41	25	38	52	54
	6:15 PM	63	62	59	52	45	49	53	54
Field - April 9, 2019 Selected Typical Weekday (NPMRDS)	1:30 PM	64	62	61	59	61	59	58	57
	1:45 PM	66	61	59	58	58	54	53	49
	2:00 PM	65	59	57	56	54	51	54	55
	2:15 PM	61	61	57	57	57	51	54	55
	2:30 PM	60	57	54	54	49	55	54	54
	2:45 PM	62	58	55	55	51	51	50	55
	3:00 PM	61	61	60	59	58	52	54	55
	3:15 PM	60	59	54	51	51	41	48	51
	3:30 PM	63	60	54	51	35	38	47	52
	3:45 PM	62	59	49	39	25	31	44	53
	4:00 PM	65	63	47	46	34	36	42	52
	4:15 PM	64	51	33	28	29	35	46	50
	4:30 PM	61	44	29	27	27	33	42	49
	4:45 PM	56	22	24	28	21	29	41	53
	5:00 PM	50	33	22	20	20	28	45	55
	5:15 PM	47	17	19	22	20	32	48	55
	5:30 PM	54	31	29	32	29	37	46	55
	5:45 PM	64	50	31	26	24	33	44	53
	6:00 PM	67	65	59	59	50	51	50	59
	6:15 PM	61	60	56	57	56	57	55	59
VISSIM Unfactored Average	1:30 PM	63	61	60	58	56	54	54	54
	1:45 PM	63	61	60	57	56	53	53	54
	2:00 PM	63	60	60	56	55	52	52	54
	2:15 PM	63	59	59	54	54	50	53	54
	2:30 PM	62	58	58	54	54	52	52	53
	2:45 PM	62	56	58	54	54	51	52	53
	3:00 PM	62	59	59	53	55	50	52	53
	3:15 PM	61	50	57	53	52	47	52	53
	3:30 PM	61	48	48	44	30	40	52	53
	3:45 PM	62	53	42	40	25	40	52	53
	4:00 PM	61	44	39	38	25	39	52	53
	4:15 PM	59	37	40	37	20	35	52	54
	4:30 PM	55	29	24	23	16	33	53	53
	4:45 PM	47	29	26	24	16	34	52	53
	5:00 PM	51	31	24	23	15	33	52	53
	5:15 PM	54	33	29	23	15	33	51	54
	5:30 PM	54	34	21	19	14	33	53	53
	5:45 PM	42	21	20	21	15	33	51	54
	6:00 PM	36	20	21	22	17	34	53	54
	6:15 PM	37	23	23	24	19	35	52	54
Field - April 2019 Weekday Maximum (NPMRDS)	1:30 PM	65	63	61	60	61	59	58	57
	1:45 PM	66	62	61	61	60	57	57	57
	2:00 PM	65	62	61	58	60	58	56	58
	2:15 PM	62	61	60	59	58	57	56	56
	2:30 PM	63	61	59	57	59	55	55	56
	2:45 PM	65	64	61	58	57	56	55	56
	3:00 PM	65	61	60	59	58	53	55	57
	3:15 PM	62	60	56	55	53	48	52	54
	3:30 PM	63	60	55	56	54	47	51	54
	3:45 PM	67	61	58	47	46	45	48	55
	4:00 PM	65	63	57	46	42	42	48	54
	4:15 PM	64	51	33	31	29	38	48	54
	4:30 PM	61	44	32	32	32	38	47	54
	4:45 PM	62	31	27	28	24	32	47	54
	5:00 PM	60	33	22	22	23	36	46	55
	5:15 PM	47	17	24	26	24	34	48	57
	5:30 PM	54	31	29	32	29	37	48	56
	5:45 PM	64	51	43	34	27	33	47	56
	6:00 PM	67	65	61	61	50	51	52	59
	6:15 PM	66	63	59	58	58	57	57	59
Field - April 2019 Weekday Minimum (NPMRDS)	1:30 PM	60	60	59	58	55	54	53	54
	1:45 PM	46	58	56	54	55	54	51	49
	2:00 PM	60	59	57	55	54	51	52	53
	2:15 PM	59	59	53	55	56	51	52	51
	2:30 PM	56	57	54	54	49	47	50	50
	2:45 PM	58	56	51	54	51	51	50	53
	3:00 PM	60	59	55	40	46	49	51	52
	3:15 PM	54	24	20	21	32	34	43	49
	3:30 PM	51	18	21	25	35	37	47	50
	3:45 PM	52	21	29	26	25	31	40	50
	4:00 PM	53	19	23	20	22	27	42	49
	4:15 PM	28	16	23	25	23	32	41	49
	4:30 PM	46	17	22	21	16	25	27	37
	4:45 PM	29	14	16	14	14	21	28	38
	5:00 PM	28	11	18	18	16	24	42	49
	5:15 PM	16	10	13	14	13	22	42	48
	5:30 PM	12	10	16	15	12	18	33	49
	5:45 PM	17	11	14	15	13	23	39	51
	6:00 PM	62	22	17	18	17	30	44	51
	6:15 PM	60	42	23	22	18	30	45	50

WisDOT TEOpS Validation

Test	Target	I-94 Eastbound					
		1:30 PM	2:30 PM	3:30 PM	4:30 PM	5:30 PM*	Period
Tier 1	RMSPE < 10%	4.2%	5.9%	***16.4%***	***20.5%***	***19.0%***	***14.9%***
Tier 2	± 20% of posted for 85% of locations	-	-	93.8%	87.5%	87.5%	93.8%

*Last hour validation based on factored model speeds vs typical day (April 9th)

Legend						
Speed (MPH)	55+	50-55	40-50	30-40	20-30	0-20
Color						

FINAL

2/5/2021

I-94 East-West Data Collection Project

Existing (2019) PM Peak Period Validation

Freeway Mainline Speed Summary

		I-94 Westbound - Avg Speed (MPH)							
	Corridor ID	WB8	WB7	WB6	WB5	WB4	WB3	WB2	WB1
	Segment	70th St to Zoo Interchange	Hawley Rd to 70th St	Mitchell Blvd to Hawley Rd	Stadium Interchange to Mitchell Blvd	Stadium Interchange	35th St to Stadium Interchange	28th St to 35th St	Marquette Interchange to 28th St
VISSIM Factored Average	1:30 PM	61	59	60	46	50	53	54	55
	1:45 PM	61	58	59	47	44	51	54	55
	2:00 PM	61	58	60	48	44	53	54	55
	2:15 PM	61	57	59	43	39	51	54	55
	2:30 PM	61	54	51	37	21	36	49	55
	2:45 PM	61	55	52	34	16	22	26	54
	3:00 PM	61	53	50	34	15	22	22	50
	3:15 PM	61	54	49	34	15	19	16	31
	3:30 PM	60	51	40	33	14	18	13	24
	3:45 PM	61	51	29	28	13	16	12	21
	4:00 PM	61	50	27	25	11	14	11	19
	4:15 PM	60	50	28	24	11	14	10	11
	4:30 PM	60	50	28	24	10	13	10	9
	4:45 PM	61	50	26	24	10	12	10	8
	5:00 PM	61	50	34	29	12	14	10	8
	5:15 PM	61	52	40	31	14	17	12	9
	5:30 PM	61	57	57	36	17	20	15	12
	5:45 PM	61	57	60	35	17	21	15	13
	6:00 PM	61	56	58	38	19	22	18	22
	6:15 PM	62	61	61	50	42	49	53	57
Field - April 9, 2019 Selected Typical Weekday (NPMRDS)	1:30 PM	61	58	54	52	54	55	54	52
	1:45 PM	62	58	57	57	59	58	58	57
	2:00 PM	61	57	57	53	56	56	56	55
	2:15 PM	60	57	53	53	54	56	55	54
	2:30 PM	61	57	51	43	38	48	49	55
	2:45 PM	60	52	43	33	25	24	29	52
	3:00 PM	63	53	40	36	23	22	21	41
	3:15 PM	60	54	43	33	19	16	14	16
	3:30 PM	58	51	39	31	19	16	14	17
	3:45 PM	58	50	41	32	19	17	15	17
	4:00 PM	60	52	39	27	16	15	13	21
	4:15 PM	58	49	36	30	13	13	10	15
	4:30 PM	61	53	36	29	13	15	14	12
	4:45 PM	61	53	34	33	17	15	17	14
	5:00 PM	61	53	37	34	14	17	15	18
	5:15 PM	59	54	41	29	16	16	15	14
	5:30 PM	63	55	42	34	19	17	17	24
	5:45 PM	59	51	42	33	27	29	33	41
	6:00 PM	66	63	58	54	60	58	57	58
	6:15 PM	65	63	59	55	57	62	57	57
VISSIM Unfactored Average	1:30 PM	61	59	60	46	50	53	54	55
	1:45 PM	61	58	59	47	44	51	54	55
	2:00 PM	61	58	60	48	44	53	54	55
	2:15 PM	61	57	59	43	39	51	54	55
	2:30 PM	61	54	51	37	21	36	49	55
	2:45 PM	61	55	52	34	16	22	26	54
	3:00 PM	61	53	50	34	15	22	22	50
	3:15 PM	61	54	49	34	15	19	16	31
	3:30 PM	60	51	40	33	14	18	13	24
	3:45 PM	61	51	29	28	13	16	12	21
	4:00 PM	61	50	27	25	11	14	11	19
	4:15 PM	60	50	28	24	11	14	10	11
	4:30 PM	60	50	28	24	10	13	10	9
	4:45 PM	61	50	26	24	10	12	10	8
	5:00 PM	61	50	34	29	12	14	10	8
	5:15 PM	61	52	40	31	14	17	12	9
	5:30 PM	61	57	58	35	16	19	15	11
	5:45 PM	61	57	59	36	17	22	16	12
	6:00 PM	61	58	60	37	18	21	16	13
	6:15 PM	62	58	60	38	22	24	18	14
Field - April 2019 Weekday Maximum (NPMRDS)	1:30 PM	63	59	59	58	60	60	60	58
	1:45 PM	62	58	57	57	59	58	58	57
	2:00 PM	61	59	57	55	57	56	56	58
	2:15 PM	62	59	55	54	56	57	57	57
	2:30 PM	62	57	51	48	46	48	52	55
	2:45 PM	63	56	46	41	37	37	38	52
	3:00 PM	63	55	45	36	27	25	33	49
	3:15 PM	61	55	47	39	25	21	22	22
	3:30 PM	62	56	46	38	28	24	26	39
	3:45 PM	63	55	46	37	22	22	20	23
	4:00 PM	64	55	44	34	20	23	19	30
	4:15 PM	62	54	47	34	18	21	17	18
	4:30 PM	63	53	46	34	18	20	16	23
	4:45 PM	62	55	45	33	17	19	17	18
	5:00 PM	62	55	46	34	20	26	24	27
	5:15 PM	61	57	52	46	43	42	27	20
	5:30 PM	64	60	52	52	48	40	31	31
	5:45 PM	63	60	52	43	40	44	53	55
	6:00 PM	68	63	60	56	60	60	60	58
	6:15 PM	65	63	59	59	62	62	62	61
Field - April 2019 Weekday Minimum (NPMRDS)	1:30 PM	60	57	54	52	54	55	54	52
	1:45 PM	58	56	50	46	48	54	54	55
	2:00 PM	57	54	49	42	43	50	50	53
	2:15 PM	58	53	43	29	18	21	19	37
	2:30 PM	56	49	37	31	19	18	16	21
	2:45 PM	57	51	41	28	20	19	18	17
	3:00 PM	58	53	40	33	20	16	17	20
	3:15 PM	57	51	40	29	16	16	14	15
	3:30 PM	58	51	39	29	18	16	14	17
	3:45 PM	58	50	39	30	19	17	15	17
	4:00 PM	56	48	36	27	16	13	13	21
	4:15 PM	56	49	36	22	13	10	10	11
	4:30 PM	55	50	36	24	13	14	13	12
	4:45 PM	57	48	34	28	12	13	12	13
	5:00 PM	51	50	34	27	12	12	15	12
	5:15 PM	58	53	40	28	14	15	13	11
	5:30 PM	57	51	39	29	18	17	16	12
	5:45 PM	58	51	42	33	24	29	25	31
	6:00 PM	58	57	56	54	55	56	57	55
	6:15 PM	59	59	47	53	57	57	56	57

WisDOT TEOpS Validation

Test	Target	I-94 Westbound					
		1:30 PM	2:30 PM	3:30 PM	4:30 PM	5:30 PM*	Period
Tier 1	RMSPE < 10%	***10.6%***	***16.3%***	***18.7%***	***22.7%***	***26.5%***	***19.7%***
Tier 2	± 20% of posted for 85% of locations	90.6%	90.6%	93.8%	100.0%	***68.8%***	88.8%

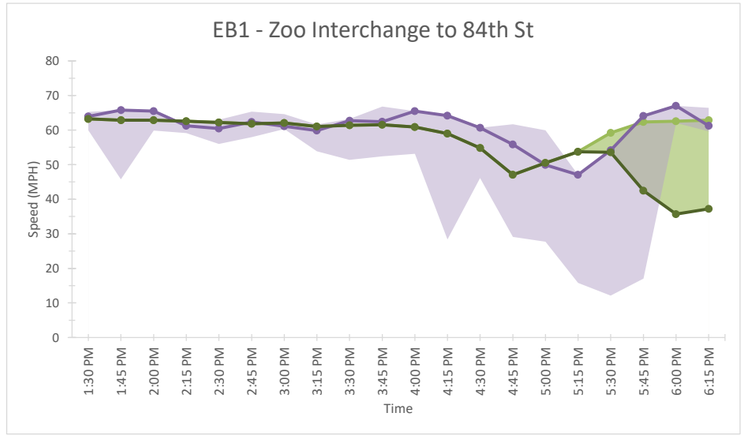
*Last hour validation based on factored model speeds vs typical day (April 9th)

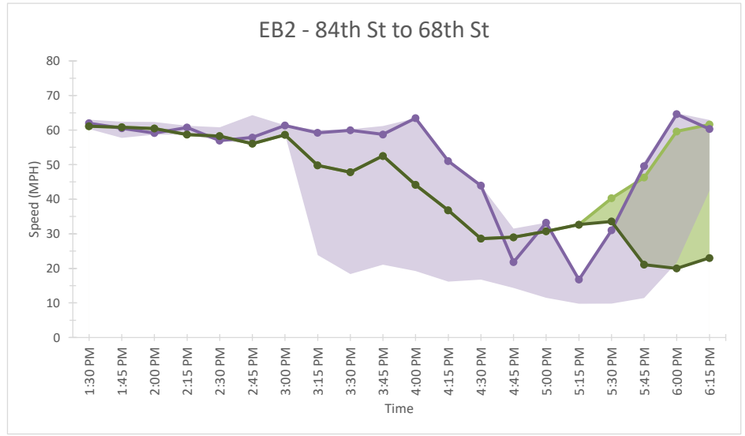
Legend						
Speed (MPH)	55+	50-55	40-50	30-40	20-30	0-20
Color						

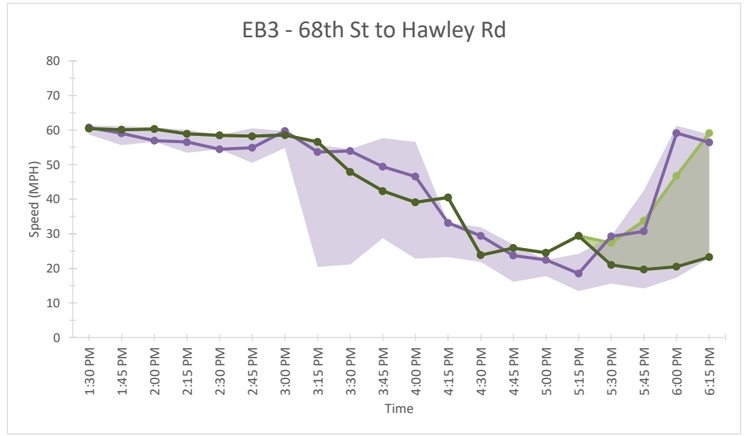
FINAL

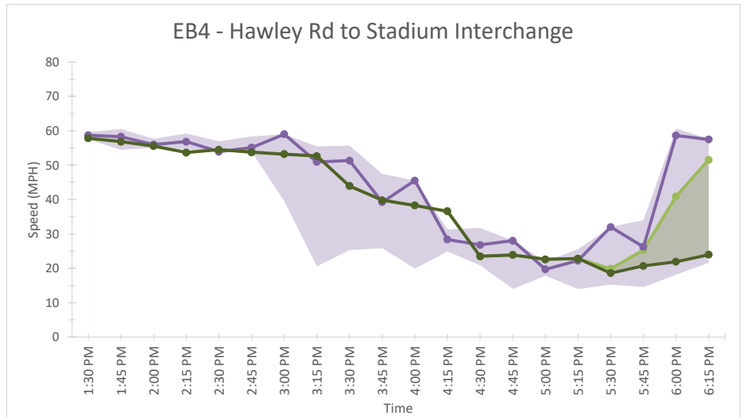
2/5/2021

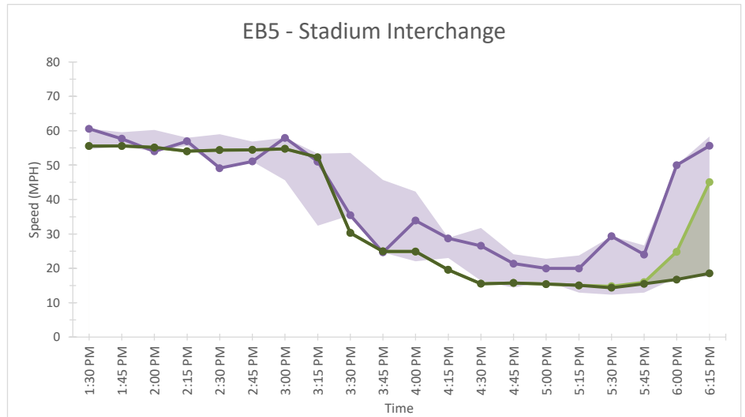
I-94 East-West Data Collection Project
Existing (2019) PM Peak Period Validation
Freeway I-94 EB Mainline Speed Profiles

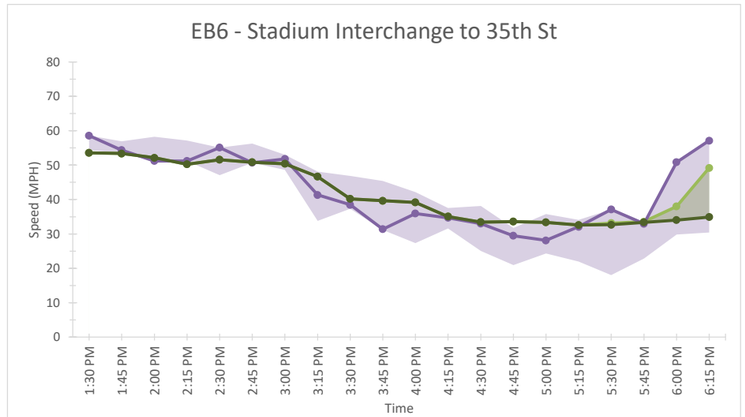


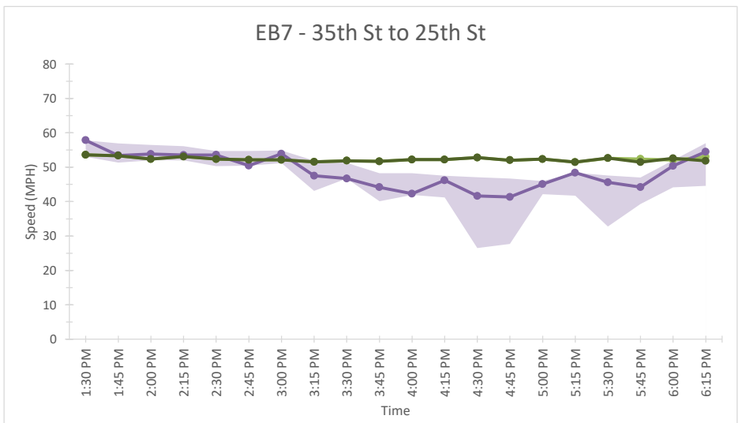


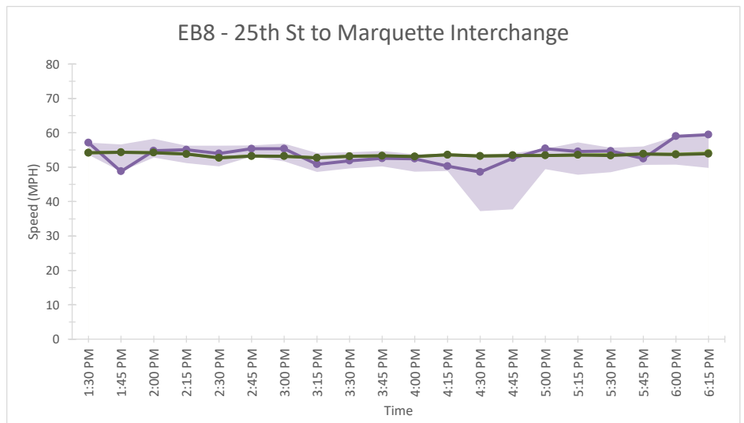












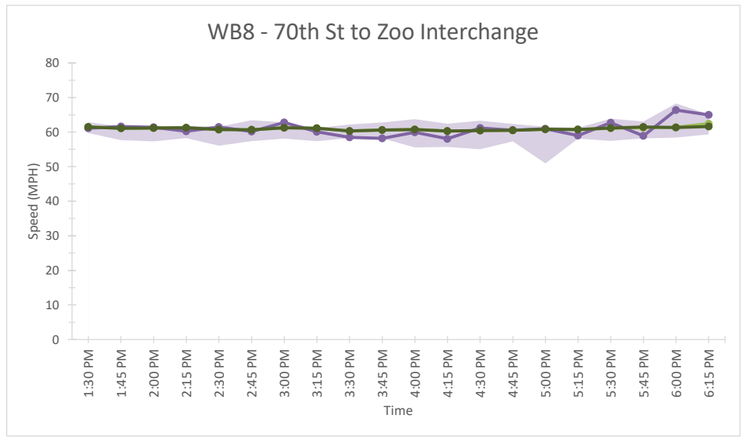
VISSIM Factored Avg | VISSIM Unfactored Avg | VISSIM Model Envelope | Field (NPMRDS - 4/9/2019) | Apr 2019 Typ Weekday Cluster Range

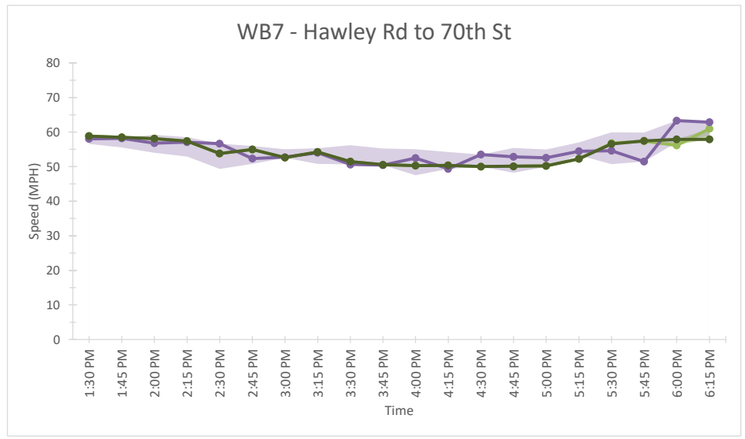
I-94 Eastbound

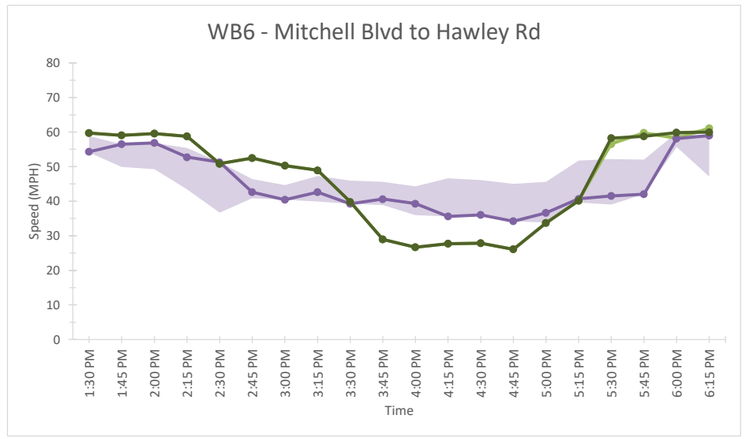
FINAL

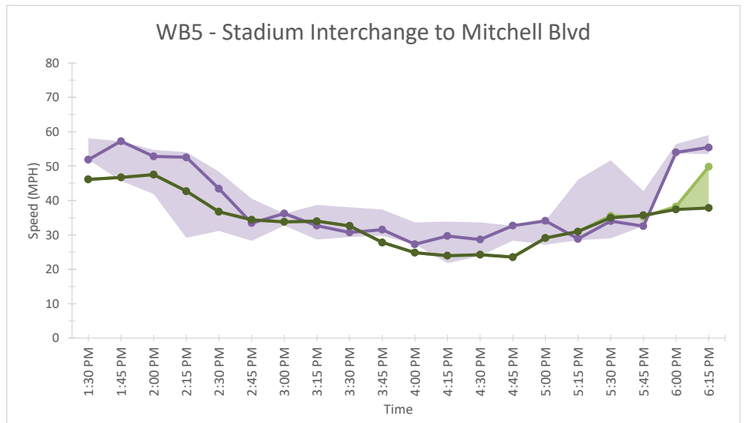
2/5/2021

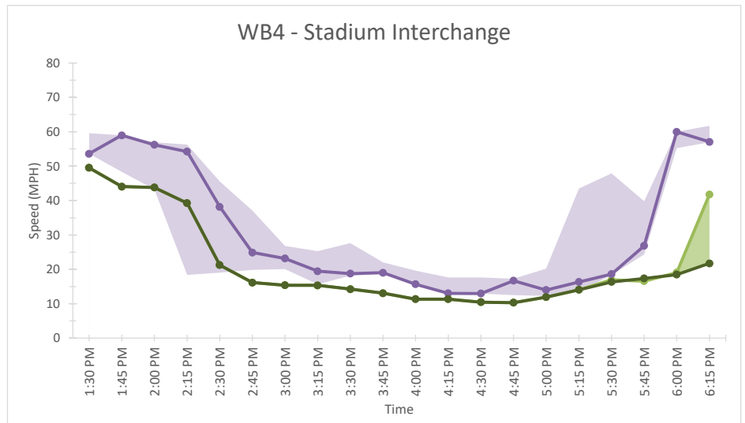
I-94 East-West Data Collection Project
Existing (2019) PM Peak Period Validation
Freeway I-94 WB Mainline Speed Profiles

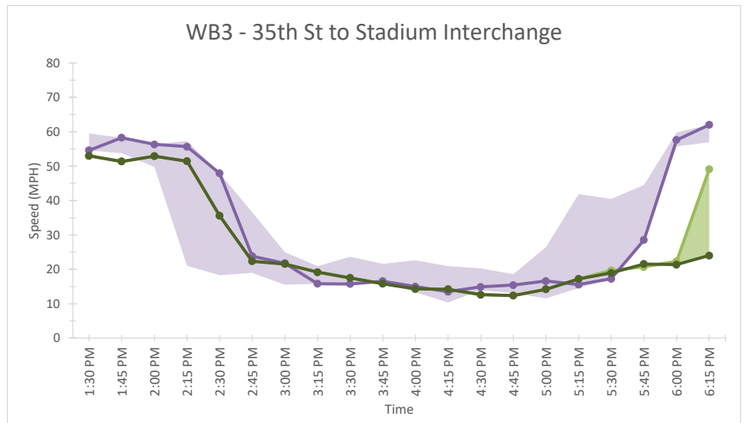


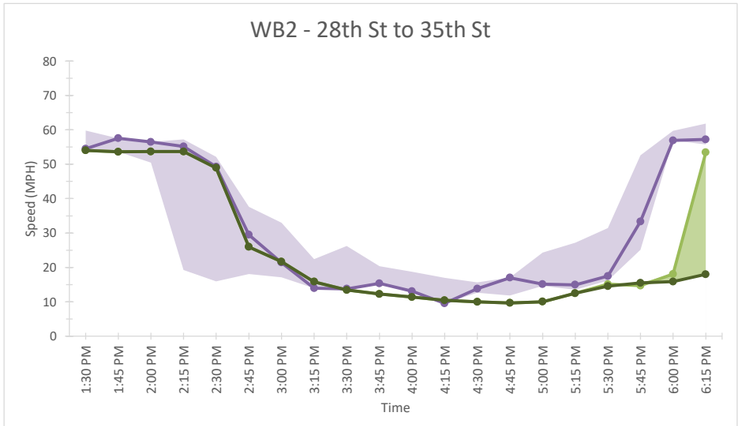


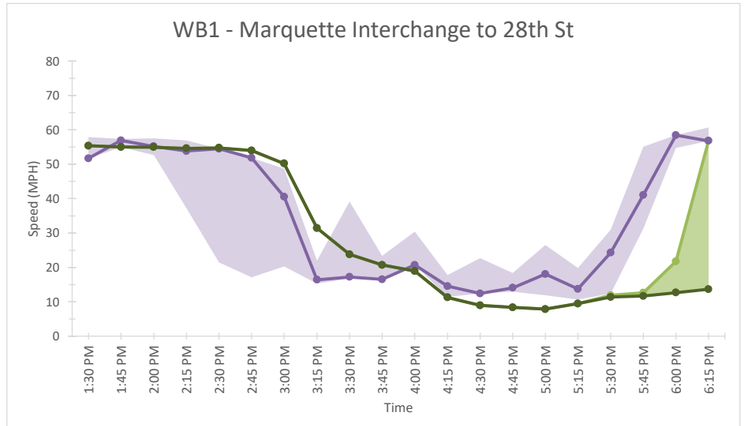












VISSIM Factored Avg | VISSIM Unfactored Avg | VISSIM Model Envelope | Field (NPMRDS - 4/9/2019) | Apr 2019 Typ Weekday Cluster Range

I-94 Westbound

FINAL

2/5/2021

I-94 East-West Data Collection Project

Existing (2019) PM Peak Period Validation

Freeway Mainline Travel Times

Dir	Segment	Dist (mi)	Time	Avg Travel Time (min)						
				VISSIM Factored	Field - 4/9 (NPMRDS)	Field - 4/9 vs Factored		VISSIM Unfactored	Apr 2019 Typical Weekday Cluster (NPMRDS)	
						RMSPE	% Diff		Min	Max
I-94 Eastbound	Stadium Interchange to Marquette Interchange (EB6 to EB8)	1.7	1:30 PM	1.9	1.9	0%	1.6%	1.9	1.8	3.0
			1:45 PM	1.9	2.0	0%	-3.1%	1.9	1.8	3.0
			2:00 PM	2.0	1.9	0%	4.2%	2.0	1.8	3.0
			2:15 PM	2.1	1.9	1%	8.8%	2.1	1.8	3.0
			2:30 PM	2.1	2.0	0%	5.0%	2.1	1.8	3.0
			2:45 PM	2.1	2.0	0%	6.6%	2.1	1.8	3.0
			3:00 PM	2.1	1.9	1%	10.5%	2.1	1.9	3.0
			3:15 PM	2.1	2.2	0%	-6.3%	2.1	2.0	3.1
			3:30 PM	2.3	2.3	0%	0.9%	2.3	2.0	3.0
			3:45 PM	2.3	2.5	1%	-8.7%	2.3	2.1	3.2
			4:00 PM	2.3	2.4	0%	-5.3%	2.3	2.2	3.3
			4:15 PM	2.4	2.4	0%	-0.4%	2.4	2.3	3.1
			4:30 PM	2.5	2.6	0%	-2.7%	2.5	2.3	4.0
			4:45 PM	2.5	2.7	0%	-6.0%	2.5	2.5	4.2
			5:00 PM	2.5	2.6	0%	-3.1%	2.5	2.3	3.4
			5:15 PM	2.5	2.4	0%	4.6%	2.5	2.3	3.6
			5:30 PM	2.5	2.3	1%	8.2%	2.5	2.3	4.2
			5:45 PM	2.5	2.5	0%	1.6%	2.5	2.4	3.6
			6:00 PM	2.3	2.1	1%	7.5%	2.4	1.9	3.1
			6:15 PM	2.1	2.0	0%	4.5%	2.4	1.8	3.1
	68th St to Stadium Interchange (EB3 to EB5)	1.5	1:30 PM	1.5	1.5	0%	0.0%	1.5	1.5	3.0
			1:45 PM	1.5	1.6	0%	-3.8%	1.5	1.5	3.0
			2:00 PM	1.5	1.6	0%	-6.8%	1.5	1.5	3.0
			2:15 PM	1.6	1.6	0%	0.6%	1.6	1.5	3.0
			2:30 PM	1.6	1.7	0%	-6.4%	1.6	1.6	3.0
			2:45 PM	1.6	1.7	0%	-4.2%	1.6	1.5	3.0
			3:00 PM	1.6	1.5	0%	4.6%	1.6	1.5	3.0
			3:15 PM	1.6	1.7	1%	-7.5%	1.6	1.6	4.1
			3:30 PM	2.1	2.0	1%	7.7%	2.1	1.7	3.7
			3:45 PM	2.4	2.5	0%	-5.5%	2.4	1.8	3.4
			4:00 PM	2.5	2.4	0%	5.9%	2.5	1.9	4.2
			4:15 PM	2.6	3.0	2%	-13.3%	2.6	2.9	3.8
			4:30 PM	4.0	3.5	2%	***15.6%***	4.0	2.8	4.6
			4:45 PM	3.9	3.5	1%	10.2%	3.9	3.4	6.1
			5:00 PM	4.0	4.4	1%	-8.0%	4.0	4.0	5.2
			5:15 PM	4.0	4.3	0%	-7.0%	4.0	3.7	6.7
			5:30 PM	4.0	3.5	2%	14.6%	4.6	3.0	6.4
			5:45 PM	3.4	3.3	0%	1.8%	4.5	2.7	6.5
			6:00 PM	2.2	2.0	1%	9.5%	4.2	1.6	5.1
			6:15 PM	1.6	1.6	0%	0.6%	3.8	1.6	4.4
	Zoo Interchange to 68th St (EB1 to EB2)	1.8	1:30 PM	1.6	1.7	0%	-5.3%	1.6	1.7	2.0
			1:45 PM	1.6	1.8	2%	-12.6%	1.6	1.7	2.1
			2:00 PM	1.6	1.7	1%	-7.5%	1.6	1.7	2.0
			2:15 PM	1.6	1.7	1%	-8.0%	1.6	1.7	2.0
			2:30 PM	1.6	1.8	1%	-12.1%	1.6	1.7	2.1
			2:45 PM	1.6	1.8	1%	-10.1%	1.6	1.6	2.1
			3:00 PM	1.6	1.7	1%	-7.5%	1.6	1.7	2.0
			3:15 PM	1.7	1.8	0%	-4.5%	1.7	1.8	3.7
			3:30 PM	1.8	1.8	0%	0.0%	1.8	1.7	4.7
			3:45 PM	1.7	1.9	1%	-11.0%	1.7	1.7	3.9
			4:00 PM	1.9	1.7	2%	14.5%	1.9	1.7	4.3
			4:15 PM	2.2	2.4	0%	-6.8%	2.2	2.0	5.6
			4:30 PM	2.5	2.7	0%	-6.4%	2.5	2.2	4.7
			4:45 PM	2.7	4.0	***10%***	***-32.0%***	2.7	2.9	6.2
			5:00 PM	2.5	2.8	1%	-11.7%	2.5	2.8	7.2
			5:15 PM	2.4	4.4	***21%***	***-45.3%***	2.4	4.4	9.4
			5:30 PM	2.1	3.0	9%	***-29.5%***	2.4	3.0	10.1
			5:45 PM	1.8	2.0	1%	-10.4%	3.4	1.9	8.1
			6:00 PM	1.6	1.6	0%	-1.8%	3.7	1.6	4.4
			6:15 PM	1.6	1.7	1%	-8.0%	3.4	1.7	2.5
	Zoo Interchange to Marquette Interchange (EB1 to EB8)	5.0	1:30 PM	5.0	5.1	0%	-1.2%	5.0	5.0	8.0
			1:45 PM	5.0	5.4	0%	-6.5%	5.0	5.0	8.1
			2:00 PM	5.1	5.3	0%	-3.0%	5.1	5.0	8.0
			2:15 PM	5.3	5.3	0%	0.8%	5.3	5.0	8.0
			2:30 PM	5.3	5.5	0%	-4.2%	5.3	5.1	8.1
			2:45 PM	5.3	5.4	0%	-2.2%	5.3	4.9	8.1
			3:00 PM	5.3	5.2	0%	2.7%	5.3	5.1	8.0
			3:15 PM	5.4	5.8	0%	-6.1%	5.4	5.4	10.9
			3:30 PM	6.2	6.0	0%	2.8%	6.2	5.4	11.4
			3:45 PM	6.4	7.0	1%	-8.2%	6.4	5.6	10.5
			4:00 PM	6.7	6.5	0%	3.9%	6.7	5.8	11.8
			4:15 PM	7.2	7.8	1%	-7.3%	7.2	7.2	12.5
			4:30 PM	9.0	8.7	0%	3.4%	9.0	7.3	13.3
			4:45 PM	9.1	10.2	1%	-10.5%	9.1	8.8	16.5
			5:00 PM	9.0	9.8	1%	-7.8%	9.0	9.1	15.8
			5:15 PM	8.9	11.1	4%	***-19.7%***	8.9	10.4	19.7
			5:30 PM	8.6	8.8	0%	-2.1%	9.5	8.3	20.7
			5:45 PM	7.7	7.8	0%	-1.4%	10.4	7.0	18.2
			6:00 PM	6.1	5.8	0%	5.5%	10.3	5.1	12.6
			6:15 PM	5.3	5.3	0%	-0.7%	9.6	5.1	10.0

WisDOT TEOpS Validation

Test	Target	I-94 Eastbound					
		1:30 PM	2:30 PM	3:30 PM	4:30 PM	5:30 PM*	Period
Tier 1	RMSPE < 10%	5.8%	6.8%	7.6%	***16.5%***	9.8%	***10.1%***
Tier 2	TT ± 15% for 85% of routes	-	-	-	***75.0%***	-	94.0%

*Last hour validation based on factored model speeds vs typical day (April 9th)

Legend						
Travel Time (min)	0-3	3-5	5-8	8-12	12-15	15+
Color						

FINAL

2/5/2021

I-94 East-West Data Collection Project

Existing (2019) PM Peak Period Validation

Freeway Mainline Travel Times

Dir	Segment	Dist (mi)	Time	Avg Travel Time (min)						
				VISSIM Factored	Field - 4/9 (NPMRDS)	Field - 4/9 vs Factored		VISSIM Unfactored	Apr 2019 Typical Weekday Cluster (NPMRDS)	
						RMSPE	% Diff		Min	Max
I-94 Westbound	Marquette Interchange to Stadium Interchange (WB1 to WB3)	1.7	1:30 PM	1.9	2.1	1%	-8.7%	1.9	1.8	3.1
			1:45 PM	1.9	1.9	0%	-1.0%	1.9	1.8	3.1
			2:00 PM	1.9	2.0	0%	-3.6%	1.9	1.8	3.1
			2:15 PM	1.9	2.0	0%	-6.9%	1.9	1.8	4.2
			2:30 PM	2.0	2.1	0%	-6.5%	2.0	2.0	5.7
			2:45 PM	2.9	3.0	0%	-4.0%	2.9	2.4	6.0
			3:00 PM	3.6	3.9	0%	-6.7%	3.6	2.8	5.7
			3:15 PM	4.8	5.9	3%	***-18.6%***	4.8	4.9	7.0
			3:30 PM	5.5	6.5	2%	***-15.4%***	5.5	3.4	6.7
			3:45 PM	6.2	6.9	1%	-10.5%	6.2	4.9	6.9
			4:00 PM	6.7	7.0	0%	-3.7%	6.7	4.4	7.0
			4:15 PM	9.0	9.1	0%	-1.1%	9.0	6.0	9.8
			4:30 PM	10.6	9.9	1%	7.4%	10.6	5.4	9.9
			4:45 PM	10.1	9.9	0%	1.7%	10.1	5.8	9.9
			5:00 PM	10.4	9.3	2%	12.3%	10.4	4.4	9.3
			5:15 PM	9.3	7.8	4%	***19.2%***	9.3	4.8	8.9
			5:30 PM	7.5	5.7	10%	***31.3%***	7.9	3.3	7.6
			5:45 PM	7.3	4.1	***64%***	***79.8%***	7.6	2.0	4.1
			6:00 PM	4.9	3.2	***29%***	***53.6%***	7.1	1.8	3.2
			6:15 PM	1.9	1.9	0%	-1.0%	6.5	1.7	3.0
	Stadium Interchange to Hawley Rd (WB4 to WB6)	1.2	1:30 PM	1.6	1.6	0%	2.6%	1.6	1.3	3.0
			1:45 PM	1.5	1.5	0%	1.4%	1.5	1.3	3.0
			2:00 PM	1.5	1.5	0%	-1.3%	1.5	1.3	3.0
			2:15 PM	1.7	1.7	0%	1.8%	1.7	1.3	3.2
			2:30 PM	2.3	1.9	5%	***21.7%***	2.3	1.5	3.1
			2:45 PM	2.6	2.6	0%	0.8%	2.6	1.8	3.1
			3:00 PM	2.9	2.6	1%	10.7%	2.9	2.1	3.9
			3:15 PM	2.9	2.9	0%	-0.3%	2.9	2.1	5.9
			3:30 PM	3.1	3.1	0%	0.0%	3.1	2.0	6.5
			3:45 PM	3.7	3.3	1%	11.8%	3.7	2.3	6.9
			4:00 PM	4.1	3.5	4%	***18.8%***	4.1	2.5	7.0
			4:15 PM	4.1	3.8	1%	9.0%	4.1	2.5	9.1
			4:30 PM	4.3	4.0	1%	7.8%	4.3	2.6	9.9
			4:45 PM	3.8	3.8	0%	-0.3%	3.8	2.6	9.9
			5:00 PM	3.6	3.4	0%	5.0%	3.6	2.4	9.3
			5:15 PM	3.1	3.3	0%	-6.6%	3.1	1.6	7.8
			5:30 PM	2.6	2.8	1%	-8.5%	2.6	1.4	5.7
			5:45 PM	2.6	2.5	0%	2.8%	2.5	1.6	4.1
			6:00 PM	2.4	2.2	1%	7.6%	2.4	1.2	3.2
			6:15 PM	1.5	1.8	2%	***-15.3%***	2.3	1.2	3.0
	Hawley Rd to Zoo Interchange (WB7 to WB8)	2.1	1:30 PM	1.9	2.1	1%	-8.7%	1.9	2.1	2.4
			1:45 PM	1.9	2.1	1%	-8.7%	1.9	1.9	2.4
			2:00 PM	1.9	2.1	1%	-9.5%	1.9	2.0	2.4
			2:15 PM	1.9	2.1	1%	-9.5%	1.9	2.0	2.4
			2:30 PM	1.9	2.1	1%	-9.1%	1.9	2.1	2.5
			2:45 PM	1.9	2.2	2%	-13.6%	1.9	2.1	3.0
			3:00 PM	1.9	2.1	1%	-10.4%	1.9	2.1	3.9
			3:15 PM	1.9	2.2	1%	-11.6%	1.9	2.1	5.9
			3:30 PM	2.0	2.3	1%	-11.1%	2.0	2.1	6.5
			3:45 PM	2.0	2.3	1%	-11.5%	2.0	2.1	6.9
			4:00 PM	2.0	2.2	1%	-8.3%	2.0	2.1	7.0
			4:15 PM	2.0	2.3	2%	-12.7%	2.0	2.1	9.1
			4:30 PM	2.0	2.1	0%	-6.5%	2.0	2.1	9.9
			4:45 PM	2.0	2.2	1%	-7.4%	2.0	2.1	9.9
			5:00 PM	2.0	2.2	1%	-7.4%	2.0	2.1	9.3
			5:15 PM	2.0	2.2	1%	-7.8%	2.0	2.1	7.8
			5:30 PM	1.9	2.1	1%	-9.1%	1.9	2.0	5.7
			5:45 PM	1.9	2.2	2%	-14.0%	1.9	2.0	4.1
			6:00 PM	1.9	1.9	0%	-0.5%	1.9	1.9	3.2
			6:15 PM	1.7	2.0	2%	-12.8%	1.8	1.9	2.4
	Marquette Interchange to Zoo Interchange (WB1 to WB8)	5.0	1:30 PM	5.4	5.7	0%	-5.6%	5.4	5.2	8.5
			1:45 PM	5.3	5.5	0%	-3.3%	5.3	5.0	8.5
			2:00 PM	5.3	5.6	0%	-5.2%	5.3	5.1	8.5
			2:15 PM	5.5	5.8	0%	-5.3%	5.5	5.1	9.8
			2:30 PM	6.2	6.1	0%	1.3%	6.2	5.6	11.3
			2:45 PM	7.4	7.8	0%	-5.1%	7.4	6.3	12.1
			3:00 PM	8.4	8.6	0%	-2.3%	8.4	7.0	13.4
			3:15 PM	9.6	11.0	2%	-12.4%	9.6	9.1	18.8
			3:30 PM	10.6	11.9	1%	-10.5%	10.6	7.5	19.7
			3:45 PM	11.9	12.5	0%	-4.8%	11.9	9.3	20.8
			4:00 PM	12.8	12.6	0%	1.7%	12.8	9.0	20.9
			4:15 PM	15.1	15.2	0%	-0.3%	15.1	10.6	28.0
			4:30 PM	16.9	16.0	0%	5.6%	16.9	10.1	29.6
			4:45 PM	15.9	15.9	0%	0.0%	15.9	10.5	29.8
			5:00 PM	16.0	14.9	1%	7.7%	16.0	8.9	27.8
			5:15 PM	14.4	13.3	1%	8.4%	14.4	8.5	24.5
			5:30 PM	12.0	10.6	2%	12.8%	12.4	6.7	19.0
			5:45 PM	11.8	8.8	***12%***	***34.1%***	12.0	5.6	12.2
			6:00 PM	9.2	7.3	7%	***25.5%***	11.4	4.9	9.6
			6:15 PM	5.1	5.6	1%	-9.6%	10.6	4.8	8.4

WisDOT TEOpS Validation

Test	Target	I-94 Westbound					
		1:30 PM	2:30 PM	3:30 PM	4:30 PM	5:30 PM*	Period
Tier 1	RMSPE < 10%	6.0%	***10.4%***	9.9%	8.2%	***28.6%***	***15.0%***
Tier 2	TT ± 15% for 85% of routes	-	88.0%	-	-	***63.0%***	86.0%

*Last hour validation based on factored model speeds vs typical day (April 9th)

Legend						
Travel Time (min)	0-3	3-5	5-8	8-12	12-15	15+
Color						

FINAL

2/5/2021

General Notes

- Measured free-flow speed based on median weekday overnight (8PM-5AM) NPMRDS speed data for April 2019 by I-94 corridor direction and segment (east and west of Stadium Int)
    - Excludes Milwaukee Brewers' home game dates
- Ramp density calculated across the entire facility per HCM direction (total number of ramps divided by the total facility length)
- Overlapping ramp/weave areas adjacent to the Stadium Interchange have been analyzed as a combination of basic (lane add/drop) and merge/diverge segments to reflect the geometry of the corridor as closely as possible
- Per HCM, weave segment lengths (not short distance) include 500 ft upstream and downstream influence area
- Jam density and queue discharge capacity drop parameters are default
- Ramp overlap segment distances were determined by making both the ramp merge and ramp diverge segment distances equal to the maximum acceleration or deceleration lane length. The overlap segment distance was then calculated as 1500 feet minus the adjacent ramp segment length. Per the Highway Capacity Manual, the influence area of a ramp segment is 1500 feet.
- Refer to **Appendix A** for existing AM and PM peak period speed, density, and LOS results

General Assumptions

- Service ramp free-flow speed = 35 mph
- System ramp free-flow speed = advisory speeds where signed as noted in **Table 1**
    - If not signed, then assumed = 50 mph

Table 1 - System Ramp Free-Flow Speeds

Ramp	FFS (mph)	Type
Zoo Int S-E Sys Ramp	45	Advisory
Zoo Int N-E Sys Ramp	45	Advisory
Zoo Int E-N Sys Ramp	45	Advisory
Zoo Int E-S Sys Ramp	45	Advisory
Stadium Int W-N	40	Advisory
Stadium Int W-S	40	Advisory
Stadium Int S-W	40	Advisory
Stadium Int S-E	35	Advisory
Stadium Int N-E	35	Advisory
Stadium Int N-W	40	Advisory
Stadium Int E-N	35	Advisory
Stadium Int E-S	50	Assumed
Marq Int W-N	40	Advisory
Marq Int W-S	50	Assumed
Marq Int S-W*	50	Assumed
Marq Int N-W*	40	Advisory

*I-94 WB segment 3 ramp free-flow speed is assumed to be 50 mph

Volumes

- Trip tables for each analysis hour were estimated by HNTB using R scripts which utilize the following inputs:
    - Hourly, balanced freeway and ramp volumes for I-94 and Miller Park Way/WIS 175
        - Provided by WisDOT
    - Hourly, balanced service interchange turning movement volumes for I-94
        - Provided by WisDOT
    - Hourly, balanced service interchange and adjacent intersection turning movement volumes
        - Estimated and balanced by HNTB using StreetLight origin-destination data assigned to the I-94 EW network corresponding to balanced, hourly ramp volumes
    - StreetLight origin-destination data corresponding to the I-94 EW zone structure
        - Serves as realistic pattern for trip table development
        - Provides weave proportions based on logical, shortest path routing within the I-94 EW network
- Hourly trip tables were then sub-divided into 15 minute trip tables using R scripts which utilize proportions calculated from 15 minute freeway, system ramp, service ramp, and intersection count data provided by WisDOT throughout the analysis network. The 15 minute trip tables attempt to replicate volume profile proportions at each location with data.
    - As the analysis utilizes 15 minute volume inputs (converted to an hourly flow rate), a peak hour factor (PHF) of 1.0 is used.
- The 15 minute trip tables were then split into auto and truck trip tables using R scripts which utilize truck percentages (in 15 minute bins) from freeway, ramp, and intersection count data provided by WisDOT. The 15 minute auto and truck trip tables attempt to replicate truck percentages at each location with data.

I-94 Eastbound

- Segment 11 (Hawley Rd Entr Ramp to Gen Mitchell Blvd Exit Ramp)
    - Analyzed as a two-sided weave for consistency with 2009 segment-based HCS operations analysis
    - Demand adjustment factors were required in some time periods to fix false bottleneck reported by HCS Facilities in this area
- Segments 13-15
    - HCS Facilities does not allow for left side weaves or two-sided weaves from left to right (only allows for right to left two sided weaves). As such, this portion of the corridor was analyzed as a lane add (#13 basic), diverge (#14), and lane drop (#15 basic).
    - Gen Mitchell Blvd Entr Ramp (#13) is a lane add from the left side. HCS Facilities only adds/drops lanes from the right side. Since the ramp is analyzed as a basic segment due to the lane add it should not affect the results of the analysis for this segment.
    - Stadium Int W-N System Ramp (#15) is an exit only from the left side. As noted previously, HCS Facilities only adds/drops lanes from the right side. Since the ramp is analyzed as a basic segment it should not affect the results of the analysis for this segment.

I-94 Westbound

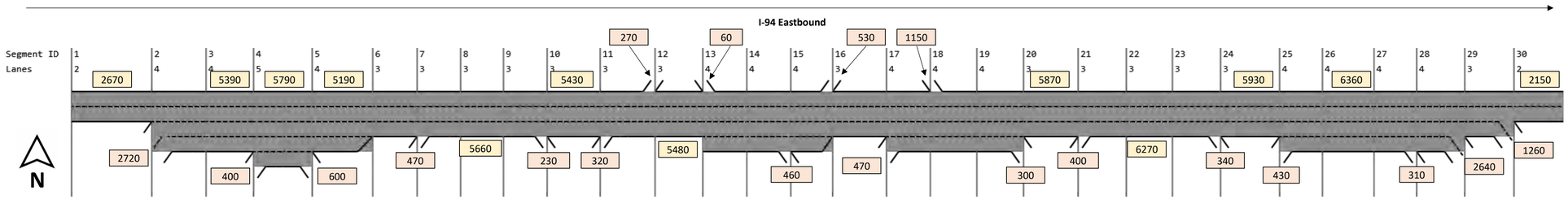
- Segment 3 (Marquette Int N-W/S-W System Ramps to 25th St Exit Ramp)
    - Technically this segment should be analyzed as a two-sided weave where I-794 WB and the 25th St exit ramp would be the "ramps" as traffic from I-794 WB needs to make three (3) lane changes to exit at 25th St, which exceeds the max number of F-R lane changes for a one-sided weave.
    - However, HCS Facilities does not allow for two-sided left to right weaves and the F-F movement cannot be modified to reflect that the Marquette Int system ramps would be the "freeway" approach movement. As such, this segment is analyzed as a one-sided weave with the max number of F-R lane changes (2) and number of weaving lanes (3).

HCM Limitations

- As noted previously, overlapping ramp/weave areas adjacent to the Stadium Interchange have been analyzed as a combination of basic (lane add/drop) and merge/diverge segments to reflect the geometry of the corridor as closely as possible
- HCM analyzes the entrance ramp lane adds and exit ramp lane drops via an auxiliary lane as basic segments with full four lanes of capacity and even distribution due to segmentation
- In conjunction with WisDOT, HNTB developed and tested a capacity adjustment factor (CAF) which attempted to reflect the difference in capacity of an auxiliary lane in comparison to a standard freeway lane
    - HNTB determined that the CAF had little to no impact on reported HCM operations for either direction or peak period
    - The capacity of the segments where the CAF was applied was controlled by downstream conditions and resulting queuing during the portions of the peak period with the greatest demand
        - For oversaturated periods on these segments, HCS reported that *"…this time period uses the calculated values of flow instead of the input Demand values, as per guidance in the HCM for the oversaturated procedure*."
    - During non-oversaturated conditions, the demand is much lower than the reduced segment capacity with the CAF applied and therefore it had no impact during these periods either
- Based on these findings, WisDOT and HNTB agreed to not apply the CAF in the final version of the HCM Facilities analysis

Appendix A – Existing Peak Period Operations Summaries

I-94 East-West Data Collection Project
Existing (2019) AM Peak Period
HCS Facilities Analysis Summary: I-94 EB



ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Segment	Zoo Int W-E System Movement	Zoo Int S-E/N-E System Ramps	Zoo Int S-E/N-E System Ramps to 84th St Entr Ramp	84th St Entr Ramp to 70th St Exit Ramp	70th St Exit Ramp to Lane Merge	Lane Merge to 68th St Entr Ramp	68th St Entr Ramp	68th St Entr Ramp to Hawley Rd Exit Ramp	Hawley Rd Exit Ramp	Hawley Rd Exit Ramp to Hawley Rd Entr Ramp	Hawley Rd Entr Ramp to Gen Mitchell Blvd Exit Ramp	Gen Mitchell Blvd Exit Ramp to Gen Mitchell Blvd Entr Ramp	Gen Mitchell Blvd Entr Ramp	Stadium Int W-S System Ramp	Stadium Int W-N System Ramp	Stadium Int W-E System Movement	Stadium Int S-E System Ramp	Stadium Int N-E System Ramp	35th St Exit Ramp	35th St Exit Ramp to 35th St Entr Ramp	35th St Entr Ramp	35th St Entr Ramp to 26th St Exit Ramp	26th St Exit Ramp	26th St Exit Ramp to 25th St Entr Ramp	25th St Entr Ramp	25th St Entr Ramp to 13th St Exit Ramp	13th St Exit Ramp	Marquette Int W-N System Ramp	Marquette Int W-S System Ramp	Marquette Int W-E System Movement
Type	B	M**	B	W	B	B	M	O	D	B	W	B	M**	D	D**	B	M**	M	D**	B	M	O	D	B	M**	O	D	D**	D**	B
Speed (MPH)																														
5:30 AM	63.0	63.0	63.0	56.6	62.8	63.0	57.3	59.7	57.7	61.7	57.0	62.1	58.0	56.9	57.3	57.8	58.0	54.8	57.0	57.8	53.8	53.8	54.0	57.6	57.9	57.0	57.0	57.6	57.9	58.0
5:45 AM	63.0	63.0	63.0	55.6	62.7	63.0	56.9	59.4	57.6	61.7	56.2	62.0	58.0	56.7	57.2	57.8	58.0	54.5	56.9	57.8	53.6	53.6	53.9	57.6	57.9	56.9	56.9	57.6	57.9	58.0
6:00 AM	63.0	63.0	63.0	55.3	62.7	63.0	56.6	59.3	57.6	61.7	55.7	61.9	58.0	56.7	57.2	57.8	58.0	54.4	56.8	57.8	53.4	53.4	54.0	57.6	57.9	56.8	56.8	57.5	57.9	58.0
6:15 AM	63.0	63.0	62.9	53.4	62.7	57.7	53.7	56.2	56.9	57.9	53.7	52.1	55.8	55.9	56.7	57.7	57.9	53.3	56.5	57.3	51.7	51.7	53.3	57.5	57.9	56.1	56.1	57.2	57.8	58.0
6:30 AM	63.0	63.0	63.0	51.4	62.6	58.4	53.6	56.0	56.8	58.3	53.7	52.6	56.0	56.0	56.8	57.7	57.9	52.8	56.3	54.7	50.2	50.2	53.1	55.2	57.6	55.5	55.5	57.0	57.8	58.0
6:45 AM	63.0	63.0	63.0	50.3	62.6	60.5	54.4	58.0	57.1	59.6	53.6	56.9	57.6	56.2	56.9	57.7	57.9	53.1	56.4	56.2	50.7	50.7	53.2	56.3	57.7	55.7	55.7	57.1	57.8	58.0
7:00 AM	63.0	56.5	62.0	49.9	62.5	***25.6***	***28.5***	***27.4***	***26.6***	***21.5***	54.1	61.7	53.5	55.7	56.1	57.5	53.8	53.1	55.8	56.7	50.9	50.9	53.3	56.2	52.7	52.7	55.8	53.0	55.5	57.5
7:15 AM	63.0	57.8	62.2	50.7	***11.0***	***16.4***	***21.7***	***21.3***	***21.6***	***19.5***	54.2	61.7	53.5	55.7	56.3	57.6	53.7	53.1	55.8	56.3	50.5	50.5	53.2	55.3	52.5	52.5	55.6	52.8	55.6	57.5
7:30 AM	63.0	59.1	62.4	51.3	***8.5***	***13.7***	***19.9***	***19.6***	***19.9***	***18.2***	54.1	61.7	53.3	55.6	56.2	57.5	53.6	***25.8***	***20.1***	***27.1***	50.8	50.8	53.3	55.8	52.5	52.5	55.6	52.2	55.7	57.5
7:45 AM	63.0	59.3	62.4	52.1	***13.2***	***14.4***	***20.1***	***19.8***	***20.1***	***18.5***	54.1	61.7	53.3	55.6	56.4	***20.8***	***11.1***	***14.8***	***14.6***	***25.0***	50.7	50.7	53.4	55.9	52.5	52.5	55.5	52.8	56.1	57.6
8:00 AM	63.0	59.2	62.4	51.9	62.6	63.0	56.5	59.2	57.6	61.7	54.5	61.8	***18.0***	***13.7***	***11.7***	***15.7***	***11.5***	***15.4***	***15.2***	***27.7***	50.8	50.8	53.3	55.8	52.5	52.5	55.7	52.9	56.4	57.7
8:15 AM	63.0	59.0	62.4	50.8	62.6	62.9	56.7	59.3	57.7	61.7	55.5	61.9	53.8	55.8	56.4	***16.5***	***11.8***	***15.9***	***15.7***	***28.8***	50.8	50.8	53.3	56.1	52.6	52.6	55.7	53.0	56.5	57.7
8:30 AM	63.0	57.9	62.2	50.1	62.6	62.9	56.0	58.9	57.6	61.7	54.5	61.8	53.4	55.6	56.5	***22.3***	***11.7***	***15.7***	***15.5***	***28.1***	50.8	50.8	53.2	56.1	52.7	52.7	55.8	52.3	56.2	57.6
8:45 AM	63.0	58.2	62.2	51.2	62.6	63.0	56.1	59.0	57.6	61.7	54.6	61.8	53.5	55.7	56.4	57.6	***12.1***	***16.4***	***16.1***	***29.4***	50.9	50.9	53.1	56.2	52.7	52.7	55.7	53.1	56.3	57.7
9:00 AM	63.0	59.0	62.4	51.6	62.6	63.0	56.8	59.4	57.8	61.8	55.7	61.9	53.9	55.9	56.3	57.6	***16.2***	***20.4***	***17.0***	*30.8*	50.8	50.8	53.3	56.7	52.8	52.8	55.8	53.9	56.4	57.7
9:15 AM	63.0	58.8	62.3	51.9	62.6	63.0	56.7	59.3	57.7	61.7	55.6	61.9	53.9	55.9	56.5	57.6	***15.9***	***21.0***	***17.0***	*30.8*	50.8	50.8	53.4	56.3	52.7	52.7	55.7	53.6	56.3	57.7
Density (pc/mi/ln)																														
5:30 AM	12.3	6.2	13.8	12.9	13.8	18.4	20.6	19.5	23.9	18.5	21.5	19.2	15.6	18.0	13.8	16.8	12.6	15.8	15.7	19.5	17.5	22.2	24.3	18.7	14.1	15.7	16.3	14.6	10.5	8.8
5:45 AM	14.3	7.1	16.1	15.2	15.9	21.2	23.1	22.3	26.5	21.2	24.9	21.8	17.8	20.6	15.4	18.3	13.8	17.2	17.2	21.6	19.2	24.5	26.2	20.5	15.4	16.9	17.5	15.7	11.7	10.4
6:00 AM	15.7	7.9	17.1	16.4	17.2	22.9	24.6	24.0	28.0	23.0	27.1	23.6	19.2	21.6	17.0	20.1	15.0	17.8	18.4	23.3	20.5	26.5	27.4	22.7	17.0	18.5	18.6	17.3	12.2	10.5
6:15 AM	24.2	12.1	24.5	24.3	24.6	*35.8*	33.2	*38.1*	*35.8*	*35.5*	*35.9*	*44.5*	27.0	29.1	24.2	28.7	21.5	23.8	25.8	32.6	28.0	*37.5*	34.5	30.7	22.9	25.2	24.3	23.3	17.0	16.0
6:30 AM	23.0	11.5	24.3	25.4	24.1	34.7	33.8	*38.4*	*36.1*	34.8	*35.7*	*43.7*	26.6	28.2	24.2	29.1	21.8	27.4	28.6	*38.1*	31.8	*43.6*	*37.3*	*37.2*	26.5	29.9	28.9	26.9	18.9	16.5
6:45 AM	23.1	11.6	23.7	25.3	22.4	31.1	32.2	34.8	34.5	32.7	*35.9*	*37.0*	25.2	27.3	23.0	27.3	20.5	26.2	27.0	*35.2*	30.9	*41.6*	*36.4*	35.0	25.5	28.5	27.3	26.1	19.1	18.1
7:00 AM	22.5	25.3	22.6	24.7	20.2	***65.4***	***64.2***	***66.4***	***67.9***	***78.6***	33.3	27.5	24.3	24.0	21.3	24.7	22.2	26.5	27.2	34.1	30.7	*40.9*	*36.0*	*35.2*	30.0	30.0	27.1	28.7	20.5	18.6
7:15 AM	22.3	22.9	21.0	21.9	***105.4***	***93.8***	***80.2***	***81.6***	***80.3***	***85.7***	33.2	27.5	24.4	23.6	21.3	24.8	22.9	26.8	27.7	35.0	31.8	*42.5*	*36.7*	*36.9*	31.5	31.5	28.2	30.0	21.4	19.5
7:30 AM	18.7	18.2	17.1	18.9	***123.9***	***102.5***	***84.1***	***85.4***	***84.2***	***89.1***	33.2	27.7	25.4	24.1	22.5	26.3	24.0	***59.4***	***74.5***	***68.5***	31.6	*41.2*	*36.1*	*36.0*	32.0	32.0	28.4	30.8	21.5	20.1
7:45 AM	16.7	16.5	15.5	16.6	***82.0***	***100.0***	***83.6***	***85.0***	***83.8***	***88.4***	33.2	28.2	25.4	23.7	22.1	***68.1***	***110.9***	***97.1***	***98.4***	***73.3***	31.7	*41.3*	*36.0*	*35.8*	31.8	31.8	28.6	30.5	20.7	20.3
8:00 AM	16.2	16.8	15.8	16.6	15.1	20.6	26.0	22.5	28.5	25.1	31.6	26.7	***70.9***	***91.8***	***101.6***	***92.7***	***109.6***	***95.3***	***96.5***	***68.8***	31.1	*41.2*	*36.1*	*36.0*	31.4	31.4	27.9	29.7	20.7	22.0
8:15 AM	18.0	18.1	17.0	18.2	15.4	20.5	25.3	23.9	27.5	22.8	27.9	24.0	22.4	22.5	21.0	***89.7***	***108.4***	***93.7***	***94.9***	***67.1***	30.9	*41.2*	*36.1*	*35.4*	30.8	30.8	27.4	29.5	19.9	21.8
8:30 AM	21.0	22.1	20.3	21.5	18.1	24.2	27.6	27.7	30.1	25.9	32.1	27.5	24.8	23.3	21.7	***66.2***	***108.1***	***94.1***	***95.3***	***68.1***	31.0	*41.2*	*36.1*	*35.3*	30.3	30.3	27.2	29.5	19.3	20.8
8:45 AM	20.0	21.2	19.6	20.4	18.0	24.0	26.9	25.9	29.7	25.7	31.7	27.1	24.2	23.0	21.9	26.9	***107.1***	***92.3***	***93.7***	***66.1***	30.8	*41.1*	*36.3*	*35.2*	30.4	30.4	27.5	29.1	19.4	20.3
9:00 AM	17.6	18.0	16.8	17.6	15.4	20.6	24.0	23.1	26.7	22.0	27.0	23.4	21.1	21.6	19.1	22.5	***68.7***	***76.2***	***91.1***	***64.1***	30.5	*41.2*	*36.0*	34.1	29.3	29.3	26.5	27.3	18.5	19.2
9:15 AM	17.2	18.6	17.3	17.9	16.1	21.5	24.3	24.1	27.3	22.6	27.6	23.8	21.2	20.8	18.1	20.9	***63.1***	***73.9***	***91.2***	***64.2***	30.5	*41.2*	*36.0*	35.0	30.1	30.1	27.2	28.1	18.6	17.9
Density LOS																														
5:30 AM	B	A	B	B	B	C	C	C	C	C	C	C	B	B	B	B	B	B	B	C	B	C	C	C	B	B	B	B	A	A
5:45 AM	B	A	B	B	B	C	C	C	C	C	C	C	B	C	B	C	B	B	B	C	B	C	C	C	B	B	B	B	B	A
6:00 AM	B	A	B	B	B	C	C	C	C	C	C	C	C	C	B	C	B	B	C	C	C	D	C	C	B	C	B	B	B	A
6:15 AM	C	B	C	C	C	*E*	D	*E*	*E*	*E*	*E*	*E*	D	D	C	D	C	C	C	D	C	*E*	D	D	C	C	C	C	B	B
6:30 AM	C	B	C	C	C	D	D	*E*	*E*	D	*E*	*E*	D	D	C	D	C	C	D	*E*	D	*E*	*E*	*E*	D	D	D	D	C	B
6:45 AM	C	B	C	C	C	D	D	D	D	D	*E*	*E*	C	C	C	D	C	C	D	*E*	D	*E*	*E*	D	C	D	C	D	C	C
7:00 AM	C	C	C	C	C	***F***	***F***	***F***	***F***	***F***	D	D	C	C	C	C	C	C	D	D	D	*E*	***F****	*E*	D	D	C	D	C	C
7:15 AM	C	C	C	C	***F***	***F***	***F***	***F***	***F***	***F***	D	D	C	C	C	C	C	C	D	D	***F****	***F****	***F****	*E*	D	D	D	D	C	C
7:30 AM	C	C	B	B	***F***	***F***	***F***	***F***	***F***	***F***	D	D	C	C	C	D	C	***F***	***F***	***F***	***F****	***F****	***F****	*E*	D	D	D	D	C	C
7:45 AM	B	B	B	B	***F***	***F***	***F***	***F***	***F***	***F***	D	D	C	C	C	***F***	***F***	***F***	***F***	***F***	D	*E*	*E*	*E*	D	D	D	D	C	C
8:00 AM	B	B	B	B	B	C	C	C	D	C	D	D	***F***	***F***	***F***	***F***	***F***	***F***	***F***	***F***	D	*E*	*E*	*E*	D	D	C	D	C	C
8:15 AM	B	C	B	B	B	C	C	C	C	C	C	C	C	C	C	***F***	***F***	***F***	***F***	***F***	D	*E*	*E*	*E*	D	D	C	D	C	C
8:30 AM	C	C	C	C	C	C	C	C	D	D	C	D	D	C	C	C	***F***	***F***	***F***	***F***	***F****	***F****	***F****	*E*	D	D	C	D	C	C
8:45 AM	C	C	C	C	B	C	C	C	D	C	D	D	C	C	C	D	***F***	***F***	***F***	***F***	D	*E*	*E*	*E*	D	D	C	D	C	C
9:00 AM	B	B	B	B	B	C	C	C	C	C	C	C	C	C	C	C	***F***	***F***	***F***	***F***	D	*E*	*E*	D	D	D	C	D	C	C
9:15 AM	B	C	B	B	B	C	C	C	C	C	C	C	C	C	C	C	***F***	***F***	***F***	***F***	D	*E*	*E*	*E*	D	D	C	D	C	B

Notes
*Demand/capacity ratio > 1.0

**Segment anayzed as "basic" due to geometry and segmentation

B - Basic
M - Merge
O - Overlap (Basic)
D - Diverge
W - Weave

- Mainline Peak Hour Volume (6:30-7:30AM)

- Ramp Peak Hour Volume (6:30-7:30AM)

Legend (HCM6)					
Color	LOS	Speed (mph)	Density (pcphpl)		
			Basic	Ramp	Weave
	A	> 60	0-11	0-10	0-10
	B		11-18	10-20	10-20
	C	50 - 60	18-26	20-28	20-28
	D	40 - 50	26-35	28-35	28-35
	E	30 - 40	35-45	35-43	35-43
	F	< 30	45+	43+	43+

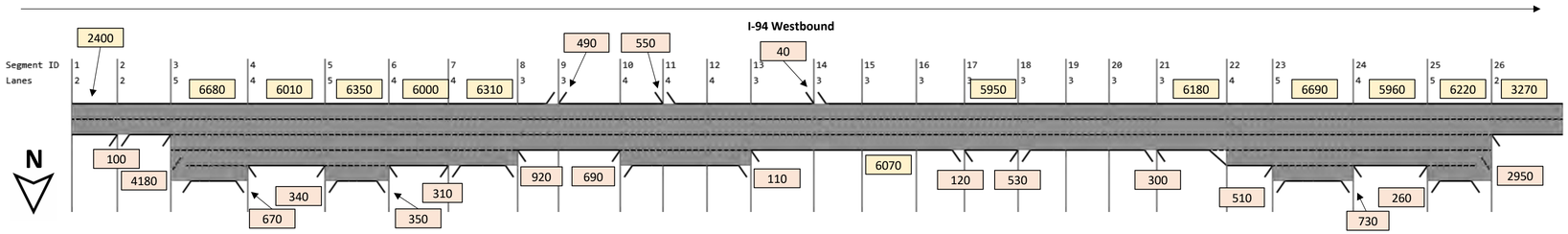
FINAL

11/30/2020

I-94 East-West Data Collection Project

Existing (2019) AM Peak Period

HCS Facilities Analysis Summary: I-94 WB



ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
Segment	Marquette Int E-W System Movement	11th St Entr Ramp	Marquette Int N-W/S-W System Ramps to 25th St Exit Ramp	25th St Exit Ramp to 28th St Entr Ramp	28th St Entr Ramp to 35th St Exit Ramp	35th St Exit Ramp to 35th St Entr Ramp	35th St Entr Ramp to Stadium Int E-N System Ramp	Stadium Int E-S System Ramp	Stadium Int E-W System Movement	Stadium Int N-W System Ramp	Stadium Int S-W System Ramp	Gen Mitchell Blvd Exit Ramp	Gen Mitchell Blvd Exit Ramp to Gen Mitchell Blvd Entr Ramp	Gen Mitchell Blvd Entr Ramp	Gen Mitchell Blvd Entr Ramp to Hawley Rd Exit Ramp	Hawley Rd Exit Ramp	Hawley Rd Exit Ramp to Hawley Rd Entr Ramp	Hawley Rd Entr Ramp	Hawley Rd Entr Ramp to 68th St Exit Ramp	68th St Exit Ramp	68th St Exit Ramp to Lane Add	Lane Add to 70th St Entr Ramp	70th St Entr Ramp to 84th St Exit Ramp	84th St Exit Ramp to 84th St Entr Ramp	84th St Entr Ramp to Zoo Int E-N/E-S System Ramps	Zoo Int E-W System Movement
Type	B	M**	W	B	W	B	W	D	B	M**	M	D**	B	M	O	D	B	M	O	D	B	B	W	B	W	B
Speed (MPH)																										
5:30 AM	58.0	58.0	51.9	57.9	50.3	57.3	49.4	56.3	57.5	57.9	54.4	55.6	59.8	55.4	55.4	56.5	59.6	55.2	57.5	56.3	60.4	60.9	52.0	60.9	55.0	60.7
5:45 AM	58.0	58.0	51.2	57.9	50.7	57.3	49.4	56.2	57.5	57.9	54.5	55.7	59.8	55.6	55.6	56.5	59.6	55.6	57.7	56.2	60.3	60.9	53.4	60.9	55.2	60.7
6:00 AM	58.0	58.0	51.5	57.9	49.5	57.2	48.2	56.1	57.4	57.9	54.1	55.4	59.7	55.0	55.0	56.4	59.6	54.9	57.3	56.1	60.3	60.9	51.3	60.8	55.0	60.7
6:15 AM	58.0	58.0	50.4	57.9	46.8	57.0	45.1	55.5	57.3	57.8	53.1	54.7	57.8	52.8	52.8	55.8	58.4	52.6	55.9	55.5	57.9	60.6	47.8	60.8	54.3	60.7
6:30 AM	58.0	53.2	51.1	57.9	47.1	57.0	45.0	55.5	57.3	53.4	53.1	54.7	57.9	52.8	52.8	55.9	58.2	52.2	51.5	55.2	56.4	60.4	45.7	60.8	53.6	60.6
6:45 AM	58.0	53.1	52.1	57.9	47.8	57.0	45.3	55.5	57.3	53.5	53.3	54.9	58.7	53.0	53.0	55.9	58.8	52.7	55.9	55.6	57.5	60.5	46.6	60.8	53.9	60.7
7:00 AM	58.0	52.7	49.4	57.9	47.2	57.0	44.5	55.4	57.2	53.6	53.4	54.9	59.6	53.6	53.6	56.0	59.5	53.2	51.5	55.2	59.0	60.7	46.6	60.8	53.8	60.7
7:15 AM	58.0	52.4	53.7	57.9	47.0	57.0	43.8	55.3	57.2	53.2	53.0	54.7	57.0	52.2	52.2	55.7	57.3	51.4	51.3	55.1	55.7	60.3	44.2	60.7	53.1	60.6
7:30 AM	58.0	52.6	52.7	57.9	45.8	56.9	42.3	*36.5*	***27.2***	***19.0***	***21.8***	***20.2***	*30.8*	*33.2*	*30.5*	*30.5*	***27.1***	49.5	52.6	55.3	57.2	60.5	44.1	60.7	53.0	60.6
7:45 AM	58.0	52.2	42.9	57.7	***23.2***	***17.7***	***19.4***	***16.8***	***15.9***	***12.7***	***16.2***	***15.8***	***28.4***	*30.5*	*30.5*	*30.5*	***28.7***	50.0	54.3	55.3	57.7	60.5	45.5	60.8	53.1	60.6
8:00 AM	58.0	53.0	47.2	57.8	***15.7***	***15.9***	***23.0***	***19.3***	***17.9***	***14.3***	***17.8***	***17.7***	*30.9*	*31.8*	*31.4*	*31.4*	***29.2***	50.2	54.4	55.3	57.7	60.5	46.4	60.8	53.6	60.6
8:15 AM	58.0	52.9	46.9	57.8	46.5	56.9	***29.4***	***26.7***	***24.1***	***15.3***	***17.3***	***16.8***	*32.1*	*33.3*	*33.3*	*33.4*	***29.9***	50.4	54.5	55.3	58.1	60.6	46.7	60.8	53.7	60.7
8:30 AM	58.0	52.9	50.0	57.9	46.9	57.0	42.1	54.9	57.1	53.4	53.2	54.8	57.8	52.6	52.6	55.7	*30.4*	50.6	54.6	55.3	58.0	60.6	47.2	60.8	53.9	60.7
8:45 AM	58.0	53.0	49.9	57.9	47.6	57.0	44.3	55.4	57.2	53.5	53.4	54.9	59.6	53.5	53.5	55.9	59.4	53.4	56.4	55.5	59.6	60.8	49.1	60.8	54.1	60.7
9:00 AM	58.0	53.3	51.5	57.9	48.9	57.2	46.2	55.7	57.3	54.1	54.1	55.4	59.7	54.8	54.8	56.2	59.5	54.7	57.2	55.8	60.3	60.9	50.5	60.8	54.5	60.7
9:15 AM	58.0	53.3	50.3	57.9	48.9	57.2	46.3	55.7	57.3	54.2	54.2	55.5	59.7	55.0	55.0	56.3	59.5	55.0	57.3	56.0	60.3	60.9	50.5	60.8	54.7	60.7
Density (pc/mi/ln)																										
5:30 AM	9.0	9.0	13.5	13.9	14.3	14.8	18.9	25.2	18.3	13.7	18.5	17.4	21.9	24.3	24.1	22.3	21.7	24.1	23.9	27.4	23.0	17.3	17.5	17.7	16.0	16.9
5:45 AM	10.1	10.1	15.2	14.6	14.6	15.2	19.1	25.4	17.8	13.4	17.6	16.5	20.7	23.2	22.7	21.3	20.3	22.3	22.0	25.8	20.9	15.6	15.2	15.2	13.9	14.9
6:00 AM	11.9	11.9	15.8	16.2	16.8	17.2	22.3	27.8	20.8	15.6	19.6	19.2	24.2	26.5	26.9	24.3	23.8	25.7	25.8	29.1	24.7	18.5	18.5	17.8	16.4	17.7
6:15 AM	16.0	16.0	22.3	22.1	24.1	23.2	32.6	34.5	28.3	21.3	25.1	26.1	34.4	34.4	*37.7*	31.0	33.4	33.0	*37.2*	*35.6*	34.3	24.4	26.4	23.3	21.5	23.6
6:30 AM	17.7	20.2	22.1	22.6	24.1	23.2	31.9	33.3	26.5	25.2	25.5	26.8	34.2	34.3	*37.7*	30.9	33.7	34.0	*44.8*	*36.1*	*36.8*	25.5	29.7	24.9	23.5	26.3
6:45 AM	19.4	21.9	22.7	23.8	24.4	23.8	32.0	33.7	26.8	24.7	24.7	26.1	32.8	33.7	*36.7*	30.4	32.6	32.9	*36.7*	*35.3*	35.0	24.7	27.9	23.9	22.4	25.2
7:00 AM	22.9	26.2	24.7	23.4	24.4	23.3	32.1	32.8	25.1	23.8	23.5	24.8	30.4	32.1	34.3	29.2	30.0	31.9	*44.7*	34.4	32.3	23.4	26.7	22.8	21.8	25.6
7:15 AM	25.2	29.1	23.7	25.1	26.2	25.1	*35.3*	34.5	27.5	26.6	25.9	27.9	*35.9*	*35.7*	*39.7*	31.9	*35.3*	*35.5*	*45.0*	*37.3*	*38.0*	26.0	31.7	25.2	24.6	28.0
7:30 AM	23.8	27.3	27.1	27.0	29.1	27.2	*38.1*	***48.7***	***57.5***	***71.6***	***70.8***	***75.6***	***63.6***	***60.1***	***64.2***	***64.2***	***69.8***	34.6	*42.9*	*36.3*	*35.5*	24.9	31.2	25.1	24.7	27.9
7:45 AM	25.9	30.2	34.7	26.1	***52.8***	***77.6***	***74.4***	***89.9***	***89.6***	***101.1***	***90.1***	***92.7***	***68.1***	***65.0***	***65.0***	***65.0***	***67.8***	34.1	*39.0*	*36.3*	34.6	24.5	29.3	24.8	24.4	27.3
8:00 AM	20.0	23.2	27.9	24.6	***79.2***	***92.2***	***67.0***	***83.6***	***83.0***	***94.7***	***85.0***	***85.4***	***64.0***	***63.1***	***63.7***	***63.7***	***67.1***	34.0	33.2	*36.3*	34.6	24.5	28.2	24.3	23.2	25.1
8:15 AM	20.4	23.7	27.6	24.5	27.1	27.0	***57.3***	***67.9***	***68.6***	***92.5***	***88.8***	***91.2***	***63.0***	***61.3***	***61.3***	***61.1***	***66.0***	33.8	32.7	*36.3*	34.0	24.3	27.7	24.1	22.9	24.9
8:30 AM	20.7	24.3	24.6	24.3	25.8	24.8	*36.4*	33.2	27.3	25.3	24.1	26.4	34.4	34.9	*38.4*	31.7	***65.3***	33.7	*35.8*	*36.2*	34.1	24.3	27.2	24.1	22.7	22.5
8:45 AM	18.4	22.5	23.9	23.4	24.4	23.9	32.9	33.3	25.9	24.1	23.3	24.9	31.0	32.5	34.8	29.5	30.7	31.4	34.1	34.4	31.0	22.7	24.1	22.4	21.0	21.6
9:00 AM	13.5	16.6	19.2	19.5	20.0	20.2	26.8	29.9	21.9	19.8	20.0	20.4	25.1	27.8	28.4	25.5	24.6	26.3	26.6	29.9	24.7	18.5	19.2	18.3	17.2	17.5
9:15 AM	13.9	17.2	18.9	18.5	19.1	19.3	25.8	29.0	20.7	18.8	19.1	19.3	23.9	26.5	26.8	24.4	23.4	25.5	26.3	28.9	23.5	17.6	18.2	17.0	15.8	16.0
Density LOS																										
5:30 AM	A	A	B	B	B	B	B	C	C	B	B	B	C	C	C	C	C	C	C	C	C	B	B	B	B	B
5:45 AM	A	A	B	B	B	B	B	C	B	B	B	B	C	C	C	C	C	C	C	C	C	B	B	B	B	B
6:00 AM	B	B	B	B	B	B	C	C	C	B	B	C	C	C	D	C	C	C	C	D	C	C	B	B	B	B
6:15 AM	B	B	C	C	C	C	D	D	D	C	C	D	D	D	*E*	D	D	D	*E*	*E*	D	C	C	C	C	C
6:30 AM	B	C	***F****	C	C	C	D	D	D	C	C	D	D	D	*E*	D	D	D	*E*	***F****	*E*	C	D	C	C	D
6:45 AM	C	C	***F****	C	C	C	D	D	D	C	C	D	D	D	*E*	D	D	D	*E*	*E*	D	C	C	C	C	C
7:00 AM	C	D	***F****	C	C	C	D	D	C	C	C	C	D	D	D	D	D	D	*E*	***F****	D	C	C	C	C	C
7:15 AM	C	D	***F****	C	C	C	*E*	D	D	D	C	D	***F****	***F****	***F****	***F****	*E*	***F****	***F****	***F****	***F****	D	D	C	C	D
7:30 AM	C	D	C	D	D	D	*E*	***F***	***F***	***F***	***F***	***F***	***F***	***F***	***F***	***F***	***F***	D	*E*	*E*	*E*	C	D	C	C	D
7:45 AM	C	D	D	D	***F***	***F***	***F***	***F***	***F***	***F***	***F***	***F***	***F***	***F***	***F***	***F***	***F***	D	*E*	*E*	D	C	D	C	C	D
8:00 AM	C	C	C	C	***F***	***F***	***F***	***F***	***F***	***F***	***F***	***F***	***F***	***F***	***F***	***F***	***F***	D	D	*E*	D	C	D	C	C	C
8:15 AM	C	C	C	C	C	D	***F***	***F***	***F***	***F***	***F***	***F***	***F***	***F***	***F***	***F***	***F***	D	D	*E*	D	C	C	C	C	C
8:30 AM	C	C	C	C	C	C	*E*	D	D	C	C	D	D	D	*E*	D	***F***	D	*E*	*E*	D	C	C	C	C	C
8:45 AM	C	C	C	C	C	C	D	D	C	C	C	C	D	D	D	D	D	D	D	D	D	C	C	C	C	C
9:00 AM	B	B	B	C	B	C	C	D	C	C	B	C	C	C	D	C	C	C	D	D	C	C	B	C	B	B
9:15 AM	B	B	B	C	B	C	C	D	C	C	B	C	C	C	D	C	C	C	D	D	C	B	B	B	B	B

Notes

*Demand/capacity ratio > 1.0

**Segment anayzed as "basic" due to geometry and segmentation

B - Basic

M - Merge

O - Overlap (Basic)

D - Diverge

W - Weave

- Mainline Peak Hour Volume (6:30-7:30AM)

- Ramp Peak Hour Volume (6:30-7:30AM)

Legend (HCM6)					
Color	LOS	Speed (mph)	Density (pcphpl)		
			Basic	Ramp	Weave
	A	> 60	0-11	0-10	0-10
	B		11-18	10-20	10-20
	C	50 - 60	18-26	20-28	20-28
	D	40 - 50	26-35	28-35	28-35
	E	30 - 40	35-45	35-43	35-43
	F	< 30	45+	43+	43+

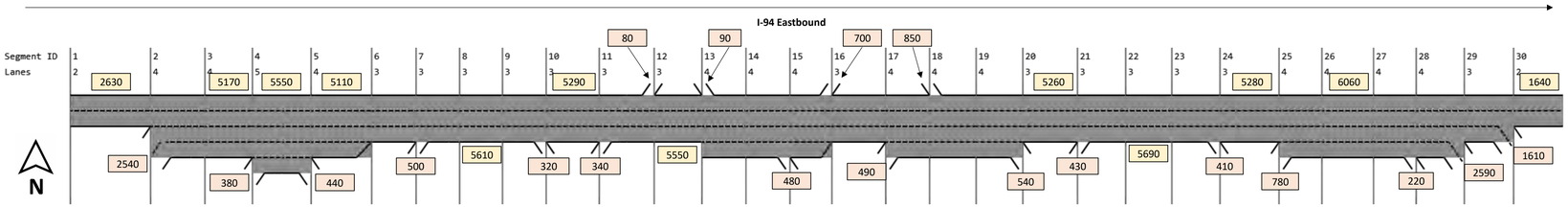
FINAL

11/30/2020

I-94 East-West Data Collection Project

Existing (2019) PM Peak Period

HCS Facilities Analysis Summary: I-94 EB



ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Segment	Zoo Int W-E System Movement	Zoo Int S-E/N-E System Ramps	Zoo Int S-E/N-E System Ramps to 84th St Entr Ramp	84th St Entr Ramp to 70th St Exit Ramp	70th St Exit Ramp to Lane Merge	Lane Merge to 68th St Entr Ramp	68th St Entr Ramp	68th St Entr Ramp to Hawley Rd Exit Ramp	Hawley Rd Exit Ramp	Hawley Rd Exit Ramp to Hawley Rd Entr Ramp	Hawley Rd Entr Ramp to Gen Mitchell Blvd Exit Ramp	Gen Mitchell Blvd Exit Ramp to Gen Mitchell Blvd Entr Ramp	Gen Mitchell Blvd Entr Ramp	Stadium Int W-S System Ramp	Stadium Int W-N System Ramp	Stadium Int W-E System Movement	Stadium Int S-E System Ramp	Stadium Int N-E System Ramp	35th St Exit Ramp	35th St Exit Ramp to 35th St Entr Ramp	35th St Entr Ramp	35th St Entr Ramp to 26th St Exit Ramp	26th St Exit Ramp	26th St Exit Ramp to 25th St Entr Ramp	25th St Entr Ramp	25th St Entr Ramp to 13th St Exit Ramp	13th St Exit Ramp	Marquette Int W-N System Ramp	Marquette Int W-S System Ramp	Marquette Int W-E System Movement
Type	B	M**	B	W	B	B	M	O	D	B	W	B	M**	D	D**	B	M**	M	D**	B	M	O	D	B	M**	O	D	D**	D**	B
Speed (MPH)																														
1:30 PM	63.0	63.0	63.0	53.4	62.7	63.0	56.2	59.0	57.4	61.7	55.0	61.8	58.0	56.7	57.2	57.8	58.0	53.8	56.6	57.8	52.3	52.3	53.5	57.6	57.9	56.1	56.1	57.2	57.8	58.0
1:45 PM	63.0	63.0	63.0	53.2	62.7	63.0	56.1	59.0	57.4	61.7	54.9	61.8	58.0	56.6	57.1	57.8	58.0	53.7	56.6	57.8	52.2	52.2	53.5	57.6	57.9	56.2	56.2	57.3	57.8	58.0
2:00 PM	63.0	63.0	63.0	52.4	62.6	62.8	55.7	58.7	57.3	61.6	54.4	61.7	58.0	56.6	57.1	57.8	58.0	53.6	56.6	57.8	52.1	52.1	53.4	57.6	57.9	56.1	56.1	57.2	57.8	58.0
2:15 PM	63.0	63.0	63.0	52.7	62.6	62.0	55.1	58.4	57.2	61.3	53.7	60.5	58.0	56.3	57.0	57.7	57.9	53.3	56.5	57.5	51.5	51.5	53.3	57.5	57.9	55.9	55.9	57.2	57.8	58.0
2:30 PM	63.0	63.0	63.0	52.8	62.6	61.7	54.9	58.3	57.1	61.1	54.2	57.0	57.6	56.2	56.9	57.7	57.9	53.2	56.4	57.4	51.5	51.5	53.3	57.5	57.9	55.7	55.7	57.1	57.8	58.0
2:45 PM	63.0	63.0	63.0	52.2	62.6	61.5	54.9	58.3	57.0	61.1	54.2	57.1	57.7	56.3	57.0	57.7	57.9	53.4	56.5	57.8	51.8	51.8	53.5	57.6	57.9	56.0	56.0	57.2	57.8	58.0
3:00 PM	63.0	63.0	63.0	51.9	62.6	61.8	55.0	58.3	57.1	61.2	53.6	60.4	58.0	56.3	57.0	57.7	57.9	53.3	56.5	57.4	51.3	51.3	53.4	57.1	57.9	55.8	55.8	57.1	57.8	58.0
3:15 PM	62.9	63.0	63.0	51.0	62.6	59.6	53.6	56.4	56.9	58.3	53.7	52.6	56.0	55.9	56.7	57.7	57.9	52.9	56.3	56.5	50.7	50.7	53.2	56.1	57.7	55.6	55.6	57.0	57.8	58.0
3:30 PM	63.0	63.0	63.0	51.0	62.6	61.4	54.3	57.9	56.9	60.3	53.7	56.9	57.6	56.1	56.8	57.7	57.9	53.2	56.4	57.2	51.2	51.2	53.3	57.0	57.8	55.8	55.8	57.1	57.8	58.0
3:45 PM	62.9	63.0	63.0	50.1	62.6	61.3	54.2	57.8	56.9	60.1	53.6	57.3	57.7	56.0	56.8	57.7	57.9	53.3	56.5	57.4	51.2	51.2	53.3	57.0	57.8	55.9	55.9	57.2	57.8	58.0
4:00 PM	63.0	63.0	63.0	50.8	62.6	61.3	54.0	57.7	56.9	59.8	53.6	56.3	57.4	56.1	56.8	57.7	57.9	53.2	56.4	56.8	50.7	50.7	53.2	56.1	57.7	55.7	55.7	57.1	57.8	58.0
4:15 PM	62.8	63.0	63.0	50.4	62.6	61.7	54.2	57.8	57.0	60.1	53.8	57.4	57.8	56.3	57.0	57.7	57.9	53.1	56.4	56.2	50.3	50.3	53.1	55.2	57.6	55.6	55.6	57.0	57.8	58.0
4:30 PM	63.0	63.0	63.0	48.9	62.5	62.8	55.3	58.5	57.3	61.6	53.8	61.0	58.0	56.4	57.0	57.7	57.9	53.3	56.5	57.4	51.0	51.0	53.4	56.5	57.8	55.6	55.6	57.0	57.8	58.0
4:45 PM	63.0	63.0	63.0	48.8	62.5	62.9	55.6	58.7	57.4	61.7	54.2	61.7	58.0	56.7	57.2	57.8	58.0	53.4	56.5	57.5	51.1	51.1	53.4	56.7	57.8	55.8	55.8	57.1	57.8	58.0
5:00 PM	63.0	63.0	63.0	48.6	62.5	62.9	55.7	58.7	57.4	61.7	54.2	61.7	58.0	56.6	57.1	57.8	58.0	53.4	56.5	57.6	51.3	51.3	53.4	57.0	57.8	55.7	55.7	57.1	57.8	58.0
5:15 PM	63.0	63.0	63.0	48.4	62.5	62.9	56.1	59.0	57.6	61.7	54.8	61.8	58.0	56.8	57.3	57.8	58.0	53.5	56.5	57.7	51.4	51.4	53.5	57.1	57.9	55.9	55.9	57.2	57.8	58.0
5:30 PM	63.0	63.0	63.0	48.4	62.5	62.9	55.6	58.7	57.5	61.7	54.2	61.6	58.0	56.7	57.2	57.8	58.0	53.2	56.4	56.8	50.9	50.9	53.3	56.0	57.7	55.7	55.7	57.1	57.8	58.0
5:45 PM	63.0	63.0	63.0	50.7	62.6	62.9	55.8	58.8	57.4	61.7	54.5	61.8	58.0	56.8	57.3	57.8	58.0	53.4	56.5	57.5	51.3	51.3	53.4	57.0	57.8	56.0	56.0	57.2	57.8	58.0
6:00 PM	63.0	63.0	63.0	51.3	62.6	62.7	55.6	58.7	57.4	61.7	54.3	61.7	58.0	56.5	57.1	57.8	57.9	53.4	56.5	57.4	51.3	51.3	53.4	57.0	57.8	55.9	55.9	57.2	57.8	58.0
6:15 PM	63.0	63.0	63.0	52.0	62.6	63.0	56.1	59.0	57.5	61.7	54.9	61.8	58.0	56.9	57.3	57.8	58.0	53.5	56.5	57.8	51.9	51.9	53.5	57.6	57.9	56.2	56.2	57.3	57.8	58.0
Density (pc/mi/ln)																														
1:30 PM	17.3	8.7	17.7	18.0	17.7	23.6	26.9	26.2	29.7	24.5	29.8	25.5	20.7	22.9	19.0	22.6	16.9	22.5	22.9	28.3	25.7	33.5	32.3	27.2	20.4	23.7	23.5	21.6	14.5	11.9
1:45 PM	17.4	8.7	17.7	18.2	17.8	23.7	27.3	26.5	30.0	24.9	30.2	25.8	20.9	22.9	19.2	22.6	16.9	22.5	23.1	29.0	26.2	34.3	32.8	27.8	20.8	24.0	23.6	22.1	15.7	12.4
2:00 PM	17.1	8.5	18.7	19.6	18.9	25.3	28.6	28.4	31.2	26.5	32.4	27.8	22.3	24.0	20.7	24.0	18.0	22.8	23.8	29.4	27.0	*35.2*	33.2	28.8	21.6	25.2	24.4	23.4	17.2	13.2
2:15 PM	19.3	9.6	20.7	21.2	20.6	27.9	30.8	31.6	33.1	29.5	*35.7*	31.1	24.3	26.4	22.2	25.7	19.3	25.2	25.9	32.0	28.8	*38.1*	34.8	31.2	23.3	27.0	25.7	25.2	18.6	13.7
2:30 PM	21.4	10.7	21.2	21.6	21.1	28.7	31.2	32.5	33.6	29.9	33.4	*36.8*	24.9	26.9	23.2	26.9	20.2	25.1	26.4	32.3	28.9	*38.4*	34.9	31.6	23.6	28.9	27.4	26.7	19.4	14.3
2:45 PM	22.3	11.1	21.6	22.3	21.3	29.1	31.2	32.6	33.7	29.9	33.3	*36.7*	24.8	26.6	23.0	26.3	19.7	24.1	25.5	30.7	28.2	*36.9*	34.1	30.7	23.0	26.9	25.7	24.9	18.4	13.1
3:00 PM	21.1	10.6	21.1	22.1	21.0	28.5	31.1	32.2	33.4	29.8	*35.9*	31.2	24.4	26.2	22.7	26.7	20.1	24.5	25.8	32.2	29.9	*39.3*	*35.3*	33.0	24.4	29.0	27.2	27.0	20.0	15.0
3:15 PM	24.5	12.3	23.7	25.1	23.2	32.7	34.1	*37.8*	*35.8*	34.8	*35.9*	*43.7*	27.5	29.2	25.5	29.2	21.9	26.2	27.8	34.6	31.3	*41.8*	*36.5*	*35.4*	25.7	30.2	28.3	27.9	20.3	16.2
3:30 PM	23.0	11.5	21.6	23.3	21.5	29.4	33.0	34.8	34.7	31.5	*36.0*	*37.0*	25.9	28.0	24.1	27.1	20.3	25.3	26.2	32.7	30.2	*39.8*	*35.6*	33.4	24.6	29.3	27.3	27.5	19.9	17.4
3:45 PM	24.5	12.2	22.3	24.3	21.6	29.5	33.0	34.8	34.7	31.8	*35.9*	*36.4*	25.7	27.9	23.3	26.6	20.0	24.8	25.9	32.3	30.3	*39.8*	*35.5*	33.4	24.6	28.3	26.3	26.7	20.1	18.9
4:00 PM	23.0	11.5	21.6	23.5	21.5	29.5	33.5	*35.5*	35.0	32.4	*36.1*	*38.0*	26.1	28.0	24.4	27.7	20.8	25.3	26.7	33.8	31.3	*41.5*	*36.3*	*35.4*	25.7	30.2	28.0	28.3	20.6	19.2
4:15 PM	25.4	12.7	22.0	23.6	21.0	28.6	33.1	34.6	34.5	31.8	*35.6*	*36.2*	25.6	27.1	24.3	28.2	21.1	25.8	27.2	*35.2*	32.2	*43.1*	*37.0*	*37.1*	26.5	30.5	28.2	28.7	22.4	22.7
4:30 PM	22.4	11.2	20.6	23.2	19.0	25.4	30.5	30.1	32.2	28.5	*35.1*	30.2	23.8	25.8	22.8	26.0	19.5	25.1	25.7	32.3	30.7	*40.3*	*35.6*	34.5	25.2	30.4	28.0	28.6	21.6	21.9
4:45 PM	22.7	11.4	20.6	22.9	18.3	24.3	29.3	28.5	31.3	27.1	33.1	28.1	22.5	24.0	21.4	24.9	18.7	24.7	25.2	31.9	30.4	*39.8*	*35.3*	34.0	24.9	29.3	27.3	27.5	22.0	23.5
5:00 PM	23.0	11.5	20.0	22.7	18.0	24.0	28.8	27.9	30.9	26.6	33.0	28.2	22.6	24.3	21.4	25.1	18.8	24.6	25.1	31.5	30.0	*39.2*	*35.1*	33.4	24.6	29.7	27.7	27.7	22.5	25.7
5:15 PM	22.3	11.1	19.3	21.8	16.7	22.3	27.3	26.0	29.5	25.0	30.4	25.8	20.9	22.7	20.1	24.1	18.1	24.5	24.4	31.1	29.6	*38.6*	34.8	33.1	24.4	28.3	26.4	26.8	21.4	23.8
5:30 PM	21.3	10.7	19.8	22.7	17.8	23.7	29.5	28.4	31.1	27.3	33.3	28.9	23.0	24.3	22.6	26.9	20.1	25.4	26.2	33.8	31.0	*41.1*	*36.0*	*35.6*	25.8	30.0	27.8	28.1	23.8	27.1
5:45 PM	21.3	10.6	19.5	20.9	18.3	24.3	28.6	27.9	30.8	26.5	32.2	27.9	22.4	23.5	21.7	25.5	19.1	24.4	25.1	31.8	29.9	*39.1*	*35.2*	33.3	24.6	28.1	26.2	26.6	21.7	23.8
6:00 PM	19.4	9.7	19.6	21.0	19.2	25.7	29.0	28.9	31.5	27.4	33.2	28.8	22.9	24.9	22.1	26.9	20.1	23.9	25.2	32.3	29.7	*39.2*	*35.2*	33.3	24.5	28.0	26.2	26.4	20.2	20.2
6:15 PM	18.2	9.1	18.0	19.0	17.6	23.4	27.2	26.3	29.8	24.9	30.5	26.4	21.3	22.5	20.7	25.1	18.8	23.5	24.3	30.3	27.9	*36.5*	33.8	30.6	22.9	25.9	24.4	24.6	18.7	18.7
Density LOS																														
1:30 PM	B	A	B	B	B	C	C	D	D	C	D	C	C	C	C	C	B	C	C	D	C	D	D	D	C	C	C	C	B	B
1:45 PM	B	A	B	B	B	C	C	D	D	C	D	C	C	C	C	C	B	C	C	D	C	D	D	D	C	C	C	C	B	B
2:00 PM	B	A	C	B	C	C	D	D	D	D	D	D	C	C	C	C	B	C	C	D	C	*E*	D	D	C	C	C	C	B	B
2:15 PM	C	A	C	C	C	D	D	D	D	D	*E*	D	C	C	C	C	C	C	C	D	D	*E*	D	D	C	D	C	C	C	B
2:30 PM	C	A	C	C	C	D	D	D	D	D	D	*E*	C	C	C	D	C	C	D	D	D	*E*	D	D	C	D	C	D	C	B
2:45 PM	C	B	C	C	C	D	D	D	D	D	D	*E*	C	C	C	D	C	C	C	D	D	*E*	D	D	C	D	C	C	C	B
3:00 PM	C	A	C	C	C	D	D	D	D	D	*E*	D	C	C	C	D	C	C	C	D	D	*E*	*E*	D	C	D	C	D	C	B
3:15 PM	C	B	C	C	C	D	D	*E*	*E*	D	*E*	*E*	D	D	C	D	C	C	D	D	D	*E*	*E*	*E*	C	D	D	D	C	B
3:30 PM	C	B	C	C	C	D	D	D	D	D	*E*	*E*	C	C	C	D	C	C	D	D	D	*E*	*E*	D	C	D	C	D	C	B
3:45 PM	C	B	C	C	C	D	D	D	D	D	*E*	*E*	C	C	C	D	C	C	C	D	D	*E*	*E*	D	C	D	C	D	C	C
4:00 PM	C	B	C	C	C	D	D	*E*	D	D	*E*	*E*	D	C	C	D	C	C	D	D	D	*E*	*E*	*E*	C	D	C	D	C	C
4:15 PM	C	B	C	C	C	D	D	D	D	D	*E*	*E*	C	C	C	D	C	C	D	*E*	D	*E*	*E*	*E*	D	D	D	D	C	C
4:30 PM	C	B	C	C	C	C	D	D	D	D	*E*	D	C	C	C	C	C	C	C	D	D	*E*	*E*	D	C	D	C	D	C	C
4:45 PM	C	B	C	C	C	C	D	D	D	D	D	D	C	C	C	C	C	C	C	D	D	*E*	*E*	D	C	D	C	D	C	C
5:00 PM	C	B	C	C	B	C	D	D	D	D	D	D	C	C	C	C	C	C	C	D	D	*E*	*E*	D	C	D	C	D	C	C
5:15 PM	C	B	C	C	B	C	C	C	D	C	D	C	C	C	C	C	C	C	C	D	D	*E*	D	D	C	D	C	D	C	C
5:30 PM	C	A	C	C	B	C	D	D	D	D	D	D	C	C	C	D	C	C	D	D	D	*E*	*E*	*E*	C	D	C	D	C	D
5:45 PM	C	A	C	C	C	C	D	D	D	D	D	D	C	C	C	C	C	C	C	D	D	*E*	*E*	D	C	D	C	D	C	C
6:00 PM	C	A	C	C	C	C	D	D	D	D	D	D	C	C	C	D	C	C	C	D	D	*E*	*E*	D	C	D	C	D	C	C
6:15 PM	C	A	B	B	B	C	C	D	D	C	D	D	C	C	C	C	C	C	C	D	C	*E*	D	D	C	C	C	C	C	C

Time

Notes

*Demand/capacity ratio > 1.0

**Segment anayzed as "basic" due to geometry and segmentation

B - Basic

M - Merge

O - Overlap (Basic)

D - Diverge

W - Weave

- Mainline Peak Hour Volume (2:30-3:30PM)

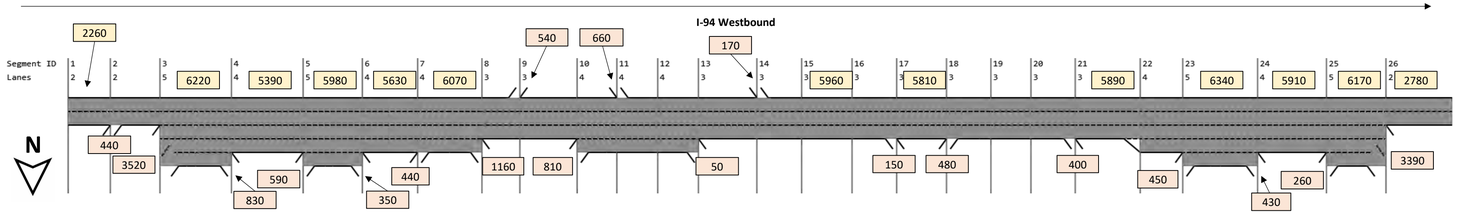
- Ramp Peak Hour Volume (2:30-3:30PM)

Legend (HCM6)					
Color	LOS	Speed (mph)	Density (pcphpl)		
			Basic	Ramp	Weave
	A	> 60	0-11	0-10	0-10
	B		11-18	10-20	10-20
	C	50 - 60	18-26	20-28	20-28
	D	40 - 50	26-35	28-35	28-35
	E	30 - 40	35-45	35-43	35-43
	F	< 30	45+	43+	43+

I-94 East-West Data Collection Project

Existing (2019) PM Peak Period

HCS Facilities Analysis Summary: I-94 WB



ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
Segment	Marquette Int E-W System Movement	11th St Entr Ramp	Marquette Int N-W/S-W System Ramps to 25th St Exit Ramp	25th St Exit Ramp to 28th St Entr Ramp	28th St Entr Ramp to 35th St Exit Ramp	35th St Exit Ramp to 35th St Entr Ramp	35th St Entr Ramp to Stadium Int E-N System Ramp	Stadium Int E-S System Ramp	Stadium Int E-W System Movement	Stadium Int N-W System Ramp	Stadium Int S-W System Ramp	Gen Mitchell Blvd Exit Ramp	Gen Mitchell Blvd Exit Ramp to Gen Mitchell Blvd Entr Ramp	Gen Mitchell Blvd Entr Ramp	Gen Mitchell Blvd Entr Ramp to Hawley Rd Exit Ramp	Hawley Rd Exit Ramp	Hawley Rd Exit Ramp to Hawley Rd Entr Ramp	Hawley Rd Entr Ramp	Hawley Rd Entr Ramp to 68th St Exit Ramp	68th St Exit Ramp	68th St Exit Ramp to Lane Add	Lane Add to 70th St Entr Ramp	70th St Entr Ramp to 84th St Exit Ramp	84th St Exit Ramp to 84th St Entr Ramp	84th St Entr Ramp to Zoo Int E-N/E-S System Ramps	Zoo Int E-W System Movement
Type	B	M**	W	B	W	B	W	D	B	M**	M	D**	B	M	O	D	B	M	O	D	B	B	W	B	W	B
Speed (MPH)																										
1:30 PM	58.0	58.0	50.1	57.9	45.8	56.9	43.9	55.3	57.2	57.8	53.2	54.8	58.3	52.8	52.8	55.8	59.0	53.1	56.2	55.5	59.3	60.8	49.2	60.8	54.3	60.7
1:45 PM	58.0	53.2	50.4	57.9	46.1	56.9	44.1	55.3	57.2	53.4	53.2	54.8	58.4	52.8	52.8	55.7	59.0	53.1	56.2	55.4	59.3	60.8	49.6	60.8	54.1	60.7
2:00 PM	58.0	52.8	50.5	57.9	46.4	56.9	44.1	55.3	57.2	53.3	53.1	54.7	58.0	52.6	52.6	55.7	58.7	52.9	56.1	55.5	58.9	60.7	49.1	60.8	54.1	60.7
2:15 PM	58.0	52.9	52.3	57.9	45.2	56.8	41.9	54.9	57.1	53.4	53.1	54.7	57.8	52.5	52.5	55.8	58.4	52.7	55.6	55.4	58.5	60.6	48.5	60.8	54.1	60.7
2:30 PM	58.0	52.8	49.5	57.9	45.1	56.8	42.5	55.0	57.1	53.2	52.9	54.6	56.5	51.6	51.6	55.5	56.5	51.3	52.0	55.2	55.7	60.3	47.5	60.8	53.7	60.7
2:45 PM	58.0	52.8	52.1	57.9	46.0	56.9	41.9	54.9	57.1	53.3	52.9	54.6	56.6	52.0	52.0	55.7	57.1	51.8	55.4	55.2	56.6	60.4	47.7	60.8	53.8	60.7
3:00 PM	58.0	52.7	47.3	57.8	45.3	56.8	41.6	54.8	57.1	53.4	53.1	54.7	58.0	52.4	52.4	55.7	57.9	52.2	52.1	55.2	57.4	60.5	47.2	60.8	53.4	60.6
3:15 PM	58.0	52.4	52.2	57.9	45.5	56.8	40.5	54.6	57.0	53.4	53.0	54.7	57.3	51.9	51.9	55.7	56.9	51.8	52.7	55.3	56.7	60.4	47.8	60.8	53.2	60.6
3:30 PM	58.0	52.9	48.2	57.8	46.1	56.9	42.6	55.0	57.1	53.5	53.2	54.8	57.9	51.7	51.7	55.7	56.8	51.2	51.3	55.1	55.0	60.2	46.2	60.8	52.7	60.6
3:45 PM	58.0	52.8	52.0	57.9	47.1	57.0	42.6	55.0	57.1	53.6	53.3	54.9	58.6	52.4	52.4	55.8	58.0	51.9	55.1	55.3	56.8	60.4	46.6	60.8	53.0	60.6
4:00 PM	58.0	52.6	46.5	57.8	46.5	56.9	42.1	54.9	57.1	53.6	53.2	54.8	58.4	51.9	51.9	55.7	57.1	51.3	51.3	55.1	55.2	60.2	45.4	60.7	52.8	60.6
4:15 PM	58.0	52.3	51.6	57.9	46.4	56.9	41.4	54.8	57.1	53.4	53.1	54.7	57.5	51.4	51.4	55.7	56.2	50.9	51.3	55.1	54.2	60.0	46.4	60.6	53.1	60.6
4:30 PM	58.0	52.8	50.1	57.9	47.0	57.0	43.0	55.1	57.1	53.5	53.2	54.8	*37.7*	*35.8*	*31.9*	*31.9*	***28.3***	49.9	54.2	55.4	57.1	60.5	46.2	*34.3*	53.2	60.6
4:45 PM	58.0	52.4	47.9	57.8	45.8	56.9	40.6	54.6	57.0	***13.6***	***16.7***	***16.0***	***27.3***	*31.0*	*30.6*	*30.6*	***28.6***	50.0	51.3	55.1	57.2	60.5	47.0	60.8	53.2	60.6
5:00 PM	58.0	52.6	48.6	57.8	46.9	57.0	42.2	54.9	57.1	***12.7***	***16.2***	***16.0***	***27.9***	*31.5*	*31.1*	*31.1*	***29.0***	50.1	54.3	55.3	57.4	60.5	46.3	60.8	52.8	60.6
5:15 PM	58.0	51.1	44.8	57.8	45.8	56.9	*39.7*	54.5	***23.5***	***13.5***	***16.8***	***17.0***	***29.6***	*34.1*	*33.9*	*33.9*	*31.0*	50.8	51.6	55.3	57.5	60.5	46.9	60.8	53.2	60.6
5:30 PM	53.1	47.5	46.2	57.8	***26.4***	***21.9***	40.7	54.7	***26.6***	***21.2***	***21.4***	***20.3***	*34.6*	*36.3*	*34.9*	*34.9*	*32.0*	51.1	51.3	55.1	57.4	60.5	48.5	60.8	53.2	60.6
5:45 PM	58.0	51.3	52.8	57.9	45.2	***22.2***	*33.4*	***25.3***	***22.0***	***15.9***	***19.2***	***18.9***	*35.4*	*36.3*	*34.6*	*34.6*	*32.2*	51.2	55.0	55.3	57.4	60.5	48.2	60.8	53.2	60.6
6:00 PM	58.0	52.7	51.0	57.9	46.6	56.9	41.7	54.9	57.1	53.6	53.4	54.9	58.8	53.1	53.1	55.8	58.4	52.7	55.9	55.4	58.7	60.7	48.4	60.8	53.5	60.6
6:15 PM	58.0	52.6	47.5	57.8	47.0	57.0	42.9	55.1	57.1	53.7	53.6	55.1	59.6	54.0	54.0	56.0	59.5	54.1	56.8	55.6	60.3	60.9	49.5	60.8	54.1	60.7
Density (pc/mi/ln)																										
1:30 PM	16.0	16.0	22.9	22.7	26.1	24.8	34.7	34.5	26.9	20.2	24.8	25.7	33.6	34.4	*37.6*	31.0	32.3	31.5	34.9	34.7	31.7	23.1	24.4	22.9	21.7	21.4
1:45 PM	15.9	20.6	23.1	23.1	26.1	25.0	34.6	34.4	27.3	25.5	24.5	26.3	33.4	34.3	*37.5*	31.0	32.2	31.7	*36.0*	34.8	31.6	23.0	24.0	22.8	21.2	21.6
2:00 PM	18.5	24.7	23.4	23.4	26.1	25.2	34.9	34.9	27.5	25.9	24.7	26.7	34.1	34.9	*38.3*	31.4	32.9	32.2	33.4	*35.2*	32.4	23.4	24.9	23.3	21.8	22.2
2:15 PM	18.1	24.1	24.2	25.1	28.6	26.5	*38.9*	*35.2*	27.0	25.5	25.4	27.0	34.5	*35.2*	*38.7*	31.5	33.4	32.7	*38.2*	*35.5*	33.2	23.9	25.6	23.5	22.0	21.7
2:30 PM	18.7	25.0	25.6	23.9	27.7	25.6	*37.7*	*35.1*	27.5	26.5	26.3	28.0	*36.7*	*36.9*	*41.4*	32.7	*36.7*	*35.6*	*43.9*	*37.7*	*37.9*	26.0	28.6	25.9	24.2	24.6
2:45 PM	19.2	25.1	24.6	24.4	27.2	25.7	*38.3*	34.6	27.1	26.0	26.3	27.8	*36.5*	*36.3*	*40.4*	32.3	*35.7*	34.7	*37.3*	*36.9*	*36.5*	25.4	28.1	25.7	24.0	22.8
3:00 PM	19.7	26.0	26.7	23.2	26.6	24.3	*36.5*	32.5	24.2	24.6	25.8	26.7	34.1	*35.3*	*38.8*	31.5	34.3	34.0	*43.8*	*36.4*	*35.1*	24.8	27.7	24.7	23.9	24.0
3:15 PM	22.7	29.0	24.9	24.9	27.7	25.5	*39.7*	33.9	26.3	25.5	25.9	27.2	*35.3*	*36.4*	*40.3*	32.2	*36.0*	34.7	*42.8*	*36.9*	*36.4*	25.4	27.9	25.5	24.9	24.1
3:30 PM	19.0	24.6	24.0	21.3	23.9	22.2	33.3	31.4	24.0	24.3	26.0	26.6	34.2	*36.7*	*40.5*	32.3	*36.2*	*36.1*	*45.0*	*38.1*	*39.1*	26.5	30.9	27.5	27.1	25.3
3:45 PM	20.3	25.4	21.8	21.4	23.2	22.3	33.0	30.7	23.6	23.7	25.4	26.0	33.0	*35.5*	*38.7*	31.4	34.1	34.6	*38.9*	*36.6*	*36.2*	25.3	29.3	26.3	25.8	24.0
4:00 PM	21.1	26.9	24.7	20.7	23.2	21.9	32.9	29.9	22.8	23.6	25.8	26.1	33.3	*36.4*	*39.9*	31.9	*35.7*	*35.9*	*45.0*	*37.8*	*38.8*	26.4	31.8	27.8	26.9	26.4
4:15 PM	23.8	29.7	23.4	23.0	25.2	23.9	*36.1*	31.6	24.4	25.1	25.9	27.0	*35.0*	*37.3*	*41.5*	32.6	*37.2*	*36.3*	*45.0*	*38.8*	*40.4*	27.0	31.3	28.4	26.6	26.9
4:30 PM	20.4	25.7	21.1	19.3	22.0	21.5	31.8	29.9	23.0	23.9	26.0	26.0	***50.0***	***55.8***	***61.6***	***61.6***	***67.4***	34.4	*39.3*	*36.2*	*35.6*	25.0	29.9	***45.7***	25.0	25.3
4:45 PM	22.9	28.8	24.1	20.4	23.6	22.0	34.3	28.5	20.7	***88.9***	***84.0***	***87.6***	***68.4***	***63.4***	***64.6***	***64.6***	***67.9***	34.1	*45.0*	*36.2*	*35.4*	24.9	28.6	27.0	25.9	24.7
5:00 PM	20.8	27.3	22.9	19.9	22.3	21.3	32.2	29.1	22.9	***97.4***	***89.1***	***90.2***	***68.4***	***63.4***	***64.1***	***64.1***	***67.4***	34.0	*37.8*	*36.2*	*35.2*	24.8	29.4	26.3	25.9	26.7
5:15 PM	29.1	*36.4*	29.7	23.6	26.3	24.5	*38.7*	31.0	***60.0***	***94.0***	***86.5***	***85.6***	***65.3***	***59.2***	***59.9***	***59.9***	***64.3***	33.6	*44.5*	*36.2*	*35.0*	24.8	28.5	25.7	24.9	23.6
5:30 PM	*40.9*	*43.1*	30.0	25.8	***48.5***	***66.9***	*38.6*	32.8	***58.2***	***65.1***	***71.2***	***75.3***	***58.6***	*41.0*	***58.7***	*38.6*	***63.1***	33.5	*45.0*	*36.3*	*35.2*	24.8	26.8	25.1	24.3	25.2
5:45 PM	24.1	*35.5*	23.7	25.3	29.6	***73.3***	***49.8***	***70.7***	***74.1***	***89.8***	***81.9***	***83.4***	***58.4***	***57.1***	***59.5***	***59.5***	***62.7***	33.5	33.7	*36.3*	*35.1*	24.8	27.2	25.4	24.7	23.6
6:00 PM	19.7	26.4	21.2	20.6	23.2	22.7	34.9	30.9	24.9	24.1	23.5	25.3	32.7	33.6	*36.5*	30.8	33.3	32.7	34.7	*35.5*	32.7	23.6	25.6	23.6	22.8	21.7
6:15 PM	20.9	27.5	23.7	20.7	23.0	22.4	32.7	31.0	24.2	22.6	22.6	23.6	29.2	30.9	32.7	28.4	28.1	28.8	30.5	32.4	27.5	20.6	21.8	20.3	19.1	17.6
Density LOS																										
1:30 PM	B	B	C	C	C	C	D	D	D	C	C	C	D	D	*E*	D	D	D	D	D	D	C	C	C	C	C
1:45 PM	B	C	***F****	C	C	C	D	D	D	C	C	D	D	D	*E*	D	D	D	*E*	D	D	C	C	C	C	C
2:00 PM	C	C	C	C	C	C	D	D	D	C	C	D	D	D	*E*	D	D	D	D	*E*	D	C	C	C	C	C
2:15 PM	C	C	***F****	C	D	D	*E*	*E*	D	C	C	D	D	*E*	*E*	D	D	D	*E*	*E*	D	C	C	C	C	C
2:30 PM	C	C	C	C	C	C	*E*	*E*	D	D	C	D	*E*	*E*	*E*	D	*E*	*E*	*E*	*E*	*E*	C	D	C	***F****	C
2:45 PM	C	C	C	C	C	C	*E*	D	D	C	C	D	*E*	*E*	*E*	D	*E*	D	*E*	*E*	*E*	C	D	C	C	C
3:00 PM	C	C	C	C	C	C	*E*	D	C	C	C	D	D	*E*	*E*	D	D	D	*E*	*E*	*E*	C	C	C	C	C
3:15 PM	C	D	C	C	C	C	*E*	D	D	C	C	D	*E*	*E*	*E*	D	*E*	D	*E*	*E*	*E*	C	C	C	C	C
3:30 PM	C	C	C	C	C	C	D	D	C	C	C	D	D	*E*	*E*	D	*E*	***F****	***F****	***F****	*E*	D	D	D	***F****	C
3:45 PM	C	C	C	C	C	C	D	D	C	C	C	C	D	*E*	*E*	D	D	D	*E*	*E*	*E*	C	D	D	C	C
4:00 PM	C	D	C	C	C	C	D	D	C	C	C	D	D	*E*	*E*	D	*E*	***F****	***F****	***F****	*E*	D	D	D	C	D
4:15 PM	C	D	C	C	C	C	*E*	D	C	C	C	D	D	*E*	*E*	D	*E*	***F****	***F****	***F****	*E*	D	D	D	***F****	D
4:30 PM	C	C	C	C	C	C	D	D	C	C	C	C	***F***	***F***	***F***	***F***	***F***	D	*E*	*E*	*E*	C	D	***F***	C	C
4:45 PM	C	D	C	C	C	C	D	D	C	***F***	***F***	***F***	***F***	***F***	***F***	***F***	***F***	***F****	***F****	***F****	*E*	C	D	D	C	C
5:00 PM	C	D	C	C	C	C	D	D	C	***F***	***F***	***F***	***F***	***F***	***F***	***F***	***F***	D	*E*	*E*	*E*	C	D	D	C	D
5:15 PM	D	*E*	D	C	C	C	*E*	D	***F***	***F***	***F***	***F***	***F***	***F***	***F***	***F***	***F***	D	*E*	*E*	*E*	C	D	C	C	C
5:30 PM	*E*	***F****	D	C	***F***	***F***	*E*	D	***F***	***F***	***F***	***F***	***F****	***F****	***F****	***F****	***F****	***F****	***F****	***F****	***F****	C	C	C	C	C
5:45 PM	C	*E*	C	C	D	***F***	***F***	***F***	***F***	***F***	***F***	***F***	***F***	***F***	***F***	***F***	***F***	D	D	*E*	*E*	C	C	C	C	C
6:00 PM	C	D	C	C	C	C	D	D	C	C	C	C	D	D	*E*	D	D	D	D	*E*	D	C	C	C	C	C
6:15 PM	C	D	C	C	C	C	D	D	C	C	C	C	D	D	D	D	D	D	D	D	D	C	C	C	B	B

Time

Notes

*Demand/capacity ratio > 1.0

**Segment anayzed as "basic" due to geometry and segmentation

B - Basic

M - Merge

O - Overlap (Basic)

D - Diverge

W - Weave

- Mainline Peak Hour Volume (2:30-3:30PM)

- Ramp Peak Hour Volume (2:30-3:30PM)

Legend (HCM6)					
Color	LOS	Speed (mph)	Density (pcphpl)		
			Basic	Ramp	Weave
	A	> 60	0-11	0-10	0-10
	B		11-18	10-20	10-20
	C	50 - 60	18-26	20-28	20-28
	D	40 - 50	26-35	28-35	28-35
	E	30 - 40	35-45	35-43	35-43
	F	< 30	45+	43+	43+

FINAL

11/30/2020

I-94 East-West Data Collection Project **12/14/2020**

Existing Synchro Notes and Methodology

General Notes

- Analysis corresponds to mainline AM and PM peak hours and balanced turning movement volumes as determined by WisDOT
    - AM Peak = 6:30-7:30AM
    - PM Peak = 2:30-3:30PM
    - Supplemented with additional intersections based on StreetLight assignment proportions and adjacent balanced intersection volumes as developed by HNTB
- Link speeds based on posted speed limits
    - Service ramps assumed to be 30 miles per hour (mph)
- Signal timings based on information provided by the Village of West Milwaukee, City of Milwaukee, and WisDOT
    - Accessible via I-94 EW Box site (I94EW/30-Design/10602704/Traffic/OpsAnalysis)

Specific Notes

- 76th-68th St intersections
    - Modelled as pre-timed as there is no vehicle extension or min gap for any phases, the force off is fixed, and there are no detectors assigned. HNTB confirmed with the City of Milwaukee that these intersections are pre-timed.
    - Signals are marked as "yes" for actuated-coordinated in timing plans, but that is because they are time-based coordinated with adjacent signals.
- Hawley Rd/I-94 WB ramp terminal
    - A short SBR turn lane is coded in the models to allow for the SBR turn overlap to be coded in the model. This movement does not exist in the field, but Synchro does not allow for right turn overlaps to be applied to shared movements. Since there is not an actual right turn lane in the field, a right turn on red factor was not applied.

Peak Hour Factors and Truck Percentages

- Peak hour factors and truck percentages were calculated from existing 2019 count data corresponding to each analysis hour
    - Peak hour factors for intersections without 2019 count data were based on current, estimated 15 min trip tables and historical count data
    - Peak hour factors were calculated for the whole intersection
    - Truck percentages were calculated by approach
- Refer to **Table 2** on the following page

Saturation Flow Rates

- Utilized WisDOT saturation flow rate spreadsheets for calculations

Table 1 – Intersection Peak Hour Factors and Truck Percentages

Node	Intersection	AM Peak (6:30-7:30AM)					PM Peak (2:30-3:30PM)				
		PHF	Truck %				PHF	Truck %			
			EB	WB	NB	SB		EB	WB	NB	SB
5	25th St/Clybourn St	0.74	5%	7%	3%	5%	0.85	4%	3%	3%	2%
18	25th St/I-94 WB Exit Ramp	0.77	0%	5%	0%	5%	0.88	0%	4%	0%	2%
23	25th St/I-94 EB Entr Ramp	0.79	0%	0%	0%	6%	0.88	0%	0%	0%	3%
6	25th St/St Paul Ave	0.90	4%	22%	13%	6%	0.90	4%	5%	5%	3%
8	26th St/Clybourn St	0.86	8%	9%	6%	6%	0.94	5%	5%	3%	6%
9	26th St/St Paul Ave (I-94 EB Exit Ramp)	0.93	4%	9%	7%	0%	0.95	6%	3%	3%	0%
12	27th St/Clybourn St	0.77	11%	10%	9%	12%	0.97	5%	6%	9%	7%
13	27th St/St Paul Ave	0.86	9%	8%	5%	8%	0.98	10%	4%	3%	5%
16	28th St/St Paul Ave (I-94 WB Entr Ramp)	0.87	7%	8%	0%	10%	0.94	11%	5%	0%	3%
99	28th St/Clybourn St	0.82	9%	9%	0%	10%	0.96	8%	6%	0%	3%
28	35th St/I-94 EB Exit Ramp	0.85	8%	0%	7%	8%	0.94	3%	0%	6%	7%
35	34th St/Park Hill Ave	0.89	0%	6%	5%	0%	0.93	0%	3%	7%	0%
32	35th St/Park Hill Ave	0.82	0%	5%	9%	10%	0.89	0%	5%	6%	7%
37	36th St/Park Hill Ave	0.86	0%	4%	0%	4%	0.87	0%	3%	0%	11%
72	Gen Mitchell Blvd/I-94 WB Exit Ramp	0.78	0%	0%	3%	1%	0.89	0%	0%	1%	3%
68	Gen Mitchell Blvd/I-94 EB Ramps (WB Entr)	0.84	0%	0%	2%	1%	0.90	3%	0%	1%	2%
78	Hawley Rd/I-94 WB Ramps	0.79	12%	0%	5%	4%	0.94	4%	0%	3%	3%
75	Hawley Rd/I-94 EB Exit Ramp	0.87	5%	0%	5%	6%	0.96	4%	0%	3%	3%
79/81	Hawley Rd/I-94 EB Entr Ramp	0.89	0%	0%	4%	6%	0.91	0%	0%	4%	3%
84	68th St/O'Connor St	0.78	0%	4%	6%	3%	0.94	0%	3%	3%	2%
90	68th St/Kearney St	0.74	5%	0%	2%	3%	0.95	2%	0%	3%	3%
87	70th St/O'Connor St	0.77	0%	3%	4%	1%	0.88	0%	3%	3%	0%
91	70th St/Kearney St	0.75	2%	0%	5%	3%	0.93	4%	0%	3%	3%
94	76th St/O'Connor St	0.66	0%	7%	2%	1%	0.85	0%	7%	1%	2%
95	76th St/Kearney St	0.70	6%	0%	2%	3%	0.88	5%	0%	0%	2%
59	Wells St/WIS 175 SB Exit Ramp	0.78	4%	48%	0%	6%	0.84	17%	15%	0%	3%
55	Wells St/WIS 175 NB Entr Ramp	0.83	2%	33%	14%	0%	0.88	6%	23%	10%	0%
60	Wisc Ave/WIS 175 SB Entr Ramp	0.74	3%	5%	0%	12%	0.84	6%	2%	0%	14%
56	Wisc Ave/WIS 175 NB Exit Ramp	0.76	1%	4%	11%	0%	0.90	3%	3%	10%	0%
63	Wisc Ave/Bluemound Rd (45th St)	0.74	7%	6%	3%	0%	0.89	5%	1%	1%	0%
46	Canal St/MPW SB Ramps	0.88	13%	5%	5%	50%	0.94	0%	3%	6%	3%
43	Canal St/MPW NB Ramps	0.83	5%	10%	2%	40%	0.90	13%	4%	5%	4%
27	National Ave/MPW	0.89	3%	5%	3%	3%	0.96	3%	2%	3%	3%

Right Turns on Red

- Follows WisDOT TEOpS Right Turn on Red (RTOR) guidance (Section 5.2.1) for intersections and ramp terminals
    - Growth factors also applied to curb lanes modeled as right turn lanes per TEOpS
- Growth factors (per TEOpS Section 5.2.1.4):
    - Single right turn lane (non-exit ramp) = 0.62
    - Dual right turn lane (intersections and exit ramps) = 0.70

- Single right turn lanes on exit ramps manually calculated per TEOpS Section 5.2.1.4 (RTOR Application); see **Table 1**
    - "Modelled" volumes input as right turn volumes for each location (growth factor = 1.0)

Table 2 – Calculated Exit Ramp RTOR Volumes

Location	Exit Ramp Right Turn on Red Volumes					
	AM Peak Hour (6:30-7:30AM)			PM Peak Hour (2:30-3:30PM)		
	Balanced	Factor	Modelled	Balanced	Factor	Modelled
26th St/St Paul Ave (I-94 EB Exit Ramp)	150	0.34	51	190	0.34	65
35th St/I-94 EB Exit Ramp	202	0.34	69	374	0.34	127
Hawley Rd/I-94 WB Exit Ramp	104	0.34	35	117	0.34	40
Canal St/Miller Park Way NB Exit Ramp	283	0.34	96	147	0.34	50

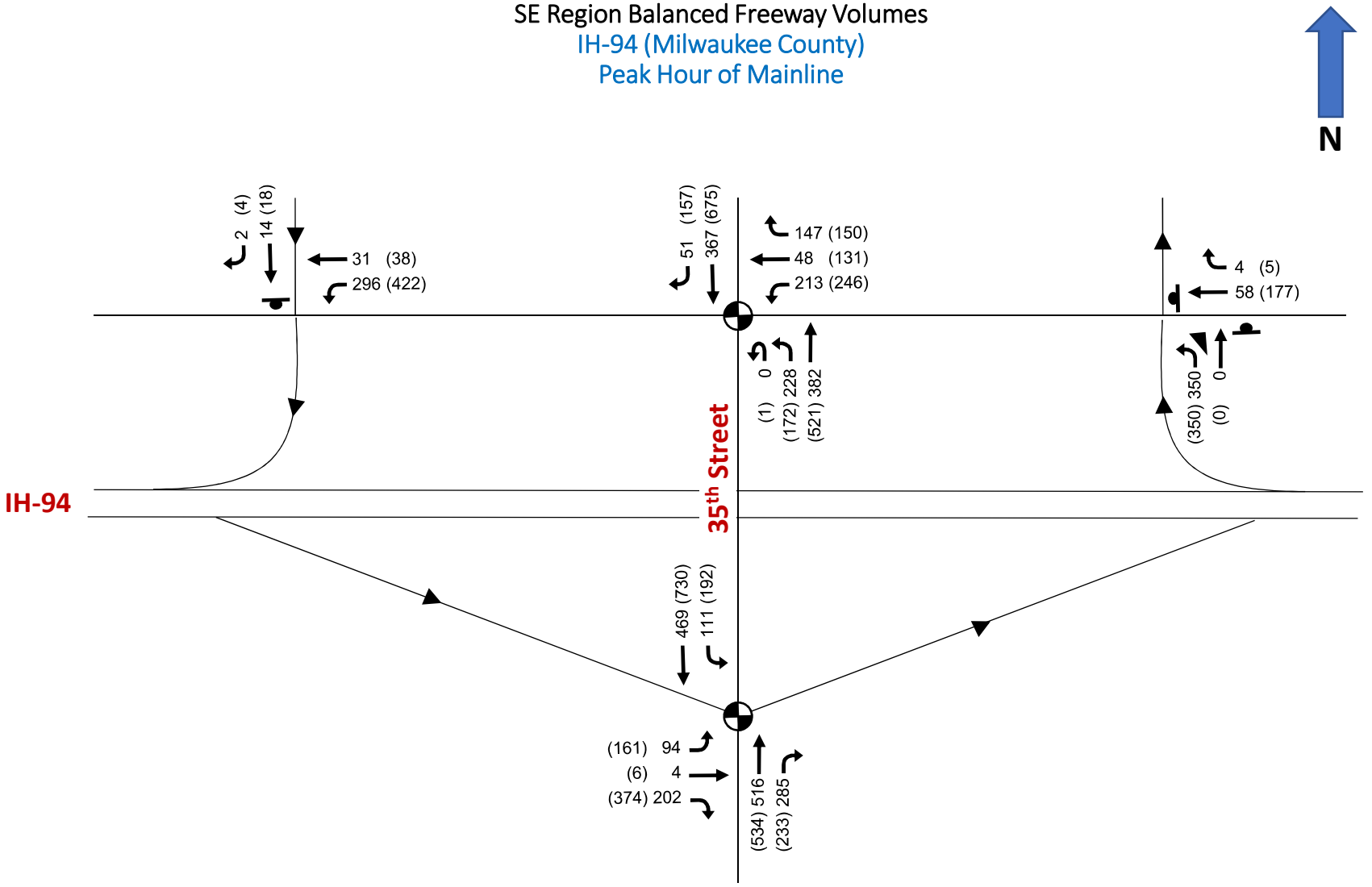
Model Results

- Results reported based on Highway Capacity Manual 6th Edition (HCM 6th Ed) methodology as applicable
    - Channelized right turn movements at HCM 6th Ed intersections were analyzed as un-channelized in order to incorporate the reported delay into the intersection results
    - For intersections with shared lane movements, Trafficware's lane utilization calculation was utilized to allow for HCM 6th Ed results reporting
    - Some locations could not be reported using HCM 6th Ed due to the following limitations
        - Non-NEMA signal phase numbering
        - More than four (4) intersection approaches/links
        - Presence of u-turns
        - Protected left turn phase from a shared movement
    - At these locations, operational results were reported using HCM 2000 methodology (detailed below)
- 25th St/Clybourn St (I-94 WB Exit Ramp)
    - HCM 6th Ed results reported unreasonable amount of delay for the NBL/T movement which skewed intersection delay results
- 25th St/St Paul Ave (I-94 EB Entr Ramp)
    - More than four (4) approach links
- 26th St/Clybourn St
    - Reported using HCM 6th edition, however a dummy SBT movement needed to be added to report results
- 26th St/St Paul Ave (I-94 EB Exit Ramp)
    - City of Milwaukee signal utilizing non-NEMA phase numbering
- 27th St/St Paul Ave
    - WBL turn protected phase from a shared movement in the PM peak hour
- Park Hill Ave/35th St
    - U-turn movement in PM peak hour

- Park Hill Ave/34th St
    - WB exit modeled as a shared NBL/T (NBT movement is blocked in the field) and WB Park Hill Ave approach modeled as stop control (yield in field) to report results
- Gen Mitchell Blvd/I-94 WB Exit Ramp
    - Shared WBL/R movement and u-turn in AM peak hour
- Hawley Rd/I-94 WB Ramps
    - U-turn movements in PM peak hour
- 68th St/I-94 WB Exit Ramp
    - U-turn movements in both peak hours
- 70th St/O'Connor St
    - U-turn movement in PM peak hour
- 70th St/Kearney St
    - SBL turn protected phase from a shared movement
- Canal St/Miller Park Way NB Ramps
    - WisDOT signal utilizing non-NEMA phase numbering
- Canal St/Miller Park Way SB Ramps
    - WisDOT signal utilizing non-NEMA phase numbering
- Miller Park Way/National Ave
    - Village of West Milwaukee signal utilizing non-standard right/barrier and non-NEMA phase numbering
- Wisconsin Ave/Bluemound Rd (45th St)
    - City of Milwaukee signal utilizing non-standard ring/barrier and non-NEMA phase numbering

Existing, Balanced Peak Hour Turning Movement Volumes

SE Region Balanced Freeway Volumes
IH-94 (Milwaukee County)
Peak Hour of Mainline



Peak Hours
6:30 – 7:30 AM
2:30 – 3:30 PM

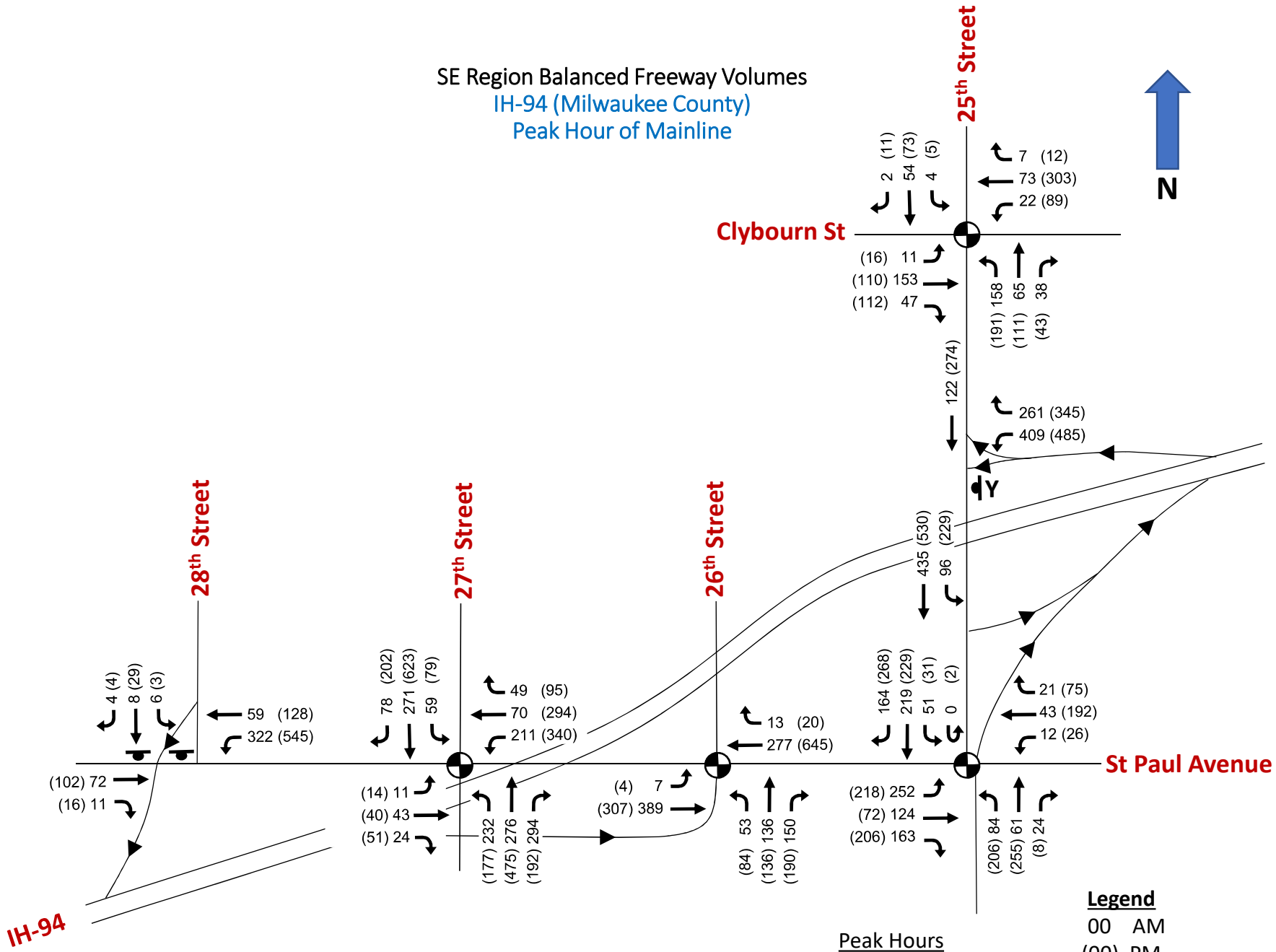
Legend
00 AM
(00) PM

Revised: 8/25/20

SE Region Balanced Freeway Volumes

IH-94 (Milwaukee County)

Peak Hour of Mainline



Peak Hours

6:30 – 7:30 AM

2:30 – 3:30 PM

Legend

00 AM

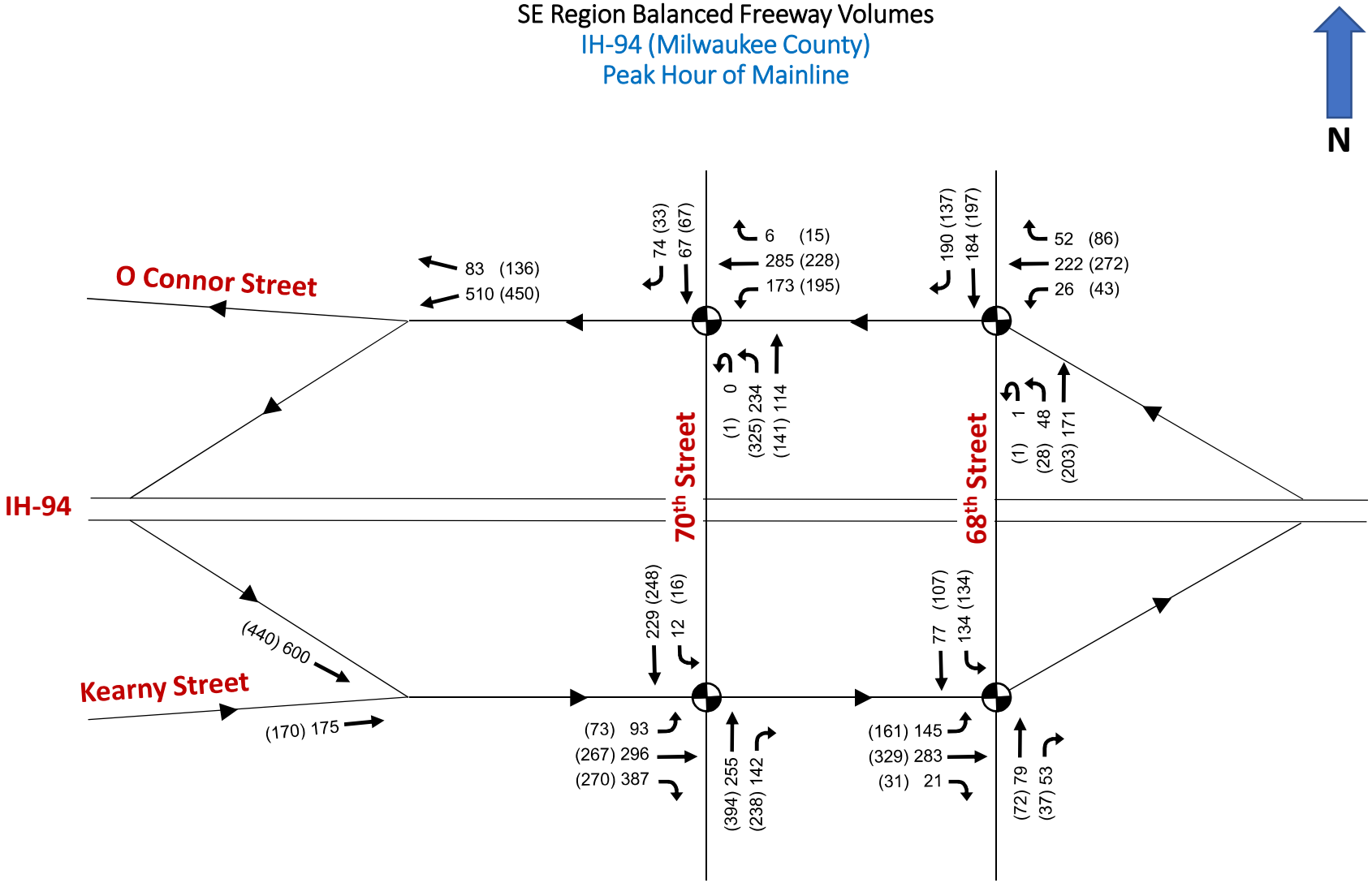
(00) PM

Revised: 8/25/20

SE Region Balanced Freeway Volumes

IH-94 (Milwaukee County)

Peak Hour of Mainline



Peak Hours

6:30 – 7:30 AM

2:30 – 3:30 PM

Legend

00 AM

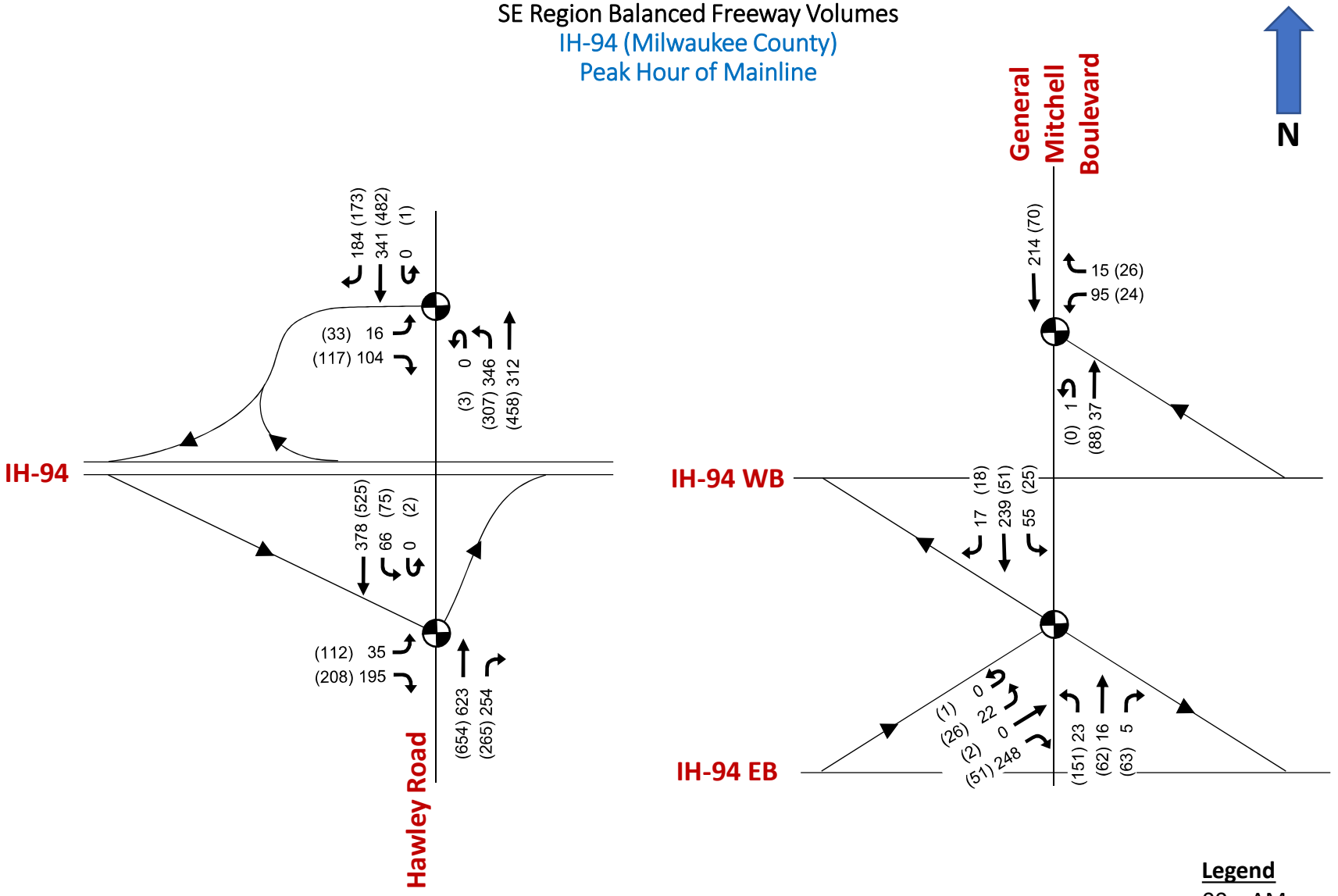
(00) PM

Revised: 8/25/20

SE Region Balanced Freeway Volumes

IH-94 (Milwaukee County)

Peak Hour of Mainline



Peak Hours

6:30 – 7:30 AM

2:30 – 3:30 PM

Legend

00 AM

(00) PM

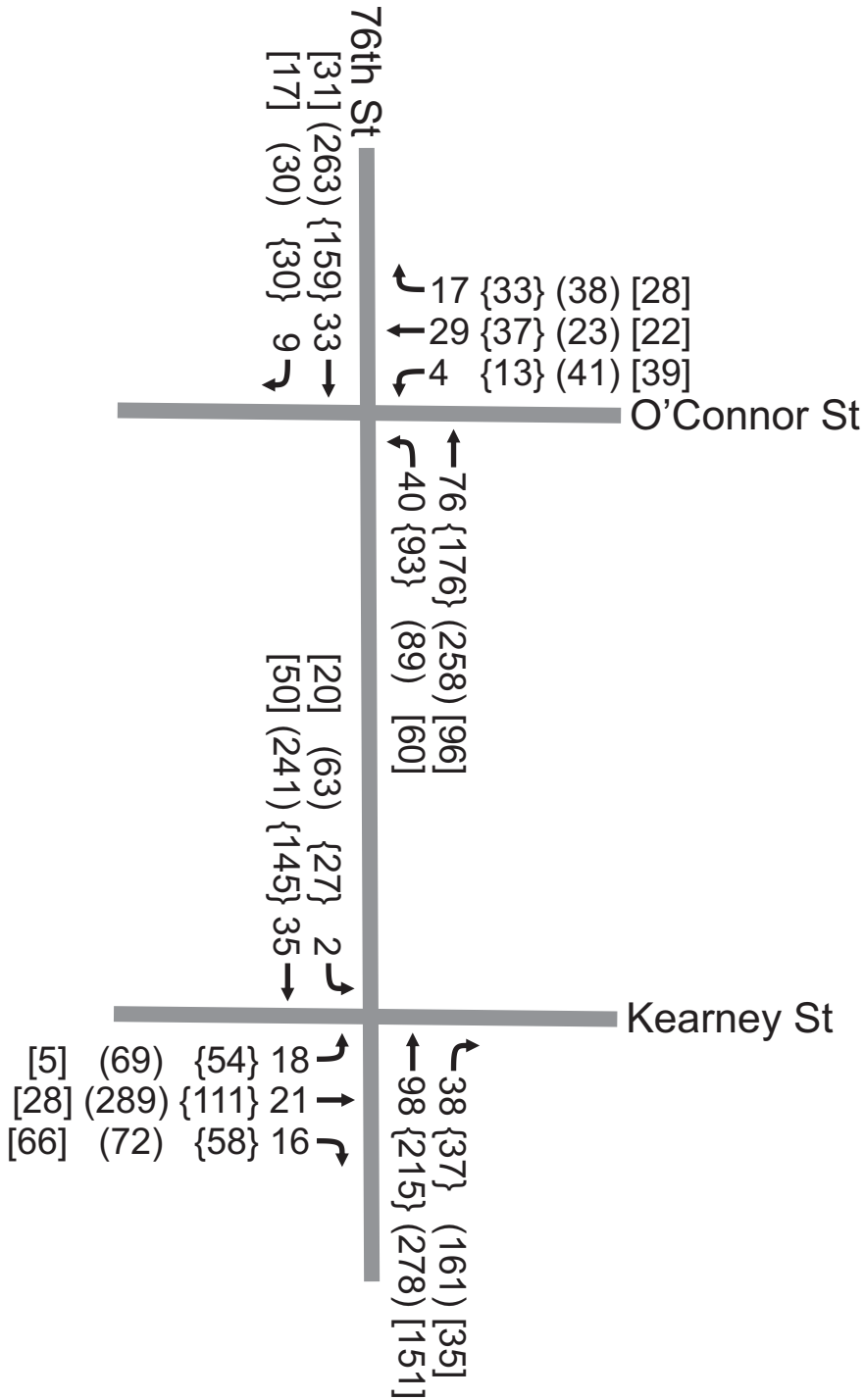
Revised: 8/25/20

I-94 East-West

Data Collection Project

2019 Existing AM Hourly Balanced Volumes

76th St



5:30-6:30AM
{6:30-7:30AM} - Peak Hour
(7:30-8:30AM)
[8:30-9:30AM]

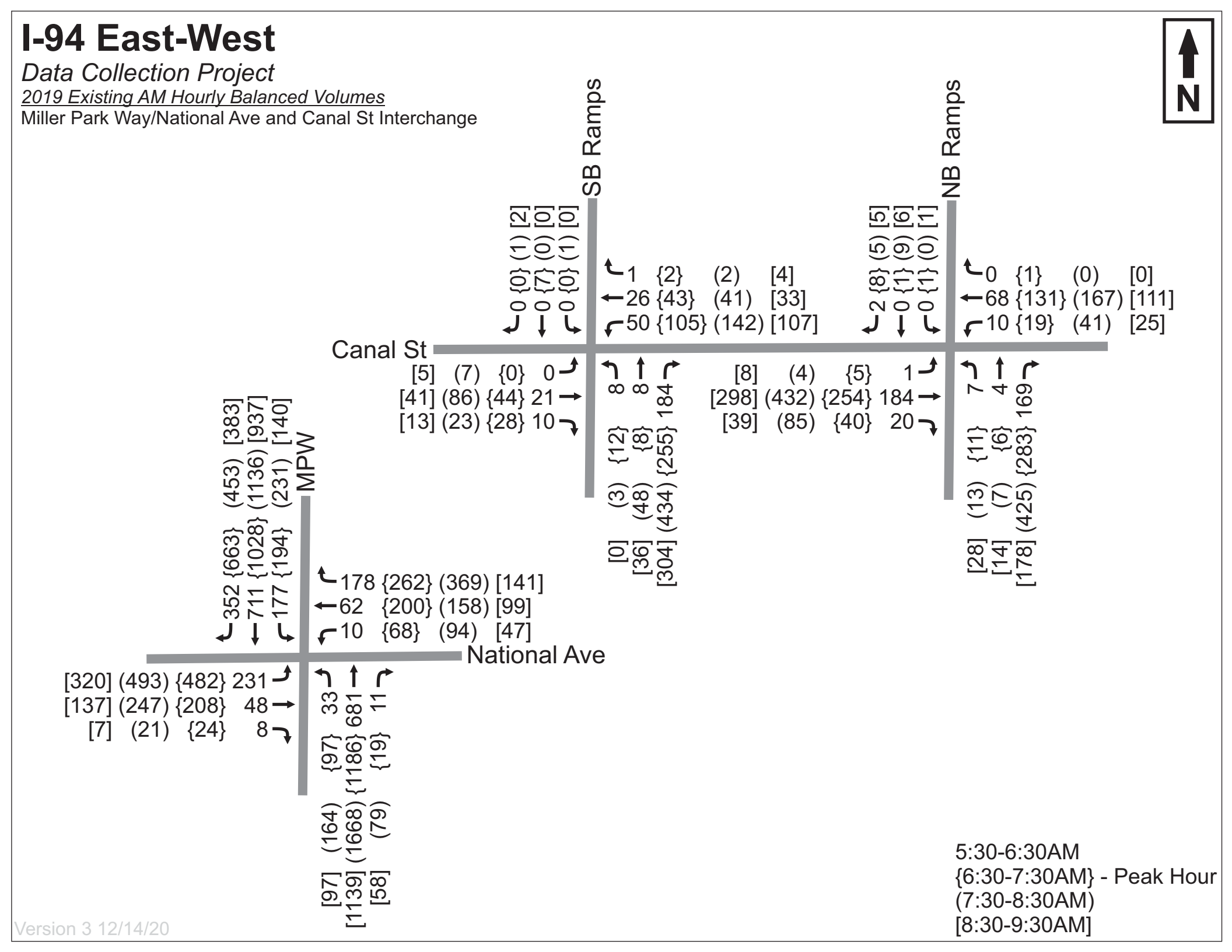
Version 3 12/14/20

I-94 East-West

Data Collection Project

2019 Existing AM Hourly Balanced Volumes

Miller Park Way/National Ave and Canal St Interchange



5:30-6:30AM
{6:30-7:30AM} - Peak Hour
(7:30-8:30AM)
[8:30-9:30AM]

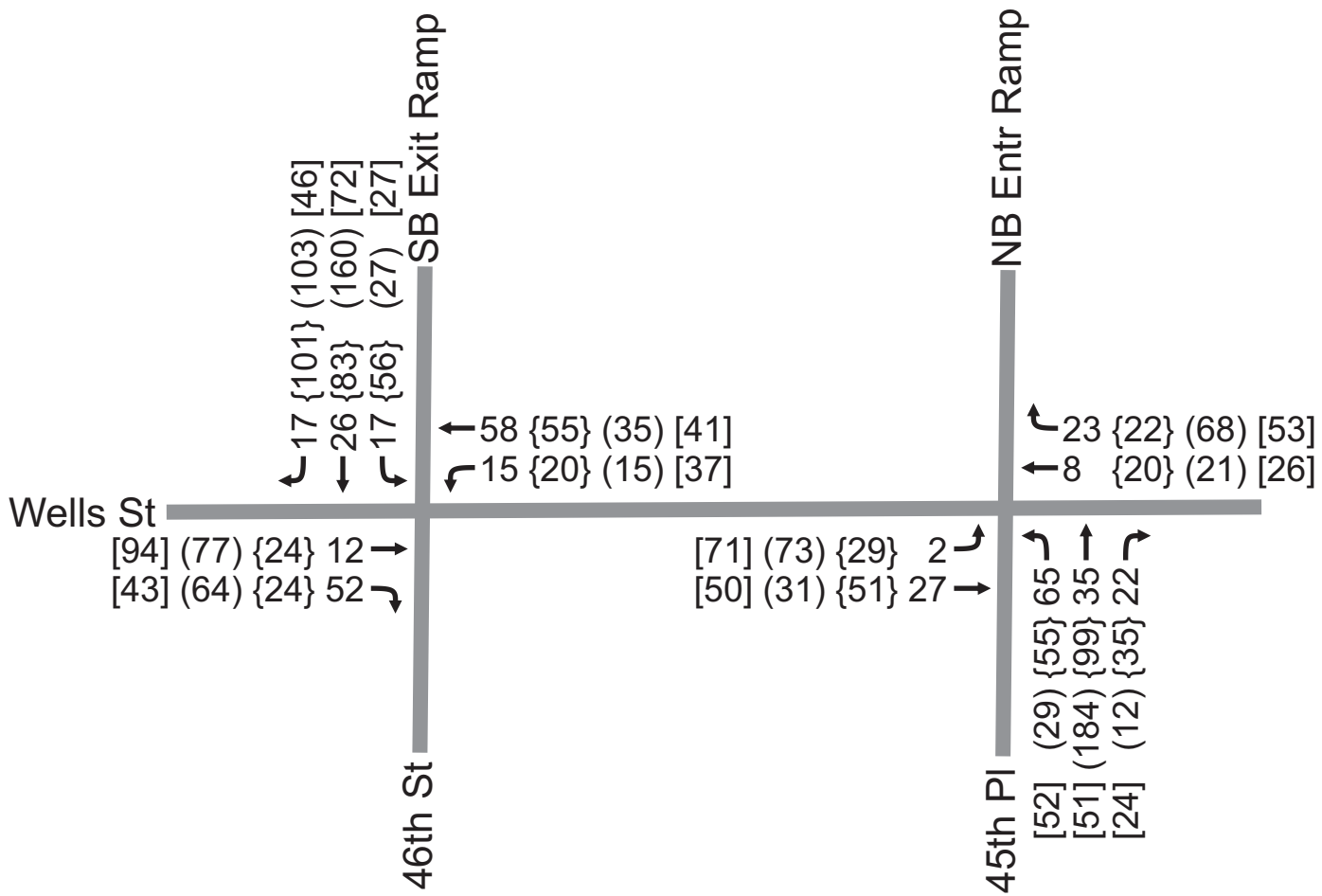
Version 3 12/14/20

I-94 East-West

Data Collection Project

2019 Existing AM Hourly Balanced Volumes

Wells St/WIS 175 Interchange



5:30-6:30AM
{6:30-7:30AM} - Peak Hour
(7:30-8:30AM)
[8:30-9:30AM]

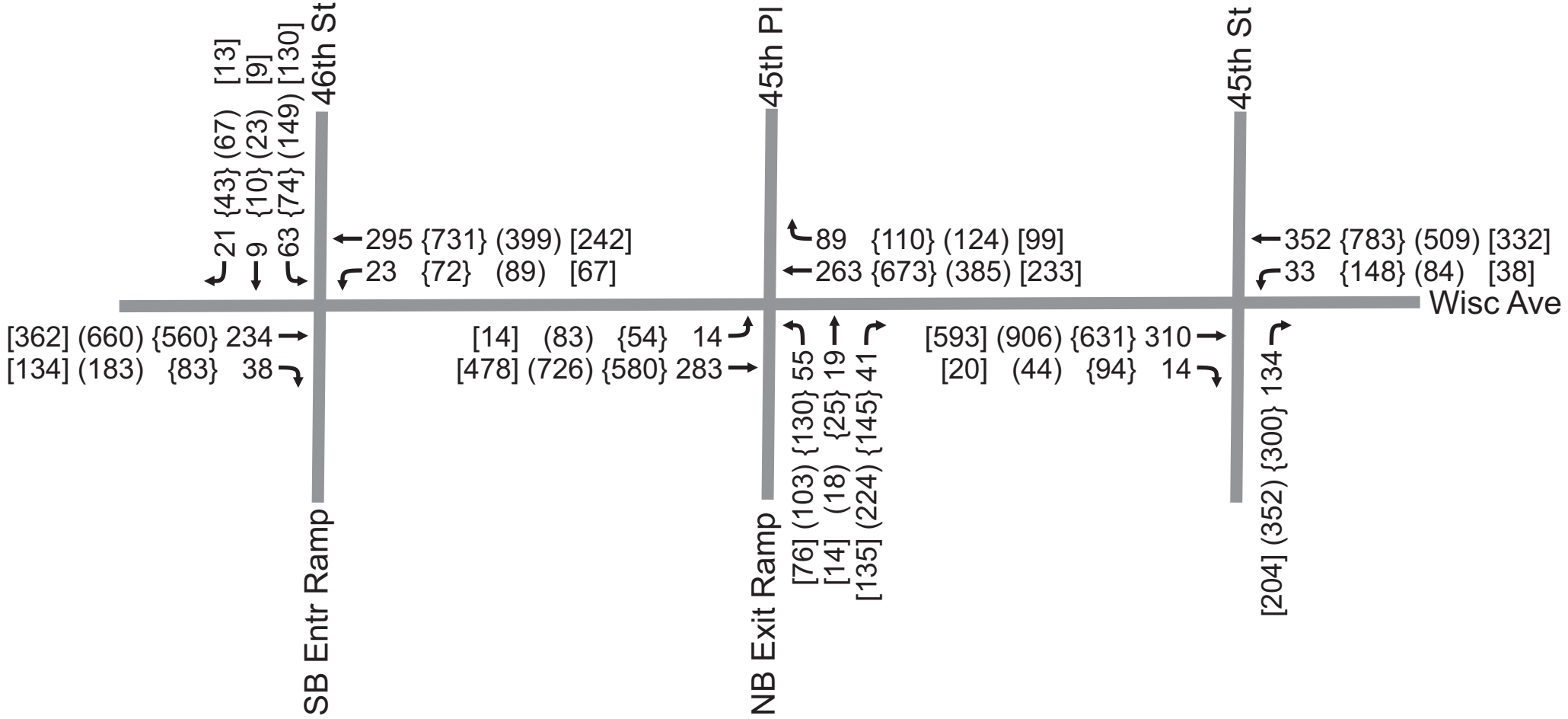
Version 3 12/14/20

I-94 East-West

Data Collection Project

2019 Existing AM Hourly Balanced Volumes

Wisconsin Ave/WIS 175 Interchange



5:30-6:30AM
{6:30-7:30AM} - Peak Hour
(7:30-8:30AM)
[8:30-9:30AM]

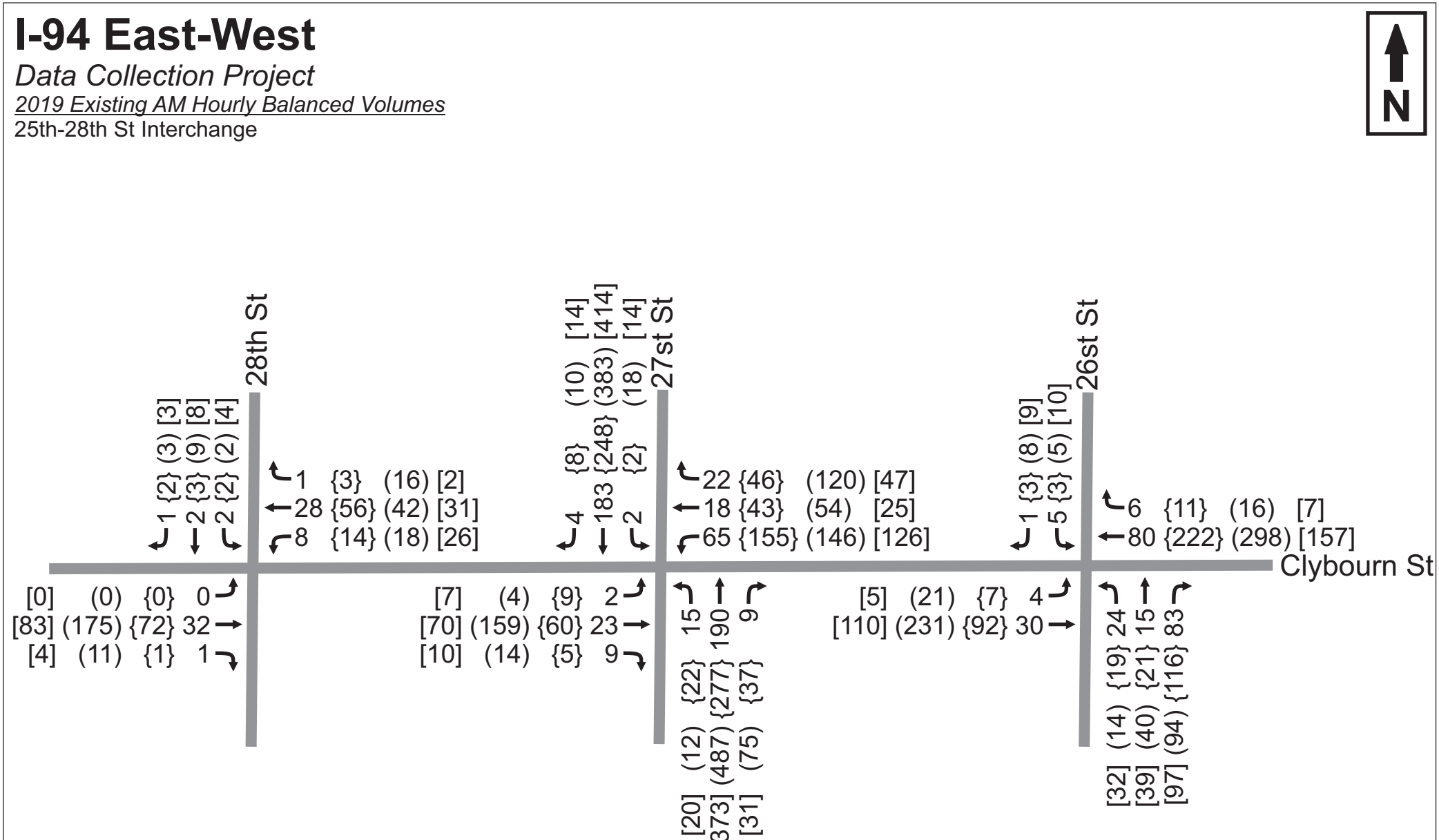
Version 3 12/14/20

I-94 East-West

Data Collection Project

2019 Existing AM Hourly Balanced Volumes

25th-28th St Interchange



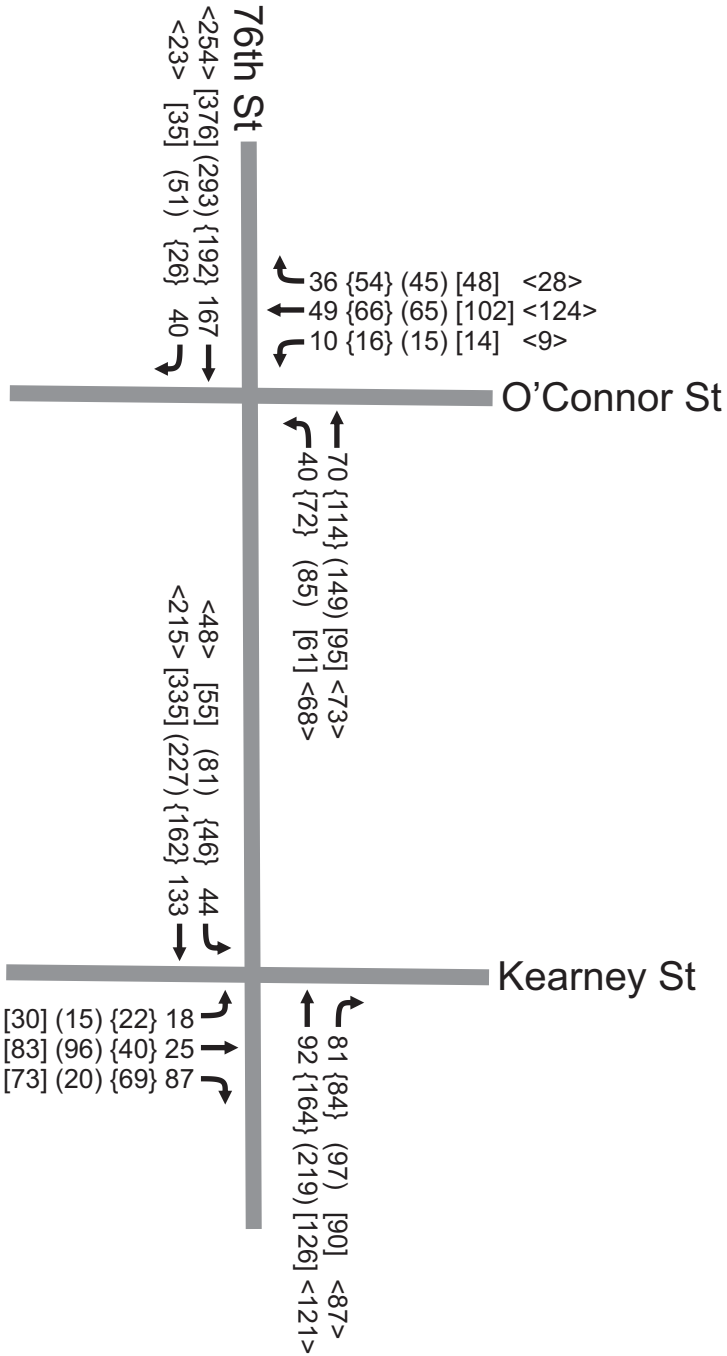
Version 3 12/14/20

I-94 East-West

Data Collection Project

2019 Existing PM Hourly Balanced Volumes

76th St



1:30-2:30PM
{2:30-3:30PM} - Peak Hour
(3:30-4:30PM)
[4:30-5:30PM]
<5:30-6:30PM>

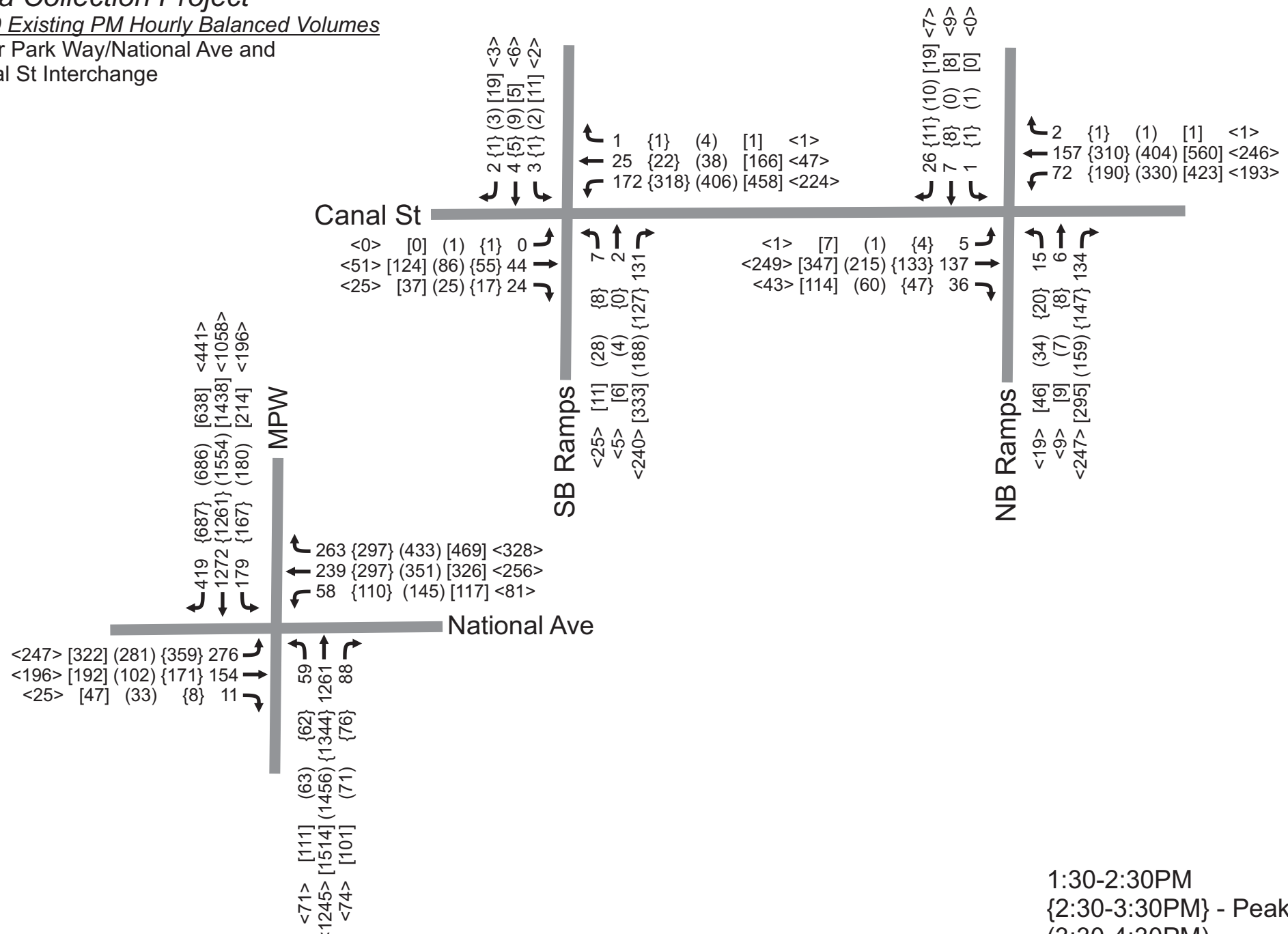
Version 3 12/14/20

I-94 East-West

Data Collection Project

2019 Existing PM Hourly Balanced Volumes

Miller Park Way/National Ave and
Canal St Interchange



1:30-2:30PM
{2:30-3:30PM} - Peak Hour
(3:30-4:30PM)
[4:30-5:30PM]
<5:30-6:30PM>

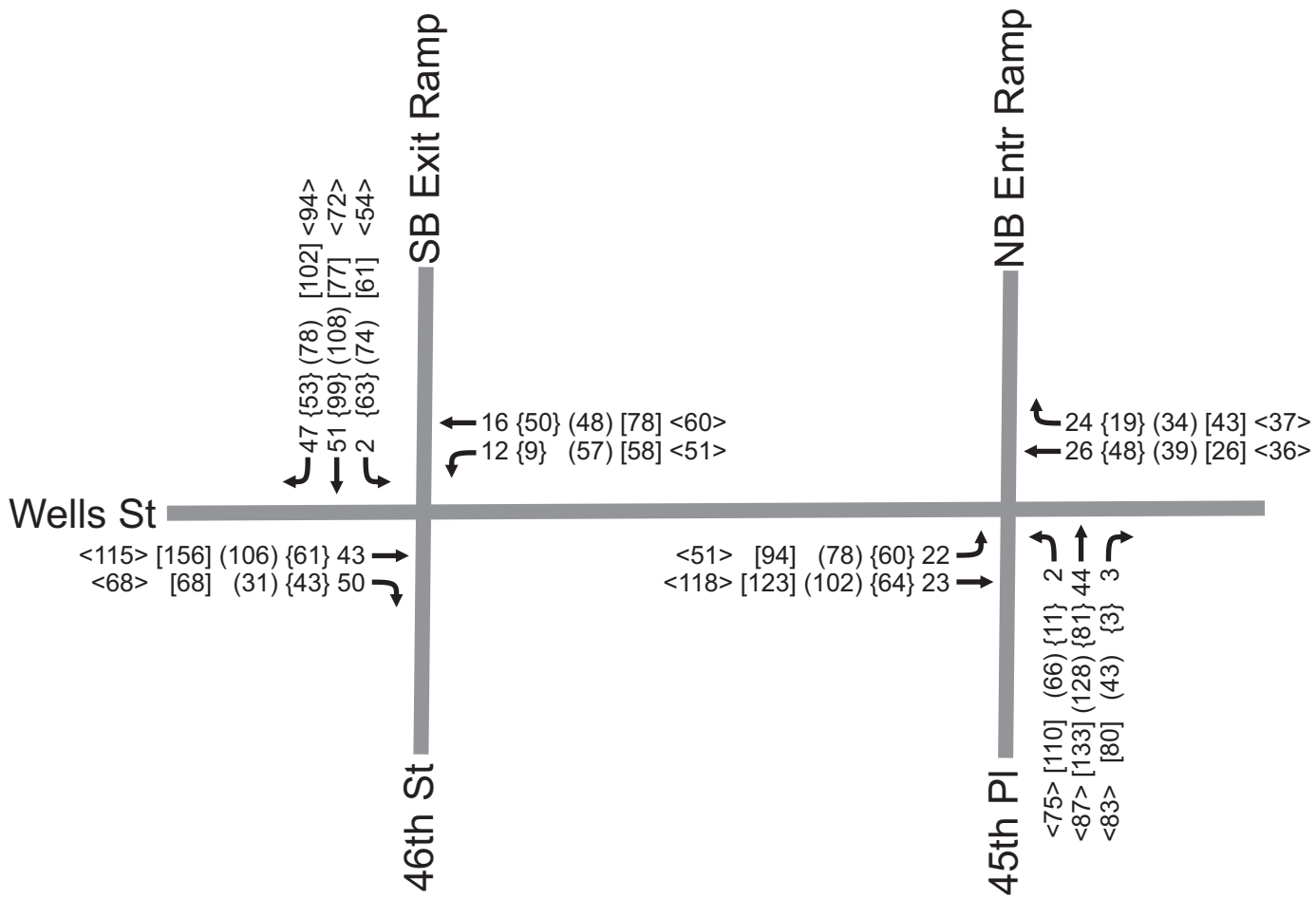
Version 3 12/14/20

I-94 East-West

Data Collection Project

2019 Existing PM Hourly Balanced Volumes

Wells St/WIS 175 Interchange



1:30-2:30PM
{2:30-3:30PM} - Peak Hour
(3:30-4:30PM)
[4:30-5:30PM]
<5:30-6:30PM>

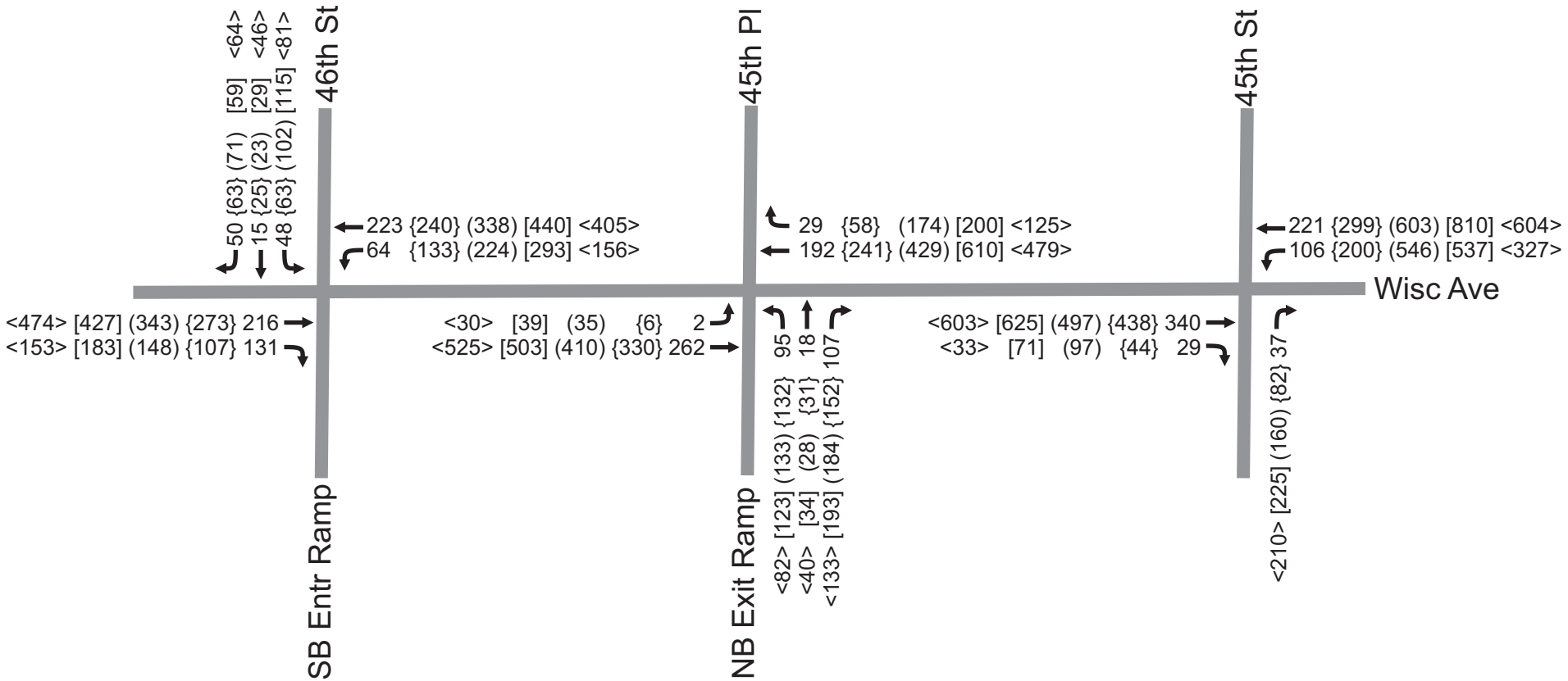
Version 3 12/14/20

I-94 East-West

Data Collection Project

2019 Existing PM Hourly Balanced Volumes

Wisconsin Ave/WIS 175 Interchange



1:30-2:30PM
{2:30-3:30PM} - Peak Hour
(3:30-4:30PM)
[4:30-5:30PM]
<5:30-6:30PM>

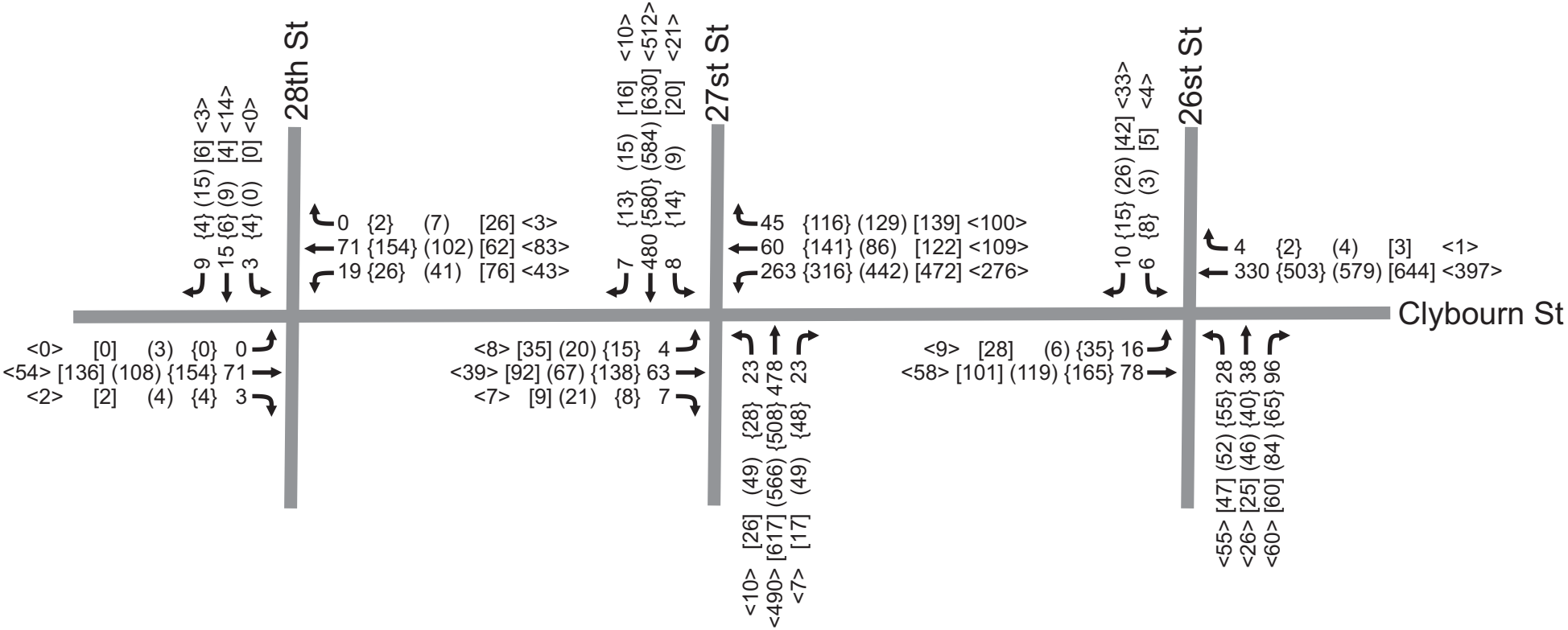
Version 3 12/14/20

I-94 East-West

Data Collection Project

2019 Existing PM Hourly Balanced Volumes

25th-28th St Interchange



1:30-2:30PM
{2:30-3:30PM} - Peak Hour
(3:30-4:30PM)
[4:30-5:30PM]
<5:30-6:30PM>

Version 3 12/14/20

Saturation Flow Rate Calculations

27th St/Clybourn St

Urbanized Area/Cluster Population	
1,376,476	

Speed Limit:	30

N

Sat. Flow Rate (pc/h/ln)		
	1795	1900

Consider using 1900 pc/h/ln

Number of Lanes		
0	1	1
↵	↓	↳

Speed Limit:	30

Sat. Flow (pc/h/ln)	
1900	
1795	
1900	

Consider using 1900 pc/h/ln

Number of Lanes		
1	↱	
0	→	
1	↴	

Traffic Signal

		Number of Lanes
	↰	0
	←	1
	↲	1

	Sat. Flow (pc/h/ln)
1795	
1900	

Consider using 1900 pc/h/ln

Speed Limit:
30

Number of Lanes		
↰	↑	↱
1	1	0

Number of Lanes

Consider using 1900 pc/h/ln

1900	1795	
Sat. Flow Rate (pc/h/ln)		

Speed Limit:	30

Bureau of Traffic Operations
12/1/2017

27th St/St Paul Ave

Urbanized Area/Cluster Population	
1,376,476	

Speed Limit:	30

N

Sat. Flow Rate (pc/h/ln)		
	1833	1900

Consider using 1900 pc/h/ln

Number of Lanes		
0	2	1

Speed Limit:	30

Sat. Flow (pc/h/ln)	1900
	1795

Consider using 1900 pc/h/ln

Number of Lanes		
1	↱	
1	→	
0	↴	

Traffic Signal

		Number of Lanes
↰		0
←		1
↲		1

Sat. Flow (pc/h/ln)	
1795	
1900	

Consider using 1900 pc/h/ln

Speed Limit:	30

Number of Lanes		
↰	↑	↱
1	2	1

Consider using 1900 pc/h/ln

Sat. Flow Rate (pc/h/ln)		
1900	1853	1900

Speed Limit:	30

Bureau of Traffic Operations
12/1/2017

Urbanized Area/Cluster Population	
1,376,476	

26th St/Clybourn St

Speed Limit:	25

Sat. Flow Rate (pc/h/ln)		
1900	1760	1900

Consider using 1900 pc/h/ln

Number of Lanes		
1	0	1

N

Speed Limit:	Sat. Flow (pc/h/ln)		Number of Lanes						Number of Lanes		Sat. Flow (pc/h/ln)		Speed Limit:
30		1900		1	↱			↰	0				
		1795		1	→	Traffic Signal		←	2		1795		
				0	↴			↲	0				30

Consider using 1900 pc/h/ln

Consider using 1900 pc/h/ln

Number of Lanes		
1	1	1

Consider using 1900 pc/h/ln

1900	1797	1900
Sat. Flow Rate (pc/h/ln)		

Speed Limit:	25

Bureau of Traffic Operations
12/1/2017

Urbanized Area/Cluster Population	
1,376,476	

26th St/St Paul Ave

Speed Limit:	35

Sat. Flow Rate (pc/h/ln)		

N

Number of Lanes		
↵	↓	↳

Speed Limit:	Sat. Flow (pc/h/ln)	1900
25		1760

Consider using 1900 pc/h/ln

Number of Lanes		
1	↱	
1	→	
0	↴	

Traffic Signal

		Number of Lanes
↰	0	
←	2	
↲	0	

	Sat. Flow (pc/h/ln)	
	1760	

Consider using 1900 pc/h/ln

Speed Limit:
25

↰	↑	↱
2	0	1
Number of Lanes		

Consider using 1900 pc/h/ln

1900	1871	1900
Sat. Flow Rate (pc/h/ln)		

Speed Limit:	35

Bureau of Traffic Operations
12/1/2017

25th St/Clybourn St

Urbanized Area/Cluster Population
1,376,476

Speed Limit:	25

N

Sat. Flow Rate (pc/h/ln)		
1900	1760	1900

Consider using 1900 pc/h/ln

Number of Lanes		
1	0	1

Speed Limit:	30

Sat. Flow (pc/h/ln)	1900
	1795

Consider using 1900 pc/h/ln

Number of Lanes		
1	↱	
1	→	
0	↴	

Traffic Signal

		Number of Lanes
↰	0	
←	1	
↲	1	

	Sat. Flow (pc/h/ln)
1795	
1900	

Consider using 1900 pc/h/ln

Speed Limit:
30

↰	↑	↱
1	0	1

Number of Lanes

Consider using 1900 pc/h/ln

1900	1795	1900
Sat. Flow Rate (pc/h/ln)		

Speed Limit:	30

Bureau of Traffic Operations
12/1/2017

25th St/St Paul Ave

Urbanized Area/Cluster Population	
1,376,476	

Speed Limit:	30

N

Sat. Flow Rate (pc/h/ln)		
1900	1833	1900

Consider using 1900 pc/h/ln

Number of Lanes		
1	1	1

Speed Limit:	30

Sat. Flow (pc/h/ln)	1900
	1795

Consider using 1900 pc/h/ln

Number of Lanes		
1	↱	
1	→	
0	↴	

Traffic Signal

		Number of Lanes
↰		1
←		1
↲		1

Sat. Flow (pc/h/ln)	1900
	1833
	1900

Consider using 1900 pc/h/ln

Speed Limit:	30

↰	↑	↱
1	1	0

Number of Lanes

Consider using 1900 pc/h/ln

1900	1795	
Sat. Flow Rate (pc/h/ln)		

Speed Limit:	30

Bureau of Traffic Operations
12/1/2017

35th St/I-94 EB Ramps

Urbanized Area/Cluster Population	
1,376,476	

Speed Limit:	35

N

Sat. Flow Rate (pc/h/ln)		
	1871	1900

Consider using 1900 pc/h/ln

Number of Lanes		
0	2	1
↵	↓	↳

Speed Limit:	30

Sat. Flow (pc/h/ln)	
1900	
1833	
1900	

Consider using 1900 pc/h/ln

Number of Lanes		
2	↱	
0	→	
1	↴	

Traffic Signal

		Number of Lanes
↰		
←		
↲		

	Sat. Flow (pc/h/ln)

Speed Limit:	30

↰	↑	↱
0	2	1
Number of Lanes		

Consider using 1900 pc/h/ln

Sat. Flow Rate (pc/h/ln)		
	1871	1900

Speed Limit:	35

Bureau of Traffic Operations
12/1/2017

Urbanized Area/Cluster Population	
1,376,476	

35th St/Park Hill Ave

Speed Limit:	35

Sat. Flow Rate (pc/h/ln)		
	1832	

Consider using 1900 pc/h/ln

Number of Lanes		
0	2	0
↵	↓	↳

N

Speed Limit:	30

Sat. Flow (pc/h/ln)	

Number of Lanes		
	↰	
	→	
	↴	

Traffic Signal

Number of Lanes		
↰	0	
←	1	
↴	2	

Sat. Flow (pc/h/ln)	
1833	
1900	

Consider using 1900 pc/h/ln

Speed Limit:	30

↰	↑	↱
1	2	0
Number of Lanes		

Consider using 1900 pc/h/ln

1900	1871	
Sat. Flow Rate (pc/h/ln)		

Speed Limit:	35

Bureau of Traffic Operations
12/1/2017

Hawley Rd/I-94 WB Ramps

Urbanized Area/Cluster Population	
1,376,476	

Speed Limit:	30

N

Sat. Flow Rate (pc/h/ln)		
1900	1833	

Consider using 1900 pc/h/ln

Number of Lanes		
1	2	0

Speed Limit:	30

Sat. Flow (pc/h/ln)	
1900	
1833	
1900	

Consider using 1900 pc/h/ln

Number of Lanes	
2	
0	
1	

Traffic Signal

	Number of Lanes

	Sat. Flow (pc/h/ln)

Speed Limit:	30

Number of Lanes		
1	2	0

Consider using 1900 pc/h/ln

Sat. Flow Rate (pc/h/ln)		
1900	1833	

Speed Limit:	30

Bureau of Traffic Operations
12/1/2017

68th St/I-94 WB Exit Ramp

Urbanized Area/Cluster Population	
1,376,476	

Speed Limit:	25

N

Sat. Flow Rate (pc/h/ln)		
1900	1760	

Consider using 1900 pc/h/ln

Number of Lanes		
1	1	0

Speed Limit:	30

Sat. Flow (pc/h/ln)	

Number of Lanes	
	↰
	→
	↴

Traffic Signal

		Number of Lanes
↰	0	
←	1	
↴	1	

Sat. Flow (pc/h/ln)	
1795	
1900	

Consider using 1900 pc/h/ln

Speed Limit:	30

Number of Lanes		
↰	↑	↱
1	1	0

Consider using 1900 pc/h/ln

Sat. Flow Rate (pc/h/ln)		
1900	1760	

Speed Limit:	25

Bureau of Traffic Operations
12/1/2017

68th St/I-94 EB Entr Ramp

Urbanized Area/Cluster Population	
1,376,476	

Speed Limit:	25

N

Sat. Flow Rate (pc/h/ln)		
	1760	1900

Consider using 1900 pc/h/ln

Number of Lanes		
0	1	1
↵	↓	↳

Speed Limit:	Sat. Flow (pc/h/ln)		Number of Lanes					Number of Lanes	Sat. Flow (pc/h/ln)	Speed Limit:
30	1900		1	↱			↰			30
	1833		1	→	Traffic Signal		←			
	1900		1	↴			↲			

Consider using 1900 pc/h/ln

↰	↑	↱
0	1	0
Number of Lanes		

Consider using 1900 pc/h/ln

	1656	
Sat. Flow Rate (pc/h/ln)		

Speed Limit:	25

Bureau of Traffic Operations
12/1/2017

70th St/O'Connor St

Urbanized Area/Cluster Population	
1,376,476	

Speed Limit:	30

N

Sat. Flow Rate (pc/h/ln)		
1900	1795	

Consider using 1900 pc/h/ln

Number of Lanes		
1	1	0
↵	↓	↳

Speed Limit:	Sat. Flow (pc/h/ln)		Number of Lanes					Number of Lanes		Sat. Flow (pc/h/ln)	Speed Limit:
30					⤴	Traffic Signal	⤴	1		1900	30
					→		←	2		1853	
					⤵		⤵	1		1900	

Consider using 1900 pc/h/ln

↰	↑	↱
1	1	0

Number of Lanes

Consider using 1900 pc/h/ln

1900	1795	
Sat. Flow Rate (pc/h/ln)		

Speed Limit:	30

Bureau of Traffic Operations
12/1/2017

Urbanized Area/Cluster Population	
1,376,476	

70th St/Kearney St

Speed Limit:	30

N

Sat. Flow Rate (pc/h/ln)		
	1795	1900

Consider using 1900 pc/h/ln

Number of Lanes		
0	1	1
↵	↓	↳

Speed Limit:	Sat. Flow (pc/h/ln)		Number of Lanes		Traffic Signal			Number of Lanes		Sat. Flow (pc/h/ln)		Speed Limit:
30		1900	1	↱		↰						30
		1795	1	→		←						
			0	↴		↲						

Consider using 1900 pc/h/ln

↰	↑	↱
0	1	1
Number of Lanes		

Consider using 1900 pc/h/ln

	1795	1900
Sat. Flow Rate (pc/h/ln)		

Speed Limit:	30

Bureau of Traffic Operations
12/1/2017

Urbanized Area/Cluster Population	
1,376,476	

76th St/O'Connor St

Speed Limit:	30

N

Sat. Flow Rate (pc/h/ln)		
1900	1833	

Consider using 1900 pc/h/ln

Number of Lanes		
1	2	0

Speed Limit:	Sat. Flow (pc/h/ln)		Number of Lanes		Traffic Signal		Number of Lanes		Sat. Flow (pc/h/ln)	Speed Limit:
30				↰		↱	1		1900	30
				→		←	1		1833	
				↴		↾	1		1900	

Consider using 1900 pc/h/ln

Number of Lanes		
1	2	0

Consider using 1900 pc/h/ln

1900	1833	
Sat. Flow Rate (pc/h/ln)		

Speed Limit:	30

Bureau of Traffic Operations
12/1/2017

Urbanized Area/Cluster Population	
1,376,476	

Speed Limit:	30

76th St/Kearney St

N

Sat. Flow Rate (pc/h/ln)		
	1833	1900

Consider using 1900 pc/h/ln

Number of Lanes		
0	2	1
↵	↓	↳

Speed Limit:	30

Sat. Flow (pc/h/ln)	1900
	1795

Consider using 1900 pc/h/ln

Number of Lanes		
1	↱	
1	→	
0	↴	

Traffic Signal

		Number of Lanes
↰		
←		
↲		

		Sat. Flow (pc/h/ln)

Speed Limit:	30

↰	↑	↱
0	2	1
Number of Lanes		

Consider using 1900 pc/h/ln

Sat. Flow Rate (pc/h/ln)		
	1833	1900

Speed Limit:	30

Bureau of Traffic Operations
12/1/2017

Urbanized Area/Cluster Population	
1,376,476	

Canal St/Miller Park Way NB Ramps

Speed Limit:	25

N

Sat. Flow Rate (pc/h/ln)		
	1797	1900

Consider using 1900 pc/h/ln

Number of Lanes		
0	2	1
↵	↓	↳

Speed Limit:	30

Sat. Flow (pc/h/ln)	
1900	
1865	
1900	

Consider using 1900 pc/h/ln

Number of Lanes	
1	↱
2	→
2	↴

Traffic Signal

	Number of Lanes
↰	0
←	2
↲	2

	Sat. Flow (pc/h/ln)
	1853
1900	

Consider using 1900 pc/h/ln

Speed Limit:
30

↰	↑	↱
1	2	1
Number of Lanes		

Consider using 1900 pc/h/ln

1900	1853	1900
Sat. Flow Rate (pc/h/ln)		

Speed Limit:	30

Bureau of Traffic Operations
12/1/2017

Canal St/Miller Park Way SB Ramps

Urbanized Area/Cluster Population	
1,376,476	

Speed Limit:	25

N

Sat. Flow Rate (pc/h/ln)		
	1760	1900

Consider using 1900 pc/h/ln

Number of Lanes		
0	1	1
↵	↓	↳

Speed Limit:	Sat. Flow (pc/h/ln)		Number of Lanes		
30		1900	1	↱	
		1853	1	→	Traffic Signal
		1900	2	↴	

Consider using 1900 pc/h/ln

			Number of Lanes		
			0	↰	
			1	←	
			2	↲	

	Sat. Flow (pc/h/ln)	Speed Limit:
	1833	
	1900	30

Consider using 1900 pc/h/ln

Number of Lanes		
1	0	2
↰	↑	↱

Consider using 1900 pc/h/ln

1900	1833	1900
Sat. Flow Rate (pc/h/ln)		

Speed Limit:	30

Bureau of Traffic Operations
12/1/2017

Wisconsin Ave/WIS 175 SB Entr Ramp

Urbanized Area/Cluster Population	
1,376,476	

Speed Limit:	30

N

Sat. Flow Rate (pc/h/ln)		
1900	1833	1900

Consider using 1900 pc/h/ln

Number of Lanes		
1	0	2

Speed Limit:	30

Sat. Flow (pc/h/ln)	
	1833
	1900

Consider using 1900 pc/h/ln

Number of Lanes		
0	↱	
2	→	
1	↴	

Traffic Signal

		Number of Lanes
↰	0	
←	2	
↲	1	

	Sat. Flow (pc/h/ln)
1833	
1900	

Consider using 1900 pc/h/ln

Speed Limit:
30

↰	↑	↱

Number of Lanes

Sat. Flow Rate (pc/h/ln)

Speed Limit:	30

Bureau of Traffic Operations
12/1/2017

Urbanized Area/Cluster Population	
1,376,476	

Wisconsin Ave/Bluemound Rd (45th St)

Speed Limit:	30

Sat. Flow Rate (pc/h/ln)		
	1689	

Consider using 1900 pc/h/ln

Number of Lanes		
0	1	0
↵	↓	↳

N

Speed Limit:	30

Sat. Flow (pc/h/ln)	
1900	
1833	
1900	

Consider using 1900 pc/h/ln

Number of Lanes		
1	↱	
1	→	
1	↴	

Traffic Signal

		Number of Lanes
↰	0	
←	2	
↲	1	

	Sat. Flow (pc/h/ln)
1833	
1900	

Consider using 1900 pc/h/ln

Speed Limit:
30

Number of Lanes		
↰	↑	↱
0	0	2

Consider using 1900 pc/h/ln

Sat. Flow Rate (pc/h/ln)		
	1795	1900

Speed Limit:	30

Bureau of Traffic Operations
12/1/2017

Urbanized Area/Cluster Population	
1,376,476	

Miller Park Way/National Ave

Speed Limit:	45

Sat. Flow Rate (pc/h/ln)		
1900	1985	1900

N

Number of Lanes		
1	3	1

Speed Limit:	30

Sat. Flow (pc/h/ln)	1900
	1853

Consider using 1900 pc/h/ln

Number of Lanes		
2	↱	
2	→	
0	↴	

Traffic Signal

		Number of Lanes
↰		1
←		2
↲		1

1900	Sat. Flow (pc/h/ln)
1853	
1900	

Consider using 1900 pc/h/ln

Speed Limit:
30

↰	↑	↱
1	3	0

Number of Lanes

Consider using 1900 pc/h/ln

1900	1891	
Sat. Flow Rate (pc/h/ln)		

Speed Limit:	35

Bureau of Traffic Operations
12/1/2017

LOS Summary Tables

I-94 East-West Data Collection Project
Existing Peak Hour LOS Summary
25th-28th St Interchange Area

Intersection	Traffic Control	Analysis Method	Peak Hour	Level of Service and Delay (sec/veh) per Movement by Approach												Int LOS and Delay (sec/veh)
				Eastbound			Westbound			Northbound			Southbound			
				LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
25th St & Clybourn St (I-94 WB Exit Ramp)	Traffic Signal	HCM 2000***	AM	B 16.2			B 10.5			D 35.4		C 20.6	C 21.5		C 20.0	C 22.8
			PM	A 8.4			B 12.6			D 42.6		C 20.6	C 21.8		C 20.2	C 21.2
25th St & St Paul Ave (I-94 EB Entr Ramp)	Traffic Signal	HCM 2000***	AM	A 8.2			B 18.0		B 17.7	C 31.2	C 26.9		C 24.6	C 30.9	C 26.8	B 18.6
			PM	B 18.9			C 27.7		C 25.7	C 21.5	B 19.7		C 21.7	C 27.0	C 25.8	C 22.6
26th St & Clybourn St	Traffic Signal	HCM 6th Ed	AM	A 3.1		-	-	A 0.2		D 35.7	C 34.5	D 37.0	C 34.9	-	C 33.9	B 10.2
			PM	A 0.2		-	-	A 0.4		D 38.3	D 35.0	D 35.2	D 35.9	-	C 34.1	A 6.8
26th St & St Paul Ave (I-94 EB Exit Ramp)	Traffic Signal	HCM 2000***	AM	A 7.1		-	-	A 7.0		C 24.8	C 27.8	C 25.0	-	-	-	B 12.1
			PM	A 5.4		-	-	B 10.2		C 23.0	C 24.8	C 22.9	-	-	-	B 12.1
27th St & Clybourn St	Traffic Signal	HCM 6th Ed	AM	C 22.5		C 20.8	C 31.3	C 23.5		A 0.7			B 10.5			B 12.6
			PM	B 17.2		B 15.1	B 18.6	B 10.3		A 4.1			B 18.3			B 12.9
27th St & St Paul Ave	Traffic Signal	HCM 2000***	AM	C 24.6			D 49.3			A 9.2	B 12.9	B 14.2	B 14.2	B 18.6		C 22.1
			PM	C 29.3			D 40.5			B 14.0	B 17.2	B 16.0	A 9.9	B 19.3		C 24.4
28th St & Clybourn St	TWSC	HCM 6th Ed	AM	A 0.0	-*	-*	A 7.5	-*	-*	-	-	-	A 9.7		A 8.7	-*
			PM	A 0.0	-*	-*	A 7.6	-*	-*	-	-	-	B 11.0		A 9.1	-*
28th St & St Paul Ave (I-94 WB Entr Ramp)	TWSC	HCM 6th Ed	AM	-	-**		A 0.0	-*	-	-	-	-	B 12.4	-**		-*
			PM	-	-**		A 0.0	-*	-	-	-	-	C 15.9	-**		-*

*Major street through and overall intersection delay is not calculated for TWSC intersection per HCM
**Intersection control for this movement cannot be evaluated using HCM
***HCM 2000 used due to limitations of HCM 6th edition (unconventional intersection layout, phase numbering, u-turns, etc.)

I-94 East-West Data Collection Project
Existing Peak Hour LOS Summary
35th St Interchange Area

Intersection	Traffic Control	Analysis Method	Peak Hour	Level of Service and Delay (sec/veh) per Movement by Approach												Int LOS and Delay (sec/veh)
				Eastbound			Westbound			Northbound			Southbound			
				LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
I-94 EB Ramps & 35th St	Traffic Signal	HCM 6th Ed	AM	C 30.4		C 32.6	-	-	-	-	C 20.7	C 21.0	B 19.6	A 0.3	-	B 15.6
			PM	C 31.1		D 35.7	-	-	-	-	B 18.7	B 18.8	B 19.6	A 0.4	-	B 14.2
Park Hill Ave & 35th St	Traffic Signal	HCM 2000***	AM	-	-	-	C 34.0	C 34.3	C 31.9	A 4.8	A 4.0	-	-	B 14.3		B 14.8
			PM	-	-	-	D 37.6	D 38.5	C 31.5	B 12.7	A 6.0	-	-	B 18.9		B 19.2
Park Hill Ave & 34th St (I-94 WB Exit Ramp)	TWSC	HCM 2000***	AM	-	-	-	-	C 24.4		A 0.0	-	-	-	-	-	-*
			PM	-	-	-	-	*E 49.2*		A 0.0	-	-	-	-	-	-*
Park Hill Ave & 36th St (I-94 WB Entr Ramp)	TWSC	HCM 6th Ed	AM	-	-	-	A 0.0	-*	-	-	-	-	-	-	A 8.5	-*
			PM	-	-	-	A 0.0	-*	-	-	-	-	-	-	A 8.6	-*

*Major street through and overall intersection delay is not calculated for TWSC intersection per HCM
**Intersection control for this movement cannot be evaluated using HCM
***HCM 2000 used due to limitations of HCM 6th edition (unconventional intersection layout, phase numbering, u-turns, etc.)

I-94 East-West Data Collection Project
Existing Peak Hour LOS Summary
Gen Mitchell Blvd Interchange

Intersection	Traffic Control	Analysis Method	Peak Hour	Level of Service and Delay (sec/veh) per Movement by Approach												Int LOS and Delay (sec/veh)
				Eastbound			Westbound			Northbound			Southbound			
				LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
I-94 EB Ramps (I-94 WB Entr Ramp) & Gen Mitchell Blvd	TWSC	HCM 6th Ed	AM	B 12.6		B 12.9	-	-	-	A 7.9	-*	-*	A 7.4	-*	-*	-*
			PM	B 14.2		A 8.8	-	-	-	A 7.6	-*	-*	A 7.5	-*	-*	-*
I-94 WB Exit Ramp & Gen Mitchell Blvd	TWSC	HCM 2000***	AM	-	-	-	B 11.0	-	B 10.1	-	-*	-	-	-*	-	-*
			PM	-	-	-	A 9.5	-	A 9.1	-	-*	-	-	-*	-	-*

*Major street through and overall intersection delay is not calculated for TWSC intersection per HCM
**Intersection control for this movement cannot be evaluated using HCM
***HCM 2000 used due to limitations of HCM 6th edition (unconventional intersection layout, phase numbering, u-turns, etc.)

I-94 East-West Data Collection Project
Existing Peak Hour LOS Summary
Hawley Rd Interchange

Intersection	Traffic Control	Analysis Method	Peak Hour	Level of Service and Delay (sec/veh) per Movement by Approach												Int LOS and Delay (sec/veh
				Eastbound			Westbound			Northbound			Southbound			
				LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
I-94 EB Entr Ramp & Hawley Rd	TWSC	HCM 2000***	AM	-	-	-	-	-	-	-	-*	-*	A 9.5	-*	-	-*
			PM	-	-	-	-	-	-	-	-*	-*	A 9.6	-*	-	-*
I-94 EB Exit Ramp & Hawley Rd	TWSC	HCM 6th Ed	AM	B 14.8	-	B 12.0	-	-	-	-	-*	-	-	-*	-	-*
			PM	C 19.3	-	B 12.8	-	-	-	-	-*	-	-	-*	-	-*
I-94 WB Ramps & Hawley Rd	Traffic Signal	HCM 2000***	AM	C 29.1	-	**F 126.8**	-	-	-	A 7.7	A 2.0	-	-	A 2.0	A 1.4	A 7.4
			PM	C 26.7	-	C 29.6	-	-	-	A 6.5	A 2.7	-	-	A 2.7	A 1.4	A 4.6

*Major street through and overall intersection delay is not calculated for TWSC intersection per HCM
**Intersection control for this movement cannot be evaluated using HCM
***HCM 2000 used due to limitations of HCM 6th edition (unconventional intersection layout, phase numbering, u-turns, etc.)

I-94 East-West Data Collection Project
Existing Peak Hour LOS Summary
68th-70th St Interchange Area

Intersection	Traffic Control	Analysis Method	Peak Hour	Level of Service and Delay (sec/veh) per Movement by Approach												Int LOS and Delay (sec/veh)
				Eastbound			Westbound			Northbound			Southbound			
				LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
I-94 WB Exit Ramp & 68th St	Traffic Signal	HCM 2000***	AM	-	-	-	C 21.3			A 0.3	A 0.7	-	-	B 14.3	B 13.2	B 13.0
			PM	-	-	-	C 22.0			A 0.1	A 0.7	-	-	B 13.8	B 12.3	B 13.9
O'Connor St & 70th St	Traffic Signal	HCM 2000***	AM	-	-	-	B 13.2		B 10.2	A 5.7	A 8.5	-	-	B 19.7	B 19.2	B 11.5
			PM	-	-	-	A 9.6		A 8.2	A 4.4	A 5.3	-	-	B 19.4	B 18.2	A 8.1
O'Connor St & 76th St	Traffic Signal	HCM 6th Ed	AM	-	-	-	B 13.2	B 13.2	B 13.1	B 19.3	B 10.1	-	-	B 18.9	B 17.5	B 15.2
			PM	-	-	-	B 13.4	B 13.3	B 13.3	B 17.5	A 9.6	-	-	B 18.8	B 17.3	B 15.3
I-94 EB Entr Ramp & 68th St	Traffic Signal	HCM 6th Ed	AM	D 35.4	C 32.6	C 21.2	-	-	-	-	C 27.2		B 16.3	A 6.5	-	C 26.9
			PM	C 31.4	C 29.7	C 21.2	-	-	-	-	C 22.8		B 17.2	B 12.4	-	C 25.0
Kearney St & 70th St	Traffic Signal	HCM 2000***	AM	C 22.5		D 36.2	-	-	-	-	B 17.8	B 13.5	A 1.0		-	B 19.3
			PM	C 20.3		C 22.5	-	-	-	-	C 20.4	B 14.2	A 0.8		-	B 16.0
Kearney St & 76th St	Traffic Signal	HCM 6th Ed	AM	B 14.5			-	-	-	-	C 20.8	B 18.5	B 17.9	B 10.1	-	B 15.9
			PM	B 13.1			-	-	-	-	B 19.3	B 19.2	B 16.6	B 10.0	-	B 14.9

*Major street through and overall intersection delay is not calculated for TWSC intersection per HCM
**Intersection control for this movement cannot be evaluated using HCM
***HCM 2000 used due to limitations of HCM 6th edition (unconventional intersection layout, phase numbering, u-turns, etc.)

I-94 East-West Data Collection Project
Existing Peak Hour LOS Summary
Canal St Interchange and Miller Park Way

Intersection	Traffic Control	Analysis Method	Peak Hour	Level of Service and Delay (sec/veh) per Movement by Approach												Int LOS and Delay (sec/veh)
				Eastbound			Westbound			Northbound			Southbound			
				LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
Miller Park Way NB Ramps & Canal St	Traffic Signal	HCM 2000***	AM	C 23.5	B 11.0	A 10.0	B 16.9	A 6.5		B 18.4	B 18.2	B 13.2	B 18.2	B 18.3		B 10.9
			PM	C 21.5	B 12.6	B 12.1	B 13.3	A 6.5		B 18.1	B 17.8	A 9.7	B 17.7	B 17.9		B 10.5
Miller Park Way SB Ramps & Canal St	Traffic Signal	HCM 2000***	AM	C 25.4		B 18.1	B 16.1			C 22.0		A 6.7	A 0.0	C 31.3		B 13.7
			PM	C 27.4		C 21.6	B 14.2			C 25.3		A 5.8	C 29.9	C 31.1		B 14.8
Miller Park Way & National Ave	Traffic Signal	HCM 2000***	AM	D 51.3	D 41.3		*E* *68.7*	*E* *64.2*	D 41.4	*E* *56.9*	D 47.5		*E* *59.7*	D 42.0	B 16.5	D 45.3
			PM	D 39.3	C 32.6		*E* *74.9*	*E* *63.8*	D 50.8	*E* *72.6*	D 52.1		**F** **157.7**	D 46.3	B 14.0	D 50.7

*Major street through and overall intersection delay is not calculated for TWSC intersection per HCM
**Intersection control for this movement cannot be evaluated using HCM
***HCM 2000 used due to limitations of HCM 6th edition (unconventional intersection layout, phase numbering, u-turns, etc.)

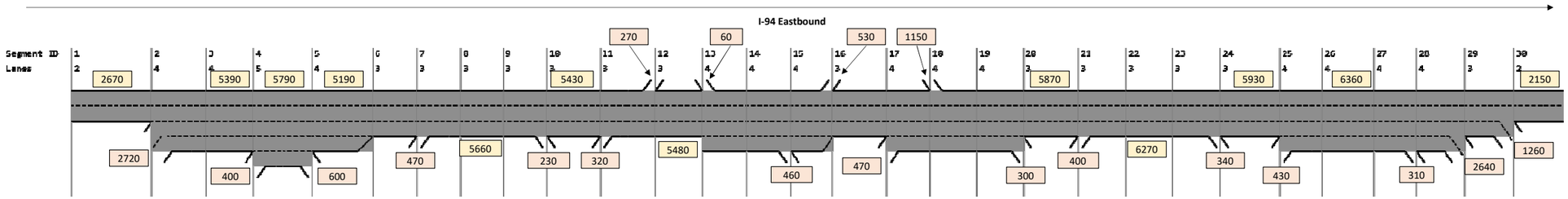
I-94 East-West Data Collection Project
Existing Peak Hour LOS Summary
Wells St-Wisconsin Ave Interchange Area

Intersection	Traffic Control	Analysis Method	Peak Hour	Level of Service and Delay (sec/veh) per Movement by Approach												Int LOS and Delay (sec/veh)
				Eastbound			Westbound			Northbound			Southbound			
				LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
WIS 175 NB Entr Ramp & Wells St	AWSC	HCM 6th Ed	AM	A 8.8	A 8.4	-	-	A 8.7	A 8.0	A 10.0		A 7.4	-	-	-	A 9.1
			PM	A 8.8	A 8.2	-	-	A 8.5	A 7.5	A 9.0		A 7.3	-	-	-	A 8.6
WIS 175 NB Exit Ramp & Wisconsin Ave	TWSC	HCM 6th Ed	AM	B 10.9	-*	-	-	-*	-*	F 88.0		B 14.0	-	-	-	-*
			PM	A 8.0	-*	-	-	-*	-*	C 15.2		B 10.7	-	-	-	-*
WIS 175 SB Exit Ramp & Wells St	AWSC	HCM 6th Ed	AM	-	A 8.6	A 7.8	A 9.8	A 9.8	-	-	-	-	A 9.2	A 8.3	A 7.9	A 8.7
			PM	-	A 9.1	A 8.0	A 9.1	A 9.0	-	-	-	-	A 9.2	A 8.4	A 7.5	A 8.6
WIS 175 SB Entr Ramp & Wisconsin Ave	Traffic Signal	HCM 6th Ed	AM	-	A 4.3	A 3.4	A 1.3	A 0.5	-	-	-	-	D 35.6	A 0.0	D 35.4	A 4.5
			PM	-	A 3.6	A 3.4	A 0.7	A 0.1	-	-	-	-	D 35.7	D 36.0	D 35.8	A 7.2
45th St (Bluemound Rd) & Wisconsin Ave	Traffic Signal	HCM 2000***	AM	A 0.0	C 32.3	C 20.1	B 11.4	B 14.8		-	-	B 11.0	A 0.0			C 20.3
			PM	A 0.0	C 23.4	B 18.7	B 11.5	B 10.3		-	-	A 9.8	A 0.0			B 16.3

*Major street through and overall intersection delay is not calculated for TWSC intersection per HCM
**Intersection control for this movement cannot be evaluated using HCM
***HCM 2000 used due to limitations of HCM 6th edition (unconventional intersection layout, phase numbering, u-turns, etc.)

I-94 East-West Data Collection Project
Existing (2019) AM Peak Period
HCS Facilities Analysis Summary: I-94 EB

AM EB 90%



ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Segment	Zoo Int W-E System Movement	Zoo Int S-E/N-E System Ramps	Zoo Int S-E/N-E System Ramps to 84th St Entr Ramp	84th St Entr Ramp to 70th St Exit Ramp	70th St Exit Ramp to Lane Merge	Lane Merge to 68th St Entr Ramp	68th St Entr Ramp	68th St Entr Ramp to Hawley Rd Exit Ramp	Hawley Rd Exit Ramp	Hawley Rd Exit Ramp to Hawley Rd Entr Ramp	Hawley Rd Entr Ramp to Gen Mitchell Blvd Exit Ramp	Gen Mitchell Blvd Exit Ramp to Gen Mitchell Blvd Entr Ramp	Gen Mitchell Blvd Entr Ramp	Stadium Int W-S System Ramp	Stadium Int W-N System Ramp	Stadium Int W-E System Movement	Stadium Int S-E System Ramp	Stadium Int N-E System Ramp	35th St Exit Ramp	35th St Exit Ramp to 35th St Entr Ramp	35th St Entr Ramp	35th St Exit Ramp to 26th St Exit Ramp	26th St Exit Ramp	26th St Exit Ramp to 25th St Entr Ramp	25th St Entr Ramp	25th St Entr Ramp to 13th St Exit Ramp	13th St Exit Ramp	Marquette Int W-N System Ramp	Marquette Int W-S System Ramp	Marquette Int W-E System Movement
Type	B	M**	B	W	B	B	M	O	D	B	W	B	M**	D	D**	B	M**	M	D**	B	M	O	D	B	M**	O	D	D**	D**	B
Speed (MPH)																														
5:30 AM	63.0	59.5	62.5	57.2	62.8	63.0	57.7	59.9	57.7	61.7	57.6	62.2	58.0	56.9	57.3	57.8	58.0	55.0	57.0	57.8	54.1	54.0	54.0	57.6	57.9	57.0	57.0	54.8	56.0	57.6
5:45 AM	63.0	59.2	62.4	56.3	62.8	63.0	57.3	59.7	57.7	61.7	56.9	62.1	58.0	56.7	57.2	57.8	58.0	54.8	57.0	57.8	53.9	54.0	54.0	57.6	57.9	57.0	57.0	54.9	56.2	57.6
6:00 AM	63.0	59.0	62.4	55.9	62.8	63.0	57.0	59.5	57.7	61.7	56.4	62.0	58.0	56.9	57.3	57.8	58.0	54.7	56.9	57.8	53.7	53.7	54.1	57.6	57.9	57.0	57.0	54.3	56.0	57.6
6:15 AM	63.0	56.9	62.0	52.8	62.6	60.8	55.1	58.4	57.3	60.9	54.6	57.3	57.7	56.2	56.9	57.7	57.9	53.7	56.6	57.8	52.4	52.4	53.6	57.6	57.9	56.4	56.4	54.0	56.1	57.6
6:30 AM	63.0	56.7	62.0	50.9	62.6	61.2	55.0	58.3	57.1	61.1	54.6	57.6	57.9	56.4	57.0	57.7	57.9	53.3	56.5	57.2	51.5	51.5	53.4	57.4	57.9	55.8	55.8	53.3	55.6	57.5
6:45 AM	63.0	57.2	62.1	50.1	62.6	62.3	55.5	58.6	57.4	61.7	54.6	60.3	58.0	56.4	57.0	57.7	57.9	53.6	56.6	57.8	51.8	51.8	53.5	57.6	57.9	56.0	56.0	53.7	56.0	57.6
7:00 AM	63.0	57.7	62.2	50.0	62.5	62.7	55.6	58.7	57.5	61.7	54.5	61.2	58.0	56.6	57.1	57.8	58.0	53.3	56.5	57.0	51.2	51.2	53.4	56.7	57.8	55.9	55.9	53.5	55.7	57.5
7:15 AM	63.0	58.5	62.3	50.9	62.6	62.9	56.1	59.0	57.6	61.7	54.5	61.8	58.0	56.8	57.3	57.8	58.0	53.3	56.5	57.1	51.1	51.1	53.4	56.3	57.7	55.8	55.8	53.4	55.8	57.6
7:30 AM	63.0	59.4	62.4	52.3	62.6	63.0	56.6	59.3	57.7	61.7	55.2	61.9	58.0	57.0	57.4	57.8	58.0	53.4	56.5	57.3	50.9	50.9	53.4	56.0	57.7	55.7	55.7	52.9	56.0	57.6
7:45 AM	63.0	59.6	62.5	52.7	62.6	63.0	57.2	59.6	57.8	61.8	56.1	62.0	58.0	57.3	57.6	57.9	58.0	53.7	56.6	57.8	51.4	51.4	53.6	57.1	57.9	55.7	55.7	53.4	56.4	57.7
8:00 AM	63.0	59.5	62.5	53.0	62.7	63.0	57.2	59.6	57.8	61.8	56.3	62.0	58.0	57.4	57.6	57.9	58.0	53.7	56.6	57.8	51.8	51.8	53.7	57.6	57.9	56.0	56.0	53.4	56.7	57.7
8:15 AM	63.0	59.4	62.4	52.5	62.6	63.0	57.0	59.5	57.7	61.7	56.2	62.0	58.0	57.1	57.5	57.9	58.0	53.8	56.6	57.8	52.1	52.1	53.6	57.6	57.9	56.2	56.2	53.4	56.8	57.8
8:30 AM	63.0	58.6	62.3	52.0	62.6	63.0	56.5	59.2	57.7	61.7	55.1	61.9	58.0	57.1	57.5	57.9	58.0	53.3	56.5	56.8	50.9	50.9	53.3	56.3	57.7	55.8	55.8	53.0	56.3	57.7
8:45 AM	63.0	58.8	62.3	51.9	62.6	63.0	56.8	59.4	57.7	61.7	55.6	61.9	58.0	57.1	57.5	57.9	58.0	53.6	56.6	57.8	51.8	51.8	53.5	57.6	57.9	56.1	56.1	53.4	56.6	57.7
9:00 AM	63.0	59.4	62.4	53.3	62.7	63.0	57.2	59.6	57.8	61.8	56.3	62.0	58.0	57.0	57.4	57.8	58.0	54.2	56.8	57.8	52.9	52.9	54.0	57.6	57.9	56.5	56.5	53.8	56.5	57.7
9:15 AM	63.0	59.2	62.4	54.1	62.7	63.0	57.0	59.5	57.8	61.8	56.1	62.0	58.0	57.2	57.5	57.9	58.0	54.1	56.7	57.8	52.8	52.8	53.9	57.6	57.9	56.4	56.4	53.6	56.4	57.7
Density (pc/mi/ln)																														
5:30 AM	11.1	13.2	12.4	11.5	12.4	16.6	18.9	17.6	22.0	16.7	19.2	17.3	14.1	16.4	12.4	15.1	11.9	14.5	14.1	17.5	15.8	19.9	22.3	16.9	13.9	14.1	14.9	19.9	14.1	7.9
5:45 AM	12.8	16.0	14.4	13.5	14.3	19.1	21.1	20.1	24.5	19.1	22.2	19.7	16.1	18.8	13.8	16.5	13.1	15.7	15.5	19.5	17.2	21.9	24.0	18.5	15.0	15.2	15.9	20.9	14.8	9.3
6:00 AM	14.1	17.2	15.4	14.6	15.5	20.6	22.4	21.6	25.8	20.7	24.1	21.3	17.3	19.7	15.3	18.1	14.3	16.3	16.5	21.0	18.5	23.7	25.2	20.4	16.3	16.6	17.0	23.2	15.5	9.4
6:15 AM	21.8	25.3	22.0	22.1	22.1	30.6	30.2	32.2	33.3	30.3	31.8	*36.4*	24.4	26.4	21.7	25.8	20.4	21.7	23.2	29.0	25.3	33.3	31.9	27.5	21.9	22.5	22.1	29.2	19.3	14.4
6:30 AM	20.7	25.6	21.8	23.1	21.7	29.8	30.8	32.4	33.6	29.9	31.6	*35.9*	24.0	25.6	21.8	26.2	21.5	24.9	25.8	32.8	28.7	*38.3*	34.5	32.1	25.8	26.8	26.2	33.8	21.6	14.8
6:45 AM	20.8	24.6	21.4	22.9	20.2	27.2	29.3	29.8	32.0	28.4	31.7	31.4	23.0	24.8	20.7	24.6	20.1	23.8	24.3	30.8	27.8	*36.6*	33.7	30.7	24.6	25.5	24.7	32.0	21.1	16.3
7:00 AM	20.3	23.1	20.4	22.1	19.4	26.0	29.0	29.0	31.5	27.8	31.9	29.8	22.7	24.0	20.9	25.0	20.6	25.6	25.6	33.3	29.8	*39.7*	*35.2*	34.0	26.5	27.5	26.2	33.8	22.8	18.1
7:15 AM	20.0	20.4	18.9	20.1	17.8	23.7	27.6	26.8	30.0	25.9	31.8	26.6	21.8	22.8	20.3	24.5	20.8	25.5	25.7	33.1	30.3	*40.1*	*35.3*	34.9	27.3	28.4	27.1	34.8	23.0	19.0
7:30 AM	16.8	15.6	15.4	16.2	14.5	19.4	25.5	23.4	27.3	22.7	28.7	24.5	20.9	21.9	19.7	23.8	20.4	25.0	25.1	32.6	31.2	*40.9*	*35.7*	*35.6*	28.4	29.6	27.9	*37.1*	22.8	20.1
7:45 AM	15.1	13.9	13.9	14.6	12.9	17.2	22.9	20.7	24.9	20.0	25.0	21.7	18.4	19.4	17.3	21.1	18.7	23.3	23.2	30.1	29.8	*38.4*	34.4	33.2	27.1	28.2	26.9	34.6	21.4	21.0
8:00 AM	14.6	14.6	14.2	14.5	12.9	17.2	22.4	20.3	24.5	19.6	24.1	21.0	17.9	19.0	16.9	20.5	17.8	23.7	22.9	29.6	28.0	*36.4*	33.4	30.9	25.3	26.2	25.1	33.6	19.7	19.7
8:15 AM	16.2	15.8	15.3	15.8	14.0	18.7	23.3	21.5	25.7	20.8	25.0	21.9	18.5	19.9	17.2	20.6	18.1	23.1	22.7	29.3	27.3	*35.4*	32.9	30.2	24.6	25.4	24.4	33.1	19.2	18.6
8:30 AM	18.9	19.8	18.3	18.6	16.7	22.3	25.6	24.6	28.3	24.0	29.4	25.2	21.1	21.6	20.1	24.9	21.2	25.3	25.7	33.9	30.8	*41.0*	*35.9*	*35.0*	27.2	28.3	26.8	*35.9*	21.1	20.0
8:45 AM	18.0	19.2	17.6	18.0	16.0	21.3	24.3	23.3	27.2	22.5	27.4	23.7	19.7	20.5	18.6	22.7	18.9	24.3	23.9	30.6	27.9	*36.7*	33.8	30.3	24.5	25.4	24.7	32.5	19.3	17.7
9:00 AM	15.8	15.8	15.2	15.3	14.1	18.9	22.2	20.8	25.0	20.1	24.4	21.4	17.9	19.9	16.0	18.9	16.2	20.5	20.0	25.6	23.3	30.0	29.6	25.8	20.8	21.4	21.3	28.5	17.4	13.6
9:15 AM	15.5	16.7	15.6	15.4	15.0	20.0	22.8	21.7	25.8	21.0	25.3	22.2	18.3	19.5	17.2	20.7	17.2	20.5	20.7	26.3	24.0	30.9	30.1	26.8	21.7	22.4	22.2	29.7	17.8	13.9
Density LOS																														
5:30 AM	B	B	B	B	B	B	B	B	C	B	B	B	B	B	B	B	B	B	B	B	B	C	C	B	B	B	B	B	B	A
5:45 AM	B	B	B	B	B	C	C	C	C	C	C	C	B	B	B	B	B	B	B	C	B	C	C	C	B	B	B	C	B	A
6:00 AM	B	B	B	B	B	C	C	C	C	C	C	C	B	B	B	C	B	B	B	C	B	C	C	C	B	B	B	C	B	A
6:15 AM	C	C	C	C	C	D	D	D	D	D	D	*E*	C	C	C	C	C	C	C	D	C	D	D	D	C	C	C	D	B	B
6:30 AM	C	C	C	C	C	D	D	D	D	D	D	*E*	C	C	C	D	C	C	C	D	D	*E*	D	D	C	D	C	D	C	B
6:45 AM	C	C	C	C	C	D	D	D	D	D	D	D	C	C	C	C	C	C	C	D	C	*E*	D	D	C	C	C	D	C	B
7:00 AM	C	C	C	C	C	C	D	D	D	D	D	D	C	C	C	C	C	C	C	D	D	*E*	*E*	D	D	D	C	D	C	C
7:15 AM	C	C	C	C	B	C	C	D	D	C	D	D	C	C	C	C	C	C	C	D	D	*E*	*E*	D	D	D	C	D	C	C
7:30 AM	B	B	B	B	B	C	C	C	C	C	D	C	C	C	C	C	C	C	C	D	D	*E*	*E*	*E*	D	D	C	*E*	C	C
7:45 AM	B	B	B	B	B	B	C	C	C	C	C	C	C	B	B	C	C	C	C	D	D	*E*	D	D	D	D	C	D	C	C
8:00 AM	B	B	B	B	B	B	C	C	C	C	C	C	B	B	B	C	B	C	C	D	C	*E*	D	D	C	D	C	D	B	C
8:15 AM	B	B	B	B	B	C	C	C	C	C	C	C	C	B	B	C	C	C	C	D	C	*E*	D	D	C	C	C	D	B	C
8:30 AM	C	B	C	B	B	C	C	C	D	C	D	C	C	C	C	C	C	C	C	D	D	*E*	*E*	D	D	D	C	*E*	C	C
8:45 AM	B	B	B	B	B	C	C	C	C	C	C	C	C	C	C	C	C	C	C	D	C	*E*	D	D	C	C	C	D	B	B
9:00 AM	B	B	B	B	B	C	C	C	C	C	C	C	B	B	B	C	B	C	C	C	C	D	D	C	C	C	C	D	B	B
9:15 AM	B	B	B	B	B	C	C	C	C	C	C	C	C	B	B	C	B	C	C	D	C	D	D	D	C	C	C	D	B	B

Notes
*Demand/capacity ratio > 1.0

**Segment anayzed as "basic" due to geometry and segmentation

B - Basic
M - Merge
O - Overlap (Basic)
D - Diverge
W - Weave

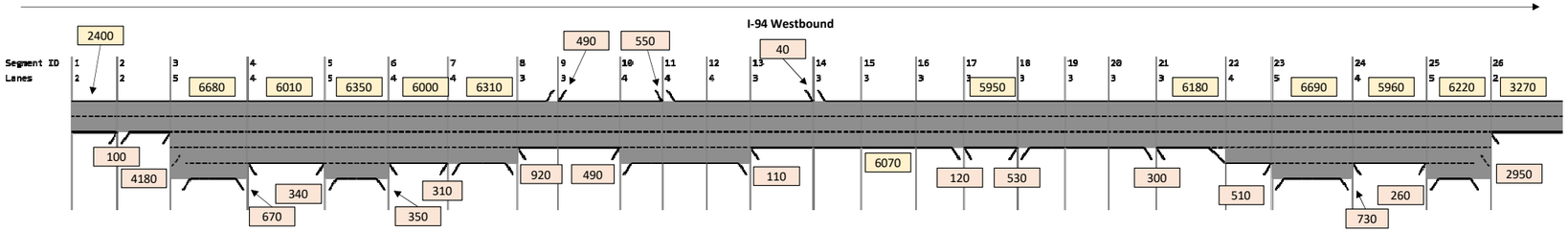
- Mainline Peak Hour Volume (6:30-7:30AM)

- Ramp Peak Hour Volume (6:30-7:30AM)

Legend (HCM6)					
Color	LOS	Speed (mph)	Density (pcphpl)		
			Basic	Ramp	Weave
	A	> 60	0-11	0-10	0-10
	B		11-18	10-20	10-20
	C	50 - 60	18-26	20-28	20-28
	D	40 - 50	26-35	28-35	28-35
	E	30 - 40	35-45	35-43	35-43
	F	< 30	45+	43+	43+

I-94 East-West Data Collection Project
Existing (2019) AM Peak Period
HCS Facilities Analysis Summary: I-94 WB

AM WB 90%



ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
Segment	Marquette Int E-W System Movement	11th St Entr Ramp	Marquette Int N-W/S-W System Ramps to 25th St Exit Ramp	25th St Exit Ramp to 28th St Entr Ramp	28th St Entr Ramp to 35th St Exit Ramp	35th St Exit Ramp to 35th St Entr Ramp	35th St Entr Ramp to Stadium Int E-N System Ramp	Stadium Int E-S System Ramp	Stadium Int E-W System Movement	Stadium Int N-W System Ramp	Stadium Int S-W System Ramp	Stadium Int S-W System Ramp	Stadium Int S-W System Ramp to Gen Mitchell Blvd Entr Ramp	Gen Mitchell Blvd Entr Ramp	Gen Mitchell Blvd Entr Ramp to Hawley Rd Exit Ramp	Hawley Rd Exit Ramp	Hawley Rd Exit Ramp to Hawley Rd Entr Ramp	Hawley Rd Entr Ramp	Hawley Rd Entr Ramp to 68th St Exit Ramp	68th St Exit Ramp	68th St Exit Ramp to Lane Add	Lane Add to 70th St Entr Ramp	70th St Entr Ramp to 84th St Exit Ramp	84th St Exit Ramp to 84th St Entr Ramp	84th St Entr Ramp to Zoo Int E-N/E-S System Ramps	Zoo Int E-W System Movement
Type	B	M**	W	B	W	B	W	D	B	M**	M	D**	B	M	O	D	B	M	O	D	B	B	W	B	W	B
Speed (MPH)																										
5:30 AM	58.0	53.5	52.1	57.9	51.0	57.3	50.3	56.2	57.5	57.9	54.6	55.7	59.8	55.8	55.8	56.6	59.6	55.6	57.7	56.3	60.4	60.9	52.7	60.9	55.1	60.7
5:45 AM	58.0	53.5	51.5	57.9	51.3	57.4	50.2	56.1	57.4	57.9	54.8	55.9	59.8	55.9	55.9	56.6	59.6	55.8	57.8	56.3	60.4	60.9	53.0	60.9	55.4	60.7
6:00 AM	58.0	53.5	51.8	57.9	50.3	57.3	49.2	56.3	57.5	57.9	54.4	55.6	59.8	55.5	55.5	56.5	59.6	55.4	57.6	56.2	60.3	60.9	52.1	60.9	55.2	60.7
6:15 AM	58.0	53.3	50.7	57.9	47.9	57.1	45.8	55.6	57.3	57.8	53.5	55.0	59.6	53.9	53.9	56.1	59.5	53.7	56.5	55.8	60.1	60.9	48.9	60.8	54.7	60.7
6:30 AM	58.0	53.3	50.8	57.9	47.5	57.0	44.8	55.5	57.2	57.8	53.3	54.9	58.9	53.3	53.3	56.0	59.1	52.8	56.0	55.6	57.8	60.5	46.5	60.8	54.0	60.7
6:45 AM	58.0	53.2	51.1	57.9	48.1	57.1	44.9	55.5	57.3	53.6	53.4	54.9	59.3	53.4	53.4	56.0	59.4	53.2	56.2	55.7	58.5	60.6	47.3	60.8	54.2	60.7
7:00 AM	58.0	53.0	48.4	57.8	47.5	57.0	44.2	55.3	57.2	53.7	53.5	55.0	59.6	53.9	53.9	56.0	59.5	53.6	56.5	55.7	59.7	60.8	47.3	60.8	54.1	60.7
7:15 AM	58.0	52.7	49.5	57.9	47.3	57.0	43.2	55.1	57.2	53.4	53.1	54.7	58.0	52.7	52.7	55.8	58.3	52.2	52.6	55.4	57.1	60.5	45.0	60.7	53.5	60.6
7:30 AM	58.0	52.9	49.2	57.9	46.8	57.0	42.4	55.0	57.1	53.3	52.9	***26.2***	***36.7***	***34.9***	***31.8***	***31.8***	***28.3***	49.9	54.2	55.3	57.2	60.5	44.6	60.7	53.2	60.6
7:45 AM	58.0	52.6	45.6	57.8	48.5	57.1	44.0	55.3	57.2	54.0	53.7	55.1	59.6	53.7	53.7	56.0	59.5	53.1	56.2	55.5	59.2	60.7	46.5	60.8	53.5	60.6
8:00 AM	58.0	53.1	49.2	57.9	48.5	57.1	44.5	55.4	57.2	54.2	54.0	55.3	59.7	54.7	54.7	56.2	59.5	54.5	57.0	55.8	60.3	60.9	48.6	60.8	54.5	60.7
8:15 AM	58.0	53.1	48.6	57.8	48.5	57.1	44.8	55.5	57.2	54.1	54.1	55.4	59.7	54.8	54.8	56.2	59.5	54.7	57.2	55.8	60.3	60.9	49.0	60.8	54.7	60.7
8:30 AM	58.0	53.1	50.3	57.9	48.0	57.1	43.5	55.2	57.2	53.9	53.8	55.2	59.7	54.5	54.5	56.2	59.5	54.4	57.0	55.9	60.3	60.9	49.2	60.8	54.4	60.7
8:45 AM	58.0	53.2	50.4	57.9	48.5	57.1	45.2	55.5	57.3	53.9	53.8	55.2	59.7	54.3	54.3	56.1	59.5	54.3	56.9	55.8	60.3	60.9	50.2	60.8	54.4	60.7
9:00 AM	58.0	53.4	51.8	57.9	49.8	57.2	47.3	55.9	57.4	54.4	54.3	55.5	59.7	55.3	55.3	56.3	59.5	55.2	57.5	56.0	60.3	60.9	51.4	60.8	54.7	60.7
9:15 AM	58.0	53.4	50.7	57.9	49.8	57.2	47.4	56.0	57.4	54.4	54.4	55.6	59.8	55.5	55.5	56.3	59.5	55.4	57.6	56.1	60.3	60.9	51.5	60.8	54.9	60.7
Density (pc/mi/ln)																										
5:30 AM	8.1	8.5	12.1	12.5	12.7	13.3	16.7	23.4	16.4	13.9	17.0	15.7	19.7	22.3	21.6	20.3	19.5	22.0	21.5	25.3	20.7	15.5	15.5	15.9	14.4	15.2
5:45 AM	9.1	9.4	13.6	13.1	13.0	13.7	16.9	23.5	16.0	13.3	16.2	14.9	18.6	21.3	20.4	19.4	18.3	20.3	19.8	23.8	18.8	14.1	13.8	13.7	12.4	13.4
6:00 AM	10.7	11.0	14.2	14.6	14.9	15.4	19.7	25.7	18.8	15.8	18.0	17.3	21.7	24.2	24.0	22.2	21.4	23.4	23.2	26.9	22.2	16.6	16.4	16.0	14.7	15.9
6:15 AM	14.4	14.4	19.9	19.9	21.2	20.9	28.9	32.0	25.5	21.4	23.0	23.5	29.8	31.3	33.3	28.6	29.0	30.0	31.8	33.0	29.8	22.0	23.2	21.0	19.2	21.3
6:30 AM	15.9	15.9	22.1	22.5	23.6	22.9	31.5	32.9	26.1	24.4	24.5	25.8	32.4	33.2	***36.0***	30.0	32.0	32.6	***36.7***	***35.0***	34.4	24.5	27.8	23.7	22.2	25.0
6:45 AM	17.5	17.2	23.2	23.8	24.1	23.7	32.0	33.4	26.5	24.1	23.9	25.3	31.6	32.9	***35.4***	29.7	31.4	31.8	31.4	34.5	33.2	23.9	26.4	23.0	21.4	24.1
7:00 AM	20.6	20.2	25.2	23.4	24.1	23.2	31.9	32.4	24.8	23.1	22.7	24.0	29.3	31.2	33.0	28.4	28.9	30.7	***36.7***	33.5	30.7	22.5	25.2	21.8	20.7	24.4
7:15 AM	22.7	22.2	25.7	25.1	25.9	25.0	***35.4***	34.2	27.2	25.8	25.1	26.9	34.1	34.7	***38.0***	31.2	33.5	34.2	***43.0***	***36.3***	***35.6***	25.0	29.7	24.1	23.2	26.6
7:30 AM	21.4	20.9	26.7	24.9	26.3	25.1	***36.4***	33.6	27.4	26.3	26.5	***59.6***	***54.5***	***57.9***	***62.3***	***62.3***	***67.7***	34.3	***35.6***	***36.3***	***35.5***	24.9	30.5	24.8	24.2	27.4
7:45 AM	23.4	22.9	24.8	19.8	20.4	20.2	28.3	27.8	21.1	20.8	22.8	23.0	29.2	31.9	33.9	29.3	31.0	32.3	33.0	34.9	31.9	23.2	27.0	23.4	22.8	25.5
8:00 AM	18.0	18.0	20.9	19.2	19.7	19.4	26.8	27.0	19.7	19.0	21.0	20.7	25.3	27.9	28.6	25.6	25.1	27.7	28.9	30.9	25.9	19.5	21.6	19.5	18.4	20.3
8:15 AM	18.4	18.4	21.3	19.6	20.3	20.2	27.4	28.1	20.5	19.4	20.3	20.4	24.9	27.5	28.0	25.3	24.3	26.7	28.6	30.1	24.7	18.5	20.4	18.7	17.5	19.4
8:30 AM	18.6	18.8	21.8	21.7	22.4	22.1	31.2	30.4	23.0	21.2	21.0	21.8	26.7	29.1	30.2	26.7	26.0	27.9	30.8	31.2	26.2	19.6	21.3	19.6	18.4	18.4
8:45 AM	16.5	17.5	21.3	21.1	21.6	21.5	29.0	30.9	23.3	21.6	21.4	22.3	27.4	29.6	30.9	27.1	26.8	28.2	29.6	31.7	27.0	20.2	21.0	20.0	18.6	19.3
9:00 AM	12.2	13.2	17.2	17.6	17.7	18.2	23.6	27.7	19.7	17.7	18.4	18.3	22.6	25.4	25.3	23.3	22.2	24.0	23.9	27.7	22.2	16.7	17.0	16.5	15.5	15.8
9:15 AM	12.5	13.6	16.9	16.7	16.9	17.3	22.7	26.8	18.7	16.9	17.6	17.3	21.5	24.2	23.9	22.3	21.0	23.2	23.7	26.7	21.1	15.9	16.1	15.3	14.2	14.4
Density LOS																										
5:30 AM	A	A	B	B	B	B	B	C	B	B	B	B	C	C	C	C	C	C	C	C	C	B	B	B	B	B
5:45 AM	A	A	B	B	B	B	B	C	B	B	B	B	C	C	C	B	C	C	C	C	C	B	B	B	B	B
6:00 AM	A	B	B	B	B	B	B	C	C	B	B	B	C	C	C	C	C	C	C	C	C	B	B	B	B	B
6:15 AM	B	B	B	C	C	C	D	D	C	C	C	C	D	D	D	D	D	D	D	D	D	C	C	C	B	C
6:30 AM	B	B	***F****	C	C	C	D	D	D	C	C	C	D	D	***E***	D	D	D	***E***	D	D	C	C	C	C	C
6:45 AM	B	B	***F****	C	C	C	D	D	D	C	C	C	D	D	***E***	D	D	D	D	D	D	C	C	C	C	C
7:00 AM	C	C	***F****	C	C	C	D	D	C	C	C	C	D	D	D	D	D	D	***E***	D	D	C	C	C	C	C
7:15 AM	C	C	***F****	C	C	C	***E***	D	D	C	C	D	D	D	***E***	D	D	D	***E***	***E***	***E***	C	D	C	C	D
7:30 AM	C	C	C	C	C	C	***E***	D	D	D	C	***F***	***F***	***F***	***F***	***F***	***F***	D	***E***	***E***	***E***	C	D	C	C	D
7:45 AM	C	C	C	C	C	C	D	C	C	C	C	C	D	D	D	D	D	D	D	D	D	C	C	C	C	C
8:00 AM	B	B	C	C	B	C	C	C	C	C	C	C	C	C	D	C	C	C	D	D	C	C	C	C	B	C
8:15 AM	C	B	C	C	C	C	C	D	C	C	C	C	C	C	D	C	C	C	D	D	C	C	C	C	B	C
8:30 AM	C	B	C	C	C	C	D	D	C	C	C	C	D	D	D	C	D	C	D	D	D	C	C	C	B	C
8:45 AM	B	B	C	C	C	C	D	D	C	C	C	C	D	D	D	C	D	D	D	D	D	C	C	C	B	C
9:00 AM	B	B	B	B	B	C	C	C	C	B	B	C	C	C	C	C	C	C	C	C	C	B	B	B	B	B
9:15 AM	B	B	B	B	B	B	C	C	C	B	B	B	C	C	C	C	C	C	C	C	C	B	B	B	B	B

Notes
*Demand/capacity ratio > 1.0
**Segment anayzed as "basic" due to geometry and segmentatior
B - Basic
M - Merge
O - Overlap (Basic)
D - Diverge
W - Weave

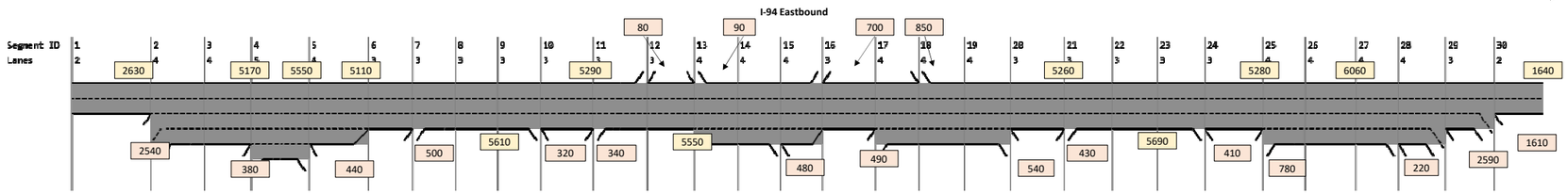
- Mainline Peak Hour Volume (6:30-7:30AM)

- Ramp Peak Hour Volume (6:30-7:30AM)

Legend (HCM6)					
Color	LOS	Speed (mph)	Density (pcphpl)		
			Basic	Ramp	Weave
	A	> 60	0-11	0-10	0-10
	B		11-18	10-20	10-20
	C	50 - 60	18-26	20-28	20-28
	D	40 - 50	26-35	28-35	28-35
	E	30 - 40	35-45	35-43	35-43
	F	< 30	45+	43+	43+

I-94 East-West Data Collection Project
Existing (2019) PM Peak Period
HCS Facilities Analysis Summary: I-94 EB

PM EB 90%



ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Segment	Zoo Int W-E System Movement	Zoo Int S-E/N-E System Ramps	Zoo Int S-E/N-E System Ramps to 84th St Entr Ramp	84th St Entr Ramp to 70th St Exit Ramp	70th St Exit Ramp to Lane Merge	Lane Merge to 68th St Entr Ramp	68th St Entr Ramp	68th St Entr Ramp to Hawley Rd Exit Ramp	Hawley Rd Exit Ramp	Hawley Rd Exit Ramp to Hawley Rd Entr Ramp	Hawley Rd Entr Ramp to Gen Mitchell Blvd Exit Ramp	Gen Mitchell Blvd Exit Ramp to Gen Mitchell Blvd Entr Ramp	Gen Mitchell Blvd Entr Ramp	Stadium Int W-S System Ramp	Stadium Int W-N System Ramp	Stadium Int W-E System Movement	Stadium Int S-E System Ramp	Stadium Int N-E System Ramp	35th St Exit Ramp	35th St Exit Ramp to 35th St Entr Ramp	35th St Entr Ramp	35th St Entr Ramp to 26th St Exit Ramp	26th St Exit Ramp	26th St Exit Ramp to 25th St Entr Ramp	25th St Entr Ramp	25th St Entr Ramp to 13th St Exit Ramp	13th St Exit Ramp	Marquette Int W-N System Ramp	Marquette Int W-S System Ramp	Marquette Int W-E System Movement
Type	B	M**	B	W	B	B	M	O	D	B	W	B	M**	D	D**	B	M**	M	D**	B	M	O	D	B	M**	O	D	D**	D**	B
Speed (MPH)																														
1:30 PM	63.0	59.1	62.4	54.2	62.7	63.0	56.7	59.3	57.5	61.7	55.8	62.0	58.0	56.9	57.3	57.8	58.0	54.1	56.7	57.8	52.9	52.9	53.7	57.6	57.9	56.4	56.4	53.6	55.6	57.5
1:45 PM	63.0	59.1	62.4	54.0	62.7	63.0	56.7	59.3	57.5	61.7	55.7	61.9	58.0	56.9	57.3	57.8	58.0	54.1	56.7	57.8	52.8	52.8	53.7	57.6	57.9	56.4	56.4	53.9	55.4	57.5
2:00 PM	63.0	58.7	62.3	53.2	62.7	63.0	56.4	59.1	57.4	61.7	55.3	61.9	58.0	56.8	57.3	57.8	58.0	54.0	56.7	57.8	52.7	52.7	53.7	57.6	57.9	56.4	56.4	54.1	55.1	57.4
2:15 PM	63.0	58.2	62.2	52.9	62.6	62.9	55.9	58.8	57.4	61.7	54.6	61.8	58.0	56.5	57.1	57.8	57.9	53.7	56.6	57.8	52.3	52.3	53.6	57.6	57.9	56.3	56.3	53.9	54.8	57.4
2:30 PM	63.0	58.3	62.3	52.9	62.6	62.8	55.8	58.8	57.3	61.6	55.1	60.4	58.0	56.5	57.1	57.8	57.9	53.6	56.6	57.8	52.3	52.3	53.6	57.6	57.9	56.0	56.0	53.5	54.7	57.3
2:45 PM	63.0	58.3	62.3	52.3	62.6	62.7	55.8	58.8	57.3	61.6	55.1	60.5	58.0	56.6	57.1	57.8	58.0	53.8	56.6	57.8	52.5	52.5	53.7	57.6	57.9	56.2	56.2	53.9	54.7	57.3
3:00 PM	63.0	58.3	62.3	52.0	62.6	62.8	55.8	58.8	57.4	61.7	54.6	61.8	58.0	56.6	57.1	57.8	58.0	53.7	56.6	57.8	52.1	52.1	53.6	57.6	57.9	56.1	56.1	53.6	54.7	57.3
3:15 PM	63.0	57.5	62.1	50.6	62.6	61.8	55.0	58.3	57.2	61.2	54.6	57.6	57.9	56.3	57.0	57.7	57.9	53.4	56.5	57.8	51.8	51.8	53.5	57.6	57.9	55.9	55.9	53.4	55.0	57.4
3:30 PM	63.0	58.4	62.3	51.1	62.6	62.7	55.4	58.5	57.1	61.6	54.6	60.3	58.0	56.4	57.0	57.7	57.9	53.6	56.6	57.8	52.1	52.1	53.6	57.6	57.9	56.1	56.1	53.4	55.6	57.5
3:45 PM	63.0	58.3	62.3	50.3	62.6	62.7	55.4	58.5	57.2	61.6	54.6	60.5	58.0	56.4	57.0	57.7	57.9	53.7	56.6	57.8	52.0	52.0	53.6	57.6	57.9	56.3	56.3	53.8	55.9	57.6
4:00 PM	63.0	58.4	62.3	50.9	62.6	62.7	55.3	58.5	57.2	61.6	54.5	60.0	58.0	56.4	57.0	57.7	57.9	53.6	56.6	57.8	51.8	51.8	53.6	57.6	57.9	56.0	56.0	53.3	55.7	57.5
4:15 PM	63.0	58.5	62.3	50.6	62.6	62.8	55.3	58.5	57.3	61.6	54.7	60.6	58.0	56.6	57.1	57.8	58.0	53.6	56.6	57.8	51.6	51.6	53.5	57.4	57.9	56.0	56.0	53.8	55.8	57.6
4:30 PM	63.0	58.7	62.3	49.9	62.5	62.9	56.0	58.9	57.5	61.7	54.7	61.8	58.0	56.7	57.2	57.8	58.0	53.7	56.6	57.8	52.0	52.0	53.7	57.6	57.9	56.1	56.1	53.6	56.0	57.6
4:45 PM	63.0	58.7	62.3	49.8	62.5	62.9	56.3	59.1	57.5	61.7	55.1	61.9	58.0	56.9	57.3	57.8	58.0	53.8	56.6	57.8	52.1	52.1	53.7	57.6	57.9	56.1	56.1	54.1	56.2	57.6
5:00 PM	63.0	59.0	62.4	49.7	62.5	62.9	56.4	59.1	57.6	61.7	55.1	61.9	58.0	56.9	57.3	57.8	58.0	53.8	56.6	57.8	52.2	52.2	53.7	57.6	57.9	56.1	56.1	54.2	56.4	57.7
5:15 PM	63.0	59.1	62.4	49.6	62.5	62.9	56.7	59.3	57.7	61.7	55.6	61.9	58.0	57.0	57.4	57.8	58.0	53.9	56.7	57.8	52.3	52.3	53.8	57.6	57.9	56.3	56.3	54.2	56.4	57.7
5:30 PM	63.0	58.9	62.4	49.5	62.5	62.9	56.3	59.1	57.6	61.7	55.1	61.9	58.0	56.9	57.3	57.8	58.0	53.7	56.6	57.8	51.9	51.9	53.7	57.6	57.9	56.1	56.1	54.5	56.2	57.6
5:45 PM	63.0	59.0	62.4	51.5	62.6	63.0	56.4	59.1	57.5	61.7	55.3	61.9	58.0	57.1	57.5	57.9	58.0	53.8	56.6	57.8	52.2	52.2	53.7	57.6	57.9	56.3	56.3	54.4	56.3	57.7
6:00 PM	63.0	58.7	62.3	51.9	62.6	63.0	56.3	59.1	57.5	61.7	55.2	61.9	58.0	56.8	57.3	57.8	58.0	53.8	56.6	57.8	52.2	52.2	53.7	57.6	57.9	56.3	56.3	54.0	56.1	57.6
6:15 PM	63.0	59.1	62.4	52.9	62.6	63.0	56.7	59.3	57.6	61.7	55.7	61.9	58.0	57.2	57.5	57.9	58.0	53.9	56.7	57.8	52.6	52.6	53.8	57.6	57.9	56.5	56.5	54.1	56.3	57.7
Density (pc/mi/ln)																														
1:30 PM	15.6	17.4	16.0	16.0	15.9	21.2	24.5	23.4	27.5	22.0	26.4	22.9	18.9	20.8	17.1	20.3	17.2	20.5	20.6	25.5	23.2	29.8	29.7	24.4	20.6	21.2	21.3	28.6	17.9	10.7
1:45 PM	15.7	17.4	16.0	16.1	16.0	21.4	24.9	23.7	27.7	22.3	26.8	23.1	19.1	20.8	17.3	20.3	17.5	20.5	20.8	26.1	23.6	30.5	30.2	25.0	21.0	21.6	21.4	28.4	19.3	11.2
2:00 PM	15.4	19.1	16.9	17.4	17.0	22.7	26.1	25.1	28.9	23.7	28.6	24.7	20.3	21.8	18.6	21.6	18.2	20.8	21.4	26.4	24.3	31.3	30.6	25.9	22.0	22.6	22.2	29.1	20.9	11.9
2:15 PM	17.3	21.3	18.6	19.0	18.5	24.7	28.0	27.5	30.7	25.9	31.6	27.2	22.1	24.0	19.9	23.1	19.4	22.9	23.3	28.6	25.9	33.8	32.1	27.9	23.5	24.2	23.3	30.9	22.6	12.3
2:30 PM	19.3	21.2	19.1	19.4	19.0	25.4	28.4	28.2	31.1	26.3	29.5	31.3	22.9	24.4	20.9	24.2	20.2	22.8	23.8	28.8	26.1	34.0	32.2	28.3	25.0	25.9	24.9	32.9	23.3	12.8
2:45 PM	20.1	21.4	19.4	20.0	19.2	25.7	28.4	28.3	31.3	26.3	29.5	31.1	22.6	24.1	20.7	23.6	19.7	21.9	22.9	27.5	25.4	32.8	31.5	27.6	23.4	24.1	23.3	30.7	22.6	11.8
3:00 PM	19.0	21.2	19.0	19.8	18.9	25.2	28.3	28.0	31.0	26.2	31.7	27.3	22.3	23.8	20.5	24.1	19.9	22.3	23.2	28.7	26.9	34.9	32.7	29.3	25.1	26.0	24.7	32.9	23.8	13.5
3:15 PM	22.0	23.8	21.3	22.7	20.9	28.4	31.0	32.0	33.3	29.8	31.7	*35.9*	25.1	26.5	23.0	26.3	21.4	23.8	25.0	30.4	28.2	*36.8*	33.7	30.9	26.0	27.0	25.7	34.1	23.6	14.6
3:30 PM	20.7	21.1	19.4	20.9	19.3	25.9	30.0	29.9	32.3	27.5	31.8	31.4	23.9	25.4	21.7	24.4	19.8	23.0	23.6	29.1	27.2	*35.2*	32.9	29.5	25.4	26.2	24.7	33.8	22.4	15.7
3:45 PM	22.0	21.5	20.0	21.8	19.4	26.0	30.0	29.9	32.2	27.7	31.7	31.1	23.4	25.3	21.0	23.9	19.8	22.5	23.3	28.7	27.3	*35.2*	32.9	29.6	24.5	25.2	23.8	32.2	22.0	17.0
4:00 PM	20.7	21.1	19.4	21.1	19.4	25.9	30.5	30.4	32.5	28.2	31.9	32.0	24.0	25.4	22.0	24.9	20.5	23.0	24.0	29.9	28.2	*36.6*	33.6	30.9	26.1	27.0	25.4	34.6	22.5	17.3
4:15 PM	22.8	20.5	19.8	21.2	18.9	25.3	30.1	29.8	32.1	27.7	31.5	30.9	23.5	24.6	21.8	25.4	20.8	23.4	24.5	30.8	29.0	*37.8*	34.3	32.1	26.3	27.3	25.5	33.4	23.3	20.4
4:30 PM	20.2	19.7	18.6	20.4	17.1	22.8	27.8	26.5	29.8	25.2	31.1	26.5	22.1	23.4	20.5	23.4	19.2	22.8	23.1	28.8	27.7	*35.6*	33.0	30.3	26.2	27.1	25.4	34.0	22.6	19.7
4:45 PM	20.5	19.5	18.5	20.2	16.4	21.9	26.7	25.3	28.9	24.1	29.3	24.9	20.7	21.8	19.3	22.4	18.6	22.5	22.6	28.5	27.4	*35.1*	32.7	30.0	25.4	26.2	24.7	31.8	22.3	21.1
5:00 PM	20.7	18.4	18.0	19.9	16.2	21.6	26.2	24.8	28.5	23.7	29.2	25.0	20.8	22.1	19.2	22.6	18.7	22.4	22.6	28.2	27.0	34.6	32.5	29.6	25.7	26.5	25.2	31.5	21.9	23.1
5:15 PM	20.0	17.6	17.4	19.1	15.1	20.1	24.9	23.2	27.2	22.5	26.9	23.1	19.4	20.7	18.1	21.7	17.7	22.3	22.0	27.8	26.7	34.1	32.1	29.3	24.6	25.3	23.9	31.0	21.3	21.4
5:30 PM	19.2	19.0	17.9	19.9	16.0	21.4	26.9	25.2	28.8	24.3	29.5	25.5	21.4	22.1	20.3	24.2	19.7	23.1	23.6	29.8	27.9	*36.3*	33.4	31.1	25.9	26.8	25.2	31.0	23.0	24.4
5:45 PM	19.1	18.4	17.5	18.6	16.4	21.9	26.0	24.7	28.5	23.7	28.6	24.8	20.6	21.4	19.5	22.9	18.8	22.2	22.6	28.4	26.9	34.6	32.5	29.5	24.4	25.1	23.8	30.3	21.8	21.4
6:00 PM	17.5	19.4	17.6	18.7	17.3	23.0	26.5	25.5	29.2	24.4	29.4	25.4	21.4	22.6	19.9	24.2	19.5	21.7	22.7	28.8	26.8	34.7	32.5	29.4	24.3	25.0	23.8	31.5	21.5	18.2
6:15 PM	16.4	17.4	16.2	16.8	15.8	21.1	24.8	23.5	27.5	22.4	27.0	23.6	19.6	20.5	18.6	22.6	18.3	21.4	21.8	27.2	25.2	32.4	31.2	27.4	22.6	23.2	22.2	29.9	20.1	16.9
Density LOS																														
1:30 PM	B	B	B	B	B	C	C	C	C	C	C	C	C	C	B	C	B	C	C	C	C	D	D	C	C	C	C	D	B	A
1:45 PM	B	B	B	B	B	C	C	C	C	C	C	C	C	C	B	C	B	C	C	D	C	D	D	C	C	C	C	D	B	B
2:00 PM	B	B	B	B	B	C	C	C	D	C	D	C	C	C	C	C	C	C	C	D	C	D	D	C	C	C	C	D	C	B
2:15 PM	B	C	C	B	C	C	C	D	D	C	D	D	C	C	C	C	C	C	C	D	C	D	D	D	C	C	C	D	C	B
2:30 PM	C	C	C	B	C	C	D	D	D	D	D	D	C	C	C	C	C	C	C	D	C	D	D	D	C	C	C	D	C	B
2:45 PM	C	C	C	B	C	C	D	D	D	D	D	D	C	C	C	C	C	C	C	D	C	D	D	D	C	C	C	D	C	B
3:00 PM	C	C	C	B	C	C	D	D	D	D	D	D	C	C	C	C	C	C	C	D	C	D	D	D	C	C	C	D	C	B
3:15 PM	C	C	C	C	C	D	D	D	D	D	D	*E*	C	C	C	D	C	C	C	D	D	*E*	D	D	C	D	C	D	C	B
3:30 PM	C	C	C	C	C	C	D	D	D	D	D	D	C	C	C	C	C	C	C	D	C	*E*	D	D	C	D	C	D	C	B
3:45 PM	C	C	C	C	C	C	D	D	D	D	D	D	C	C	C	C	C	C	C	D	C	*E*	D	D	C	C	C	D	C	B
4:00 PM	C	C	C	C	C	C	D	D	D	D	D	D	C	C	C	C	C	C	C	D	D	*E*	D	D	D	D	C	D	C	B
4:15 PM	C	C	C	C	C	C	D	D	D	D	D	D	C	C	C	C	C	C	C	D	D	*E*	D	D	D	D	C	D	C	C
4:30 PM	C	B	C	C	B	C	C	D	D	C	D	D	C	C	C	C	C	C	C	D	C	*E*	D	D	D	D	C	D	C	C
4:45 PM	C	B	C	C	B	C	C	C	D	C	D	C	C	C	C	C	C	C	C	D	C	*E*	D	D	C	D	C	D	C	C
5:00 PM	C	B	B	B	B	C	C	C	D	C	D	C	C	C	C	C	C	C	C	D	C	D	D	D	C	D	C	D	C	C
5:15 PM	C	B	B	B	B	C	C	C	C	C	C	C	C	C	C	C	B	C	C	D	C	D	D	D	C	C	C	D	C	C
5:30 PM	C	B	B	B	B	C	C	C	D	C	D	C	C	C	C	C	C	C	C	D	C	*E*	D	D	C	D	C	D	C	C
5:45 PM	C	B	B	B	B	C	C	C	D	C	D	C	C	C	C	C	C	C	C	D	C	D	D	D	C	C	C	D	C	C
6:00 PM	B	B	B	B	B	C	C	C	D	C	D	C	C	C	C	C	C	C	C	D	C	D	D	D	C	C	C	D	C	C
6:15 PM	B	B	B	B	B	C	C	C	C	C	C	C	C	C	C	C	C	C	C	D	C	D	D	D	C	C	C	D	C	B

Notes
*Demand/capacity ratio > 1.0
**Segment anayzed as "basic" due to geometry and segmentation
B - Basic
M - Merge
O - Overlap (Basic)
D - Diverge
W - Weave

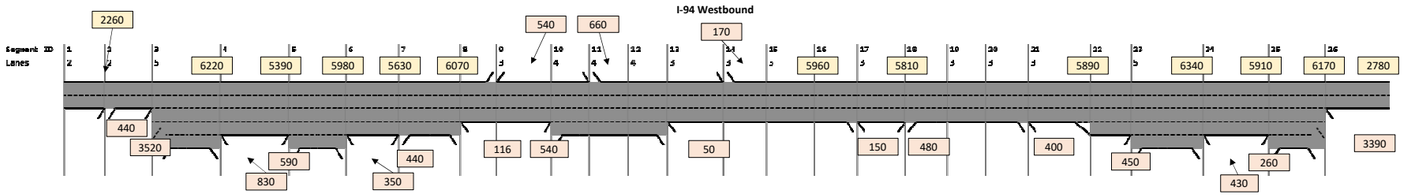
- Mainline Peak Hour Volume (6:30-7:30AM)

- Ramp Peak Hour Volume (6:30-7:30AM)

Legend (HCM6)					
Color	LOS	Speed (mph)	Density (pcphpl)		
			Basic	Ramp	Weave
	A	> 60	0-11	0-10	0-10
	B		11-18	10-20	10-20
	C	50 - 60	18-26	20-28	20-28
	D	40 - 50	26-35	28-35	28-35
	E	30 - 40	35-45	35-43	35-43
	F	< 30	45+	43+	43+

I-94 East-West Data Collection Project
Existing (2019) PM Peak Period
HCS Facilities Analysis Summary: I-94 WB

PM WB 90%



ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
Segment	Marquette Int E-W System Movement	11th St Entr Ramp	Marquette Int N-W/S-W System Ramps to 25th St Exit Ramp	25th St Exit Ramp to 28th St Entr Ramp	28th St Entr Ramp to 35th St Exit Ramp	35th St Exit Ramp to 35th St Entr Ramp	35th St Entr Ramp to Stadium Int E-N System Ramp	Stadium Int E-S System Ramp	Stadium Int E-W System Movement	Stadium Int N-W System Ramp	Stadium Int S-W System Ramp	Gen Mitchell Blvd Exit Ramp	Stadium Int S-W System Ramp to Gen Mitchell Blvd Entr Ramp	Gen Mitchell Blvd Entr Ramp	Gen Mitchell Blvd Entr Ramp to Hawley Rd Exit Ramp	Hawley Rd Exit Ramp	Hawley Rd Exit Ramp to Hawley Rd Entr Ramp	Hawley Rd Entr Ramp	Hawley Rd Entr Ramp to 68th St Exit Ramp	68th St Exit Ramp	68th St Exit Ramp to Lane Add	Lane Add to 70th St Entr Ramp	70th St Entr Ramp to 84th St Exit Ramp	84th St Exit Ramp to 84th St Entr Ramp	84th St Entr Ramp to Zoo Int E-N/E-S System Ramps	Zoo Int E-W System Movement
Type	B	M**	W	B	W	B	W	D	B	M**	M	D**	B	M	O	D	B	M	O	D	B	B	W	B	W	B
Speed (MPH)																										
1:30 PM	58.0	53.2	50.6	57.9	46.9	57.0	44.6	55.4	57.2	57.8	53.6	55.1	59.6	53.8	53.8	56.0	59.5	54.1	56.8	55.8	60.3	60.9	50.1	60.8	54.6	60.7
1:45 PM	58.0	53.3	50.5	57.9	47.2	57.0	44.7	55.4	57.2	57.8	53.5	55.0	59.6	53.7	53.7	55.9	59.4	54.0	56.7	55.7	60.3	60.9	50.6	60.8	54.6	60.7
2:00 PM	58.0	53.1	50.2	57.9	46.9	57.0	43.8	55.3	57.2	57.8	53.7	55.1	59.6	54.1	54.1	56.0	59.5	54.3	56.9	55.8	60.3	60.9	50.1	60.8	54.7	60.7
2:15 PM	58.0	53.1	49.4	57.9	46.6	56.9	43.7	55.2	57.2	57.8	53.5	55.0	59.6	53.6	53.6	56.0	59.5	53.6	56.5	55.6	60.1	60.9	49.8	60.8	54.5	60.7
2:30 PM	58.0	53.0	49.5	57.9	46.2	56.9	42.4	55.0	57.1	57.8	53.3	54.9	59.1	52.9	52.9	55.9	59.1	52.8	56.0	55.4	58.6	60.7	48.9	60.8	54.2	60.7
2:45 PM	58.0	53.0	48.7	57.8	46.5	56.9	42.6	55.0	57.1	57.8	53.6	55.1	59.6	53.9	53.9	56.0	59.5	53.8	56.6	55.7	60.3	60.9	48.8	60.8	54.5	60.7
3:00 PM	58.0	53.0	49.4	57.9	46.0	56.9	42.6	55.0	57.1	57.8	53.3	54.9	59.0	53.0	53.0	55.9	59.0	52.9	56.1	55.5	58.8	60.7	48.9	60.8	54.1	60.7
3:15 PM	58.0	52.7	47.9	57.8	46.7	56.9	42.7	55.0	57.1	57.8	53.4	54.9	59.5	53.1	53.1	56.0	59.2	53.0	56.1	55.6	58.7	60.7	49.1	60.8	54.1	60.7
3:30 PM	58.0	53.1	49.6	57.9	47.6	57.0	43.2	55.1	57.2	57.8	53.5	55.0	59.6	52.9	52.9	55.9	59.0	52.6	55.9	55.5	58.0	60.6	47.7	60.8	53.7	60.7
3:45 PM	58.0	53.0	49.0	57.9	48.4	57.1	44.1	55.3	57.2	57.8	53.7	55.1	59.6	53.8	53.8	56.1	59.5	53.5	56.4	55.7	59.7	60.8	48.1	60.8	54.1	60.7
4:00 PM	58.0	52.9	49.6	57.9	47.7	57.0	43.3	55.2	57.2	57.8	53.5	55.0	59.6	52.8	52.8	55.9	58.9	52.5	55.8	55.5	57.5	60.5	47.3	60.8	53.5	60.6
4:15 PM	58.0	52.7	48.0	57.8	48.5	57.1	43.7	55.2	57.2	57.8	53.4	54.9	59.6	52.8	52.8	55.9	58.7	52.4	55.7	55.4	57.5	60.5	47.8	60.8	53.8	60.7
4:30 PM	58.0	53.0	48.8	57.8	47.6	57.0	43.6	55.2	57.2	57.8	53.8	55.2	59.7	53.9	53.9	56.1	59.5	53.4	56.4	55.7	59.7	60.8	47.4	60.8	54.0	60.7
4:45 PM	58.0	52.8	47.8	57.8	47.3	57.0	43.4	55.2	57.2	57.8	53.4	54.9	59.5	52.9	52.9	55.9	59.0	52.7	55.9	55.5	58.2	60.6	48.2	60.8	53.8	60.7
5:00 PM	58.0	52.9	48.3	57.8	47.9	57.1	43.7	55.2	57.2	57.8	53.8	55.2	59.7	53.9	53.9	56.2	59.5	53.6	56.5	55.7	60.1	60.9	47.9	60.8	54.1	60.7
5:15 PM	58.0	51.9	47.0	57.8	46.9	57.0	42.1	54.9	57.1	57.8	53.3	54.9	59.0	52.7	52.7	55.9	58.5	52.8	56.0	55.5	58.3	60.6	48.2	60.8	53.7	60.7
5:30 PM	56.5	49.4	46.5	57.8	46.1	56.9	40.3	54.6	57.0	57.7	52.7	54.5	54.8	51.4	51.4	55.6	55.2	51.5	52.8	55.2	55.6	60.2	49.0	60.8	53.5	60.6
5:45 PM	58.0	52.6	48.7	57.8	47.5	57.0	43.3	55.2	57.2	57.8	53.8	55.2	59.7	54.3	54.3	56.2	59.5	54.2	56.9	55.7	60.3	60.9	49.7	60.8	54.7	60.7
6:00 PM	58.0	52.9	49.5	57.9	48.3	57.1	45.4	55.6	57.3	57.8	54.0	55.3	59.7	54.7	54.7	56.2	59.5	54.7	57.2	55.8	60.3	60.9	50.4	60.8	54.9	60.7
6:15 PM	58.0	52.9	49.6	57.9	47.7	57.0	44.9	55.5	57.3	57.8	53.9	55.3	59.7	54.6	54.6	56.1	59.5	54.7	57.2	55.8	60.3	60.9	51.0	60.8	54.8	60.7
Density (pc/mi/ln)																										
1:30 PM	14.4	16.4	20.4	20.4	22.9	22.3	30.8	32.1	24.3	21.0	22.8	23.1	29.2	31.3	33.2	28.6	28.3	28.6	30.1	32.2	27.8	20.8	21.6	20.6	19.4	19.3
1:45 PM	14.3	16.1	21.2	21.2	23.3	22.9	31.3	32.5	25.1	21.6	22.7	23.4	29.8	31.8	33.8	29.0	28.8	29.2	30.9	32.8	28.3	21.0	21.5	20.9	19.2	20.0
2:00 PM	16.6	19.0	21.7	21.5	23.6	22.8	31.7	31.7	23.1	20.2	21.8	22.1	27.8	30.3	31.7	27.7	27.1	28.1	29.1	31.6	26.9	20.2	21.0	20.0	18.5	18.7
2:15 PM	16.3	18.5	23.7	22.0	24.3	23.2	32.7	32.6	24.6	21.4	23.4	23.7	30.3	32.3	34.5	29.3	29.9	30.3	32.4	33.6	29.8	22.0	23.0	21.8	20.2	21.1
2:30 PM	16.8	19.2	23.7	22.2	24.9	23.7	34.9	32.8	25.2	22.2	24.3	24.7	32.1	34.1	*36.9*	30.6	32.0	32.7	*36.2*	*35.3*	33.0	23.7	25.4	23.8	22.0	21.3
2:45 PM	17.3	19.3	24.3	21.7	23.9	22.4	32.9	30.9	22.5	20.1	23.1	22.8	28.9	31.3	33.0	28.4	28.7	30.2	31.8	33.2	29.3	21.7	23.6	21.8	20.1	21.0
3:00 PM	17.7	19.9	23.5	22.1	24.9	23.1	33.7	31.7	23.8	21.9	24.7	24.7	32.2	33.9	*36.7*	30.4	32.3	32.5	*36.1*	*35.3*	32.6	23.6	25.3	23.7	22.5	23.6
3:15 PM	20.4	22.0	24.9	21.9	23.9	22.5	33.2	31.6	24.3	21.6	24.0	24.2	31.2	33.7	*36.2*	30.2	31.9	32.1	*35.5*	34.9	32.8	23.6	25.2	23.9	22.8	23.2
3:30 PM	17.1	19.0	21.4	20.0	21.6	21.0	31.0	29.9	22.7	21.0	24.3	24.0	30.8	34.3	*36.7*	30.5	32.2	33.4	*37.3*	*35.7*	34.1	24.3	27.3	25.2	24.3	24.4
3:45 PM	18.3	19.5	21.2	18.7	19.7	19.4	27.8	27.5	20.5	19.2	22.9	22.1	28.0	31.7	33.1	28.4	29.0	31.0	33.0	33.7	30.7	22.5	25.3	23.4	22.4	23.8
4:00 PM	19.0	20.6	21.1	20.0	21.6	21.1	30.5	29.4	21.9	20.6	24.4	23.9	30.7	34.4	*36.9*	30.5	32.4	33.7	*37.7*	*35.8*	34.9	24.7	28.3	26.1	24.9	26.4
4:15 PM	21.4	22.5	22.9	20.2	21.1	21.3	30.4	29.6	22.7	21.3	24.1	24.1	31.0	34.6	*37.1*	30.6	32.8	33.7	*38.0*	*35.9*	*35.0*	24.7	27.7	25.8	24.0	25.6
4:30 PM	18.4	19.8	19.7	17.1	19.1	18.5	27.0	25.8	18.4	18.2	22.8	21.5	27.0	31.6	32.7	28.1	28.6	31.5	33.1	33.8	30.8	22.6	26.1	23.9	22.8	23.1
4:45 PM	20.7	21.9	21.9	18.8	20.9	20.2	29.4	28.0	21.6	21.2	24.4	24.2	31.2	34.2	*36.7*	30.4	32.3	33.1	*36.9*	*35.5*	33.8	24.2	26.7	25.0	23.6	25.9
5:00 PM	18.7	20.8	20.8	17.9	19.5	19.0	27.7	26.5	19.7	18.5	23.2	21.9	27.7	31.4	32.7	28.2	28.6	30.6	32.2	33.4	29.8	22.0	25.1	23.2	22.2	23.6
5:15 PM	26.2	26.8	25.6	22.7	24.5	23.5	34.8	31.5	25.2	22.2	24.6	24.9	32.3	34.7	*37.6*	30.8	33.2	32.5	*36.5*	*35.4*	33.5	24.0	26.6	24.9	23.7	26.8
5:30 PM	34.6	33.8	28.8	26.7	29.1	27.7	*42.2*	*35.7*	30.3	26.0	26.5	28.2	*39.4*	*37.3*	*42.4*	33.1	*38.8*	34.9	*42.7*	*37.6*	*38.2*	26.1	27.5	26.1	24.9	26.6
5:45 PM	21.7	23.3	21.6	20.1	22.0	21.6	30.6	29.2	21.7	19.7	22.1	22.0	27.8	29.9	31.3	27.3	27.3	28.2	29.3	31.8	26.8	20.1	21.5	20.4	19.3	21.0
6:00 PM	17.7	20.1	19.6	17.9	19.4	19.4	26.5	28.0	21.1	18.6	20.4	20.3	25.6	27.8	28.6	25.7	24.8	26.4	26.8	30.0	24.7	18.5	19.4	18.5	17.5	18.4
6:15 PM	18.8	20.9	20.4	19.3	20.9	20.4	28.3	29.3	22.3	19.2	21.0	21.0	26.4	28.6	29.5	26.3	25.4	26.4	27.0	30.2	24.8	18.6	19.1	18.5	17.1	17.3
Density LOS																										
1:30 PM	B	B	C	C	C	C	D	D	C	C	C	C	D	D	D	D	D	D	D	D	D	C	C	C	B	C
1:45 PM	B	B	C	C	C	C	D	D	C	C	C	C	D	D	D	D	D	D	D	D	D	C	C	C	B	C
2:00 PM	B	B	C	C	C	C	D	D	C	C	C	C	D	D	D	C	D	D	D	D	D	C	C	C	B	C
2:15 PM	B	B	C	C	C	C	D	D	C	C	C	C	D	D	D	D	D	D	D	D	D	C	C	C	C	C
2:30 PM	B	B	C	C	C	C	D	D	C	C	C	C	D	D	*E*	D	D	D	*E*	*E*	D	C	C	C	C	C
2:45 PM	B	B	C	C	C	C	D	D	C	C	C	C	D	D	D	D	D	D	D	D	D	C	C	C	C	C
3:00 PM	B	B	C	C	C	C	D	D	C	C	C	C	D	D	*E*	D	D	D	*E*	*E*	D	C	C	C	C	C
3:15 PM	C	C	C	C	C	C	D	D	C	C	C	C	D	D	*E*	D	D	D	*E*	D	D	C	C	C	C	C
3:30 PM	B	B	C	C	C	C	D	D	C	C	C	C	D	D	*E*	D	D	D	*E*	*E*	D	C	C	C	C	C
3:45 PM	C	B	C	C	B	C	C	C	C	C	C	C	D	D	D	D	D	D	D	D	D	C	C	C	C	C
4:00 PM	C	C	C	C	C	C	D	D	C	C	C	C	D	D	*E*	D	D	D	*E*	*E*	D	C	D	D	C	D
4:15 PM	C	C	C	C	C	C	D	D	C	C	C	C	D	D	*E*	D	D	D	*E*	*E*	D	C	C	C	C	C
4:30 PM	C	B	B	B	B	C	C	C	C	C	C	C	D	D	D	D	D	D	D	D	D	C	C	C	C	C
4:45 PM	C	C	C	C	C	C	D	C	C	C	C	C	D	D	*E*	D	D	D	*E*	*E*	D	C	C	C	C	C
5:00 PM	C	C	C	B	B	C	C	C	C	C	C	C	D	D	D	D	D	D	D	D	D	C	C	C	C	C
5:15 PM	D	C	C	C	C	C	D	D	C	C	C	C	D	D	*E*	D	D	D	*E*	*E*	D	C	C	C	C	D
5:30 PM	D	D	D	D	D	D	*E*	*E*	D	C	C	D	*E*	*E*	*E*	D	*E*	D	*E*	*E*	*E*	D	C	D	C	D
5:45 PM	C	C	C	C	C	C	D	D	C	C	C	C	D	D	D	C	D	D	D	D	D	C	C	C	B	C
6:00 PM	B	C	B	B	B	C	C	C	C	C	C	C	C	D	D	C	C	C	D	D	C	C	B	C	B	C
6:15 PM	C	C	C	C	C	C	D	D	C	C	C	C	D	D	D	C	C	C	D	D	C	C	B	C	B	B

Notes
*Demand/capacity ratio > 1.0
**Segment anayzed as "basic" due to geometry and segmentatio
B - Basic
M - Merge
O - Overlap (Basic)
D - Diverge
W - Weave

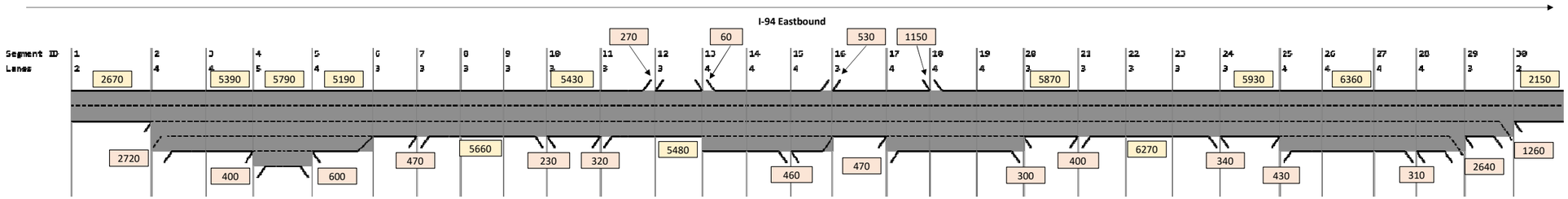
- Mainline Peak Hour Volume (6:30-7:30AM)

- Ramp Peak Hour Volume (6:30-7:30AM)

Legend (HCM6)					
Color	LOS	Speed (mph)	Density (pcphpl)		
			Basic	Ramp	Weave
	A	> 60	0-11	0-10	0-10
	B		11-18	10-20	10-20
	C	50 - 60	18-26	20-28	20-28
	D	40 - 50	26-35	28-35	28-35
	E	30 - 40	35-45	35-43	35-43
	F	< 30	45+	43+	43+

I-94 East-West Data Collection Project
Existing (2019) AM Peak Period
HCS Facilities Analysis Summary: I-94 EB

AM EB 80%



ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Segment	Zoo Int W-E System Movement	Zoo Int S-E/N-E System Ramps	Zoo Int S-E/N-E System Ramps to 84th St Entr Ramp	84th St Entr Ramp to 70th St Exit Ramp	70th St Exit Ramp to Lane Merge	Lane Merge to 68th St Entr Ramp	68th St Entr Ramp	68th St Entr Ramp to Hawley Rd Exit Ramp	Hawley Rd Exit Ramp	Hawley Rd Exit Ramp to Hawley Rd Entr Ramp	Hawley Rd Entr Ramp to Gen Mitchell Blvd Exit Ramp	Gen Mitchell Blvd Exit Ramp to Gen Mitchell Blvd Entr Ramp	Gen Mitchell Blvd Entr Ramp	Stadium Int W-S System Ramp	Stadium Int W-N System Ramp	Stadium Int W-E System Movement	Stadium Int S-E System Ramp	Stadium Int N-E System Ramp	35th St Exit Ramp	35th St Exit Ramp to 35th St Entr Ramp	35th St Entr Ramp	35th St Entr Ramp to 26th St Exit Ramp	26th St Exit Ramp	26th St Exit Ramp to 25th St Entr Ramp	25th St Entr Ramp	25th St Entr Ramp to 13th St Exit Ramp	13th St Exit Ramp	Marquette Int W-N System Ramp	Marquette Int W-S System Ramp	Marquette Int W-E System Movement
Type	B	M**	B	W	B	B	M	O	D	B	W	B	M**	D	D**	B	M**	M	D**	B	M	O	D	B	M**	O	D	D**	D**	B
	Speed (MPH)																													
5:30 AM	63.0	59.6	62.5	57.8	62.8	63.0	57.9	60.0	57.6	61.7	58.2	62.3	58.0	57.0	57.4	57.8	58.0	55.1	57.1	57.8	54.4	54.0	54.0	57.6	57.9	57.0	57.0	55.0	56.1	57.6
5:45 AM	63.0	59.4	62.4	57.0	62.8	63.0	57.6	59.8	57.7	61.7	57.6	62.2	58.0	56.7	57.2	57.8	58.0	55.0	57.0	57.8	54.2	54.0	54.0	57.6	57.9	57.0	57.0	55.0	56.3	57.7
6:00 AM	63.0	59.4	62.4	56.6	62.8	63.0	57.5	59.8	57.7	61.7	57.2	62.2	58.0	56.9	57.3	57.8	58.0	54.9	57.0	57.8	54.0	54.2	54.2	57.6	57.9	57.0	57.0	54.6	56.1	57.6
6:15 AM	63.0	58.0	62.2	54.1	62.7	62.5	56.0	58.9	57.4	61.7	55.6	60.8	58.0	56.5	57.1	57.8	57.9	54.1	56.7	57.8	53.0	53.0	53.8	57.6	57.9	56.7	56.7	54.3	56.2	57.6
6:30 AM	63.0	58.0	62.2	52.4	62.6	62.7	55.9	58.8	57.3	61.6	55.5	61.0	58.0	56.6	57.1	57.8	58.0	53.8	56.6	57.8	52.4	52.4	53.7	57.6	57.9	56.1	56.1	53.7	55.8	57.6
6:45 AM	63.0	58.2	62.2	51.7	62.6	63.0	56.3	59.1	57.6	61.7	55.5	61.9	58.0	56.7	57.2	57.8	58.0	54.0	56.7	57.8	52.6	52.6	53.8	57.6	57.9	56.3	56.3	54.1	56.2	57.6
7:00 AM	63.0	58.6	62.3	51.6	62.6	63.0	56.4	59.1	57.6	61.7	55.4	61.9	58.0	56.9	57.3	57.8	58.0	53.8	56.6	57.8	52.2	52.2	53.8	57.6	57.9	56.2	56.2	54.0	56.0	57.6
7:15 AM	63.0	59.0	62.4	52.3	62.6	63.0	56.6	59.3	57.7	61.7	55.5	61.9	58.0	57.1	57.5	57.9	58.0	53.8	56.6	57.8	52.1	52.1	53.7	57.6	57.9	56.1	56.1	53.9	56.1	57.6
7:30 AM	63.0	59.7	62.5	53.3	62.7	63.0	57.1	59.5	57.8	61.8	56.0	62.0	58.0	57.2	57.5	57.9	58.0	53.9	56.7	57.8	52.0	52.0	53.7	57.6	57.9	56.1	56.1	53.4	56.3	57.7
7:45 AM	63.0	59.8	62.5	53.6	62.7	63.0	57.5	59.8	57.8	61.8	56.8	62.1	58.0	57.5	57.7	57.9	58.0	54.1	56.7	57.8	52.3	52.3	53.8	57.6	57.9	56.1	56.1	53.9	56.6	57.7
8:00 AM	63.0	59.7	62.5	53.9	62.7	63.0	57.6	59.8	57.8	61.8	57.1	62.1	58.0	57.5	57.7	57.9	58.0	54.1	56.7	57.8	52.6	52.6	53.9	57.6	57.9	56.4	56.4	53.8	57.0	57.8
8:15 AM	63.0	59.7	62.5	53.5	62.7	63.0	57.4	59.7	57.8	61.8	56.9	62.1	58.0	57.4	57.6	57.9	58.0	54.2	56.8	57.8	52.7	52.7	53.9	57.6	57.9	56.4	56.4	53.8	57.0	57.8
8:30 AM	63.0	59.1	62.4	53.0	62.7	63.0	57.0	59.5	57.8	61.8	56.0	62.0	58.0	57.3	57.6	57.9	58.0	53.8	56.6	57.8	52.0	52.0	53.6	57.6	57.9	56.2	56.2	53.5	56.6	57.7
8:45 AM	63.0	59.2	62.4	53.0	62.7	63.0	57.2	59.6	57.8	61.8	56.4	62.0	58.0	57.4	57.6	57.9	58.0	54.0	56.7	57.8	52.6	52.6	53.7	57.6	57.9	56.3	56.3	53.8	56.8	57.8
9:00 AM	63.0	59.7	62.5	54.2	62.7	63.0	57.5	59.8	57.8	61.8	57.0	62.1	58.0	57.0	57.4	57.8	58.0	54.4	56.8	57.8	53.3	53.3	54.1	57.6	57.9	56.7	56.7	54.1	56.5	57.7
9:15 AM	63.0	59.5	62.5	54.9	62.7	63.0	57.4	59.7	57.8	61.8	56.9	62.1	58.0	57.5	57.7	57.9	58.0	54.4	56.8	57.8	53.3	53.3	54.1	57.6	57.9	56.6	56.6	53.9	56.5	57.7
	Density (pc/mi/ln)																													
5:30 AM	9.9	11.3	11.0	10.1	11.0	14.7	17.1	15.6	20.1	14.8	16.9	15.3	12.5	14.8	11.0	13.4	10.6	13.1	12.5	15.6	14.0	17.7	20.5	15.0	12.3	12.5	13.5	18.2	13.0	7.0
5:45 AM	11.4	13.8	12.8	11.9	12.7	17.0	19.2	17.9	22.4	17.0	19.5	17.5	14.3	16.9	12.3	14.7	11.7	14.1	13.8	17.3	15.3	19.5	22.1	16.4	13.3	13.5	14.4	19.0	13.6	8.3
6:00 AM	12.6	14.8	13.7	12.8	13.8	18.3	20.3	19.2	23.6	18.4	21.1	18.9	15.4	17.7	13.6	16.0	12.7	14.7	14.7	18.6	16.5	20.9	23.2	18.1	14.5	14.7	15.3	21.0	14.2	8.4
6:15 AM	19.4	22.1	19.6	19.2	19.7	26.4	27.2	27.5	30.7	26.2	27.7	30.5	21.6	23.7	19.3	22.9	18.2	19.5	20.6	25.7	22.5	29.3	29.4	24.5	19.5	19.9	19.8	26.4	17.6	12.8
6:30 AM	18.4	22.3	19.4	20.0	19.3	25.8	27.7	27.7	30.8	25.9	27.7	30.2	21.3	23.0	19.4	23.3	19.2	22.4	22.9	28.7	25.5	33.4	31.9	28.3	22.9	23.7	23.5	30.5	19.7	13.2
6:45 AM	18.5	21.4	19.0	19.7	17.9	23.9	26.4	25.9	29.4	24.8	27.7	27.0	20.4	22.3	18.4	21.8	17.9	21.4	21.6	27.3	24.7	32.1	31.1	27.2	21.9	22.6	22.2	28.9	19.2	14.5
7:00 AM	18.0	20.1	18.1	19.0	17.2	23.0	26.1	25.3	28.9	24.3	27.9	25.8	20.1	21.6	18.5	22.2	18.3	23.0	22.8	29.1	26.5	34.6	32.5	29.6	23.5	24.3	23.5	30.5	20.8	16.1
7:15 AM	17.8	17.8	16.8	17.4	15.8	21.1	24.9	23.6	27.5	22.9	27.8	23.4	19.4	20.6	18.1	21.8	18.5	22.9	22.8	29.0	27.0	*35.0*	32.7	30.2	24.3	25.1	24.3	31.4	20.9	16.9
7:30 AM	15.0	13.4	13.7	14.1	12.9	17.2	23.0	20.8	25.0	20.2	25.2	21.7	18.6	19.7	17.5	21.1	18.2	22.5	22.3	28.6	27.8	*35.6*	33.1	30.6	25.3	26.1	25.0	33.5	20.7	17.9
7:45 AM	13.4	12.0	12.4	12.7	11.5	15.3	20.7	18.4	22.7	17.8	22.0	19.3	16.3	17.5	15.4	18.8	16.6	20.9	20.6	26.7	26.5	33.6	31.9	29.0	24.1	24.9	24.2	31.2	19.5	18.7
8:00 AM	13.0	12.6	12.6	12.7	11.5	15.3	20.2	18.0	22.4	17.4	21.1	18.6	15.9	17.1	15.0	18.3	15.9	21.3	20.3	26.3	24.9	31.8	30.9	27.4	22.5	23.2	22.5	30.3	18.0	17.6
8:15 AM	14.4	13.6	13.6	13.8	12.4	16.6	21.0	19.1	23.4	18.4	21.9	19.4	16.5	17.9	15.3	18.3	16.1	20.8	20.2	26.0	24.3	31.1	30.4	26.8	21.9	22.5	21.9	29.9	17.5	16.5
8:30 AM	16.8	17.2	16.2	16.2	14.9	19.8	23.1	21.8	25.9	21.3	25.7	22.3	18.7	19.5	17.9	22.2	18.8	22.7	22.9	29.5	27.4	*35.7*	33.2	30.2	24.2	24.9	24.0	32.4	19.2	17.7
8:45 AM	16.0	16.6	15.7	15.7	14.2	18.9	22.0	20.7	24.9	20.0	24.0	21.1	17.5	18.5	16.6	20.1	16.8	21.8	21.2	27.1	24.9	32.1	31.2	26.9	21.8	22.5	22.1	29.4	17.6	15.7
9:00 AM	14.1	13.6	13.5	13.4	12.6	16.8	20.1	18.5	22.8	17.9	21.5	19.0	15.9	17.9	14.3	16.8	14.4	18.4	17.8	22.7	20.8	26.5	27.3	22.9	18.5	18.9	19.2	25.8	15.9	12.1
9:15 AM	13.8	14.5	13.9	13.5	13.3	17.8	20.6	19.3	23.6	18.7	22.1	19.7	16.3	17.6	15.3	18.4	15.3	18.5	18.4	23.4	21.3	27.2	27.8	23.8	19.3	19.8	20.0	26.8	16.3	12.3
	Density LOS																													
5:30 AM	A	B	A	B	A	B	B	B	C	B	B	B	B	B	A	B	A	B	B	B	B	B	C	B	B	B	B	B	B	A
5:45 AM	B	B	B	B	B	B	B	B	C	B	B	B	B	B	B	B	B	B	B	B	B	C	C	B	B	B	B	B	B	A
6:00 AM	B	B	B	B	B	C	C	C	C	C	C	C	B	B	B	B	B	B	B	C	B	C	C	C	B	B	B	C	B	A
6:15 AM	C	C	C	B	C	D	C	D	D	D	C	D	C	C	C	C	C	B	C	C	C	D	D	C	C	C	B	C	B	B
6:30 AM	C	C	C	B	C	C	C	D	D	C	C	D	C	C	C	C	C	C	C	D	C	D	D	D	C	C	C	D	B	B
6:45 AM	C	C	C	B	B	C	C	C	D	C	C	D	C	C	C	C	B	C	C	D	C	D	D	D	C	C	C	D	B	B
7:00 AM	B	C	C	B	B	C	C	C	D	C	C	C	C	C	C	C	C	C	C	D	C	D	D	D	C	C	C	D	C	B
7:15 AM	B	B	B	B	B	C	C	C	C	C	C	C	C	C	C	C	C	C	C	D	C	D	D	D	C	C	C	D	C	B
7:30 AM	B	B	B	B	B	B	C	C	C	C	C	C	C	B	B	C	C	C	C	D	C	*E*	D	D	C	D	C	D	C	B
7:45 AM	B	B	B	B	B	B	C	C	C	B	C	C	B	B	B	C	B	C	C	D	C	D	D	D	C	C	C	D	B	C
8:00 AM	B	B	B	B	B	B	C	B	C	B	C	C	B	B	B	C	B	C	C	D	C	D	D	D	C	C	C	D	B	B
8:15 AM	B	B	B	B	B	B	C	C	C	C	C	C	B	B	B	C	B	C	C	C	C	D	D	D	C	C	C	D	B	B
8:30 AM	B	B	B	B	B	C	C	C	C	C	C	C	C	B	B	C	C	C	C	D	C	*E*	D	D	C	C	C	D	B	B
8:45 AM	B	B	B	B	B	C	C	C	C	C	C	C	B	B	B	C	B	C	C	D	C	D	D	D	C	C	C	D	B	B
9:00 AM	B	B	B	B	B	B	C	C	C	B	C	C	B	B	B	B	B	B	B	C	C	D	C	C	C	C	B	C	B	B
9:15 AM	B	B	B	B	B	B	C	C	C	C	C	C	B	B	B	C	B	B	C	C	C	D	C	C	C	C	B	C	B	B

Time

Notes
*Demand/capacity ratio > 1.0

**Segment anayzed as "basic" due to geometry and segmentation

B - Basic
M - Merge
O - Overlap (Basic)
D - Diverge
W - Weave

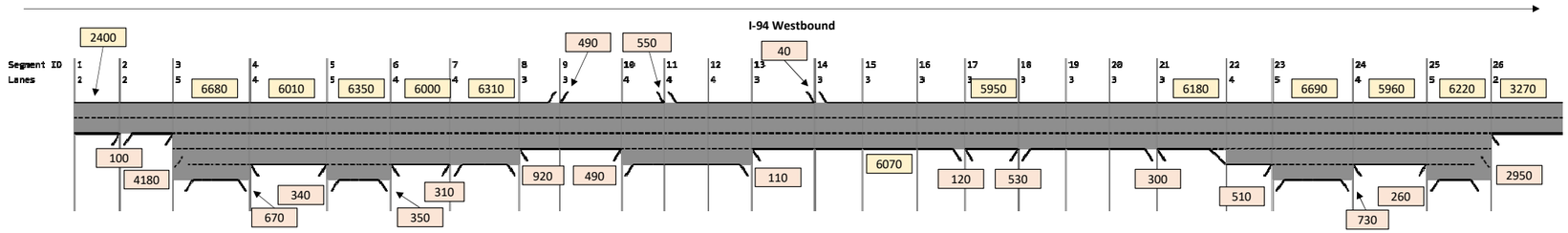
- Mainline Peak Hour Volume (6:30-7:30AM)

- Ramp Peak Hour Volume (6:30-7:30AM)

Legend (HCM6)					
Color	LOS	Speed (mph)	Density (pcphpl)		
			Basic	Ramp	Weave
	A	> 60	0-11	0-10	0-10
	B		11-18	10-20	10-20
	C	50 - 60	18-26	20-28	20-28
	D	40 - 50	26-35	28-35	28-35
	E	30 - 40	35-45	35-43	35-43
	F	< 30	45+	43+	43+

I-94 East-West Data Collection Project
Existing (2019) AM Peak Period
HCS Facilities Analysis Summary: I-94 WB

AM WB 80%



ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
Segment	Marquette Int E-W System Movement	11th St Entr Ramp	Marquette Int N-W/S-W System Ramps to 25th St Exit Ramp	25th St Exit Ramp to 28th St Entr Ramp	28th St Entr Ramp to 35th St Exit Ramp	35th St Exit Ramp to 35th St Entr Ramp	35th St Entr Ramp to Stadium Int E-N System Ramp	Stadium Int E-S System Ramp	Stadium Int E-W System Movement	Stadium Int N-W System Ramp	Stadium Int S-W System Ramp	Stadium Int S-W System Ramp	Stadium Int S-W System Ramp to Gen Mitchell Blvd Entr Ramp	Gen Mitchell Blvd Entr Ramp	Gen Mitchell Blvd Entr Ramp to Hawley Rd Exit Ramp	Hawley Rd Exit Ramp	Hawley Rd Exit Ramp to Hawley Rd Entr Ramp	Hawley Rd Entr Ramp	Hawley Rd Entr Ramp to 68th St Exit Ramp	68th St Exit Ramp	68th St Exit Ramp to Lane Add	Lane Add to 70th St Entr Ramp	70th St Entr Ramp to 84th St Exit Ramp	84th St Exit Ramp to 84th St Entr Ramp	84th St Entr Ramp to Zoo Int E-N/E-S System Ramps	Zoo Int E-W System Movement
Type	B	M**	W	B	W	B	W	D	B	M**	M	D**	B	M	O	D	B	M	O	D	B	B	W	B	W	B
Speed (MPH)																										
5:30 AM	58.0	53.6	52.4	57.9	51.6	57.4	51.0	56.2	57.5	57.9	54.9	55.9	59.8	56.0	56.0	56.6	59.6	56.0	57.9	56.4	60.4	60.9	53.6	60.9	55.3	60.7
5:45 AM	58.0	53.5	51.9	57.9	52.0	57.4	51.0	56.1	57.4	57.9	54.9	55.9	59.8	56.1	56.1	56.5	59.6	56.2	58.1	56.4	60.4	60.9	53.9	60.9	55.6	60.7
6:00 AM	58.0	53.5	52.0	57.9	51.1	57.4	50.1	56.2	57.5	57.9	54.7	55.8	59.8	55.8	55.8	56.6	59.6	55.8	57.8	56.3	60.4	60.9	53.0	60.9	55.4	60.7
6:15 AM	58.0	53.4	51.1	57.9	48.9	57.2	47.2	55.9	57.4	57.8	53.9	55.3	59.7	54.7	54.7	56.3	59.5	54.6	57.1	56.0	60.3	60.9	50.0	60.8	54.9	60.7
6:30 AM	58.0	53.4	51.0	57.9	48.4	57.1	46.3	55.7	57.3	57.8	53.7	55.1	59.6	54.2	54.2	56.2	59.5	53.9	56.7	56.0	60.1	60.9	48.0	60.8	54.6	60.7
6:45 AM	58.0	53.3	50.1	57.9	48.9	57.2	46.1	55.7	57.3	57.8	54.0	55.3	59.7	54.7	54.7	56.3	59.5	54.6	57.1	56.1	60.3	60.9	49.2	60.8	55.0	60.7
7:00 AM	58.0	53.1	50.0	57.9	48.4	57.1	45.2	55.5	57.3	57.8	53.6	55.1	59.6	54.1	54.1	56.2	59.5	53.9	56.7	55.8	60.3	60.9	48.1	60.8	54.8	60.7
7:15 AM	58.0	53.0	48.9	57.8	48.0	57.1	43.8	55.3	57.2	57.8	53.4	54.9	59.5	53.5	53.5	56.0	59.5	53.1	56.2	55.6	59.0	60.7	47.0	60.8	54.2	60.7
7:30 AM	58.0	53.1	48.6	57.8	49.2	57.2	45.2	55.5	57.3	57.8	53.9	55.3	59.7	54.4	54.4	56.3	59.5	54.0	56.7	55.8	60.3	60.9	47.8	60.8	54.5	60.7
7:45 AM	58.0	52.9	49.1	57.9	48.9	57.2	45.1	55.5	57.3	57.8	54.0	55.3	59.7	54.6	54.6	56.3	59.5	54.4	57.0	55.9	60.3	60.9	48.6	60.8	54.8	60.7
8:00 AM	58.0	53.3	50.2	57.9	49.5	57.2	46.1	55.7	57.3	57.8	54.2	55.5	59.7	55.1	55.1	56.3	59.5	55.0	57.3	56.0	60.3	60.9	50.0	60.8	55.1	60.7
8:15 AM	58.0	53.2	50.6	57.9	49.1	57.2	45.9	55.7	57.3	57.8	54.2	55.5	59.7	55.1	55.1	56.3	59.5	55.0	57.3	56.0	60.3	60.9	50.3	60.8	55.0	60.7
8:30 AM	58.0	53.2	50.6	57.9	49.1	57.2	46.2	55.7	57.3	57.8	54.0	55.3	59.7	54.8	54.8	56.2	59.5	54.7	57.2	55.9	60.3	60.9	50.5	60.8	54.9	60.7
8:45 AM	58.0	53.3	50.8	57.9	49.4	57.2	46.8	55.8	57.4	57.8	54.1	55.4	59.7	54.9	54.9	56.2	59.5	54.9	57.3	56.0	60.3	60.9	51.3	60.8	55.0	60.7
9:00 AM	58.0	53.4	51.3	57.9	50.4	57.3	48.4	56.0	57.4	57.8	54.6	55.7	59.8	55.7	55.7	56.5	59.6	55.7	57.8	56.1	60.3	60.9	52.2	60.9	55.4	60.7
9:15 AM	58.0	53.4	51.6	57.9	50.5	57.3	48.1	56.1	57.4	57.9	54.6	55.7	59.8	55.7	55.7	56.4	59.6	55.7	57.8	56.1	60.3	60.9	52.7	60.9	55.4	60.7
Density (pc/mi/ln)																										
5:30 AM	7.2	7.7	10.7	11.1	11.1	11.8	14.7	21.4	14.6	12.4	15.5	13.9	17.5	20.2	19.1	18.3	17.3	19.9	19.1	23.1	18.4	13.8	13.5	14.1	12.7	13.5
5:45 AM	8.1	8.5	12.0	11.7	11.4	12.1	14.8	21.6	14.2	11.8	14.9	13.2	16.5	19.3	18.0	17.4	16.3	18.4	17.6	21.8	16.7	12.5	12.0	12.1	11.0	11.9
6:00 AM	9.5	9.9	12.5	13.0	13.0	13.7	17.2	23.6	16.7	14.0	16.5	15.4	19.3	21.9	21.2	20.0	19.0	21.1	20.7	24.6	19.7	14.8	14.3	14.3	13.0	14.2
6:15 AM	12.8	12.9	17.6	17.7	18.5	18.6	24.9	29.5	22.7	19.0	20.9	20.9	26.1	28.2	29.1	26.0	25.5	27.0	27.5	30.4	26.1	19.6	20.2	18.6	17.0	18.9
6:30 AM	14.1	14.2	20.0	20.4	21.0	20.7	27.5	30.5	23.6	20.3	22.4	22.5	28.3	30.3	31.8	27.6	28.0	29.6	30.9	32.5	29.8	22.0	24.2	21.4	19.8	22.7
6:45 AM	15.5	15.4	21.6	20.6	20.6	20.4	26.9	29.5	21.8	18.5	20.7	20.4	25.4	27.9	28.6	25.5	25.1	26.8	27.3	30.1	26.0	19.5	20.9	18.9	17.3	21.2
7:00 AM	18.3	18.1	23.0	22.7	22.9	22.6	30.3	32.0	24.6	20.9	22.0	22.6	28.4	30.5	32.0	27.8	27.9	29.6	30.9	32.6	28.9	21.5	23.4	20.4	19.0	23.2
7:15 AM	20.1	19.8	25.6	23.7	24.1	23.6	32.8	32.3	25.8	22.3	23.6	24.4	31.2	32.7	*35.0*	29.6	30.8	32.0	34.9	34.7	32.2	23.4	26.4	22.8	21.6	25.8
7:30 AM	19.0	18.7	21.6	18.5	18.8	18.9	25.9	26.8	20.1	18.3	21.8	21.0	26.3	29.1	30.1	26.5	26.4	29.5	30.2	32.3	27.8	20.7	23.7	21.2	20.1	24.1
7:45 AM	20.8	20.5	20.9	19.1	19.4	19.3	26.2	27.0	19.8	18.0	21.3	20.5	25.6	28.6	29.3	26.0	25.6	27.9	28.3	31.1	26.3	19.7	22.0	20.0	18.9	22.0
8:00 AM	16.0	16.1	18.6	17.6	17.8	18.1	24.0	26.2	18.7	16.7	19.7	18.8	23.5	26.2	26.4	24.1	23.1	25.6	25.5	29.0	23.5	17.6	18.9	17.7	16.5	19.1
8:15 AM	16.3	16.4	18.6	18.5	18.9	19.1	25.2	27.1	19.8	17.2	19.3	18.9	23.6	26.2	26.4	24.1	23.0	25.2	25.2	28.8	23.3	17.5	18.6	17.6	16.3	17.3
8:30 AM	16.6	16.8	19.7	19.6	19.8	20.1	26.6	29.4	21.9	18.6	20.0	20.1	25.2	27.7	28.4	25.4	24.8	26.5	26.8	30.0	25.1	18.8	19.6	18.9	17.5	18.9
8:45 AM	14.7	15.6	19.2	19.2	19.3	19.7	25.6	29.2	21.3	18.3	19.8	19.8	24.7	27.2	27.7	25.0	24.1	25.7	25.9	29.3	24.1	18.1	18.3	17.8	16.4	17.6
9:00 AM	10.8	11.8	15.8	15.8	15.7	16.2	20.5	25.5	17.4	14.7	16.7	15.9	20.0	23.0	22.3	21.0	19.7	21.6	21.2	25.3	19.6	14.7	14.7	14.3	13.2	14.0
9:15 AM	11.1	12.2	15.1	15.4	15.4	16.0	20.7	25.4	17.4	14.7	16.6	15.8	19.9	22.7	22.0	20.8	19.4	21.5	21.1	25.1	19.7	14.8	14.6	14.4	13.2	14.1
Density LOS																										
5:30 AM	A	A	B	B	B	B	B	C	B	B	B	B	B	C	C	B	B	B	C	C	C	B	B	B	B	B
5:45 AM	A	A	B	B	B	B	B	C	B	B	B	B	B	B	B	B	B	B	B	C	B	B	B	B	B	B
6:00 AM	A	A	B	B	B	B	B	C	B	B	B	B	C	C	C	B	C	C	C	C	C	B	B	B	B	B
6:15 AM	B	B	B	B	B	C	C	D	C	C	C	C	D	D	D	C	C	C	D	D	D	C	C	C	B	C
6:30 AM	B	B	B	C	C	C	C	D	C	C	C	C	D	D	D	C	D	D	D	D	D	C	C	C	B	C
6:45 AM	B	B	C	C	C	C	C	D	C	C	C	C	C	C	D	C	C	C	D	D	C	C	C	C	B	C
7:00 AM	C	B	C	C	C	C	D	D	C	C	C	C	D	D	D	C	D	D	D	D	D	C	C	C	B	C
7:15 AM	C	B	C	C	C	C	D	D	C	C	C	C	D	D	D	D	D	D	D	D	D	C	C	C	C	C
7:30 AM	C	B	C	C	B	C	C	C	C	C	C	C	D	D	D	C	D	D	D	D	D	C	C	C	C	C
7:45 AM	C	C	C	C	B	C	C	C	C	B	C	C	C	D	D	C	C	C	C	D	D	C	C	C	B	C
8:00 AM	B	B	B	B	B	C	C	C	C	B	B	C	C	C	D	C	C	C	C	D	C	B	B	B	B	C
8:15 AM	B	B	B	C	B	C	C	C	C	B	B	C	C	C	D	C	C	C	C	D	C	B	B	B	B	B
8:30 AM	B	B	B	C	B	C	C	D	C	C	B	C	C	C	D	C	C	C	D	D	C	C	B	C	B	C
8:45 AM	B	B	B	C	B	C	C	D	C	C	B	C	C	C	D	C	C	C	C	D	C	C	B	B	B	B
9:00 AM	A	B	B	B	B	B	C	C	B	B	B	B	C	C	C	C	C	C	C	C	C	B	B	B	B	B
9:15 AM	B	B	B	B	B	B	C	C	B	B	B	B	C	C	C	C	C	C	C	C	C	B	B	B	B	B

Time

Notes
*Demand/capacity ratio > 1.0
**Segment anayzed as "basic" due to geometry and segmentation
B - Basic
M - Merge
O - Overlap (Basic)
D - Diverge
W - Weave

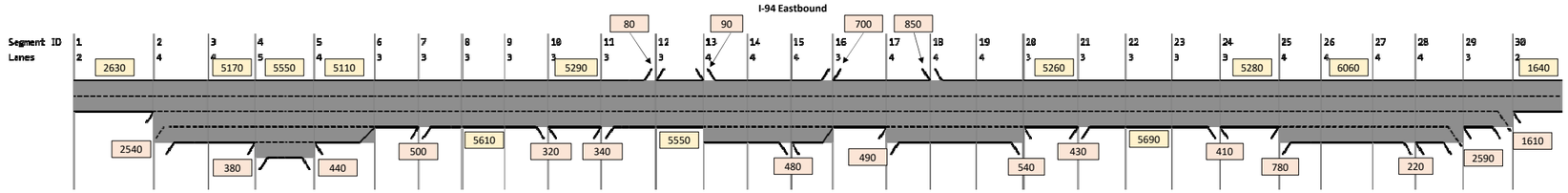
- Mainline Peak Hour Volume (6:30-7:30AM)

- Ramp Peak Hour Volume (6:30-7:30AM)

Legend (HCM6)					
Color	LOS	Speed (mph)	Density (pcphpl)		
			Basic	Ramp	Weave
	A	> 60	0-11	0-10	0-10
	B		11-18	10-20	10-20
	C	50 - 60	18-26	20-28	20-28
	D	40 - 50	26-35	28-35	28-35
	E	30 - 40	35-45	35-43	35-43
	F	< 30	45+	43+	43+

I-94 East-West Data Collection Project
Existing (2019) PM Peak Period
HCS Facilities Analysis Summary: I-94 EB

PM EB 80%



ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Segment	Zoo Int W-E System Movement	Zoo Int S-E/N-E System Ramps	Zoo Int S-E/N-E System Ramps to 84th St Entr Ramp	84th St Entr Ramp to 70th St Exit Ramp	70th St Exit Ramp to Lane Merge	Lane Merge to 68th St Entr Ramp	68th St Entr Ramp	68th St Entr Ramp to Hawley Rd Exit Ramp	Hawley Rd Exit Ramp	Hawley Rd Exit Ramp to Hawley Rd Entr Ramp	Hawley Rd Entr Ramp to Gen Mitchell Blvd Exit Ramp	Gen Mitchell Blvd Exit Ramp to Gen Mitchell Blvd Entr Ramp	Gen Mitchell Blvd Entr Ramp	Stadium Int W-S System Ramp	Stadium Int W-N System Ramp	Stadium Int W-E System Movement	Stadium Int S-E System Ramp	Stadium Int N-E System Ramp	35th St Exit Ramp	35th St Exit Ramp to 35th St Entr Ramp	35th St Entr Ramp	35th St Entr Ramp to 26th St Exit Ramp	26th St Exit Ramp	26th St Exit Ramp to 25th St Entr Ramp	25th St Entr Ramp	25th St Entr Ramp to 13th St Exit Ramp	13th St Exit Ramp	Marquette Int W-N System Ramp	Marquette Int W-S System Ramp	Marquette Int W-E System Movement
Type	B	M**	B	W	B	B	M	O	D	B	W	B	M**	D	D**	B	M**	M	D**	B	M	O	D	B	M**	O	D	D**	D**	B
Speed (MPH)																														
1:30 PM	63.0	59.4	62.4	55.1	62.7	63.0	57.2	59.6	57.6	61.7	56.6	62.1	58.0	57.1	57.5	57.9	58.0	54.4	56.8	57.8	53.4	53.4	53.8	57.6	57.9	56.7	56.7	53.8	55.7	57.5
1:45 PM	63.0	59.4	62.4	54.8	62.7	63.0	57.1	59.5	57.6	61.7	56.5	62.1	58.0	57.2	57.5	57.9	58.0	54.4	56.8	57.8	53.3	53.3	53.8	57.6	57.9	56.7	56.7	54.2	55.5	57.5
2:00 PM	63.0	59.1	62.4	54.2	62.7	63.0	57.0	59.5	57.6	61.7	56.2	62.0	58.0	57.1	57.5	57.9	58.0	54.3	56.8	57.8	53.2	53.2	53.9	57.6	57.9	56.7	56.7	54.4	55.3	57.5
2:15 PM	63.0	58.9	62.4	54.1	62.7	63.0	56.6	59.3	57.5	61.7	55.6	61.9	58.0	56.8	57.3	57.8	58.0	54.1	56.7	57.8	52.9	52.9	53.8	57.6	57.9	56.6	56.6	54.2	55.0	57.4
2:30 PM	63.0	58.9	62.4	54.1	62.7	63.0	56.5	59.2	57.5	61.7	56.0	62.0	58.0	56.8	57.3	57.8	58.0	54.0	56.7	57.8	52.9	52.9	53.8	57.6	57.9	56.4	56.4	53.9	54.9	57.4
2:45 PM	63.0	58.9	62.4	53.6	62.7	63.0	56.4	59.1	57.4	61.7	56.0	62.0	58.0	56.8	57.3	57.8	58.0	54.1	56.7	57.8	53.1	53.1	53.9	57.6	57.9	56.5	56.5	54.2	54.9	57.4
3:00 PM	63.0	58.9	62.4	53.4	62.7	63.0	56.5	59.2	57.5	61.7	55.5	61.9	58.0	56.9	57.3	57.8	58.0	54.1	56.7	57.8	52.8	52.8	53.9	57.6	57.9	56.4	56.4	54.1	55.0	57.4
3:15 PM	63.0	58.4	62.3	52.1	62.6	62.9	55.9	58.8	57.4	61.7	55.6	61.0	58.0	56.6	57.1	57.8	58.0	53.9	56.7	57.8	52.6	52.6	53.8	57.6	57.9	56.3	56.3	53.8	55.3	57.5
3:30 PM	63.0	58.9	62.4	52.6	62.6	63.0	56.2	59.0	57.3	61.6	55.5	61.9	58.0	56.7	57.2	57.8	58.0	54.1	56.7	57.8	52.8	52.8	53.8	57.6	57.9	56.5	56.5	53.8	55.7	57.5
3:45 PM	63.0	58.9	62.4	51.8	62.6	63.0	56.2	59.0	57.4	61.7	55.5	61.9	58.0	56.7	57.2	57.8	58.0	54.1	56.7	57.8	52.8	52.8	53.9	57.6	57.9	56.6	56.6	54.2	56.1	57.6
4:00 PM	63.0	59.0	62.4	52.4	62.6	63.0	56.1	59.0	57.4	61.7	55.5	61.9	58.0	56.7	57.2	57.8	58.0	54.0	56.7	57.8	52.6	52.6	53.8	57.6	57.9	56.4	56.4	53.7	56.0	57.6
4:15 PM	63.0	59.1	62.4	52.1	62.6	63.0	56.2	59.0	57.4	61.7	55.6	61.9	58.0	56.9	57.3	57.8	58.0	53.9	56.7	57.8	52.4	52.4	53.8	57.6	57.9	56.4	56.4	54.2	56.2	57.6
4:30 PM	63.0	59.2	62.4	51.1	62.6	63.0	56.7	59.3	57.7	61.7	55.6	61.9	58.0	57.0	57.4	57.8	58.0	54.1	56.7	57.8	52.8	52.8	53.9	57.6	57.9	56.4	56.4	54.0	56.3	57.7
4:45 PM	63.0	59.2	62.4	51.0	62.6	63.0	56.9	59.4	57.7	61.7	56.0	62.0	58.0	57.2	57.5	57.9	58.0	54.2	56.8	57.8	52.8	52.8	53.9	57.6	57.9	56.5	56.5	54.5	56.5	57.7
5:00 PM	63.0	59.4	62.4	50.9	62.6	62.9	56.9	59.4	57.7	61.7	55.9	62.0	58.0	57.1	57.5	57.9	58.0	54.2	56.8	57.8	52.9	52.9	54.0	57.6	57.9	56.4	56.4	54.7	56.7	57.7
5:15 PM	63.0	59.5	62.5	50.9	62.6	62.9	57.2	59.6	57.8	61.8	56.5	62.1	58.0	57.3	57.6	57.9	58.0	54.3	56.8	57.8	52.9	52.9	54.0	57.6	57.9	56.6	56.6	54.6	56.7	57.7
5:30 PM	63.0	59.3	62.4	50.8	62.6	62.9	56.8	59.4	57.8	61.8	56.0	62.0	58.0	57.3	57.6	57.9	58.0	54.1	56.7	57.8	52.6	52.6	53.9	57.6	57.9	56.4	56.4	54.9	56.5	57.7
5:45 PM	63.0	59.3	62.4	52.6	62.6	63.0	57.0	59.5	57.7	61.7	56.2	62.0	58.0	57.3	57.6	57.9	58.0	54.2	56.8	57.8	52.9	52.9	54.0	57.6	57.9	56.6	56.6	54.8	56.6	57.7
6:00 PM	63.0	59.2	62.4	53.0	62.7	63.0	56.9	59.4	57.7	61.7	56.0	62.0	58.0	57.1	57.5	57.9	58.0	54.2	56.8	57.8	52.8	52.8	54.0	57.6	57.9	56.6	56.6	54.4	56.3	57.7
6:15 PM	63.0	59.5	62.5	53.9	62.7	63.0	57.1	59.5	57.7	61.7	56.5	62.1	58.0	57.4	57.6	57.9	58.0	54.3	56.8	57.8	53.1	53.1	53.9	57.6	57.9	56.8	56.8	54.4	56.5	57.7
Density (pc/mi/ln)																														
1:30 PM	13.9	15.0	14.2	13.9	14.1	18.9	22.2	20.8	25.1	19.5	23.1	20.3	16.8	18.7	15.2	18.1	15.3	18.4	18.3	22.6	20.6	26.2	27.4	21.7	18.4	18.8	19.2	25.9	16.4	9.5
1:45 PM	13.9	15.0	14.2	14.1	14.3	19.0	22.5	21.1	25.4	19.9	23.5	20.5	16.9	18.7	15.4	18.1	15.5	18.5	18.5	23.2	21.0	26.8	27.8	22.2	18.6	19.1	19.3	25.7	17.6	9.9
2:00 PM	13.7	16.6	15.0	15.2	15.1	20.2	23.6	22.3	26.5	21.1	25.0	21.9	18.0	19.7	16.5	19.2	16.2	18.7	19.0	23.5	21.6	27.6	28.2	23.1	19.6	20.0	20.0	26.3	19.1	10.6
2:15 PM	15.4	18.5	16.5	16.5	16.4	21.9	25.3	24.2	28.1	22.9	27.6	23.9	19.7	21.6	17.7	20.6	17.2	20.6	20.7	25.4	23.0	29.7	29.6	24.8	20.8	21.4	20.9	27.9	20.5	10.9
2:30 PM	17.1	18.4	17.0	16.9	16.9	22.5	25.6	24.7	28.6	23.2	25.8	26.9	20.3	21.9	18.6	21.5	18.0	20.5	21.1	25.6	23.2	29.9	29.8	25.1	22.2	22.9	22.3	29.7	21.2	11.4
2:45 PM	17.8	18.6	17.3	17.3	17.0	22.7	25.6	24.7	28.7	23.2	25.8	26.8	20.1	21.7	18.4	21.0	17.5	19.7	20.4	24.5	22.6	28.8	29.0	24.5	20.8	21.3	21.0	27.7	20.5	10.5
3:00 PM	16.9	18.4	16.9	17.2	16.8	22.3	25.5	24.5	28.4	23.1	27.7	24.0	19.8	21.4	18.2	21.4	17.7	20.0	20.6	25.5	23.9	30.6	30.2	26.0	22.3	23.0	22.2	29.7	21.6	12.0
3:15 PM	19.6	20.7	18.9	19.6	18.6	24.8	27.9	27.4	30.6	25.9	27.7	30.1	22.3	23.8	20.4	23.4	19.1	21.4	22.2	26.9	25.1	32.2	31.2	27.4	23.1	23.8	23.0	30.8	21.4	13.0
3:30 PM	18.4	18.3	17.3	18.0	17.2	22.9	27.0	25.9	29.6	24.1	27.8	27.0	21.2	22.9	19.3	21.7	17.6	20.7	21.0	25.8	24.2	30.9	30.4	26.2	22.5	23.1	22.2	30.5	20.4	13.9
3:45 PM	19.5	18.7	17.8	18.8	17.3	23.0	27.0	25.9	29.6	24.3	27.7	26.8	20.8	22.8	18.7	21.3	17.6	20.3	20.7	25.6	24.3	30.8	30.3	26.3	21.8	22.3	21.4	29.1	20.0	15.1
4:00 PM	18.4	18.3	17.3	18.2	17.2	23.0	27.4	26.3	29.8	24.6	27.9	27.5	21.4	22.9	19.6	22.2	18.2	20.7	21.3	26.5	25.1	32.0	31.1	27.4	23.2	23.9	22.8	31.3	20.4	15.4
4:15 PM	20.3	17.8	17.6	18.3	16.8	22.4	27.1	25.8	29.5	24.3	27.5	26.6	20.9	22.1	19.4	22.5	18.5	21.1	21.7	27.3	25.8	33.1	31.7	28.3	23.4	24.1	22.9	30.1	21.2	18.1
4:30 PM	17.9	17.1	16.5	17.8	15.2	20.2	25.0	23.3	27.4	22.4	27.2	23.4	19.7	21.1	18.2	20.8	17.1	20.5	20.6	25.6	24.6	31.2	30.5	26.9	23.3	24.0	22.8	30.7	20.5	17.5
4:45 PM	18.2	16.9	16.4	17.5	14.6	19.5	24.0	22.4	26.5	21.4	25.6	22.1	18.4	19.7	17.1	19.9	16.5	20.2	20.1	25.3	24.3	30.8	30.2	26.6	22.6	23.1	22.2	28.7	20.2	18.8
5:00 PM	18.4	15.9	16.0	17.3	14.4	19.2	23.7	22.0	26.1	21.1	25.6	22.2	18.5	19.9	17.1	20.1	16.6	20.1	20.1	25.1	24.0	30.4	30.0	26.3	22.8	23.5	22.6	28.5	19.9	20.5
5:15 PM	17.8	15.2	15.5	16.6	13.4	17.9	22.5	20.7	24.9	20.0	23.6	20.5	17.3	18.6	16.1	19.3	15.8	20.0	19.6	24.7	23.7	30.0	29.7	26.1	21.9	22.4	21.5	28.1	19.4	19.0
5:30 PM	17.0	16.4	15.9	17.3	14.2	19.0	24.2	22.3	26.4	21.6	25.8	22.6	19.0	19.9	18.1	21.5	17.5	20.7	21.0	26.5	24.8	31.8	30.8	27.5	23.0	23.7	22.6	28.1	20.9	21.7
5:45 PM	17.0	15.9	15.6	16.1	14.6	19.5	23.5	22.0	26.1	21.0	25.0	22.0	18.3	19.3	17.3	20.4	16.7	20.0	20.1	25.2	23.9	30.4	30.0	26.2	21.7	22.2	21.4	27.4	19.8	19.0
6:00 PM	15.5	16.8	15.7	16.3	15.3	20.4	23.9	22.6	26.7	21.7	25.7	22.5	19.0	20.4	17.7	21.5	17.3	19.5	20.1	25.6	23.8	30.5	30.0	26.2	21.6	22.1	21.3	28.5	19.6	16.2
6:15 PM	14.6	15.0	14.4	14.6	14.0	18.7	22.4	20.9	25.2	19.9	23.7	21.0	17.4	18.4	16.5	20.1	16.3	19.2	19.4	24.2	22.4	28.5	28.8	24.4	20.1	20.5	19.9	27.0	18.4	15.0
Density LOS																														
1:30 PM	B	B	B	B	B	C	C	C	C	C	C	C	B	B	B	C	B	B	C	C	C	D	C	C	C	C	B	C	B	A
1:45 PM	B	B	B	B	B	C	C	C	C	C	C	C	B	B	B	C	B	B	C	C	C	D	C	C	C	C	B	C	B	A
2:00 PM	B	B	B	B	B	C	C	C	C	C	C	C	B	B	B	C	B	B	C	C	C	D	D	C	C	C	B	C	B	A
2:15 PM	B	B	B	B	B	C	C	C	D	C	C	C	C	C	B	C	B	C	C	C	C	D	D	C	C	C	C	C	C	A
2:30 PM	B	B	B	B	B	C	C	C	D	C	C	D	C	C	C	C	B	C	C	C	C	D	D	C	C	C	C	D	C	B
2:45 PM	B	B	B	B	B	C	C	C	D	C	C	D	C	C	C	C	B	B	C	C	C	D	D	C	C	C	C	C	C	A
3:00 PM	B	B	B	B	B	C	C	C	D	C	C	C	C	C	C	C	B	B	C	C	C	D	D	C	C	C	C	D	C	B
3:15 PM	C	C	C	B	C	C	C	D	D	C	C	D	C	C	C	C	C	C	C	D	C	D	D	D	C	C	C	D	C	B
3:30 PM	C	B	B	B	B	C	C	C	D	C	C	D	C	C	C	C	B	C	C	C	C	D	D	D	C	C	C	D	C	B
3:45 PM	C	B	B	B	B	C	C	C	D	C	C	D	C	C	C	C	B	C	C	C	C	D	D	D	C	C	C	D	B	B
4:00 PM	C	B	B	B	B	C	C	D	D	C	C	D	C	C	C	C	C	C	C	D	C	D	D	D	C	C	C	D	C	B
4:15 PM	C	B	B	B	B	C	C	C	D	C	C	D	C	C	C	C	C	C	C	D	C	D	D	D	C	C	C	D	C	C
4:30 PM	B	B	B	B	B	C	C	C	C	C	C	C	C	C	C	C	B	C	C	C	C	D	D	D	C	C	C	D	C	B
4:45 PM	C	B	B	B	B	C	C	C	C	C	C	C	C	B	B	C	B	C	C	C	C	D	D	D	C	C	C	D	C	C
5:00 PM	C	B	B	B	B	C	C	C	C	C	C	C	C	B	B	C	B	C	C	C	C	D	D	D	C	C	C	D	B	C
5:15 PM	B	B	B	B	B	B	C	C	C	C	C	C	B	B	B	C	B	B	C	C	C	D	D	D	C	C	C	D	B	C
5:30 PM	B	B	B	B	B	C	C	C	C	C	C	C	C	B	C	C	B	C	C	D	C	D	D	D	C	C	C	D	C	C
5:45 PM	B	B	B	B	B	C	C	C	C	C	C	C	C	B	B	C	B	B	C	C	C	D	D	D	C	C	C	C	B	C
6:00 PM	B	B	B	B	B	C	C	C	C	C	C	C	C	C	B	C	B	B	C	C	C	D	D	D	C	C	C	D	B	B
6:15 PM	B	B	B	B	B	C	C	C	C	C	C	C	B	B	B	C	B	B	C	C	C	D	D	C	C	C	B	C	B	B

Time

Notes
*Demand/capacity ratio > 1.0
**Segment anayzed as "basic" due to geometry and segmentation
B - Basic
M - Merge
O - Overlap (Basic)
D - Diverge
W - Weave

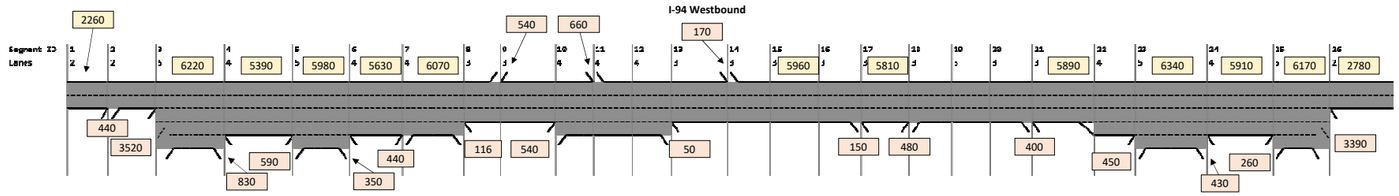
- Mainline Peak Hour Volume (6:30-7:30AM)

- Ramp Peak Hour Volume (6:30-7:30AM)

Legend (HCM6)					
Color	LOS	Speed (mph)	Density (pcphpl)		
			Basic	Ramp	Weave
	A	> 60	0-11	0-10	0-10
	B		11-18	10-20	10-20
	C	50 - 60	18-26	20-28	20-28
	D	40 - 50	26-35	28-35	28-35
	E	30 - 40	35-45	35-43	35-43
	F	< 30	45+	43+	43+

I-94 East-West Data Collection Project
Existing (2019) PM Peak Period
HCS Facilities Analysis Summary: I-94 WB

PM WB 80%



ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
Segment	Marquette Int E-W System Movement	11th St Entr Ramp	Marquette Int N-W/S-W System Ramps to 25th St Exit Ramp	25th St Exit Ramp to 28th St Entr Ramp	28th St Entr Ramp to 35th St Exit Ramp	35th St Exit Ramp to 35th St Entr Ramp	35th St Entr Ramp to Stadium Int E-N System Ramp	Stadium Int E-S System Ramp	Stadium Int E-W System Movement	Stadium Int N-W System Ramp	Stadium Int S-W System Ramp	Gen Mitchell Blvd Exit Ramp	Stadium Int S-W System Ramp to Gen Mitchell Blvd Entr Ramp	Gen Mitchell Blvd Entr Ramp	Gen Mitchell Blvd Entr Ramp to Hawley Rd Exit Ramp	Hawley Rd Exit Ramp	Hawley Rd Exit Ramp to Hawley Rd Entr Ramp	Hawley Rd Entr Ramp	Hawley Rd Entr Ramp to 68th St Exit Ramp	68th St Exit Ramp	68th St Exit Ramp to Lane Add	Lane Add to 70th St Entr Ramp	70th St Entr Ramp to 84th St Exit Ramp	84th St Exit Ramp to 84th St Entr Ramp	84th St Entr Ramp to Zoo Int E-N/E-S System Ramps	Zoo Int E-W System Movement
Type	B	M**	W	B	W	B	W	D	B	M**	M	D**	B	M	O	D	B	M	O	D	B	B	W	B	W	B
Speed (MPH)																										
1:30 PM	58.0	53.3	51.0	57.9	48.0	57.1	46.2	55.7	57.3	57.8	53.9	55.3	59.7	54.7	54.7	56.1	59.5	54.8	57.2	55.9	60.3	60.9	51.2	60.8	54.8	60.7
1:45 PM	58.0	53.3	51.0	57.9	48.4	57.1	46.2	55.7	57.3	57.8	53.9	55.3	59.7	54.6	54.6	56.1	59.5	54.7	57.2	55.9	60.3	60.9	51.6	60.8	54.8	60.7
2:00 PM	58.0	53.2	50.7	57.9	48.1	57.1	45.4	55.6	57.3	57.8	54.1	55.4	59.7	54.8	54.8	56.2	59.5	54.9	57.3	56.0	60.3	60.9	51.2	60.8	54.9	60.7
2:15 PM	58.0	53.2	50.0	57.9	47.8	57.0	45.3	55.5	57.3	57.8	53.9	55.3	59.7	54.4	54.4	56.2	59.5	54.5	57.0	55.9	60.3	60.9	50.8	60.8	54.8	60.7
2:30 PM	58.0	53.2	50.0	57.9	47.5	57.0	44.2	55.3	57.2	57.8	53.8	55.2	59.7	54.1	54.1	56.1	59.5	54.0	56.7	55.8	60.3	60.9	50.1	60.8	54.5	60.7
2:45 PM	58.0	53.2	49.5	57.9	47.8	57.0	44.3	55.4	57.2	57.8	54.0	55.3	59.7	54.7	54.7	56.3	59.5	54.6	57.1	55.9	60.3	60.9	50.0	60.8	54.8	60.7
3:00 PM	58.0	53.1	50.1	57.9	47.3	57.0	44.3	55.4	57.2	57.8	53.7	55.1	59.6	54.1	54.1	56.2	59.5	54.0	56.7	55.7	60.3	60.9	50.1	60.8	54.6	60.7
3:15 PM	58.0	53.0	49.2	57.9	47.9	57.1	44.4	55.4	57.2	57.8	53.9	55.3	59.7	54.2	54.2	56.2	59.5	54.1	56.8	55.9	60.3	60.9	50.3	60.8	54.5	60.7
3:30 PM	58.0	53.2	50.2	57.9	48.7	57.1	44.7	55.4	57.2	57.8	53.8	55.2	59.7	54.0	54.0	56.2	59.5	53.8	56.6	55.7	60.3	60.9	49.0	60.8	54.4	60.7
3:45 PM	58.0	53.2	49.7	57.9	49.3	57.2	45.5	55.6	57.3	57.8	54.1	55.4	59.7	54.7	54.7	56.3	59.5	54.4	57.0	56.0	60.3	60.9	49.3	60.8	54.6	60.7
4:00 PM	58.0	53.1	50.2	57.9	48.7	57.1	44.8	55.5	57.2	57.8	53.9	55.3	59.7	54.0	54.0	56.2	59.5	53.8	56.6	55.8	60.1	60.9	48.6	60.8	54.2	60.7
4:15 PM	58.0	53.0	49.1	57.9	49.5	57.2	45.1	55.5	57.3	57.8	53.9	55.3	59.7	54.0	54.0	56.2	59.5	53.7	56.5	55.8	60.1	60.9	49.1	60.8	54.4	60.7
4:30 PM	58.0	53.2	49.5	57.9	48.7	57.1	45.0	55.5	57.3	57.8	54.1	55.4	59.7	54.7	54.7	56.3	59.5	54.4	57.0	55.9	60.3	60.9	48.7	60.8	54.5	60.7
4:45 PM	58.0	53.0	48.9	57.8	48.4	57.1	44.9	55.5	57.3	57.8	53.8	55.2	59.7	54.1	54.1	56.2	59.5	53.9	56.7	55.8	60.3	60.9	49.4	60.8	54.5	60.7
5:00 PM	58.0	53.1	49.2	57.9	48.9	57.2	45.0	55.5	57.3	57.8	54.1	55.4	59.7	54.7	54.7	56.3	59.5	54.5	57.0	56.0	60.3	60.9	49.1	60.8	54.7	60.7
5:15 PM	58.0	52.5	48.3	57.8	48.1	57.1	43.8	55.3	57.2	57.8	53.8	55.2	59.7	53.9	53.9	56.1	59.5	53.9	56.7	55.8	60.3	60.9	49.4	60.8	54.4	60.7
5:30 PM	57.9	51.0	47.6	57.8	47.4	57.0	42.3	55.0	57.1	57.8	53.3	54.9	58.8	53.1	53.1	56.0	59.0	53.2	56.2	55.6	59.2	60.7	50.2	60.8	54.2	60.7
5:45 PM	58.0	52.9	49.9	57.9	48.6	57.1	44.8	55.5	57.2	57.8	54.1	55.4	59.7	54.9	54.9	56.4	59.6	54.9	57.3	56.0	60.3	60.9	50.8	60.8	55.0	60.7
6:00 PM	58.0	53.1	50.1	57.9	49.2	57.2	46.7	55.8	57.4	57.8	54.4	55.6	59.8	55.3	55.3	56.3	59.5	55.3	57.5	56.0	60.3	60.9	51.4	60.8	55.1	60.7
6:15 PM	58.0	53.1	50.3	57.9	48.7	57.1	46.1	55.7	57.3	57.8	54.2	55.5	59.7	55.2	55.2	56.3	59.5	55.3	57.5	56.0	60.3	60.9	51.9	60.9	55.0	60.7
Density (pc/mi/ln)																										
1:30 PM	12.8	14.7	18.0	18.1	19.9	19.8	26.4	29.5	21.6	18.6	20.7	20.5	25.7	28.2	29.0	25.9	25.0	25.8	26.3	29.6	24.6	18.5	18.8	18.3	17.2	17.1
1:45 PM	12.7	14.4	18.7	18.9	20.2	20.3	26.9	29.9	22.3	19.2	20.7	20.8	26.1	28.7	29.5	26.4	25.4	26.3	26.9	30.1	25.0	18.7	18.8	18.6	17.0	17.8
2:00 PM	14.8	17.0	19.1	19.1	20.5	20.2	27.1	29.1	20.5	18.0	19.8	19.6	24.6	27.3	27.8	25.1	24.0	25.3	25.6	29.0	23.9	17.9	18.3	17.7	16.3	16.6
2:15 PM	14.5	16.6	20.8	19.6	21.1	20.7	28.0	29.9	21.9	19.0	21.3	21.1	26.5	29.2	30.2	26.6	26.1	27.2	28.0	30.9	26.1	19.5	20.0	19.4	17.8	18.7
2:30 PM	14.9	17.2	20.8	19.7	21.6	21.1	29.8	30.1	22.4	19.7	22.0	21.9	27.8	30.7	32.1	27.9	27.7	29.4	30.5	32.5	28.3	21.1	22.0	21.1	19.5	19.0
2:45 PM	15.3	17.2	21.2	19.3	20.6	19.9	28.1	28.4	20.0	17.9	21.0	20.2	25.4	28.2	28.9	25.8	25.3	27.1	27.5	30.5	25.7	19.3	20.4	19.3	17.7	18.6
3:00 PM	15.8	17.8	20.6	19.7	21.5	20.6	28.8	29.1	21.1	19.5	22.4	22.0	27.8	30.6	32.0	27.7	27.9	29.2	30.5	32.5	28.1	21.0	21.9	21.1	19.8	21.0
3:15 PM	18.1	19.7	21.5	19.5	20.7	20.0	28.4	29.0	21.6	19.2	21.8	21.5	27.1	30.4	31.5	27.4	27.6	28.9	30.1	32.2	28.2	21.0	21.8	21.2	20.1	20.6
3:30 PM	15.2	17.0	18.8	17.8	18.8	18.7	26.6	27.5	20.2	18.6	22.1	21.3	26.9	30.9	32.0	27.8	27.8	30.0	31.3	32.8	29.1	21.6	23.6	22.4	21.3	21.7
3:45 PM	16.2	17.4	18.6	16.7	17.2	17.3	24.0	25.3	18.2	17.1	20.8	19.7	24.8	28.6	29.0	25.8	25.5	27.9	28.3	31.0	26.7	20.0	21.9	20.8	19.7	21.1
4:00 PM	16.9	18.4	18.5	17.8	18.8	18.7	26.2	26.9	19.4	18.3	22.1	21.2	26.8	31.0	32.1	27.7	27.9	30.2	31.6	33.0	29.7	22.0	24.5	23.2	21.8	23.4
4:15 PM	19.1	20.1	19.9	17.9	18.3	18.9	26.2	27.1	20.2	19.0	21.8	21.4	27.0	31.2	32.3	27.9	28.3	30.2	31.7	33.1	29.7	22.0	24.0	23.0	21.1	22.8
4:30 PM	16.4	17.7	17.3	15.2	16.6	16.5	23.3	23.7	16.3	16.2	20.7	19.1	24.0	28.5	28.6	25.5	25.2	28.3	28.5	31.1	26.8	20.1	22.6	21.3	20.1	20.6
4:45 PM	18.4	19.6	19.1	16.7	18.1	18.0	25.3	25.7	19.2	18.9	22.1	21.5	27.1	30.8	31.9	27.7	27.9	29.8	31.0	32.7	28.9	21.5	23.2	22.2	20.7	23.0
5:00 PM	16.6	18.6	18.2	15.9	17.0	16.9	23.9	24.3	17.5	16.5	21.1	19.5	24.5	28.3	28.6	25.6	25.2	27.5	27.8	30.7	26.1	19.6	21.8	20.7	19.5	21.0
5:15 PM	23.3	23.9	22.1	20.2	21.3	20.9	29.7	28.9	22.4	19.7	22.3	22.1	27.9	31.3	32.7	28.1	28.5	29.3	30.8	32.6	28.7	21.4	23.1	22.1	20.8	23.8
5:30 PM	30.0	30.1	25.0	23.7	25.1	24.7	*35.7*	32.8	26.9	23.1	24.0	25.0	32.7	33.6	*36.4*	30.3	32.3	31.4	34.7	34.6	31.9	23.2	23.9	23.2	21.8	23.6
5:45 PM	19.3	20.8	18.8	17.9	19.1	19.2	26.3	26.8	19.3	17.5	20.1	19.5	24.6	27.0	27.5	24.8	24.1	25.4	25.8	29.2	23.8	17.9	18.7	18.1	17.1	18.7
6:00 PM	15.8	18.0	17.2	16.0	17.0	17.3	22.9	25.7	18.7	16.5	18.5	18.0	22.7	25.2	25.2	23.2	22.0	23.8	23.7	27.5	21.9	16.5	16.9	16.5	15.5	16.4
6:15 PM	16.7	18.7	17.9	17.2	18.2	18.1	24.5	26.9	19.8	17.0	19.1	18.7	23.4	25.8	26.0	23.8	22.6	23.8	23.9	27.7	22.1	16.5	16.7	16.5	15.2	15.3
Density LOS																										
1:30 PM	B	B	B	C	B	C	C	D	C	C	C	C	C	D	D	C	C	C	D	D	C	C	B	C	B	B
1:45 PM	B	B	B	C	C	C	C	D	C	C	C	C	D	D	D	C	C	C	D	D	C	C	B	C	B	B
2:00 PM	B	B	B	C	C	C	C	D	C	B	B	C	C	C	D	C	C	C	C	D	C	B	B	B	B	B
2:15 PM	B	B	C	C	C	C	C	D	C	C	C	C	D	D	D	C	D	C	D	D	D	C	B	C	B	C
2:30 PM	B	B	C	C	C	C	D	D	C	C	C	C	D	D	D	C	D	D	D	D	D	C	C	C	B	C
2:45 PM	B	B	C	C	C	C	D	D	C	B	C	C	C	D	D	C	C	C	D	D	C	C	C	C	B	C
3:00 PM	B	B	C	C	C	C	D	D	C	C	C	C	D	D	D	C	D	D	D	D	D	C	C	C	B	C
3:15 PM	C	B	C	C	C	C	D	D	C	C	C	C	D	D	D	C	D	D	D	D	D	C	C	C	C	C
3:30 PM	B	B	B	B	B	C	C	C	C	C	C	C	D	D	D	C	D	D	D	D	D	C	C	C	C	C
3:45 PM	B	B	B	B	B	B	C	C	C	B	C	C	C	D	D	C	C	C	D	D	D	C	C	C	B	C
4:00 PM	B	B	B	B	B	C	C	C	C	C	C	C	D	D	D	C	D	D	D	D	D	C	C	C	C	C
4:15 PM	C	C	B	B	B	C	C	C	C	C	C	C	D	D	D	C	D	D	D	D	D	C	C	C	C	C
4:30 PM	B	B	B	B	B	B	C	C	B	B	C	C	C	D	D	C	C	D	D	D	D	C	C	C	C	C
4:45 PM	C	B	B	B	B	B	C	C	C	C	C	C	D	D	D	C	D	D	D	D	D	C	C	C	C	C
5:00 PM	B	B	B	B	B	B	C	C	B	B	C	C	C	D	D	C	C	C	D	D	D	C	C	C	B	C
5:15 PM	C	C	C	C	C	C	D	D	C	C	C	C	D	D	D	D	D	D	D	D	D	C	C	C	C	C
5:30 PM	D	D	C	C	C	C	*E*	D	D	C	C	C	D	D	*E*	D	D	D	D	D	D	C	C	C	C	C
5:45 PM	C	C	B	B	B	C	C	C	C	B	C	C	C	C	D	C	C	C	C	D	C	B	B	C	B	C
6:00 PM	B	B	B	B	B	B	C	C	C	B	B	B	C	C	C	C	C	C	C	C	C	B	B	B	B	B
6:15 PM	B	B	B	B	B	C	C	C	C	B	B	C	C	C	C	C	C	C	C	C	C	B	B	B	B	B

Notes
*Demand/capacity ratio > 1.0
**Segment anayzed as "basic" due to geometry and segmentatior
B - Basic
M - Merge
O - Overlap (Basic)
D - Diverge
W - Weave

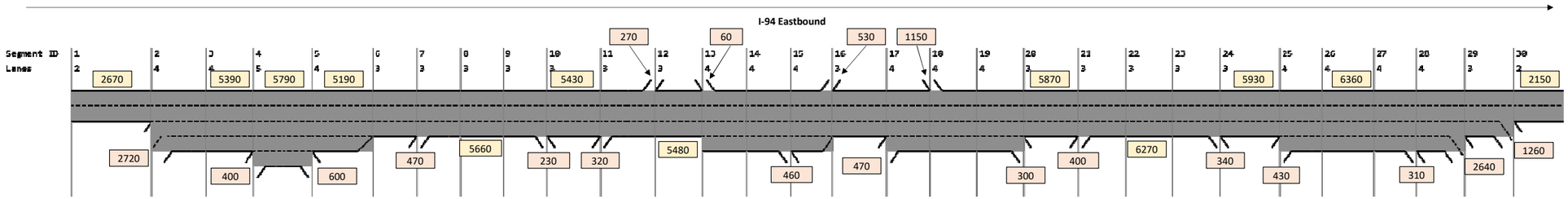
- Mainline Peak Hour Volume (6:30-7:30AM)

- Ramp Peak Hour Volume (6:30-7:30AM)

Legend (HCM6)					
Color	LOS	Speed (mph)	Density (pcphpl)		
			Basic	Ramp	Weave
	A	> 60	0-11	0-10	0-10
	B		11-18	10-20	10-20
	C	50 - 60	18-26	20-28	20-28
	D	40 - 50	26-35	28-35	28-35
	E	30 - 40	35-45	35-43	35-43
	F	< 30	45+	43+	43+

I-94 East-West Data Collection Project
Existing (2019) AM Peak Period
HCS Facilities Analysis Summary: I-94 EB

AM EB 75%



ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Segment	Zoo Int W-E System Movement	Zoo Int S-E/N-E System Ramps	Zoo Int S-E/N-E System Ramps to 84th St Entr Ramp	84th St Entr Ramp to 70th St Exit Ramp	70th St Exit Ramp to Lane Merge	Lane Merge to 68th St Entr Ramp	68th St Entr Ramp	68th St Entr Ramp to Hawley Rd Exit Ramp	Hawley Rd Exit Ramp	Hawley Rd Exit Ramp to Hawley Rd Entr Ramp	Hawley Rd Entr Ramp to Gen Mitchell Blvd Exit Ramp	Gen Mitchell Blvd Exit Ramp to Gen Mitchell Blvd Entr Ramp	Gen Mitchell Blvd Entr Ramp	Stadium Int W-S System Ramp	Stadium Int W-N System Ramp	Stadium Int W-E System Movement	Stadium Int S-E System Ramp	Stadium Int N-E System Ramp	35th St Exit Ramp	35th St Exit Ramp to 35th St Entr Ramp	35th St Entr Ramp	35th St Entr Ramp to 26th St Exit Ramp	26th St Exit Ramp	26th St Exit Ramp to 25th St Entr Ramp	25th St Entr Ramp	25th St Entr Ramp to 13th St Exit Ramp	13th St Exit Ramp	Marquette Int W-N System Ramp	Marquette Int W-S System Ramp	Marquette Int W-E System Movement
Type	B	M**	B	W	B	B	M	O	D	B	W	B	M**	D	D**	B	M**	M	D**	B	M	O	D	B	M**	O	D	D**	D**	B
Speed (MPH)																														
5:30 AM	63.0	59.6	62.5	58.1	62.8	63.0	58.1	60.1	57.6	61.7	58.5	62.3	58.0	57.0	57.4	57.8	58.0	55.2	57.1	57.9	54.5	53.9	53.9	57.6	57.9	57.0	57.0	55.0	56.2	57.6
5:45 AM	63.0	59.5	62.5	57.3	62.8	63.0	57.8	60.0	57.7	61.7	57.9	62.3	58.0	56.8	57.3	57.8	58.0	55.1	57.1	57.8	54.3	54.0	54.0	57.6	57.9	57.0	57.0	55.1	56.4	57.7
6:00 AM	63.0	59.4	62.4	57.0	62.8	63.0	57.6	59.8	57.7	61.7	57.5	62.2	58.0	56.9	57.3	57.8	58.0	55.0	57.0	57.8	54.1	54.1	54.1	57.6	57.9	57.0	57.0	54.6	56.2	57.6
6:15 AM	63.0	58.5	62.3	54.7	62.7	62.9	56.3	59.1	57.5	61.7	56.0	62.0	58.0	56.7	57.2	57.8	58.0	54.2	56.8	57.8	53.2	53.2	53.9	57.6	57.9	56.8	56.8	54.5	56.3	57.7
6:30 AM	63.0	58.4	62.3	53.1	62.7	63.0	56.3	59.1	57.4	61.7	56.0	62.0	58.0	56.8	57.3	57.8	58.0	54.0	56.7	57.8	52.7	52.7	53.8	57.6	57.9	56.3	56.3	53.8	55.8	57.6
6:45 AM	63.0	58.6	62.3	52.4	62.6	63.0	56.5	59.2	57.6	61.7	56.0	62.0	58.0	56.9	57.3	57.8	58.0	54.2	56.8	57.8	52.9	52.9	53.9	57.6	57.9	56.5	56.5	54.2	56.2	57.6
7:00 AM	63.0	58.9	62.4	52.3	62.6	63.0	56.7	59.3	57.7	61.7	55.9	62.0	58.0	57.1	57.5	57.9	58.0	54.0	56.7	57.8	52.6	52.6	53.9	57.6	57.9	56.3	56.3	54.2	56.1	57.6
7:15 AM	63.0	59.3	62.4	52.8	62.6	63.0	57.0	59.5	57.8	61.8	55.9	62.0	58.0	57.2	57.5	57.9	58.0	54.0	56.7	57.8	52.5	52.5	53.9	57.6	57.9	56.3	56.3	54.1	56.2	57.6
7:30 AM	63.0	59.8	62.5	53.9	62.7	63.0	57.3	59.7	57.8	61.8	56.5	62.1	58.0	57.3	57.6	57.9	58.0	54.0	56.7	57.8	52.4	52.4	53.8	57.6	57.9	56.3	56.3	53.7	56.4	57.7
7:45 AM	63.0	59.9	62.5	54.1	62.7	63.0	57.6	59.8	57.8	61.8	57.2	62.2	58.0	57.5	57.7	57.9	58.0	54.3	56.8	57.8	52.7	52.7	54.0	57.6	57.9	56.3	56.3	54.1	56.8	57.8
8:00 AM	63.0	59.7	62.5	54.3	62.7	63.0	57.7	59.9	57.8	61.8	57.4	62.2	58.0	57.5	57.7	57.9	58.0	54.3	56.8	57.8	53.0	53.0	54.0	57.6	57.9	56.5	56.5	54.0	57.1	57.8
8:15 AM	63.0	59.8	62.5	54.0	62.7	63.0	57.6	59.8	57.8	61.8	57.3	62.2	58.0	57.4	57.6	57.9	58.0	54.3	56.8	57.8	53.1	53.1	54.0	57.6	57.9	56.6	56.6	53.9	57.1	57.8
8:30 AM	63.0	59.3	62.4	53.6	62.7	63.0	57.2	59.6	57.8	61.8	56.4	62.0	58.0	57.4	57.6	57.9	58.0	54.0	56.7	57.8	52.4	52.4	53.8	57.6	57.9	56.4	56.4	53.7	56.8	57.8
8:45 AM	63.0	59.4	62.4	53.5	62.7	63.0	57.4	59.7	57.8	61.8	56.8	62.1	58.0	57.6	57.8	57.9	58.0	54.2	56.8	57.8	52.9	52.9	53.8	57.6	57.9	56.5	56.5	53.9	56.9	57.8
9:00 AM	63.0	59.8	62.5	54.7	62.7	63.0	57.7	59.9	57.8	61.8	57.4	62.2	58.0	57.1	57.5	57.9	58.0	54.6	56.9	57.8	53.6	53.6	54.1	57.6	57.9	56.9	56.9	54.2	56.6	57.7
9:15 AM	63.0	59.6	62.5	55.4	62.7	63.0	57.6	59.8	57.8	61.8	57.3	62.2	58.0	57.5	57.7	57.9	58.0	54.6	56.9	57.8	53.5	53.5	54.2	57.6	57.9	56.7	56.7	54.0	56.5	57.7
Density (pc/mi/ln)																														
5:30 AM	9.2	10.3	10.3	9.4	10.3	13.8	16.3	14.6	19.1	13.9	15.7	14.4	11.7	14.1	10.3	12.6	9.9	12.5	11.8	14.6	13.2	16.6	19.4	14.1	11.6	11.8	12.8	17.3	12.4	6.6
5:45 AM	10.7	12.7	12.0	11.1	11.9	15.9	18.2	16.8	21.2	15.9	18.1	16.4	13.4	16.0	11.5	13.8	11.0	13.4	12.9	16.2	14.4	18.3	20.9	15.4	12.5	12.7	13.6	18.1	13.0	7.8
6:00 AM	11.8	13.7	12.9	12.0	12.9	17.2	19.2	18.0	22.4	17.3	19.7	17.7	14.5	16.8	12.7	15.0	12.0	13.9	13.8	17.5	15.5	19.6	22.0	17.0	13.6	13.8	14.5	20.0	13.6	7.9
6:15 AM	18.2	20.5	18.4	17.8	18.4	24.6	25.7	25.6	29.2	24.5	25.8	28.0	20.3	22.4	18.1	21.5	17.0	18.4	19.3	24.1	21.1	27.3	27.9	22.9	18.2	18.6	18.7	25.0	16.8	12.0
6:30 AM	17.3	20.7	18.2	18.5	18.1	24.1	26.2	25.7	29.4	24.2	25.7	27.8	20.0	21.8	18.2	21.8	18.0	21.1	21.5	26.9	23.9	31.2	30.4	26.5	21.5	22.1	22.2	28.8	18.7	12.4
6:45 AM	17.3	19.9	17.8	18.2	16.8	22.4	25.0	24.1	28.0	23.2	25.8	25.1	19.2	21.0	17.3	20.5	16.8	20.2	20.2	25.6	23.2	29.9	29.6	25.5	20.5	21.1	21.0	27.4	18.3	13.6
7:00 AM	16.9	18.6	17.0	17.6	16.2	21.5	24.7	23.6	27.5	22.8	25.9	24.1	18.9	20.4	17.4	20.8	17.2	21.7	21.4	27.2	24.9	32.2	31.0	27.7	22.1	22.7	22.2	28.9	19.7	15.1
7:15 AM	16.7	16.4	15.7	16.2	14.8	19.7	23.6	22.1	26.2	21.5	25.8	22.0	18.2	19.4	17.0	20.4	17.3	21.6	21.4	27.2	25.3	32.6	31.1	28.2	22.7	23.4	22.9	29.7	19.9	15.8
7:30 AM	14.0	12.4	12.8	13.1	12.1	16.2	21.8	19.5	23.8	19.0	23.4	20.4	17.4	18.6	16.4	19.8	17.0	21.2	20.9	26.8	26.0	33.1	31.5	28.6	23.7	24.4	23.6	31.7	19.7	16.8
7:45 AM	12.6	11.0	11.6	11.8	10.8	14.3	19.6	17.2	21.6	16.7	20.5	18.1	15.3	16.6	14.5	17.6	15.6	19.8	19.3	25.0	24.9	31.2	30.3	27.2	22.6	23.2	22.8	29.5	18.5	17.5
8:00 AM	12.1	11.6	11.8	11.8	10.7	14.3	19.2	16.9	21.3	16.3	19.7	17.5	14.9	16.2	14.1	17.1	14.9	20.1	19.1	24.6	23.4	29.6	29.3	25.7	21.1	21.7	21.2	28.7	17.1	16.5
8:15 AM	13.5	12.5	12.7	12.8	11.7	15.6	19.9	17.9	22.3	17.3	20.4	18.2	15.5	17.0	14.3	17.2	15.1	19.6	18.9	24.4	22.8	28.9	28.9	25.1	20.5	21.0	20.7	28.3	16.7	15.5
8:30 AM	15.7	15.9	15.2	15.0	13.9	18.6	21.9	20.5	24.6	20.0	23.9	20.9	17.6	18.4	16.8	20.8	17.6	21.4	21.4	27.7	25.7	33.2	31.6	28.3	22.7	23.3	22.7	30.7	18.3	16.6
8:45 AM	15.0	15.3	14.7	14.6	13.3	17.7	20.8	19.4	23.7	18.7	22.4	19.7	16.4	17.5	15.5	18.9	15.8	20.6	19.9	25.4	23.3	29.9	29.7	25.2	20.4	21.0	20.9	27.8	16.8	14.8
9:00 AM	13.2	12.5	12.6	12.4	11.8	15.7	19.0	17.3	21.7	16.8	20.0	17.8	14.9	17.0	13.4	15.8	13.5	17.4	16.7	21.3	19.5	24.7	25.8	21.5	17.4	17.7	18.1	24.4	15.2	11.3
9:15 AM	12.9	13.3	13.0	12.6	12.5	16.7	19.5	18.1	22.4	17.5	20.6	18.5	15.3	16.6	14.3	17.2	14.4	17.4	17.2	21.9	20.0	25.4	26.3	22.3	18.1	18.6	18.9	25.4	15.6	11.6
Density LOS																														
5:30 AM	A	B	A	A	A	B	B	B	B	B	B	B	B	B	A	B	A	B	B	B	B	B	B	B	B	B	B	B	B	A
5:45 AM	A	B	B	B	B	B	B	B	C	B	B	B	B	B	B	B	A	B	B	B	B	C	C	B	B	B	B	B	B	A
6:00 AM	B	B	B	B	B	B	B	B	C	B	B	B	B	B	B	B	B	B	B	B	B	C	C	B	B	B	B	B	B	A
6:15 AM	C	C	C	B	C	C	C	C	D	C	C	D	C	C	C	C	B	B	C	C	C	D	C	C	C	C	B	C	B	B
6:30 AM	B	C	C	B	C	C	C	C	D	C	C	D	C	C	C	C	B	C	C	D	C	D	D	D	C	C	C	D	B	B
6:45 AM	B	B	B	B	B	C	C	C	C	C	C	C	C	C	B	C	B	C	C	C	C	D	D	C	C	C	C	C	B	B
7:00 AM	B	B	B	B	B	C	C	C	C	C	C	C	C	C	B	C	B	C	C	D	C	D	D	D	C	C	C	D	B	B
7:15 AM	B	B	B	B	B	C	C	C	C	C	C	C	C	B	B	C	B	C	C	D	C	D	D	D	C	C	C	D	B	B
7:30 AM	B	B	B	B	B	B	C	C	C	C	C	C	B	B	B	C	B	C	C	D	C	D	D	D	C	C	C	D	B	B
7:45 AM	B	B	B	B	A	B	B	B	C	B	C	C	B	B	B	B	B	B	C	C	C	D	D	D	C	C	C	D	B	B
8:00 AM	B	B	B	B	A	B	B	B	C	B	B	B	B	B	B	B	B	C	C	C	C	D	D	C	C	C	C	D	B	B
8:15 AM	B	B	B	B	B	B	B	B	C	B	C	C	B	B	B	B	B	B	C	C	C	D	D	C	C	C	C	D	B	B
8:30 AM	B	B	B	B	B	C	C	C	C	C	C	C	B	B	B	C	B	C	C	D	C	D	D	D	C	C	C	D	B	B
8:45 AM	B	B	B	B	B	B	C	C	C	C	C	C	B	B	B	C	B	C	C	C	C	D	D	C	C	C	C	C	B	B
9:00 AM	B	B	B	B	B	B	B	B	C	B	B	B	B	B	B	B	B	B	B	C	B	C	C	C	B	B	B	C	B	B
9:15 AM	B	B	B	B	B	B	B	C	C	B	C	C	B	B	B	B	B	B	B	C	B	C	C	C	C	C	B	C	B	B

Time

Notes
*Demand/capacity ratio > 1.0

**Segment anayzed as "basic" due to geometry and segmentation

B - Basic
M - Merge
O - Overlap (Basic)
D - Diverge
W - Weave

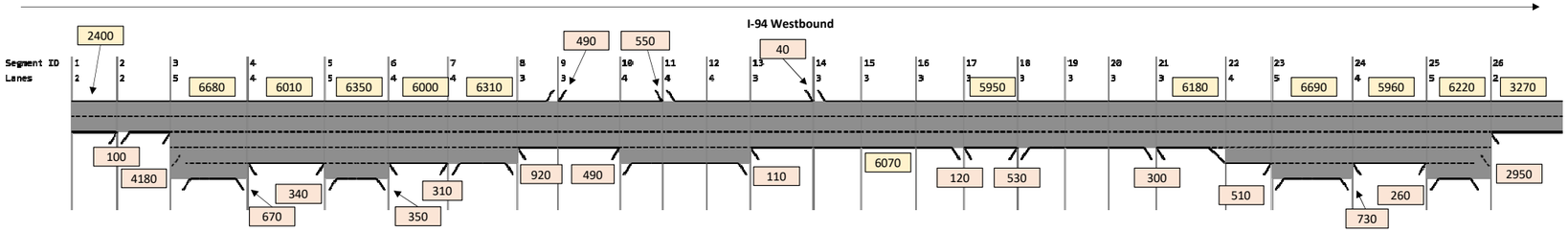
- Mainline Peak Hour Volume (6:30-7:30AM)

- Ramp Peak Hour Volume (6:30-7:30AM)

Legend (HCM6)					
Color	LOS	Speed (mph)	Density (pcphpl)		
			Basic	Ramp	Weave
	A	> 60	0-11	0-10	0-10
	B		11-18	10-20	10-20
	C	50 - 60	18-26	20-28	20-28
	D	40 - 50	26-35	28-35	28-35
	E	30 - 40	35-45	35-43	35-43
	F	< 30	45+	43+	43+

I-94 East-West Data Collection Project
Existing (2019) AM Peak Period
HCS Facilities Analysis Summary: I-94 WB

AM WB 75%



ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
Segment	Marquette Int E-W System Movement	11th St Entr Ramp	Marquette Int N-W/S-W System Ramps to 25th St Exit Ramp	25th St Exit Ramp to 28th St Entr Ramp	28th St Entr Ramp to 35th St Exit Ramp	35th St Exit Ramp to 35th St Entr Ramp	35th St Entr Ramp to Stadium Int E-N System Ramp	Stadium Int E-S System Ramp	Stadium Int E-W System Movement	Stadium Int N-W System Ramp	Stadium Int S-W System Ramp	Stadium Int S-W System Ramp	Stadium Int S-W System Ramp to Gen Mitchell Blvd Entr Ramp	Gen Mitchell Blvd Entr Ramp	Gen Mitchell Blvd Entr Ramp to Hawley Rd Exit Ramp	Hawley Rd Exit Ramp	Hawley Rd Exit Ramp to Hawley Rd Entr Ramp	Hawley Rd Entr Ramp	Hawley Rd Entr Ramp to 68th St Exit Ramp	68th St Exit Ramp	68th St Exit Ramp to Lane Add	Lane Add to 70th St Entr Ramp	70th St Entr Ramp to 84th St Exit Ramp	84th St Exit Ramp to 84th St Entr Ramp	84th St Entr Ramp to Zoo Int E-N/E-S System Ramps	Zoo Int E-W System Movement
Type	B	M**	W	B	W	B	W	D	B	M**	M	D**	B	M	O	D	B	M	O	D	B	B	W	B	W	B
Speed (MPH)																										
5:30 AM	58.0	53.6	52.5	57.9	52.0	57.4	51.4	56.1	57.4	57.9	55.0	56.0	59.8	56.1	56.1	56.5	59.6	56.2	58.1	56.5	60.4	60.9	54.0	60.9	55.4	60.7
5:45 AM	58.0	53.6	52.0	57.9	52.3	57.5	51.4	56.0	57.4	57.8	55.0	56.0	59.8	56.3	56.5	56.5	59.6	56.4	58.2	56.3	60.4	60.9	54.3	60.9	55.7	60.7
6:00 AM	58.0	53.5	52.2	57.9	51.5	57.4	50.5	56.2	57.5	57.9	54.8	55.9	59.8	55.9	55.9	56.6	59.6	56.0	57.9	56.4	60.4	60.9	53.5	60.9	55.5	60.7
6:15 AM	58.0	53.4	51.3	57.9	49.4	57.2	47.7	56.0	57.4	57.8	54.1	55.4	59.7	55.0	55.0	56.3	59.5	54.9	57.3	56.1	60.3	60.9	50.6	60.8	55.1	60.7
6:30 AM	58.0	53.4	51.2	57.9	49.0	57.2	47.0	55.9	57.4	57.8	53.9	55.3	59.7	54.6	54.6	56.3	59.5	54.4	57.0	56.1	60.3	60.9	48.7	60.8	54.8	60.7
6:45 AM	58.0	53.3	50.4	57.9	49.4	57.2	46.8	55.8	57.4	57.8	54.2	55.5	59.7	55.0	55.0	56.4	59.6	55.0	57.3	56.2	60.3	60.9	49.8	60.8	55.2	60.7
7:00 AM	58.0	53.2	50.3	57.9	49.0	57.2	46.0	55.7	57.3	57.8	53.9	55.3	59.7	54.5	54.5	56.3	59.5	54.4	57.0	55.9	60.3	60.9	48.7	60.8	55.0	60.7
7:15 AM	58.0	53.1	49.4	57.9	48.6	57.1	44.7	55.4	57.2	57.8	53.6	55.1	59.6	54.0	54.0	56.1	59.5	53.7	56.5	55.8	60.2	60.9	47.7	60.8	54.5	60.7
7:30 AM	58.0	53.2	49.0	57.9	49.7	57.2	45.9	55.7	57.3	57.8	54.1	55.4	59.7	54.8	54.8	56.3	59.5	54.5	57.0	55.9	60.3	60.9	48.4	60.8	54.9	60.7
7:45 AM	58.0	53.0	49.5	57.9	49.4	57.2	45.8	55.6	57.3	57.8	54.2	55.5	59.7	54.9	54.9	56.4	59.6	54.8	57.2	55.9	60.3	60.9	49.2	60.8	55.0	60.7
8:00 AM	58.0	53.3	50.5	57.9	50.0	57.3	46.8	55.8	57.4	57.8	54.4	55.6	59.8	55.4	55.4	56.3	59.5	55.2	57.5	56.0	60.3	60.9	50.6	60.8	55.3	60.7
8:15 AM	58.0	53.3	50.8	57.9	49.6	57.2	46.6	55.8	57.4	57.8	54.4	55.6	59.8	55.4	55.4	56.3	59.5	55.3	57.5	56.0	60.3	60.9	50.8	60.8	55.1	60.7
8:30 AM	58.0	53.3	50.8	57.9	49.6	57.2	46.9	55.9	57.4	57.8	54.2	55.5	59.7	55.1	55.1	56.4	59.6	55.1	57.4	56.0	60.3	60.9	51.1	60.8	55.0	60.7
8:45 AM	58.0	53.3	51.0	57.9	49.9	57.2	47.5	56.0	57.4	57.8	54.3	55.5	59.7	55.1	55.1	56.3	59.5	55.2	57.5	56.0	60.3	60.9	51.8	60.9	55.1	60.7
9:00 AM	58.0	53.5	51.6	57.9	50.9	57.3	48.9	56.0	57.4	57.8	54.8	55.9	59.8	55.8	55.8	56.4	59.6	55.8	57.8	56.1	60.3	60.9	52.8	60.9	55.5	60.7
9:15 AM	58.0	53.5	51.8	57.9	51.0	57.3	48.7	56.1	57.4	57.9	54.7	55.8	59.8	55.9	55.9	56.5	59.6	55.9	57.9	56.2	60.3	60.9	53.2	60.9	55.4	60.7
Density (pc/mi/ln)																										
5:30 AM	6.8	7.2	10.0	10.4	10.4	11.1	13.6	20.4	13.7	11.6	14.8	13.1	16.4	19.2	17.9	17.2	16.3	18.9	17.9	22.0	17.3	13.0	12.6	13.2	11.9	12.7
5:45 AM	7.6	8.0	11.2	10.9	10.6	11.4	13.8	20.6	13.4	11.1	14.2	12.4	15.5	18.3	16.8	16.4	15.2	17.4	16.5	20.7	15.6	11.7	11.2	11.4	10.3	11.1
6:00 AM	8.9	9.3	11.7	12.2	12.1	12.9	16.0	22.5	15.6	13.1	15.7	14.4	18.1	20.8	19.8	18.9	17.8	20.0	19.4	23.4	18.5	13.9	13.3	13.4	12.2	13.3
6:15 AM	12.0	12.1	16.4	16.6	17.1	17.4	23.1	28.1	21.3	17.8	19.8	19.6	24.5	26.7	27.2	24.6	24.0	25.5	25.7	29.0	24.4	18.3	18.7	17.5	15.9	17.7
6:30 AM	13.3	13.4	18.7	19.2	19.4	19.4	25.4	29.2	22.1	19.0	21.3	21.1	26.4	28.6	29.6	26.2	26.1	27.9	28.6	31.0	27.6	20.6	22.3	20.0	18.5	21.3
6:45 AM	14.6	14.4	20.1	19.3	19.1	19.1	24.8	28.2	20.4	17.3	19.7	19.2	23.8	26.3	26.6	24.2	23.5	25.3	25.5	28.8	24.4	18.3	19.3	17.7	16.2	19.8
7:00 AM	17.2	17.0	21.4	21.2	21.2	21.2	27.9	30.5	23.0	19.6	20.9	21.2	26.4	28.8	29.8	26.4	26.0	27.9	28.5	31.2	26.9	20.1	21.7	19.1	17.8	21.8
7:15 AM	18.9	18.6	23.7	22.2	22.3	22.1	30.2	30.9	24.2	20.9	22.4	22.8	28.7	30.9	32.5	28.1	28.4	30.2	31.8	33.1	29.6	21.9	24.4	21.4	20.1	24.2
7:30 AM	17.8	17.6	20.1	17.3	17.4	17.7	23.9	25.5	18.9	17.2	20.6	19.7	24.7	27.6	28.0	25.2	24.7	27.9	27.9	30.8	25.9	19.4	21.9	19.9	18.7	22.6
7:45 AM	19.5	19.3	19.4	17.9	18.0	18.1	24.1	25.7	18.6	16.9	20.2	19.2	24.0	27.0	27.3	24.7	24.0	26.4	26.4	29.7	24.7	18.5	20.3	18.7	17.7	20.6
8:00 AM	15.0	15.2	17.3	16.5	16.5	16.9	22.2	25.0	17.5	15.6	18.7	17.7	22.0	24.8	24.6	22.8	21.6	24.2	23.9	27.6	22.0	16.5	17.5	16.6	15.4	17.9
8:15 AM	15.3	15.5	17.4	17.3	17.6	17.9	23.3	25.9	18.6	16.1	18.4	17.7	22.2	24.8	24.6	22.8	21.6	23.8	23.6	27.4	21.8	16.4	17.2	16.5	15.3	16.3
8:30 AM	15.5	15.8	18.4	18.3	18.4	18.8	24.6	28.1	20.6	17.4	19.0	18.8	23.6	26.2	26.5	24.1	23.2	25.0	25.1	28.6	23.5	17.6	18.2	17.7	16.4	17.8
8:45 AM	13.8	14.7	17.9	18.0	17.9	18.5	23.7	27.9	20.0	17.1	18.8	18.5	23.2	25.7	25.8	23.7	22.6	24.3	24.3	28.0	22.6	17.0	17.0	16.7	15.3	16.5
9:00 AM	10.1	11.1	14.8	14.8	14.5	15.2	19.0	24.3	16.3	13.8	15.9	14.9	18.8	21.8	20.8	19.9	18.4	20.4	19.9	24.1	18.4	13.8	13.6	13.4	12.3	13.1
9:15 AM	10.4	11.5	14.1	14.5	14.3	15.0	19.2	24.2	16.4	13.8	15.8	14.8	18.6	21.5	20.6	19.6	18.2	20.4	19.7	23.9	18.5	13.9	13.5	13.5	12.4	13.2
Density LOS																										
5:30 AM	A	A	A	A	B	B	B	C	B	B	B	B	B	B	B	B	B	B	B	C	B	B	B	B	B	B
5:45 AM	A	A	B	A	B	B	B	C	B	B	B	B	B	B	B	B	B	B	B	C	B	B	B	B	B	B
6:00 AM	A	A	B	B	B	B	B	C	B	B	B	B	C	C	C	B	B	B	C	C	C	B	B	B	B	B
6:15 AM	B	B	B	B	B	B	C	D	C	B	B	C	C	C	D	C	C	C	C	D	C	C	B	B	B	B
6:30 AM	B	B	B	C	B	C	C	D	C	C	C	C	D	D	D	C	D	C	D	D	D	C	C	C	B	C
6:45 AM	B	B	C	C	B	C	C	D	C	B	B	C	C	C	D	C	C	C	C	D	C	C	B	B	B	C
7:00 AM	B	B	C	C	C	C	C	D	C	C	C	C	D	D	D	C	C	C	D	D	D	C	C	C	B	C
7:15 AM	C	B	C	C	C	C	D	D	C	C	C	C	D	D	D	D	D	D	D	D	D	C	C	C	C	C
7:30 AM	B	B	C	B	B	B	C	C	C	B	C	C	C	C	D	C	C	C	D	D	C	C	C	C	B	C
7:45 AM	C	B	B	B	B	C	C	C	C	B	C	C	C	C	D	C	C	C	D	D	C	C	C	C	B	C
8:00 AM	B	B	B	B	B	B	C	C	B	B	B	B	C	C	C	C	C	C	C	C	C	B	B	B	B	B
8:15 AM	B	B	B	B	B	B	C	C	C	B	B	B	C	C	C	C	C	C	C	C	C	B	B	B	B	B
8:30 AM	B	B	B	C	B	C	C	D	C	B	B	C	C	C	D	C	C	C	C	D	C	B	B	B	B	B
8:45 AM	B	B	B	B	B	C	C	C	C	B	B	C	C	C	C	C	C	C	C	C	C	B	B	B	B	B
9:00 AM	A	B	B	B	B	B	B	C	B	B	B	B	C	C	C	B	C	C	C	C	C	B	B	B	B	B
9:15 AM	A	B	B	B	B	B	B	C	B	B	B	B	C	C	C	B	C	C	C	C	C	B	B	B	B	B

Notes
*Demand/capacity ratio > 1.0
**Segment anayzed as "basic" due to geometry and segmentation
B - Basic
M - Merge
O - Overlap (Basic)
D - Diverge
W - Weave

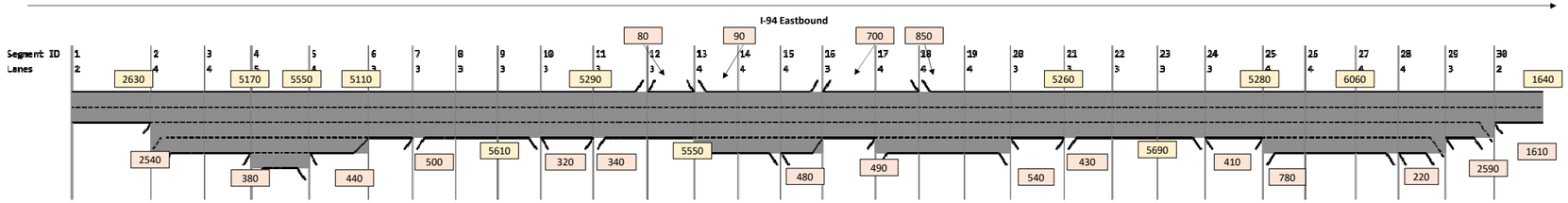
- Mainline Peak Hour Volume (6:30-7:30AM)

- Ramp Peak Hour Volume (6:30-7:30AM)

Legend (HCM6)					
Color	LOS	Speed (mph)	Density (pcphpl)		
			Basic	Ramp	Weave
	A	> 60	0-11	0-10	0-10
	B		11-18	10-20	10-20
	C	50 - 60	18-26	20-28	20-28
	D	40 - 50	26-35	28-35	28-35
	E	30 - 40	35-45	35-43	35-43
	F	< 30	45+	43+	43+

I-94 East-West Data Collection Project
Existing (2019) PM Peak Period
HCS Facilities Analysis Summary: I-94 EB

PM EB 75%



ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Segment	Zoo Int W-E System Movement	Zoo Int S-E/N-E System Ramps	Zoo Int S-E/N-E System Ramps to 84th St Entr Ramp	84th St Entr Ramp to 70th St Exit Ramp	70th St Exit Ramp to Lane Merge	Lane Merge to 68th St Entr Ramp	68th St Entr Ramp	68th St Entr Ramp to Hawley Rd Exit Ramp	Hawley Rd Exit Ramp	Hawley Rd Exit Ramp to Hawley Rd Entr Ramp	Hawley Rd Entr Ramp to Gen Mitchell Blvd Exit Ramp	Gen Mitchell Blvd Exit Ramp to Gen Mitchell Blvd Entr Ramp	Gen Mitchell Blvd Entr Ramp	Stadium Int W-S System Ramp	Stadium Int W-N System Ramp	Stadium Int W-E System Movement	Stadium Int S-E System Ramp	Stadium Int N-E System Ramp	35th St Exit Ramp	35th St Exit Ramp to 35th St Entr Ramp	35th St Entr Ramp	35th St Entr Ramp to 26th St Exit Ramp	26th St Exit Ramp	26th St Exit Ramp to 25th St Entr Ramp	25th St Entr Ramp	25th St Entr Ramp to 13th St Exit Ramp	13th St Exit Ramp	Marquette Int W-N System Ramp	Marquette Int W-S System Ramp	Marquette Int W-E System Movement
Type	B	M**	B	W	B	B	M	O	D	B	W	B	M**	D	D**	B	M**	M	D**	B	M	O	D	B	M**	O	D	D**	D**	B
Speed (MPH)																														
1:30 PM	63.0	59.5	62.5	55.4	62.7	63.0	57.4	59.7	57.6	61.7	57.0	62.1	58.0	57.1	57.5	57.9	58.0	54.6	56.9	57.8	53.6	53.6	53.9	57.6	57.9	56.8	56.8	54.0	55.8	57.6
1:45 PM	63.0	59.5	62.5	55.3	62.7	63.0	57.4	59.7	57.6	61.7	56.9	62.1	58.0	57.2	57.5	57.9	58.0	54.6	56.9	57.8	53.6	53.6	53.9	57.6	57.9	56.9	56.9	54.3	55.6	57.5
2:00 PM	63.0	59.3	62.4	54.6	62.7	63.0	57.1	59.5	57.6	61.7	56.6	62.1	58.0	57.2	57.5	57.9	58.0	54.5	56.9	57.8	53.5	53.5	53.9	57.6	57.9	56.8	56.8	54.5	55.4	57.5
2:15 PM	63.0	59.0	62.4	54.6	62.7	63.0	56.8	59.4	57.6	61.7	56.0	62.0	58.0	57.0	57.4	57.8	58.0	54.3	56.8	57.8	53.2	53.2	53.9	57.6	57.9	56.7	56.7	54.4	55.1	57.4
2:30 PM	63.0	59.2	62.4	54.6	62.7	63.0	56.8	59.4	57.6	61.7	56.4	62.0	58.0	56.9	57.3	57.8	58.0	54.2	56.8	57.8	53.2	53.2	54.0	57.6	57.9	56.5	56.5	54.1	55.0	57.4
2:45 PM	63.0	59.1	62.4	54.1	62.7	63.0	56.8	59.4	57.5	61.7	56.4	62.0	58.0	57.0	57.4	57.8	58.0	54.3	56.8	57.8	53.3	53.3	54.0	57.6	57.9	56.7	56.7	54.4	55.0	57.4
3:00 PM	63.0	59.2	62.4	53.9	62.7	63.0	56.8	59.4	57.6	61.7	56.0	62.0	58.0	57.1	57.5	57.9	58.0	54.3	56.8	57.8	53.1	53.1	53.9	57.6	57.9	56.6	56.6	54.2	55.1	57.4
3:15 PM	63.0	58.8	62.3	52.9	62.6	63.0	56.3	59.1	57.5	61.7	56.0	62.0	58.0	56.7	57.2	57.8	58.0	54.1	56.7	57.8	52.9	52.9	53.9	57.6	57.9	56.5	56.5	54.0	55.3	57.5
3:30 PM	63.0	59.2	62.4	53.2	62.7	63.0	56.5	59.2	57.4	61.7	56.0	62.0	58.0	56.8	57.3	57.8	58.0	54.3	56.8	57.8	53.1	53.1	53.9	57.6	57.9	56.7	56.7	54.0	55.8	57.6
3:45 PM	63.0	59.1	62.4	52.4	62.6	63.0	56.5	59.2	57.5	61.7	56.0	62.0	58.0	56.8	57.3	57.8	58.0	54.3	56.8	57.8	53.1	53.1	53.9	57.6	57.9	56.7	56.7	54.4	56.2	57.6
4:00 PM	63.0	59.2	62.4	53.0	62.7	63.0	56.5	59.2	57.5	61.7	56.0	62.0	58.0	56.8	57.3	57.8	58.0	54.2	56.8	57.8	52.9	52.9	54.0	57.6	57.9	56.6	56.6	54.0	56.1	57.6
4:15 PM	63.0	59.3	62.4	52.7	62.6	63.0	56.5	59.2	57.6	61.7	56.1	62.0	58.0	57.0	57.4	57.8	58.0	54.1	56.7	57.8	52.8	52.8	53.9	57.6	57.9	56.5	56.5	54.5	56.3	57.7
4:30 PM	63.0	59.4	62.4	51.7	62.6	63.0	56.9	59.4	57.7	61.7	56.1	62.0	58.0	57.1	57.5	57.9	58.0	54.3	56.8	57.8	53.0	53.0	54.0	57.6	57.9	56.6	56.6	54.3	56.4	57.7
4:45 PM	63.0	59.4	62.4	51.6	62.6	63.0	57.1	59.5	57.7	61.7	56.4	62.0	58.0	57.3	57.6	57.9	58.0	54.3	56.8	57.8	53.1	53.1	54.0	57.6	57.9	56.7	56.7	54.8	56.6	57.7
5:00 PM	63.0	59.5	62.5	51.5	62.6	63.0	57.2	59.6	57.7	61.7	56.4	62.0	58.0	57.3	57.6	57.9	58.0	54.3	56.8	57.8	53.1	53.1	54.0	57.6	57.9	56.5	56.5	54.9	56.9	57.8
5:15 PM	63.0	59.6	62.5	51.6	62.6	63.0	57.4	59.7	57.8	61.8	56.9	62.1	58.0	57.4	57.6	57.9	58.0	54.4	56.8	57.8	53.2	53.2	54.0	57.6	57.9	56.7	56.7	54.9	56.8	57.8
5:30 PM	63.0	59.4	62.4	51.4	62.6	63.0	57.1	59.5	57.8	61.8	56.4	62.0	58.0	57.4	57.6	57.9	58.0	54.3	56.8	57.8	53.0	53.0	54.0	57.6	57.9	56.6	56.6	55.1	56.7	57.7
5:45 PM	63.0	59.5	62.5	53.2	62.7	63.0	57.2	59.6	57.7	61.7	56.6	62.1	58.0	57.5	57.7	57.9	58.0	54.4	56.8	57.8	53.1	53.1	54.0	57.6	57.9	56.7	56.7	55.0	56.8	57.8
6:00 PM	63.0	59.4	62.4	53.6	62.7	63.0	57.1	59.5	57.7	61.7	56.5	62.1	58.0	57.2	57.5	57.9	58.0	54.3	56.8	57.8	53.1	53.1	54.0	57.6	57.9	56.8	56.8	54.6	56.4	57.7
6:15 PM	63.0	59.6	62.5	54.4	62.7	63.0	57.4	59.7	57.7	61.7	56.9	62.1	58.0	57.6	57.8	57.9	58.0	54.5	56.9	57.8	53.4	53.4	54.1	57.6	57.9	56.9	56.9	54.6	56.5	57.7
Density (pc/mi/ln)																														
1:30 PM	13.0	13.9	13.3	13.0	13.3	17.7	21.0	19.5	23.9	18.3	21.5	19.1	15.8	17.7	14.2	16.9	14.4	17.4	17.2	21.2	19.3	24.5	26.0	20.4	17.2	17.6	18.1	24.5	15.7	8.9
1:45 PM	13.0	13.8	13.3	13.1	13.4	17.8	21.3	19.7	24.2	18.6	21.9	19.3	15.9	17.7	14.4	16.9	14.6	17.4	17.3	21.7	19.7	25.0	26.4	20.8	17.5	17.8	18.2	24.3	16.8	9.3
2:00 PM	12.8	15.3	14.0	14.1	14.2	18.9	22.3	20.9	25.2	19.7	23.3	20.5	16.9	18.6	15.5	18.0	15.2	17.7	17.8	22.0	20.3	25.7	26.8	21.6	18.3	18.7	18.8	25.0	18.1	9.9
2:15 PM	14.4	17.1	15.5	15.3	15.4	20.6	23.9	22.7	26.8	21.5	25.7	22.4	18.4	20.3	16.6	19.3	16.2	19.5	19.4	23.8	21.6	27.7	28.2	23.3	19.5	20.0	19.8	26.5	19.5	10.3
2:30 PM	16.1	17.1	15.9	15.7	15.8	21.1	24.2	23.1	27.2	21.7	24.0	25.0	19.0	20.7	17.4	20.2	16.8	19.4	19.8	24.0	21.8	27.9	28.3	23.6	20.9	21.4	21.1	28.1	20.1	10.7
2:45 PM	16.7	17.2	16.2	16.1	16.0	21.3	24.2	23.2	27.3	21.7	24.0	25.0	18.8	20.5	17.2	19.7	16.5	18.6	19.1	22.9	21.2	26.9	27.6	23.0	19.5	19.9	19.8	26.3	19.5	9.9
3:00 PM	15.8	17.0	15.8	15.9	15.7	21.0	24.1	23.0	27.1	21.7	25.8	22.5	18.6	20.2	17.1	20.1	16.6	18.9	19.3	23.9	22.5	28.5	28.6	24.4	20.9	21.4	20.9	28.1	20.5	11.2
3:15 PM	18.4	19.2	17.7	18.1	17.4	23.2	26.3	25.5	29.2	24.1	25.8	27.7	20.9	22.5	19.2	21.9	17.9	20.2	20.9	25.3	23.5	30.0	29.7	25.7	21.7	22.3	21.7	29.2	20.4	12.2
3:30 PM	17.2	16.9	16.2	16.7	16.1	21.5	25.5	24.2	28.2	22.6	25.9	25.2	19.9	21.6	18.1	20.3	16.5	19.5	19.7	24.2	22.7	28.8	28.9	24.6	21.1	21.6	20.9	28.9	19.4	13.1
3:45 PM	18.3	17.3	16.7	17.4	16.2	21.6	25.5	24.2	28.2	22.7	25.8	24.9	19.5	21.5	17.5	20.0	16.5	19.2	19.4	24.0	22.8	28.8	28.8	24.6	20.4	20.9	20.2	27.6	19.0	14.2
4:00 PM	17.2	16.9	16.2	16.9	16.1	21.5	25.9	24.5	28.4	23.0	25.9	25.5	20.0	21.6	18.3	20.8	17.1	19.5	20.0	24.9	23.5	29.9	29.5	25.7	21.8	22.3	21.5	29.6	19.4	14.4
4:15 PM	19.0	16.5	16.5	17.0	15.7	21.0	25.6	24.1	28.1	22.8	25.6	24.8	19.6	20.9	18.2	21.1	17.3	19.9	20.4	25.6	24.2	30.8	30.1	26.5	22.0	22.5	21.6	28.5	20.1	17.0
4:30 PM	16.8	15.8	15.5	16.4	14.2	19.0	23.7	21.9	26.1	21.0	25.3	21.9	18.5	19.9	17.1	19.5	16.0	19.4	19.3	24.0	23.1	29.1	28.9	25.2	21.9	22.4	21.5	29.0	19.5	16.4
4:45 PM	17.1	15.6	15.4	16.2	13.7	18.3	22.7	21.0	25.2	20.1	23.9	20.7	17.2	18.6	16.0	18.7	15.5	19.1	18.9	23.7	22.8	28.7	28.7	24.9	21.1	21.6	21.0	27.2	19.3	17.6
5:00 PM	17.3	14.7	15.0	16.0	13.5	18.0	22.4	20.6	24.9	19.8	23.8	20.8	17.3	18.8	16.0	18.8	15.6	19.0	18.8	23.5	22.5	28.4	28.4	24.6	21.4	22.0	21.3	27.0	19.0	19.2
5:15 PM	16.7	14.0	14.5	15.3	12.6	16.7	21.3	19.4	23.7	18.7	21.9	19.3	16.2	17.6	15.1	18.1	14.8	18.9	18.3	23.2	22.2	28.0	28.2	24.4	20.5	21.0	20.3	26.6	18.5	17.8
5:30 PM	16.0	15.2	14.9	16.0	13.3	17.8	22.9	20.9	25.1	20.2	24.0	21.2	17.8	18.8	16.9	20.1	16.4	19.6	19.7	24.8	23.3	29.6	29.3	25.8	21.6	22.1	21.3	26.6	19.8	20.3
5:45 PM	16.0	14.7	14.6	15.0	13.7	18.3	22.2	20.6	24.9	19.7	23.3	20.6	17.2	18.2	16.2	19.1	15.6	18.8	18.8	23.7	22.4	28.4	28.5	24.6	20.4	20.8	20.2	26.0	18.8	17.8
6:00 PM	14.6	15.5	14.7	15.1	14.4	19.2	22.6	21.2	25.4	20.3	23.9	21.1	17.8	19.2	16.6	20.1	16.2	18.4	18.9	24.0	22.3	28.4	28.5	24.5	20.3	20.7	20.1	27.0	18.6	15.1
6:15 PM	13.7	13.8	13.5	13.6	13.2	17.6	21.2	19.6	24.0	18.7	22.0	19.6	16.3	17.4	15.5	18.8	15.3	18.2	18.2	22.7	21.0	26.6	27.3	22.9	18.8	19.2	18.8	25.6	17.5	14.1
Density LOS																														
1:30 PM	B	B	B	B	B	B	C	C	C	C	C	C	B	B	B	B	B	B	B	C	B	C	C	C	B	B	B	C	B	A
1:45 PM	B	B	B	B	B	B	C	C	C	C	C	C	B	B	B	B	B	B	B	C	B	C	C	C	B	B	B	C	B	A
2:00 PM	B	B	B	B	B	C	C	C	C	C	C	C	B	B	B	B	B	B	B	C	C	C	C	C	C	C	B	C	B	A
2:15 PM	B	B	B	B	B	C	C	C	C	C	C	C	C	C	B	C	B	B	C	C	C	D	D	C	C	C	B	C	B	A
2:30 PM	B	B	B	B	B	C	C	C	C	C	C	C	C	C	B	C	B	B	C	C	C	D	D	C	C	C	C	D	C	A
2:45 PM	B	B	B	B	B	C	C	C	C	C	C	C	C	C	B	C	B	B	C	C	C	D	C	C	C	C	B	C	B	A
3:00 PM	B	B	B	B	B	C	C	C	C	C	C	C	C	C	B	C	B	B	C	C	C	D	D	C	C	C	C	D	C	B
3:15 PM	C	B	B	B	B	C	C	C	D	C	C	D	C	C	C	C	B	C	C	C	C	D	D	C	C	C	C	D	C	B
3:30 PM	B	B	B	B	B	C	C	C	D	C	C	C	C	C	C	C	B	B	C	C	C	D	D	C	C	C	C	D	B	B
3:45 PM	C	B	B	B	B	C	C	C	D	C	C	C	C	C	B	C	B	B	C	C	C	D	D	C	C	C	C	C	B	B
4:00 PM	B	B	B	B	B	C	C	C	D	C	C	C	C	C	C	C	B	B	C	C	C	D	D	C	C	C	C	D	B	B
4:15 PM	C	B	B	B	B	C	C	C	D	C	C	C	C	C	C	C	B	B	C	C	C	D	D	D	C	C	C	D	C	B
4:30 PM	B	B	B	B	B	C	C	C	C	C	C	C	C	B	B	C	B	B	C	C	C	D	D	C	C	C	C	D	B	B
4:45 PM	B	B	B	B	B	C	C	C	C	C	C	C	B	B	B	C	B	B	C	C	C	D	D	C	C	C	C	C	B	B
5:00 PM	B	B	B	B	B	B	C	C	C	C	C	C	B	B	B	C	B	B	C	C	C	D	D	C	C	C	C	C	B	C
5:15 PM	B	B	B	B	B	B	C	C	C	C	C	C	B	B	B	C	B	B	C	C	C	D	D	C	C	C	C	C	B	B
5:30 PM	B	B	B	B	B	B	C	C	C	C	C	C	B	B	B	C	B	B	C	C	C	D	D	C	C	C	C	C	B	C
5:45 PM	B	B	B	B	B	C	C	C	C	C	C	C	B	B	B	C	B	B	C	C	C	D	D	C	C	C	C	C	B	B
6:00 PM	B	B	B	B	B	C	C	C	C	C	C	C	B	B	B	C	B	B	C	C	C	D	D	C	C	C	C	C	B	B
6:15 PM	B	B	B	B	B	B	C	C	C	C	C	C	B	B	B	C	B	B	C	C	C	D	C	C	C	C	B	C	B	B

Notes
*Demand/capacity ratio > 1.0
**Segment anayzed as "basic" due to geometry and segmentation
B - Basic
M - Merge
O - Overlap (Basic)
D - Diverge
W - Weave

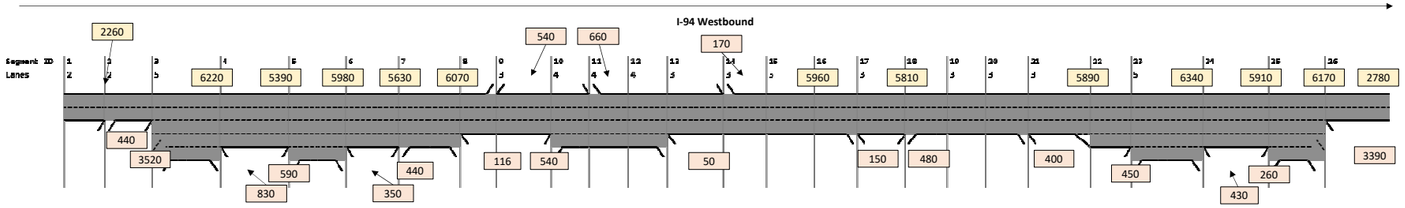
- Mainline Peak Hour Volume (6:30-7:30AM)

- Ramp Peak Hour Volume (6:30-7:30AM)

Legend (HCM6)					
Color	LOS	Speed (mph)	Density (pcphpl)		
			Basic	Ramp	Weave
	A	> 60	0-11	0-10	0-10
	B		11-18	10-20	10-20
	C	50 - 60	18-26	20-28	20-28
	D	40 - 50	26-35	28-35	28-35
	E	30 - 40	35-45	35-43	35-43
	F	< 30	45+	43+	43+

I-94 East-West Data Collection Project
Existing (2019) PM Peak Period
HCS Facilities Analysis Summary: I-94 WB

PM WB 75%



ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
Segment	Marquette Int E-W System Movement	11th St Entr Ramp	Marquette Int N-W/S-W System Ramps to 25th St Exit Ramp	25th St Exit Ramp to 28th St Entr Ramp	28th St Entr Ramp to 35th St Exit Ramp	35th St Exit Ramp to 35th St Entr Ramp	35th St Entr Ramp to Stadium Int E-N System Ramp	Stadium Int E-S System Ramp	Stadium Int E-W System Movement	Stadium Int N-W System Ramp	Stadium Int S-W System Ramp	Gen Mitchell Blvd Exit Ramp	Stadium Int S-W System Ramp to Gen Mitchell Blvd Entr Ramp	Gen Mitchell Blvd Entr Ramp	Gen Mitchell Blvd Entr Ramp to Hawley Rd Exit Ramp	Hawley Rd Exit Ramp	Hawley Rd Exit Ramp to Hawley Rd Entr Ramp	Hawley Rd Entr Ramp	Hawley Rd Entr Ramp to 68th St Exit Ramp	68th St Exit Ramp	68th St Exit Ramp to Lane Add	Lane Add to 70th St Entr Ramp	70th St Entr Ramp to 84th St Exit Ramp	84th St Exit Ramp to 84th St Entr Ramp	84th St Entr Ramp to Zoo Int E-N/E-S System Ramps	Zoo Int E-W System Movement
Type	B	M**	W	B	W	B	W	D	B	M**	M	D**	B	M	O	D	B	M	O	D	B	B	W	B	W	B
Speed (MPH)																										
1:30 PM	58.0	53.4	51.2	57.9	48.5	57.1	46.8	55.8	57.4	57.8	54.1	55.4	59.7	55.0	55.0	56.3	59.5	55.1	57.4	56.1	60.3	60.9	51.7	60.9	55.0	60.7
1:45 PM	58.0	53.4	51.2	57.9	48.9	57.2	46.9	55.9	57.4	57.8	54.1	55.4	59.7	54.9	54.9	56.2	59.5	55.0	57.3	56.0	60.3	60.9	52.1	60.9	55.0	60.7
2:00 PM	58.0	53.3	50.9	57.9	48.6	57.1	46.1	55.7	57.3	57.8	54.3	55.5	59.7	55.2	55.2	56.3	59.5	55.3	57.5	56.1	60.3	60.9	51.6	60.8	55.0	60.7
2:15 PM	58.0	53.3	50.3	57.9	48.4	57.1	46.0	55.7	57.3	57.8	54.1	55.4	59.7	54.8	54.8	56.2	59.5	54.9	57.3	56.0	60.3	60.9	51.3	60.8	54.9	60.7
2:30 PM	58.0	53.2	50.3	57.9	48.1	57.1	45.0	55.5	57.3	57.8	54.0	55.3	59.7	54.5	54.5	56.2	59.5	54.4	57.0	55.9	60.3	60.9	50.7	60.8	54.6	60.7
2:45 PM	58.0	53.2	49.8	57.9	48.3	57.1	45.1	55.5	57.3	57.8	54.2	55.5	59.7	55.0	55.0	56.4	59.6	54.9	57.3	56.0	60.3	60.9	50.5	60.8	54.9	60.7
3:00 PM	58.0	53.2	50.4	57.9	47.8	57.0	45.0	55.5	57.3	57.8	53.9	55.3	59.7	54.5	54.5	56.3	59.5	54.5	57.0	55.9	60.3	60.9	50.6	60.8	54.7	60.7
3:15 PM	58.0	53.1	49.5	57.9	48.5	57.1	45.1	55.5	57.3	57.8	54.0	55.3	59.7	54.5	54.5	56.3	59.5	54.5	57.0	56.0	60.3	60.9	50.8	60.8	54.7	60.7
3:30 PM	58.0	53.3	50.5	57.9	49.2	57.2	45.4	55.6	57.3	57.8	54.0	55.3	59.7	54.5	54.5	56.3	59.5	54.3	56.9	55.9	60.3	60.9	49.6	60.8	54.6	60.7
3:45 PM	58.0	53.2	50.0	57.9	49.8	57.2	46.2	55.7	57.3	57.8	54.3	55.5	59.7	55.0	55.0	56.4	59.6	54.8	57.2	56.0	60.3	60.9	50.0	60.8	54.8	60.7
4:00 PM	58.0	53.2	50.5	57.9	49.2	57.2	45.5	55.6	57.3	57.8	54.1	55.4	59.7	54.5	54.5	56.3	59.5	54.2	56.9	55.9	60.3	60.9	49.2	60.8	54.5	60.7
4:15 PM	58.0	53.1	49.5	57.9	50.0	57.3	45.8	55.6	57.3	57.8	54.0	55.3	59.7	54.4	54.4	56.3	59.5	54.2	56.9	55.9	60.3	60.9	49.8	60.8	54.5	60.7
4:30 PM	58.0	53.2	49.9	57.9	49.2	57.2	45.7	55.6	57.3	57.8	54.3	55.5	59.7	55.0	55.0	56.4	59.6	54.7	57.2	56.0	60.3	60.9	49.3	60.8	54.7	60.7
4:45 PM	58.0	53.1	49.4	57.9	48.9	57.2	45.6	55.6	57.3	57.8	54.0	55.3	59.7	54.5	54.5	56.3	59.5	54.4	57.0	55.9	60.3	60.9	50.0	60.8	54.7	60.7
5:00 PM	58.0	53.2	49.6	57.9	49.5	57.2	45.7	55.6	57.3	57.8	54.3	55.5	59.7	55.0	55.0	56.4	59.6	54.9	57.3	56.0	60.3	60.9	49.7	60.8	54.8	60.7
5:15 PM	58.0	52.7	49.0	57.9	48.6	57.1	44.6	55.4	57.2	57.8	54.0	55.3	59.7	54.4	54.4	56.2	59.5	54.4	57.0	55.9	60.3	60.9	49.9	60.8	54.7	60.7
5:30 PM	58.0	51.6	48.3	57.8	47.9	57.1	43.3	55.2	57.2	57.8	53.5	55.0	59.6	53.7	53.7	56.1	59.5	53.9	56.7	55.7	60.3	60.9	50.7	60.8	54.5	60.7
5:45 PM	58.0	53.0	50.3	57.9	49.1	57.2	45.5	55.6	57.3	57.8	54.3	55.5	59.7	55.3	55.3	56.4	59.6	55.2	57.5	56.0	60.3	60.9	51.3	60.8	55.1	60.7
6:00 PM	58.0	53.2	50.5	57.9	49.7	57.2	47.3	55.9	57.4	57.8	54.5	55.7	59.8	55.5	55.5	56.3	59.5	55.5	57.6	56.0	60.3	60.9	52.0	60.9	55.3	60.7
6:15 PM	58.0	53.2	50.6	57.9	49.3	57.2	46.8	55.8	57.4	57.8	54.4	55.6	59.8	55.4	55.4	56.3	59.5	55.5	57.6	56.0	60.3	60.9	52.4	60.9	55.1	60.7
Density (pc/mi/ln)																										
1:30 PM	12.0	13.8	16.8	17.0	18.4	18.6	24.4	28.1	20.2	17.5	19.6	19.2	24.1	26.7	27.1	24.6	23.4	24.4	24.7	28.3	23.1	17.3	17.4	17.2	16.1	16.1
1:45 PM	11.9	13.5	17.5	17.7	18.7	19.1	24.9	28.5	20.9	18.0	19.6	19.5	24.4	27.1	27.5	25.0	23.8	24.9	25.2	28.7	23.4	17.5	17.4	17.4	15.9	16.7
2:00 PM	13.8	16.0	17.8	17.9	19.0	19.0	25.1	27.7	19.2	16.8	18.8	18.4	23.0	25.9	25.9	23.8	22.5	23.9	24.0	27.7	22.4	16.8	17.0	16.7	15.3	15.6
2:15 PM	13.6	15.6	19.4	18.4	19.5	19.4	25.9	28.6	20.5	17.8	20.2	19.8	24.8	27.6	28.1	25.2	24.5	25.7	26.1	29.4	24.4	18.3	18.6	18.2	16.7	17.6
2:30 PM	14.0	16.2	19.4	18.5	20.0	19.8	27.4	28.7	21.0	18.5	20.9	20.6	25.9	29.0	29.8	26.4	25.8	27.7	28.2	31.0	26.4	19.8	20.4	19.8	18.2	17.8
2:45 PM	14.4	16.2	19.8	18.1	19.2	18.7	25.9	27.1	18.8	16.8	19.9	19.0	23.8	26.7	27.0	24.4	23.7	25.6	25.7	29.1	24.1	18.1	19.0	18.1	16.6	17.5
3:00 PM	14.8	16.7	19.2	18.4	20.0	19.3	26.6	27.8	19.8	18.2	21.2	20.6	25.9	28.9	29.7	26.3	26.0	27.6	28.2	31.0	26.2	19.7	20.4	19.8	18.5	19.7
3:15 PM	17.0	18.5	20.1	18.3	19.2	18.8	26.2	27.7	20.2	18.0	20.7	20.2	25.4	28.7	29.4	26.1	25.8	27.3	27.9	30.7	26.3	19.7	20.3	19.9	18.8	19.3
3:30 PM	14.2	16.0	17.5	16.7	17.4	17.5	24.6	26.2	18.9	17.5	20.9	20.0	25.1	29.2	29.7	26.3	25.9	28.3	28.9	31.4	27.0	20.2	21.9	21.0	19.9	20.3
3:45 PM	15.2	16.4	17.3	15.6	16.0	16.2	22.1	24.1	17.1	16.0	19.7	18.4	23.2	27.0	27.0	24.4	23.9	26.4	26.4	29.6	25.0	18.8	20.3	19.5	18.4	19.8
4:00 PM	15.8	17.3	17.3	16.7	17.4	17.6	24.2	25.7	18.2	17.2	21.0	19.9	25.1	29.3	29.8	26.3	26.1	28.5	29.1	31.5	27.5	20.6	22.7	21.7	20.4	22.0
4:15 PM	17.9	18.9	18.5	16.8	17.0	17.7	24.1	25.9	18.9	17.8	20.7	20.1	25.3	29.4	30.0	26.4	26.3	28.5	29.2	31.6	27.5	20.6	22.2	21.5	19.8	21.4
4:30 PM	15.3	16.6	16.1	14.3	15.4	15.4	21.5	22.6	15.3	15.2	19.7	17.9	22.5	26.9	26.7	24.2	23.6	26.7	26.5	29.7	25.1	18.8	21.0	19.9	18.7	19.3
4:45 PM	17.2	18.4	17.7	15.6	16.8	16.9	23.3	24.6	18.0	17.7	21.0	20.1	25.4	29.1	29.7	26.3	26.0	28.1	28.6	31.2	26.9	20.1	21.5	20.8	19.3	21.5
5:00 PM	15.6	17.5	16.9	14.9	15.8	15.9	22.1	23.2	16.4	15.4	20.0	18.3	23.0	26.8	26.7	24.2	23.7	26.0	26.0	29.3	24.5	18.3	20.2	19.4	18.2	19.6
5:15 PM	21.9	22.5	20.4	18.9	19.7	19.6	27.4	27.6	21.0	18.5	21.2	20.7	26.0	29.5	30.3	26.7	26.6	27.6	28.5	31.1	26.7	20.0	21.4	20.7	19.4	22.3
5:30 PM	28.1	28.3	23.1	22.3	23.3	23.1	32.7	31.4	25.2	21.6	22.7	23.5	30.0	31.7	33.8	28.8	29.7	29.6	31.6	33.1	29.3	21.7	22.2	21.8	20.3	22.1
5:45 PM	18.1	19.6	17.4	16.8	17.7	18.0	24.3	25.5	18.1	16.4	19.1	18.3	23.0	25.5	25.6	23.5	22.6	24.0	24.1	27.9	22.3	16.7	17.3	17.0	16.0	17.5
6:00 PM	14.8	16.9	16.0	15.0	15.7	16.2	21.2	24.5	17.6	15.5	17.6	16.9	21.3	23.8	23.5	22.0	20.7	22.5	22.3	26.2	20.6	15.4	15.7	15.4	14.5	15.4
6:15 PM	15.7	17.6	16.7	16.1	16.9	17.0	22.7	25.7	18.6	16.0	18.2	17.5	22.0	24.4	24.3	22.6	21.2	22.5	22.4	26.4	20.7	15.5	15.5	15.4	14.2	14.4
Density LOS																										
1:30 PM	B	B	B	B	B	C	C	D	C	B	B	C	C	C	D	C	C	C	C	D	C	B	B	B	B	B
1:45 PM	B	B	B	B	B	C	C	D	C	B	B	C	C	C	D	C	C	C	C	D	C	B	B	B	B	B
2:00 PM	B	B	B	B	B	C	C	C	C	B	B	C	C	C	C	C	C	C	C	C	C	B	B	B	B	B
2:15 PM	B	B	B	C	B	C	C	D	C	B	C	C	C	C	D	C	C	C	D	D	C	C	B	C	B	B
2:30 PM	B	B	B	C	B	C	C	D	C	C	C	C	C	D	D	C	C	C	D	D	D	C	C	C	B	B
2:45 PM	B	B	B	C	B	C	C	C	C	B	B	C	C	C	D	C	C	C	C	D	C	C	B	C	B	B
3:00 PM	B	B	B	C	B	C	C	C	C	C	C	C	C	D	D	C	C	C	D	D	D	C	C	C	B	C
3:15 PM	B	B	C	C	B	C	C	C	C	B	C	C	C	D	D	C	C	C	D	D	D	C	C	C	B	C
3:30 PM	B	B	B	B	B	B	C	C	C	B	C	C	C	D	D	C	C	D	D	D	D	C	C	C	B	C
3:45 PM	B	B	B	B	B	B	C	C	B	B	B	C	C	C	D	C	C	D	D	D	C	C	C	C	B	C
4:00 PM	B	B	B	B	B	B	C	C	C	B	C	C	C	D	D	C	D	D	D	D	D	C	C	C	C	C
4:15 PM	B	B	B	B	B	B	C	C	C	B	C	C	C	D	D	C	D	D	D	D	D	C	C	C	B	C
4:30 PM	B	B	B	B	B	B	C	C	B	B	B	B	C	C	D	C	C	C	D	D	C	C	C	C	B	C
4:45 PM	B	B	B	B	B	B	C	C	B	B	C	C	C	D	D	C	C	D	D	D	D	C	C	C	B	C
5:00 PM	B	B	B	B	B	B	C	C	B	B	B	C	C	C	D	C	C	C	C	D	C	C	C	C	B	C
5:15 PM	C	C	C	C	B	C	C	C	C	C	C	C	C	D	D	C	D	C	D	D	D	C	C	C	B	C
5:30 PM	D	D	C	C	C	C	D	D	C	C	C	C	D	D	D	D	D	D	D	D	D	C	C	C	C	C
5:45 PM	C	B	B	B	B	B	C	C	C	B	B	C	C	C	C	C	C	C	C	C	C	B	B	B	B	B
6:00 PM	B	B	B	B	B	B	C	C	B	B	B	B	C	C	C	C	C	C	C	C	C	B	B	B	B	B
6:15 PM	B	B	B	B	B	B	C	C	C	B	B	B	C	C	C	C	C	C	C	C	C	B	B	B	B	B

Notes
*Demand/capacity ratio > 1.0
**Segment anayzed as "basic" due to geometry and segmentatio
B - Basic
M - Merge
O - Overlap (Basic)
D - Diverge
W - Weave

- Mainline Peak Hour Volume (6:30-7:30AM)

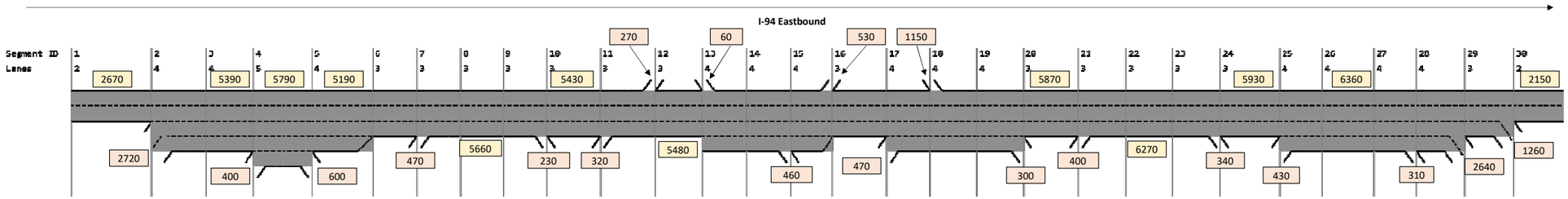
- Ramp Peak Hour Volume (6:30-7:30AM)

Legend (HCM6)

Color	LOS	Speed (mph)	Density (pcphpl)		
			Basic	Ramp	Weave
	A	> 60	0-11	0-10	0-10
	B		11-18	10-20	10-20
	C	50 - 60	18-26	20-28	20-28
	D	40 - 50	26-35	28-35	28-35
	E	30 - 40	35-45	35-43	35-43
	F	< 30	45+	43+	43+

I-94 East-West Data Collection Project
Existing (2019) AM Peak Period
HCS Facilities Analysis Summary: I-94 EB

AM EB 70%



ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Segment	Zoo Int W-E System Movement	Zoo Int S-E/N-E System Ramps	Zoo Int S-E/N-E System Ramps to 84th St Entr Ramp	84th St Entr Ramp to 70th St Exit Ramp	70th St Exit Ramp to Lane Merge	Lane Merge to 68th St Entr Ramp	68th St Entr Ramp	68th St Entr Ramp to Hawley Rd Exit Ramp	Hawley Rd Exit Ramp	Hawley Rd Exit Ramp to Hawley Rd Entr Ramp	Hawley Rd Entr Ramp to Gen Mitchell Blvd Exit Ramp	Gen Mitchell Blvd Exit Ramp to Gen Mitchell Blvd Entr Ramp	Gen Mitchell Blvd Entr Ramp	Stadium Int W-S System Ramp	Stadium Int W-N System Ramp	Stadium Int W-E System Movement	Stadium Int S-E System Ramp	Stadium Int N-E System Ramp	35th St Exit Ramp	35th St Exit Ramp to 35th St Entr Ramp	35th St Entr Ramp	35th St Entr Ramp to 26th St Exit Ramp	26th St Exit Ramp	26th St Exit Ramp to 25th St Entr Ramp	25th St Entr Ramp	25th St Entr Ramp to 13th St Exit Ramp	13th St Exit Ramp	Marquette Int W-N System Ramp	Marquette Int W-S System Ramp	Marquette Int W-E System Movement
Type	B	M**	B	W	B	B	M	O	D	B	W	B	M**	D	D**	B	M**	M	D**	B	M	O	D	B	M**	O	D	D**	D**	B
Speed (MPH)																														
5:30 AM	63.0	59.7	62.5	58.4	62.8	63.0	58.2	60.2	57.6	61.7	58.8	62.4	58.0	57.1	57.5	57.9	58.0	55.3	57.1	57.9	54.6	53.9	53.9	57.6	57.9	57.0	57.0	55.1	56.2	57.6
5:45 AM	63.0	59.6	62.5	57.7	62.8	63.0	57.9	60.0	57.6	61.7	58.2	62.3	58.0	56.8	57.3	57.8	58.0	55.2	57.1	57.9	54.4	54.0	54.0	57.6	57.9	57.0	57.0	55.2	56.4	57.7
6:00 AM	63.0	59.6	62.5	57.4	62.8	63.0	57.8	60.0	57.8	61.8	57.9	62.3	58.0	57.0	57.4	57.8	58.0	55.1	57.1	57.8	54.3	54.1	54.1	57.6	57.9	57.1	57.1	54.8	56.3	57.7
6:15 AM	63.0	58.8	62.3	55.3	62.7	63.0	56.7	59.3	57.6	61.7	56.5	62.1	58.0	56.8	57.3	57.8	58.0	54.4	56.8	57.8	53.5	53.5	54.0	57.6	57.9	57.0	57.0	54.5	56.4	57.7
6:30 AM	63.0	58.7	62.3	53.8	62.7	63.0	56.6	59.3	57.5	61.7	56.5	62.1	58.0	57.0	57.4	57.8	58.0	54.2	56.8	57.8	53.0	53.0	53.9	57.6	57.9	56.5	56.5	54.0	55.9	57.6
6:45 AM	63.0	58.9	62.4	53.1	62.7	63.0	56.9	59.4	57.7	61.7	56.4	62.0	58.0	57.0	57.4	57.8	58.0	54.4	56.8	57.8	53.2	53.2	53.9	57.6	57.9	56.7	56.7	54.4	56.3	57.7
7:00 AM	63.0	59.2	62.4	52.8	62.6	63.0	57.0	59.5	57.7	61.7	56.4	62.0	58.0	57.2	57.5	57.9	58.0	54.2	56.8	57.8	52.9	52.9	54.0	57.6	57.9	56.6	56.6	54.4	56.2	57.6
7:15 AM	63.0	59.5	62.5	53.5	62.7	63.0	57.2	59.6	57.8	61.8	56.4	62.0	58.0	57.4	57.6	57.9	58.0	54.2	56.8	57.8	52.9	52.9	54.0	57.6	57.9	56.4	56.4	54.3	56.3	57.7
7:30 AM	63.0	59.9	62.5	54.3	62.7	63.0	57.5	59.8	57.8	61.8	56.9	62.1	58.0	57.5	57.7	57.9	58.0	54.2	56.8	57.8	52.8	52.8	54.0	57.6	57.9	56.4	56.4	53.9	56.5	57.7
7:45 AM	63.0	60.0	62.5	54.7	62.7	63.0	57.8	60.0	57.8	61.8	57.6	62.2	58.0	57.5	57.7	57.9	58.0	54.4	56.8	57.8	53.1	53.1	54.1	57.6	57.9	56.4	56.4	54.3	57.0	57.8
8:00 AM	63.0	59.8	62.5	54.8	62.7	63.0	57.8	60.0	57.7	61.7	57.8	62.2	58.0	57.5	57.7	57.9	58.0	54.4	56.8	57.8	53.3	53.3	54.1	57.6	57.9	56.7	56.7	54.2	57.1	57.8
8:15 AM	63.0	59.9	62.5	54.5	62.7	63.0	57.7	59.9	57.8	61.8	57.7	62.2	58.0	57.4	57.6	57.9	58.0	54.5	56.9	57.8	53.3	53.3	54.1	57.6	57.9	56.7	56.7	54.1	57.1	57.8
8:30 AM	63.0	59.5	62.5	54.2	62.7	63.0	57.4	59.7	57.9	61.8	56.9	62.1	58.0	57.6	57.8	57.9	58.0	54.2	56.8	57.8	52.8	52.8	53.9	57.6	57.9	56.5	56.5	53.9	56.9	57.8
8:45 AM	63.0	59.6	62.5	54.0	62.7	63.0	57.6	59.8	57.8	61.8	57.2	62.2	58.0	57.6	57.8	57.9	58.0	54.4	56.8	57.8	53.2	53.2	54.0	57.6	57.9	56.7	56.7	54.1	56.9	57.8
9:00 AM	63.0	59.8	62.5	55.2	62.7	63.0	57.9	60.0	57.8	61.8	57.8	62.2	58.0	57.1	57.5	57.9	58.0	54.7	56.9	57.8	53.8	53.8	54.2	57.6	57.9	57.0	57.0	54.3	56.7	57.7
9:15 AM	63.0	59.7	62.5	55.8	62.8	63.0	57.7	59.9	57.8	61.8	57.7	62.2	58.0	57.5	57.7	57.9	58.0	54.7	56.9	57.8	53.7	53.7	54.2	57.6	57.9	56.8	56.8	54.2	56.6	57.7
Density (pc/mi/ln)																														
5:30 AM	8.6	9.4	9.6	8.8	9.7	12.9	15.4	13.7	18.1	13.0	14.6	13.4	11.0	13.3	9.7	11.8	9.3	11.9	11.0	13.6	12.3	15.5	18.6	13.1	10.8	11.0	12.0	16.4	11.9	6.2
5:45 AM	10.0	11.6	11.2	10.3	11.1	14.8	17.1	15.6	20.1	14.8	16.8	15.3	12.5	15.1	10.8	12.8	10.2	12.7	12.1	15.2	13.5	17.1	20.0	14.4	11.7	11.9	12.8	17.2	12.5	7.3
6:00 AM	11.0	12.5	12.0	11.1	12.0	16.0	18.2	16.8	21.3	16.1	18.2	16.5	13.5	15.8	11.9	14.1	11.2	13.1	12.9	16.3	14.4	18.3	21.0	15.9	12.7	12.9	13.6	18.9	13.0	7.3
6:15 AM	17.0	18.9	17.1	16.4	17.2	23.0	24.2	23.8	27.8	22.8	23.9	25.9	18.9	21.0	16.9	20.1	15.9	17.3	18.1	22.5	19.7	25.4	26.7	21.4	17.0	17.3	17.6	23.6	16.0	11.2
6:30 AM	16.1	19.0	17.0	17.0	16.9	22.5	24.6	23.9	27.9	22.6	23.8	25.7	18.7	20.5	16.9	20.4	16.8	19.8	20.0	25.2	22.3	28.9	29.0	24.8	20.1	20.6	20.8	27.2	17.7	11.6
6:45 AM	16.2	18.3	16.6	16.8	15.7	20.9	23.5	22.5	26.6	21.7	23.9	23.4	17.9	19.8	16.1	19.1	15.7	19.0	18.9	23.9	21.7	27.7	28.3	23.8	19.2	19.6	19.7	25.8	17.3	12.7
7:00 AM	15.8	17.1	15.8	16.3	15.1	20.1	23.2	22.0	26.1	21.3	24.0	22.5	17.6	19.2	16.2	19.4	16.0	20.4	19.9	25.4	23.2	29.9	29.6	25.9	20.6	21.1	20.8	27.2	18.7	14.1
7:15 AM	15.6	15.1	14.7	14.9	13.8	18.4	22.2	20.7	24.8	20.1	23.9	20.5	17.0	18.3	15.8	19.1	16.1	20.3	19.9	25.3	23.6	30.2	29.7	26.4	21.2	21.8	21.5	28.0	18.8	14.8
7:30 AM	13.1	11.3	12.0	12.1	11.3	15.1	20.6	18.2	22.5	17.7	21.7	19.0	16.3	17.5	15.3	18.5	15.9	19.9	19.6	25.1	24.3	30.7	30.1	26.7	22.1	22.7	22.1	29.8	18.6	15.6
7:45 AM	11.7	10.0	10.8	10.9	10.0	13.4	18.5	16.1	20.5	15.6	19.0	16.9	14.3	15.6	13.5	16.4	14.6	18.6	18.0	23.3	23.2	28.9	28.9	25.4	21.1	21.6	21.4	27.8	17.6	16.3
8:00 AM	11.3	10.5	11.0	10.9	10.0	13.4	18.1	15.8	20.2	15.2	18.3	16.3	13.9	15.3	13.2	16.0	13.9	18.9	17.8	23.0	21.8	27.5	28.0	24.0	19.7	20.2	19.9	27.0	16.2	15.4
8:15 AM	12.6	11.5	11.9	11.8	10.9	14.5	18.8	16.7	21.1	16.1	18.9	17.0	14.4	16.0	13.4	16.0	14.1	18.5	17.7	22.8	21.3	26.9	27.6	23.4	19.2	19.6	19.4	26.7	15.8	14.5
8:30 AM	14.7	14.6	14.2	13.9	13.0	17.3	20.6	19.1	23.4	18.7	22.1	19.5	16.4	17.3	15.7	19.4	16.5	20.2	20.0	25.9	24.0	30.8	30.2	26.4	21.2	21.7	21.3	28.9	17.4	15.5
8:45 AM	14.0	14.1	13.7	13.5	12.4	16.6	19.6	18.1	22.5	17.5	20.7	18.4	15.3	16.5	14.5	17.6	14.7	19.4	18.6	23.7	21.8	27.8	28.4	23.5	19.1	19.5	19.6	26.3	16.0	13.8
9:00 AM	12.3	11.4	11.8	11.5	11.0	14.7	18.0	16.2	20.6	15.7	18.5	16.6	13.9	16.0	12.5	14.7	12.6	16.4	15.6	19.9	18.2	22.9	24.7	20.0	16.2	16.5	17.0	23.1	14.5	10.6
9:15 AM	12.1	12.2	12.1	11.6	11.7	15.6	18.4	16.9	21.2	16.3	19.1	17.2	14.2	15.7	13.3	16.1	13.4	16.4	16.1	20.5	18.7	23.6	25.2	20.8	16.9	17.3	17.7	24.0	14.8	10.8
Density LOS																														
5:30 AM	A	A	A	A	A	B	B	B	B	B	B	B	A	B	A	B	A	B	A	B	B	B	B	B	A	A	B	B	B	A
5:45 AM	A	B	B	B	B	B	B	B	C	B	B	B	B	B	A	B	A	B	B	B	B	B	B	B	B	B	B	B	B	A
6:00 AM	A	B	B	B	B	B	B	B	C	B	B	B	B	B	B	B	B	B	B	B	B	C	C	B	B	B	B	B	B	A
6:15 AM	B	B	B	B	B	C	C	C	C	C	C	C	C	C	B	C	B	B	C	C	B	C	C	C	B	B	B	C	B	B
6:30 AM	B	B	B	B	B	C	C	C	C	C	C	C	C	C	B	C	B	B	C	C	C	D	D	C	C	C	C	C	B	B
6:45 AM	B	B	B	B	B	C	C	C	C	C	C	C	B	B	B	C	B	B	C	C	C	D	D	C	C	C	B	C	B	B
7:00 AM	B	B	B	B	B	C	C	C	C	C	C	C	B	B	B	C	B	C	C	C	C	D	D	C	C	C	C	C	B	B
7:15 AM	B	B	B	B	B	C	C	C	C	C	C	C	B	B	B	C	B	C	C	C	C	D	D	D	C	C	C	C	B	B
7:30 AM	B	B	B	B	B	B	C	C	C	B	C	C	B	B	B	C	B	B	C	C	C	D	D	D	C	C	C	D	B	B
7:45 AM	B	A	A	B	A	B	B	B	C	B	B	B	B	B	B	B	B	B	B	C	C	D	D	C	C	C	C	C	B	B
8:00 AM	B	B	A	B	A	B	B	B	C	B	B	B	B	B	B	B	B	B	B	C	C	D	C	C	C	C	B	C	B	B
8:15 AM	B	B	B	B	A	B	B	B	C	B	B	B	B	B	B	B	B	B	B	C	C	D	C	C	C	C	B	C	B	B
8:30 AM	B	B	B	B	B	B	C	C	C	C	C	C	B	B	B	C	B	C	C	C	C	D	D	D	C	C	C	D	B	B
8:45 AM	B	B	B	B	B	B	B	C	C	B	C	C	B	B	B	B	B	B	B	C	C	D	D	C	C	C	B	C	B	B
9:00 AM	B	B	B	B	A	B	B	B	C	B	B	B	B	B	B	B	B	B	B	C	B	C	C	C	B	B	B	C	B	A
9:15 AM	B	B	B	B	B	B	B	B	C	B	B	B	B	B	B	B	B	B	B	C	B	C	C	C	B	B	B	C	B	A

Notes
*Demand/capacity ratio > 1.0

**Segment anayzed as "basic" due to geometry and segmentation

B - Basic
M - Merge
O - Overlap (Basic)
D - Diverge
W - Weave

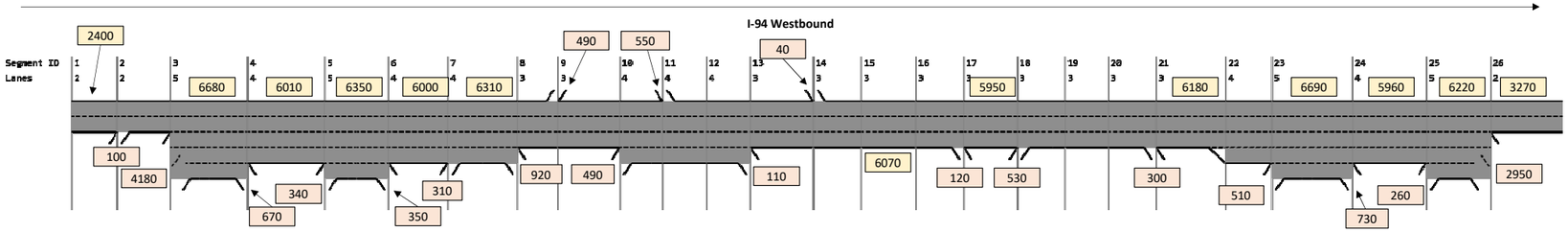
- Mainline Peak Hour Volume (6:30-7:30AM)

- Ramp Peak Hour Volume (6:30-7:30AM)

Legend (HCM6)					
Color	LOS	Speed (mph)	Density (pcphpl)		
			Basic	Ramp	Weave
	A	> 60	0-11	0-10	0-10
	B		11-18	10-20	10-20
	C	50 - 60	18-26	20-28	20-28
	D	40 - 50	26-35	28-35	28-35
	E	30 - 40	35-45	35-43	35-43
	F	< 30	45+	43+	43+

I-94 East-West Data Collection Project
Existing (2019) AM Peak Period
HCS Facilities Analysis Summary: I-94 WB

AM WB 70%



ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
Segment	Marquette Int E-W System Movement	11th St Entr Ramp	Marquette Int N-W/S-W System Ramps to 25th St Exit Ramp	25th St Exit Ramp to 28th St Entr Ramp	28th St Entr Ramp to 35th St Exit Ramp	35th St Exit Ramp to 35th St Entr Ramp	35th St Entr Ramp to Stadium Int E-N System Ramp	Stadium Int E-S System Ramp	Stadium Int E-W System Movement	Stadium Int N-W System Ramp	Stadium Int S-W System Ramp	Stadium Int S-W System Ramp	Stadium Int S-W System Ramp to Gen Mitchell Blvd Entr Ramp	Gen Mitchell Blvd Entr Ramp	Gen Mitchell Blvd Entr Ramp to Hawley Rd Exit Ramp	Hawley Rd Exit Ramp	Hawley Rd Exit Ramp to Hawley Rd Entr Ramp	Hawley Rd Entr Ramp	Hawley Rd Entr Ramp to 68th St Exit Ramp	68th St Exit Ramp	68th St Exit Ramp to Lane Add	Lane Add to 70th St Entr Ramp	70th St Entr Ramp to 84th St Exit Ramp	84th St Exit Ramp to 84th St Entr Ramp	84th St Entr Ramp to Zoo Int E-N/E-S System Ramps	Zoo Int E-W System Movement
Type	B	M**	W	B	W	B	W	D	B	M**	M	D**	B	M	O	D	B	M	O	D	B	B	W	B	W	B
Speed (MPH)																										
5:30 AM	58.0	53.6	52.6	57.9	52.3	57.5	51.8	56.1	57.4	57.9	55.1	56.1	59.9	56.3	56.5	56.5	59.6	56.3	58.1	56.4	60.4	60.9	54.5	60.9	55.5	60.7
5:45 AM	58.0	53.6	52.2	57.9	52.5	57.5	51.8	56.0	57.4	57.8	55.2	56.1	59.9	56.3	56.4	56.4	59.6	56.4	58.2	56.2	60.3	60.9	54.8	60.9	55.8	60.8
6:00 AM	58.0	53.5	52.3	57.9	51.8	57.4	50.9	56.2	57.5	57.9	54.9	55.9	59.8	56.1	56.1	56.5	59.6	56.1	58.0	56.4	60.4	60.9	54.1	60.9	55.6	60.7
6:15 AM	58.0	53.5	51.5	57.9	49.9	57.2	48.4	56.1	57.5	57.9	54.3	55.5	59.7	55.3	55.3	56.4	59.6	55.2	57.5	56.2	60.3	60.9	51.1	60.8	55.2	60.7
6:30 AM	58.0	53.4	51.4	57.9	49.5	57.2	47.7	56.0	57.4	57.8	54.1	55.4	59.7	54.9	54.9	56.4	59.6	54.8	57.2	56.2	60.3	60.9	49.4	60.8	55.0	60.7
6:45 AM	58.0	53.4	50.7	57.9	50.0	57.3	47.5	56.0	57.4	57.8	54.4	55.6	59.8	55.4	55.4	56.4	59.6	55.3	57.5	56.3	60.4	60.9	50.4	60.8	55.4	60.7
7:00 AM	58.0	53.3	50.6	57.9	49.5	57.2	46.8	55.8	57.4	57.8	54.1	55.4	59.7	54.9	54.9	56.3	59.5	54.7	57.2	56.0	60.3	60.9	49.4	60.8	55.2	60.7
7:15 AM	58.0	53.2	49.7	57.9	49.2	57.2	45.6	55.6	57.3	57.8	53.8	55.2	59.7	54.5	54.5	56.3	59.5	54.3	56.9	55.9	60.3	60.9	48.5	60.8	54.9	60.7
7:30 AM	58.0	53.2	49.3	57.9	50.2	57.3	46.6	55.8	57.4	57.8	54.3	55.5	59.7	55.2	55.2	56.4	59.6	54.9	57.3	56.0	60.3	60.9	49.1	60.8	55.1	60.7
7:45 AM	58.0	53.1	49.9	57.9	49.9	57.2	46.5	55.8	57.3	57.8	54.3	55.5	59.7	55.3	55.3	56.4	59.6	55.1	57.4	56.1	60.3	60.9	49.9	60.8	55.2	60.7
8:00 AM	58.0	53.4	50.8	57.9	50.5	57.3	47.5	56.0	57.4	57.8	54.5	55.7	59.8	55.6	55.6	56.3	59.5	55.5	57.6	56.0	60.3	60.9	51.2	60.8	55.4	60.7
8:15 AM	58.0	53.3	51.1	57.9	50.1	57.3	47.3	55.9	57.4	57.8	54.5	55.7	59.8	55.6	55.6	56.4	59.6	55.5	57.6	56.1	60.3	60.9	51.4	60.8	55.2	60.7
8:30 AM	58.0	53.3	51.0	57.9	50.1	57.3	47.5	56.0	57.4	57.8	54.4	55.6	59.8	55.4	55.4	56.4	59.6	55.3	57.5	56.1	60.3	60.9	51.6	60.8	55.2	60.7
8:45 AM	58.0	53.4	51.2	57.9	50.4	57.3	48.1	56.1	57.4	57.9	54.4	55.6	59.8	55.5	55.5	56.3	59.5	55.5	57.6	56.1	60.3	60.9	52.3	60.9	55.2	60.7
9:00 AM	58.0	53.5	51.7	57.9	51.3	57.4	49.5	56.0	57.4	57.8	54.9	55.9	59.8	56.0	56.0	56.5	59.6	56.0	57.9	56.1	60.3	60.9	53.3	60.9	55.6	60.7
9:15 AM	58.0	53.5	52.0	57.9	51.4	57.4	49.2	56.0	57.4	57.8	54.9	55.9	59.8	56.1	56.1	56.5	59.6	56.0	57.9	56.2	60.3	60.9	53.7	60.9	55.5	60.7
Density (pc/mi/ln)																										
5:30 AM	6.3	6.8	9.3	9.7	9.6	10.4	12.6	19.4	12.8	10.9	14.1	12.2	15.3	18.2	16.6	16.2	15.2	17.8	16.7	20.9	16.1	12.1	11.7	12.4	11.1	11.8
5:45 AM	7.1	7.5	10.4	10.2	9.8	10.6	12.8	19.6	12.5	10.4	13.5	11.6	14.5	17.4	15.7	15.4	14.2	16.5	15.4	19.6	14.6	11.0	10.4	10.6	9.6	10.4
6:00 AM	8.3	8.8	10.9	11.3	11.3	12.0	14.8	21.4	14.6	12.3	14.9	13.5	16.9	19.7	18.4	17.8	16.6	18.9	18.0	22.2	17.3	13.0	12.3	12.5	11.4	12.4
6:15 AM	11.2	11.4	15.2	15.5	15.8	16.2	21.3	26.7	19.8	16.6	18.8	18.2	22.8	25.2	25.2	23.2	22.4	24.0	24.0	27.5	22.8	17.1	17.3	16.3	14.8	16.5
6:30 AM	12.4	12.6	17.4	17.9	18.0	18.1	23.3	27.7	20.6	17.8	20.1	19.7	24.6	27.0	27.5	24.7	24.3	26.3	26.4	29.5	25.6	19.2	20.5	18.7	17.2	19.9
6:45 AM	13.6	13.5	18.7	18.1	17.6	17.8	22.8	26.8	19.0	16.1	18.6	17.9	22.2	24.8	24.7	22.8	21.9	23.9	23.8	27.3	22.7	17.0	17.8	16.5	15.0	18.5
7:00 AM	16.1	15.9	19.9	19.8	19.6	19.8	25.6	29.0	21.5	18.3	19.8	19.8	24.7	27.1	27.6	24.9	24.3	26.3	26.4	29.6	25.0	18.8	19.9	17.9	16.5	20.3
7:15 AM	17.6	17.5	22.0	20.8	20.6	20.6	27.6	29.4	22.6	19.5	21.2	21.3	26.6	29.1	30.1	26.5	26.3	28.4	29.1	31.5	27.3	20.4	22.3	20.0	18.6	22.5
7:30 AM	16.6	16.5	18.7	16.2	16.1	16.5	22.0	24.3	17.6	16.0	19.5	18.3	23.0	26.0	26.0	23.7	23.0	26.2	25.9	29.3	24.2	18.1	20.2	18.5	17.4	21.1
7:45 AM	18.2	18.0	18.0	16.7	16.6	16.8	22.2	24.4	17.3	15.7	19.1	17.9	22.4	25.5	25.3	23.3	22.4	24.8	24.6	28.2	23.0	17.2	18.7	17.5	16.4	19.2
8:00 AM	14.0	14.2	16.1	15.4	15.3	15.8	20.4	23.8	16.3	14.6	17.8	16.5	20.6	23.4	22.9	21.5	20.2	22.8	22.3	26.3	20.6	15.4	16.2	15.5	14.4	16.8
8:15 AM	14.3	14.5	16.1	16.2	16.2	16.7	21.4	24.6	17.3	15.1	17.4	16.6	20.7	23.4	22.9	21.5	20.2	22.5	22.1	26.0	20.4	15.3	15.9	15.4	14.3	15.2
8:30 AM	14.5	14.8	17.1	17.1	17.0	17.6	22.6	26.7	19.2	16.3	18.0	17.6	22.1	24.8	24.6	22.7	21.7	23.6	23.4	27.2	21.9	16.5	16.8	16.6	15.2	16.6
8:45 AM	12.9	13.8	16.7	16.8	16.5	17.2	21.8	26.5	18.7	16.0	17.8	17.3	21.6	24.2	23.9	22.3	21.1	22.9	22.7	26.6	21.1	15.8	15.7	15.6	14.3	15.4
9:00 AM	9.4	10.4	13.7	13.8	13.5	14.2	17.6	23.1	15.2	12.8	15.1	13.9	17.5	20.6	19.4	18.7	17.2	19.3	18.6	22.9	17.1	12.9	12.6	12.5	11.5	12.2
9:15 AM	9.7	10.8	13.1	13.5	13.2	14.0	17.7	23.0	15.3	12.9	15.0	13.9	17.4	20.3	19.1	18.5	17.0	19.2	18.4	22.7	17.3	13.0	12.5	12.6	11.5	12.3
Density LOS																										
5:30 AM	A	A	A	A	A	A	B	B	B	A	B	B	B	B	B	B	B	B	B	C	B	B	B	B	B	B
5:45 AM	A	A	B	A	A	A	B	B	B	A	B	B	B	B	B	B	B	B	B	B	B	A	B	A	A	A
6:00 AM	A	A	B	B	B	B	B	C	B	B	B	B	B	B	C	B	B	B	B	C	B	B	B	B	B	B
6:15 AM	B	B	B	B	B	B	C	C	C	B	B	C	C	C	C	C	C	C	C	C	C	B	B	B	B	B
6:30 AM	B	B	B	B	B	C	C	C	C	B	C	C	C	C	D	C	C	C	D	D	C	C	C	C	B	C
6:45 AM	B	B	B	C	B	B	C	C	C	B	B	B	C	C	C	C	C	C	C	C	C	B	B	B	B	C
7:00 AM	B	B	B	C	B	C	C	D	C	C	B	C	C	C	D	C	C	C	D	D	C	C	B	B	B	C
7:15 AM	B	B	C	C	C	C	C	D	C	C	C	C	D	D	D	C	D	D	D	D	D	C	C	C	B	C
7:30 AM	B	B	B	B	B	B	C	C	B	B	B	C	C	C	C	C	C	C	C	D	C	C	C	C	B	C
7:45 AM	C	B	B	B	B	B	C	C	B	B	B	B	C	C	C	C	C	C	C	D	C	B	B	B	B	C
8:00 AM	B	B	B	B	B	B	C	C	B	B	B	B	C	C	C	C	C	C	C	C	C	B	B	B	B	B
8:15 AM	B	B	B	B	B	B	C	C	B	B	B	B	C	C	C	C	C	C	C	C	C	B	B	B	B	B
8:30 AM	B	B	B	B	B	B	C	C	C	B	B	B	C	C	C	C	C	C	C	C	C	B	B	B	B	B
8:45 AM	B	B	B	B	B	B	C	C	C	B	B	B	C	C	C	C	C	C	C	C	C	B	B	B	B	B
9:00 AM	A	B	B	B	B	B	B	C	B	B	B	B	B	C	C	B	B	B	C	C	B	B	B	B	B	B
9:15 AM	A	B	B	B	B	B	B	C	B	B	B	B	B	C	C	B	B	B	C	C	B	B	B	B	B	B

Notes
*Demand/capacity ratio > 1.0
**Segment anayzed as "basic" due to geometry and segmentatior
B - Basic
M - Merge
O - Overlap (Basic)
D - Diverge
W - Weave

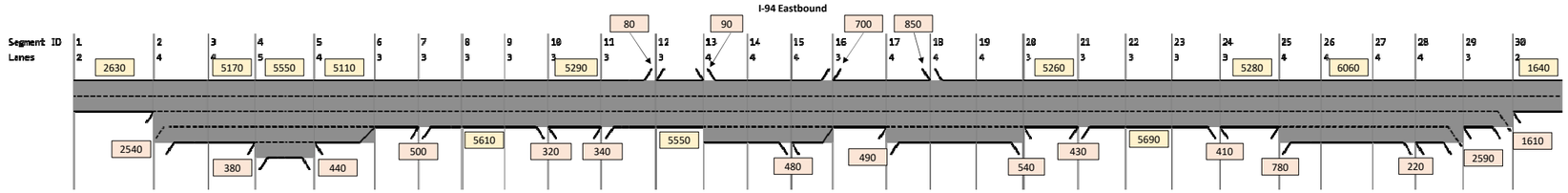
- Mainline Peak Hour Volume (6:30-7:30AM)

- Ramp Peak Hour Volume (6:30-7:30AM)

Legend (HCM6)					
Color	LOS	Speed (mph)	Density (pcphpl)		
			Basic	Ramp	Weave
	A	> 60	0-11	0-10	0-10
	B		11-18	10-20	10-20
	C	50 - 60	18-26	20-28	20-28
	D	40 - 50	26-35	28-35	28-35
	E	30 - 40	35-45	35-43	35-43
	F	< 30	45+	43+	43+

I-94 East-West Data Collection Project
Existing (2019) PM Peak Period
HCS Facilities Analysis Summary: I-94 EB

PM EB 70%



ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Segment	Zoo Int W-E System Movement	Zoo Int S-E/N-E System Ramps	Zoo Int S-E/N-E System Ramps to 84th St Entr Ramp	84th St Entr Ramp to 70th St Exit Ramp	70th St Exit Ramp to Lane Merge	Lane Merge to 68th St Entr Ramp	68th St Entr Ramp	68th St Entr Ramp to Hawley Rd Exit Ramp	Hawley Rd Exit Ramp	Hawley Rd Exit Ramp to Hawley Rd Entr Ramp	Hawley Rd Entr Ramp to Gen Mitchell Blvd Exit Ramp	Gen Mitchell Blvd Exit Ramp to Gen Mitchell Blvd Entr Ramp	Gen Mitchell Blvd Entr Ramp	Stadium Int W-S System Ramp	Stadium Int W-N System Ramp	Stadium Int W-E System Movement	Stadium Int S-E System Ramp	Stadium Int N-E System Ramp	35th St Exit Ramp	35th St Exit Ramp to 35th St Entr Ramp	35th St Entr Ramp	35th St Entr Ramp to 26th St Exit Ramp	26th St Exit Ramp	26th St Exit Ramp to 25th St Entr Ramp	25th St Entr Ramp	25th St Entr Ramp to 13th St Exit Ramp	13th St Exit Ramp	Marquette Int W-N System Ramp	Marquette Int W-S System Ramp	Marquette Int W-E System Movement
Type	B	M**	B	W	B	B	M	O	D	B	W	B	M**	D	D**	B	M**	M	D**	B	M	O	D	B	M**	O	D	D**	D**	B
Speed (MPH)																														
1:30 PM	63.0	59.6	62.5	55.9	62.8	63.0	57.6	59.8	57.6	61.7	57.4	62.2	58.0	57.1	57.5	57.9	58.0	54.7	56.9	57.8	53.8	53.8	53.9	57.6	57.9	56.9	56.9	54.1	55.9	57.6
1:45 PM	63.0	59.6	62.5	55.8	62.8	63.0	57.5	59.8	57.6	61.7	57.3	62.2	58.0	57.2	57.5	57.9	58.0	54.7	56.9	57.8	53.8	53.8	53.9	57.6	57.9	57.0	57.0	54.5	55.7	57.5
2:00 PM	63.0	59.4	62.4	55.1	62.7	63.0	57.4	59.7	57.6	61.7	57.0	62.1	58.0	57.2	57.5	57.9	58.0	54.7	56.9	57.8	53.7	53.7	54.0	57.6	57.9	57.0	57.0	54.6	55.5	57.5
2:15 PM	63.0	59.3	62.4	55.1	62.7	63.0	57.1	59.5	57.6	61.7	56.5	62.1	58.0	57.1	57.5	57.9	58.0	54.5	56.9	57.8	53.5	53.5	54.0	57.6	57.9	56.8	56.8	54.5	55.2	57.4
2:30 PM	63.0	59.4	62.4	55.1	62.7	63.0	57.1	59.5	57.6	61.7	56.8	62.1	58.0	57.1	57.5	57.9	58.0	54.4	56.8	57.8	53.4	53.4	54.0	57.6	57.9	56.7	56.7	54.2	55.1	57.4
2:45 PM	63.0	59.4	62.4	54.7	62.7	63.0	57.0	59.5	57.5	61.7	56.8	62.1	58.0	57.1	57.5	57.9	58.0	54.5	56.9	57.8	53.5	53.5	54.0	57.6	57.9	56.9	56.9	54.5	55.1	57.4
3:00 PM	63.0	59.4	62.4	54.4	62.7	63.0	57.1	59.5	57.6	61.7	56.4	62.0	58.0	57.2	57.5	57.9	58.0	54.5	56.9	57.8	53.4	53.4	54.1	57.6	57.9	56.8	56.8	54.4	55.1	57.4
3:15 PM	63.0	59.0	62.4	53.6	62.7	63.0	56.7	59.3	57.6	61.7	56.5	62.1	58.0	56.9	57.3	57.8	58.0	54.3	56.8	57.8	53.2	53.2	54.0	57.6	57.9	56.6	56.6	54.2	55.4	57.5
3:30 PM	63.0	59.4	62.4	53.7	62.7	63.0	56.9	59.4	57.5	61.7	56.5	62.1	58.0	57.0	57.4	57.8	58.0	54.4	56.8	57.8	53.4	53.4	54.0	57.6	57.9	56.8	56.8	54.1	55.9	57.6
3:45 PM	63.0	59.4	62.4	53.0	62.7	63.0	56.9	59.4	57.5	61.7	56.4	62.0	58.0	57.0	57.4	57.8	58.0	54.4	56.8	57.8	53.4	53.4	54.1	57.6	57.9	56.9	56.9	54.5	56.2	57.6
4:00 PM	63.0	59.4	62.4	53.5	62.7	63.0	56.8	59.4	57.5	61.7	56.4	62.0	58.0	57.1	57.5	57.9	58.0	54.3	56.8	57.8	53.2	53.2	54.0	57.6	57.9	56.8	56.8	54.1	56.1	57.6
4:15 PM	63.0	59.5	62.5	53.3	62.7	63.0	56.9	59.4	57.6	61.7	56.5	62.1	58.0	57.1	57.5	57.9	58.0	54.3	56.8	57.8	53.1	53.1	54.0	57.6	57.9	56.7	56.7	54.7	56.5	57.7
4:30 PM	63.0	59.5	62.5	52.4	62.6	63.0	57.2	59.6	57.7	61.7	56.5	62.1	58.0	57.3	57.6	57.9	58.0	54.5	56.9	57.8	53.3	53.3	54.1	57.6	57.9	56.7	56.7	54.4	56.5	57.7
4:45 PM	63.0	59.6	62.5	52.4	62.6	63.0	57.3	59.7	57.7	61.7	56.9	62.1	58.0	57.4	57.6	57.9	58.0	54.5	56.9	57.8	53.4	53.4	54.1	57.6	57.9	56.8	56.8	55.0	56.8	57.8
5:00 PM	63.0	59.7	62.5	52.2	62.6	63.0	57.4	59.7	57.7	61.7	56.8	62.1	58.0	57.4	57.6	57.9	58.0	54.5	56.9	57.8	53.4	53.4	54.1	57.6	57.9	56.8	56.8	55.1	57.0	57.8
5:15 PM	63.0	59.8	62.5	52.2	62.6	63.0	57.6	59.8	57.8	61.8	57.3	62.2	58.0	57.4	57.6	57.9	58.0	54.5	56.9	57.8	53.4	53.4	54.2	57.6	57.9	56.9	56.9	55.0	57.0	57.8
5:30 PM	63.0	59.6	62.5	52.1	62.6	63.0	57.3	59.7	57.8	61.8	56.8	62.1	58.0	57.5	57.7	57.9	58.0	54.4	56.8	57.8	53.2	53.2	54.1	57.6	57.9	56.8	56.8	55.3	56.9	57.8
5:45 PM	63.0	59.7	62.5	53.7	62.7	63.0	57.4	59.7	57.7	61.7	57.0	62.1	58.0	57.6	57.8	57.9	58.0	54.5	56.9	57.8	53.4	53.4	54.1	57.6	57.9	56.9	56.9	55.2	56.9	57.8
6:00 PM	63.0	59.5	62.5	54.2	62.7	63.0	57.4	59.7	57.7	61.7	56.9	62.1	58.0	57.4	57.6	57.9	58.0	54.5	56.9	57.8	53.4	53.4	54.1	57.6	57.9	56.9	56.9	54.7	56.5	57.7
6:15 PM	63.0	59.7	62.5	54.8	62.7	63.0	57.5	59.8	57.7	61.7	57.3	62.2	58.0	57.6	57.8	57.9	58.0	54.6	56.9	57.8	53.6	53.6	54.1	57.6	57.9	57.1	57.1	54.7	56.6	57.7
Density (pc/mi/ln)																														
1:30 PM	12.1	12.7	12.4	12.0	12.4	16.5	19.8	18.2	22.7	17.1	20.0	17.8	14.7	16.7	13.3	15.8	13.4	16.4	16.1	19.8	18.0	22.8	24.7	19.0	16.1	16.4	17.1	23.2	14.9	8.3
1:45 PM	12.2	12.7	12.4	12.1	12.5	16.6	20.1	18.4	22.9	17.4	20.3	18.0	14.8	16.7	13.5	15.8	13.6	16.4	16.2	20.3	18.4	23.3	25.1	19.4	16.3	16.6	17.1	23.0	15.9	8.7
2:00 PM	12.0	14.0	13.1	13.1	13.2	17.6	21.0	19.5	23.9	18.4	21.6	19.2	15.8	17.5	14.5	16.8	14.2	16.6	16.7	20.6	18.9	23.9	25.5	20.2	17.1	17.4	17.7	23.6	17.2	9.2
2:15 PM	13.5	15.7	14.5	14.2	14.4	19.2	22.5	21.2	25.4	20.1	23.7	20.9	17.2	19.1	15.5	18.0	15.1	18.3	18.1	22.2	20.2	25.7	26.7	21.7	18.2	18.6	18.6	25.0	18.5	9.6
2:30 PM	15.0	15.7	14.9	14.5	14.8	19.7	22.8	21.5	25.8	20.3	22.3	23.3	17.8	19.5	16.2	18.8	15.7	18.2	18.5	22.4	20.3	25.9	26.9	22.0	19.5	19.9	19.8	26.5	19.1	10.0
2:45 PM	15.6	15.8	15.1	14.9	14.9	19.9	22.8	21.6	25.9	20.3	22.3	23.3	17.6	19.3	16.1	18.4	15.4	17.5	17.9	21.4	19.8	25.0	26.2	21.4	18.2	18.5	18.6	24.8	18.5	9.2
3:00 PM	14.8	15.6	14.8	14.7	14.7	19.6	22.7	21.4	25.7	20.2	23.9	21.0	17.4	19.0	15.9	18.7	15.5	17.8	18.1	22.3	21.0	26.4	27.2	22.8	19.5	19.9	19.7	26.5	19.4	10.5
3:15 PM	17.1	17.6	16.6	16.7	16.3	21.7	24.8	23.7	27.7	22.5	23.9	25.7	19.5	21.1	17.9	20.5	16.7	19.0	19.5	23.6	22.0	27.9	28.2	24.0	20.2	20.7	20.4	27.5	19.3	11.3
3:30 PM	16.1	15.6	15.1	15.5	15.0	20.0	24.0	22.6	26.8	21.1	23.9	23.4	18.6	20.3	16.9	19.0	15.4	18.4	18.4	22.6	21.2	26.7	27.5	23.0	19.7	20.1	19.7	27.2	18.4	12.2
3:45 PM	17.1	15.9	15.6	16.1	15.1	20.1	24.0	22.6	26.8	21.2	23.9	23.2	18.2	20.2	16.3	18.6	15.4	18.0	18.2	22.4	21.2	26.7	27.4	23.0	19.1	19.4	19.0	26.0	18.0	13.2
4:00 PM	16.1	15.6	15.1	15.6	15.1	20.1	24.4	22.8	27.0	21.5	24.0	23.7	18.7	20.3	17.1	19.4	16.0	18.4	18.7	23.2	21.9	27.7	28.1	24.0	20.3	20.7	20.2	27.9	18.4	13.4
4:15 PM	17.7	15.1	15.4	15.6	14.7	19.6	24.1	22.5	26.6	21.3	23.7	23.1	18.3	19.7	17.0	19.7	16.2	18.7	19.0	23.9	22.6	28.6	28.7	24.7	20.5	21.0	20.3	26.9	19.0	15.9
4:30 PM	15.7	14.5	14.4	15.1	13.3	17.7	22.3	20.4	24.7	19.6	23.4	20.5	17.2	18.7	15.9	18.2	14.9	18.2	18.0	22.4	21.6	27.0	27.5	23.5	20.4	20.9	20.2	27.4	18.5	15.3
4:45 PM	15.9	14.3	14.4	14.9	12.8	17.0	21.4	19.6	23.9	18.8	22.1	19.3	16.1	17.5	15.0	17.4	14.5	18.0	17.6	22.2	21.3	26.7	27.3	23.3	19.8	20.2	19.7	25.7	18.3	16.4
5:00 PM	16.1	13.4	14.0	14.8	12.6	16.8	21.1	19.2	23.6	18.5	22.1	19.4	16.2	17.7	15.0	17.6	14.5	17.9	17.6	21.9	21.0	26.3	27.0	23.0	20.0	20.4	20.0	25.5	18.0	18.0
5:15 PM	15.6	12.8	13.5	14.1	11.7	15.6	20.1	18.1	22.4	17.5	20.3	18.0	15.1	16.6	14.1	16.8	13.8	17.8	17.1	21.6	20.8	26.0	26.8	22.8	19.1	19.5	19.1	25.1	17.5	16.6
5:30 PM	14.9	13.9	13.9	14.7	12.5	16.6	21.6	19.5	23.8	18.9	22.3	19.8	16.7	17.7	15.8	18.8	15.3	18.4	18.4	23.2	21.7	27.5	27.8	24.1	20.1	20.6	20.0	25.1	18.8	19.0
5:45 PM	14.9	13.5	13.7	13.8	12.8	17.0	21.0	19.2	23.6	18.4	21.6	19.2	16.0	17.2	15.2	17.8	14.6	17.7	17.6	22.1	20.9	26.3	27.1	22.9	19.0	19.3	19.0	24.5	17.9	16.6
6:00 PM	13.6	14.3	13.7	13.9	13.4	17.9	21.3	19.8	24.1	19.0	22.2	19.7	16.7	18.1	15.5	18.8	15.2	17.3	17.6	22.4	20.8	26.4	27.1	22.9	18.9	19.3	18.9	25.5	17.7	14.1
6:15 PM	12.7	12.7	12.6	12.6	12.3	16.4	20.0	18.3	22.7	17.4	20.4	18.3	15.3	16.4	14.5	17.6	14.3	17.1	17.0	21.2	19.6	24.7	26.0	21.3	17.6	17.9	17.7	24.2	16.6	13.1
Density LOS																														
1:30 PM	B	B	B	B	B	B	B	C	C	B	B	B	B	B	B	B	B	B	B	C	B	C	C	C	B	B	B	C	B	A
1:45 PM	B	B	B	B	B	B	C	C	C	B	C	B	B	B	B	B	B	B	B	C	B	C	C	C	B	B	B	C	B	A
2:00 PM	B	B	B	B	B	B	C	C	C	C	C	C	B	B	B	B	B	B	B	C	B	C	C	C	B	B	B	C	B	A
2:15 PM	B	B	B	B	B	C	C	C	C	C	C	C	B	B	B	B	B	B	C	C	C	C	C	C	C	C	B	C	B	A
2:30 PM	B	B	B	B	B	C	C	C	C	C	C	C	B	B	B	C	B	B	C	C	C	C	C	C	C	C	B	C	B	A
2:45 PM	B	B	B	B	B	C	C	C	C	C	C	C	B	B	B	C	B	B	B	C	B	C	C	C	C	C	B	C	B	A
3:00 PM	B	B	B	B	B	C	C	C	C	C	C	C	B	B	B	C	B	B	C	C	C	D	C	C	C	C	B	C	B	A
3:15 PM	B	B	B	B	B	C	C	C	C	C	C	C	C	C	B	C	B	B	C	C	C	D	D	C	C	C	C	C	B	B
3:30 PM	B	B	B	B	B	C	C	C	C	C	C	C	C	C	B	C	B	B	C	C	C	D	C	C	C	C	B	C	B	B
3:45 PM	B	B	B	B	B	C	C	C	C	C	C	C	C	C	B	C	B	B	C	C	C	D	C	C	C	C	B	C	B	B
4:00 PM	B	B	B	B	B	C	C	C	C	C	C	C	C	C	B	C	B	B	C	C	C	D	D	C	C	C	C	C	B	B
4:15 PM	B	B	B	B	B	C	C	C	C	C	C	C	C	B	B	C	B	B	C	C	C	D	D	C	C	C	C	C	B	B
4:30 PM	B	B	B	B	B	B	C	C	C	C	C	C	B	B	B	C	B	B	B	C	C	D	C	C	C	C	C	C	B	B
4:45 PM	B	B	B	B	B	B	C	C	C	C	C	C	B	B	B	B	B	B	B	C	C	D	C	C	C	B	C	B	B	B
5:00 PM	B	B	B	B	B	B	C	C	C	C	C	C	B	B	B	B	B	B	B	C	C	D	C	C	C	B	C	B	B	B
5:15 PM	B	B	B	B	B	B	C	C	C	B	C	B	B	B	B	B	B	B	B	C	C	C	C	C	C	B	C	B	B	B
5:30 PM	B	B	B	B	B	B	C	C	C	C	C	C	B	B	B	C	B	B	C	C	C	D	C	C	C	B	C	B	C	C
5:45 PM	B	B	B	B	B	B	C	C	C	C	C	C	B	B	B	B	B	B	B	C	C	D	C	C	C	B	C	B	B	B
6:00 PM	B	B	B	B	B	B	C	C	C	C	C	C	B	B	B	C	B	B	B	C	C	D	C	C	C	B	C	B	B	B
6:15 PM	B	B	B	B	B	B	B	C	C	B	C	C	B	B	B	B	B	B	B	C	B	C	C	C	B	B	B	C	B	B

Notes
*Demand/capacity ratio > 1.0
**Segment anayzed as "basic" due to geometry and segmentation
B - Basic
M - Merge
O - Overlap (Basic)
D - Diverge
W - Weave

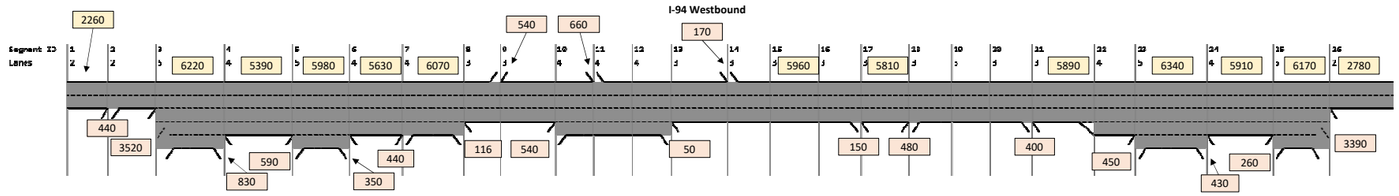
- Mainline Peak Hour Volume (6:30-7:30AM)

- Ramp Peak Hour Volume (6:30-7:30AM)

Legend (HCM6)					
Color	LOS	Speed (mph)	Density (pcphpl)		
			Basic	Ramp	Weave
	A	> 60	0-11	0-10	0-10
	B		11-18	10-20	10-20
	C	50 - 60	18-26	20-28	20-28
	D	40 - 50	26-35	28-35	28-35
	E	30 - 40	35-45	35-43	35-43
	F	< 30	45+	43+	43+

I-94 East-West Data Collection Project
Existing (2019) PM Peak Period
HCS Facilities Analysis Summary: I-94 WB

PM WB 70%



ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
Segment	Marquette Int E-W System Movement	11th St Entr Ramp	Marquette Int N-W/S-W System Ramps to 25th St Exit Ramp	25th St Exit Ramp to 28th St Entr Ramp	28th St Entr Ramp to 35th St Exit Ramp	35th St Exit Ramp to 35th St Entr Ramp	35th St Entr Ramp to Stadium Int E-N System Ramp	Stadium Int E-S System Ramp	Stadium Int E-W System Movement	Stadium Int N-W System Ramp	Stadium Int S-W System Ramp	Gen Mitchell Blvd Exit Ramp	Stadium Int S-W System Ramp to Gen Mitchell Blvd Entr Ramp	Gen Mitchell Blvd Entr Ramp	Gen Mitchell Blvd Entr Ramp to Hawley Rd Exit Ramp	Hawley Rd Exit Ramp	Hawley Rd Exit Ramp to Hawley Rd Entr Ramp	Hawley Rd Entr Ramp	Hawley Rd Entr Ramp to 68th St Exit Ramp	68th St Exit Ramp	68th St Exit Ramp to Lane Add	Lane Add to 70th St Entr Ramp	70th St Entr Ramp to 84th St Exit Ramp	84th St Exit Ramp to 84th St Entr Ramp	84th St Entr Ramp to Zoo Int E-N/E-S System Ramps	Zoo Int E-W System Movement
Type	B	M**	W	B	W	B	W	D	B	M**	M	D**	B	M	O	D	B	M	O	D	B	B	B	W	B	W	B
Speed (MPH)																										
1:30 PM	58.0	53.4	51.5	57.9	49.1	57.2	47.5	56.0	57.4	57.8	54.3	55.5	59.7	55.3	55.3	56.3	59.5	55.4	57.6	56.1	60.3	60.9	52.2	60.9	55.1	60.7
1:45 PM	58.0	53.4	51.4	57.9	49.5	57.2	47.6	56.0	57.4	57.8	54.3	55.5	59.7	55.2	55.2	56.3	59.5	55.3	57.5	56.1	60.3	60.9	52.6	60.9	55.1	60.7
2:00 PM	58.0	53.3	51.2	57.9	49.1	57.2	46.8	55.8	57.4	57.8	54.5	55.7	59.8	55.4	55.4	56.3	59.5	55.5	57.6	56.1	60.3	60.9	52.2	60.9	55.1	60.7
2:15 PM	58.0	53.3	50.7	57.9	48.9	57.2	46.7	55.8	57.4	57.8	54.2	55.5	59.7	55.1	55.1	56.4	59.6	55.2	57.5	56.1	60.3	60.9	51.9	60.9	55.0	60.7
2:30 PM	58.0	53.3	50.6	57.9	48.7	57.1	45.8	55.6	57.3	57.8	54.2	55.5	59.7	54.9	54.9	56.2	59.5	54.8	57.2	56.0	60.3	60.9	51.2	60.8	54.7	60.7
2:45 PM	58.0	53.3	50.1	57.9	48.9	57.2	45.8	55.6	57.3	57.8	54.4	55.6	59.8	55.3	55.3	56.4	59.6	55.2	57.5	56.1	60.3	60.9	51.1	60.8	55.0	60.7
3:00 PM	58.0	53.3	50.6	57.9	48.5	57.1	45.8	55.6	57.3	57.8	54.1	55.4	59.7	54.9	54.9	56.3	59.5	54.8	57.2	55.9	60.3	60.9	51.2	60.8	54.9	60.7
3:15 PM	58.0	53.2	49.9	57.9	49.1	57.2	45.9	55.7	57.3	57.8	54.2	55.5	59.7	54.9	54.9	56.3	59.5	54.9	57.3	56.0	60.3	60.9	51.4	60.8	54.9	60.7
3:30 PM	58.0	53.3	50.8	57.9	49.7	57.2	46.2	55.7	57.3	57.8	54.2	55.5	59.7	54.9	54.9	56.3	59.5	54.7	57.2	56.0	60.3	60.9	50.3	60.8	54.7	60.7
3:45 PM	58.0	53.3	50.3	57.9	50.3	57.3	46.9	55.9	57.4	57.8	54.5	55.7	59.8	55.3	55.3	56.5	59.6	55.1	57.4	56.2	60.3	60.9	50.5	60.8	55.0	60.7
4:00 PM	58.0	53.2	50.8	57.9	49.8	57.2	46.3	55.7	57.3	57.8	54.3	55.5	59.7	54.9	54.9	56.3	59.5	54.7	57.2	56.1	60.3	60.9	49.8	60.8	54.7	60.7
4:15 PM	58.0	53.2	49.9	57.9	50.5	57.3	46.6	55.8	57.4	57.8	54.2	55.5	59.7	54.8	54.8	56.3	59.5	54.6	57.1	56.0	60.3	60.9	50.4	60.8	54.7	60.7
4:30 PM	58.0	53.3	50.2	57.9	49.7	57.2	46.4	55.8	57.3	57.8	54.5	55.7	59.8	55.3	55.3	56.4	59.6	55.1	57.4	56.2	60.3	60.9	49.9	60.8	54.8	60.7
4:45 PM	58.0	53.2	49.7	57.9	49.5	57.2	46.3	55.7	57.3	57.8	54.2	55.5	59.7	54.9	54.9	56.3	59.5	54.7	57.2	56.0	60.3	60.9	50.6	60.8	54.9	60.7
5:00 PM	58.0	53.2	49.9	57.9	50.0	57.3	46.5	55.8	57.3	57.8	54.5	55.7	59.8	55.3	55.3	56.4	59.6	55.2	57.5	56.1	60.3	60.9	50.4	60.8	55.0	60.7
5:15 PM	58.0	52.9	49.7	57.9	49.2	57.2	45.4	55.6	57.3	57.8	54.2	55.5	59.7	54.8	54.8	56.3	59.5	54.8	57.2	56.0	60.3	60.9	50.6	60.8	54.9	60.7
5:30 PM	58.0	52.0	49.0	57.9	48.5	57.1	44.3	55.4	57.2	57.8	53.7	55.1	59.6	54.3	54.3	56.2	59.5	54.3	56.9	55.9	60.3	60.9	51.3	60.8	54.7	60.7
5:45 PM	58.0	53.1	50.5	57.9	49.7	57.2	46.3	55.7	57.3	57.8	54.5	55.7	59.8	55.5	55.5	56.4	59.6	55.5	57.6	56.0	60.3	60.9	51.8	60.9	55.3	60.7
6:00 PM	58.0	53.3	50.8	57.9	50.3	57.3	47.9	56.0	57.4	57.8	54.7	55.8	59.8	55.7	55.7	56.4	59.6	55.8	57.8	56.1	60.3	60.9	52.5	60.9	55.4	60.7
6:15 PM	58.0	53.2	50.9	57.9	49.8	57.2	47.5	56.0	57.4	57.8	54.6	55.7	59.8	55.6	55.6	56.3	59.5	55.7	57.8	56.1	60.3	60.9	52.9	60.9	55.3	60.7
Density (pc/mi/ln)																										
1:30 PM	11.2	12.9	15.6	15.9	17.0	17.3	22.5	26.8	18.9	16.3	18.6	18.0	22.5	25.2	25.1	23.2	21.9	23.0	23.0	26.9	21.6	16.2	16.1	16.0	15.0	15.0
1:45 PM	11.1	12.7	16.2	16.5	17.3	17.8	22.9	27.1	19.5	16.8	18.6	18.2	22.8	25.6	25.6	23.6	22.2	23.4	23.5	27.3	21.8	16.4	16.1	16.3	14.8	15.6
2:00 PM	12.9	15.0	16.5	16.7	17.5	17.7	23.1	26.4	17.9	15.7	17.8	17.2	21.5	24.4	24.1	22.4	21.0	22.5	22.4	26.3	20.9	15.7	15.7	15.5	14.3	14.6
2:15 PM	12.7	14.6	18.0	17.1	18.0	18.1	23.8	27.2	19.1	16.6	19.1	18.4	23.1	26.0	26.1	23.8	22.9	24.2	24.4	28.0	22.8	17.1	17.1	17.0	15.6	16.4
2:30 PM	13.1	15.1	18.0	17.2	18.4	18.4	25.1	27.3	19.6	17.3	19.8	19.2	24.1	27.3	27.6	25.0	24.1	26.0	26.2	29.5	24.6	18.5	18.8	18.5	17.0	16.6
2:45 PM	13.4	15.2	18.3	16.9	17.7	17.4	23.8	25.7	17.5	15.6	18.8	17.7	22.2	25.2	25.0	23.1	22.1	24.1	24.0	27.7	22.5	16.9	17.5	16.9	15.5	16.4
3:00 PM	13.8	15.7	17.8	17.2	18.4	18.0	24.4	26.4	18.5	17.0	20.1	19.2	24.2	27.2	27.6	24.8	24.3	25.9	26.2	29.5	24.5	18.3	18.8	18.5	17.2	18.4
3:15 PM	15.9	17.3	18.6	17.1	17.7	17.5	24.0	26.3	18.9	16.8	19.6	18.8	23.7	27.1	27.2	24.6	24.0	25.7	25.9	29.2	24.5	18.4	18.7	18.6	17.4	18.0
3:30 PM	13.3	14.9	16.2	15.6	16.1	16.4	22.5	24.9	17.7	16.3	19.8	18.7	23.5	27.5	27.5	24.9	24.2	26.7	26.7	29.8	25.2	18.9	20.2	19.6	18.5	19.0
3:45 PM	14.2	15.4	16.0	14.6	14.8	15.1	20.3	22.9	15.9	14.9	18.7	17.2	21.7	25.5	25.1	23.1	22.3	24.8	24.6	28.1	23.4	17.5	18.7	18.2	17.1	18.5
4:00 PM	14.8	16.2	16.0	15.6	16.1	16.4	22.2	24.4	17.0	16.0	19.8	18.6	23.4	27.6	27.6	24.9	24.3	26.8	26.9	29.9	25.6	19.2	20.9	20.3	18.9	20.5
4:15 PM	16.7	17.7	17.1	15.7	15.7	16.5	22.2	24.6	17.7	16.6	19.6	18.7	23.6	27.7	27.8	25.0	24.6	26.8	27.0	30.0	25.6	19.2	20.5	20.1	18.4	20.0
4:30 PM	14.3	15.6	14.9	13.3	14.2	14.4	19.8	21.4	14.3	14.1	18.6	16.7	21.0	25.4	24.8	22.8	22.0	25.1	24.7	28.2	23.4	17.6	19.3	18.6	17.4	18.0
4:45 PM	16.1	17.2	16.4	14.6	15.5	15.7	21.5	23.3	16.8	16.5	19.8	18.8	23.7	27.4	27.5	24.8	24.3	26.4	26.6	29.7	25.0	18.8	19.8	19.4	18.0	20.1
5:00 PM	14.6	16.4	15.7	13.9	14.6	14.8	20.2	22.0	15.3	14.4	18.9	17.1	21.4	25.2	24.8	22.8	22.1	24.4	24.2	27.8	22.8	17.1	18.6	18.1	17.0	18.3
5:15 PM	20.4	21.0	18.8	17.7	18.2	18.3	25.1	26.2	19.6	17.3	20.0	19.3	24.3	27.8	28.1	25.2	24.8	26.0	26.4	29.6	24.9	18.7	19.7	19.3	18.0	20.8
5:30 PM	26.2	26.4	21.3	20.8	21.5	21.6	29.8	29.8	23.5	20.2	21.5	21.9	27.6	29.8	31.2	27.2	27.4	27.8	29.0	31.5	27.1	20.3	20.4	20.3	18.9	20.6
5:45 PM	16.9	18.3	16.2	15.7	16.3	16.8	22.2	24.3	16.9	15.3	18.1	17.1	21.5	24.1	23.8	22.1	21.1	22.6	22.5	26.5	20.8	15.6	16.0	15.9	14.9	16.3
6:00 PM	13.8	15.9	14.8	14.0	14.5	15.1	19.5	23.3	16.4	14.5	16.7	15.8	19.9	22.5	21.9	20.7	19.3	21.2	20.8	24.9	19.2	14.4	14.5	14.4	13.5	14.4
6:15 PM	14.7	16.5	15.5	15.0	15.6	15.9	20.8	24.4	17.4	14.9	17.3	16.4	20.5	23.1	22.6	21.3	19.8	21.2	21.0	25.1	19.3	14.5	14.3	14.4	13.2	13.4
Density LOS																										
1:30 PM	B	B	B	B	B	B	C	C	C	B	B	B	C	C	C	C	C	C	C	C	C	B	B	B	B	B
1:45 PM	B	B	B	B	B	B	C	C	C	B	B	C	C	C	C	C	C	C	C	C	C	B	B	B	B	B
2:00 PM	B	B	B	B	B	B	C	C	B	B	B	B	C	C	C	C	C	C	C	C	C	B	B	B	B	B
2:15 PM	B	B	B	B	B	C	C	C	C	B	B	C	C	C	D	C	C	C	C	C	C	B	B	B	B	B
2:30 PM	B	B	B	B	B	C	C	C	C	B	B	C	C	C	D	C	C	C	D	D	C	C	B	C	B	B
2:45 PM	B	B	B	B	B	B	C	C	B	B	B	B	C	C	C	C	C	C	C	C	C	B	B	B	B	B
3:00 PM	B	B	B	B	B	B	C	C	C	B	C	C	C	C	D	C	C	C	D	D	C	C	B	C	B	C
3:15 PM	B	B	B	B	B	B	C	C	C	B	B	C	C	C	D	C	C	C	C	D	C	C	B	C	B	B
3:30 PM	B	B	B	B	B	B	C	C	B	B	B	C	C	C	D	C	C	C	D	D	C	C	C	C	B	C
3:45 PM	B	B	B	B	B	B	C	C	B	B	B	B	C	C	C	C	C	C	C	D	C	B	B	C	B	C
4:00 PM	B	B	B	B	B	B	C	C	B	B	B	C	C	C	D	C	C	C	D	D	C	C	C	C	B	C
4:15 PM	B	B	B	B	B	B	C	C	B	B	B	C	C	C	D	C	C	C	D	D	C	C	C	C	B	C
4:30 PM	B	B	B	B	B	B	B	C	B	B	B	B	C	C	C	C	C	C	C	D	C	B	B	C	B	B
4:45 PM	B	B	B	B	B	B	C	C	B	B	B	C	C	C	D	C	C	C	D	D	C	C	B	C	B	C
5:00 PM	B	B	B	B	B	B	C	C	B	B	B	B	C	C	C	C	C	C	C	C	C	B	B	C	B	C
5:15 PM	C	C	B	B	B	C	C	C	C	B	B	C	C	C	D	C	C	C	D	D	C	C	B	C	B	C
5:30 PM	D	C	C	C	C	C	D	D	C	C	C	C	D	D	D	C	D	C	D	D	D	C	C	C	B	C
5:45 PM	B	B	B	B	B	B	C	C	B	B	B	B	C	C	C	C	C	C	C	C	C	B	B	B	B	B
6:00 PM	B	B	B	B	B	B	B	C	B	B	B	B	C	C	C	C	C	C	C	C	C	B	B	B	B	B
6:15 PM	B	B	B	B	B	B	C	C	B	B	B	B	C	C	C	C	C	C	C	C	C	B	B	B	B	B

Notes
*Demand/capacity ratio > 1.0
**Segment anayzed as "basic" due to geometry and segmentatior
B - Basic
M - Merge
O - Overlap (Basic)
D - Diverge
W - Weave

- Mainline Peak Hour Volume (6:30-7:30AM)

- Ramp Peak Hour Volume (6:30-7:30AM)

Legend (HCM6)					
Color	LOS	Speed (mph)	Density (pcphpl)		
			Basic	Ramp	Weave
	A	> 60	0-11	0-10	0-10
	B		11-18	10-20	10-20
	C	50 - 60	18-26	20-28	20-28
	D	40 - 50	26-35	28-35	28-35
	E	30 - 40	35-45	35-43	35-43
	F	< 30	45+	43+	43+

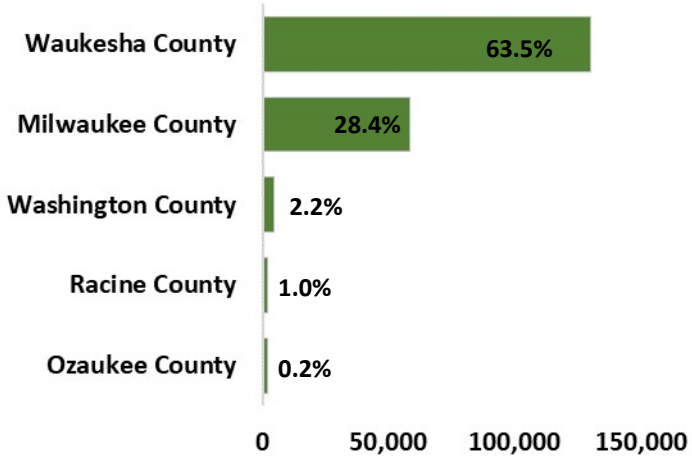
Journey to Work: Commuting and "Reverse Commuting" between Milwaukee and Waukesha County

Tom Walsh, Labor Market Economist, thomasj.walsh@dwd.wisconsin.gov, December 2019

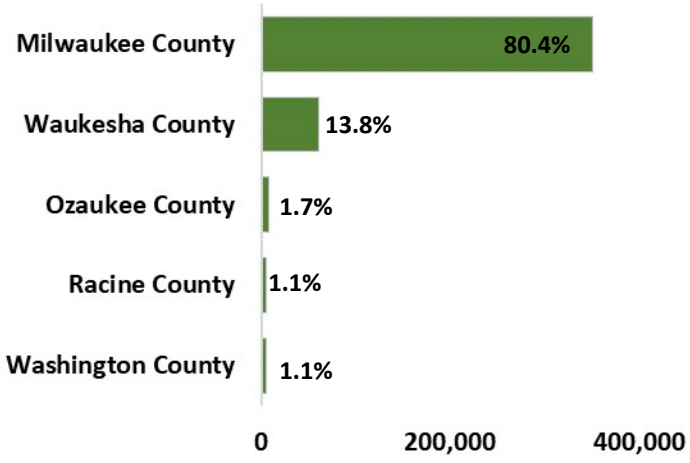
Milwaukee is the traditional economic center of the metropolitan region. The conventional wisdom is that employed residents flow in from the surrounding counties. A high-level look at commuting patterns supports the conventional wisdom. Over 80% of employed Milwaukee County residents work in the county. Also, Milwaukee is the top destination for all employed residents in the surrounding area that travel outside of their home county.

However, a large number of workers commute in the opposite direction. "Reverse commuting" is particularly strong between Milwaukee and Waukesha County. The graphics below show patterns for residents and workers in both counties. In fact, more workers travel from Milwaukee to Waukesha (60,353) than from Waukesha to Milwaukee (58,271). More than a quarter (26.0%) of the Waukesha County workforce lives in Milwaukee County. This observation calls for a deeper dive into the differences of workers traveling in each direction.

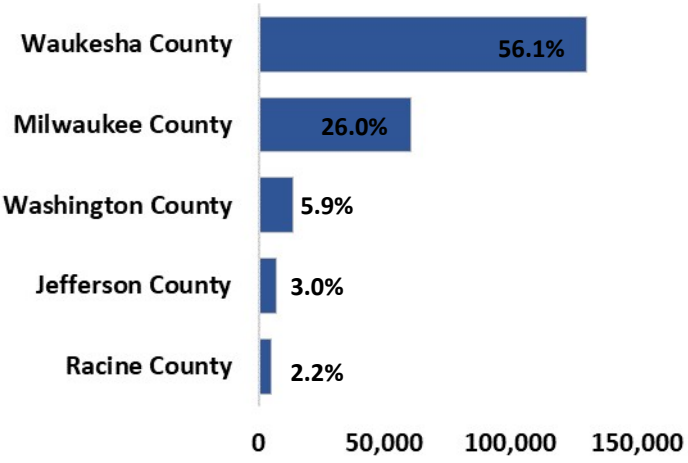
Where Waukesha County Residents Work



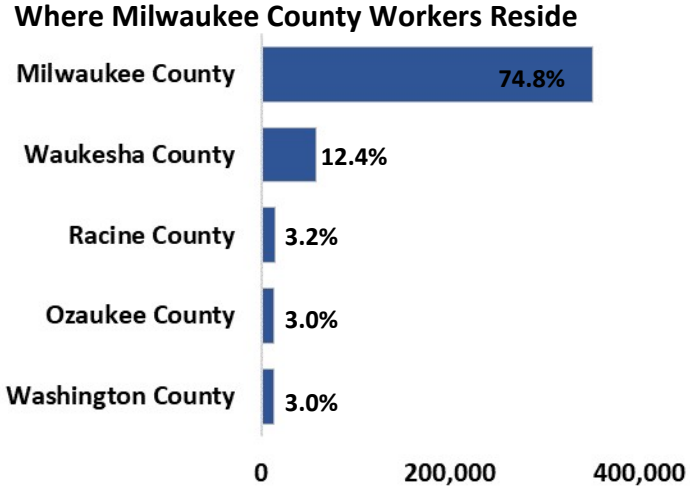
Where Milwaukee County Residents Work



Where Waukesha County Workers Reside



Where Milwaukee County Workers Reside



Source: 2011-2015 5-Year American Community Survey Commuting Flows, US Census Bureau

Characteristics Summary

The table below uses the American Community Survey to summarize characteristics of employed residents commuting between the counties. Income differentials stand out as a key difference. The average annual income is $74,345 for Waukesha County residents that work in Milwaukee County. The average for those traveling from Milwaukee to Waukesha , which will be referenced as "reverse commuters", is much lower at $42,740 per year. Almost 30% of Milwaukee county residents that cross the boarder for work earn below $23,340, which represents approximately 200% of the federal poverty level for an individual.

Characteristics of Commuters and Reverse Commuters

	Milwaukee County Residents Working in Waukesha County	Waukesha County Residents working in Milwaukee County
Race		
White, Non-Hispanic	66.8%	90.2%
Minority	33.2%	9.8%
Age		
Mean	39.3	45.1
under 25	11.6%	6.1%
25-39	43.5%	29.6%
40-54	28.8%	38.1%
55+	16.1%	26.3%
Annual Income – Wage		
Mean	$42,740	$74,345
Less than $23,339	29.5%	17.0%
Between $23,340 and $46,679	36.2%	23.3%
$46,680 -$70,019	20.3%	22.5%
$70,020+	14.0%	37.2%

Source: IPUMS USA, 2013-2017 5-Year American Community Survey

The "Young Professionals"

"Young professionals" are often discussed when reviewing reverse commuting. This group is generalized as workers that choose to begin their careers in Waukesha County but prefer to live in Milwaukee. This group can be expected to progressively increase their income as they gain more experience. They often end up moving out of the city as they get older, which would help explain the lower wages and lower age among Milwaukee reverse commuters. For the purposes of this analysis, "professional" is defined as working in a job that typically requires a bachelor's degree or higher. Professionals are broken into three categories: young professional (Under 35), Mid-Career Professionals (35-49), and Experienced Professionals (50-64). Professionals 65 and over were not placed into a category because wages are relatively low due to fewer hours worked. Note that this classification does not consider the actual education of the individual. Instead it is based on the typical requirement for the reported occupation.

The tables below display commuting flows and mean incomes for the categories. There is a modest "reverse flow" among the young professionals. However, this is dwarfed by the counts of mid-career and experienced professionals traveling in the more traditional direction. Additionally, incomes for the commuters to Milwaukee County jobs are higher in every category.

Commuting Flows among “Professional” Level Workers

	Milwaukee County Residents Working in Waukesha County	Waukesha County Residents working in Milwaukee County	Reverse Flow
Young Professionals (Under 35)	7,963	6,426	1,537
Mid-Career Professionals (35-49)	5,783	12,360	-6,577
Experienced Professionals (50-64)	3,908	10,117	-6,209
Total (All Ages)	18,212	30,820	-12,608

Source: IPUMS USA, 2013-2017 5-Year American Community Survey

Mean Incomes among “Professional” Level Workers

	Milwaukee County Residents Working in Waukesha County	Waukesha County Residents working in Milwaukee County
Young Professionals (Under 35)	$49,659	$59,233
Mid-Career Professionals (35-49)	$76,651	$108,519
Experienced Professionals (50-64)	$86,554	$110,620
Total (All Ages)	$66,477	$97,528

Source: IPUMS USA, 2013-2017 5-Year American Community Survey

Types of Jobs among Commuters and Reverse Commuters

Commuting flows look very different among typical education levels. The balance of reverse commuters is largely driven by employees working in lower paying and lower skilled positions. The balance of commuters flowing into Milwaukee County are largely driven by higher skilled and higher paying positions.

Like the section above, education displayed in the table below is based on the typical requirement of the occupation. Not the actual educational attainment of the worker. Jobs that require no post-secondary training see heavy reverse commuting. Jobs that require some college but less than a bachelor's degree have a near neutral balance. Jobs that require a bachelor's degree or higher tend to travel from Waukesha to Milwaukee.

Commuting Flows by Typical Education Level of Occupation

	Milwaukee County Residents Working in Waukesha County	Waukesha County Residents working in Milwaukee County	Reverse Flow
No formal education or High School Diploma	39,034	20,604	18,430
College Below Bachelor's Degree	6,691	6,266	425
Bachelor's Degree or Higher	18,212	30,820	-12,608

Source: IPUMS USA, 2013-2017 5-Year American Community Survey

The top occupational groups among residents traveling in each direction are displayed below. The top two occupation groups among reverse commuters are Production and Office and Administrative Support. Both are lower paying. The top two occupations among Waukesha County residents traveling to Milwaukee County are Management, Business, Science, and Arts occupations and Health Care Practitioner occupations, which are both high paying.

Top 5 Occupation Groups: Milwaukee County Residents

PRODUCTION	15%
OFFICE AND ADMINISTRATIVE SUPPORT	15%
SALES AND RELATED	10%
MANAGEMENT, BUSINESS, SCIENCE, AND ARTS	8%
BUSINESS OPERATIONS SPECIALISTS	6%
Other	45%

Top 5 Occupation Groups: Waukesha County Residents

MANAGEMENT, BUSINESS, SCIENCE, AND ARTS	15%
HEALTHCARE PRACTITIONERS AND TECHNICAL	11%
OFFICE AND ADMINISTRATIVE SUPPORT	10%
BUSINESS OPERATIONS SPECIALISTS	9%
SALES AND RELATED	8%
Other	38%

Source: IPUMS USA, 2013-2017 5-Year American Community Survey

Final Discussion

The data show that Waukesha County employers are heavily dependent on Milwaukee County residents to fill lower paying positions. Several factors could help provide context, but housing costs are a key contributor to this dynamic. The median rent for a two-bedroom apartment in Waukesha County is $1,005 compared to $861 per month in Milwaukee County. Only a quarter of rental units in Waukesha County have rents of under $800 per month compared to 43.2% of rental units in Milwaukee County. Additionally, the median home price in Waukesha County is $299,056 compared to $168,165 in Milwaukee County. Simply put, housing in Milwaukee County is more affordable for workers with lower income levels.

Traveling between the counties can be expected since they are well connected by a road network. Commuting is reasonably convenient for those that have a dependable car. However, public transportation among commuters traveling from Milwaukee County to Waukesha County is largely negligible on aggregate. Around 98% of the reverse commuters travel to work via private motorized vehicle. Less than 2% utilize a bus. Given that the jobs of Milwaukee residents traveling to Waukesha County tend to be lower paying, it is reasonable to conclude that the cost of owning and maintaining a vehicle is a relatively high burden for this group. A burden that likely discourages many others from pursuing employment opportunities.

The key question from an economic and workforce development point of view is how much housing and transportation barriers are hindering growth. They limit the supply of available workers for employers and limit the job prospects for otherwise qualified candidates. It is easy to say that more affordable housing and more transportation options would help. It is much more challenging to determine how to use resources in a way that best alleviates these burdens.