



APPENDIX B. TRAFFIC ANALYSES AND DOCUMENTATION

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TECHNICAL MEMORANDUM

HNTB

I-94 Traffic Volume Forecasting

NO. MDOT – TM 3

May 6, 2015

MDOT JN: 122114

Control Section: 82024

Author: Mark Smith, PE, PTOE
Reviewers: Karianne Steffen, PE, PTOE
Matt Simon, PE

Background:

As part of the I-94 Modernization Project Owners Representative Work Task #1, Subtask 2.2 Traffic, this technical memorandum is intended to document the assessment of SEMCOG's 2010 and 2040 Travel Demand Models (TDM) and the discussions with MDOT and SEMCOG on March 6, 2015, March 13, 2015, and May 1, 2015 regarding traffic volume forecasting along the I-94 study corridor.

Existing Project Data:

The limits of the I-94 Modernization Project are located in the City of Detroit between I-96 and Conner Ave, which is approximately seven miles in length, as shown in Figure 1 below. I-94 is currently striped as a six (6) lane urban freeway that carries three (3) lanes of westbound traffic and three (3) lanes of eastbound traffic. Within these seven miles of urban freeway there are over 50 ramp entrances/exits along the I-94 corridor. Existing traffic conditions indicate that demand for the I-94 corridor has exceeded the available capacity limits given the heavy congestion experienced during the AM and PM peak periods. The recurrent congestion on the I-94 corridor has resulted in a diversion of trips from the I-94 corridor to adjacent facilities. It is expected that once additional capacity is added with the I-94 Modernization Project a large volume of traffic will shift back to the I-94 corridor that had previously diverted due to the heavy congestion.

Figure 1: I-94 Modernization Project Limits



Assessment of SEMCOG Travel Demand Models:

Traffic assignments were obtained from SEMCOG's 2010 and 2040 Travel Demand Models (TDM) to evaluate traffic volume growth along the I-94 study corridor. For background traffic growth the TDM projected a growth rate of 0.07% per year (compounded annually) from 2010 to 2040, prior to the construction of the I-94 Modernization Project. The TDM also projected a growth rate of 0.16% per year (compounded annually) from 2010 to 2040, which is expected after the completion of the I-94 Modernization Project. The traffic projections account for growth due to long term traffic pattern changes plus the socio-economic growth in the I-94 impact area. The I-94 corridor will also see an increase in traffic due to diverted demand that is currently using adjacent facilities. The SEMCOG TDM model estimates that I-94 mainline traffic volumes are projected to increase by 23% to 27% depending on when I-94 modernization project is completed (i.e. if project was completed in 2010 traffic shift would have been 23%, if project is completed in 2040 traffic shift is expected to be 27%). Table 1 below summarizes the projected traffic increases for the I-94 corridor. The total traffic increase is based on the average of the annual growth rate and the traffic shift due to the diverted demand since the final completion date of the I-94 Modernization Project is unknown.

Table 1: I-94 Projected Traffic Volume Increases

	Annual Growth Rate (2010 – 2040)	Traffic Shift due to Diverted Demand	Total Traffic Increase (2010 – 2040)
I-94 Modernization Project	0.07% - 0.16% Per Year	23% to 27%	29%

The projected traffic volume increases from SEMCOG's TDM were developed in 2010, during a time of recession. Recent economic changes in Detroit's Midtown area and surrounding communities are not reflected in these projections.

Based on the review of SEMCOG's TDM, the corridor analysis provides the expected traffic growth along the I-94 study corridor. The growth determined from the corridor analysis is limited to the mainline freeway lanes as the level of detail within the TDM does not provide accurate traffic volume projections for surface streets and ramps. Given the limitations of the SEMCOG TDM, separate forecasting methodologies will be used for the I-94 freeway and surface streets / ramps.

Traffic Volume Forecasting Methodology:

I-94 Freeway Traffic Volume Forecasting Methodology

1. Growth rates from SEMCOG's Corridor Analysis (shown in Table 1) will be used to forecast 2040 build I-94 mainline traffic volumes.

I-94 Service Drive and Ramp Traffic Volume Forecasting Methodology

Given the limitations of the TDM to accurately project traffic volumes for the surface streets and ramps, several methods were analyzed for forecasting traffic on the I-94 Service Drives and I-94 Ramps which included:

- Comparing 2010 and 2040 SEMCOG TDM's to evaluate growth based on population, socioeconomic data, and vehicle miles travel within the I-94 study area.
- Reviewing existing traffic volumes within the I-94 study area where continuous service drives exist to estimate volumes for proposed continuous service drives.

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- Reviewing existing traffic travel patterns within the I-94 study area to estimate directional distribution percent's for future.
- Reviewing the recently constructed I-96 project in Livonia.
- Minimum safety standards for a service drive would require two lanes for emergency access.
- Best traffic planning and engineering practices

It was suggested that a subarea micro-simulation model could be used. While a subarea micro-simulation model would be the best way to forecast traffic volumes for the surface streets and ramps it would also require an extensive amount of data that is not available. A subarea micro-simulation model would require the collection of additional traffic volumes for all significant alternate routes in the Detroit area surrounding the I-94 corridor. The limits of a subarea model could extend as far as the borders of the map shown previously in Figure 1. In addition to the data collection there would also be a large effort to calibrate the model before it could be used.

With the inherent schedule delays that a subarea micro-simulation model would create it was agreed on May 1, 2015 with MDOT and SEMCOG that triangulating the methods analyzed above would be an acceptable approach to forecast traffic for the I-94 Service Drives and I-94 Ramps in place of a subarea micro-simulation model.

Therefore, based on discussions with MDOT and SEMCOG on May 1, 2015 the proposed methodology for forecasting traffic for the I-94 Service Drives and I-94 Ramps is outlined below. Both MDOT and SEMCOG were in agreement on this approach:

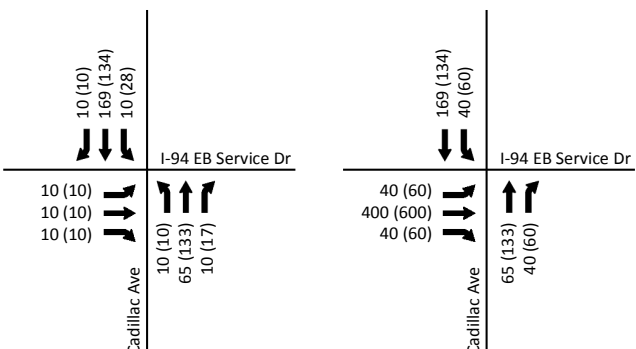
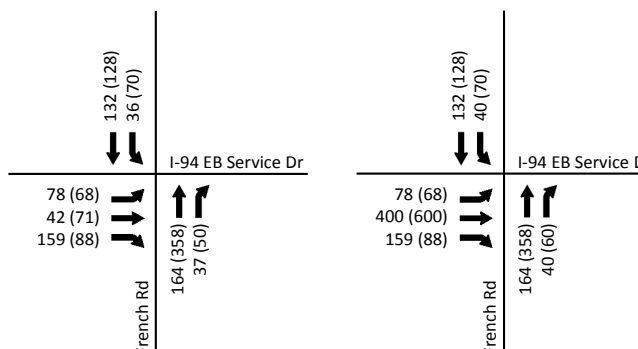
1. A total of 1,000 thru vehicles per hour (VPH) will be applied to the I-94 Service Drives during the AM and PM peak hours. The 1,000 thru vehicles is based on existing peak hour traffic volumes counted at the Chene St and Mt. Elliott St intersections with the I-94 eastbound and westbound service drives. Chene St and Mt. Elliott St were used to develop the thru VPH based on the existing continuous service drives at these locations.
2. Projected directional distributions were developed, as shown in Table 2, based on an evaluation of existing traffic volumes and anticipated travel pattern impacts from the proposed continuous service drives. The directional distributions will be applied to the 1,000 thru VPH to assign peak hour thru volumes on the eastbound and westbound I-94 Service Drives.

Table 2: I-94 Service Drive Projected Directional Distributions

Location	Direction Distribution	
	AM Peak Hour	PM Peak Hour
West of M-10		
WB I-94 Service Drive	40%	60%
EB I-94 Service Drive	60%	40%
Between M-10 and M-1 (Woodward Ave)		
WB I-94 Service Drive	45%	55%
EB I-94 Service Drive	55%	45%
East of M-1 (Woodward Ave)		
WB I-94 Service Drive	60%	40%
EB I-94 Service Drive	40%	60%

- To develop peak hour turning movement volumes at the study area intersections, 10% of the service drive thru traffic volume will be used. The peak hour turning movement percentage was developed based on review of existing turning movement counts at low volume intersections on the I-94 corridor and the Trumbull Ave Bridge evaluation. Additionally, the I-96 reconstruction project (Newburg Rd to Melvin St) in Livonia was reviewed to confirm the proposed methodology for the I-94 corridor. A review of the I-96 project found that when distributing turning volumes to adjacent signals it was assumed that 10% turned left and 10% turned right which matches the proposed methodology for the I-94 corridor. This methodology will only be used if the existing turning movements are lower than 10% of the service drive thru volume otherwise the existing volume will be used. Two examples of the I-94 Eastbound Service Drive, east of M-1 (Woodward Ave), are shown in Figure 2.

Figure 2 – Example of Turning Movement Volume Development

Existing 2014		2014 with Reroutes		Existing 2014		2014 with Reroutes	
							

In addition to the forecasting methods described above, a minimum annual growth rate of 0.16% per year (compounded annually) will be used to forecast I-94 Service Drives, local roads, and I-94 Ramps for the AM and PM peak periods. The minimum annual growth rate of 0.16% matches the highest annual growth that is anticipated for the I-94 Freeway. All adjustments will be made to the existing (2014) traffic volumes to account for the proposed roadway modifications before applying the 0.16% annual growth rate to develop projected 2040 build traffic volumes.

DRAFT MEETING NOTES

MDOT JN: 122114
Control Section: 82024

Meeting: I-94 Modernization Project (I-96 to Conner Avenue)
MDOT and SEMCOG Growth Rate Discussion

Location: Conference Call
Phone: 1-866-692-3158, Access code: 1917160

Date/Time: March 6, 2015 / 2:00 PM – 4:00 PM

Purpose: Assessment of SEMCOG's Travel Demand Models (TDM) and growth rate recommendations for the I-94 Modernization Project.

1. Introductions

- a. The following participants attended via telephone:
 - Hugh McNichol (MDOT)
 - Amy Lipset (MDOT)
 - Tom Bruff (SEMCOG)
 - Alex Bourgeois (SEMCOG)
 - Karianne Steffen (HNTB)
 - Rob Beuthling (HNTB)
 - Matt Simon (HNTB)
 - Mark Smith (HNTB)

2. Review of SEMCOG Travel Demand Models

- a. Assessment of SEMCOG TDM:
 - SEMCOG TDM 2040 models showed negative growth for the Traffic Analysis Zones (TAZ) along the I-94 corridor.
 - TAZ negative growth matches trend of declining population and economic growth.
 - SEMCOG TDM 2040 build model showed growth on mainline I-94 ranging from 0.76% to 1.00% (compounded annually) from 2014 to 2040.
 - Growth is limited to the mainline freeway lanes as the level of detail within the TDM does not provide accurate traffic projections for local system.
- b. Discussion of SEMCOG TDM:
 - Would like input from Li-yang Feng and Saima Masud. Both were unable to attend meeting.
 - It was agreed that local system should account for minimum growth even though TAZ's show negative growth.

3. Forecasting Methodology

- a. Growth for the I-94 freeway should use the forecasted growth rates from SEMCOG TDM.
- b. I-94 Service Drive and Ramp Traffic Forecasting Methodology

- 1,000 thru vehicles were assumed for thru movements along the EB and WB I-94 Service Drives. 60% / 40% distributional split was use for AM / PM peak hours. (60% WB / 40% EB in AM & 60% EB / 40% WB in PM). Assumptions based on existing travel patterns.
 - 10% of thru service drive volumes assigned to new turning movements. Based on existing splits and Trumbull Bridge projections.
 - Minimum growth rate of 0.3% (compounded annually) will be used for local roads and ramps.
- c. Discussions:
- Distribution splits should be verified with existing data where available.
 - Would like input from Li-yang on distributional splits around Wayne State area.
 - MDOT agreed to use SEMCOG TDM for growth rates on I-94 mainline. Minimum growth rate of 0.3% (compounded annually) agreed for use on local roads and I-94 ramps.

4. Follow-up / Next Steps

- a. Li-yang Feng and Saima Masud were unable to attend the meeting. Would like to get feedback from Li-yang and Saima before acceptance of methodology.
- b. Review distributional splits for service drives. Should there be different distribution splits for different segments? For instances I-96 to M-10, M-10 to I-75, I-75 to Conner Ave.
- c. Add review of existing distributional splits and service drive projections to memo to document methodology.
- d. Follow up meeting schedule for March 13, 2015 2:00 PM – 4:00 PM.
- e. Revised memorandum will be sent out by COB Wednesday March 11, 2015 for review in advance of the meeting on Friday March 13, 2015.

DRAFT MEETING NOTES

MDOT JN: 122114
Control Section: 82024

Meeting: I-94 Modernization Project (I-96 to Conner Avenue)
MDOT, SEMCOG, and HNTB Forecasting Discussion

Location: Conference Call
Phone: 1-866-692-3158, Passcode: 3301937

Date/Time: May 1, 2015 / 1:30 PM – 2:30 PM

Purpose: Recommendations for forecasting traffic for the I-94 Modernization Project.

1. Introductions

- a. The following participants attended:
 - Hugh McNichol (MDOT)
 - Amy Lipset (MDOT)
 - Alex Bourgeau (SEMCOG)
 - Siama Masud (SEMCOG)
 - Li-yang Feng (SEMCOG)
 - Eric Youngblom (HNTB)
 - Karianne Steffen (HNTB)
 - Mark Smith (HNTB)

2. I-94 Freeway Mainline Forecasting Recommendation

- a. Review of I-94 Freeway Analysis:
 - SEMCOG's Travel Demand Models (TDM) show an annual growth rate of 0.07% - 0.16% compounded annually. SEMCOG's TDMs also show a traffic shift due to diverted demand of 23% - 27%. The annual growth and the traffic shift both vary based on when the I-94 Modernization Project is completed.
- b. Recommendation for I-94 Freeway:
 - Traffic for the I-94 Freeway will be forecasted based on the SEMCOG TDM outputs. Using the averages of the annual growth and the traffic shift, the SEMCOG model shows a traffic increase of 29% for the AM and PM peak periods.
- c. Discussions:
 - MDOT, SEMCOG and HNTB were in agreement on the approach for forecasting traffic for the I-94 Freeway AM and PM peak periods.

3. I-94 Service Drives and I-94 Ramp Forecasting Recommendation

- a. Review of I-94 Service Drives and I-94 Ramp Analysis:
 - Comparisons of 2010 and 2040 SEMCOG TDM's for population, socioeconomic data, and vehicle miles travel with the I-94 study area show growth that is flat.

- Review of existing traffic volumes within the I-94 study area between Chene and Mt. Elliott where continuous service drives exist have a thru volume of 1000 vehicles per hour (VPH) between EB and WB. (i.e. 600 WB, 400 EB) during the AM and PM peak periods.
 - Review of existing traffic travel patterns within the I-94 study area to estimate directional distribution percentages.
 - MDOT's recent project experience on I-96 in Livonia used 10% of the thru volume when assigning turning movements at intersection with missing data.
 - Exhibiting best traffic engineering, planning and engineering practices to design an infrastructure system that will meet existing traffic needs and be able to sustain future growth.
 - From a safety standpoint a minimum of two lanes would be required on the service drives for emergency access.
- b. Recommendation for I-94 Service Drives and I-94 Ramps:
- A minimum annual growth rate of 0.16% will be used to forecast I-94 Service Drives, local roads, and I-94 ramps for the AM and PM peak periods. This growth matches the highest annual growth anticipated for the I-94 Freeway.
 - A total of 1000 VPH will be applied to the I-94 Service Drives during the AM and PM peak hours.
 - Directional distributions were developed based on existing travel patterns within the I-94 study area.
 - AM and PM peak hour turning movement volumes will be developed using 10% of the service drive thru volumes.
- c. Discussions:
- SEMCOG's TDM's are not a completely accurate tool at forecasting volumes on local roads without the use of a microsimulation model.
 - A microsimulation model would provide better results for forecasting traffic volumes for the I-94 Service Drives and I-94 Ramps. However, a microsimulation would require the collection of additional data beyond the scope of the I-94 Modernization Project, causing schedule delays.
 - SEMCOG's TDM's were developed in 2010 and don't account for recent development in Midtown area.
 - It was agreed that triangulating the methods analyzed above would be a very good way to forecast traffic volumes for the I-94 Services Drives and I-94 Ramps in place of a microsimulation model.
 - SEMCOG, MDOT, and HNTB were in agreement that a minimum growth rate should be used as detailed above. It was also agreed that the minimum growth rate should not exceed the annual growth projected for the I-94 Freeway.
 - SEMCOG, MDOT, and HNTB were in agreement on the approach detailed above for forecasting traffic for the I-94 Service Drives and I-94 Ramps for the AM and PM peak periods.

4. Follow-up / Next Steps

- a. HNTB will update the I-94 Traffic Forecasting Memorandum and redistribute to MDOT and SEMCOG for final acceptance.

Mark Smith

From: Bourgeau, Alex <bourgeau@semcog.org>
Sent: Friday, July 6, 2018 3:57 PM
To: John Baldauf; Feng, Li-yang
Cc: Matt Simon; Mark Smith; Rob Beuthling; Eric Youngblom; Binkowski, Sarah; Chen, Jilan
Subject: RE: I-94 SEMCOG model adjustments

Hi John,

We agree with the approach HNTB is taking with the service drives. We also agree with the traffic forecast growth factors as long as this statement from Li's June 22 email is correct: "From your email, my understanding is that the forecast methodology and projected traffic are correct. The error was in the document preparation and incorrect base year numbers were somehow inserted into the text. If this is the case, I am fine with it."

On another issue, fyi, we are talking with MDOT about the potential for a DTA model run specific to I94 and/or combined with the I 375/downtown study DTA model runs. We're not suggesting that it is needed for your work on traffic. AQ, noise, etc. but that it is the best way to get a feel for the impacts from all of the changes from I94, I375, and downtown reconfigurations (e.g., one to two way conversions). Just want you to be aware as an update to what we talked about in May.

Have a good weekend.

Alex

From: John Baldauf <jbaldauf@HNTB.com>
Sent: Friday, June 29, 2018 9:31 AM
To: Bourgeau, Alex <bourgeau@semcog.org>; Feng, Li-yang <feng@semcog.org>
Cc: Matt Simon <MASimon@HNTB.com>; Mark Smith <mssmith@HNTB.com>; Rob Beuthling <RBeuthling@HNTB.com>; Eric Youngblom <eyoungblom@HNTB.com>
Subject: FW: I-94 SEMCOG model adjustments

Hi Alex/Li-yang,

Our team has completed the updates to SEMCOG's model. Please see our teams comments in the email below regarding the coding of the two-way service drives. Please let us know your thoughts on not including the two-way conversions in the model updates. If this is something SEMCOG feels should be captured in the model please provide feedback on the preferred approach to do so.

Also, to close the loop on our projection updates based on recent coordination with Li-yang, attached is the I-94 TM-3 Traffic Volume Forecasting that documents the updates to the traffic projections. We utilized the growth factors provided by SEMCOG in 2015 (see attached) and applied them to updated counts obtained in 2014 (original projections were based on 2010 counts). Please confirm SEMCOG concurs with these updates so we can document for the SEIS.

Thank you,

John Baldauf, P.E.
Cell (313) 920-7999 Tel (313) 230-0969 Email jbaldau@hntb.com

From: Rob Beuthling
Sent: Friday, May 18, 2018 4:50 PM
To: John Baldauf <jbaldauf@HNTB.com>; Robert Fieldbinder <rfieldbinder@HNTB.com>; Mark Smith <mssmith@HNTB.com>; Joseph Ulatowski <julatowski@HNTB.com>; Joe Blasi <JBlasi@HNTB.com>; Corey Fischer <crfischer@HNTB.com>
Cc: Eric Youngblom <eyoungblom@HNTB.com>
Subject: I-94 IACR Mobility Analysis - SEMCOG model adjustments

All,

Eric has completed the recoding of the network to match the current design, but did not include any one-way to two-way conversion. The model showed that increases and decreases due to the differences were applicable. But, due to limitations in the calibration of the model, we can't fully determine what the exact change should be. Therefore, based on the limited ability of the E6 model, and the high-level forecasts that were applied in 2015, we recommend to continue with engineering judgment used to make adjustments for the local street intersection volumes.

-Rob

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TECHNICAL MEMORANDUM



Existing (2014) Paramics Assessment and Model Calibration for I-94

NO. MDOT – TM 8

May 21, 2015

MDOT JN: 122114

Control Section: 82024

Author: Eric Youngblom
Jordan Williams

Reviewer: Rob Beuthling, PE
Jason Kessler, PE

Background:

This technical memorandum has been prepared as part of the I-94 Modernization Project Owners Representative Work Task #1, Subtask 2.2 Traffic. The purpose of this report is to document the calibration and validation of the Existing (2014) Paramics model for the study area corridor. Details in this report include review of the MOTSIM (*Maintenance of Traffic Simulation*) model received from MDOT on October 23, 2014, development of base year volumes, development of target speed profiles, Paramics inputs, validation results, and observations for the Existing AM and PM conditions.

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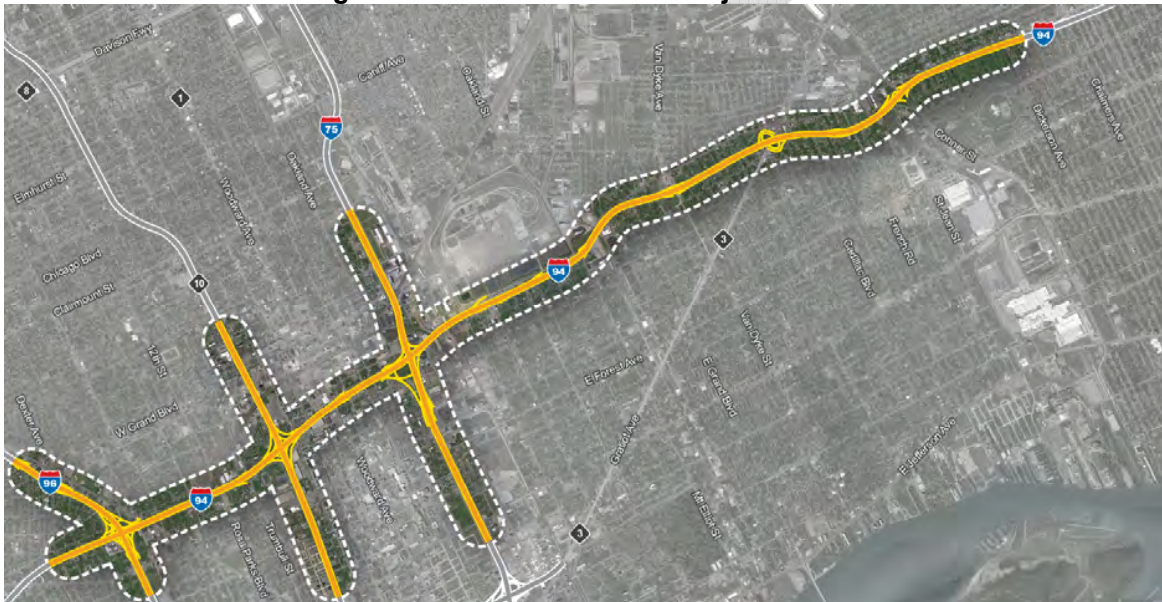
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May 21, 2015

1. Introduction

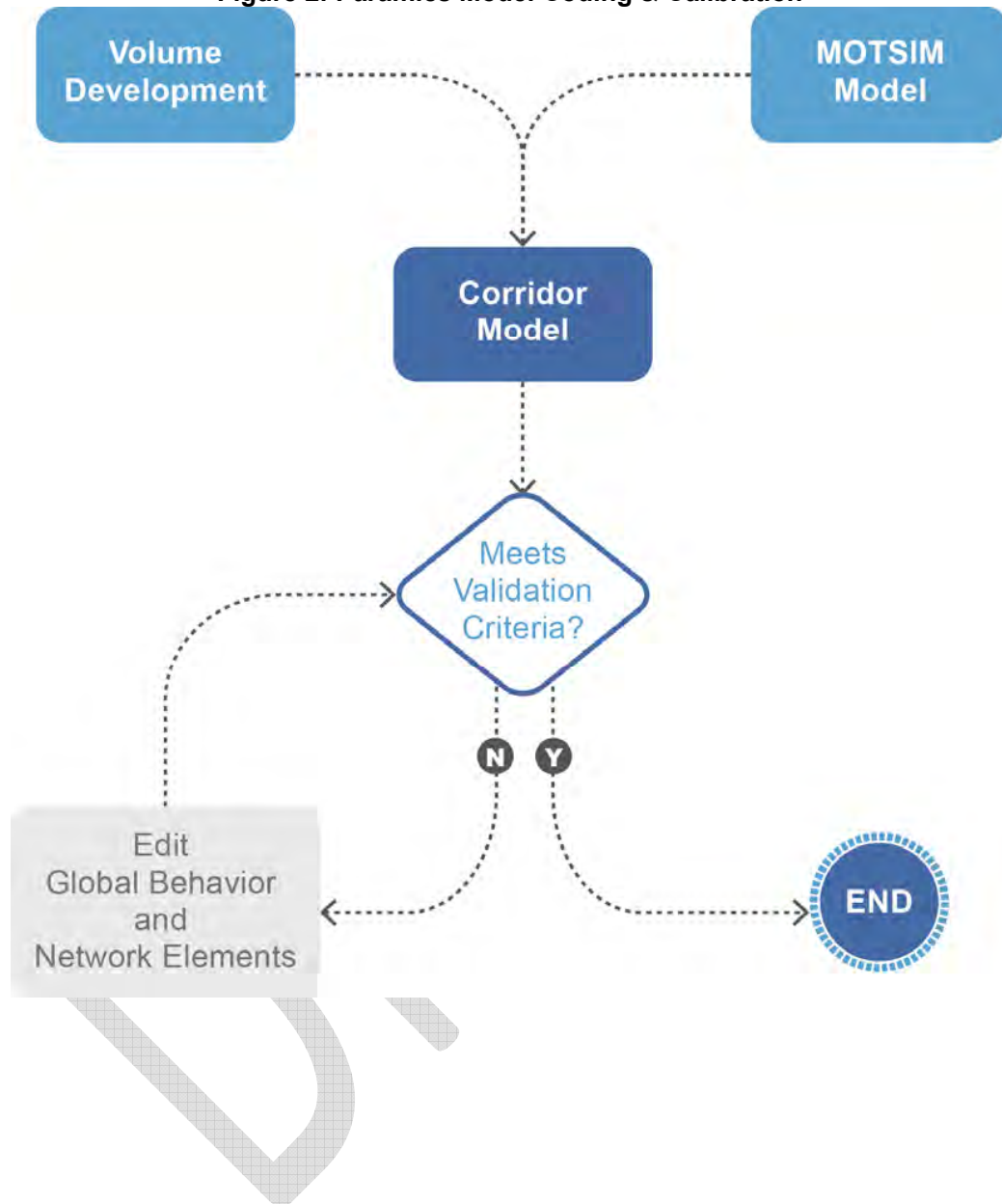
The limits of the I-94 Modernization Project are located in the City of Detroit between I-96 and Conner Ave, which is approximately seven miles in length, as shown in Figure 1 below. I-94 is currently striped as a six (6) lane urban freeway that carries three (3) lanes of westbound traffic and three (3) lanes of eastbound traffic. Within these seven miles of urban freeway there are over 50 ramp entrances/exits along the I-94 corridor including three (3) system to system interchanges at I-96, M-10, and I-75.

Figure 1: I-94 Modernization Project Limits



This report documents the calibration and validation of the Existing (2014) Paramics models for the study area corridor. Details in this report include review of the MOTSIM (*Maintenance of Traffic Simulation*) model received from MDOT, development of base year volumes, development of target speed profiles, Paramics inputs, validation results, and observations for the Existing AM and PM conditions. The calibration process is summarized in the Figure 2 below. The process uses the Existing Paramics model from MDOT and applies updated volumes to develop the corridor model. The model was then modified to match the observed volumes and observed speeds through network and variable manipulation. The calibration approach follows FHWA guidelines outlined in the *Traffic Analysis Toolbox Volume III: Guidelines for Applying Traffic Microsimulation Modeling Software*.

Figure 2: Paramics Model Coding & Calibration



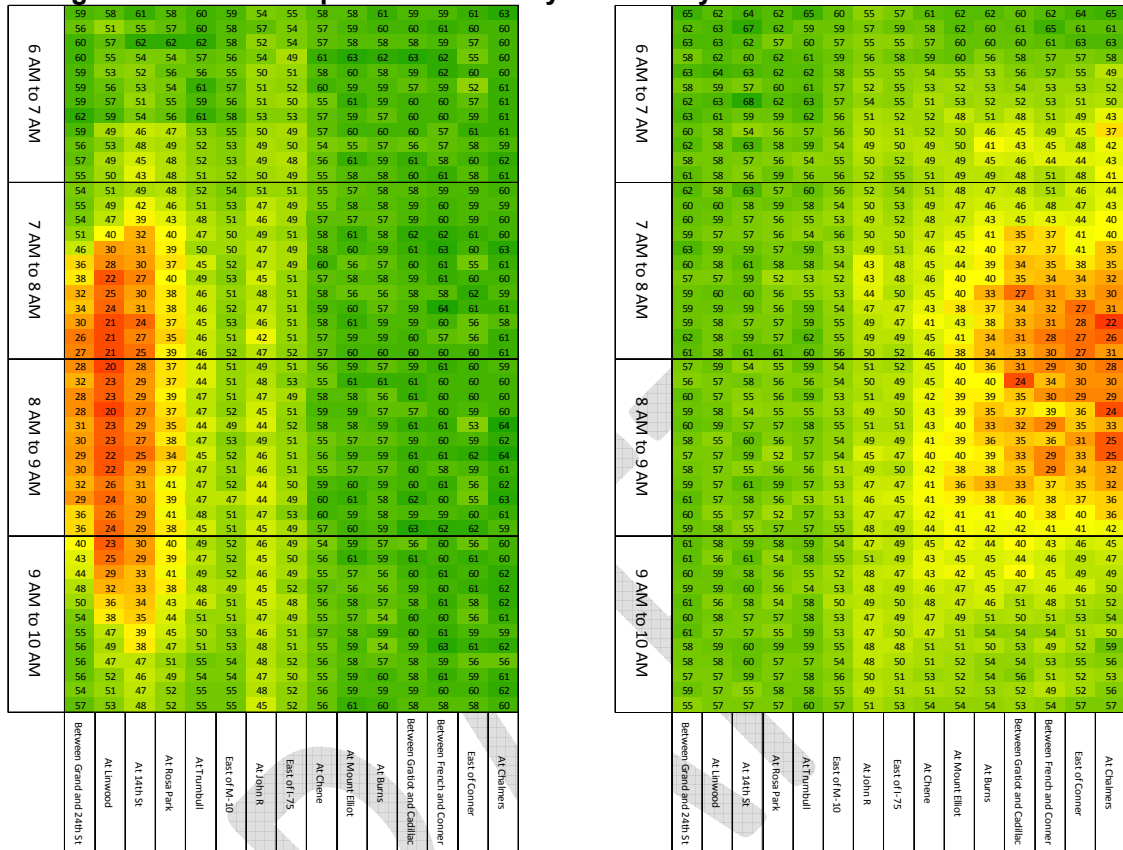
2. Paramics Model Inputs

2.1. Model Scoping

The model extents were established to assess the mainline operational needs within the Project's study area. Service interchanges and portions of the service drive system are included in the model to get proper platooning at the entrance ramps. To evaluate vehicle operations on the Interstate facility, the model uses an all-or-nothing traffic assignment. This traffic assignment provides the model a static volume set and is not meant to evaluate real time routing decisions that allow vehicles to use the service drive or other alternative routes.

Based on a FHWA guidelines, the hours of simulation for the AM and PM peak periods were established to capture the full period of congestion for each peak. These hours were determined from Nokia's *HERE* travel time data. Based on HERE travel time data the AM and PM peak periods are defined as 6-10 AM and 2-7 PM. Figure 3 and Figure 4 shown below represents speeds in 5 minute increments along the Y-axis, and geographic locations along the I-94 corridor on the X-axis.

Figure 3: AM HERE Speeds for Tuesday – Thursday in October – November 2014



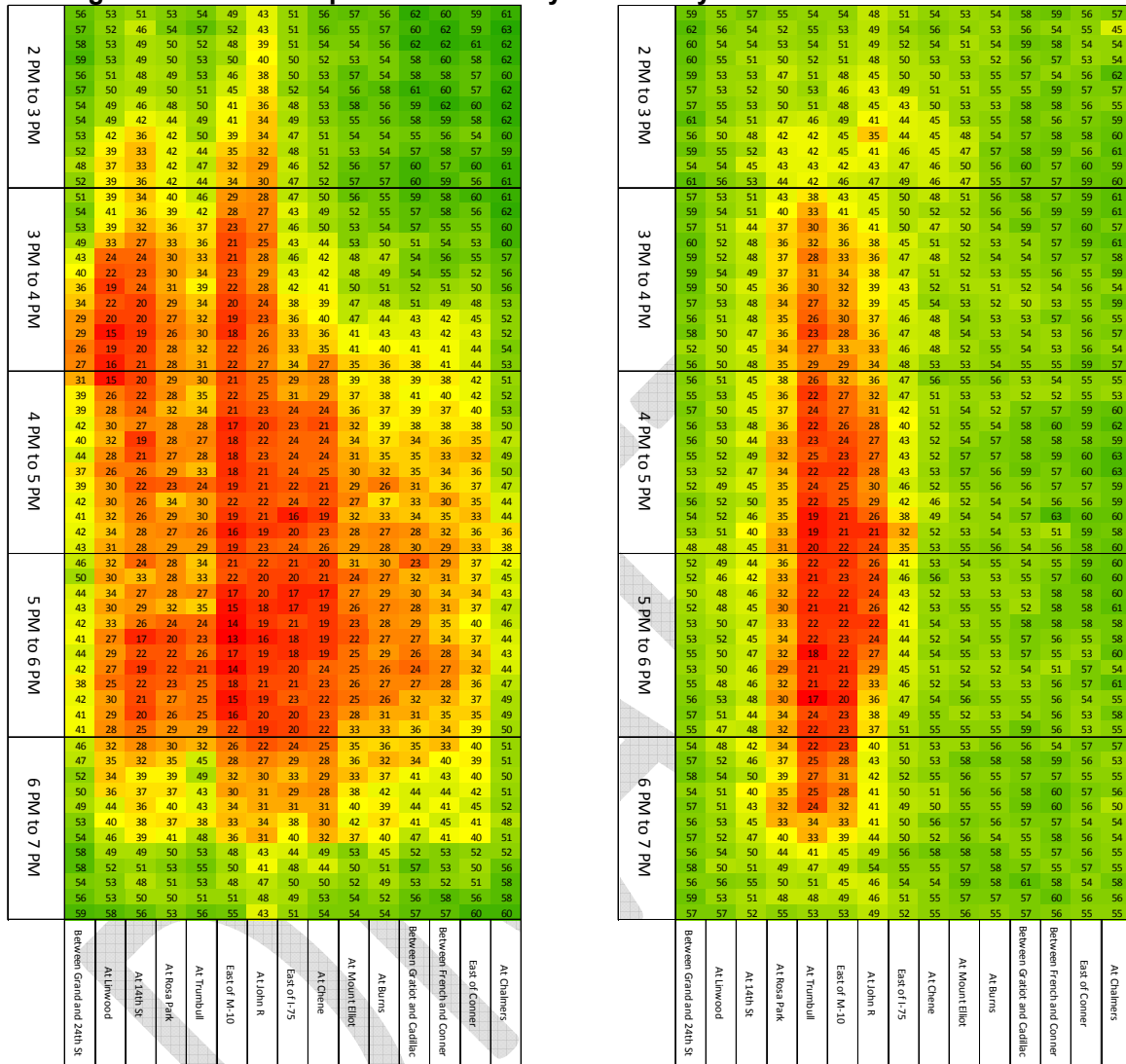
Eastbound



Westbound



Figure 4: PM HERE Speeds for Tuesday – Thursday in October – November 2014



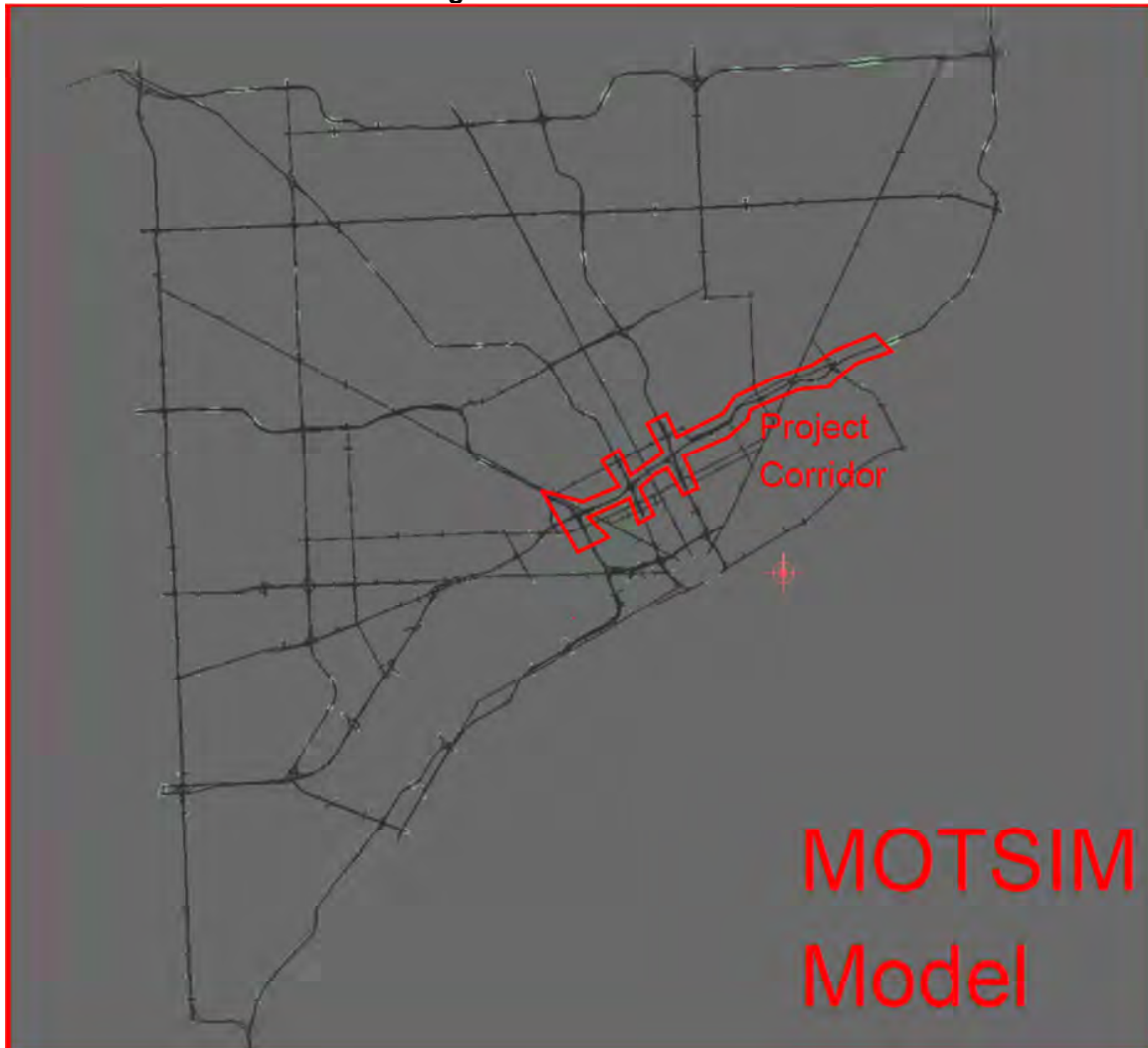
Eastbound

Westbound

2.2. MOTSIM Model

The MOTSIM model (See Figure 5 below) is a microsimulation model of the greater Detroit Metro region completed in Quadstone's Paramics software. Model elements, such as geometry, origin-destination patterns, and global settings were reviewed for incorporation into the project corridor model. The network geometry in the I-94 project corridor reflected the existing roadway condition and was extracted to start building the project corridor model. Modifications were made to update the Paramics elements from the MOTSIM model to represent best modeling practices for the corridor.

Figure 5: MOTSIM Model



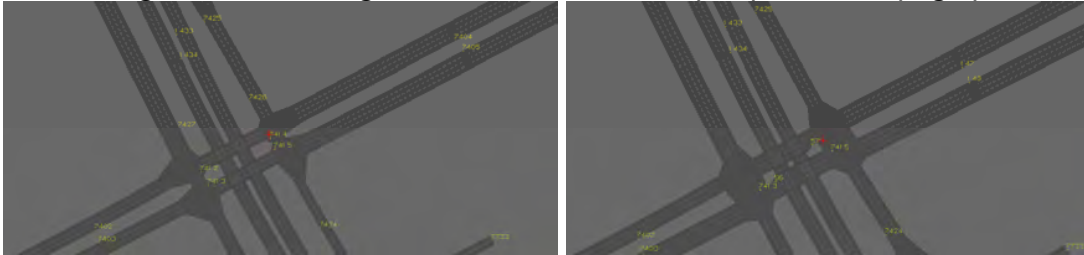
The modification to the MOTSIM network includes:

- I-94 model speed limits updated from 60 to 65 mph to the posted speed limit of 55 mph.
 - HERE speed data also confirmed that the typical free flow speed is closer to 55 mph than the 60-65 mph range.
- Link specific headway and reaction factors were removed for the calibration of the study area specific model. Some link-specific headway factors were later applied as required.
- Network coding for interchange terminals with a median was changed from two separate links to one link with two directions and offsets to allow for more accurate signal coding.

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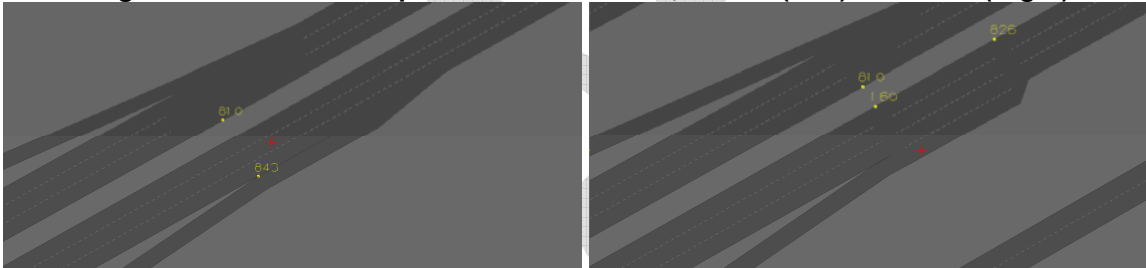
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Figure 6: Interchanges with Medians, Before (Left) and After (Right)



- The service drive system along I-94 was added to the model network.
- Global headway and reaction times were adjusted to match study area corridor operations.
- Entrance ramp acceleration lanes were measured and recoded as short-length lane additions in lieu of the Paramics ramp function.
 - Using the Paramics ramp function, vehicles become unreasonably stalled on entrance ramps. Short-length lane additions simulate more realistic behavior, with mainlines yielding to the ramps as the ramp traffic enters the mainline.

Figure 7: Entrance Ramp Acceleration Lanes, Before (Left) and After (Right)



- Lane utilization rules were established for sections of the corridor that have evidence of heavy left lane utilization. This occurs at mainline sections with poor sight distances and at sections with heavy ramp movements.
 - The image in Figure 8 below shows I-94 traffic near the I-75 Interchange at 5:15 PM. Both directions of travel show vehicles congregating in the two left lanes with the right lane used predominately for entering and exiting vehicles.

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Figure 8: Avoidance of Right Lanes During Peak Hours, Looking East over Beaubien St



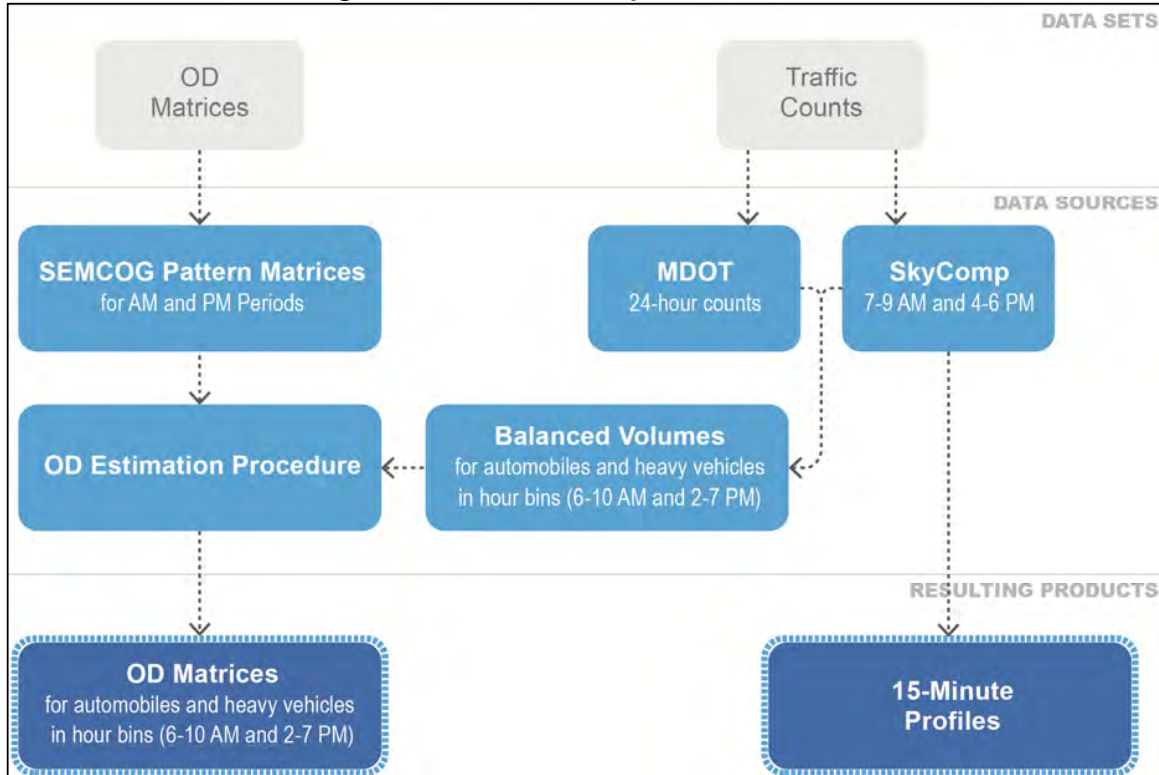
2.3. Volume Development

Traffic volumes were collected from two sources:

1. Time lapse aerial photography to capture mainline, ramp, and intersection turning movement counts during AM and PM peak hours
2. MDOT Classification mainline counts taken over 24 hour periods

The methodology for using both sources of count data with origin-destination matrices provided by the Southeast Michigan Council of Governments (SEMCOG) is shown in Figure 9 below and explained in the following sections: *Traffic Counts*, *Origin-Destination Matrices*, and *Profiles*.

Figure 9: Volume Development Procedure



Traffic Counts

Traffic counts were collected for mainline, ramps, and intersection movements in the I-94 corridor by Skycomp for the AM Peak 7 AM to 9 AM on Wednesday, November 5, 2014, and the PM peak 4 PM to 6 PM on Wednesday, October 8, 2014. The Skycomp counts were balanced for each direction along the mainline, ramp, and intersection for each hour. The counts from Skycomp were supplemented by MDOT 24 hour vehicle classification counts at 4 mainline locations in each direction along I-94: the Brush Street overpass, Dickerson Street overpass, Central Street overpass, and Trumbull Street overpass. Each screenline was counted in both eastbound and westbound directions for 24-hours, with vehicles classified by passenger car, single unit trucks, and combination trucks. Counts were totaled for each hour in each direction across the corridor, and plotted as a function of time of day. This data was then used to estimate a volume before and after the Skycomp count times. The general formula for estimating the volume for hours before and after the Skycomp count hours is shown below:

$$Volume_{i-1} = Volume_i \times \frac{\sum(MDOT \text{ Mainline Counts})_{i-1}}{\sum(MDOT \text{ Mainline Counts})_i}$$

$$Volume_{i+1} = Volume_i \times \frac{\sum(MDOT \text{ Mainline Counts})_{i+1}}{\sum(MDOT \text{ Mainline Counts})_i}$$

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During the calibration process the estimated volume were further adjusted to better match observed speeds.

Origin-Destination Matrices

The SEMCOG Travel Demand Model was utilized to create a pattern origin-destination (OD) matrix for the study area corridor model. OD matrices were exported for the AM and PM peak periods.

The Existing 2014 Paramics OD matrices for automobiles and trucks were developed through OD estimation using the SEMCOG pattern OD matrices and balanced Skycomp counts. The OD estimation process utilizes Microsoft Excel and Paramics Analyzer files to correlate OD pairs to individual turning movements on ramps, mainlines, and intersections. This estimation methodology relies entirely on the static all-or-nothing traffic assignment (with no perturbation) within the Paramics model. To reproduce realistic field conditions within Paramics, the model utilizes traffic counts collected as targets and varies the pattern OD matrix from SEMCOG. Because the SEMCOG pattern OD is not an observed OD pattern, the pattern is used to initialize values and adjusted to match observed traffic counts.

Profiles

Paramics allows for unique volume distribution within each hour matrix. The Paramics input file that controls the hourly distribution is called *profile*. The existing I-94 model uses profiles that divide the hour into 15 minute demand sets. To better replicate the influxes of demand within any given hour; profiles were developed for ten sections in the model, as shown below in Figure 10. Each freeway mainline origin (west I-94, east I-94, north I-96, south I-96, north I-75, south I-75, north M-10, and south M-10) were defined as sections. Additionally, cross street origins west of I-75 and east of I-75 were defined as separate sections. The Skycomp data was used to develop the profiles for 2 hours in each peak period, 7-9am and 4-6pm. Profiles for the 10 sections are shown in Figure 11 below for the AM and in Figure 12 below for the PM. The hours before and after Skycomp counts (6-7am, 9-10am, 2-3pm, 3-4pm, and 6-7pm) used a uniform profile. A uniform profile was used because only mainline screenline counts were available, (no ramps), and these screenlines showed predominantly uniform profiles.

Figure 10: Volume Distribution Profile Zones

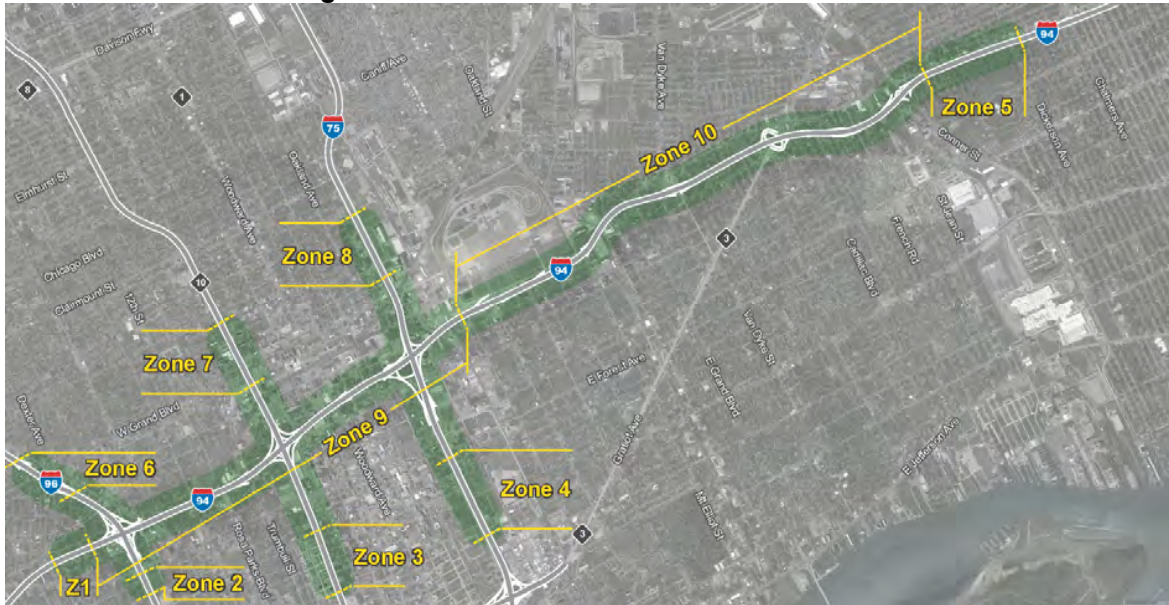


Figure 11: AM Peak - 15 Minute Volume Profiles

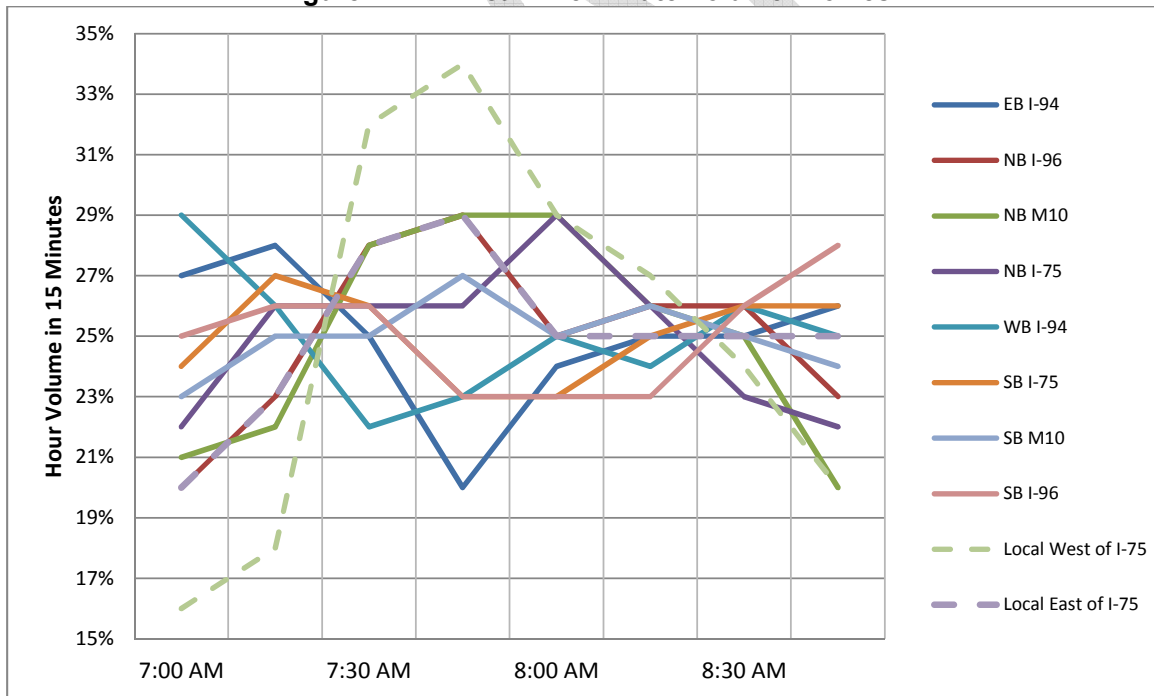
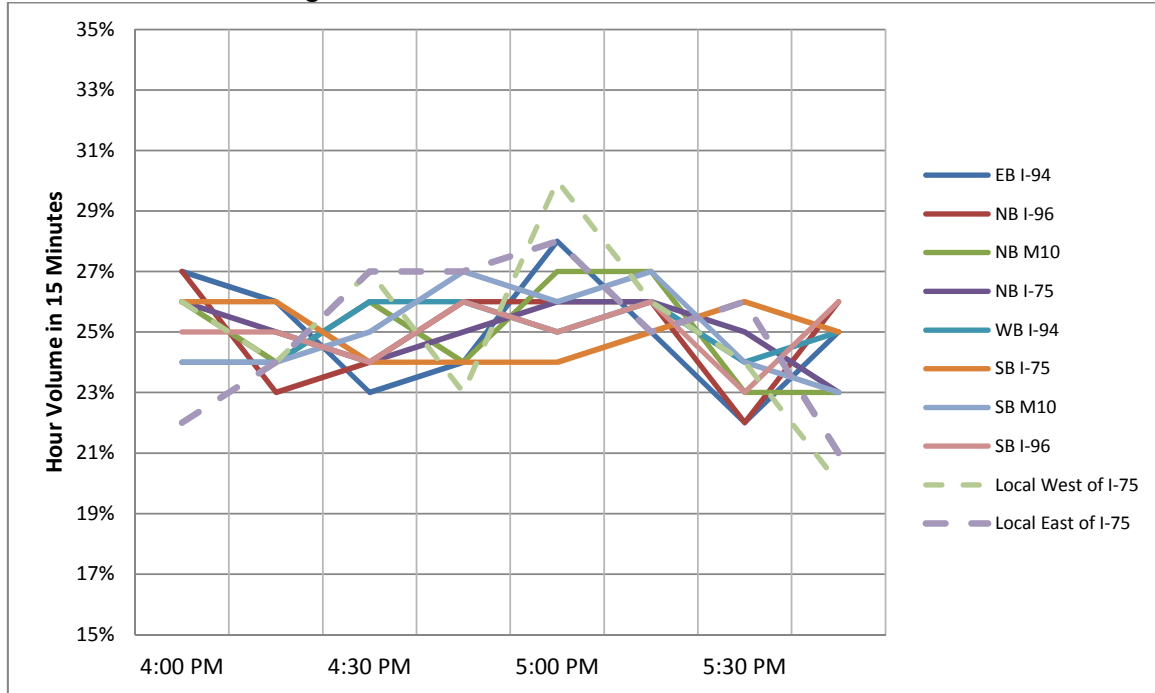


Figure 12: PM Peak - 15 Minute Volume Profiles



2.4. Speed Data

The model speed data was validated against speed data summarized from the Nokia *HERE* speed database. The HERE data was summarized and averaged over weekdays from October and November of 2014. The HERE data was also summarized for the specific days the traffic counts were taken. It was determined that both sets of data, the two-month average and day-of-count specific, had unique benefits in validation, so both were used in the validation process. The day-of-count specific speed data had the advantage that volumes used in the simulation were directly responsible for the travel time information from that day-of-count date. The concern using the day-of-count travel times exclusively was that it was unknown how many vehicles were used to calculate speed for each time-location bin and could potentially be skewed by a singular outlier vehicle moving at a non-representative speed. This concern is addressed using the two-month average speed data; two months of counts having two months of traffic from which to draw speed calculations. The concern with this data is that the traffic volumes were not simultaneously counted over the same two months; therefore volumes from the date of the count may be high or low compared to the monthly average, yielding a different anticipated speed from the model. In the validation process, speed measurement locations were identified and matched to links from the Paramics model. The model-output link speeds were compared side-by-side to both sets of HERE speed data, and used to provide a multi-dimensional idea of what speeds should be expected. By in large, the day-of-count speeds and the two-month average speeds followed similar trends, with day-of-count speeds matching or trending slightly slower than the two-month average speeds. The speed profiles for the corridor are summarized in Appendix A. Results comparing modeled speeds to observed speeds are discussed in the Validation Results section.

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2.5. Traffic Control

Traffic control in the Paramics model is set up using fixed traffic control timing plans that are designed to closely mimic real life traffic control design. Signal timings were provided by MDOT via Synchro files, and incorporated into the Paramics model. By in large these pre-timed signals performed successfully within Paramics, but a select few timing plans required minor adjustment to process demands successfully. Cycle length and sequence remained constant in this process.

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3. Calibration

The purpose of the Paramics calibration procedure is to align modeled volumes and speeds with observed data. When modeled results and observed results are within best practice criteria thresholds, the model is considered validated. Some of the calibration elements have been discussed in earlier sections, such as simulation time, route assignment, demand matrices, and link speeds. Other parameters such as speed memory and time steps were set to Paramics defaults and known best practices. Two global parameters were tested extensively within Paramics: mean target headway and mean driver reaction time. Mean target headway is the average time it takes for the front of a following vehicle to pass the same point as the front of the vehicle preceding it, while the mean reaction time is the time required for a following vehicle to respond to the vehicle preceding to accelerate or decelerate. The value of these factors does not necessarily represent field headway and reaction times, but are rather model inputs to achieve operations that represent field conditions. Through the calibration procedure the headway and driver reaction time were adjusted from 0.5s to 1.0s. After multiple iterations, the results indicated that maintaining a headway of 0.75s and increasing the reaction time from 0.75s to 0.85s was most appropriate for achieving model validation. A summary of the global parameters for the MOTSIM model and the I-94 corridor model are listed in Table 1.

Table 1: Paramics Model Parameters

Parameter	MOTSIM Model		I-94 Project Model	
	AM Period	PM Period	AM Period	PM Period
Paramics Version	5.20		6.9.3	
Duration of simulation	4 hours	5 hours	4 hours	5 hours
Simulation Time	5:00 AM – 9:00 AM	2:00 PM – 7:00 PM	6:00 AM – 10:00 AM	2:00 PM – 7:00 PM
Critical Analysis Hours	N/A		7:00 AM – 9:00 AM	4:00 PM – 6:00 PM
Number of Time steps per second	4		5	
Speed Memory	5		5	
Route Assignment type	All or nothing, w/ perturbation		All or nothing, No perturbation	
Demand Matrix Structure	Matrix 1 = Passenger Cars Matrix 2 = Heavy Vehicles		Matrix 1 = Passenger Cars Matrix 2 = Heavy Vehicles	
Mean Target Headway	0.75 seconds		0.75 seconds	
Mean Driver Reaction Time	0.75 seconds		0.85 seconds	
Link Speeds	Speed Limit plus 5-10 mph		Speed Limit	
Curve Speed Factor	1		1	
Vehicles	Provided with MOTSIM Model (6 types)		Expanded (16 types)	

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Number of Simulation Runs

The calibration procedure used the average of seven simulation runs to assess the impacts of variable and network changes. The metrics summarized in the Validation results is based on 25 runs. The 25 runs correlates to the 25 days of speed data used for the 2-month average target. At some locations, there is significant variation in speeds because of the volatility of congestion based on the shock wave effect of downstream queues. The modeled speed data showed similar trends to the HERE speed data summarized in Appendix B, where bottleneck location had low speed variation between runs and location upstream of bottlenecks had large speed variation between runs. Compiling results using the average of 25 runs provides more confidence in the average model results.

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4. Validation Results

The validation results discussed below show how well the model represents field verified volumes and speeds. The methodology for validation of speeds and volume follow the *FHWA Traffic Analysis Toolbox Volume III*.

The link by link validation data is summarized in Appendix A

Existing Volume Validation

Volume validation is summarized for freeway mainlines and ramps. The volume validation uses the GEH static to compare modeled volumes to observed volumes.

The GEH statistic compares the modeled Paramics volume to the actual balanced observed count volumes for each time period. According to best practices, if the GEH statistic is below 5 for 85% or more of the links, then the modeled volumes are considered an acceptable representation of the observed volumes. The GEH statistic is defined as:

$$GEH = \sqrt{\frac{2(M - C)^2}{M + C}}$$

Where: M = Paramics Modeled Volume
C = Balanced Observed Volume

The GEH statistic was used to compare the modeled volume and observed volumes in hour increments for two hour periods in both the AM (7-9 AM) and PM (4-6 PM) peak periods. Below is a summary of the GEH statistics for the mainline links. A full link-by-link comparison of the GEH is in Appendix A. The GEH summary in Table 2 indicates that the existing AM and PM models closely match the balanced 2014 volume sets.

Table 2: The Percent of Freeway links in 2014 Existing Model with GEH < 5.0

AM Model		PM Model	
7-8 AM	8-9 AM	4-5 PM	5-6 PM
92 %	99 %	100 %	99 %

Existing Speed Validation

Speed validation in this section is summarized for I-94 freeway links. Additional speed validation results on a link-by-link basis for I-94, I-96, I-75, and M-10 are shown in Appendix A.

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The best practice for speed validation is to maximize the number of segments that are within 10 mph of the observed speed range.

The modeled speeds were validated against the *HERE* speed database for the Tuesday-Thursday average of October and November 2014, and against the speed data on the day of the count (AM peak: November 5, PM peak: October 8). The Paramics model captures the increase and decrease of congestion over the model periods. For each model there are 2 critical hours that are summarized in the tables below. The tables show the percentages of mainlines that is in each speed category and then the summary of how each category validates to the speed category. The percentage of links is based on link length.

The calculations summarized in the tables are determined using the following definitions.

$Speed_{Day}$ – Observed Speed the day of the count

$Speed_{2Month}$ – Observed average speed for Tuesday-Thursday in October and November 2014

$Speed_{Mod}$ – The Average Modeled speed

$$Observed\ Speed = \frac{Speed_{Day} + Speed_{2Month}}{2}$$

Within 10 mph: if $Speed_{Mod} > \text{minimum}(Speed_{Day}, Speed_{2Month}) - 10$
and $Speed_{Mod} < \text{maximum}(Speed_{Day}, Speed_{2Month}) + 10$

Slower by 10 mph: if $Speed_{Mod} < \text{minimum}(Speed_{Day}, Speed_{2Month}) - 10$

Faster by 10 mph: if $Speed_{Mod} > \text{maximum}(Speed_{Day}, Speed_{2Month}) + 10$

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Table 3: Eastbound Speed Validation for AM Peak – EB I-94

	7- 8 AM				8-9 AM			
Observed Speed (mph)	% of total Directional Links	% within 10 mph	% slower by > 10 mph	% faster by > 10 mph	% of total Directional Links	% within 10 mph	% slower by > 10 mph	% faster by > 10 mph
> 50	59%	91%	9%	0%	59%	91%	9%	0%
40 – 50	24%	60%	0%	40%	24%	49%	0%	51%
30 - 40	7%	100%	0%	0%	7%	87%	13%	0%
20 - 30	10%	100%	0%	0%	3%	100%	0%	0%
< 20	0%	0%	0%	0%	7%	100%	0%	0%
Total		85.35%	5.01%	9.64%		81.67%	5.91%	12.42%

Table 4: Westbound Speed Validation for AM Peak – WB I-94

	7- 8 AM				8-9 AM			
Observed Speed (mph)	% of total Directional Links	% within 10 mph	% slower by > 10 mph	% faster by > 10 mph	% of total Directional Links	% within 10 mph	% slower by > 10 mph	% faster by > 10 mph
> 50	58%	87%	13%	0%	50%	100%	0%	0%
40 – 50	27%	100%	0%	0%	27%	100%	0%	0%
30 - 40	15%	100%	0%	0%	15%	100%	0%	0%
20 - 30	0%	0%	0%	0%	8%	100%	0%	0%
< 20	0%	0%	0%	0%	0%	0%	0%	0%
Total		92.29%	7.71%	0.00%		100.00%	0.00%	0.00%

Table 5: Eastbound Speed Validation for PM Peak – EB I-94

	4 - 5 PM				5 - 6 PM			
Observed Speed (mph)	% of total Directional Links	% within 10 mph	% slower by > 10 mph	% faster by > 10 mph	% of total Directional Links	% within 10 mph	% slower by > 10 mph	% faster by > 10 mph
> 50	0%	0%	0%	0%	0%	0%	0%	0%
40 – 50	0%	0%	0%	0%	0%	0%	0%	0%
30 - 40	34%	79%	0%	21%	7%	100%	0%	0%
20 - 30	31%	89%	11%	0%	41%	63%	0%	37%
< 20	34%	88%	0%	12%	52%	100%	0%	0%
Total		85.18%	3.50%	11.33%		84.53%	0.00%	15.47%

Table 6: Westbound Speed Validation for PM Peak – WB I-94

	4 - 5 PM				5 - 6 PM			
Observed Speed (mph)	% of total Directional Links	% within 10 mph	% slower by > 10 mph	% faster by > 10 mph	% of total Directional Links	% within 10 mph	% slower by > 10 mph	% faster by > 10 mph
> 50	31%	100%	0%	0%	31%	100%	0%	0%
40 – 50	15%	100%	0%	0%	15%	100%	0%	0%
30 - 40	4%	100%	0%	0%	4%	0%	0%	100%
20 - 30	50%	72%	0%	28%	50%	98%	0%	2%
< 20	0%	0%	0%	0%	0%	0%	0%	0%
Total		85.86%	0.00%	14.14%		95.04%	0.00%	4.96%

The tables above show that the modeled speed matches 80% to 100% of the links on I-94 during the critical analysis hours. This indicates that the existing model acceptably replicates real world conditions.

5. Operational Observations

The model validation process discussed in the previous sections shows that the existing models are a fair representation of existing conditions and therefore can be used to assess existing operations.

AM Peak Period Observations

Eastbound I-94

In the morning peak hours, eastbound congestion focuses most heavily at the entrance ramp merges from Northbound and Southbound I-96 to Eastbound I-94. Some ramp backups occur, although the backups remain predominantly upstream along I-94 eastbound ahead of the merges as highlighted by the slow speeds in Figure 13. From the M-10 interchange on westward, congestion opens up with speeds increasing once again, as shown in Figure 14. The Paramics image in Figure 18 below in *AM Model Observations* highlights the eastbound merge section along I-94 from I-96.

Westbound I-94

Westbound congestion in the morning peak hours is much more distributed than that experienced in the eastbound direction. Congestion remains focused along I-94 upstream of the diverge to I-75, shown in Figure 15 with congestion clearing up after this diverge (Figure 16). The cause of the congestion is from a high frequency of entrance and exit ramps along I-94 upstream of I-75, with congestion following a shockwave pattern up and down this corridor for a majority of the 7am-9am peak hours. See Figure 19 in *AM Model Observations* below, highlighting the westbound corridor in question.

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Figure 13: Eastbound Congestion at I-96

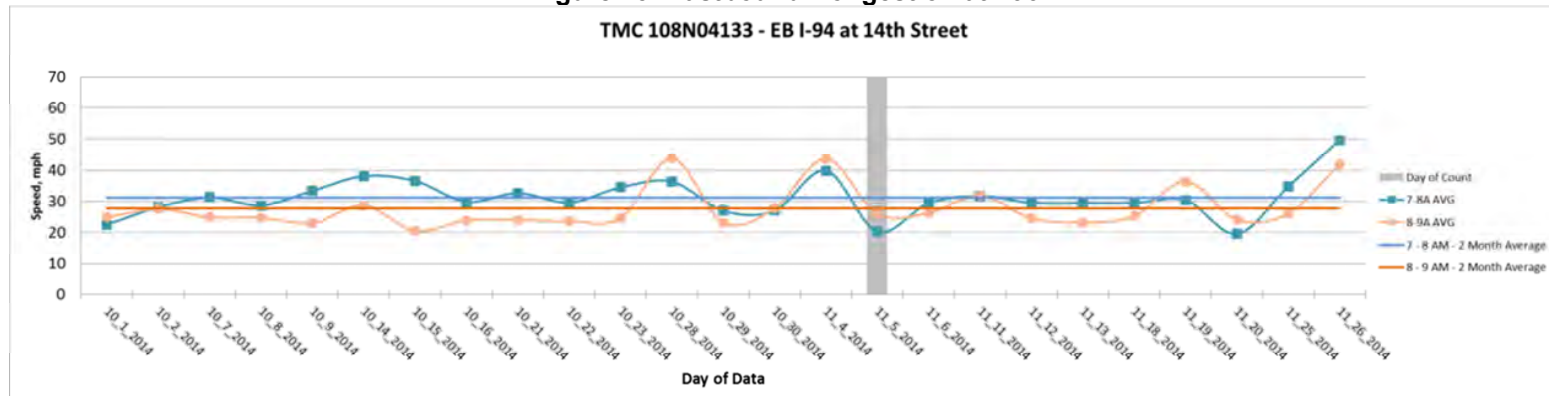
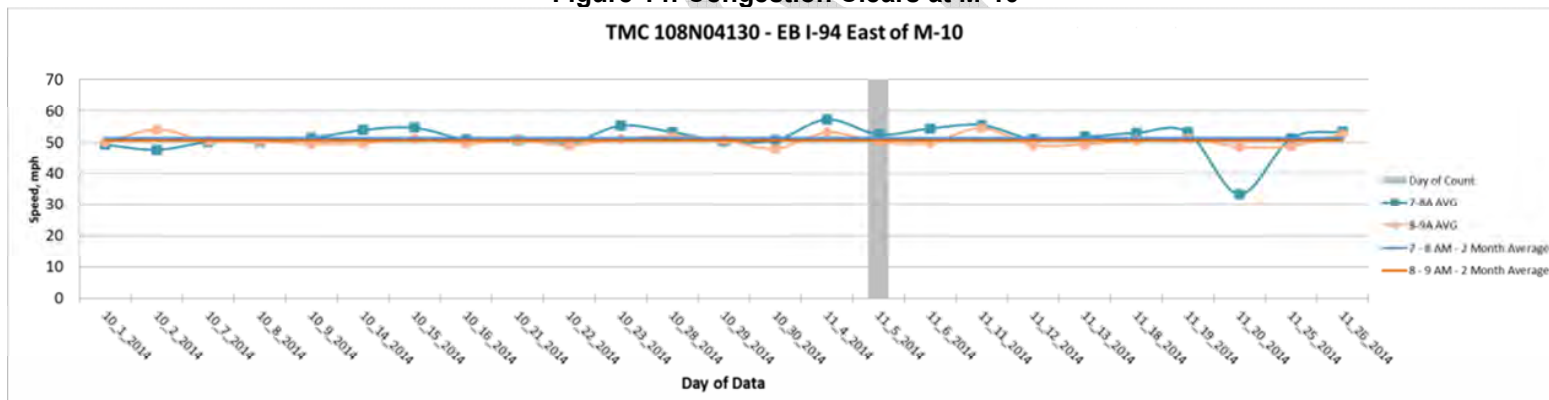


Figure 14: Congestion Clears at M-10



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Figure 15: Westbound I-94 Congestion Upstream of Diverge to I-75

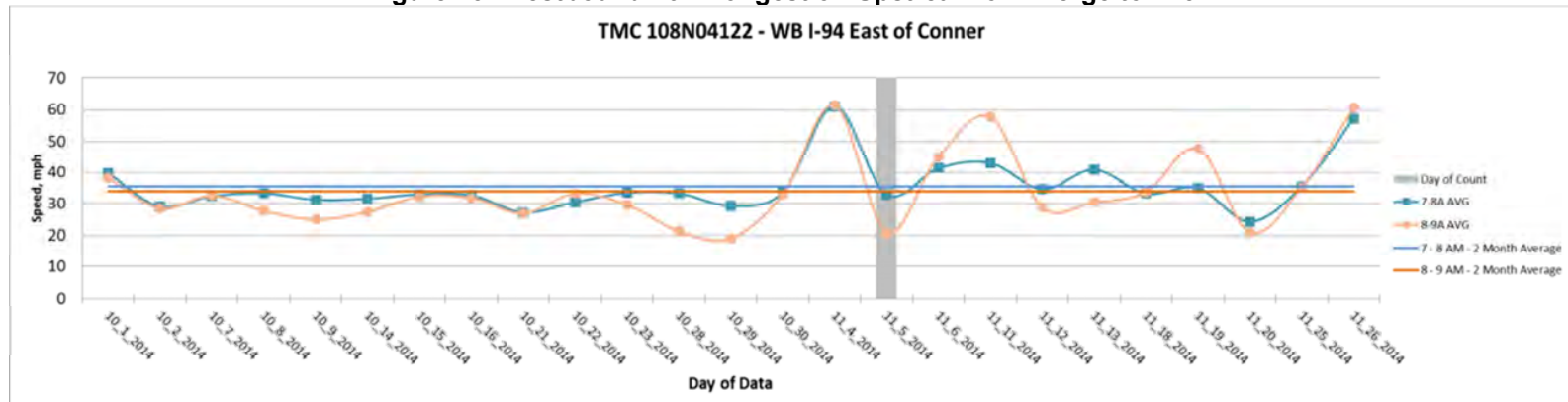
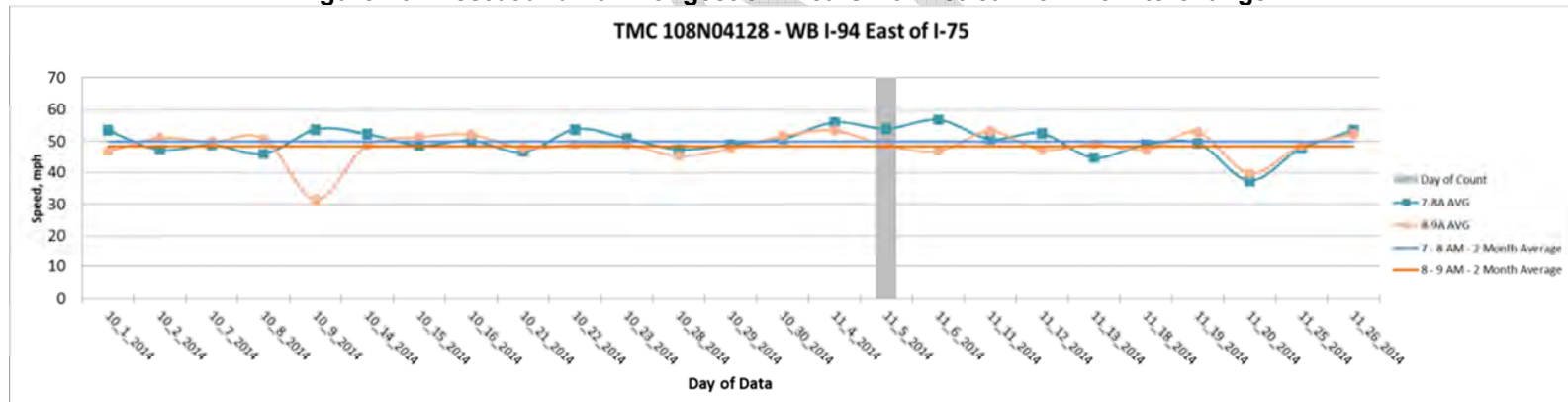


Figure 16: Westbound I-94 Congestion Clears Downstream of I-75 Interchange



AM Model Observations

Figure 17: AM Congestion Zones

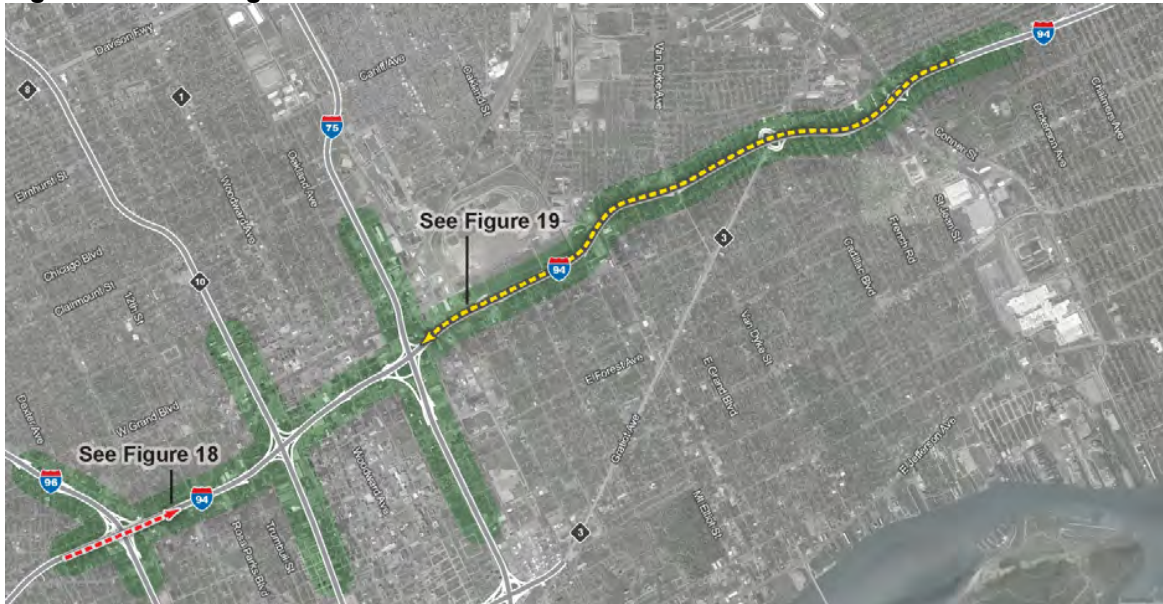


Figure 18: Eastbound Congestion on I-94 from Merging I-96 Traffic

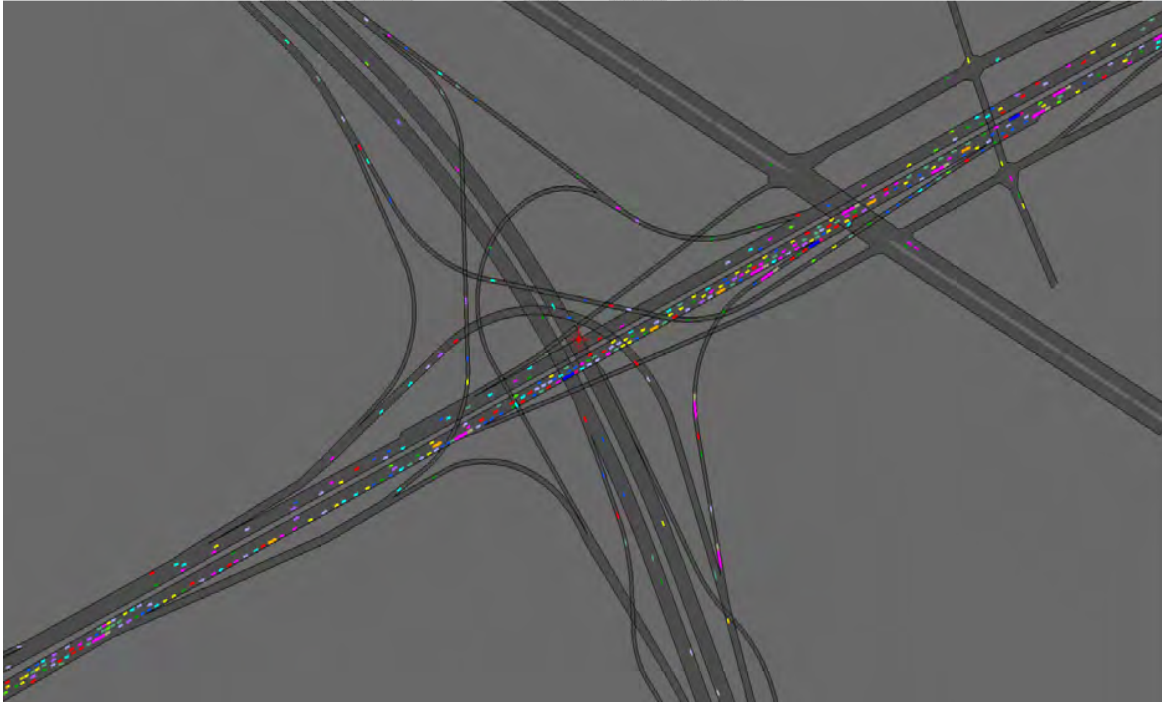
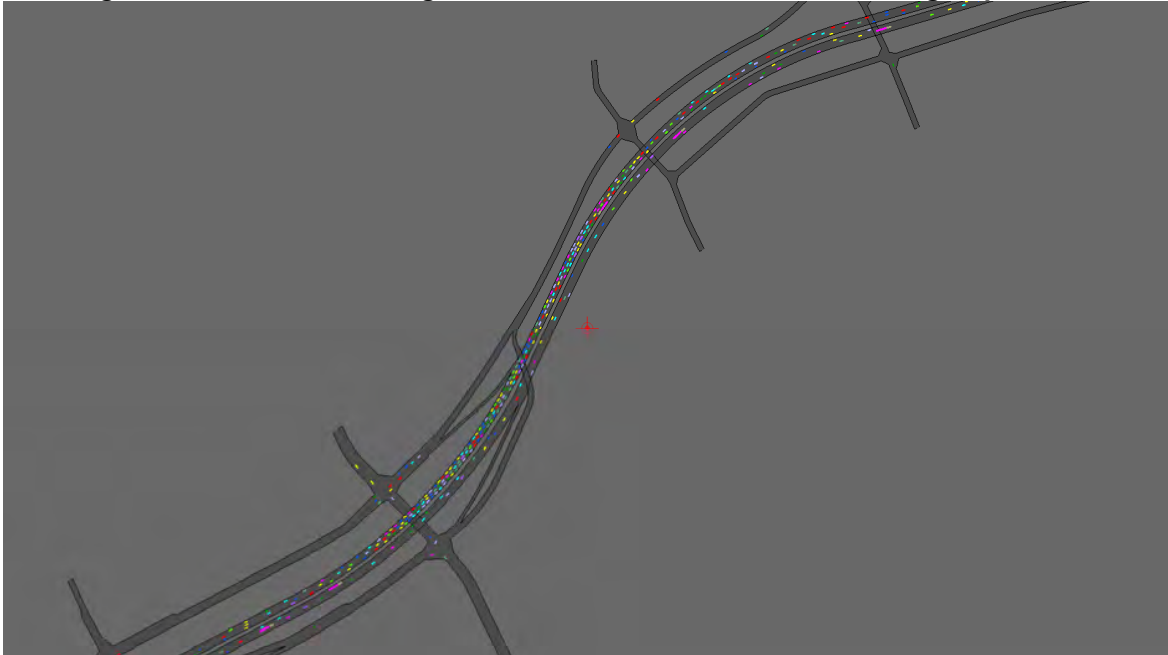


Figure 19: Westbound Congestion Shockwave from I-94/I-75 Diverge Upstream



PM Peak Period Observations

Eastbound

The *HERE* speed data indicated that there is consistent congestion in the Eastbound direction from I-75 to Conner (Figure 20). This congestion creates queues and impacts operations upstream to I-96 (Figure 21). The speed data and model results show shockwave effect for facilities upstream of I-75, creating varying degrees of congestion between model runs and observed data. This modeled eastbound congestion is captured in Figure 25, Figure 26, and Figure 28.

Westbound I-94

The data and model results show westbound I-94 is congested between Trumbull and I-75. The major bottleneck for this direction occurs at Trumbull (Figure 22) and M-10 entrance ramps with queues extending upstream towards I-75 (Figure 23).

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Figure 20: Eastbound I-94 Congestion at I-75

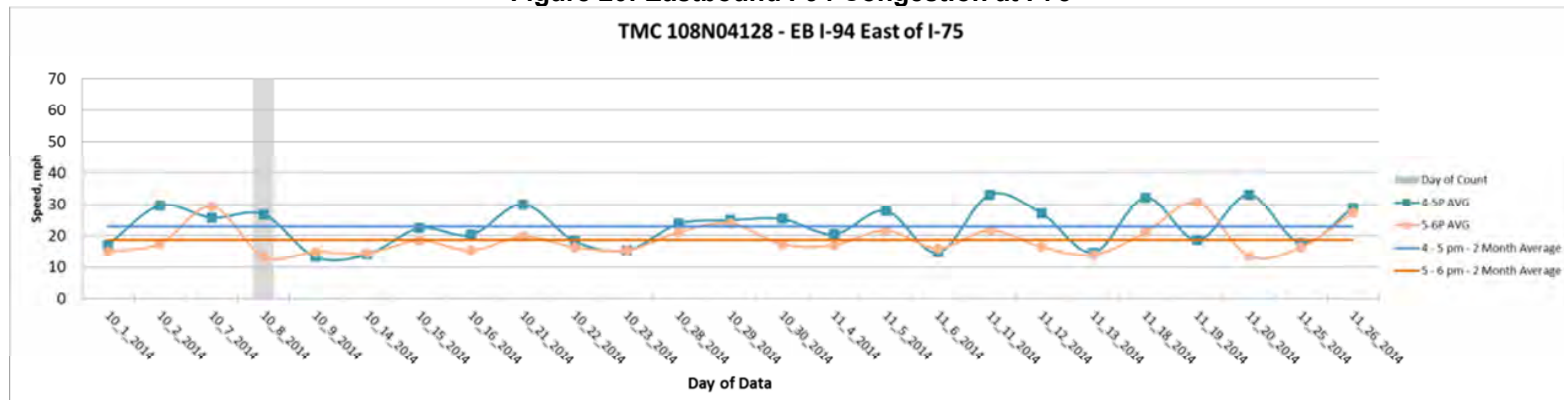
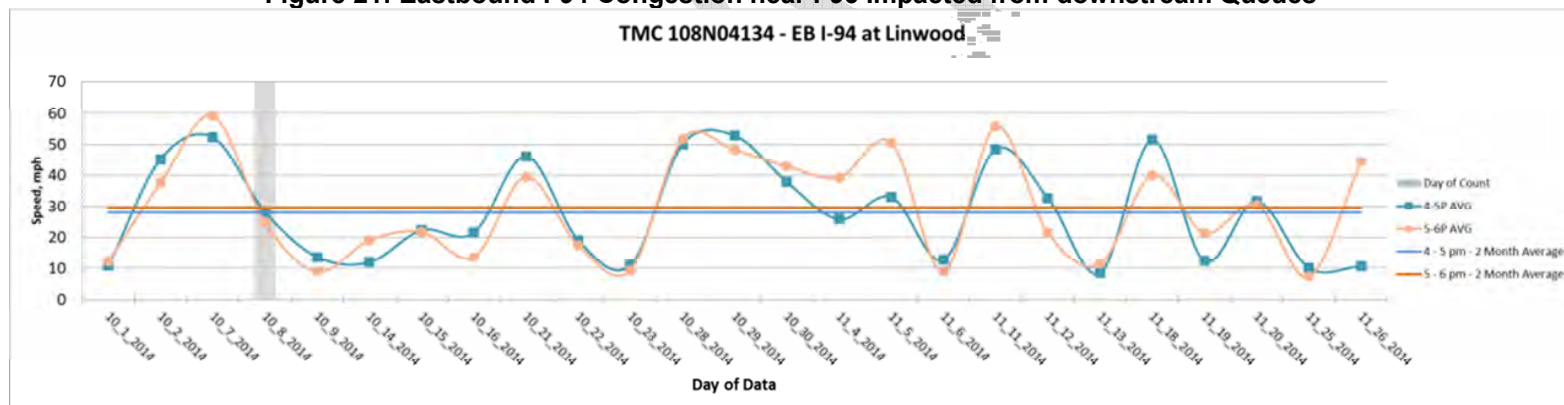


Figure 21: Eastbound I-94 Congestion near I-96 Impacted from downstream Queues



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Figure 22: Westbound I-94 Congestion at Trumbull

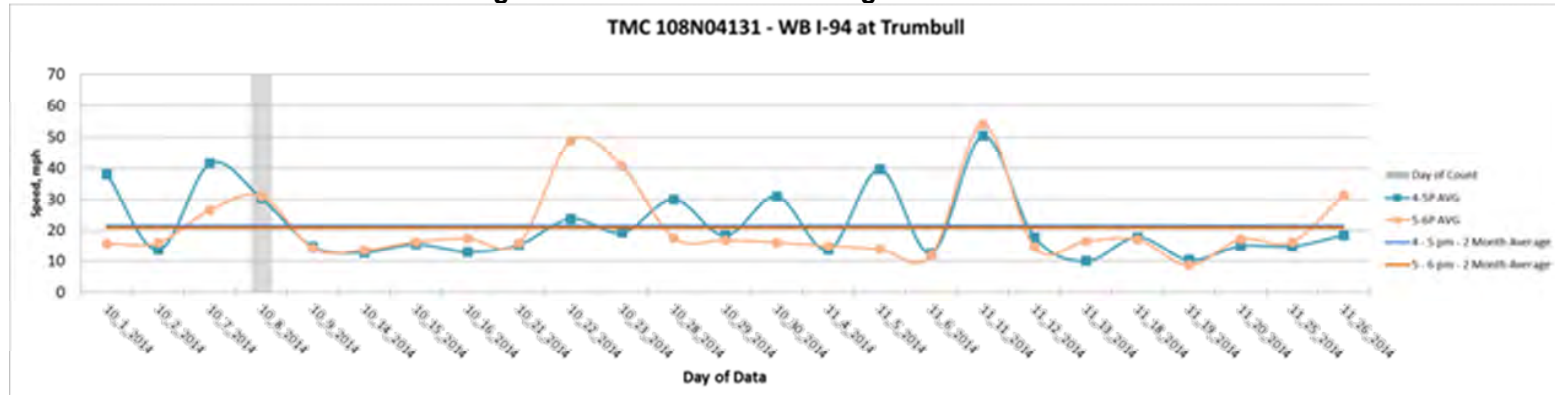
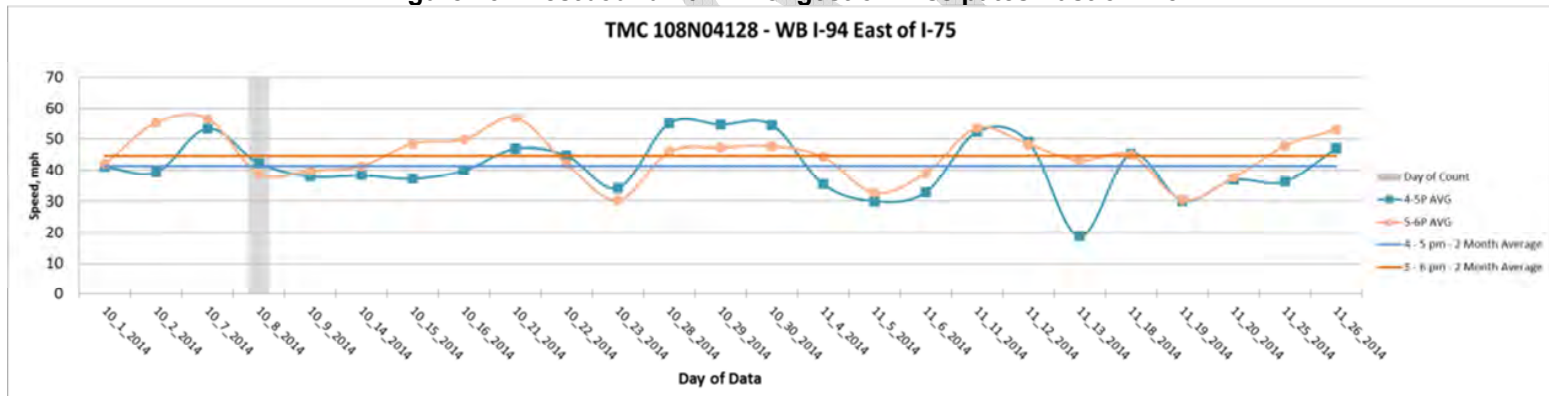


Figure 23: Westbound I-94 – Congestion Dissipates East of I-75



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PM Model Observations

The images below are screen captures from the PM Existing Paramics Model, which shows congestion levels at different times of the day. This congestion is consistent with the speed profiles shown above.

The figure below shows queues forming in the EB and WB directions around M-10 and I-75. The westbound queues are from Trumbull towards I-75 and the EB is from I-75 through the M-10 Interchange.

Figure 24: PM Congestion Zones

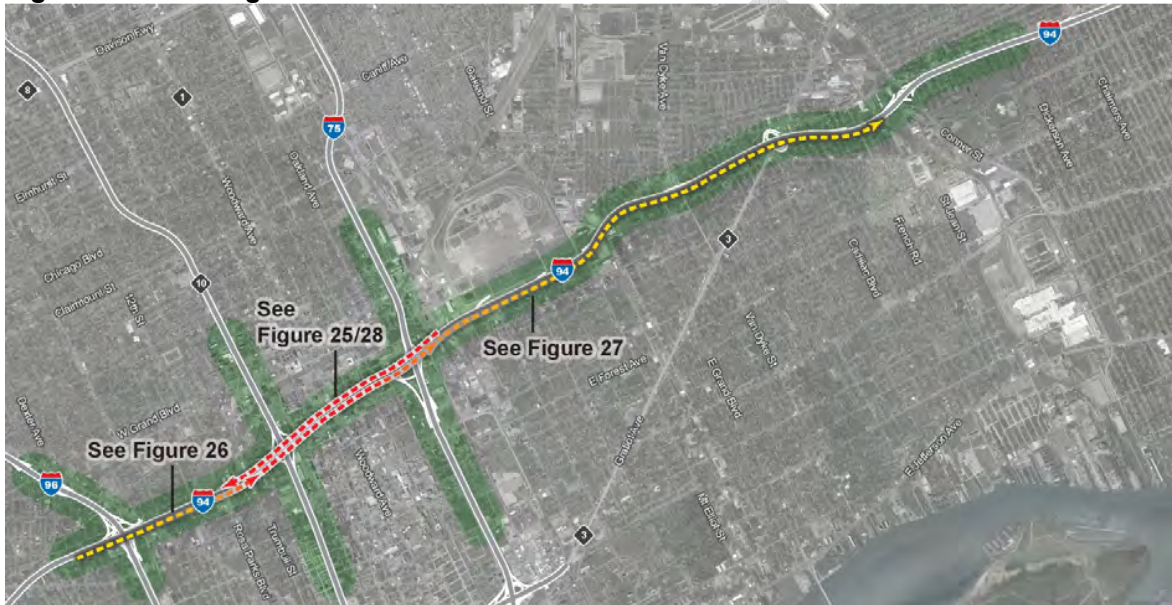


Figure 25: PM Existing at 3:30 PM – WB and EB Congestion

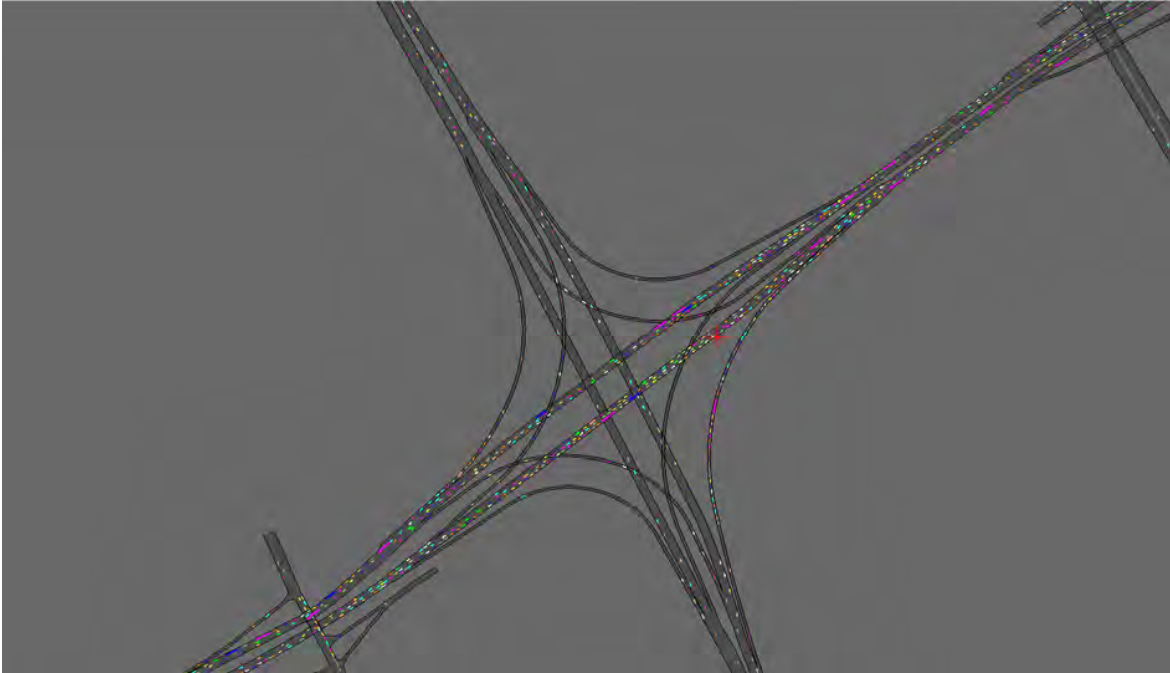
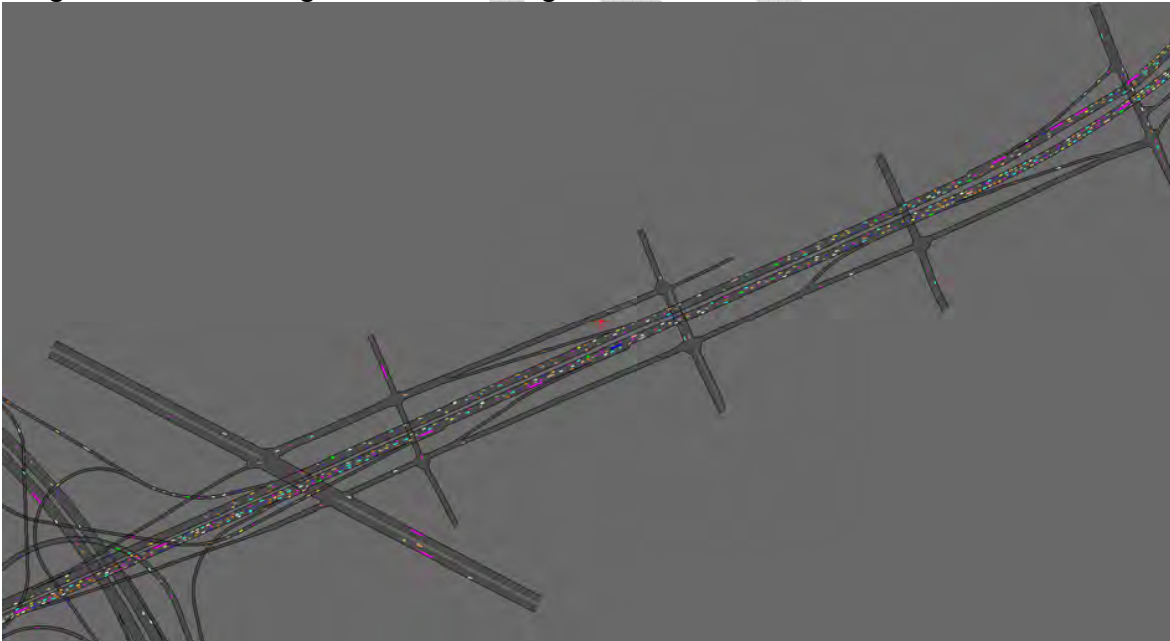
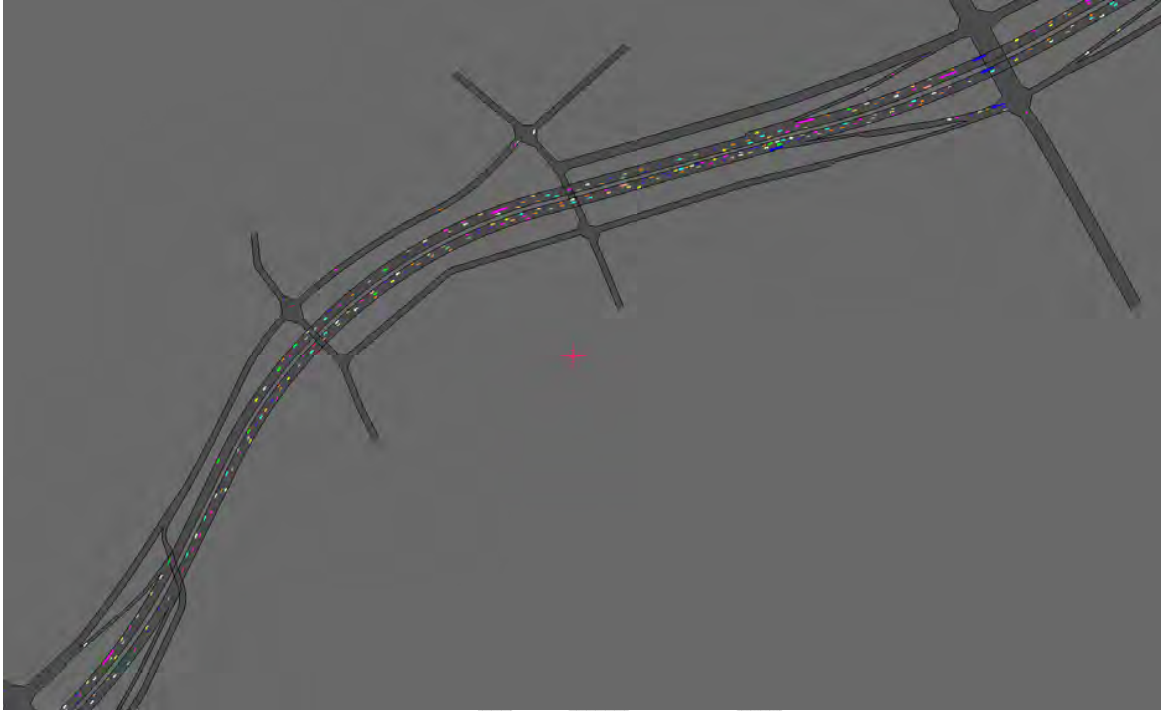


Figure 26: PM Existing at 4:30 PM – Congestion in the EB Direction is Extended to I-96



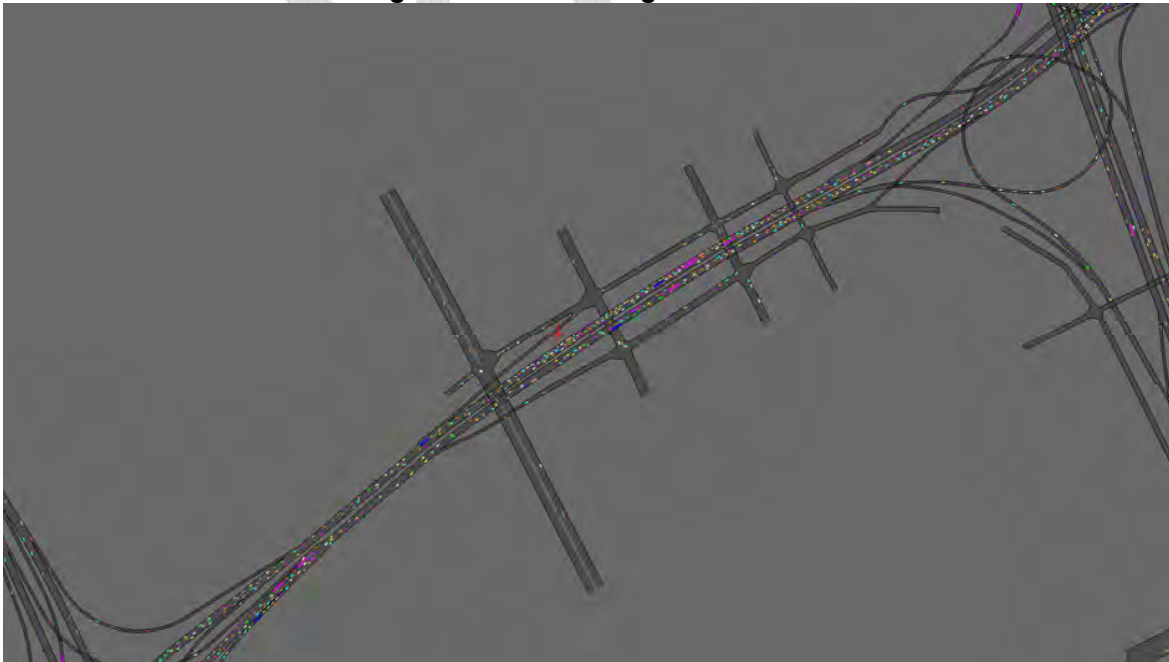
The figure below show Eastbound I-94 traffic east of I-75 traveling near 30 mph, but no queues are forming in this section. Westbound I-94 is at free flow speeds.

Figure 27: PM Existing at 4:30 PM – Eastbound I-94 East of I-75



The figure below shows heavy congestion persisting for the EB and WB I-94 west of I-75.

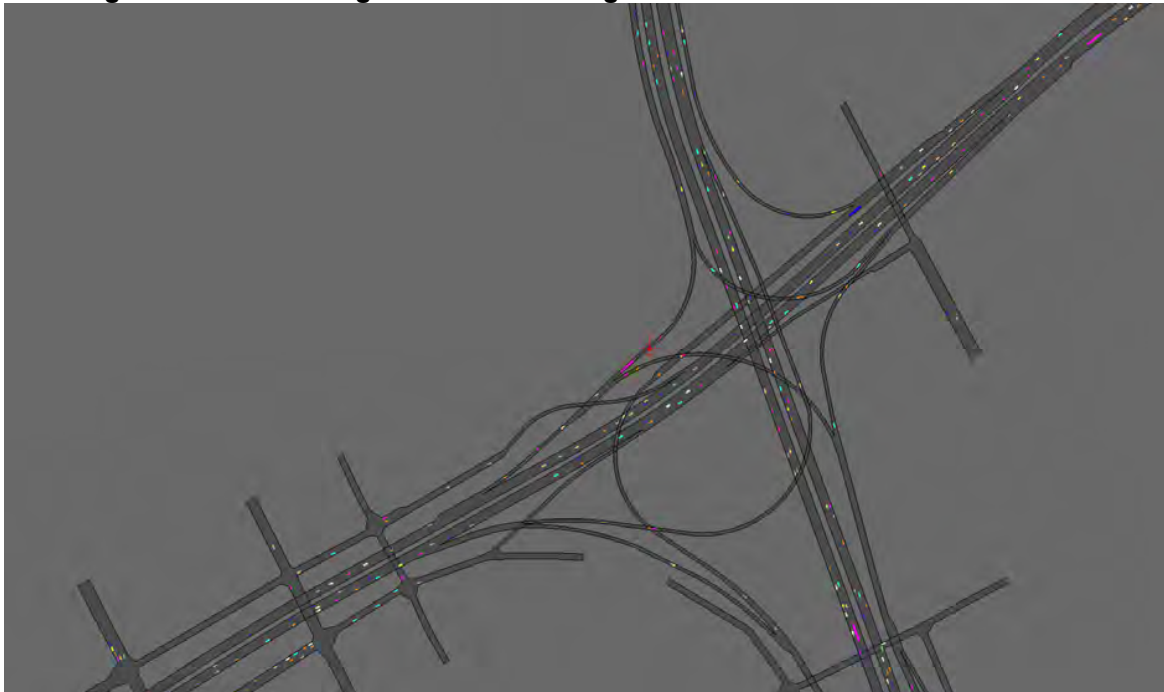
Figure 28: PM Existing at 5:30 PM



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Figure 29: PM Existing at 6:45 – I-94 Congestion is Cleared in Both Directions.



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Appendix A: Validation Sheets

AM Period - Existing Validation

Link	Facility	Type	AM07						AM08						AM09						AM10									
			Model Output Volume	Simulation Speed (mph)	Avg Hour Speed, Date of Count	2mo. Avg Hour Speed	Auto Volume Lookup	Truck volume Lookup	Total Volume Lookup	Model Output Volume	GEH (Target v. Model)	Density pc/mi/in	LOS	Simulation Speed (mph)	Avg Hour Speed, Date of Count	2mo. Avg Hour Speed	Auto Volume Lookup	Truck volume Lookup	Total Volume Lookup	Model Output Volume	GEH (Target v. Model)	Density pc/mi/in	LOS	Simulation Speed (mph)	Avg Hour Speed, Date of Count	2mo. Avg Hour Speed	Model Output Volume	Simulation Speed (mph)	Avg Hour Speed, Date of Count	2mo. Avg Hour Speed
EB I-94	1014-1012 EB I-94 West of I-96	Mainline	4266	52.91			4370	374	4744	4575	2.48	48	F	24.64			3760	360	4120	4236	1.79	43	E	25.77			3808	48.71		
	1018-1019 EB I-94 to SB I-96	Ramp	213				250	21	271	255	0.99	-	-				140	16	156	163	0.55	-	-				150			
	1027-1008 EB I-94 to NB I-96	Ramp	680				750	30	780	756	0.87	-	-				610	33	643	662	0.74	-	-				585			
	1012-1010 Mainline	3332	56.93	44.50	53.75	3370	323	3693	3524	2.81	59	F	20.91	17.08	31.17	3010	311	3321	3431	1.89	59	F	20.41	16.83	22.08	3093	45.52	48.36	40.25	
	1022-1023 EB I-94 Exit to Grand River	Ramp	164				170	10	180	170	0.76	-	-				160	10	170	178	0.61	-	-				159			
	1010-119 Mainline	3149	52.53	44.50	53.75	3200	313	3513	3287	3.88	94	F	12.24	17.08	31.17	2850	301	3151	3273	2.15	98	F	11.66	16.83	22.08	2987	32.45	48.36	40.25	
	983-982 NB I-96 to EB I-94	Ramp	457				470	73	543	525	0.78	-	-				340	121	461	467	0.28	-	-				425			
	137-138 Mainline	3585	29.88				3670	386	4056	3784	4.34	102	F	13.03			3190	422	3612	3751	2.29	104	F	12.78			3439	25.02		
	978-979 SB I-96 to EB I-94	Ramp	938				1070	33	1103	1097	0.38	-	-				930	40	970	968	0.06	-	-				904			
	186-966 Mainline	4498	38.48	39.13	52.00	4740	419	5159	4869	4.10	61	F	27.79	30.40	31.67	4120	462	4582	4718	1.99	63	F	26.44	35.82	27.67	4362	35.82	42.36	38.17	
	972-971 EB I-94 Entrance from Linwood	Ramp	114				210	10	220	136	6.30	-	-				290	19	309	194	7.25	-	-				179			
	966-965 Mainline	4607	36.53	48.10	53.50	4950	429	5379	5004	5.20	47	F	27.44	28.82	39.50	4410	481	4891	4911	0.29	50	F	26.08	36.42	37.17	4544	34.13	48.09	45.00	
	965-960 Mainline	4577	40.52	48.10	53.50	4950	429	5379	5000	5.26	48	F	35.94	28.82	39.50	4410	481	4891	4912	0.30	49	F	34.85	36.42	37.17	4554	39.91	48.09	45.00	
	962-963 EB I-94 Entrance from 14th St	Ramp	56				60	10	70	62	0.98	-	-				300	11	311	110	0.19	-	-				94			
	960-959 Mainline	4625	53.09				5010	439	5449	5063	5.32	25	C	51.88			4510	492	5002	5020	0.25	26	C	50.82			4649	52.02		
	975-976 EB I-94 Exit to Trumbull	Ramp	528				700	10	710	591	4.67	-	-				670	10	680	585	3.78	-	-				539			
	959-952 Mainline	4086	56.90	52.00	56.67	4310	429	4739	4472	3.93	28	D	56.64	39.43	47.25	3840	482	4322	4434	1.69	28	D	56.18	42.45	45.25	4112	56.22	56.00	50.75	
	952-951 Mainline	4074	57.88	52.00	56.67	4310	429	4739	4472	3.93	27	D	57.83	39.43	47.25	3840	482	4322	4435	1.71	27	D	57.81	42.45	45.25	4113	57.61	56.00	50.75	
	949-950 EB I-94 Exit to SB Hwy 10	Ramp	629				730	10	740	703	3.88	-	-				730	10	740	758	0.66	-	-				707			
	943-943 Mainline	3439	56.77	55.67	55.75	3580	419	3999	3768	3.71	23	C	56.77	50.60	51.33	3110	472	3582	3677	1.58	23	C	56.92	50.83	50.58	3406	56.61	55.17	52.83	
	943-944 EB I-94 Exit to NB Hwy 10	Ramp	517				590	33	623	573	2.04	-	-				490	29	518	556	1.00	-	-				481			
	943-919 Mainline	2913	58.84	55.67	55.75	2990	386	3376	3195	3.16	19	C	58.92	50.60	51.33	2620	443	3063	3122	1.06	19	C	59.09	50.83	50.58	2925	58.79	55.17	52.83	
	919-918 Mainline	2904	57.88	55.67	55.75	2990	386	3376	3194	3.18	20	C	57.84	50.60	51.33	2620	443	3063	3122	1.06	20	C	58.04	50.83	50.58	2926	56.05	55.17	52.83	
	918-912 Mainline	2898	57.76	55.67	55.75	2990	386	3376	3188	3.28	23	C	49.46	50.60	51.33	2620	443	3063	3125	1.11	25	C	45.68	50.83	50.58	2927	49.61	55.17	52.83	
	918-915 EB I-94 Entrance from NB Hwy 10	Ramp	425				490	16	506	512	0.27	-	-				490	37	527	534	0.30	-	-				477			
	937-936 EB I-94 Entrance from SB Hwy 10	Ramp	617				700	13	713	695	0.68	-	-				640	11	651	610	1.63	-	-				615			
	912-180 Mainline	3934	51.42				4180	415	4595	4390	3.06	25	C	36.08			3750	491	4241	4272	0.48	28	D	32.71			4019	40.61		
	180-910 Mainline	3922	45.24				4180	415	4595	4383	3.16	41	E	37.09			3750	491	4241	4275	0.52	44	E	34.77			4023	38.69		
	926-927 EB I-94 Exit to John R	Ramp	245				280	23	303	293	0.58	-	-				270	24	294	292	0.12	-	-				271			
	910-909 Mainline	3665	50.51	49.91	51.42	3900	392	4292	4086	3.18	32	D	45.20	47.09	46.42	3480	467	3947	3985	0.60	33	D	42.85	45.83	45.75	3755	45.08	48.92	46.33	
	909-906 Mainline	3650	51.42	49.91	51.42	3900	392	4292	4086	3.18	29	D	49.59	47.09	46.42	3480	467	3947	3986	0.62	29	D	48.49	45.83	45.75	3756	49.39	48.92	46.33	
	906-904 Mainline	3642	50.43	49.91	51.42	3900	392	4292	4086	3.18	28	D	50.12	47.09	46.42	3480	467	3947	3986	0.62	29	D	49.54	45.83	45.75	3757	49.55	48.92	46.33	
	286-314 EB I-94 Exit to SB I-75	Ramp	450				500	25	545	519	1.33	-	-				580	22	612	602	0.41	-	-				585			
	300-301 EB I-94 Exit to NB I-75	Ramp	816				870	181	1051	992	1.85	-	-				780	181	961	983	0.71	-	-				936			
	904-903 Mainline	2358	58.64	49.91	51.42	2510	186	2696	2576	2.34	15	B	58.99	47.09	46.42	2110	264	2374	2400	0.53	14	B	59.21	45.83	45.75	2237	59.07	48.92	46.33	
	903-890 Mainline	2355	62.12	49.91	51.42	2510	186	2696	2576	2.34	14	B	62.60	47.09	46.42	2110	264	2374	2400	0.53	13	B	62.81	45.83	45.75	2237	62.69	48.92	46.33	
	901-900 EB I-94 Entrance from Beaubien	Ramp	140				160	10	170	158	0.88	-	-				150	10	160	154	0.34	-	-				134			
	890-889 Mainline	2491	53.97	51.11	50.75	2660	196	2856	2733	2.33	13	B	54.09	52.45	50.08	2320	274	2594	2617	0.45	13	B	54.03	51.83	50.58	2425	54.05	51.17	50.33	
	892-893 EB I-94 Exit to Russel	Ramp	220				260	13	273	255	1.11	-	-				210	29	239	238	0.06	-	-				222			
	889-881 Mainline	2267	56.25	51.11	50.75	2400	183	2583	2477	2.11	15	B	56.30	52.45	50.08	2110	245	2355	2380	0.51	15	B	56.35	51.83	50.58	2212	56.36	51.17	50.33	
	881-878 Mainline	2259	56.22	51.11	50.75	2400	183	2583	2474	2.17	15	B	55.67	52.45	50.08	2110	245	2355	2383	0.58	15	B	56.35	51.83	50.58	2214	57.02	51.17	50.33	
	281-282 EB I-94 Entrance from SB I-75	Ramp	668				740	58	798	744	3.06	-	-				540	56	596	575	0.83	-	-				556			
	285-286 EB I-94 Entrance from NB I-75	Ramp	417				460	26	486	484	0.09	-	-				460	25	485	491	0.27	-	-				424			
	878-183 Mainline	3336	56.88				3600	267	3867	3672	3.18	14	B	56.22			3110	325	3435	3450	0.26	13	B	56.93			3196	57.77		
	183-876 Mainline	3330	57.10				3600	267	3867	3672	3.18	17	B	56.41			3110	325	3435	3452	0.29	16	B	57.26			3195	58.07		
	867-988 EB I-94 Exit to Chene	Ramp	93				110	10	120	112	0.94	-	-				130	11	14											

AM Period - Existing Validation

Link	Facility	Type	AM67					AM78					AM89					AM910												
			Model Output Volume	Simulation Speed (mph)	Avg Hour Speed, Date of Count	2mo. Avg Hour Speed	Auto Volume Lookup	Truck volume Lookup	Total Volume Lookup	Model Output Volume	GEH (Target v. Model)	Density pc/mi/in	LOS	Simulation Speed (mph)	Avg Hour Speed, Date of Count	2mo. Avg Hour Speed	Auto Volume Lookup	Truck volume Lookup	Total Volume Lookup	Model Output Volume	GEH (Target v. Model)	Density pc/mi/in	LOS	Simulation Speed (mph)	Avg Hour Speed, Date of Count	2mo. Avg Hour Speed	Model Output Volume	Simulation Speed (mph)	Avg Hour Speed, Date of Count	2mo. Avg Hour Speed
WB I-94	6237-6231 WB I-94 East of Conner	Mainline	4586	54.03			4910	265	5175	5105	0.98	37	E	47.06			3970	290	4260	4146	1.76	32	D	44.63			3864	54.55		
	6233-6230	Mainline	4578	54.99			4910	265	5175	5102	1.02	40	E	43.14			3970	290	4260	4151	1.68	35	E	40.86			3864	55.22		
	6246-6247 WB I-94 Exit to Conner	Ramp	224				200	73	273	270	0.18	-	-				270	47	317	311	0.34	-	-			291				
	6230-6228	Mainline	4343	52.24	45.82	53.17	4710	192	4902	4819	1.19	44	E	37.19	26.92	36.08	3700	243	3943	3852	1.46	36	E	36.49	21.31	34.25	3575	53.45	37.00	51.08
	6228-161	Mainline	4329	48.82	45.82	53.17	4710	192	4902	4797	1.51	53	F	30.57	26.92	36.08	3700	243	3943	3878	1.04	39	E	33.80	21.31	34.25	3575	54.43	37.00	51.08
	6224-161 WB I-94 Entrance from NB Conner	Ramp	270				300	11	311	300	0.63	-	-				250	7	257	259	0.12	-	-			230				
	6218-6217 WB I-94 Entrance from SB Conner	Ramp	229				250	10	260	258	0.12	-	-				380	8	388	389	0.05	-	-			345				
	206-901	Mainline	4781	55.45			5260	213	5473	5322	2.06	40	E	45.17			4330	258	4598	4566	0.33	38	E	41.74			4152	56.91		
	6213-6212 WB I-94 Entrance from French	Ramp	109				120	12	132	127	0.44	-	-				120	9	129	128	0.09	-	-			117				
	802-804	Mainline	4857	52.28			5380	225	5605	5431	2.34	45	F	40.72			4450	267	4717	4717	0.00	43	E	37.83			4272	53.60		
	811-812 WB I-94 Exit to Gratiot	Ramp	237				260	28	288	274	0.84	-	-				310	34	344	343	0.05	-	-			311				
	815-816 WB I-94 Entrance from Gratiot	Ramp	555				630	10	640	625	0.60	-	-				570	17	587	592	0.21	-	-			525				
	808-810	Mainline	5109	55.96			5750	207	5957	5698	3.39	45	F	42.63			4710	250	4960	5060	1.41	45	E	38.79			4493	57.12		
	837-838 WB I-94 Exit to Van Dyke	Ramp	78				80	28	108	104	0.39	-	-				90	33	123	124	0.09	-	-			116				
	810-828	Mainline	5016	51.65	48.18	52.33	5670	179	5849	5575	3.63	52	F	36.25	34.45	39.33	4620	217	4837	4956	1.70	51	F	33.14	32.67	37.50	4379	52.17	54.36	49.58
	828-830	Mainline	5004	52.43	48.18	52.33	5670	179	5849	5561	3.81	54	F	34.74	34.45	39.33	4620	217	4837	4971	1.91	53	F	32.08	32.67	37.50	4382	53.31	54.36	49.58
	845-846 WB I-94 Entrance from Van Dyke	Ramp	401				460	28	488	458	1.38	-	-				470	28	498	473	1.13	-	-			440				
	831-833	Mainline	5334	52.38			6130	207	6337	5971	4.67	53	F	38.27			5090	245	5335	5495	2.17	52	F	35.78			4831	54.06		
	833-835	Mainline	5323	53.12			6130	207	6337	5962	4.78	54	F	37.52			5090	245	5335	5505	2.31	53	F	35.15			4832	55.97		
	851-852 WB I-94 Exit to Elliot	Ramp	164				180	10	200	181	1.38	-	-				180	19	179	191	0.88	-	-			160				
	835-858	Mainline	5120	44.15	55.00	54.17	5940	197	6137	5758	4.93	60	F	32.64	39.60	42.75	4930	226	5156	5343	2.58	60	F	30.50	36.50	39.33	4682	51.05	55.64	48.67
	858-861	Mainline	5080	44.30	55.00	54.17	5940	197	6137	5739	5.16	50	F	38.86	39.60	42.75	4930	226	5156	5364	2.87	50	F	36.31	36.50	39.33	4694	48.69	55.64	48.67
	866-867 WB I-94 Entrance from Elliot	Ramp	348				370	30	400	392	0.40	-	-				580	50	630	613	0.68	-	-			584				
	873-874	Mainline	5367	55.02			6310	227	6537	6125	5.18	41	E	50.55			5510	276	5796	5988	2.63	42	E	48.50			5282	55.33		
	882-883 WB I-94 Entrance from Chene	Ramp	167				180	13	193	193	0.00	-	-				210	18	228	231	0.20	-	-			210				
	874-877 WB I-94 Exit to NB I-75	Mainline	5574	52.39			6490	240	6730	6318	5.10	32	D	50.46			5720	294	6014	6218	2.61	33	D	48.20			5499	53.05		
	289-290 WB I-94 Exit to NB I-75	Ramp	405				490	22	512	480	1.44	-	-				350	29	379	430	2.54	-	-			352				
	293-294 WB I-94 Exit to SB I-75	Ramp	994				1220	53	1273	1199	2.10	-	-				1140	70	1210	1280	1.98	-	-			1128				
	877-880	Mainline	4074	47.09	56.00	54.50	4780	165	4945	4632	4.52	34	D	46.31	51.36	50.08	4230	195	4425	4515	1.55	34	D	44.71	47.75	48.75	4022	47.16	55.20	49.67
	880-891	Mainline	4066	55.49	56.00	54.50	4780	165	4945	4630	4.55	29	D	53.35	51.36	50.08	4230	195	4425	4519	1.41	30	D	52.58	47.75	48.75	4022	54.38	55.20	49.67
	896-897 WB I-94 Exit to Beaubien	Ramp	572				700	10	710	664	1.76	-	-				700	11	711	748	1.37	-	-			638				
	891-902	Mainline	3485	55.39	55.27	53.00	4080	155	4235	3962	4.26	26	D	51.12	47.40	47.92	3530	184	3714	3775	1.00	26	C	50.48	48.73	48.58	3384	54.72	52.70	48.58
	902-188	Mainline	3480	55.28	55.27	53.00	4080	155	4235	3961	4.28	27	D	49.37	47.40	47.92	3530	184	3714	3776	1.01	26	D	48.79	48.73	48.58	3384	55.17	52.70	48.58
	276-277 WB I-94 Entrance from NB I-75	Ramp	389				430	37	467	454	0.14	-	-				390	32	422	419	0.15	-	-			387				
	278-279 WB I-94 Entrance from SB I-75	Ramp	813				900	75	975	881	3.09	-	-				760	72	832	788	1.55	-	-			775				
	188-189	Mainline	4675	54.01	55.27	53.00	5400	267	5667	5293	5.05	29	D	47.10	47.40	47.92	4680	288	4968	4985	0.24	27	D	46.76	48.73	48.58	4547	54.11	52.70	48.58
	189-905	Mainline	4663	52.52	55.27	53.00	5400	267	5667	5287	5.13	40	E	45.69	47.40	47.92	4680	288	4968	4992	0.34	37	E	46.08	48.73	48.58	4547	53.31	52.70	48.58
	905-908	Mainline	4642	51.10	55.27	53.00	5400	267	5667	5273	5.33	42	E	42.37	47.40	47.92	4680	288	4968	5012	0.62	39	E	43.88	48.73	48.58	4546	52.61	52.70	48.58
	928-929 WB I-94 Entrance from John R	Ramp	252				270	20	290	283	0.41	-	-				270	20	290	290	0.00	-	-			257				
	811-26	Mainline	4860	46.43	60.67	57.00	5670	287	5957	5534	5.58	44	E	42.72	58.55	54.25	4950	308	5258	5332	1.02	42	E	43.78	57.00	53.33	4798	48.31	54.91	53.92
	26-913	Mainline	4857	58.26	60.67	57.00	5670	287	5957	5535	5.57	33	D	57.43	58.55	54.25	4950	308	5258	5331	1.00	32	D	57.75	57.00	53.33	4798	58.58	54.91	53.92
	920-921 WB I-94 Exit to NB Hwy 10	Ramp	842				1070	18	1088	1004	2.60	-	-				910	20	930	1017	2.79	-	-			851				
	913-30	Mainline	4011	51.78	60.67	57.00	4600	269	4869	4530	4.95	30	D	51.89	58.55	54.25	4040	268	4328	4315	0.20	29	D	52.02	57.00	53.33	3948	51.44	54.91	53.92
	932-933 WB I-94 Exit to SB Hwy 10	Ramp	701				870	28	898	836	2.11	-	-				840	28	868	912	1.47	-	-			796				
	329-328	Mainline	3298	55.81	60.67	57.00	3730	241	3971	3695	4.46	23	C	55.79	58.55	54.25	3200	260	3470	3402	0.99	21	C	56.65	57.00	53.33	3151	55.66	54.91	53.92
	923-924	Mainline	3287	51.65	60.67	57.00	3730	241	3971	3694	4.47	25	C	50.75	58.55	54.25	3200	260	3460	3406	0.92	22	C	52.78	57.00	53.33	3151	53.01	54.91	53.92
	924-195 WB I-94 Entrance from SB Hwy 10	Mainline	3274	50.75	60.67	57.00	3730	241	3971	3694	4.47	26	C	49.58	58.55	54.25	3200	260	3460	3410	0.85	23	C	52.29	57.00	53.33	3150	54.39	54.91	53.92
	941-942 WB I-94 Entrance from SB Hwy 10	Ramp	5																											

AM Period - Existing Validation

	Link	Facility	Type	AM67				AM78				AM89				AM910															
				Model Output Volume	Simulation Speed (mph)	Avg Hour Speed, Date of Count	2mo. Avg. Hour Speed	Auto Volume Lookup	Truck volume Lookup	Total Volume Lookup	Model Output Volume	GEH (Target v. Model)	Density pc/mi/ln	LOS	Simulation Speed (mph)	Avg Hour Speed, Date of Count	2mo. Avg. Hour Speed	Auto Volume Lookup	Truck volume Lookup	Total Volume Lookup	Model Output Volume	GEH (Target v. Model)	Density pc/mi/ln	LOS	Simulation Speed (mph)	Avg Hour Speed, Date of Count	2mo. Avg. Hour Speed	Model Output Volume	Simulation Speed (mph)	Avg Hour Speed, Date of Count	2mo. Avg. Hour Speed
SB I-96	49-1614	SB I-96 North of Exit to Grand	Mainline	2482	73.26			2640	210	2850	2842	0.15	10	A	72.78			2640	210	2850	2836	0.26	10	A	72.70			2632	72.88		
	1614-1615	Mainline	2479	68.55				2640	210	2850	2840	0.19	11	A	68.34			2640	210	2850	2836	0.26	11	A	68.26			2633	68.45		
	1615-1618	SB I-96 Exit to Grand	Ramp	266				290	20	310	309	0.06	-	-	-			290	20	310	309	0.06	-	-	-			282			
	1615-1599	Mainline	2209	54.26	63.22	62.25		2350	190	2540	2530	0.20	12	B	54.12	54.20	58.67	2350	190	2540	2528	0.24	12	B	54.14	41.58	58.33	2350	54.17	65.17	62.50
	1599-1597	Mainline	2199	58.96	63.22	62.25		2350	190	2540	2528	0.24	11	B	58.73	54.20	58.67	2350	190	2540	2525	0.30	11	B	58.75	41.58	58.33	2353	58.86	65.17	62.50
	1595-1593	Mainline	2195	59.23	63.22	62.25		2350	190	2540	2528	0.24	11	B	59.05	54.20	58.67	2350	190	2540	2523	0.34	11	B	59.07	41.58	58.33	2355	59.15	65.17	62.50
	1595-1593	Mainline	2193	60.46	63.22	62.25		2350	190	2540	2527	0.26	11	A	60.30	54.20	58.67	2350	190	2540	2524	0.32	11	A	60.31	41.58	58.33	2355	60.40	65.17	62.50
	1597-1593	SB I-96 Entrance from Grand	Ramp	263				280	20	300	304	0.23	-	-	-			280	20	300	305	0.29	-	-	-			273			
	1593-1591	Mainline	2452	58.61				2630	210	2840	2831	0.17	10	A	58.03			2630	210	2840	2828	0.23	10	A	58.21			2627	58.68		
	1591-1589	Mainline	2447	60.01				2630	210	2840	2831	0.17	10	A	59.14			2630	210	2840	2828	0.23	10	A	59.60			2628	60.22		
	990-991	WB I-94 Entrance from SB I-96	Ramp	142				150	10	160	161	0.08	-	-	-			150	20	170	174	0.30	-	-	-			163			
	978-979	SB I-96 to EB I-94	Ramp	938				1070	33	1103	1097	0.18	-	-	-			930	40	970	968	0.06	-	-	-			904			
	1589-1577	Mainline	1346	57.98	58.75	60.08		1410	167	1577	1574	0.08	7	A	57.64	48.60	50.00	1550	150	1700	1686	0.34	8	A	57.58	38.60	46.92	1565	57.73	59.00	58.17
	1577-1574	Mainline	1339	60.15	58.75	60.08		1410	167	1577	1575	0.05	7	A	59.90	48.60	50.00	1550	150	1700	1684	0.39	7	A	59.75	38.60	46.92	1566	59.93	59.00	58.17
	1583-1584	SB I-96 Exit to Warren	Ramp	187				200	20	220	219	0.07	-	-	-			200	20	220	223	0.20	-	-	-			201			
NBI-96	1574-1573	Mainline	1149	56.37	58.75	60.08		1210	147	1357	1356	0.09	6	A	56.20	48.60	50.00	1350	130	1480	1461	0.50	7	A	56.10	38.60	46.92	1365	56.12	59.00	58.17
	1573-1554	Mainline	1145	61.23	58.75	60.08		1210	147	1357	1356	0.09	6	A	60.97	48.60	50.00	1350	130	1480	1460	0.52	6	A	60.86	38.60	46.92	1366	60.99	59.00	58.17
	1018-1019	EB I-94 to SB I-96	Ramp	233				250	21	271	255	0.99	-	-	-			140	16	156	163	0.55	-	-	-			150			
	1001-1002	WB I-94 Exit to SB I-96	Ramp	74				80	18	96	96	0.20	-	-	-			80	13	93	95	0.21	-	-	-			85			
	1558-1559	SB I-96 Entrance from Warren	Ramp	248				260	20	280	278	0.12	-	-	-			260	20	280	280	0.00	-	-	-			247			
	1548-1553	SB I-96 South of Entrance from Warren	Mainline	1684	59.15			1800	206	2006	1982	0.54	7	A	58.96			1830	179	2009	1990	0.22	7	A	59.08			1851	59.18		
	1548-1553	NB I-96 South of Exit to Warren	Mainline	1993	53.99			2110	175	2285	2263	0.46	9	A	53.79			2110	250	2360	2357	0.05	9	A	53.84			2157	53.90		
	1558-1569	NB I-96 Exit to Warren	Ramp	297				320	30	350	341	0.48	-	-	-			320	30	350	351	0.05	-	-	-			322			
	1563-1555	Mainline	1690	57.61				1790	145	1935	1919	0.36	7	A	57.33			1790	220	2010	2009	0.02	7	A	57.71			1835	57.82		
	983-982	NB I-96 to EB I-94	Ramp	457				470	73	543	525	0.78	-	-	-			340	121	461	467	0.28	-	-	-			425			
	1020-1023	WB I-94 Entrance from NB I-96	Ramp	526				540	79	619	604	0.61	-	-	-			460	101	561	558	0.29	-	-	-			509			
	1555-1572	Mainline	694	60.58	57.00	56.08		780	-7	773	779	0.22	3	A	60.51	57.25	56.33	990	-2	988	985	0.10	4	A	60.36	43.20	51.42	901	60.34	58.44	58.33
	1580-1579	NB I-96 Entrance from Warren	Ramp	58				60	10	70	72	0.24	-	-	-			60	10	70	69	0.12	-	-	-			60			
	1575-1576	Mainline	747	60.17	57.00	56.08		840	3	843	849	0.21	4	A	60.14	57.25	56.33	1050	8	1058	1054	0.12	4	A	60.00	43.20	51.42	963	60.03	58.44	58.33
	1576-1588	Mainline	745	63.61	57.00	56.08		840	3	843	849	0.21	3	A	61.52	57.25	56.33	1050	8	1058	1054	0.12	4	A	61.32	43.20	51.42	962	61.29	58.44	58.33
1001-1004	WB I-94 Exit to NB I-96	Ramp	939				1170	58	1228	1142	2.50	-	-	-			1090	53	1143	1199	1.64	-	-	-			1019				
1027-1008	EB I-94 to NB I-96	Ramp	680				750	30	780	756	0.87	-	-	-			610	33	643	662	0.74	-	-	-			585				
1588-1590	Mainline	2348	50.59				2760	91	2851	2746	1.98	11	B	49.60			2750	94	2844	2918	1.38	12	B	49.90			2586	50.88			
1590-1592	Mainline	2344	54.97	66.00	60.42		2760	91	2851	2746	1.98	10	A	54.50	63.14	59.50	2750	94	2844	2918	1.38	11	A	54.50	58.67	57.92	2586	55.14	61.63	60.42	
1602-1603	NB I-96 Exit to Grand	Ramp	189				210	20	230	222	0.53	-	-	-			210	20	230	237	0.46	-	-	-			211				
1592-1594	Mainline	2150	58.56	66.00	60.42		2550	71	2621	2524	1.91	11	B	58.03	63.14	59.50	2540	74	2614	2681	1.30	12	B	58.17	58.67	57.92	2374	58.55	61.63	60.42	
1594-1596	Mainline	2144	56.26	66.00	60.42		2550	71	2621	2523	1.93	11	B	56.02	63.14	59.50	2540	74	2614	2682	1.32	12	B	56.13	58.67	57.92	2376	56.45	61.63	60.42	
1596-1598	Mainline	2133	55.62	66.00	60.42		2550	71	2621	2522	1.95	12	B	55.32	63.14	59.50	2540	74	2614	2683	1.34	12	B	55.48	58.67	57.92	2375	55.88	61.63	60.42	
1610-1611	NB I-96 Entrance from Grand	Ramp	146				150	10	160	159	0.08	-	-	-			150	10	160	158	0.16	-	-	-			150				
1613-30	NB I-96 north of Entrance from Grand	Mainline	2260	55.52			2700	81	2781	2679	1.95	12	B	55.30			2690	84	2774	2844	1.52	13	B	55.41			2523	55.76			
SB Hwy 10	63-60	SB Hwy 10 North of Exit to Grand	Mainline	4887	56.91	59.33	62.25	5400	382	5562	5514	0.65	26	C	54.09	64.00	61.83	5630	179	5929	5569	3.18	45	F	31.30	61.90	59.83	5456	37.84	60.57	61.08
	60-1405	Mainline	4879	57.25	59.33	62.25		5400	382	5562	5511	0.69	26	C	54.04	64.00	61.83	5630	179	5909	5565	3.24	45	F	31.10	61.90	59.83	5460	37.49	60.57	61.08
	1416-1417	SB Hwy 10 Exit to Grand	Ramp	413				400	88	488	475	0.59	-	-	-			390	79	469	448	0.98	-	-	-			443			
	1405-1434	Mainline	4450	54.11	57.75	60.50		5000	74	5074	5027	0.68	33	D	56.85	59.33	59.33	5240	100	5340	5110	3.18	56	F	30.52	60.50	58.17	5023	36.30	61.56	58.83
	1434-1407	Mainline	4437	49.45	57.75	60.50		5000	74	5074	5024	0.70	36	E	47.45	59.33	59.33	5240	100	5340	5098	3.35	60	F	28.77	60.50	58.17	5031	33.79	61.56	58.83
	1407-1422	Mainline	4428	56.89	57.75	60.50		5000	74	5074	5019	0.77	32	D	53.04	59.33	59.33	5240	100												

AM Period - Existing Validation

	Link	Facility	Type	AM67				AM78				AM89				AM910																
				Model Output Volume	Simulation Speed (mph)	Avg Hour Speed, Date of Count	2mo. Avg Hour Speed	Auto Volume Lookup	Truck volume Lookup	Total Volume Lookup	Model Output Volume	GEH (Target v. Model)	Density pc/mi/h	LOS	Simulation Speed (mph)	Avg Hour Speed, Date of Count	2mo. Avg Hour Speed	Auto Volume Lookup	Truck volume Lookup	Total Volume Lookup	Model Output Volume	GEH (Target v. Model)	Density pc/mi/h	LOS	Simulation Speed (mph)	Avg Hour Speed, Date of Count	2mo. Avg Hour Speed	Auto Volume Lookup	Truck volume Lookup	Total Volume Lookup	Model Output Volume	Simulation Speed (mph)
NB Hwy 10	55-1448	NB Hwy 10 South of Exit to Forest	Mainline	2523	57.97			2800	65	2865	2872	0.11	17	B	57.47			2880	88	2948	2970	0.40	18	B	57.06			2667	57.53			
	1448-1449		Mainline	2516	56.21			2800	65	2865	2871	0.11	17	B	57.3			2880	88	2948	2973	0.46	18	C	54.92			2666	55.61			
	1441-1462	NB Hwy 10 Exit to Forest	Ramp	344	-			370	19	389	390	0.05	-	-	-			550	12	562	564	0.08	-	-	-		513	-				
	1444-1446		Mainline	2168	59.45		53.17	2430	46	2476	2482	0.12	14	B	58.98	60.40	54.50	2310	76	2386	2409	0.47	14	B	59.08	53.55	54.58	2153	59.48	59.33	52.17	
	1446-1449		Mainline	2160	61.55		53.17	2430	46	2476	2479	0.06	14	B	61.30	60.40	54.50	2310	76	2386	2413	0.53	13	B	61.49	53.55	54.58	2153	61.68	59.33	52.17	
	1460-1470	NB Hwy 10 Entrance from Forest	Ramp	564	-			630	10	640	637	0.12	-	-	-			820	15	835	842	0.24	-	-	-		755	-				
	1440-1439		Mainline	2716	54.80			3060	56	3116	3113	0.05	14	B	54.30			3130	91	3221	3257	0.61	15	B	54.15			2909	54.58			
	916-915	EB I-94 Entrance from NB Hwy 10	Ramp	425	-			490	16	506	512	0.27	-	-	-			490	37	527	534	0.30	-	-	-		475	-				
	1439-1438		Mainline	2285	58.08		53.33	2570	40	2610	2599	0.22	15	B	57.78	54.80	54.25	2640	54	2694	2725	0.60	16	B	57.36	56.36	53.92	2434	57.93	54.25	52.75	
	1437-948	WB I-94 Entrance from NB Hwy 10	Ramp	313	-			350	10	360	361	0.05	-	-	-			310	11	321	324	0.17	-	-	-		293	-				
	1438-1437		Mainline	1966	57.43		53.33	2220	30	2250	2238	0.25	13	B	57.10	54.80	54.25	2330	43	2373	2401	0.57	14	B	57.03	56.36	53.92	2143	57.22	54.25	52.75	
	1437-1436		Mainline	1962	57.24		53.33	2220	30	2250	2238	0.25	13	B	56.91	54.80	54.25	2330	43	2373	2402	0.59	14	B	56.75	56.36	53.92	2144	57.03	54.25	52.75	
	1436-1432		Mainline	1959	57.71		53.33	2220	30	2250	2237	0.27	13	B	57.31	54.80	54.25	2330	43	2373	2403	0.61	14	B	57.23	56.36	53.92	2143	57.49	54.25	52.75	
	1432-1430		Mainline	1953	59.59		53.33	2220	30	2250	2236	0.30	13	B	59.10	54.80	54.25	2330	43	2373	2405	0.65	14	B	58.96	56.36	53.92	2143	59.30	54.25	52.75	
	920-921	WB I-94 Exit to NB Hwy 10	Ramp	842	-			1070	18	1088	1004	2.60	-	-	-			910	20	930	1017	2.79	-	-	-		851	-				
	1430-938		Mainline	2788	56.61		53.33	3290	48	3338	3239	1.73	16	B	56.09	54.80	54.25	3240	63	3303	3424	2.09	17	B	49.93	56.36	53.92	2994	50.62	54.25	52.75	
	943-944	EB I-94 Exit to NB Hwy 10	Ramp	517	-			590	33	623	573	2.04	-	-	-			490	29	519	556	1.60	-	-	-		481	-				
	182-1423		Mainline	3291	53.62			3880	81	3961	3805	2.50	18	C	52.02			3730	92	3822	3986	2.62	20	C	51.69			3476	53.86			
	1424-1425	NB Hwy 10 Exit to Milwaukee	Ramp	955	-			1150	10	1160	1106	1.60	-	-	-			970	12	982	1053	2.23	-	-	-		895	-				
	1423-1409		Mainline	2330	61.14		56.08	2730	71	2801	2696	2.00	15	B	60.82	56.71	56.83	2760	80	2840	2936	1.79	16	B	60.34	49.89	54.08	2581	60.86	55.70	55.42	
	1408-1433		Mainline	2323	54.51		56.08	2730	71	2801	2694	2.04	17	B	54.25	56.71	56.83	2760	80	2840	2937	1.80	18	C	54.04	49.89	54.08	2582	54.25	55.70	55.42	
	1433-1406		Mainline	2316	64.37		56.08	2730	71	2801	2694	2.04	14	B	64.00	56.71	56.83	2760	80	2840	2937	1.80	16	B	63.69	49.89	54.08	2583	64.07	55.70	55.42	
	1419-1420	NB Hwy 10 Entrance from Grand	Ramp	192	-			200	20	220	218	0.14	-	-	-			200	20	220	217	0.20	-	-	-		196	-				
	1406-61	NB Hwy 10 north of Entrance from Grand	Mainline	2502	52.58	68.00	54.17	2930	91	3021	2911	2.02	14	B	52.31	50.00	60.75	2960	100	3060	3155	1.70	15	B	52.13	62.17	59.25	2779	52.38	60.60	60.58	
	61-57	SB I-75 North of Exit to Clay	Mainline	2500	62.25	68.00	54.17	2930	91	3021	2911	2.02	12	B	59.50	50.00	60.75	2960	100	3060	3155	1.70	13	B	59.75	62.17	59.25	2779	60.00	60.60	60.58	
SB I-75	73-235	SB I-75 North of Exit to Clay	Mainline	6229	27.33			6990	311	7201	6449	9.10	52	F	25.14			6740	316	7056	6530	6.38	52	F	25.56			6531	26.23			
	238-239	SB I-75 Exit to Clay	Ramp	259	-			250	59	309	272	2.17	-	-	-			250	44	294	269	1.48	-	-	-		279	-				
	236-242		Mainline	5924	30.83	61.67	61.58	6640	252	6892	6177	8.85	56	F	27.86	50.67	50.17	6490	272	6762	6259	6.23	56	F	28.43	35.25	40.17	6254	28.73	47.08	49.67	
	242-244		Mainline	5885	31.01	61.67	61.58	6640	252	6892	6168	8.86	57	F	27.68	50.67	50.17	6490	272	6762	6264	6.17	58	F	27.66	35.25	40.17	6249	27.88	47.08	49.67	
	253-2851	SB I-75 Entrance from Clay	Ramp	456	-			500	14	514	497	0.76	-	-	-			560	11	571	551	0.84	-	-	-		506	-				
	247-249		Mainline	6307	37.62			7140	256	7406	6663	8.86	46	F	37.01			7050	283	7333	6811	6.21	47	F	37.03			6762	37.23			
	278-279	WB I-94 Entrance from SB I-75	Ramp	813	-			900	75	975	881	3.09	-	-	-			760	72	832	788	1.55	-	-	-		775	-				
	281-282	EB I-94 Entrance from SB I-75	Ramp	668	-			740	58	798	714	3.06	-	-	-			540	55	595	575	0.83	-	-	-		556	-				
	249-261		Mainline	4806	44.49	60.50	59.08	5500	133	5633	5066	7.75	38	F	45.03	45.45	49.42	5750	156	5906	5452	6.02	42	E	43.97	41.70	45.33	5431	43.05	44.83	49.42	
	261-262		Mainline	4797	55.74	60.50	59.08	5500	133	5633	5067	7.74	30	D	56.87	45.45	49.42	5750	156	5906	5451	6.04	34	D	54.93	41.70	45.33	5431	54.28	44.83	49.42	
	262-265		Mainline	4790	53.36	60.50	59.08	5500	133	5633	5067	7.74	32	D	54.17	45.45	49.42	5750	156	5906	5450	6.05	35	E	52.27	41.70	45.33	5431	51.58	44.83	49.42	
	265-266		Mainline	4769	52.38	60.50	59.08	5500	133	5633	5068	7.72	32	D	53.66	45.45	49.42	5750	156	5906	5449	6.07	36	E	51.81	41.70	45.33	5431	52.01	44.83	49.42	
	266-268		Mainline	4748	49.20	60.50	59.08	5500	133	5633	5067	7.74	35	D	49.45	45.45	49.42	5750	156	5906	5447	6.09	37	E	49.56	41.70	45.33	5434	49.52	44.83	49.42	
	311-312	SB I-75 Exit to Warren	Ramp	993	-			1186	15	1175	1060	1.44	-	-	-			1086	12	1072	1010	0.88	-	-	-		995	-				
	288-290		Mainline	3747	67.51	57.78	58.92	4340	118	4498	4007	6.93	20	C	67.83	62.25	53.92	4690	144	4834	4436	5.85	22	C	67.53	55.56	53.17	4440	67.50	52.90	54.42	
	289-270		Mainline	3737	58.85	57.78	58.92	4340	118	4498	4006	6.95	23	C	59.12	62.25	53.92	4690	144	4834	4435	5.86	26	C	58.75	55.56	53.17	4440	58.73	52.90	54.42	
	289-314	EB I-94 Exit to SB I-75	Ramp	450	-			520	25	545	519	1.13	-	-	-			590	22	612	602	0.41	-	-	-		585	-				
	293-294	WB I-94 Exit to SB I-75	Ramp	994	-			1220	53	1273	1199	2.10	-	-	-			1140	7													

PM Period - Existing Validation

Link	Facility	Type	PM1415				PM1516				PM1617				PM1718				PM1819														
			Model Output Volume	Simulation Speed (mph)	Avg Hour Speed, Date of Count	2mo. Avg Hour Speed	Model Output Volume	Simulation Speed (mph)	Avg Hour Speed, Date of Count	2mo. Avg Hour Speed	Auto Volume Lookup	Truck Volume Lookup	Total Volume Lookup	Model Output Volume	Simulation Speed (mph)	Avg Hour Speed, Date of Count	2mo. Avg Hour Speed	Auto Volume Lookup	Truck Volume Lookup	Total Volume Lookup	Model Output Volume	Simulation Speed (mph)	Avg Hour Speed, Date of Count	2mo. Avg Hour Speed									
EB I-94	1014-1015	EB I-94 West of I-96	Mainline	4355	50.97			4572	48.80			4250	243	4493	4353	2.11	30	D	37.48		4290	236	4496	4416	1.25	39	F	30.81		3577	42.23		
	1018-1019	EB I-94 to SB I-96	Ramp	246				258				230	26	256	249	0.44	-	-			2080	19	299	277	1.30	-	-			237			
	1027-1008	EB I-94 to NB I-96	Ramp	801				825				730	92	822	797	0.88	-	-			1050	95	1145	1079	2.25	-	-			809			
	1022-1010	EB I-94 Exit to Grand River	Ramp	217	57.90	43.30	47.33	3482	52.27	38.34	35.42	3200	125	3415	3303	1.94	30	D	37.94	26.82	28.25	2950	122	3052	2957	3.12	32	D	32.62	34.42	34.42	41.33	43.50
	1010-159	NB I-96 to EB I-94	Mainline	3009	56.01	43.30	47.33	3246	47.80	38.58	35.42	3000	115	3205	3090	2.05	32	D	32.75	26.82	28.25	2650	112	2762	2782	3.98	36	F	28.94	34.42	29.42	2326	
	1033-952		Ramp	316				318				290	10	310	310	0.68	-	-			300	47	297	302	1.24	-	-			219			
	187-198		Mainline	3364	45.28			3553	35.25			3340	175	3515	3393	2.08	46	F	25.19		2830	159	2989	3008	3.05	45	F	23.04		2509	36.44		
	178-979	EB I-94 Exit to I-94	Ramp	711				791				780	21	801	791	0.35	-	-			750	1	721	713	0.30	-	-			494			
	126-996		Mainline	4058	46.85	37.82	42.75	4342				4120	156	4316	4176	2.15	46	F	30.65	33.76	33.56	3550	160	3710	3720	6.96	46	F	27.97	34.90	29.38	3030	
	106-992	EB I-94 Entrance from Linwood	Ramp	120				132				120	10	130	120	0.88	-	-			120	10	130	120	1.24	-	-			410			
	106-995		Mainline	4174	45.55	41.09	47.42	4472	37.58	33.45	30.67	4270	206	4476	4298	2.69	39	F	28.50	21.44	28.11	3750	161	3861	3842	8.11	38	F	25.60	37.70	25.42	3117	
	106-996		Mainline	4152	48.59	41.09	47.42	4459	40.53	33.45	30.67	4270	206	4476	4289	2.82	47	F	31.40	23.44	28.11	3700	161	3861	3844	8.27	47	F	27.72	37.70	25.42	3147	
	106-995	EB I-94 Entrance from 14th St	Ramp	73				76				70	10	80	74	0.68	-	-			300	14	316	306	1.24	-	-			13			
	106-999		Mainline	4218	56.25			4530	47.38			4340	216	4556	4362	2.91	30	D	36.67		3770	162	3932	3912	3.32	32	D	31.62		3198	47.56		
	175-976	EB I-94 Exit to Trumbull	Ramp	355				382				420	10	430	382	2.38	-	-			440	10	450	395	2.68	-	-			258			
	106-992		Mainline	3854	57.64	49.30	50.58	4142	44.73	33.70	34.75	3920	206	4126	3974	2.39	43	F	31.35	24.78	29.17	3330	152	3482	3516	12.57	44	F	27.46	32.78	36.58	2881	
	102-991		Mainline	3843	57.93	49.30	50.58	4125	41.44	33.70	34.75	3920	206	4126	3963	2.56	52	F	25.82	24.78	29.17	3330	152	3482	3516	12.57	50	F	27.46	32.78	36.58	2881	
	149-950	EB I-94 Exit to SB Hwy 10	Ramp	318				351				360	7	367	353	0.74	-	-			330	6	336	324	0.97	-	-			263			
	101-943		Mainline	3519	55.44	44.33	43.33	3766	36.41	38.92	31.90	3560	199	3759	3609	2.47	60	F	20.51	16.84	18.17	3300	146	3146	3206	9.96	54	F	20.40	30.08	15.92	2604	
	143-944	EB I-94 Exit to NB Hwy 10	Ramp	519				585				590	18	608	578	1.28	-	-			560	21	581	550	1.30	-	-			250			
	143-919		Mainline	2969	55.80	44.33	43.33	3155	32.54	34.92	31.30	2970	183	3153	3032	2.18	65	F	18.06	16.44	18.17	2440	125	2565	2653	1.72	51	F	17.69	10.08	15.92	2215	
	1519-918		Mainline	2955	50.46	44.33	43.33	3120	25.17	34.92	31.30	2970	183	3153	3030	2.21	77	F	13.47	16.44	18.17	2440	125	2565	2655	1.76	58	F	15.72	10.08	15.92	2215	
	1518-912		Mainline	2941	37.23	44.33	43.33	3096	37.67	34.92	31.30	2970	183	3153	3028	2.25	82	F	11.51	16.44	18.17	2440	125	2565	2662	1.68	68	F	15.38	10.08	15.92	2215	
	1518-915	EB I-94 Entrance from NB Hwy 10	Ramp	704				734				760	12	772	721	1.87	-	-			710	8	718	645	2.71	-	-			487			
	157-936	EB I-94 Entrance from SB Hwy 10	Ramp	537				563				580	26	606	564	1.74	-	-			640	11	651	608	1.72	-	-			224			
	112-180		Mainline	4154	38.84			4382	36.38			4310	221	4531	4374	3.32	69	F	21.01		3790	144	3934	3918	3.26	58	F	18.75		333			
	154-927	EB I-94 Exit to John R	Ramp	482				502				490	41	531	500	1.37	-	-			4790	144	3934	3918	3.26	58	F	18.75		333			
	154-909		Mainline	3658	48.64	37.64	36.25	3859	36.97	38.33	35.92	3820	180	4000	3818	2.95	39	F	31.81	18.71	21.06	3300	126	3426	3456	0.51	44	F	26.69	16.42	18.50	2951	
	106-996		Mainline	3641	47.96	37.64	36.25	3847	33.11	38.33	35.92	3820	180	4000	3818	2.95	44	F	25.89	18.71	21.06	3300	126	3426	3456	0.51	44	F	22.01	16.42	18.50	2951	
	106-994		Mainline	3631	46.70	37.64	36.25	3834	25.64	38.33	35.92	3820	180	4000	3822	2.85	57	F	22.89	18.71	21.06	3300	126	3426	3456	0.51	44	F	17.96	16.42	18.50	2951	
	159-914	EB I-94 Exit to NB I-75	Ramp	142				154				150	10	160	153	0.56	-	-			150	10	160	150	0.80	-	-			144			
	100-901		Mainline	771				811				810	58	868	831	1.27	-	-			640	10	657	607	0.61	-	-			607			
	106-995		Mainline	2695	49.26	37.64	36.25	2890	17.29	38.33	35.92	2860	112	2972	2846	2.34	66	F	14.74	18.71	21.06	2510	69	2579	2617	0.75	61	F	13.88	16.42	18.50	2951	
	103-900	EB I-94 Entrance from Beaubien	Ramp	462				481				490	10	500	491	0.90	-	-			440	9	449	449	0.60	-	-			298			
	106-999		Mainline	3139	33.39	52.90	48.52	3297	32.60	47.55	40.00	3350	122	3472	3342	2.23	79	F	10.80	22.89	23.25	2810	79	3259	3289	0.75	82	F	10.34	14.78	18.75	2506	
	102-993	EB I-94 Exit to Russell	Ramp	108				118				120	10	130	120	0.88	-	-			148	10	150	136	1.17	-	-			106			
	109-981		Mainline	3017	28.29	52.90	48.52	3165	22.88	47.55	40.00	3230	112	3342	3226	2.02	94	F	11.69	23.29	23.25	2810	68	2878	2936	1.08	91	F	10.80	13.18	18.75	2506	
	101-978		Mainline	2992	28.07	52.90	48.52	3155	18.27	47.55	40.00	3230	112	3342	3226	2.02	60	F	18.21	22.89	23.25	2810	68	2878	2938	1.11	61	F	15.25	13.18	18.75	2506	
	101-282	EB I-94 Entrance from SB I-75	Ramp	1251				1364				1290	56	1346	1290	1.54	-	-			700	12	712	713	0.78	-	-			487			
	106-996		Mainline	571				590				590	18	608	605	0.52	-	-			4080	122	4592	4783	2.14	31	D	31.62		621			
	178-983		Mainline	4784	41.09			5106	33.56			5110	186	5296	5121	2.42	29	D	36.25		4592	122	4592	4782	2.14	31	D	31.62		621			
	103-976		Mainline	4784	50.54			5107	48.20			5110	186	5296	5122	2.41	26	D	49.53		4592	122	4592	4782	2.14	31	D	31.62		621			
	107-988	EB I-94 Exit to Chene	Ramp	552				600				640	10	650	630	0.78	-	-			730	10	740	693	1.76	-	-			476			
	176-975		Mainline	4219	56.97			4509	54.47			4470	176	4646	4491	2.29	28	D	54.62		4080	112	4192	4091	1.57	24	C	58.81		3551	56.80		
	107-972		Mainline	4202	52.73			4511	44.70																								

PM Period - Existing Validation

WB I-94

Link	Facility	Type	Model Output Volume	PM1415				PM1516				PM1617										PM1718										PM1819			
				Simulation Speed (mph)	Avg Hour Speed, Date of Count	2mo. Avg Hour Speed	Model Output Volume	Simulation Speed (mph)	Avg Hour Speed, Date of Count	2mo. Avg Hour Speed	Auto Volume Lookup	Truck Volume Lookup	Total Volume Lookup	Model Output Volume	GHX (Target v. Model)	Density pc/mi/in	LOS	Simulation Speed (mph)	Avg Hour Speed, Date of Count	2mo. Avg Hour Speed	Auto Volume Lookup	Truck Volume Lookup	Total Volume Lookup	Model Output Volume	GHX (Target v. Model)	Density pc/mi/in	LOS	Simulation Speed (mph)	Avg Hour Speed, Date of Count	2mo. Avg Hour Speed	Model Output Volume	Simulation Speed (mph)	Avg Hour Speed, Date of Count	2mo. Avg Hour Speed	
8237-8238	WB I-94 East of Conner	Mainline	3209	54.91			3407	54.80			3140	239	3379	3553	2.96	22	C	54.73			3440	181	3621	3834	3.49	24	C	54.31			2505	55.90			
8238-8239	WB I-94 Exit to Conner	Mainline	3204	55.40			3407	55.25			3140	239	3379	3553	2.96	22	C	55.28			3440	181	3621	3833	3.47	24	C	54.45			2507	56.22			
8239-8240	WB I-94 Exit to Conner	Mainline	307				307				300	14	314	330	0.22	-	-	-			440	13	453	448	0.24	-	-	-			307				
8240-8241	WB I-94 Exit to Conner	Mainline	2890	53.91	57.55	56.42	3078	53.86	60.30	57.25	2820	225	3045	3222	3.16	21	C	53.81	59.33	58.00	3000	168	3168	3386	3.81	22	C	53.83	60.88	56.25	2203	54.72	55.78	56.00	
8241-8242	WB I-94 Entrance from NB Conner	Mainline	2879	55.48	57.55	56.42	3081	55.27	60.30	57.25	2820	225	3045	3217	3.07	20	C	55.13	59.33	58.00	3000	168	3168	3388	3.84	21	C	55.06	60.88	56.25	2206	56.76	55.78	56.00	
8242-8243	WB I-94 Entrance from NB Conner	Ramp	429				453				480	7	487	485	0.09	-	-	-			420	2	422	431	0.44	-	-	-			280				
8243-8244	WB I-94 Entrance from SB Conner	Ramp	137				143				130	10	140	137	0.25	-	-	-			150	3	153	153	0.00	-	-	-			105				
8244-8245	WB I-94 Entrance from French	Mainline	3423	57.84			3675	57.70			3410	242	3652	3815	2.67	23	C	57.33			3570	173	3743	3979	3.80	24	C	57.38			2601	59.63			
8245-8246	WB I-94 Entrance from French	Mainline	302				302				300	10	310	310	0.00	-	-	-			380	5	385	385	0.01	-	-	-			124				
8246-8247	WB I-94 Exit to Gratiot	Ramp	164				184				170	10	180	182	0.15	-	-	-			170	10	180	183	0.22	-	-	-			126				
8247-8248	WB I-94 Entrance from Gratiot	Ramp	416				440				420	20	440	435	0.34	-	-	-			390	3	393	366	0.09	-	-	-			247				
8248-8249	WB I-94 Entrance from Gratiot	Mainline	3893	57.30			4225	56.96			3990	262	4252	4371	2.27	26	D	57.12			3940	171	4111	4370	3.98	26	D	56.97			2870	58.16			
8249-8250	WB I-94 Exit to Van Dyke	Ramp	173				178				160	18	178	184	0.45	-	-	-			170	10	180	184	0.30	-	-	-			124				
8250-8251	WB I-94 Exit to Van Dyke	Mainline	4728	52.41	57.08	54.42	4045	52.22	62.00	53.67	3800	244	4044	4187	2.23	27	D	52.34	58.27	54.92	3770	161	3931	4187	4.02	27	D	52.09	58.90	53.90	2751	53.42	62.43	56.58	
8251-8252	WB I-94 Entrance from Van Dyke	Ramp	293				302				300	26	326	297	1.64	-	-	-			290	3	293	284	0.53	-	-	-			190				
8252-8253	WB I-94 Entrance from Van Dyke	Mainline	3944	54.46			4150	54.22			4100	270	4370	4478	1.67	28	D	54.16			4060	164	4224	4477	3.84	29	D	53.22			2954	55.64			
8253-8254	WB I-94 Entrance from Van Dyke	Mainline	3937	56.78			4350	56.39			4100	270	4370	4478	1.62	27	D	56.44			4060	164	4224	4480	3.88	28	D	54.83			2957	58.10			
8254-8255	WB I-94 Exit to Elliot	Ramp	212				233				220	11	231	225	0.40	-	-	-			180	10	190	195	0.36	-	-	-			129				
8255-8256	WB I-94 Exit to Elliot	Mainline	3703	52.70	56.75	51.08	4117	52.58	57.91	52.17	3880	259	4139	4245	1.64	28	D	52.02	58.67	54.50	3880	154	4034	4291	3.98	29	D	50.07	58.25	53.83	2838	58.40	58.90	56.58	
8256-8257	WB I-94 Exit to Elliot	Mainline	3677	51.08	56.75	51.08	4117	50.24	57.91	52.17	3880	259	4139	4237	1.51	30	D	48.40	58.67	54.50	3880	154	4034	4302	4.15	31	D	47.19	58.25	53.83	2847	55.66	58.90	56.58	
8257-8258	WB I-94 Entrance from Elliot	Ramp	330				343				330	17	347	340	0.38	-	-	-			250	4	254	252	0.13	-	-	-			165				
8258-8259	WB I-94 Entrance from Elliot	Mainline	3968	58.13			4455	58.13			4210	276	4486	4575	1.32	28	D	57.20			4130	158	4288	4558	4.06	28	D	54.90			3027	58.75			
8259-8260	WB I-94 Entrance from Chene	Ramp	361				372				370	10	380	380	0.00	-	-	-			190	5	195	198	0.24	-	-	-			135				
8260-8261	WB I-94 Entrance from Chene	Mainline	4306	56.35			4831	56.23			4500	298	4898	4947	1.16	23	C	54.68			4320	153	4483	4765	4.15	23	C	51.91			3168	58.44			
8261-8262	WB I-94 Exit to NB I-75	Ramp	741				841				820	29	849	829	0.69	-	-	-			660	19	679	712	1.25	-	-	-			466				
8262-8263	WB I-94 Exit to NB I-75	Ramp	720				839				750	77	827	818	0.31	-	-	-			730	40	770	775	0.18	-	-	-			547				
8263-8264	WB I-94 Exit to NB I-75	Mainline	2816	53.88	52.83	48.25	3151	53.98	51.33	47.00	3010	180	3190	3350	1.79	22	C	50.34	40.58	41.50	2930	104	3034	3289	4.54	25	D	44.96	40.13	44.92	2164	55.53	51.30	51.50	
8264-8265	WB I-94 Exit to NB I-75	Mainline	3282	56.84	52.83	48.25	3510	56.15	51.33	47.00	3010	180	3190	3288	1.72	22	C	50.38	40.58	41.50	2930	104	3034	3291	4.57	27	D	41.81	40.13	44.92	2169	56.69	51.30	51.50	
8265-8266	WB I-94 Exit to Beaubien	Ramp	361				411				410	10	420	399	1.04	-	-	-			380	10	390	394	0.50	-	-	-			272				
8266-8267	WB I-94 Exit to Beaubien	Mainline	2444	56.13	48.92	44.50	2738	54.20	49.11	38.42	2600	170	2770	2882	2.11	21	C	46.72	20.83	28.25	2550	94	2644	2902	4.90	29	D	34.27	21.82	28.83	1903	54.35	42.70	44.25	
8267-8268	WB I-94 Exit to Beaubien	Mainline	2441	56.82	48.92	44.50	2737	53.69	49.11	38.42	2600	170	2770	2878	2.03	22	C	44.15	20.83	28.25	2550	94	2644	2905	4.96	33	D	29.73	21.82	28.83	1906	54.05	42.70	44.25	
8268-8269	WB I-94 Entrance from NB I-75	Ramp	288				311				300	8	308	324	0.90	-	-	-			310	6	316	333	0.84	-	-	-			227				
8269-8270	WB I-94 Entrance from NB I-75	Ramp	545				554				520	40	560	546	0.60	-	-	-			420	46	466	547	4.83	-	-	-			590				
8270-8271	WB I-94 Entrance from NB I-75	Mainline	3268	56.58	48.92	44.50	3601	52.52	49.11	38.42	3420	218	3638	3739	1.66	23	C	41.33	20.83	28.25	3480	146	3626	3786	2.63	39	E	24.87	21.82	28.83	2731	52.80	42.70	44.25	
8271-8272	WB I-94 Entrance from NB I-75	Mainline	3261	56.03	48.92	44.50	3597	50.85	49.11	38.42	3420	218	3638	3730	1.52	33	D	39.25	20.83	28.25	3480	146	3626	3793	2.74	54	F	21.95	21.82	28.83	2739	52.38	42.70	44.25	
8272-8273	WB I-94 Entrance from NB I-75	Mainline	3246	55.16	48.92	44.50	3593	47.13	49.11	38.42	3420	218	3638	3707	1.14	38	E	33.55	20.83	28.25	3480	146	3626	3811	3.03	64	F	20.24	21.82	28.83	2756	49.74	42.70	44.25	
8273-8274	WB I-94 Entrance from John B	Ramp	513				526				500	35	535	540	0.30	-	-	-			560	37	597	580	0.28	-	-	-			386				
8274-8275	WB I-94 Exit to NB Hwy 10	Mainline	3729	47.97	52.42	48.17	4109	39.72	41.18	33.92	3920	251	4171	4215	0.68	46	F	31.79	33.00	24.54	4040	183	4223	4426	3.09	54	F	27.88	19.60	22.00	3183	48.76	34.60	37.00	
8275-8276	WB I-94 Exit to NB Hwy 10	Mainline	3726	57.05	52.42	48.17	4109	45.71	41.18	33.92	3920	251	4171	4213	0.65	41	E	35.38	33.00	24.54	4040	183	4223	4428	3.12	47	F	32.38	19.60	22.00	3185	56.19	34.60	37.00	
8276-8277	WB I-94 Exit to NB Hwy 10	Ramp	739				851				840	28	868	829	1.34	-	-	-			790	15	805	836	2.88	-	-	-			572				
8277-8278	WB I-94 Exit to NB Hwy 10	Mainline	2963	46.29	52.42	48.17	3258	34.11	41.18	33.92	3080	223	3303	3382	1.37	49	F	25.32	33.60	24.54	3250	168	3418	3594	2.97	56	F	21.85	19.60	22.00					

PM Period - Existing Validation

	Link	Facility	Type	PM1415				PM1516				PM1617										PM1718										PM1819			
				Model Output Volume	Simulation Speed (mph)	Avg Hour Speed, Date of Count	2mo. Avg Hour Speed	Model Output Volume	Simulation Speed (mph)	Avg Hour Speed, Date of Count	2mo. Avg Hour Speed	Auto Volume Lookup	Truck volume Lookup	Total Volume Lookup	Model Output Volume	GEH (Target v. Model)	Density pc/mi/n	LOS	Simulation Speed (mph)	Avg Hour Speed, Date of Count	2mo. Avg Hour Speed	Auto Volume Lookup	Truck volume Lookup	Total Volume Lookup	Model Output Volume	GEH (Target v. Model)	Density pc/mi/n	LOS	Simulation Speed (mph)	Avg Hour Speed, Date of Count	2mo. Avg Hour Speed	Model Output Volume	Simulation Speed (mph)	Avg Hour Speed, Date of Count	2mo. Avg Hour Speed
SB I-96	48-1614	SB I-96 North of Exit to Grand	Mainline	3380	71.67			3543	71.86			3270	262	3532	3526	0.10	13	B	71.96			3270	262	3532	3520	0.20	13	B	71.80			2418	71.31		
	44-1613	SB I-96 Exit to Grand	Mainline	3374	67.99			3543	67.75			3270	262	3532	3526	0.10	13	B	67.93			3270	262	3532	3519	0.22	13	B	67.81			2420	68.70		
	6155-1511		Mainline	299				328				290	23	313	314	0.06						290	23	313	316	0.17						213			
	6155-1519		Mainline	3070	53.80	68.60	62.67	3215	53.78	66.22	63.92	2980	239	3219	3213	0.11	16	B	53.78	68.33	64.33	2980	239	3219	3201	0.32	15	B	53.72	63.00	62.17	2210	54.26	67.00	62.33
	1599-1597		Mainline	3055	58.26	68.60	62.67	3215	58.17	66.22	63.92	2980	239	3219	3213	0.11	14	B	58.19	68.33	64.33	2980	239	3219	3202	0.30	14	B	58.17	63.00	62.17	2215	58.59	67.00	62.33
	1598-1597		Mainline	3048	58.78	68.60	62.67	3214	58.77	66.22	63.92	2980	239	3219	3214	0.09	14	B	58.74	68.33	64.33	2980	239	3219	3202	0.30	14	B	58.70	63.00	62.17	2217	58.70	67.00	62.33
	1595-1595		Mainline	3045	59.99	68.60	62.67	3214	59.84	66.22	63.92	2980	239	3219	3214	0.09	14	B	59.84	68.33	64.33	2980	239	3219	3202	0.30	14	B	59.84	63.00	62.17	2217	60.43	67.00	62.33
	1607-1594	SB I-96 Entrance from Grand	Ramp	494				497				460	37	497	493	0.18	-	-				460	37	497	504	0.31	-	-				337	58.92		
	1592-1598		Mainline	3532	57.70			3712	57.44			3440	276	3716	3708	0.13	13	B	57.52			3440	276	3716	3707	0.16	13	B	57.60			2557	58.82		
	1591-1589		Mainline	3526	59.45			3714	59.36			3440	276	3716	3707	0.15	13	B	59.60			3440	276	3716	3706	0.16	13	B	59.66			2559	61.55		
SB I-96	990-991	WB I-94 Entrance from SB I-96	Ramp	206				226				210	12	222	226	0.27	-	-				210	10	280	281	0.06	-	-				193			
	978-979	WB I-94 to EB I-94	Ramp	711				798				780	21	801	791	0.35	-	-				720	1	721	713	0.30	-	-				494			
	1586-1577		Mainline	2589	56.93	61.57	60.25	2691	56.86	62.38	58.33	2450	243	2693	2688	0.10	12	B	56.90	65.63	60.06	2450	265	2715	2713	0.04	13	B	56.89	56.71	56.67	1879	57.43	61.00	57.67
	1577-1574		Mainline	2576	58.98	61.57	60.25	2690	58.87	62.38	58.33	2450	243	2693	2688	0.10	12	B	58.98	65.63	60.06	2450	265	2715	2713	0.04	12	B	58.89	56.71	56.67	1882	59.36	61.00	57.67
	1582-1586	SB I-96 Exit to Warren	Ramp	210				230				210	17	227	227	0.00	-	-				210	17	227	226	0.07	-	-				152			
	1574-1577		Mainline	2360	54.96	61.57	60.25	2462	54.93	62.38	58.33	2240	226	2466	2460	0.10	12	B	55.02	65.63	60.06	2240	248	2488	2488	0.06	12	B	54.94	56.71	56.67	1731	55.44	61.00	57.67
	1573-1554		Mainline	2354	58.74	61.57	60.25	2462	58.68	62.38	58.33	2240	226	2466	2460	0.12	11	B	58.77	65.63	60.06	2240	248	2488	2488	0.06	11	A	58.66	56.71	56.67	1733	60.32	61.00	57.67
	1570-1551	EB I-94 to SB I-96	Ramp	246				258				230	26	256	249	0.44	-	-				230	19	299	277	1.30	-	-				237			
	1020-1020	WB I-94 Exit to SB I-96	Ramp	579				663				650	19	669	678	0.35	-	-				630	21	661	664	0.51	-	-				533			
	1558-1555	SB I-96 Entrance from Warren	Ramp	559				576				530	43	573	570	0.31	-	-				530	43	573	566	0.28	-	-				379			
1613-1652	SB I-96 South of Entrance from Warren	Mainline	3699	58.01			3957	57.67			3250	314	3954	3960	6.46	14	B	57.82			3280	321	3611	3998	6.27	15	B	57.70			2888	58.46			
SB I-96	1540-1552	SB I-96 South of Exit to Warren	Mainline	3618	53.28			3791	53.34			3500	279	3779	3786	0.11	15	B	53.28			3500	280	3780	3791	0.18	15	B	53.26			2573	53.92		
	1588-1586	NB I-96 Exit to Warren	Ramp	477				499				460	37	497	499	0.09	-	-				460	37	497	502	0.22	-	-				335			
	1553-1555		Mainline	3127	57.21			3293	57.21			3040	242	3292	3287	0.09	12	B	57.29			3040	243	3293	3289	0.10	12	B	57.44			2242	58.29		
	862-868	SB I-96 to EB I-94	Ramp	306				318				250	60	310	310	0.00	-	-				180	47	227	227	0.00	-	-				158			
	1020-1021	WB I-94 Entrance from NB I-96	Ramp	731				777				680	83	763	764	0.04	-	-				680	76	756	752	0.15	-	-				511			
	1555-1577		Mainline	2073	59.30	60.00	58.58	2197	59.27	60.43	58.67	2110	99	2209	2212	0.06	10	A	59.22	61.60	59.75	2180	120	2300	2312	0.25	10	A	59.09	60.00	57.58	1578	59.53	63.50	56.81
	1580-1575	NB I-96 Entrance from Warren	Ramp	580				588				540	46	586	576	0.41	-	-				540	43	583	577	0.25	-	-				392			
	1575-1574		Mainline	2635	58.96	60.00	58.58	2784	58.89	60.43	58.67	2650	145	2795	2787	0.15	12	B	58.88	61.60	59.75	2720	163	2883	2891	0.15	13	B	58.83	60.00	57.58	1974	59.34	61.50	56.83
	1576-1588		Mainline	2631	62.09	60.00	58.58	2785	62.02	60.43	58.67	2650	145	2795	2787	0.15	12	B	61.97	61.60	59.75	2720	163	2883	2891	0.15	12	B	61.93	60.00	57.58	1976	62.31	63.50	56.83
	1025-1026	WB I-94 Exit to NB I-96	Ramp	786				869				1210	84	1294	1283	11.46	-	-				1180	69	1249	1263	11.88	-	-				594			
1027-1005	EB I-94 to NB I-96	Ramp	801				825				730	92	822	797	0.88	-	-				1050	95	1145	1070	2.25	-	-				859				
SB I-96	1588-1590		Mainline	4196	47.40			4480	47.42			4500	321	4911	4441	6.87	19	C	48.28			4950	327	5277	4815	6.50	23	C	48.46			3441	50.03		
	1590-1472		Mainline	4190	50.69	61.57	60.17	4479	50.76	62.33	60.83	4500	321	4911	4442	6.86	18	B	51.63	59.67	60.17	4950	327	5277	4814	6.52	20	C	48.51	70.25	59.25	3443	53.30	65.50	58.50
	1602-1603	NB I-96 Exit to Grand	Ramp	531				562				520	42	562	557	0.31	-	-				520	42	562	567	0.11	-	-				390			
	1592-1594		Mainline	3653	56.86	61.57	60.17	3918	56.84	62.33	60.83	4070	279	4349	3885	7.23	18	B	57.29	59.67	60.17	4430	285	4715	4247	6.98	19	C	56.21	70.25	59.25	3054	57.80	65.50	58.50
	1594-1596		Mainline	3643	56.45	61.57	60.17	3919	56.31	62.33	60.83	4070	279	4349	3885	7.23	18	B	56.45	59.67	60.17	4430	285	4715	4245	7.02	20	C	56.06	70.25	59.25	3057	56.59	65.50	58.50
	1596-1595		Mainline	3626	56.04	61.57	60.17	3917	55.89	62.33	60.83	4070	279	4349	3887	7.20	18	B	56.07	59.67	60.17	4430	285	4715	4242	7.07	20	C	55.63	70.25	59.25	3062	56.10	65.50	58.50
	1610-1611	NB I-96 Entrance from Grand	Ramp	473				473				440	35	475	468	0.32	-	-				440	35	475	467	0.34	-	-				325			
	1612-1608	NB I-96 north of Entrance from Grand	Mainline	4068	57.02			4389	56.91			4510	314	4824	4360	6.85	20	C	57.02			4870	320	5190	4705	6.50	21	C	56.75			3385	56.73		
	683-680	SB Hwy 10 North of Exit to Grand	Mainline	3686	57.54	62.25	61.42	3872	57.46	64.30	61.92	3700	185	3885	3887	0.03	17	B	57.46	55.14	61.58	3680	144	3824	3839	0.24	17	B	57.40	66.20	61.83	2602	58.05	64.67	61.42
	4343-4342																																		

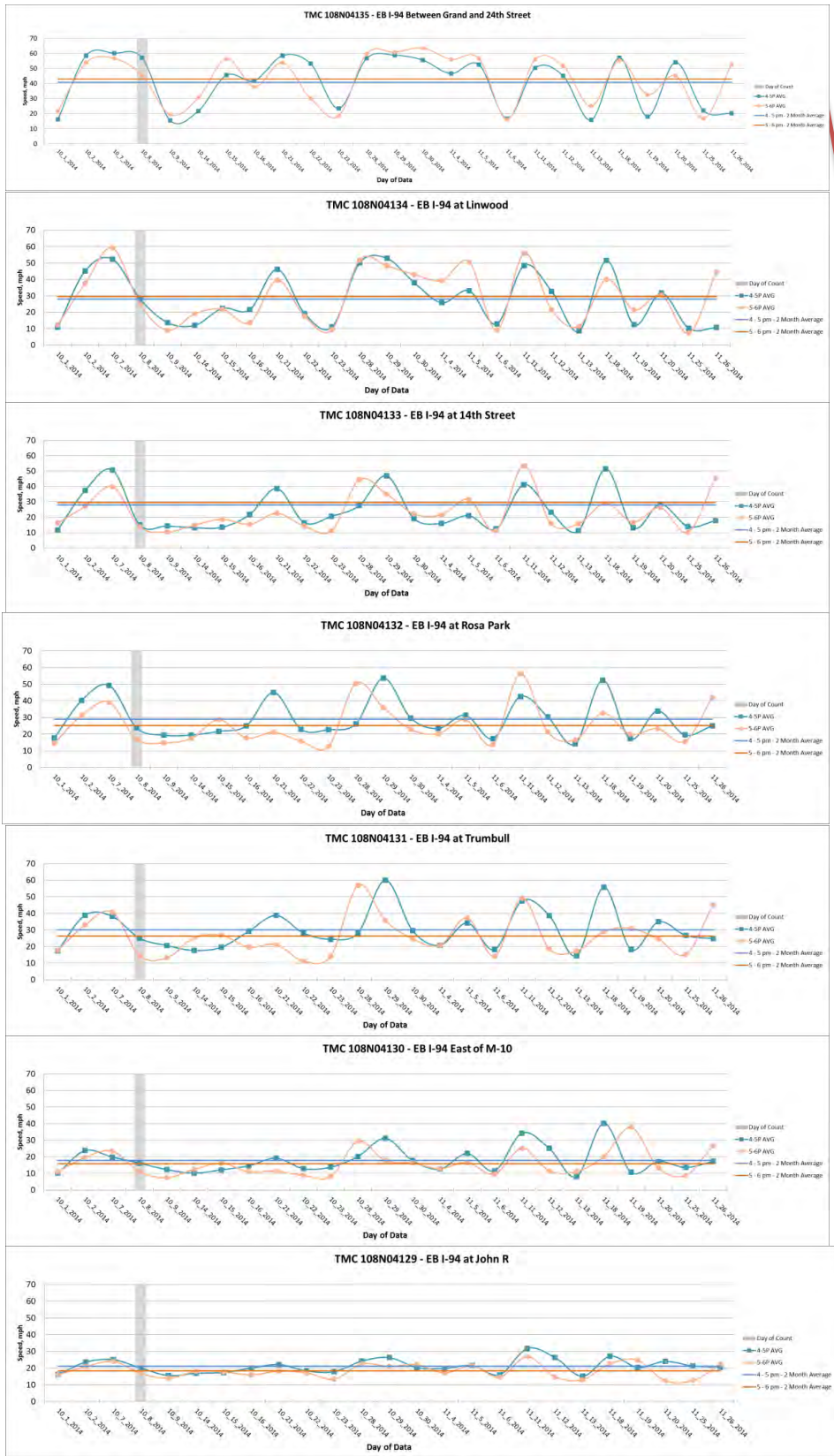
PM Period - Existing Validation

	Link	Facility	Type	PM1615				PM1616				PM1617				PM1718				PM1819															
				Model Output Volume	Simulation Speed (mph)	Avg Hour Speed, Date of Count	2mo. Avg. Hour Speed	Model Output Volume	Simulation Speed (mph)	Avg Hour Speed, Date of Count	2mo. Avg. Hour Speed	Model Output Volume	Simulation Speed (mph)	Avg Hour Speed, Date of Count	2mo. Avg. Hour Speed	Model Output Volume	Simulation Speed (mph)	Avg Hour Speed, Date of Count	2mo. Avg. Hour Speed	Model Output Volume	Simulation Speed (mph)	Avg Hour Speed, Date of Count	2mo. Avg. Hour Speed												
NB Hwy 10	55-1448	NB Hwy 10 South of Exit to Forest	Mainline	4075	56.50		4292	55.37		4300	64	4304	4249	1.75	38	E	17.32	4270	22	4292	3856	6.83	56	F	22.89		3438	35.87							
	1448-1449	NB Hwy 10 Exit to Forest	Mainline	4064	55.05		4290	53.03		4300	64	4364	4233	1.90	41	E	14.52	4270	22	4292	3848	6.96	59	F	21.84		3445	33.85							
	1441-1446	NB Hwy 10 Exit to Forest	Ramp	237			245			260	246	260	227	0.85	-	-		240	10	250	225	1.65	-	-		3199	18.00								
	1444-1446	NB Hwy 10 Exit to Forest	Mainline	3821	57.67	55.50	53.92	4045	54.54	59.06	54.67	4080	44	4124	3997	2.00	40	E	13.72	47.00	51.42	4030	12	4042	3621	6.80	57	F	21.21	58.75	47.17	3261	33.29	54.00	53.67
	1446-1449	NB Hwy 10 Entrance from Forest	Mainline	3806	60.32	55.50	53.92	4036	54.57	59.06	54.67	4080	44	4124	3967	2.47	42	E	11.46	47.00	51.42	4030	12	4042	3608	7.02	57	F	20.97	58.75	47.17	3314	33.29	54.00	53.67
	1469-1470	NB Hwy 10 Entrance from Forest	Ramp	1315			1355			1420	1	1423	1153	7.47	-	-		1140	10	1150	873	8.71	-	-		1016	56.90								
	1440-1439	EB I-94 Entrance from NB Hwy 10	Mainline	5107	48.98		5377	43.28		5500	45	5545	5095	6.17	49	F	26.25	5170	22	5192	4483	10.19	57	F	19.75		3103	33.03							
	916-915	EB I-94 Entrance from NB Hwy 10	Ramp	704			734			760	12	772	721	1.81	-	-		710	8	718	645	2.80	-	-		633	50.82	54.50	50.00						
	1438-1439	WB I-94 Entrance from NB Hwy 10	Mainline	4392	53.26	56.57	52.92	4621	51.78	52.00	50.50	4740	33	4773	4361	4460	14	4474	3839	9.85	28	D	45.87	49.00	38.83	3764	50.82	54.50	50.00						
	1437-1438	WB I-94 Entrance from NB Hwy 10	Ramp	790			832			840	10	850	817	1.31	-	-		660	6	668	614	2.06	-	-		551	54.72	54.50	50.00						
SB I-75	1436-1435	WB I-94 Entrance from NB Hwy 10	Mainline	3591	55.49	56.57	52.92	3788	55.27	52.00	50.50	3900	23	3923	3548	6.14	22	C	54.98	44.91	46.25	3800	8	3808	3226	9.81	20	C	54.40	49.00	38.83	3211	54.72	54.50	50.00
	1435-1434	WB I-94 Entrance from NB Hwy 10	Mainline	3584	55.61	56.57	52.92	3789	55.29	52.00	50.50	3900	23	3923	3549	6.12	22	C	54.46	44.91	46.25	3800	8	3808	3225	9.81	20	C	53.70	49.00	38.83	3211	53.95	54.50	50.00
	1434-1433	WB I-94 Entrance from NB Hwy 10	Mainline	3578	55.56	56.57	52.92	3789	54.57	52.00	50.50	3900	23	3923	3550	6.10	23	C	51.80	44.91	46.25	3800	8	3808	3224	9.81	21	C	50.86	49.00	38.83	3211	52.78	54.50	50.00
	1433-1432	WB I-94 Entrance from NB Hwy 10	Mainline	3567	55.20	56.57	52.92	3788	52.19	52.00	50.50	3900	23	3923	3554	6.04	25	C	47.67	44.91	46.25	3800	8	3808	3220	9.92	23	C	47.47	49.00	38.83	3214	50.48	54.50	50.00
	1432-1431	NB I-94 Exit to NB Hwy 10	Ramp	799			851			860	28	868	829	1.34	-	-		790	15	805	836	1.96	-	-		575	54.72	54.50	50.00						
	1430-939	NB I-94 Exit to NB Hwy 10	Mainline	4299	41.11	56.57	52.92	4638	38.90	52.00	50.50	4740	51	4791	4384	4590	23	4613	4056	8.46	28	D	36.09	49.00	38.83	3769	49.86	54.50	50.00						
	1430-938	NB I-94 Exit to NB Hwy 10	Ramp	539			585			590	16	606	575	1.24	-	-		560	21	581	550	1.49	-	-		470	54.72	54.50	50.00						
	1429-1428	NB I-94 Exit to NB Hwy 10	Mainline	4817	45.29		5215	42.66		5130	67	5187	4610	1.30	30	D	35.08	44	5194	4064	8.43	26	D	44.04		4264	47.96	54.50	50.00						
	1424-1423	NB Hwy 10 Exit to Milwaukee	Ramp	439			467			470	10	480	453	1.25	-	-		560	10	560	488	1.15	-	-		459	59.90	58.25	52.58						
	1423-1408	NB Hwy 10 Exit to Milwaukee	Mainline	4367	58.76	57.89	56.25	4748	58.64	59.22	53.67	4860	57	4917	4517	5.82	26	C	59.37	41.33	45.33	4600	34	4634	4117	7.82	23	C	54.02	38.00	31.58	3807	59.90	58.25	52.58
1422-1421	NB Hwy 10 Exit to Milwaukee	Mainline	4353	53.30	57.89	56.25	4747	53.32	59.22	53.67	4860	57	4917	4518	5.81	28	D	53.73	41.33	45.33	4600	34	4634	4118	7.80	26	C	60.06	38.00	31.58	3807	53.82	58.25	52.58	
1421-1408	NB Hwy 10 Exit to Milwaukee	Mainline	4342	61.34	57.89	56.25	4747	62.18	59.22	53.67	4860	57	4917	4518	5.81	24	C	61.84	41.33	45.33	4600	34	4634	4120	7.77	22	C	63.27	38.00	31.58	3807	57.87	58.25	52.58	
1419-1420	NB Hwy 10 Entrance from Grand	Ramp	809			848			860	28	868	840	1.34	-	-		790	63	853	845	0.27	-	-		575	51.51	60.60	54.58							
1406-61	NB Hwy 10 north of Entrance from Grand	Mainline	5140	59.73	61.00	58.08	5595	59.83	60.86	52.75	5650	120	5770	5359	5.51	26	D	51.26	43.67	41.00	5390	97	5487	4966	7.21	24	C	51.40	38.00	31.25	4383	51.51	60.60	54.58	
61-67	NB Hwy 10 north of Entrance from Grand	Mainline	5136	59.25	61.00	58.08	5595	58.18	60.86	52.75	5650	120	5770	5360	5.50	23	C	58.76	43.67	41.00	5390	97	5487	4966	7.21	21	C	58.81	38.00	31.25	4382	58.81	60.60	54.58	
NB I-75	73-236	SB I-75 North of Exit to Clay	Mainline	5110	39.61		5279	36.62		5000	315	5315	5270	0.62	37	E	25.23	5050	249	5309	4428	12.03	68	F	31.42		4512	34.84							
	236-239	SB I-75 Exit to Clay	Ramp	476			493			460	33	493	488	0.23	-	-		460	26	426	362	3.22	-	-		362	35.67	63.82	59.25						
	236-242	SB I-75 Exit to Clay	Mainline	4600	33.08	60.58	56.92	4779	24.48	63.42	53.33	4540	282	4822	4768	0.68	47	F	34.42	46.90	46.42	4660	223	4883	4065	12.23	74	F	14.86	38.00	49.67	4126	35.67	63.82	59.25
	242-244	SB I-75 Entrance from Clay	Mainline	4557	24.02	60.58	56.92	4779	21.35	63.42	53.33	4540	282	4822	4768	0.78	56	F	21.78	46.90	46.42	4660	223	4883	4065	12.23	78	F	14.86	38.00	49.67	4126	35.67	63.82	59.25
	253-2853	SB I-75 Entrance from Clay	Ramp	895			926			980	10	990	912	2.53	-	-		990	10	940	785	5.28	-	-		650	59.90	58.25	52.58						
	247-248	WB I-94 Entrance from SB I-75	Mainline	5416	35.84		5641	34.73		5520	292	5812	5681	1.79	42	E	34.29	5590	233	5823	4850	13.32	52	F	23.89		4847	39.90							
	278-279	WB I-94 Entrance from SB I-75	Ramp	546			564			520	40	560	546	0.60	-	-		520	40	566	547	4.83	-	-		590	54.72	54.50	50.00						
	281-282	EB I-94 Exit to SB I-75	Ramp	1251			1364			1290	56	1346	1290	1.54	-	-		1300	42	1342	1119	6.36	-	-		1122	54.72	54.50	50.00						
	249-261	WB I-94 Exit to SB I-75	Mainline	3596	47.32	54.82	54.08	3777	47.24	61.27	50.50	3710	196	3906	3836	1.13	28	D	47.06	38.89	43.08	3670	145	3815	3179	10.75	24	C	45.78	41.83	47.67	3163	45.66	59.27	55.58
	261-262	WB I-94 Exit to SB I-75	Mainline	3589	58.42	54.82	54.08	3777	58.76	61.27	50.50	3710	196	3906	3836	1.13	22	C	58.53	38.89	43.08	3670	145	3815	3178	10.77	18	C	59.37	41.83	47.67	3165	57.76	59.27	55.58
262-265	WB I-94 Exit to SB I-75	Mainline	3584	57.92	54.82	54.08	3778	58.42	61.27	50.50	3710	196	3906	3837	1.13	23	C	58.11	38.89	43.08	3670	145	3815	3177	10.77	18	C	59.37	41.83	47.67	3167	57.76	59.27	55.58	
265-266	WB I-94 Exit to SB I-75	Mainline	3570	56.76	54.82	54.08	3778	57.27	61.27	50.50	3710	196	3906	3837	1.13	23	C	56.92	38.89	43.08	3670	145	3815	3174	10.84	18	C	58.09	41.83	47.67	3174	56.11	59.27	55.58	
266-268	WB I-94 Exit to SB I-75	Mainline	3555	51.48	54.82	54.08	3777	51.85	61.27	50.50	3710	196	3906	3840	1.06	25	C	51.64	38.89	43.08	3670	145	3815	3172	10.88	20	C	53.01	41.83	47.67	3180	56.95	59.27	55.58	
311-312	SB I-75 Exit to Warren	Ramp	506			544			550	10	560	555	0.21	-	-		540	10	580	460	4.00	-	-		248	57.76	56.89	55.00							
268-269	WB I-94 Exit to SB I-75	Mainline	3044	67.44	57.60	56.25	3233	67.96	62.20	56.50	3160	186	3346	3284	1.08	17	B	67.68	56																

NO. MDOT – TM 8
May 18, 2015

Appendix B: *HERE* Day to Day Speed Profiles

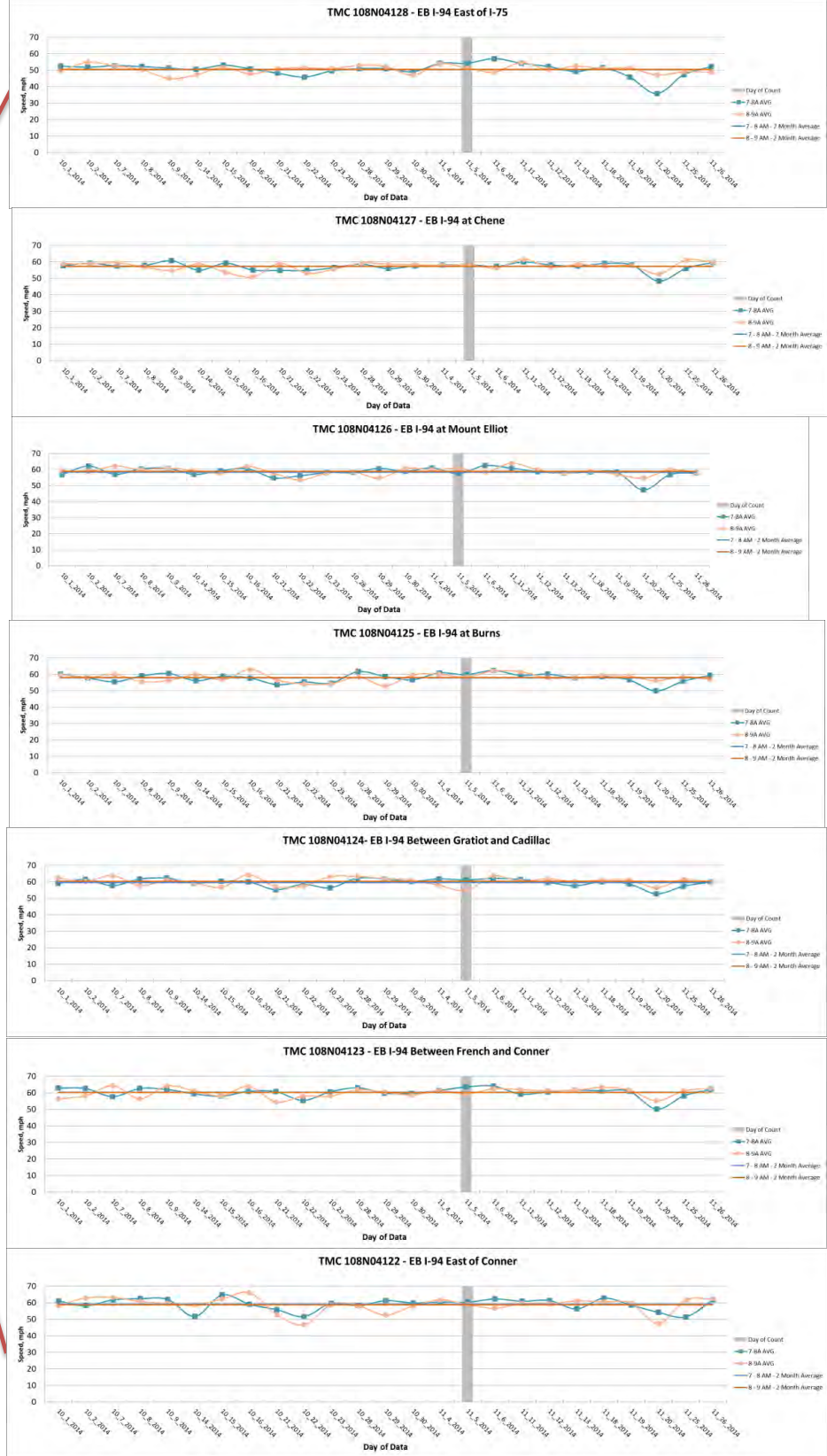
Eastbound I-94 – PM Peak Speeds Reported by the *HERE* Database for Tuesday – Thursday during October and November 2014



Westbound I-94 – PM Peak Speeds Reported by the *HERE* Database for Tuesday – Thursday during October and November 2014

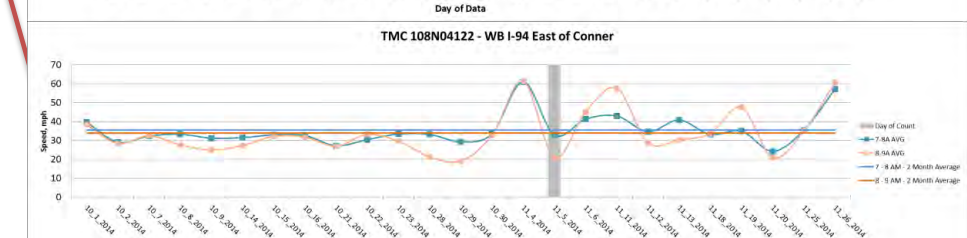
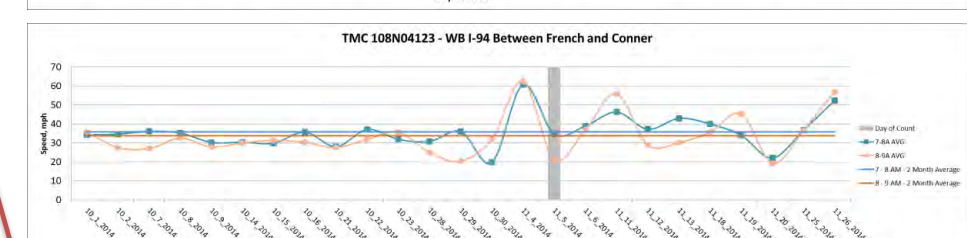
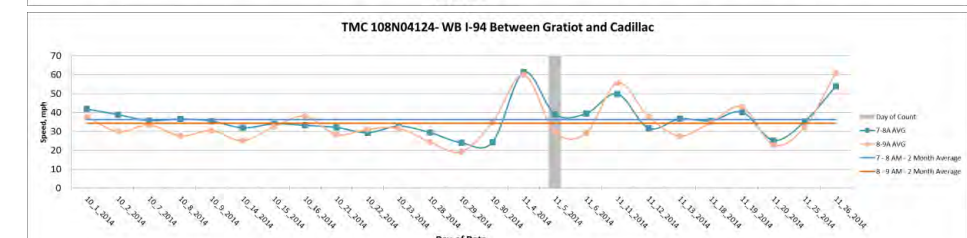
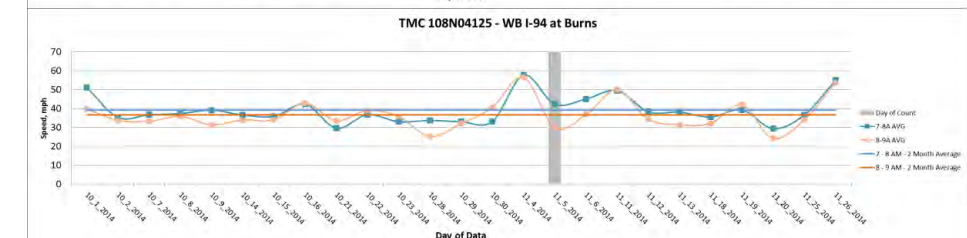
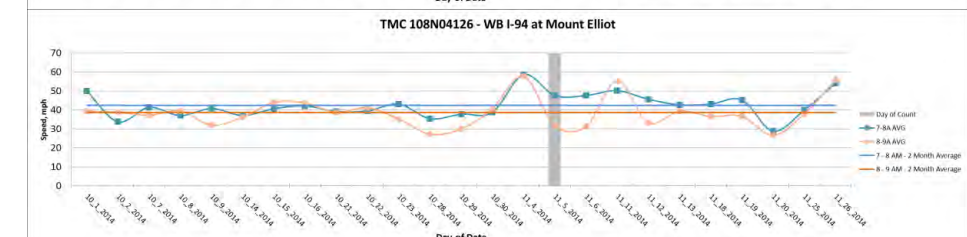
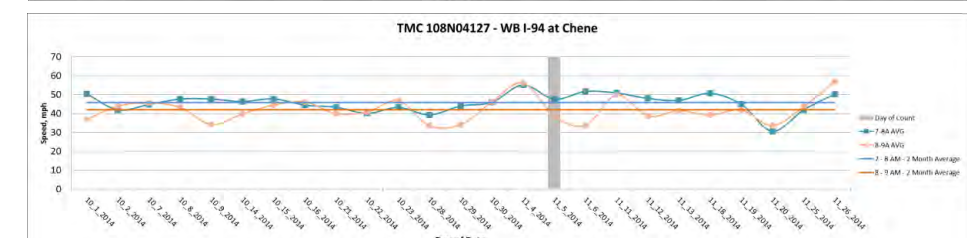
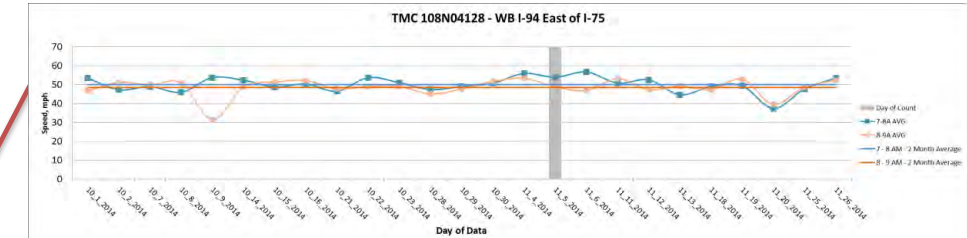
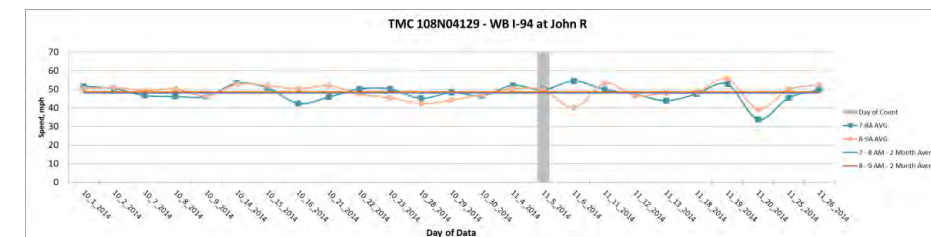
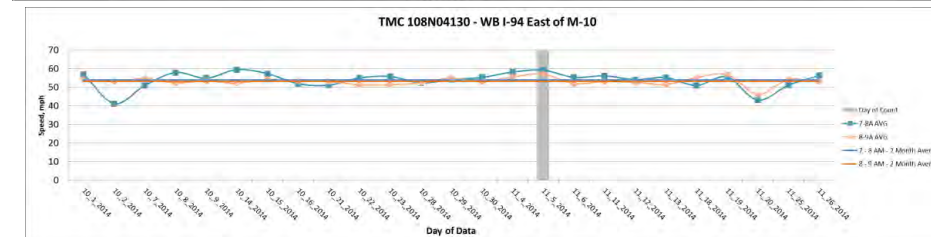
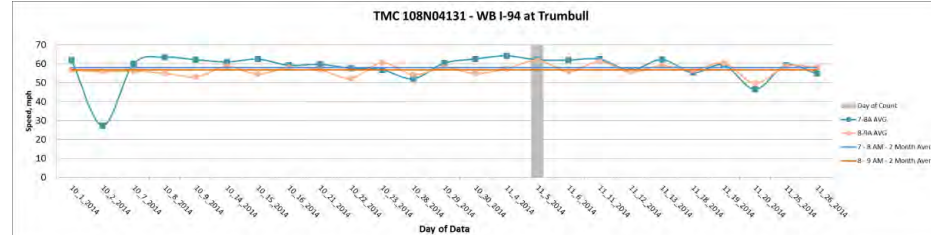
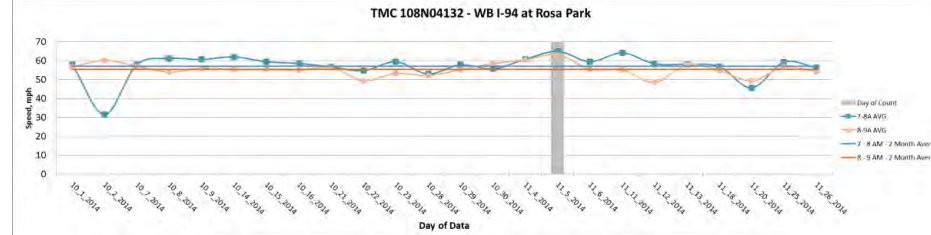
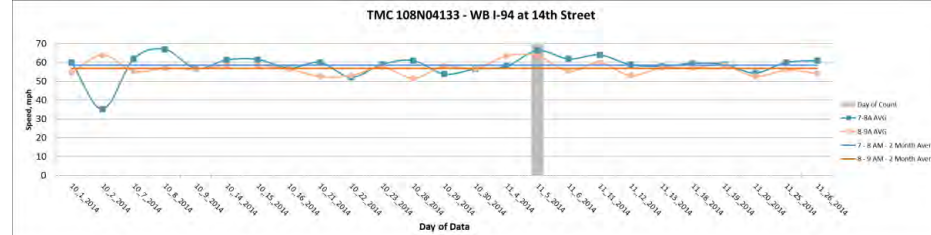
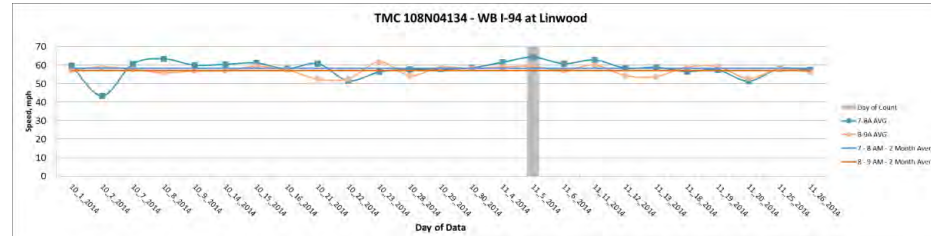
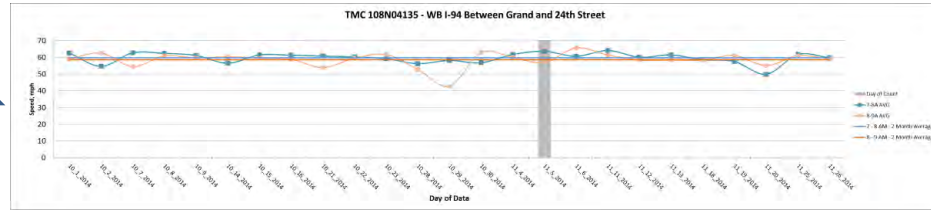


Eastbound I-94 – AM Peak
Speeds Reported by the *HERE*
Database for Tuesday – Thursday
during October and November 2014



Westbound I-94 – AM Peak

Speeds Reported by the *HERE*
Database for Tuesday – Thursday
during October and November 2014



AM Period - Build Validation

Link	Facility	Type	AM67					AM78					AM89					AM910											
			Auto Volume Lookup	Truck volume Lookup	Total Volume Lookup	Model Output Volume	Simulation Speed (mph)	Auto Volume Lookup	Truck volume Lookup	Total Volume Lookup	Model Output Volume	GEH (Target v. Model)	Density pc/mi/n	LOS	Simulation Speed (mph)	Auto Volume Lookup	Truck volume Lookup	Total Volume Lookup	Model Output Volume	GEH (Target v. Model)	Density pc/mi/n	LOS	Simulation Speed (mph)	Auto Volume Lookup	Truck volume Lookup	Total Volume Lookup	Model Output Volume	Simulation Speed (mph)	
EB I-94	1014-1012 EB I-94 West of I-96	Mainline	4975	320	5295	5131	49.34	5502	470	5972	5996	0.31	36	E	42.96	4683	447	5130	5101	0.41	26	E	51.48	4223	463	4686	4706	52.51	
	1018-1010 EB I-94 to SB I-96	Ramp	228	14	242	241		252	21	273	283	0.00	-	-	-	145	16	161	169	0.02	-	-	-	136	17	153	158		
	1027-1008 EB I-94 to NB I-96	Ramp	835	22	857	872		920	32	952	953	0.03	-	-	-	671	33	704	706	0.08	-	-	-	600	35	636	637		
	1012-1010	Mainline	3905	283	4188	4043	56.11	4322	416	4738	4760	0.32	30	D	55.70	3862	397	4259	4222	0.57	26	D	55.89	3483	410	3893	3912	56.33	
	1022-1002	Mainline	193	213	181	181		190	111	281	158	0.75	19	-	-	190	111	281	199	0.74	19	-	-	370	115	185	189		
	1010-159	Mainline	3732	275	4007	3847	53.06	4132	405	4537	4559	0.33	30	D	53.78	3672	386	4058	4023	0.55	25	C	54.59	3313	399	3712	3723	54.83	
	883-882 NB I-96 to EB I-94	Ramp	530	57	587	590		586	84	670	690	0.77	-	-	-	420	150	570	608	1.57	-	-	-	381	160	541	552		
	159-187	Mainline	4262	332	4594	4434	53.99	4718	489	5207	5248	0.57	27	D	50.73	4062	536	4628	4630	0.03	23	C	52.67	3694	559	4253	4292	53.17	
	187-158	Mainline	4262	332	4594	4422	57.28	4717	489	5207	5247	0.55	26	E	53.82	4062	536	4628	4631	0.04	22	E	57.69	3694	559	4253	4293	57.29	
	979-198 SB I-96 to EB I-94	Ramp	1233	32	1265	1217		1300	42	1402	1411	0.24	-	-	-	1172	41	1213	1230	0.40	-	-	-	1051	41	1092	1115		
	158-186	Mainline	5495	364	5859	5629	53.98	6078	531	6609	6655	0.56	28	D	48.71	5264	577	5841	5864	0.30	23	C	54.18	4746	600	5345	5395	54.72	
	186-986	Mainline	5495	364	5859	5619	56.01	6078	531	6609	6656	0.58	28	D	50.16	5264	577	5841	5864	0.30	22	C	55.96	4745	600	5345	5397	56.71	
	971-960 EB I-94 Entrance from Linwood	Ramp	215	8	223	218		241	18	259	275	1.44	-	-	-	306	17	323	381	2.90	-	-	-	292	17	308	358		
	5710 370 6080	Mainline	5710	370	6080	5836	56.28	6319	541	6860	6922	0.82	25	C	48.78	5590	594	6184	6252	0.86	20	C	54.58	5037	617	5654	5753	56.20	
	975-976 EB I-94 Exit to Trumbull	Ramp	797	7	804	761		876	10	886	902	0.54	-	-	-	827	10	837	846	0.31	-	-	-	747	9	756	751		
	599-212	Mainline	4913	363	5276	5062	56.08	5443	531	5974	6016	0.54	30	D	42.55	4763	584	5347	5413	0.90	22	C	51.97	4290	608	4898	5006	57.08	
	212-361	Mainline	4913	209	5216	5052	57.51	5443	531	5974	6014	0.52	24	E	53.68	4763	584	5347	5415	0.90	21	C	55.78	4290	608	4898	5006	58.24	
	940-950 EB I-94 Exit to SB Hwy 10	Ramp	820	8	828	778		901	10	911	910	0.03	-	-	-	878	10	888	879	0.30	-	-	-	785	10	795	791		
	213-944 EB I-94 Exit to NB Hwy 10	Ramp	606	24	630	587		669	38	707	703	0.15	-	-	-	510	30	540	529	0.48	-	-	-	460	32	492	489		
	951-943	Mainline	3482	331	3813	3667	53.51	3867	483	4350	4404	0.82	22	C	51.91	3368	543	3911	4006	1.51	20	C	51.01	3038	565	3603	3731	53.22	
	943-919	Mainline	3482	331	3813	3655	57.95	3867	483	4350	4399	0.74	20	C	58.18	3368	543	3911	4056	1.51	19	C	57.66	3038	565	3603	3731	57.72	
	919-918	Mainline	3482	331	3813	3641	54.83	3867	483	4350	4399	0.74	22	C	53.77	3368	543	3911	4004	1.48	20	C	53.95	3038	565	3603	3732	54.80	
	918-912	Mainline	3486	331	3817	3634	53.01	3872	483	4355	4395	0.60	23	C	51.00	3375	543	3918	4004	1.37	21	C	52.02	3044	565	3609	3735	52.87	
	916-915	EB I-94 Entrance from NB Hwy 10	Ramp	322	6	328	336		355	12	367	374	0.36	-	-	-	313	27	340	372	1.70	-	-	-	287	27	314	320	
	917-915	EB I-94 Entrance from SB Hwy 10	Ramp	541	6	547	546		599	6	605	614	0.34	-	-	-	488	7	495	512	1.41	-	-	-	448	7	455	512	
	912-449	Mainline	4352	343	4695	4480	56.85	4830	504	5334	5382	0.66	18	B	53.49	4212	577	4789	4916	1.82	16	B	54.95	3801	599	4400	4569	56.05	
	448-910	Mainline	4352	343	4695	4468	62.16	4830	504	5334	5381	0.64	16	B	58.83	4212	577	4789	4914	1.79	15	B	59.97	3801	599	4400	4571	61.15	
	910-928	EB I-94 Exit to Brush	Ramp	166	16	182	159		186	22	206	185	14.75	-	-	-	183	24	207	185	1.68	-	-	-	168	25	193	195	
	910-909	Mainline	4186	327	4513	4053	53.51	4642	482	5124	4891	3.29	17	B	51.09	4029	553	4582	4475	1.59	15	B	52.70	3633	574	4207	4134	53.12	
	909-904	Mainline	4186	327	4513	4048	73.43	4642	482	5124	4890	3.31	13	B	64.05	4029	553	4582	4476	1.58	11	B	72.07	3633	574	4207	4133	73.34	
	299-314	EB I-94 Exit to SB I-75	Ramp	488	17	515	486		554	27	581	577	0.37	-	-	-	610	23	633	636	0.12	-	-	-	551	24	575	592	
	314-302	EB I-94 Exit to NB I-75	Ramp	1032	183	1195	1094		1186	233	1423	1384	0.36	-	-	-	1024	186	1210	1216	0.26	-	-	-	926	182	1107	1156	
	904-903	Mainline	2656	147	2803	2443	53.75	2952	218	3170	2928	4.18	12	B	52.47	2395	335	2730	2626	2.01	11	A	53.19	2157	348	2505	2384	53.48	
	903-156	Mainline	2656	147	2803	2440	51.52	2952	218	3170	2926	4.42	15	B	51.09	2395	335	2730	2629	1.95	14	B	51.03	2157	348	2505	2384	51.26	
	156-890	Mainline	2656	147	2803	2428	57.35	2952	218	3170	2923	4.48	14	B	55.09	2395	335	2730	2632	1.89	12	B	56.65	2157	348	2505	2386	57.19	
	900-899	EB I-94 Entrance from Hastings	Ramp	280	3	283	263		308	8	316	304	0.68	-	-	-	346	11	356	401	2.15	-	-	-	316	11	327	349	
	899-889	Mainline	2936	153	3089	2689	57.03	3260	226	3486	3224	4.52	12	B	53.90	2743	346	3089	3035	3.98	11	B	56.09	2473	359	2832	2735	56.98	
	889-881	Mainline	2936	153	3089	2686	53.51	3260	226	3486	3223	4.54	16	B	50.52	2743	346	3089	3035	3.98	16	B	50.92	2473	359	2832	2735	52.76	
	881-878	Mainline	2936	153	3089	2679	56.84	3260	226	3486	3224	4.52	16	B	53.74	2743	346	3089	3034	3.99	15	B	55.37	2473	359	2832	2736	57.43	
	281-282	EB I-94 Entrance from SB I-75	Ramp	860	52	906	853		937	77	1014	905	0.56	-	-	-	885	58	943	876	0.76	-	-	-	816	60	876	895	
	285-286	EB I-94 Entrance from NB I-75	Ramp	432	20	452	439		478																				

AM Period - Build Validation

			AM67												AM78												AM89												AM910											
Link	Facility	Type	Auto Volume Lookup	Truck Volume Lookup	Total Volume Lookup	Model Output Volume	Simulation Speed (mph)	Auto Volume Lookup	Truck Volume Lookup	Total Volume Lookup	Model Output Volume	GEH (Target v. Model)	Density pc/mi/n	LOS	Simulation Speed (mph)	Auto Volume Lookup	Truck Volume Lookup	Total Volume Lookup	Model Output Volume	GEH (Target v. Model)	Density pc/mi/n	LOS	Simulation Speed (mph)	Auto Volume Lookup	Truck Volume Lookup	Total Volume Lookup	Model Output Volume	Simulation Speed (mph)																						
SB I-96	49-1614 SB I-96 North of Exit to Grand	Mainline	3074	187	3261	3213	72.45	3396	270	3666	3658	0.13	13	B	71.96	3378	264	3642	3642	0.02	13	B	71.69	3045	272	3317	3319	72.20																						
	1614-1615	Mainline	3074	187	3261	3207	68.10	3396	270	3666	3656	0.17	14	B	67.89	3378	264	3642	3641	0.02	14	B	67.69	3045	272	3317	3322	67.93																						
	1615-1616	Ramp	287	15	302	307		320	21	341	338	0.16	-	-	-						-	-	-	280	22	302	299																							
	1615-1599	Mainline	2787	172	2959	2896	53.94	3076	249	3325	3319	0.10	16	B	53.84	3068	243	3311	3313	0.03	16	B	53.51	2765	250	3015	3026	53.73																						
	1599-1597	Mainline	2787	172	2959	2882	58.46	3076	249	3325	3318	0.12	15	B	58.23	3068	243	3311	3308	0.05	15	B	57.97	2765	250	3015	3029	58.21																						
	1597-1595	Mainline	2787	172	2959	2874	58.91	3076	249	3325	3319	0.10	15	B	58.75	3068	243	3311	3305	0.10	15	B	58.52	2765	250	3015	3030	58.73																						
	1595-1593	Mainline	2787	172	2959	2871	60.04	3076	249	3325	3320	0.09	14	B	59.71	3068	243	3311	3305	0.10	14	B	59.54	2765	250	3015	3031	59.86																						
	1597-1593 SB I-96 Entrance from Grand	Ramp	256	14	270	279		284	20	304	305	0.06	-	-	-						-	-	-	256	21	277	282																							
	1593-1591	Mainline	3043	186	3229	3145	57.64	3360	269	3629	3632	0.12	11	B	55.90	3353	264	3617	3605	0.36	13	B	56.33	3021	271	3292	3335	57.44																						
	1591-1589	Mainline	3043	186	3229	3141	57.80	3360	269	3629	3620	0.15	14	B	55.52	3353	264	3617	3615	0.03	13	B	56.58	3021	271	3292	3332	58.35																						
	1589-1587	Mainline	148	7	155	151		160	11	171	178	0.53	-	-	-						-	-	-	140	22	162	154																							
	1589-1587 WB I-94 Entrance from SB I-96	Ramp	1233	32	1265	1221		1360	42	1402	1413	0.29	-	-	-						-	-	-	1051	41	1092	1113																							
	1587-1574	Mainline	1662	147	1809	1739	57.54	1840	216	2056	2026	0.46	-	-	-						-	-	-	1530	208	2038	2053	57.44																						
	1577-1574	Mainline	1662	147	1809	1731	59.98	1840	216	2056	2025	0.69	-	-	-						-	-	-	1530	208	2038	2056	59.59																						
NB I-96	1583-1584 SB I-96 Exit to Warren	Ramp	192	15	207	192		210	21	231	211	1.35	-	-	-						-	-	-	190	22	212	208																							
	1574-1573	Mainline	1470	132	1602	1537	56.05	1630	196	1826	1814	0.26	8	B	56.02	1610	181	1991	1968	0.52	9	A	55.62	1640	186	1826	1847	55.86																						
	1573-1564	Mainline	1470	132	1602	1532	60.83	1630	196	1826	1815	0.21	8	A	60.74	1610	181	1991	1965	0.58	9	A	60.41	1640	186	1826	1851	60.43																						
	1573-1564	Mainline	1470	132	1602	1532		1630	196	1826	1815													1640	186	1826	1851																							
	1573-1564	Mainline	1470	132	1602	1532		1630	196	1826	1815													1640	186	1826	1851																							
	1573-1564	Mainline	1470	132	1602	1532		1630	196	1826	1815													1640	186	1826	1851																							
	1573-1564	Mainline	1470	132	1602	1532		1630	196	1826	1815													1640	186	1826	1851																							
	1573-1564	Mainline	1470	132	1602	1532		1630	196	1826	1815													1640	186	1826	1851																							
	1573-1564	Mainline	1470	132	1602	1532		1630	196	1826	1815													1640	186	1826	1851																							
	1573-1564	Mainline	1470	132	1602	1532		1630	196	1826	1815													1640	186	1826	1851																							
	1573-1564	Mainline	1470	132	1602	1532		1630	196	1826	1815													1640	186	1826	1851																							
	1573-1564	Mainline	1470	132	1602	1532		1630	196	1826	1815													1640	186	1826	1851																							
	1573-1564	Mainline	1470	132	1602	1532		1630	196	1826	1815													1640	186	1826	1851																							
	1573-1564	Mainline	1470	132	1602	1532		1630	196	1826	1815													1640	186	1826	1851																							
SB Hwy 10	1548-1553 NB I-96 South of Exit to Warren	Mainline	2444	151	2595	2602	53.69	2696	222	2918	2932	0.26	11	B	53.38	2701	304	3005	3069	1.16	12	B	53.45	2431	319	2750	2763	53.66																						
	1548-1569	Ramp	374	27	401	397		410	39	449	438	0.52	-	-	-						-	-	-	370	40	410	415																							
	1553-1555	Mainline	2070	124	2194	2198	57.06	2286	183	2469	2489	0.40	9	A	56.29	2291	265	2556	2611	1.06	10	A	56.88	2061	279	2340	2348	57.37																						
	1553-1555	Mainline	2070	124	2194	2198		2286	183	2469	2489													2061	279	2340	2348																							
	1553-1555	Mainline	2070	124	2194	2198		2286	183	2469	2489													2061	279	2340	2348																							
	1553-1555	Mainline	2070	124	2194	2198		2286	183	2469	2489													2061	279	2340	2348																							
	1553-1555	Mainline	2070	124	2194	2198		2286	183	2469	2489													2061	279	2340	2348																							
	1553-1555	Mainline	2070	124	2194	2198		2286	183	2469	2489													2061	279	2340	2348																							
	1553-1555	Mainline	2070	124	2194	2198		2286	183	2469	2489													2061	279	2340	2348																							
	1553-1555	Mainline	2070	124	2194	2198		2286	183	2469	2489													2061	279	2340	2348																							
	1553-1555	Mainline	2070	124	2194	2198		2286	183	2469	2489													2061	279	2340	2348																							
	1553-1555	Mainline	2070	124	2194	2198		2286	183	2469	2489													2061	279	2340	2348																							
	1553-1555	Mainline	2070	124	2194	2198		2286	183	2469	2489													2061	279	2340	2348																							
	1553-1555	Mainline	2070	124	2194	2198		2286	183	2469	2489													2061	279	2340	2348																							
NB Hwy 10	1548-1553 NB I-96 South of Exit to Warren	Mainline	2444	151	2595	2602	53.69	2696	222	2918	2932	0.26	11	B	53.38	2701	304	3005	3069	1.16	12	B	53.45	2431	319	2750	2763	53.66																						
	1548-1569	Ramp	374	27	401	397		410	39	449	438	0.52	-	-	-						-	-	-	370	40	410	415																							
	1553-1555	Mainline	2070	124	2194	2198	57.06	2286	183	2469	2489	0.40	9	A	56.29	2291	265	2556	2611	1.06	10	A	56.88	2061	279	2340	2348	57.37																						
	1553-1555	Mainline	2070	124	2194	2198		2286	183	2469	2489													2061	279	2340	2348																							
	1553-1555	Mainline	2070	124	2194	2198		2286	183	2469	2489													2061	279	2340	2348																							
	1553-1555	Mainline																																																

PM Period - Build Validation

Link	Facility	Type	PM1415					PM1516					PM1617					PM1718					PM1819											
			Auto Volume Lookup	Truck Volume Lookup	Total Volume Lookup	Model Output Volume	Simulation Speed (mph)	Auto Volume Lookup	Truck Volume Lookup	Total Volume Lookup	Model Output Volume	Simulation Speed (mph)	Auto Volume Lookup	Truck Volume Lookup	Total Volume Lookup	Model Output Volume	Simulation Speed (mph)	Auto Volume Lookup	Truck Volume Lookup	Total Volume Lookup	Model Output Volume	Simulation Speed (mph)	Auto Volume Lookup	Truck Volume Lookup	Total Volume Lookup	Model Output Volume	Simulation Speed (mph)							
EB I-94	1014-1012	EB I-94 West of I-96	Mainline	5099	428	5527	5394	43.76	5299	374	5673	5667	42.43	5308	297	5605	5709	0.72	35	D	41.50	5466	304	5770	5520	3.33	54	F	26.13	3680	224	3804	4267	41.53
	1018-1019	EB I-94 to SB I-96	Ramp	227	45	272	271		240	40	280	263		240	31	271	274	0.15	-	-	-	280	22	302	281	1.23	-	-	-	191	15	206	232	
	1027-1008	EB I-94 to NB I-96	Ramp	900	155	1055	1012		929	137	1066	1055		949	111	1060	1042	0.56	-	-	-	1449	137	1586	1522	1.62	-	-	-	966	91	1057	1133	
	1012-1010	Mainline	3972	228	4200	4078	56.08	4130	197	4327	4352	55.77	4199	155	4354	4390	0.54	27	D	55.89	3737	145	3882	3714	2.73	22	C	56.76	2503	118	2621	2916		
	1022-1023	EB I-94 Exit to Grand River	Ramp	227	16	242	213		240	13	253	213		240	10	250	241	0.17	-	-	-	350	10	360	338	1.28	-	-	-	235	9	244	269	
	1010-159	Mainline	3745	213	3958	3829	55.83	3890	184	4074	4055	55.77	3969	145	4104	4150	0.72	25	C	55.62	3387	135	3522	3384	2.35	20	C	57.81	2268	109	2377	2649	57.24	
	983-982	NB I-96 to EB I-94	Ramp	292	113	405	390		298	96	397	414		308	77	385	389	0.20	-	-	-	222	50	272	278	0.36	-	-	-	153	41	194	209	
	159-187	Mainline	4039	326	4365	4207	54.91	4190	283	4473	4509	54.71	4269	222	4491	4540	0.73	21	C	54.98	3611	185	3796	3663	2.19	16	B	57.92	2423	150	2573	2869	57.01	
	187-158	Mainline	4039	326	4365	4206	57.92	4190	283	4473	4507	56.91	4269	222	4491	4543	0.77	20	C	57.92	3611	185	3796	3662	2.19	16	B	59.60	2423	150	2573	2869	59.31	
	979-158	SB I-96 to EB I-94	Ramp	917	38	955	930		947	31	978	993		968	23	989	1009	0.63	-	-	-	909	0	909	911	0.73	-	-	-	601	0	601	643	
	158-186	Mainline	4956	364	5320	5126	55.59	5137	314	5451	5501	55.12	5235	245	5480	5551	0.96	21	C	54.59	4520	185	4705	4589	1.70	16	B	56.81	3024	150	3174	3511	57.21	
	186-959	Mainline	4962	365	5327	5120	57.23	5143	315	5458	5499	56.76	5241	246	5487	5551	0.86	20	C	56.69	4526	185	4711	4590	1.77	16	B	58.89	3027	150	3177	3515	59.11	
	971-969	EB I-94 Entrance from Linwood	Ramp	387	17	384	188						376	15	392	305	0.99	-	-	-	176	0	176	178	0.15	-	-	-	124	0	124	131		
	966-959	Mainline	5129	382	5511	5294	57.39	5322	330	5652	5695	57.70	5420	259	5679	5755	1.01	17	B	57.81	4702	185	4887	4773	1.64	14	B	58.66	3151	150	3301	3651	59.03	
	975-976	EB I-94 Exit to Trumbull	Ramp	408	12	420	411		419	10	429	446		429	7	436	445	0.43	-	-	-	447	7	454	440	0.66	-	-	-	296	6	302	347	
	959-212	Mainline	4721	370	5091	4869	58.00	4903	320	5223	5248	57.10	4981	252	5243	5309	0.91	19	C	57.50	4255	178	4433	4335	1.48	15	B	59.09	2855	144	2999	3309	59.58	
	212-951	Mainline	4721	370	5091	4857	60.44	4903	320	5223	5248	59.51	4981	252	5243	5309	0.91	19	C	60.02	4255	178	4433	4335	1.48	14	B	61.16	2855	144	2999	3314	62.40	
	949-950	EB I-94 Exit to SB Hwy 10	Ramp	397	14	411	399		408	12	420	414		418	9	427	432	0.24	-	-	-	349	9	358	361	0.16	-	-	-	232	7	239	264	
	213-944	EB I-94 Exit to NB Hwy 10	Ramp	643	16	659	640		688	14	682	683		679	10	689	683	0.23	-	-	-	688	19	687	655	1.24	-	-	-	451	14	465	522	
	981-943	Mainline	3681	340	4021	3836	54.05	3827	294	4121	4154	54.05	3894	233	4127	4191	0.99	20	C	54.01	3238	150	3388	3321	1.16	15	B	54.58	2172	123	2295	2532	54.69	
	943-919	Mainline	3681	340	4021	3819	57.86	3827	294	4121	4156	57.86	3894	233	4127	4191	0.99	19	C	57.93	3238	150	3388	3325	1.09	15	B	59.53	2172	123	2295	2534	57.67	
	919-918	Mainline	3681	340	4021	3801	54.87	3827	294	4121	4159	54.85	3894	233	4127	4190	0.98	19	C	55.35	3238	150	3388	3327	1.05	15	B	56.88	2172	123	2295	2539	57.87	
	918-912	Mainline	3681	340	4021	3791	53.72	3827	294	4121	4159	53.88	3894	233	4127	4189	0.96	20	C	53.79	3238	150	3388	3329	1.02	15	B	55.42	2172	123	2295	2543	56.60	
	916-915	EB I-94 Entrance from NB Hwy 10	Ramp	594	13	607	600		614	11	625	630		627	9	636	637	0.04	-	-	-	650	3	653	670	0.66	-	-	-	433	3	436	450	
	917-915	EB I-94 Entrance from SB Hwy 10	Ramp	625	41	666	649		645	36	681	648		645	36	681	648	0.99	-	-	-	598	58	656	624	1.21	114	-	-	380	6	386	414	
	912-449	Mainline	4800	394	5194	4943	57.96	4986	340	5326	5381	57.22	5073	268	5341	5395	0.74	16	B	57.07	4474	161	4635	4620	0.22	13	B	58.58	2995	132	3127	3444	60.11	
	449-910	Mainline	4800	394	5194	4932	62.16	4986	340	5326	5380	61.47	5073	268	5341	5397	0.76	15	B	61.74	4474	161	4635	4621	0.21	12	B	62.85	2995	132	3127	3444	60.11	
	910-928	EB I-94 Exit to Brush	Ramp	482	73	555	627		500	65	565	603		511	50	561	609	5.12	15	B	54.94	610	18	528	639	4.60	-	-	-	340	18	358	480	
	910-929	Mainline	4317	321	4638	4296	54.82	4485	275	4760	4688	54.86	4551	219	4770	4799	0.91	18	C	54.86	3963	143	4106	3983	1.34	12	B	55.05	3254	117	2771	2911	55.54	
	909-904	Mainline	4317	321	4638	4283	76.48	4485	275	4760	4687	75.56	4561	218	4779	4709	1.02	11	A	75.37	3963	143	4106	3984	1.92	9	A	76.74	2654	117	2771	2972	76.55	
	299-314	EB I-94 Exit to SB I-75	Ramp	145	14	159	145		150	13	163	165		150	10	160	173	1.01	-	-	-	159	10	169	158	0.86	-	-	-	105	8	113	127	
	300-302	EB I-94 Exit to NB I-75	Ramp	973	97	1070	788		1012	86	1098	1086		1032	69	1101	1137	2.01	-	-	-	799	60	859	821	1.31	-	-	-	530	46	576	655	
	904-903	Mainline	3199	210	3409	3199	51.04	3322	176	3499	3496	52.16	3379	139	3518	3507	0.91	23	B	52.69	3005	73	3079	3002	1.21	11</								

PM Period - Build Validation

Link	Facility	Type	PM1415					PM1516					PM1617					PM1718					PM1819										
			Auto Volume	Truck Volume	Total Volume	Model Output	Simulation Speed (mph)	Auto Volume	Truck Volume	Total Volume	Model Output	Simulation Speed (mph)	Auto Volume	Truck Volume	Total Volume	Model Output	Simulation Speed (mph)	Auto Volume	Truck Volume	Total Volume	Model Output	Simulation Speed (mph)	Auto Volume	Truck Volume	Total Volume	Model Output	Simulation Speed (mph)						
SB I-96	49-1614 SB I-96 North of Exit to Grand	Mainline	3968	489	4457	4365	70.35	4123	431	4554	4551	70.48	4192	337	4529	4562	0.49	17	B	70.52	4196	365	4560	4571	0.16	17	B	70.61	2798	255	3053	3095	72.56
	1614-1615	Mainline	3968	489	4457	4358	67.09	4123	431	4554	4548	67.19	4192	337	4529	4566	0.55	18	B	67.26	4195	365	4560	4569	0.13	18	B	67.21	2798	255	3053	3097	68.23
	1615-1616	Ramp	309	44	353	355		320	38	358	359		330	30	360	364	0.21	-	-	-	330	30	360	367	0.37	-	-	-	217	23	240	242	
	1615-1599	Mainline	3659	445	4104	3997	53.27	3803	393	4196	4189	53.26	3862	307	4169	4203	0.53	20	C	53.24	3865	335	4200	4200	0.00	20	C	53.36	2581	232	2813	2859	53.95
	1599-1597	Mainline	3659	445	4104	3997	57.46	3803	393	4196	4191	57.52	3862	307	4169	4198	0.45	19	C	57.43	3865	335	4200	4199	0.02	19	C	57.53	2581	232	2813	2857	58.41
	1597-1595	Mainline	3659	445	4104	3967	58.30	3803	393	4196	4191	58.35	3862	307	4169	4198	0.45	19	C	58.27	3865	335	4200	4201	0.00	19	C	58.34	2581	232	2813	2868	58.90
	1595-1593	Mainline	3659	445	4104	3965	59.21	3803	393	4196	4191	59.24	3862	307	4169	4197	0.43	18	C	59.16	3865	335	4200	4203	0.05	18	C	59.37	2581	232	2813	2869	60.06
	1607-1593	Ramp	449	63	512	510		463	56	519	530		474	44	518	521	0.11	-	-	-	474	44	518	511	0.31	-	-	-	118	29	347	358	
	1593-1591	Mainline	4108	508	4616	4467	56.00	4266	449	4715	4723	56.25	4336	351	4687	4725	0.41	18	B	55.59	4339	379	4718	4713	0.07	17	B	56.18	2999	261	3160	3229	58.45
	1591-1589	Mainline	4108	508	4616	4461	58.05	4266	449	4715	4721	57.90	4336	351	4687	4715	0.41	17	B	57.28	4339	379	4718	4717	0.01	17	B	58.01	2999	261	3160	3231	60.92
NB I-96	960-961	Ramp	209	11	220	214		220	11	231	226		220	10	230	232	0.13	-	-	-	291	10	301	292	0.52	-	-	-	192	6	198	205	
	205-979	Ramp	917	38	955	931		947	31	978	904		966	23	989	1011	0.70	-	-	-	909	0	909	931	0.73	-	-	-	601	0	601	643	
	1598-1577	Mainline	2098	460	3446	3290	56.57	2103	407	3510	3506	56.41	2154	318	3472	3466	0.36	16	B	56.51	2144	369	3513	3500	0.22	16	B	56.41	2109	255	2364	2388	57.29
	1577-1574	Mainline	2098	460	3446	3273	58.48	2103	407	3510	3506	58.53	2154	318	3472	3464	0.14	16	B	58.54	2144	369	3513	3503	0.17	16	B	58.59	2109	255	2364	2393	59.25
	1583-1584	Ramp	203	28	231	229		213	25	238	239		213	19	232	235	0.20	-	-	-	214	19	233	240	0.46	-	-	-	143	15	158	159	
	1574-1573	Mainline	2783	432	3215	3039	54.56	2890	382	3272	3265	54.52	2941	299	3240	3231	0.16	16	B	54.56	2930	350	3280	3262	0.31	16	B	54.63	1966	240	2206	2236	55.23
	1573-1554	Mainline	2783	432	3215	3029	59.22	2890	382	3272	3266	59.14	2941	299	3240	3231	0.12	14	B	59.21	2930	350	3280	3262	0.31	15	B	59.24	1966	240	2206	2239	59.96
	1018-1019	Ramp	227	45	272	271		240	40	280	263		240	31	271	274	0.18	-	-	-	280	22	302	281	1.23	-	-	-	191	15	206	212	
	1001-1002	Ramp	863	27	890	787		890	25	915	926		910	66	976	963	0.42	-	-	-	883	64	947	989	1.35	-	-	-	597	42	639	688	
	1598-1592	Ramp	891	86	977	874		919	77	996	906		940	46	986	1023	0.31	-	-	-	890	55	945	1028	1.17	-	-	-	628	11	639	677	
SB Hwy 10	1831-1552	Mainline	4484	590	5054	4711	57.05	4630	524	5154	5160	56.93	4710	456	5166	5137	0.40	19	C	56.96	4663	491	5154	5162	0.01	19	C	56.76	3117	335	3472	3598	58.05
	1548-1553	Mainline	4268	509	4775	4676	52.58	4428	450	4878	4903	52.49	4509	357	4866	4885	0.27	19	C	52.53	4513	385	4888	4874	0.34	19	C	52.61	3015	270	3285	3312	53.54
	1568-1569	Ramp	555	72	627	602		580	64	644	640		590	50	640	641	0.04	-	-	-	600	50	650	635	0.59	-	-	-	400	38	438	442	
	1553-1555	Mainline	3711	437	4148	4056	56.49	3848	386	4234	4263	56.47	3919	307	4226	4263	0.31	16	B	56.50	3913	335	4248	4249	0.14	16	B	56.77	2515	232	2847	2877	57.89
	983-982	Ramp	292	113	405	390		298	99	397	414		308	77	385	389	0.20	-	-	-	222	90	272	278	0.98	-	-	-	153	47	194	209	
	1020-1021	Ramp	873	113	986	761		700	100	800	823		710	90	800	801	0.04	-	-	-	730	83	813	813	0.00	-	-	-	467	69	536	569	
	1555-1572	Mainline	2746	211	2957	2882	59.38	2850	187	3037	3031	59.28	2901	140	3041	3047	0.11	13	B	59.12	2961	202	3163	3152	0.20	14	B	59.19	1497	122	2097	2109	60.23
	1590-1579	Mainline	327	71	398	368		360	62	422	421		365	86	451	451	0.19	-	-	-	329	57	387	383	0.99	-	-	-	619	48	667	689	
	1575-1576	Mainline	3273	282	3555	3446	59.07	3400	249	3649	3644	59.23	3461	190	3651	3639	0.20	16	B	59.20	3531	259	3790	3788	0.03	17	B	58.82	2358	160	2518	2540	59.74
	1576-1568	Mainline	3273	282	3555	3441	61.73	3400	249	3649	3643	62.05	3461	190	3651	3640	0.18	15	B	62.01	3531	259	3790	3788	0.03	17	B	58.53	2358	160	2518	2543	62.45
NB Hwy 10	1001-1004	Ramp	866	75	941	848		923	64	987	961		911	66	977	957	0.04	-	-	-	879	68	947	982	1.13	-	-	-	597	46	643	697	
	1027-1008	Ramp	900	155	1055	1012		929	137	1066	1055		949	111	1060	1042	0.56	-	-	-	1448	137	1586	1522	1.62	-	-	-	1057	138	1195	1233	
	1568-1558	Mainline	5039	512	5551	5279	48.36	5222	450	5672	5659	49.32	5321	367	5688	5640	0.64	24	C	49.32	5859	484	6323	6275	0.60	49	F	36.74	3021	297	4218	4388	49.08
	1590-1592	Mainline	5039	512	5551	5272	52.48	5222	450	5672	5659	52.80	5321	367	5688	5640	0.64	22	C	53.50	5859	484	6323	6272	0.64	35	D	37.53	3021	297	4218	4391	53.74
	1602-1603																																

AM Period - Existing Validation

AM07										AM08										AM09										AM10									
Link	Facility	Type	Auto Volume Lookup	Truck Volume Lookup	Total Volume Lookup	Model Output Volume	Simulation Speed (mph)	Avg Hour Speed, Date of Count	2mo. Avg Hour Speed	Auto Volume Lookup	Truck Volume Lookup	Total Volume Lookup	Model Output Volume	GEH (Target v. Model)	Density pc/mi/h	LOS	Simulation Speed (mph)	Avg Hour Speed, Date of Count	2mo. Avg Hour Speed	Auto Volume Lookup	Truck Volume Lookup	Total Volume Lookup	Model Output Volume	GEH (Target v. Model)	Density pc/mi/h	LOS	Simulation Speed (mph)	Avg Hour Speed, Date of Count	2mo. Avg Hour Speed	Auto Volume Lookup	Truck Volume Lookup	Total Volume Lookup	Model Output Volume	Simulation Speed (mph)	Avg Hour Speed, Date of Count	2mo. Avg Hour Speed			
EB I-94	1014-1012 EB I-94 West of I-96	Mainline	4550	295	4213	4082	53.07			4370	374	4744	4601	2.09	45	F	26.46			3760	380	4120	4181	0.96	30	D	35.86			3380	373	3763	3825	51.34					
	1018-1010 EB I-94 to SB I-96	Ramp	250	17	241	235				250	17	271	269	0.82	-	-				140	16	156	158	0.16	-	-				130	17	147	149						
	1027-1008 EB I-94 to NB I-96	Ramp	780	24	696	682				780	24	780	763	0.81	-	-				610	33	643	609	0.63	-	-				550	34	584	594	52.06	48.36	40.25			
	1012-1010	Mainline	3510	254	3273	3141	57.32	44.50	53.75	3370	323	3693	3532	2.68	53	F	23.06	17.08	31.17	3010	311	3321	3395	1.28	39	F	30.31	16.83	22.06	2710	322	3032	3092						
	1022-1023 EB I-94 Exit to Grand River	Mainline	180	8	183	161				170	10	180	170	0.76	-	-				160	10	170	179	0.68	-	-				140	10	150	157						
	1010-159	Mainline	3320	248	3110	2966	55.15	44.50	53.75	3200	313	3513	3200	3.82	84	F	13.62	11.08	31.17	2850	301	3151	3363	1.98	66	F	17.24	16.83	22.06	2570	312	2882	2963	44.62	48.36	40.25			
	983-982 NB I-96 to EB I-94	Ramp	490	58	477	462				470	73	543	521	0.95	-	-				340	121	461	480	0.88	-	-				310	125	435	416						
	187-158	Mainline	3820	304	3584	3415	34.90			3670	388	4058	3775	4.49	96	F	13.81			3190	422	3612	3760	2.44	92	F	16.40			2880	437	3317	3399	32.50					
	978-979 SB I-96 to EB I-94	Ramp	1110	26	986	960				1070	33	1103	1105	0.86	-	-				930	40	970	958	0.86	-	-				840	41	881	888						
	186-966	Mainline	4830	330	4574	4351	41.09	39.13	52.06	4740	419	5159	4866	4.14	59	F	28.56	35.40	31.67	4120	482	4582	4720	2.02	58	F	28.51	25.82	27.67	3720	478	4198	4305	39.26	42.36	38.17			
WB I-94	972-971 EB I-94 Entrance from Linwood	Ramp	220	8	198	121				210	10	220	134	6.46	-	-				250	19	269	189	7.60	-	-				260	20	280	178						
	966-965	Mainline	5150	338	4772	4468	38.79	48.10	53.50	4950	429	5379	4988	5.29	46	F	24.13	25.82	39.50	4410	481	4891	4909	7.60	46	F	27.16	36.42	37.17	3980	498	4478	4485	36.79	48.09	45.00			
	965-960	Mainline	5150	338	4772	4439	41.49	48.10	53.50	4950	429	5379	4997	5.30	48	F	36.20	35.82	39.50	4410	481	4891	4906	9.21	48	F	36.03	36.42	37.17	3980	498	4478	4495	41.28	48.09	45.00			
	962-963	Ramp	60	3	59	55				60	19	70	61	1.11	-	-				100	11	111	98	1.27	-	-				90	11	101	91						
	960-959	Mainline	5210	348	4831	4488	52.94			5010	429	5449	5056	5.42	26	F	51.63			4510	492	5002	5004	1.09	26	F	51.37			4070	509	4279	4588	52.39					
	975-976 EB I-94 Exit to Trumbull	Ramp	730	3	642	537				700	10	710	619	3.33	-	-				670	10	680	588	3.65	-	-				600	10	610	536						
	959-952	Mainline	4480	338	4190	3941	56.82	52.00	56.67	4410	429	4739	4438	4.44	27	D	56.48	39.43	47.25	3840	482	4322	4414	1.39	28	D	56.29	42.45	45.25	3470	499	3969	4056	56.40	56.00	50.75			
	952-951	Mainline	4480	338	4190	3930	57.89	52.00	56.67	4410	429	4739	4435	4.49	27	D	57.84	39.43	47.25	3840	482	4322	4417	1.44	27	D	57.77	42.45	45.25	3470	499	3969	4054	57.50	56.00	50.75			
	949-950 EB I-94 Exit to SB Hwy 10	Ramp	760	8	668	637				730	10	740	700	1.49	-	-				730	10	740	746	0.22	-	-				660	10	670	699						
	951-943	Mainline	3720	330	3522	3288	56.67	55.67	55.75	3580	419	3999	3733	4.28	23	C	56.81	50.60	51.33	3110	472	3582	3671	1.48	23	C	56.86	50.83	50.58	2810	489	3299	3357	56.61	55.17	52.83			
WB I-94	943-944 EB I-94 Exit to NB Hwy 10	Ramp	810	26	563	512				780	28	808	754	2.30	-	-				780	28	808	758	0.49	-	-				740	28	768	708						
	943-919	Mainline	3110	304	2969	2749	58.59	55.67	55.75	2990	386	3376	3157	3.83	19	C	58.89	50.60	51.33	2620	443	3063	3146	1.42	20	C	57.56	50.83	50.58	2370	459	2829	2872	58.70	55.17	52.83			
	919-918	Mainline	3110	304	2969	2742	57.63	55.67	55.75	2990	386	3376	3153	3.94	22	C	57.67	50.60	51.33	2620	443	3063	3146	1.49	22	C	57.56	50.83	50.58	2370	459	2829	2872	57.56	55.17	52.83			
	918-912	Ramp	3110	304	2969	2734	57.01	55.67	55.75	2990	386	3376	3151	3.94	22	C	49.55	50.60	51.33	2620	443	3063	3146	1.49	30	D	57.64	50.83	50.58	2370	459	2829	2875	55.89	55.17	52.81			
	916-915	Mainline	3110	304	2969	2734	57.01	55.67	55.75	2990	386	3376	3151	3.94	22	C	49.55	50.60	51.33	2620	443	3063	3146	1.49	30	D	57.64	50.83	50.58	2370	459	2829	2875	55.89	55.17	52.81			
	937-936	Ramp	730	10	643	638				700	13	713	697	0.90	-	-				640	11	651	646	0.20	-	-				580	11	591	580						
	912-180	Mainline	4350	327	4057	3801	56.82			4180	415	4596	4342	3.78	25	C	35.71			3750	491	4241	4354	1.72	33	D	32.20			3390	508	3888	3913	48.77					
	180-910	Ramp	260	8	168	140	44.46			260	16	160	152	0.84	-	-				270	16	290	228	0.53	-	-				190	16	200	205						
	926-927	Ramp	270	18	268	247				280	23	303	291	0.70	-	-				270	24	294	308	0.81	-	-				240	25	265	266						
	910-909	Mainline	4080	309	3789	3525	49.87	49.91	51.42	3900	392	4292	4053	3.70	31	D	45.79	47.09	46.42	3480	467	3947	4039	1.46	35	D	40.92	45.83	45.75	3150	483	3633	3657	46.94	48.92	46.31			
WB I-94	909-908	Mainline	4080	309	3789	3515	49.87	49.91	51.42	3900	392	4292	4046	3.81	28	D	45.69	47.09	46.42	3480	467	3947	4039	1.46	30	D	47.35	45.83	45.75	3150	483	3633	3659	49.63	48.92	46.31			
	906-904	Mainline	4080	309	3789	3507	56.38	49.91	51.42	3900	392	4292	4047	3.79	28	D	49.84	47.09	46.42	3480	467	3947	4040	1.47	29	D	49.81	45.83	45.75	3150	483	3633	3661	49.39	48.92	46.31			
	299-314	Ramp	540	20	487	440				520	25	545	518	1.17	-	-				590	22	612	608	0.16	-	-				530	23	553	557						

PM Period - Existing Validation

			PM1645										PM1650										PM1657										PM1710										PM1805													
Link	Facility	Type	Auto Volume	Truck Volume	Total Volume	Model Output Volume	Simulation Speed (mph)	Ag Hour Speed, Feet of Course	2mo. Avg Hour Speed	Auto Volume	Truck Volume	Total Volume	Model Output Volume	Simulation Speed (mph)	Ag Hour Speed, Feet of Course	2mo. Avg Hour Speed	Auto Volume	Truck Volume	Total Volume	Model Output Volume	Simulation Speed (mph)	Ag Hour Speed, Feet of Course	2mo. Avg Hour Speed	Auto Volume	Truck Volume	Total Volume	Model Output Volume	Simulation Speed (mph)	Ag Hour Speed, Feet of Course	2mo. Avg Hour Speed	Auto Volume	Truck Volume	Total Volume	Model Output Volume	Simulation Speed (mph)	Ag Hour Speed, Feet of Course	2mo. Avg Hour Speed	Auto Volume	Truck Volume	Total Volume	Model Output Volume	Simulation Speed (mph)	Ag Hour Speed, Feet of Course	2mo. Avg Hour Speed												
EB I-94	EB I-94 West of I-86	Mainline	4230	286	4517	4285	51.25			4300	310	4610	4320	51.57			4250	241	4491	4248	51.71	27	0	51.73	4200	226	4426	4200	51.94	38	0	51.96	4220	204	4424	4200	51.94	38	0	51.96	4220	204	4424	4200	51.94	37	0	51.95								
	EB I-94 to I-86 WB	Ramp	240	41	281	233				230	28	258	247				230	28	258	247				230	28	258	247				230	28	258	247				230	28	258	247				230	28	258	247								
	EB I-94 to I-86 NB	Ramp	700	148	848	795				720	158	878	833				730	162	892	833				730	162	892	833				730	162	892	833				730	162	892	833				730	162	892	833								
	EB I-94 to Grand River	Mainline	1320	189	1509	1313	57.34	41.30	47.33	1340	199	1539	1342	57.34	41.30	47.33	1320	189	1509	1342	57.77	27	0	57.83	1290	122	1412	1290	58.01	36.42	42.42	1280	106	1386	1273	58.01	36.42	42.42	1280	106	1386	1273	58.01	36.42	42.42	1280	106	1386	1273	58.01	36.42	42.42				
	WB I-94 to I-84	Mainline	1120	183	1303	1095	56.31	41.30	47.33	1140	188	1328	1096	56.31	41.30	47.33	1120	183	1303	1096	56.58	38	0	56.66	1090	112	1202	1096	56.82	36.42	42.42	1080	97	1177	1077	56.82	36.42	42.42	1080	97	1177	1077	56.82	36.42	42.42	1080	97	1177	1077	56.82	36.42	42.42				
	WB I-94 to I-84	Ramp	280	56	336	313				280	57	337	315				280	56	336	311				280	56	336	311				280	56	336	311				280	56	336	311				280	56	336	311								
	WB I-94 to I-84	Mainline	1380	278	1658	1361	52.47			1390	273	1663	1359	52.47			1380	278	1658	1359	52.68	55	0	52.74	1330	159	1489	1358	53.06	46	0	53.12	1320	138	1458	1320	53.06	46	0	53.12	1320	138	1458	1320	53.06	46	0	53.12	1320	138	1458	1320	53.06	46	0	53.12
	WB I-94 to I-84	Ramp	810	35	845	789				780	21	801	789				780	21	801	789				780	21	801	789				780	21	801	789				780	21	801	789				780	21	801	789								
	WB I-94 to I-84	Mainline	4100	311	4411	4022	54.57	37.82	42.75	4060	250	4310	4128	54.57	37.82	42.75	4100	311	4411	4128	54.75	52	0	54.81	3950	160	4110	3950	55.12	36.42	42.42	3900	141	4041	3900	55.12	36.42	42.42	3900	141	4041	3900	55.12	36.42	42.42	3900	141	4041	3900	55.12	36.42	42.42				
	WB I-94 Entrance From Lincolnway	Ramp	180	36	216	180				180	35	215	180				180	35	215	180				180	35	215	180				180	35	215	180				180	35	215	180				180	35	215	180								
WB I-94	WB I-94 Entrance From I-86 NB	Mainline	4350	327	4677	4364	54.09	41.00	47.42	4110	263	4373	4248	54.09	41.00	47.42	4350	327	4677	4364	54.27	55	0	54.32	4200	206	4406	4200	54.55	36.42	42.42	4150	181	4331	4150	54.55	36.42	42.42	4150	181	4331	4150	54.55	36.42	42.42	4150	181	4331	4150	54.55	36.42	42.42				
	WB I-94 Entrance From I-86 NB	Ramp	780	52	832	780				780	51	831	780				780	52	832	780				780	52	832	780				780	52	832	780				780	52	832	780				780	52	832	780								
	WB I-94 Entrance From I-86 NB	Mainline	4350	327	4677	4364	54.09	41.00	47.42	4110	263	4373	4248	54.09	41.00	47.42	4350	327	4677	4364	54.27	55	0	54.32	4200	206	4406	4200	54.55	36.42	42.42	4150	181	4331	4150	54.55	36.42	42.42	4150	181	4331	4150	54.55	36.42	42.42	4150	181	4331	4150	54.55	36.42	42.42				
	WB I-94 Entrance From I-86 NB	Ramp	780	52	832	780				780	51	831	780				780	52	832	780				780	52	832	780				780	52	832	780				780	52	832	780				780	52	832	780								
	WB I-94 Entrance From I-86 NB	Mainline	4350	327	4677	4364	54.09	41.00	47.42	4110	263	4373	4248	54.09	41.00	47.42	4350	327	4677	4364	54.27	55	0	54.32	4200	206	4406	4200	54.55	36.42	42.42	4150	181	4331	4150	54.55	36.42	42.42	4150	181	4331	4150	54.55	36.42	42.42	4150	181	4331	4150	54.55	36.42	42.42				
	WB I-94 Entrance From I-86 NB	Ramp	780	52	832	780				780	51	831	780				780	52	832	780				780	52	832	780				780	52	832	780				780	52	832	780				780	52	832	780								
	WB I-94 Entrance From I-86 NB	Mainline	4350	327	4677	4364	54.09	41.00	47.42	4110	263	4373	4248	54.09	41.00	47.42	4350	327	4677	4364	54.27	55	0	54.32	4200	206	4406	4200	54.55	36.42	42.42	4150	181	4331	4150	54.55	36.42	42.42	4150	181	4331	4150	54.55	36.42	42.42	4150	181	4331	4150	54.55	36.42	42.42				
	WB I-94 Entrance From I-86 NB	Ramp	780	52	832	780				780	51	831	780				780	52	832	780				780	52	832	780				780	52	832	780				780	52	832	780				780	52	832	780								
	WB I-94 Entrance From I-86 NB	Mainline	4350	327	4677	4364	54.09	41.00	47.42	4110	263	4373	4248	54.09	41.00	47.42	4350	327	4677	4364	54.27	55	0	54.32	4200	206	4406	4200	54.55	36.42	42.42	4150	181	4331	4150	54.55	36.42	42.42	4150	181	4331	4150	54.55	36.42	42.42	4150	181	4331	4150	54.55	36.42	42.42				
	WB I-94 Entrance From I-86 NB	Ramp	780	52	832	780				780	51	831	780				780	52	832	780				780	52	832	780				780	52	832	780				780	52	832	780				780	52	832	780								
WB I-94	WB I-94 Entrance From I-86 NB	Mainline	4350	327	4677	4364	54.09	41.00	47.42	4110	263	4373	4248	54.09	41.00	47.42	4350	327	4677	4364	54.27	55	0	54.32	4200	206	4406	4200	54.55	36.42	42.42	4150	181	4331	4150	54.55	36.42	42.42	4150	181	4331	4150	54.55	36.42	42.42	4150	181	4331	4150	54.55	36.42	42.42				
	WB I-94 Entrance From I-86 NB	Ramp	780	52	832	780				780	51	831	780				780	52	832	780				780	52	832	780				780	52	832	780				780	52	832	780				780	52	832	780								
	WB I-94 Entrance From I-86 NB	Mainline	4350	327	4677	4364	54.09	41.00	47.42	4110	263	4373	4248	54.09	41.00	47.42	4350	327	4677	4364	54.27	55	0	54.32	4200	206	4406	4200	54.55	36.42	42.42	4150	181	4331	4150	54.55	36.42	42.42	4150	181	4331	4150	54.55	36.42	42.42	4150	181	4331	4150	54.55	36.42	42.42				
	WB I-94 Entrance From I-86 NB	Ramp	780	52	832	780				780	51	831	780				780	52	832	780				780	52	832	780				780	52	832	780				780	52	832	780				780	52	832	780								
	WB I-94 Entrance From I-86 NB	Mainline	4350	327	4677	4364	54.09	41.00	47.42	4110	263	4373	4248	54.09	41.00	47.42	4350	327	4677	4364	54.27	55	0	54.32	4200	206	4406	4200	54.55	36.42	42.42	4150	181	4331	4150	54.55	36.42	42.42	4150	181	4331	4														

PM Period - Existing Validation

	Link	Facility	Type	PM1615				PM1618				PM1617				PM1718				PM1618							
				Auto Volume	Truck Volume	Total Volume	Model	Simulation Speed (mph)	Ag Hour Speed (mi/h)	2nd Hour Speed	Auto Volume	Truck Volume	Total Volume	Model	Simulation Speed (mph)	Ag Hour Speed (mi/h)	2nd Hour Speed	Auto Volume	Truck Volume	Total Volume	Model	Simulation Speed (mph)	Ag Hour Speed (mi/h)	2nd Hour Speed			
SB I-96	1616184	SB NB South of East to Grand	Mainline	3408	478	3886	1344		32.76	35	36.45	3548		32.76	280	262	3525	1518	32.76	280	262	3525	1518	32.76	280	262	3525
	1616185	SB NB South of East to Grand	Mainline	3408	478	3886	1344		32.76	35	36.45	3548		32.76	280	262	3525	1518	32.76	280	262	3525	1518	32.76	280	262	3525
	1616186	SB NB South of East to Grand	Mainline	3408	478	3886	1344		32.76	35	36.45	3548		32.76	280	262	3525	1518	32.76	280	262	3525	1518	32.76	280	262	3525
	1616187	SB NB South of East to Grand	Mainline	3408	478	3886	1344		32.76	35	36.45	3548		32.76	280	262	3525	1518	32.76	280	262	3525	1518	32.76	280	262	3525
	1616188	SB NB South of East to Grand	Mainline	3408	478	3886	1344		32.76	35	36.45	3548		32.76	280	262	3525	1518	32.76	280	262	3525	1518	32.76	280	262	3525
	1616189	SB NB South of East to Grand	Mainline	3408	478	3886	1344		32.76	35	36.45	3548		32.76	280	262	3525	1518	32.76	280	262	3525	1518	32.76	280	262	3525
	1616190	SB NB South of East to Grand	Mainline	3408	478	3886	1344		32.76	35	36.45	3548		32.76	280	262	3525	1518	32.76	280	262	3525	1518	32.76	280	262	3525
	1616191	SB NB South of East to Grand	Mainline	3408	478	3886	1344		32.76	35	36.45	3548		32.76	280	262	3525	1518	32.76	280	262	3525	1518	32.76	280	262	3525
	1616192	SB NB South of East to Grand	Mainline	3408	478	3886	1344		32.76	35	36.45	3548		32.76	280	262	3525	1518	32.76	280	262	3525	1518	32.76	280	262	3525
	1616193	SB NB South of East to Grand	Mainline	3408	478	3886	1344		32.76	35	36.45	3548		32.76	280	262	3525	1518	32.76	280	262	3525	1518	32.76	280	262	3525
SB I-96	1616194	SB NB South of East to Grand	Mainline	3408	478	3886	1344		32.76	35	36.45	3548		32.76	280	262	3525	1518	32.76	280	262	3525	1518	32.76	280	262	3525
	1616195	SB NB South of East to Grand	Mainline	3408	478	3886	1344		32.76	35	36.45	3548		32.76	280	262	3525	1518	32.76	280	262	3525	1518	32.76	280	262	3525
	1616196	SB NB South of East to Grand	Mainline	3408	478	3886	1344		32.76	35	36.45	3548		32.76	280	262	3525	1518	32.76	280	262	3525	1518	32.76	280	262	3525
	1616197	SB NB South of East to Grand	Mainline	3408	478	3886	1344		32.76	35	36.45	3548		32.76	280	262	3525	1518	32.76	280	262	3525	1518	32.76	280	262	3525
	1616198	SB NB South of East to Grand	Mainline	3408	478	3886	1344		32.76	35	36.45	3548		32.76	280	262	3525	1518	32.76	280	262	3525	1518	32.76	280	262	3525
	1616199	SB NB South of East to Grand	Mainline	3408	478	3886	1344		32.76	35	36.45	3548		32.76	280	262	3525	1518	32.76	280	262	3525	1518	32.76	280	262	3525
	1616200	SB NB South of East to Grand	Mainline	3408	478	3886	1344		32.76	35	36.45	3548		32.76	280	262	3525	1518	32.76	280	262	3525	1518	32.76	280	262	3525
	1616201	SB NB South of East to Grand	Mainline	3408	478	3886	1344		32.76	35	36.45	3548		32.76	280	262	3525	1518	32.76	280	262	3525	1518	32.76	280	262	3525
	1616202	SB NB South of East to Grand	Mainline	3408	478	3886	1344		32.76	35	36.45	3548		32.76	280	262	3525	1518	32.76	280	262	3525	1518	32.76	280	262	3525
	1616203	SB NB South of East to Grand	Mainline	3408	478	3886	1344		32.76	35	36.45	3548		32.76	280	262	3525	1518	32.76	280	262	3525	1518	32.76	280	262	3525
NB I-96	1616204	SB NB South of East to Grand	Mainline	3408	478	3886	1344		32.76	35	36.45	3548		32.76	280	262	3525	1518	32.76	280	262	3525	1518	32.76	280	262	3525
	1616205	SB NB South of East to Grand	Mainline	3408	478	3886	1344		32.76	35	36.45	3548		32.76	280	262	3525	1518	32.76	280	262	3525	1518	32.76	280	262	3525
	1616206	SB NB South of East to Grand	Mainline	3408	478	3886	1344		32.76	35	36.45	3548		32.76	280	262	3525	1518	32.76	280	262	3525	1518	32.76	280	262	3525
	1616207	SB NB South of East to Grand	Mainline	3408	478	3886	1344		32.76	35	36.45	3548		32.76	280	262	3525	1518	32.76	280	262	3525	1518	32.76	280	262	3525
	1616208	SB NB South of East to Grand	Mainline	3408	478	3886	1344		32.76	35	36.45	3548		32.76	280	262	3525	1518	32.76	280	262	3525	1518	32.76	280	262	3525
	1616209	SB NB South of East to Grand	Mainline	3408	478	3886	1344		32.76	35	36.45	3548		32.76	280	262	3525	1518	32.76	280	262	3525	1518	32.76	280	262	3525
	1616210	SB NB South of East to Grand	Mainline	3408	478	3886	1344		32.76	35	36.45	3548		32.76	280	262	3525	1518	32.76	280	262	3525	1518	32.76	280	262	3525
	1616211	SB NB South of East to Grand	Mainline	3408	478	3886	1344		32.76	35	36.45	3548		32.76	280	262	3525	1518	32.76	280	262	3525	1518	32.76	280	262	3525
	1616212	SB NB South of East to Grand	Mainline	3408	478	3886	1344		32.76	35	36.45	3548		32.76	280	262	3525	1518	32.76	280	262	3525	1518	32.76	280	262	3525
	1616213	SB NB South of East to Grand	Mainline	3408	478	3886	1344		32.76	35	36.45	3548		32.76	280	262	3525	1518	32.76	280	262	3525	1518	32.76	280	262	3525
SB Hwy 10	1616214	SB NB South of East to Grand	Mainline	3408	478	3886	1344		32.76	35	36.45	3548		32.76	280	262	3525	1518	32.76	280	262	3525	1518	32.76	280	262	3525
	1616215	SB NB South of East to Grand	Mainline	3408	478	3886	1344		32.76	35	36.45	3548		32.76	280	262	3525	1518	32.76	280	262	3525	1518	32.76	280	262	3525
	1616216	SB NB South of East to Grand	Mainline	3408	478	3886	1344		32.76	35	36.45	3548		32.76	280	262	3525	1518	32.76	280	262	3525	1518	32.76	280	262	3525
	1616217	SB NB South of East to Grand	Mainline	3408	478	3886	1344		32.76	35	36.45	3548		32.76	280	262	3525	1518	32.76	280	262	3525	1518	32.76	280	262	3525
	1616218	SB NB South of East to Grand	Mainline	3408	478	3886	1344		32.76	35	36.45	3548		32.76	280	262	3525	1518	32.76	280	262	3525	1518	32.76	280	262	3525
	1616219	SB NB South of East to Grand	Mainline	3408	478	3886	1344		32.76	35	36.45	3548		32.76	280	262	3525	1518	32.76	280	262	3525	1518	32.76	280	262	3525
	1616220	SB NB South of East to Grand	Mainline	3408	478	3886	1344		32.76	35	36.45	3548		32.76	280	262	3525	1518	32.76	280	262	3525	1518	32.76	280	262	3525
	1616221	SB NB South of East to Grand	Mainline	3408	478	3886	1344		32.76	35	36.45	3548		32.76	280	262	3525	1518	32.76	280	262	3525	1518	32.76	280	262	3525
	1616222	SB NB South of East to Grand	Mainline	3408	478	3886	1344		32.76	35	36.45	3548		32.76	280	262	3525	1518	32.76	280	262	3525	1518	32.76	280	262	3525
	1616223	SB NB South of East to Grand	Mainline	3408	478	3886	1344		32.76	35	36.45	3548		32.76	280	262	3525	1518	32.76	280	262	3525	1518	32.76	280	262	3525
SB Hwy 10	1616224	SB NB South of East to Grand	Mainline	3408	478	3886	1344		32.76	35	36.45	3548		32.76	280	262	3525	1518	32.76	280	262	3525	1518	32.76	280	262	3525
	1616225	SB NB South of East to Grand	Mainline	3408	478	3886	1344		32.76	35	36.45	3548		32.76	280	262	3525	1518	32.76	280	262	3525	1518	32.76	280	262	3525
	1616226	SB NB South of East to Grand	Mainline	3408	478	3886	1344		32.76	35	36.45	3548		32.76	280	262	3525	1518	32.76	280	262	3525	1518	32.76	280	262	3525
	1616227	SB NB South of East to Grand	Mainline	3408	478	3886	1344		32.76	35	36.45	3548		32.76	280	262	3525	1518	32.76	280	262	3525	1518	32.76	280	262	3525
	1616228	SB NB South of East to Grand	Mainline	3408	478	3886	1344		32.76	35	36.45	3548		32.76	280	262	3525	1518	32.76	280	262	3525	1518	32.76	280	262	3525
	1616229	SB NB South of East to Grand	Mainline	3408	478	3886	1344		32.76	35	36.45	3548		32.76	280	262	3525	1518	32.76	280	262	3525	1518	32.76	280	262	3525
	1616230	SB NB South of East to Grand	Mainline	3408	478	3886	1344		32.76	35	36.45	3548		32.76	280	262	3525	1518	32.76	280	262	3525	1518	32.76	280	262	3525
	1616231	SB NB South of East to Grand	Mainline	3408	478	3886	1344		32.76	35	36.45	3548		32.76	280	262	3525	1518	32.76	280	262	3525	1518	32.76	280	262	3525
	1616232	SB NB South of East to Grand	Mainline	3408	478	3886	1344		32.76	35	36.45	3548		32.76	280	262	3525	1518	32.76	280	262	3525	1518	32.76	280	262	3525
	1616233	SB NB South of East to Grand	Mainline	3408	478	3886	1344		32.76	35	36.45	3548		32.76	280	262	3525	1518	32.76	280	262	3525	1518	32.76	280	262	3525
NB Hwy 10	1616234	SB NB South of East to Grand	Mainline	3408	478	3886	1344		32.76	35	36.45	3548		32.76	280	262	3525	1518	32.76	280	262	3525	151				

AM Period - No Build Validation

AM07										AM08										AM09										AM10									
Link	Facility	Type	Auto Volume Lookup	Truck Volume Lookup	Total Volume Lookup	Model Output Volume	Simulation Speed (mph)	Avg Hour Speed, Date of Count	2mo. Avg Hour Speed	Auto Volume Lookup	Truck Volume Lookup	Total Volume Lookup	Model Output Volume	GEH (Target v. Model)	Density pc/mi/ln	LOS	Simulation Speed (mph)	Avg Hour Speed, Date of Count	2mo. Avg Hour Speed	Auto Volume Lookup	Truck Volume Lookup	Total Volume Lookup	Model Output Volume	GEH (Target v. Model)	Density pc/mi/ln	LOS	Simulation Speed (mph)	Avg Hour Speed, Date of Count	2mo. Avg Hour Speed	Auto Volume Lookup	Truck Volume Lookup	Total Volume Lookup	Model Output Volume	Simulation Speed (mph)	Avg Hour Speed, Date of Count	2mo. Avg Hour Speed			
EB I-94	1014-1012 EB I-94 West of I-96	Mainline	5740	375	6115	4277	18.26			5520	475	5995	4106	20.34	70	F	13.47			4700	450	5150	3983	17.27	69	F	13.20			4240	468	4708	3886	14.18					
	1018-1019 EB I-94 to SB I-96	Ramp	270	287	557	300	18.18			260	22	282	183	6.49	-	-				150	17	167	117	6.38	-	-				140	18	158	123						
	1027-1008 EB I-94 to NB I-96	Ramp	860	28	888	713	18.18			860	36	896	711	8.49	-	-				670	35	705	535	7.63	-	-				600	36	636	544						
	1012-1010	Mainline	4510	330	4840	3300	18.95	44.50	53.75	4340	417	4757	3210	24.52	82	F	13.58	17.08	31.17	3880	398	4278	3180	17.98	82	F	13.50	16.83	22.08	3500	412	3912	3207	12.97	48.36	40.25			
	1022-1023 EB I-94 Exit to Grand River	Ramp	260	9	269	132	18.18			190	11	201	129	5.61	-	-				190	11	201	135	5.19	-	-				170	11	181	146						
	1010-109	Mainline	4310	321	4631	3080	10.31	44.50	53.75	4150	409	4559	3086	24.12	125	F	8.58	17.08	31.17	3950	387	4077	3040	12.28	123	F	8.52	16.83	22.08	3320	401	3731	3057	8.50	48.36	40.25			
	983-982 NB I-96 to EB I-94	Ramp	630	74	704	568	18.18			610	94	704	545	6.36	-	-				440	158	598	523	3.17	-	-				400	164	564	545						
	187-158	Mainline	4940	395	5335	3595	12.13			4780	500	5280	3632	23.62	115	F	11.96			4130	545	4675	3565	17.29	116	F	10.90			3730	565	4295	3603	13.41					
	978-979 SB I-96 to EB I-94	Ramp	1440	36	1476	1209	18.18			1380	45	1425	1346	2.12	-	-				1190	62	1252	1128	6.74	-	-				1070	43	1113	1157						
	186-966	Mainline	6380	431	6811	4763	27.13	39.13	52.00	6140	545	6685	4970	27.47	67	F	25.39	35.40	31.67	5320	587	5907	4827	14.74	69	F	24.56	25.82	27.67	4800	608	5408	4762	24.56	42.36	38.17			
WB I-94	972-971 EB I-94 Entrance from Linwood	Ramp	280	9	289	253	18.18			270	11	281	266	5.30	-	-				370	20	390	393	11.51	-	-				330	21	351	357						
	966-965	Mainline	6660	440	7100	5007	26.36	48.10	53.50	6410	559	6969	5257	24.46	56	F	24.62	35.82	39.50	6090	607	6297	5320	14.19	59	F	23.14	36.42	37.17	5130	629	5760	5119	23.14	48.09	45.00			
	965-960	Mainline	6660	440	7100	4972	36.41	48.10	53.50	6410	556	6966	5256	21.47	51	F	35.54	35.82	39.50	5990	607	6297	5221	14.18	52	F	35.16	36.42	37.17	5130	629	5759	5120	34.96	48.09	45.00			
	962-963	Ramp	0	0	0	10				0	0	0	13	5.10	-	-				0	0	0	16	5.66	-	-				0	0	0	14						
	960-959	Mainline	6660	440	7100	4974	54.08			6410	559	6968	5269	25	-	-	53.95			5990	607	6297	5236	13.97	26	-	-	53.59			5120	629	5759	5134	53.24				
	975-976 EB I-94 Exit to Trumbull	Ramp	930	9	939	494				890	11	901	507	14.85	-	-				840	11	851	519	12.69	-	-				760	11	771	524						
	959-952	Mainline	6730	431	7161	4470	56.85	52.00	56.67	6520	545	7065	4760	17.34	29	D	56.64	39.43	47.25	4950	596	5446	4716	10.24	29	D	56.85	42.45	45.25	4370	618	4988	4611	56.48	56.00	50.75			
	952-951	Mainline	6730	431	7161	4458	57.72	52.00	56.67	6520	545	7065	4760	57.25	29	D	57.25	39.43	47.25	4950	596	5446	4716	10.24	29	D	57.40	42.45	45.25	4370	618	4988	4610	57.44	56.00	50.75			
	949-950 EB I-94 Exit to SB Hwy 10	Ramp	940	9	949	629				900	11	911	679	8.23	-	-				870	11	881	696	6.59	-	-				780	11	791	715						
	951-943	Mainline	4790	422	5212	3822	56.54	55.67	55.75	4620	534	5154	4081	10.78	26	C	56.18	50.60	51.33	3980	585	4565	4020	8.22	25	C	56.32	50.83	50.58	3580	607	4197	3897	56.50	55.17	52.83			
WB I-94	943-944 EB I-94 Exit to NB Hwy 10	Ramp	740	29	769	499				670	28	698	525	7.33	-	-				570	28	598	510	6.80	-	-				480	31	491	431						
	943-919	Mainline	4000	393	4483	3313	58.63	55.67	55.75	3950	497	4447	3554	14.05	22	C	58.29	50.60	51.33	3470	555	4025	3509	8.41	22	C	58.22	50.83	50.58	3130	576	3706	3454	58.66	55.17	52.83			
	919-918	Mainline	4000	393	4483	3304	57.39	55.67	55.75	3950	497	4447	3554	14.12	23	C	54.58	50.60	51.33	3470	555	4025	3518	8.26	31	D	41.15	50.83	50.58	3130	576	3706	3468	57.40	55.17	52.83			
	918-912	Mainline	4000	393	4483	3295	52.22	55.67	55.75	3950	497	4447	3548	14.22	30	D	41.15	50.60	51.33	3470	555	4025	3518	8.26	31	D	41.15	50.83	50.58	3130	576	3706	3465	47.65	55.17	52.83			
	916-915	Ramp	670	11	681	409				640	11	651	409	3.66	-	-				640	11	651	409	3.66	-	-				640	11	651	409						
	937-936 EB I-94 Entrance from NB Hwy 10	Ramp	790	11	801	510				760	14	774	523	9.66	-	-				670	12	682	425	10.02	-	-				600	12	612	382						
	912-180	Mainline	5550	417	5967	4406	38.70			5350	528	5878	4759	15.34	34	D	38.86			4780	606	5386	4667	10.14	34	D	38.86			4310	628	4838	4485	35.89					
	910-909	Mainline	5550	417	5967	4383	38.56			5350	528	5878	4760	15.34	34	D	38.86			4780	606	5386	4675	10.02	37	C	34.93			4310	628	4838	4480						
	926-927	Ramp	300	18	318	345				290	23	313	399	4.56	-	-				280	25	305	408	5.46	-	-				250	26	276	388						
	910-909	Mainline	5250	399	5649	4021	46.30	49.91	51.42	5000	505	5505	4363	17.88	32	D	47.48	47.09	46.42	4580	581	5081	4266	11.92	33	D	45.50	45.83	45.75	4000	602	4662	4093	44.44	48.92	46.33			
WB I-94	909-908	Mainline	5250	399	5649	4006	46.29	49.91	51.42	5000	505	5505	4360	15.14	30	D	46.86	47.09	46.42	4580	581	5081	4268	11.88	31	D	46.45	45.83	45.75	4000	602	4662	4092	49.08	48.92	46.33			
	906-904	Mainline	5250	399	5649	3999	50.31	49.91	51.42	5000	505	5565	4358	14.14	30	D	50.17	49.09	46.42	4500	581	5081	4270	11.86	30	D	50.43	45.83	45.75	4000	602	4662	4093	50.14	48.92	46.33			
	299-314	Ramp	580	21	601	401				560	26	586	418	7.50	-	-				620	23	643	444	8.54	-	-				560	24	584	483						
	300-301																																						

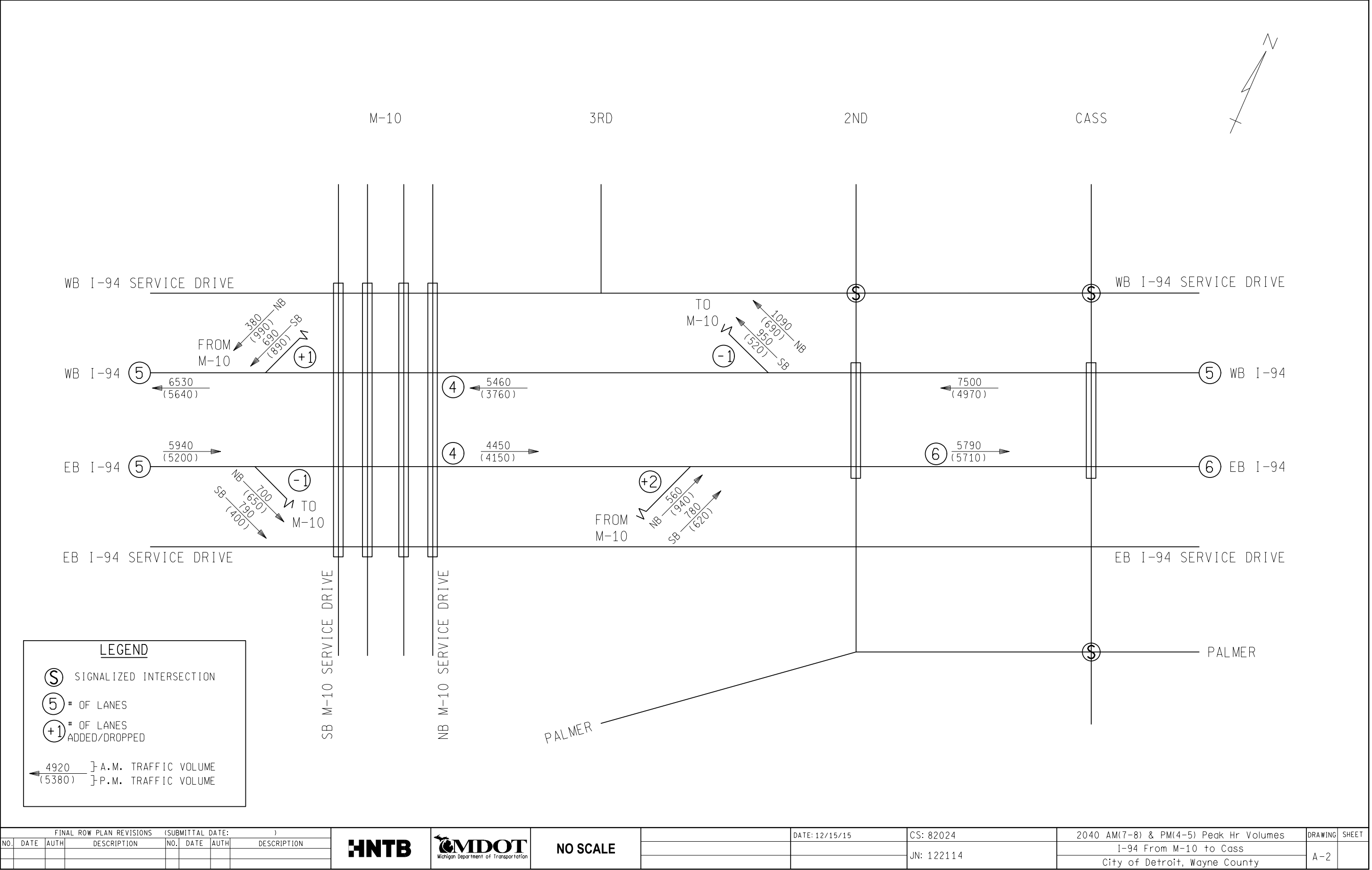
AM Period - No Build Validation

Link	Facility	Type	AM67							AM78							AM89							AM910													
			Auto Volume	Truck Volume	Total Volume	Model Output	Simulation Speed (mph)	Avg Hour Speed, Date of Count	2mo. Avg Hour Speed	Auto Volume	Truck Volume	Total Volume	Model Output	GEN (Target v. Model)	Density (pc/mi/h)	LOS	Simulation Speed (mph)	Avg Hour Speed, Date of Count	2mo. Avg Hour Speed	Auto Volume	Truck Volume	Total Volume	Model Output	GEN (Target v. Model)	Density (pc/mi/h)	LOS	Simulation Speed (mph)	Avg Hour Speed, Date of Count	2mo. Avg Hour Speed	Auto Volume	Truck Volume	Total Volume	Model Output	Simulation Speed (mph)	Avg Hour Speed, Date of Count	2mo. Avg Hour Speed	
SB I-96	40-1614	SB I-96 North of Exit to Grand	Mainline	3550	214	3764	3148	72.56			3410	271	3681	3633	0.79	13	B	71.80			3390	264	3654	3638	0.26	13	B	71.59			3060	273	3333	3336	72.15		
	1614-1615		Mainline	3550	214	3764	3141	68.19			3410	271	3681	3636	0.74	14	B	67.72			3390	264	3654	3634	0.33	14	B	66.46			3060	273	3333	3337	68.00		
	1615-1616	SB I-96 Exit to Grand	Ramp	330	17	347	288			330	21	351	331	0.22	-	-				310	21	331	329	0.11	-	-				280	22	302	301				
	1599-1597		Mainline	3220	187	3417	2851	51.99	63.22	62.25	3090	250	3340	3291	0.85	16	B	53.04	54.20	58.67	3080	243	3323	3318	0.09	17	B	50.16	41.58	58.31	2780	251	3031	3035	53.84	65.17	62.50
	1597-1596		Mainline	3220	187	3417	2838	58.52	63.22	62.25	3090	250	3340	3275	1.13	16	B	52.35	54.20	58.67	3080	243	3323	3318	0.09	17	B	50.64	41.58	58.31	2780	251	3031	3037	58.34	65.17	62.50
	1595-1593		Mainline	3220	187	3417	2829	58.91	63.22	62.25	3090	250	3340	3266	1.29	18	B	48.21	54.20	58.67	3080	243	3323	3308	0.09	17	B	49.62	41.58	58.31	2780	251	3031	3039	58.66	65.17	62.50
	1593-1591		Mainline	3220	187	3417	2827	60.19	63.22	62.25	3090	250	3340	3259	1.41	19	C	45.25	54.20	58.67	3080	243	3323	3308	0.09	17	B	49.33	41.58	58.31	2780	251	3031	3041	59.21	65.17	62.50
	1607-1593	SB I-96 Entrance from Grand	Ramp	360	17	377	280			360	21	381	309	0.11	-	-				360	21	381	366	0.28	-	-				260	22	282	277				
	1593-1591		Mainline	3520	214	3734	3103	57.67			3380	271	3651	3556	1.58	18	B	42.20			3370	264	3634	3644	0.17	16	B	47.28			3040	273	3313	3323	56.31		
	1591-1589		Mainline	3520	214	3734	3097	58.18			3380	271	3651	3555	1.60	16	B	44.76			3370	264	3634	3645	0.18	16	B	48.77			3040	273	3313	3322	57.64		
NB I-96	978-979	WB I-94 Entrance from SB I-96	Ramp	170	9	179	147			170	11	171	173	0.35	-	-				160	21	181	177	0.30	-	-				140	22	162	170				
	979-981	SB I-96 to EB I-94	Ramp	1440	36	1476	1209			1380	45	1425	1346	2.12	-	-				1190	42	1232	1258	0.74	-	-				1070	43	1113	1157				
	1599-1577		Mainline	1910	169	2079	1711	57.73	58.75	60.08	1840	215	2055	2007	1.07	9	A	56.58	48.60	50.00	2020	201	2221	2217	0.08	10	A	56.61	58.60	46.92	1830	208	2038	2022	57.38	58.00	58.17
	1577-1574		Mainline	1910	169	2079	1704	60.05	58.75	60.08	1840	215	2055	2004	1.13	9	A	60.35	48.60	50.00	2020	201	2221	2214	0.15	10	A	59.77	58.60	46.92	1830	208	2038	2023	59.77	58.00	58.17
	1593-1584	SB I-96 Exit to Warren	Ramp	220	17	237	195			210	21	231	223	0.53	-	-				210	21	231	241	0.65	-	-				190	22	212	220				
	1574-1573		Mainline	1690	152	1842	1506	56.22	58.75	60.08	1630	194	1824	1781	1.01	8	A	56.39	48.60	50.00	1810	180	1990	1972	0.40	9	A	56.05	58.60	46.92	1640	186	1826	1804	56.01	58.00	58.17
	1573-1574		Mainline	1690	152	1842	1502	60.95	58.75	60.08	1630	194	1824	1780	1.04	8	A	63.14	48.60	50.00	1810	180	1990	1991	0.16	9	A	60.72	58.60	46.92	1640	186	1826	1804	60.73	58.00	58.17
	1018-1019	EB I-94 to SB I-96	Ramp	270	17	287	200			260	22	282	203	6.49	-	-				150	17	167	172	0.38	-	-				140	18	158	123				
	1001-1002	WB I-94 Exit to SB I-96	Ramp	825	39	864	527			795	49	844	615	5.46	-	-				745	39	784	577	7.02	-	-				670	40	710	612				
	1558-1559	SB I-96 Entrance from Warren	Mainline	200	10	310	285			200	24	214	306	0.00	-	-				200	22	312	306	0.00	-	-				280	27	280	276				
SB Hwy 10	1613-1612	SB I-96 South of Entrance from Warren	Mainline	3005	227	3332	2488	58.39			2975	280	3254	2878	6.96	10	A	58.37			2955	258	3253	3030	3.07	11	A	58.37			2710	287	2977	2815	58.36		
	1548-1553	NB I-96 South of Exit to Warren	Mainline	2830	178	3008	2552	51.31			2720	228	2946	2462	9.11	26	D	18.69			2720	309	3029	2517	9.72	65	F	8.15			2450	320	2770	2654	48.75		
	1548-1549	NB I-96 Exit to Warren	Ramp	430	31	461	387			410	39	449	369	3.96	-	-				410	39	449	369	3.96	-	-				370	40	410	396				
	1553-1555		Mainline	2400	147	2547	2150	51.27			2310	187	2497	2059	9.18	27	D	15.86			2210	270	2580	2144	8.97	52	F	8.87			2080	280	2360	2266	5.86		
	983-982	NB I-96 to EB I-94	Ramp	630	74	704	548			610	94	704	545	6.36	-	-				440	158	598	523	3.17	-	-				400	164	564	545				
	1002-1021	WB I-94 Entrance from NB I-96	Ramp	218	80	298	649			680	102	782	631	5.48	-	-				810	107	817	543	3.07	-	-				480	111	571	534				
	1555-1552		Mainline	1060	7	1067	856	59.99	57.00	56.08	1020	9	1011	856	5.07	4	A	59.45	57.25	56.33	1300	5	1365	1088	7.91	5	A	58.04	43.20	51.42	1220	5	1225	1181	58.12	58.44	58.31
	1580-1579	NB I-96 Entrance from Warren	Ramp	80	10	90	77			80	13	93	91	0.21	-	-				80	13	93	99	9.01	-	-				70	13	83	79				
	1575-1576		Mainline	1140	3	1143	966	58.74	57.00	56.08	1100	4	1104	948	4.87	4	A	60.38	57.25	56.33	1440	18	1458	1188	7.42	5	A	60.29	43.20	51.42	1290	18	1308	1254	60.34	58.44	58.31
	1575-1588		Mainline	1140	32	1172	1045	61.21	57.00	56.08	1100	4	1104	948	4.87	4	A	63.64	57.25	56.33	1440	18	1458	1189	7.45	5	A	63.28	43.20	51.42	1290	18	1308	1254	63.36	58.44	58.31
NB I-94	1001-1004	WB I-94 Exit to NB I-96	Ramp	825	39	864	573			795	49	844	652	7.00	-	-				745	39	784	657	4.71	-	-				670	40	710	638				
	1027-1028	EB I-94 to NB I-96	Ramp	860	28	888	713			820	36	856	711	1.40	-	-				870	35	705	637	2.63	-	-				800	36	836	544				
	1588-1589		Mainline	2925	70	2995	2406	40.80			2925	18	2904	2307	11.69	9	A	50.05			2855	92	2947	2487	8.82	10	A	50.42			2560	94	2654	2433	51.13		
	1590-1592		Mainline	2925	70	2995	2236	55.34	66.00	60.42	2815	89	2904	2309	11.65	8	A	55.43	63.14	59.50	2855	92	2947	2487	8.82	9	A	56.09	58.67	57.92	2580	94	2654	2432	56.42	61.63	60.42
	1602-1603	NB I-96 Exit to Grand	Ramp	240	17	257																															

PM Period - No Build Validation

Link	Facility	Type	PM5455							PM5550							PM5657							PM5758							PM5855						
			Auto Volume	Truck Volume	Total Volume	Model Output	Simulation Speed (mph)	Ag Hour Based, Date of Count	3mo. Avg Hourly Speed	Auto Volume	Truck Volume	Total Volume	Model Output	Simulation Speed (mph)	Ag Hour Based, Date of Count	3mo. Avg Hourly Speed	Auto Volume	Truck Volume	Total Volume	Model Output	Simulation Speed (mph)	Ag Hour Based, Date of Count	3mo. Avg Hourly Speed	Auto Volume	Truck Volume	Total Volume	Model Output	Simulation Speed (mph)	Ag Hour Based, Date of Count	3mo. Avg Hourly Speed	Auto Volume	Truck Volume	Total Volume	Model Output	Simulation Speed (mph)	Ag Hour Based, Date of Count	3mo. Avg Hourly Speed
1014-1022	EB I-94 West of I-86	Mainline	5500	478	5978	5900	37.04		5340	385	5725	5655	37.02			5420	371	5791	5735	37.03			5500	301	5801	5558	37.02			4250	260	4490	4450	37.03			
1018-1019	EB I-94 to NB I-86	Ramp	200	49	249	231				240	40	280	275				240	31	271	281				200	20	220	241				220	17	237	238			
1022-1023	EB I-94 to Grand River	Mainline	4410	204	4604	4638	30.74	41.30	47.33	4170	204	4374	2769	30.74	41.30	47.33	4240	160	4400	2946	30.74	41.30	47.33	3420	160	3580	2420	30.74	41.30	47.33	2900	138	3038	3378	30.74	41.30	47.33
1019-1018	EB I-94 to NB I-94	Mainline	4160	238	4398	4368	30.90	41.30	47.33	3050	191	4121	2601	30.90	41.30	47.33	4000	150	4150	2778	30.90	41.30	47.33	3420	150	3570	2251	30.90	41.30	47.33	2610	129	2739	3279	30.90	41.30	47.33
1017-1018	EB I-94 to NB I-94	Ramp	1300	127	1427	1411				1300	102	1402	1418				1300	80	1380	1405				1300	80	1380	1405				1300	80	1380	1405			
1017-1018	EB I-94 to NB I-94	Ramp	4400	305	4695	4684				4200	293	4493	3025				4200	293	4493	3025				3600	208	3808	2528				2810	179	2989	3497			
1017-1018	EB I-94 to NB I-94	Ramp	1030	41	1071	1058				990	35	1025	805				990	35	1025	805				850	1	851	849				750	1	751	748			
1017-1018	EB I-94 to NB I-94	Ramp	5500	408	5908	4678				5210	326	5536	4039				5150	256	5406	4168				4500	256	4756	3453				3500	180	3700	4257			
1017-1018	EB I-94 Entrance from Lincolnway	Mainline	2720	438	3158	4754				5400	344	5744	4217				5500	270	5770	4379				4770	210	4980	3600				3670	181	3851	4401			
1022-1023	EB I-94 Entrance from Lincolnway	Mainline	5720	428	6148	4674				5600	344	5944	4218				5600	270	5770	4393				4770	210	4980	3560				3670	181	3851	4471			
1022-1023	EB I-94 Entrance from Lincolnway	Mainline	5720	428	6148	4674				5600	344	5944	4218				5600	270	5770	4393				4770	210	4980	3560				3670	181	3851	4471			
1022-1023	EB I-94 Entrance from Lincolnway	Mainline	5720	428	6148	4674				5600	344	5944	4218				5600	270	5770	4393				4770	210	4980	3560				3670	181	3851	4471			
1022-1023	EB I-94 Entrance from Lincolnway	Mainline	5720	428	6148	4674				5600	344	5944	4218				5600	270	5770	4393				4770	210	4980	3560				3670	181	3851	4471			
1022-1023	EB I-94 Entrance from Lincolnway	Mainline	5720	428	6148	4674				5600	344	5944	4218				5600	270	5770	4393				4770	210	4980	3560				3670	181	3851	4471			
1022-1023	EB I-94 Entrance from Lincolnway	Mainline	5720	428	6148	4674				5600	344	5944	4218				5600	270	5770	4393				4770	210	4980	3560				3670	181	3851	4471			
1022-1023	EB I-94 Entrance from Lincolnway	Mainline	5720	428	6148	4674				5600	344	5944	4218				5600	270	5770	4393				4770	210	4980	3560				3670	181	3851	4471			
1022-1023	EB I-94 Entrance from Lincolnway	Mainline	5720	428	6148	4674				5600	344	5944	4218				5600	270	5770	4393				4770	210	4980	3560				3670	181	3851	4471			
1022-1023	EB I-94 Entrance from Lincolnway	Mainline	5720	428	6148	4674				5600	344	5944	4218				5600	270	5770	4393				4770	210	4980	3560				3670	181	3851	4471			
1022-1023	EB I-94 Entrance from Lincolnway	Mainline	5720	428	6148	4674				5600	344	5944	4218				5600	270	5770	4393				4770	210	4980	3560				3670	181	3851	4471			
1022-1023	EB I-94 Entrance from Lincolnway	Mainline	5720	428	6148	4674				5600	344	5944	4218				5600	270	5770	4393				4770	210	4980	3560				3670	181	3851	4471			
1022-1023	EB I-94 Entrance from Lincolnway	Mainline	5720	428	6148	4674				5600	344	5944	4218				5600	270	5770	4393				4770	210	4980	3560				3670	181	3851	4471			
1022-1023	EB I-94 Entrance from Lincolnway	Mainline	5720	428	6148	4674				5600	344	5944	4218				5600	270	5770	4393				4770	210	4980	3560				3670	181	3851	4471			
1022-1023	EB I-94 Entrance from Lincolnway	Mainline	5720	428	6148	4674				5600	344	5944	4218				5600	270	5770	4393				4770	210	4980	3560				3670	181	3851	4471			
1022-1023	EB I-94 Entrance from Lincolnway	Mainline	5720	428	6148	4674				5600	344	5944	4218				5600	270	5770	4393				4770	210	4980	3560				3670	181	3851	4471			
1022-1023	EB I-94 Entrance from Lincolnway	Mainline	5720	428	6148	4674				5600	344	5944	4218				5600	270	5770	4393				4770	210	4980	3560				3670	181	3851	4471			
1022-1023	EB I-94 Entrance from Lincolnway	Mainline	5720	428	6148	4674				5600	344	5944	4218				5600	270	5770	4393				4770	210	4980	3560				3670	181	3851	4471			
1022-1023	EB I-94 Entrance from Lincolnway	Mainline	5720	428	6148	4674				5600	344	5944	4218				5600	270	5770	4393				4770	210	4980	3560				3670	181	3851	4471			
1022-1023	EB I-94 Entrance from Lincolnway	Mainline	5720	428	6148	4674				5600	344	5944	4218				5600	270	5770	4393				4770	210	4980	3560				3670	181	3851	4471			
1022-1023	EB I-94 Entrance from Lincolnway	Mainline	5720	428	6148	4674				5600	344	5944	4218				5600	270	5770	4393				4770	210	4980	3560				3670	181	3851	4471			
1022-1023	EB I-94 Entrance from Lincolnway	Mainline	5720	428	6148	4674				5600	344	5944	4218				5600	270	5770	4393				4770	210	4980	3560				3670	181	3851	4471			
1022-1023	EB I-94 Entrance from Lincolnway	Mainline	5720	428	6148	4674				5600	344	5944	4218				5600	270	5770	4393				4770	210	4980	3560				3670	181	3851	4471			
1022-1023	EB I-94 Entrance from Lincolnway	Mainline	5720	428	6148	4674				5600	344	5944	4218				5600	270	5770	4393				4770	210	4980	3560				3670	181	3851	4471			
1022-1023	EB I-94 Entrance from Lincolnway	Mainline	5720	428	6148	4674				5600	344	5944	4218				5600	270	5770	4393				4770	210	4980	3560				3670	181	3851	4471			
1022-1023	EB I-94 Entrance from Lincolnway	Mainline	5720	428	6148	4674				5600	344	5944	4218				5600	270	5770	4393				4770	210	4980	3560				3670	181	3851	4471			
1022-1023	EB I-94 Entrance from Lincolnway	Mainline	5720	428	6148	4674				5600	344	5944	4218				5600	270	5770	4393				4770	210	4980	3560				3670	181	3851	4471			
1022-1023	EB I-94 Entrance from Lincolnway	Mainline	5720	428	6148	4674				5600	344	5944	4218				5600	270	5770	4393				4770	210	4980	3560				3670	181	3851	4471			
1022-1023	EB I-94 Entrance from Lincolnway	Mainline	5720	428	6148	4674				5600	344	5944	421																								

[illegible]



LEGEND

S

SIGNALIZED INTERSECTION

5

OF LANES

+1

OF LANES
ADDED/DROPPED

4920

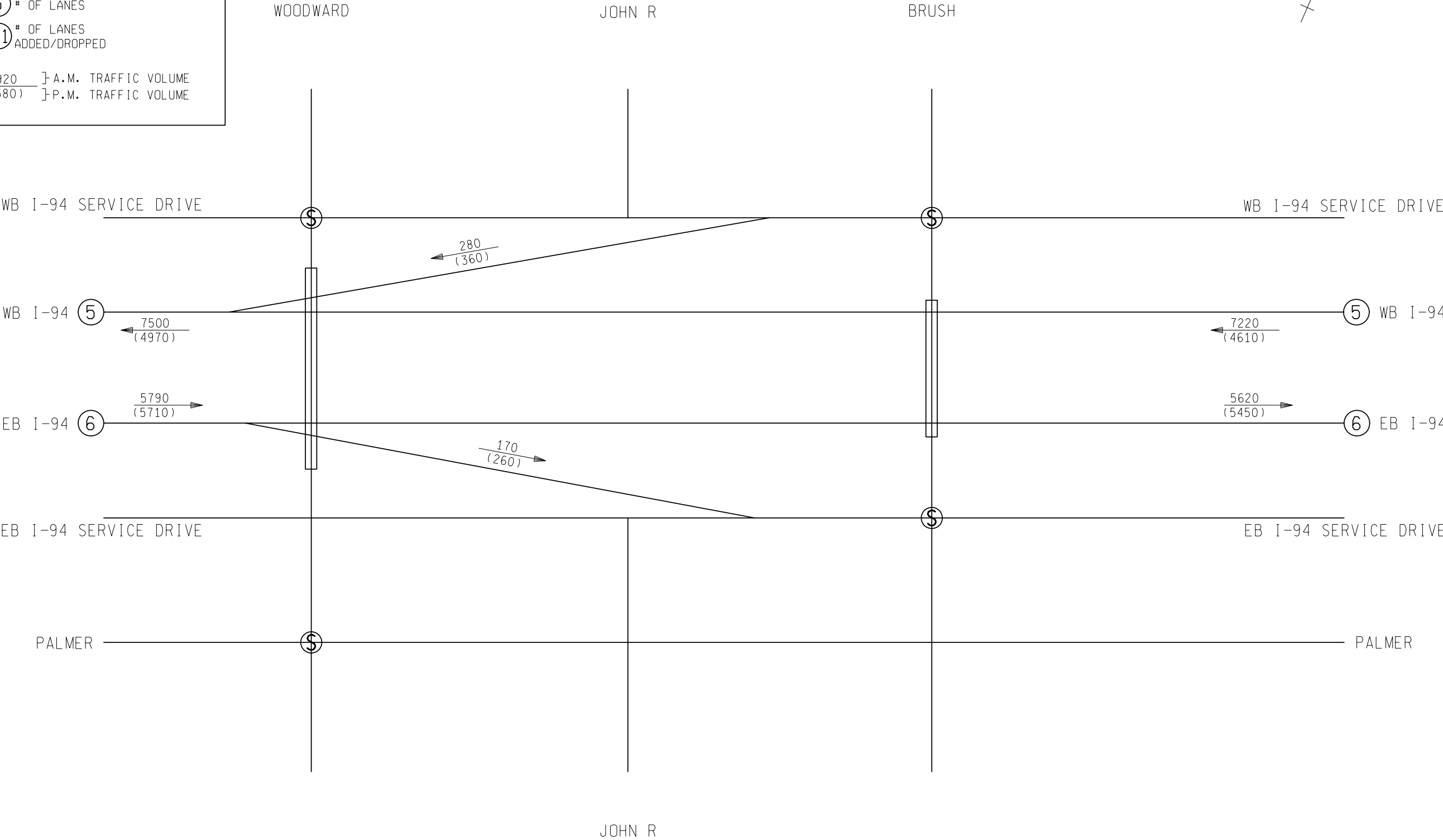
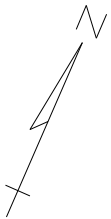
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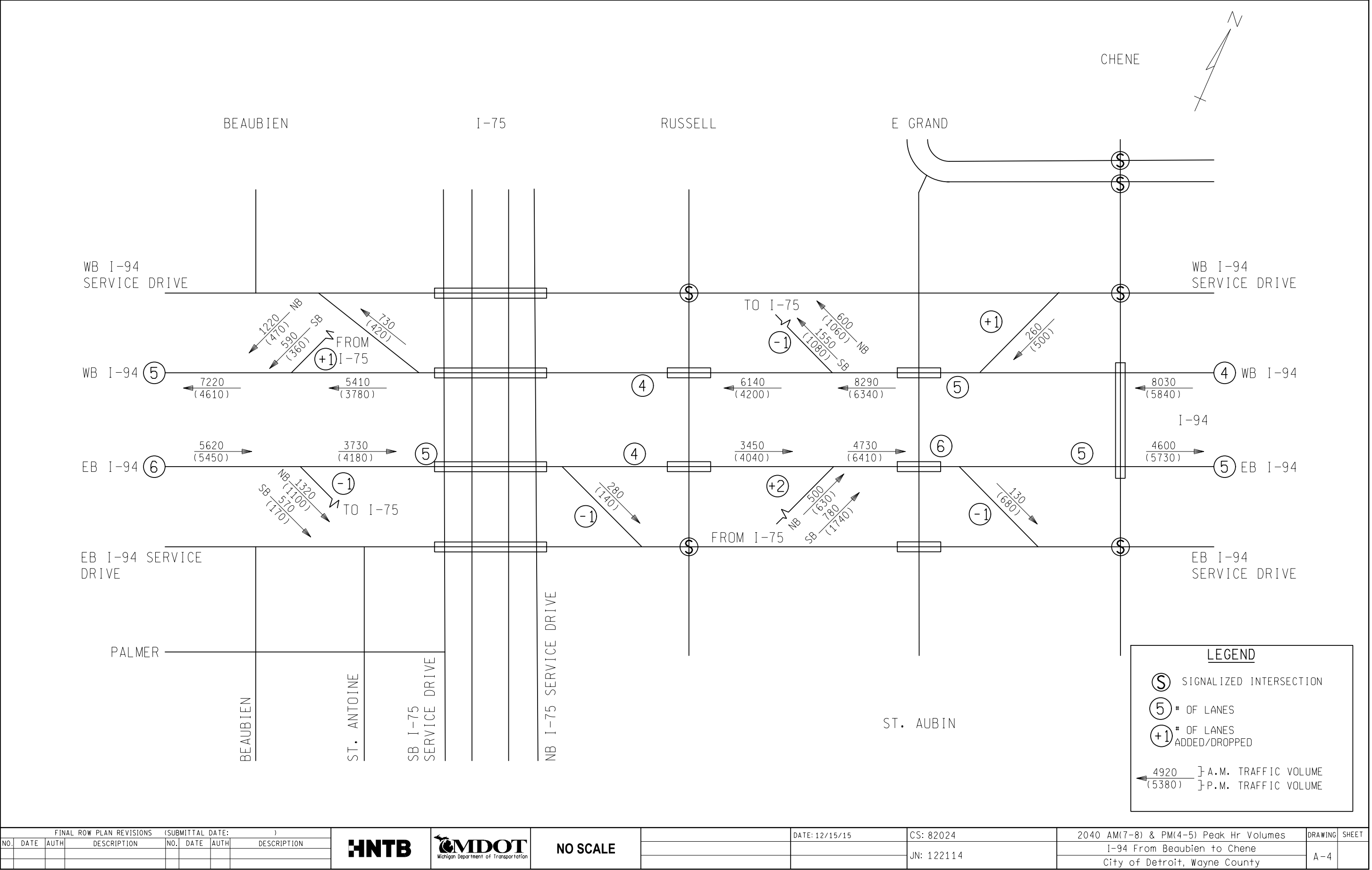
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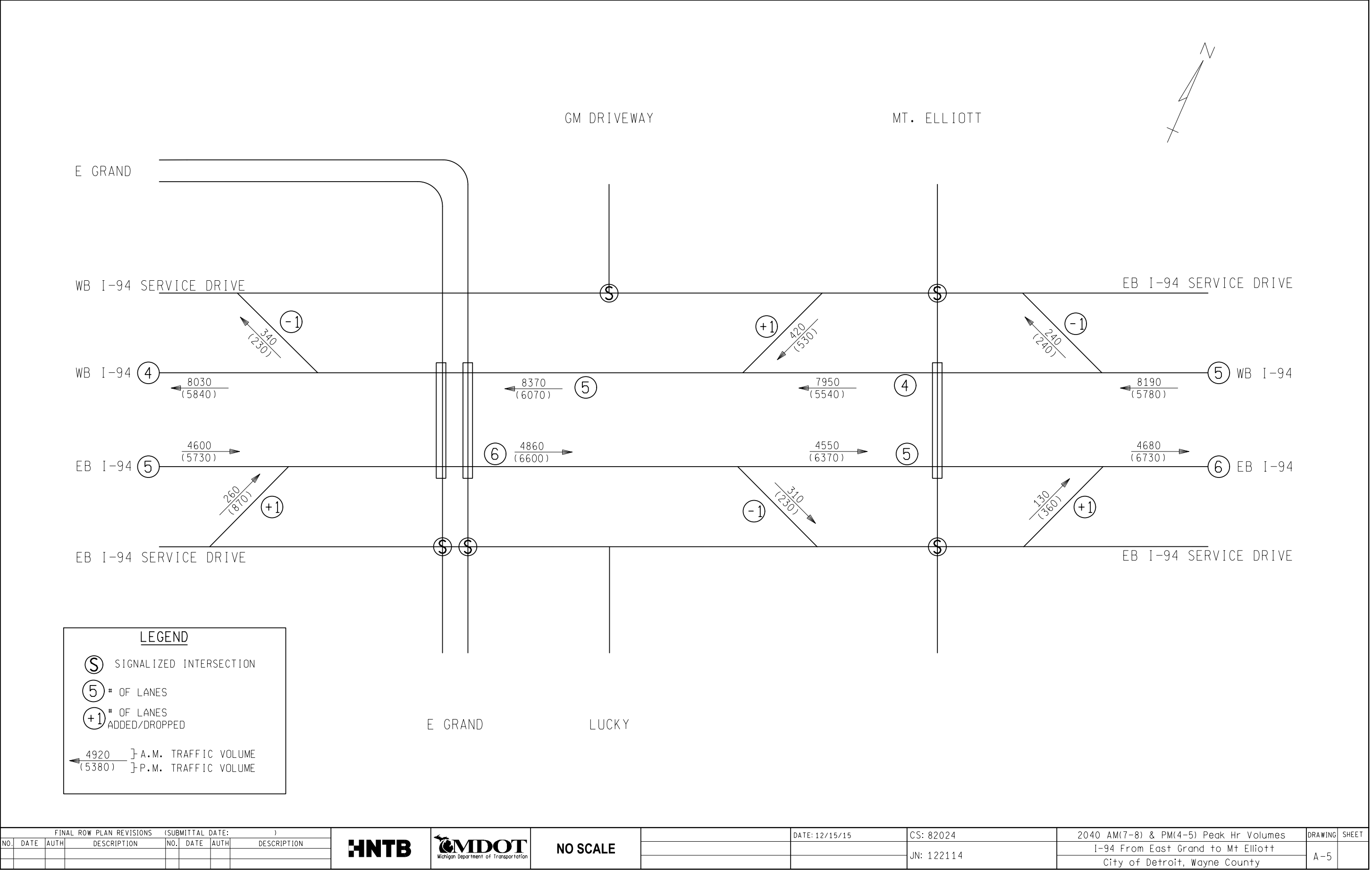
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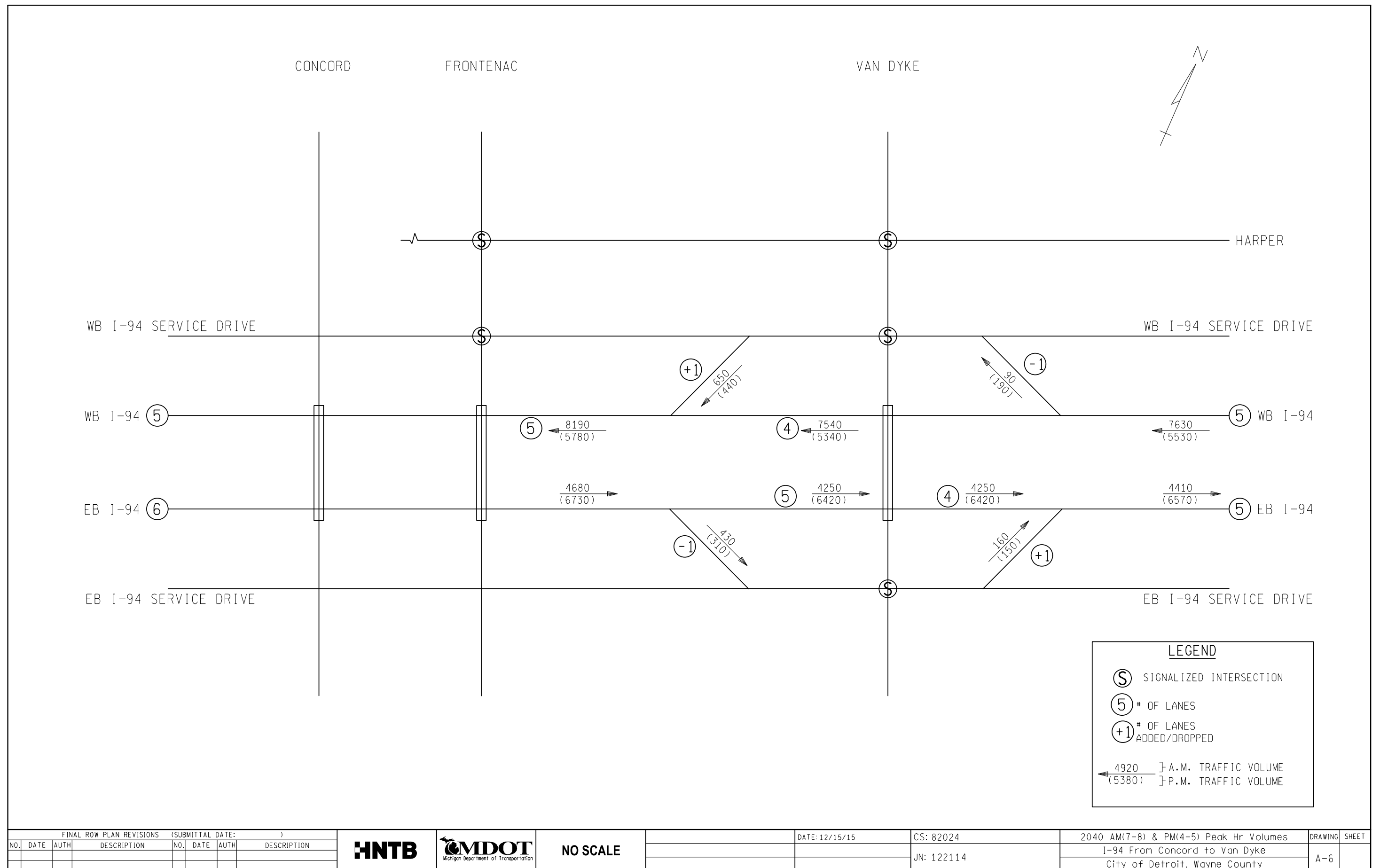
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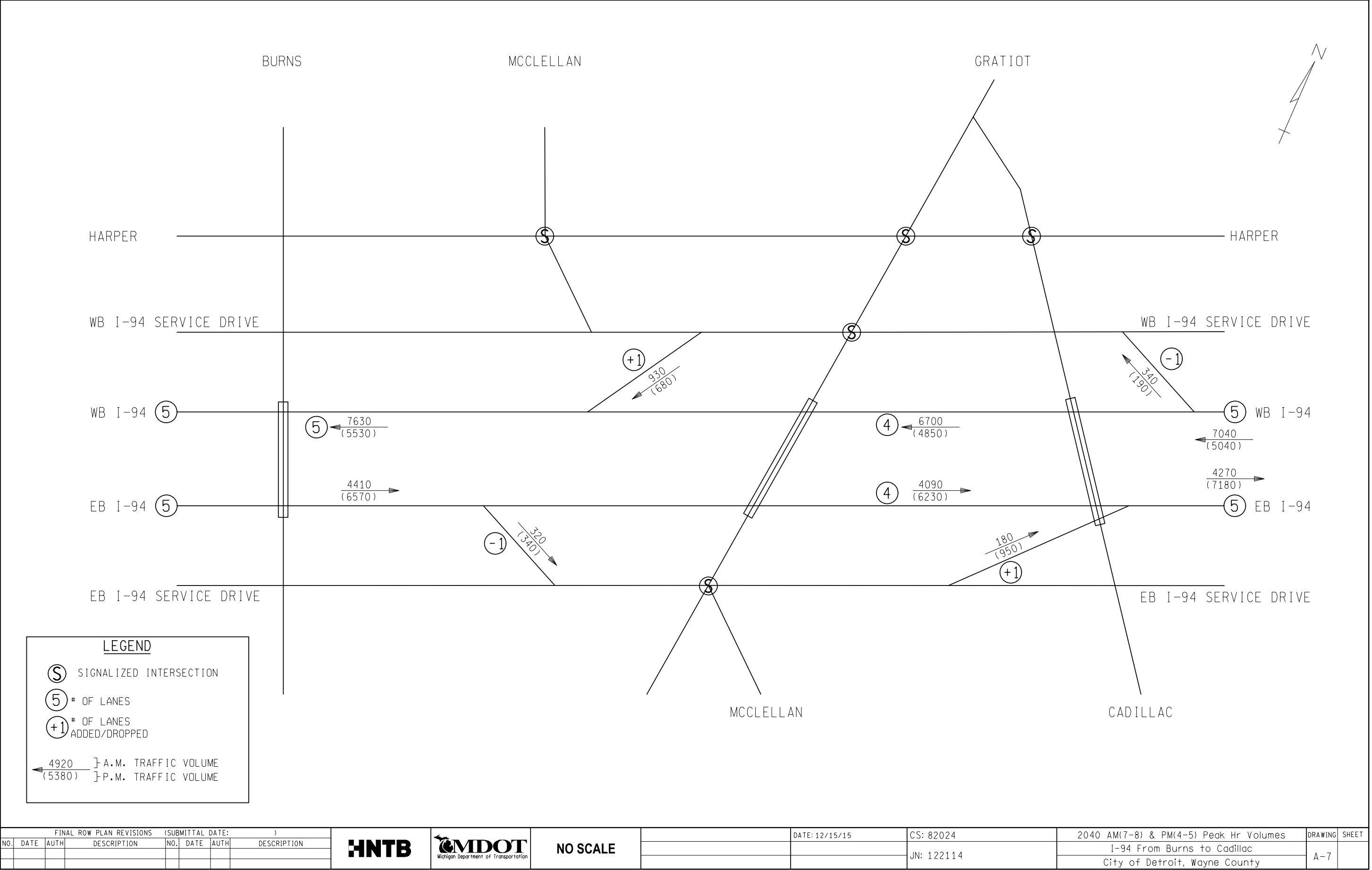


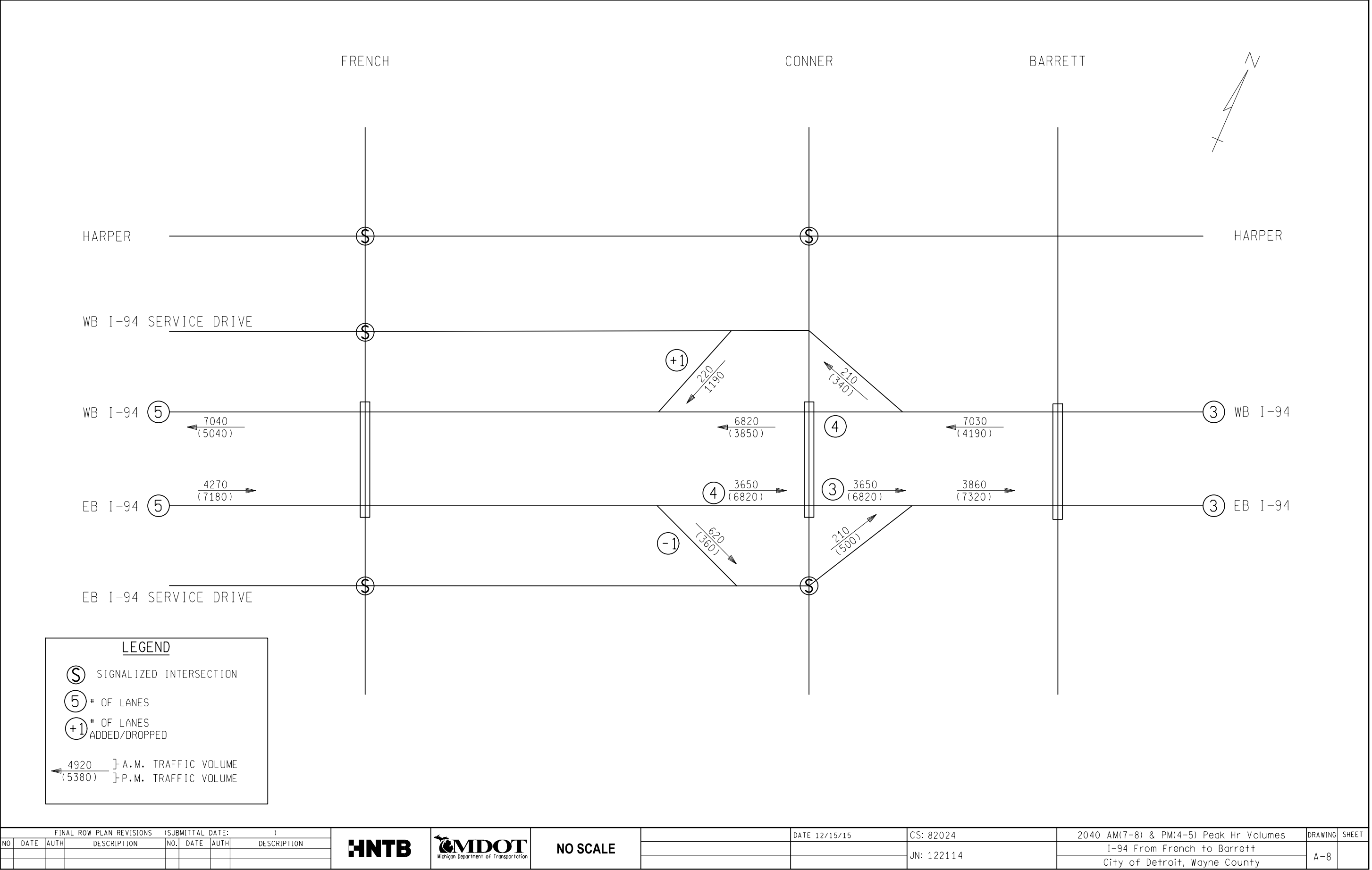
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NO.	DATE	AUTH	DESCRIPTION	NO.	DATE	AUTH	DESCRIPTION											

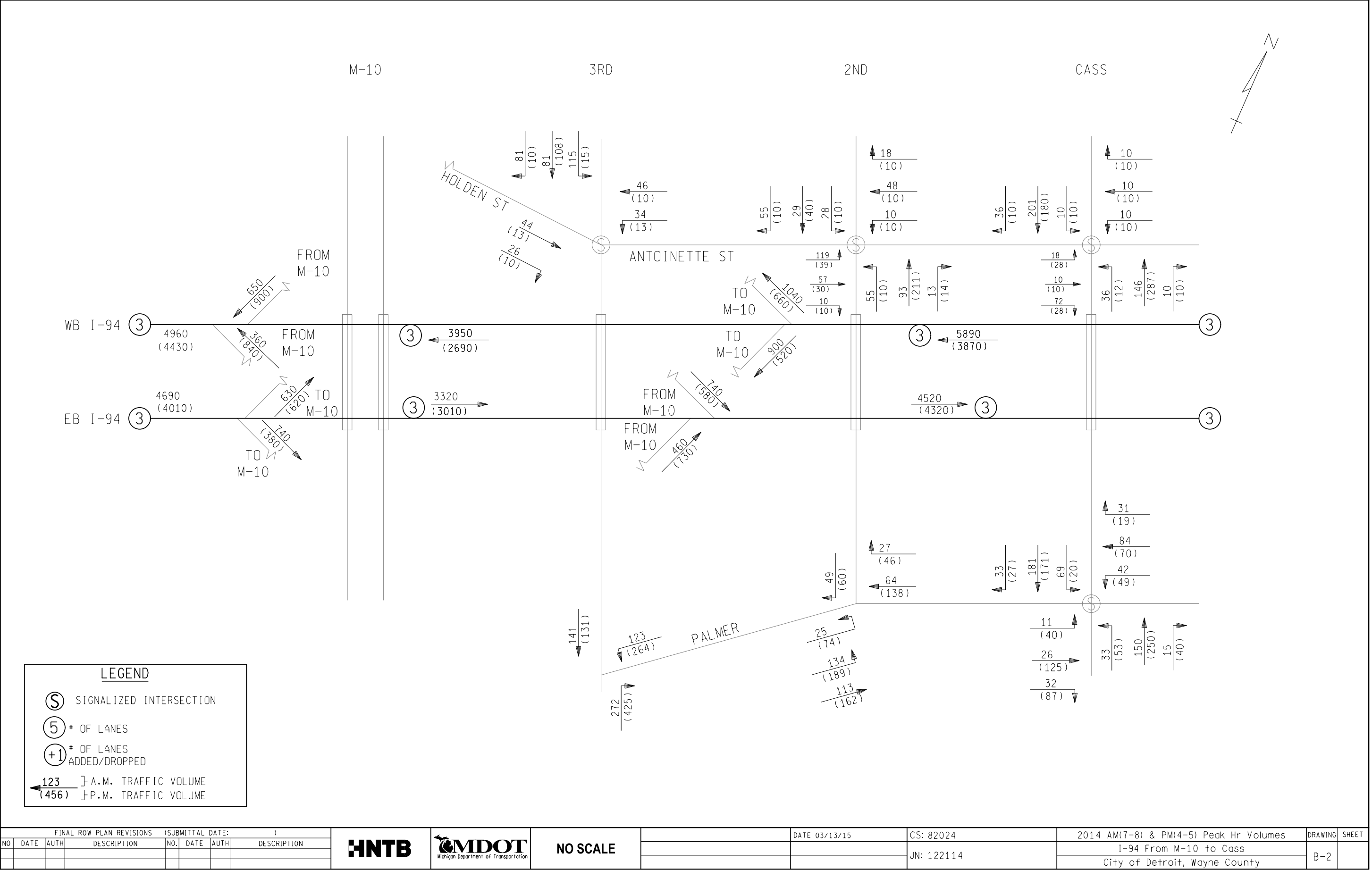


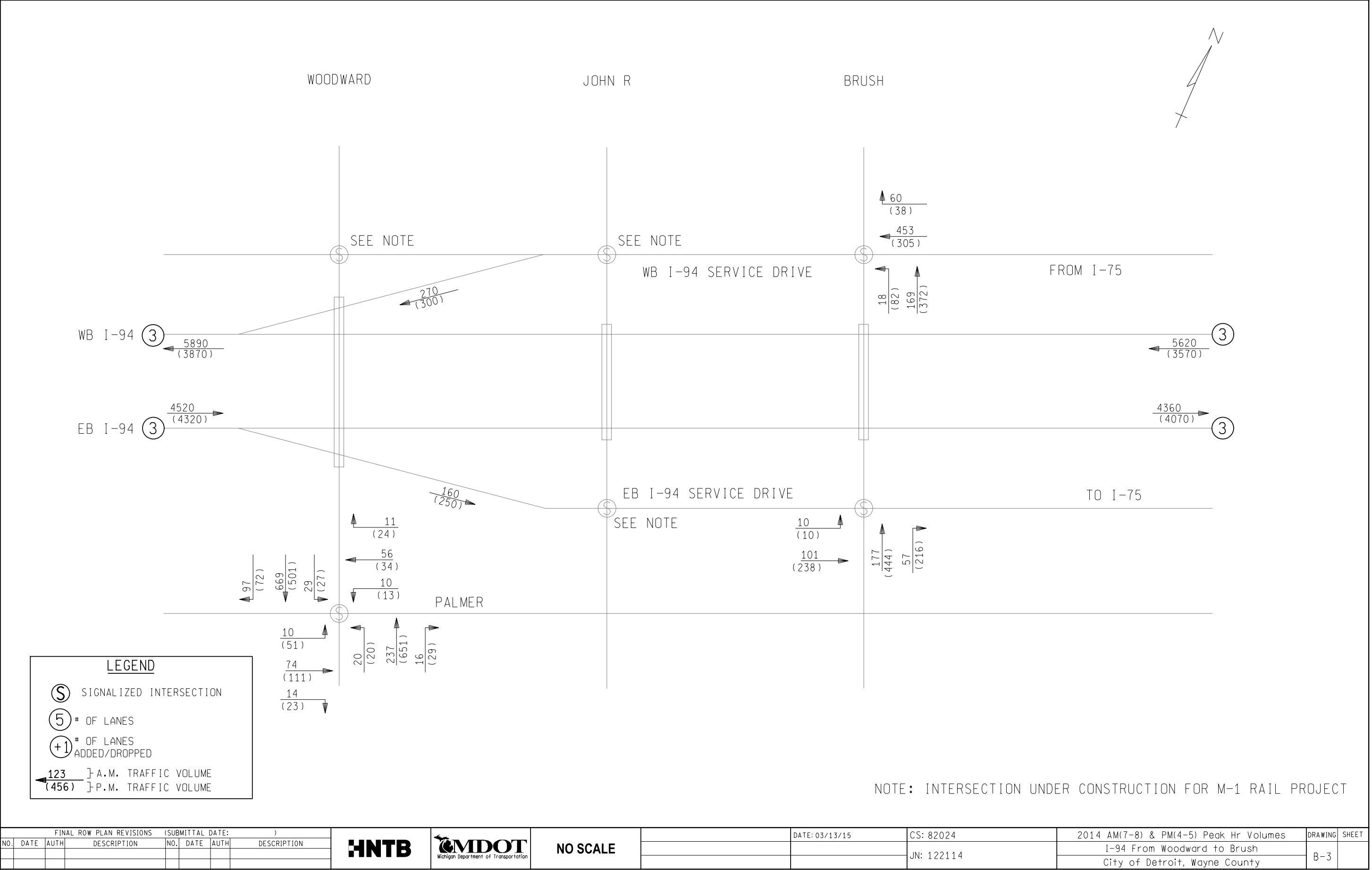


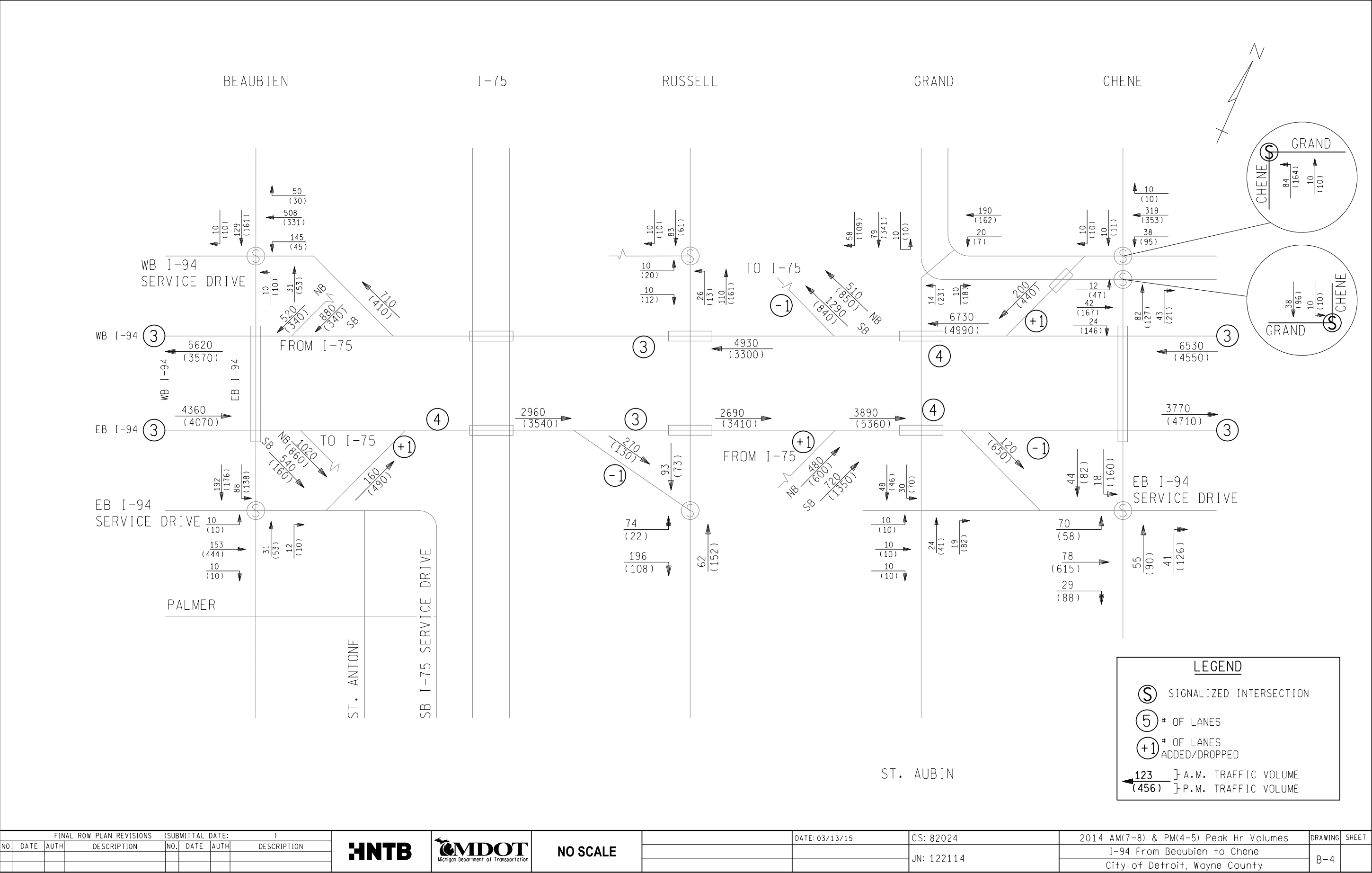


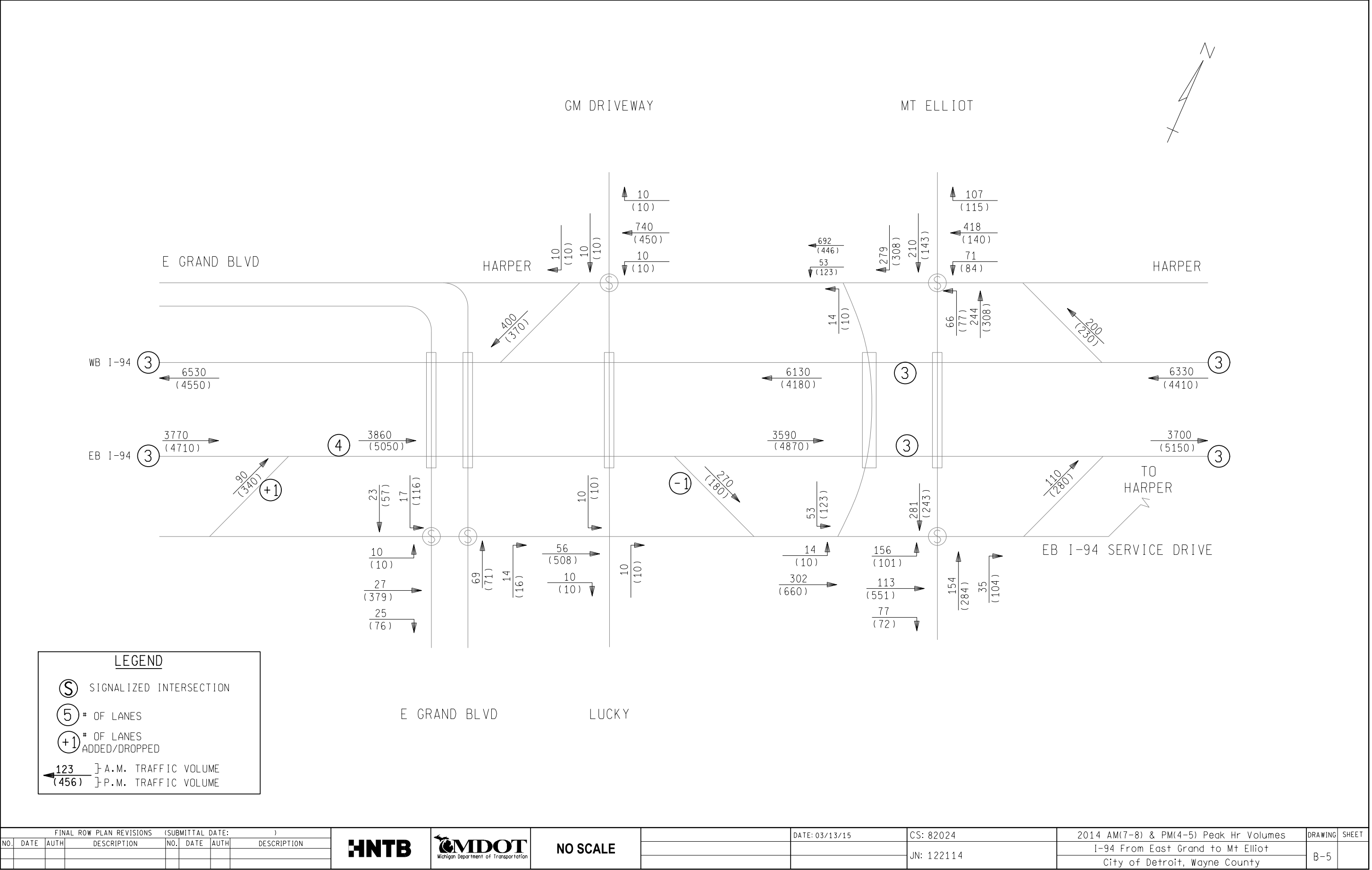


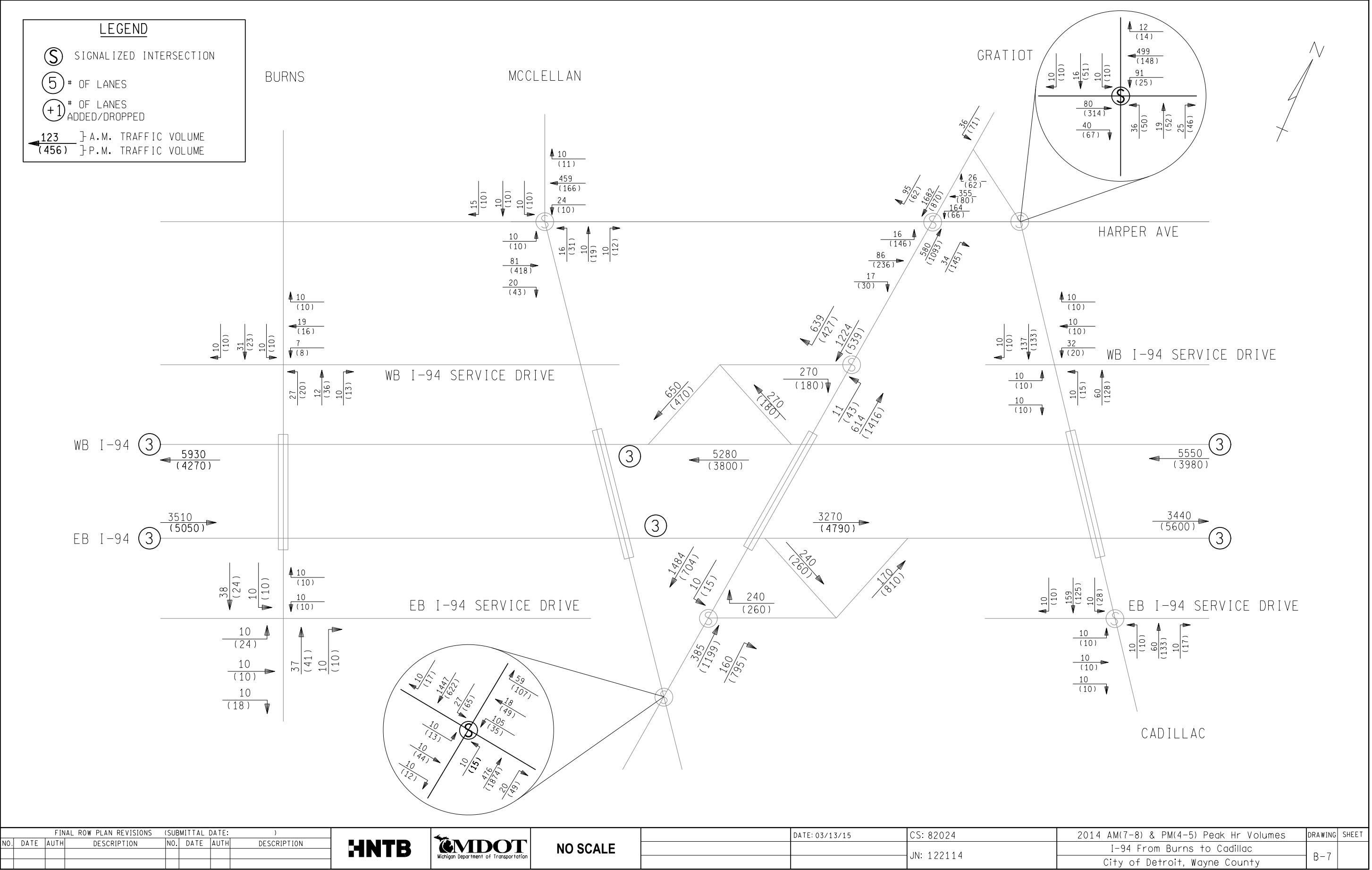


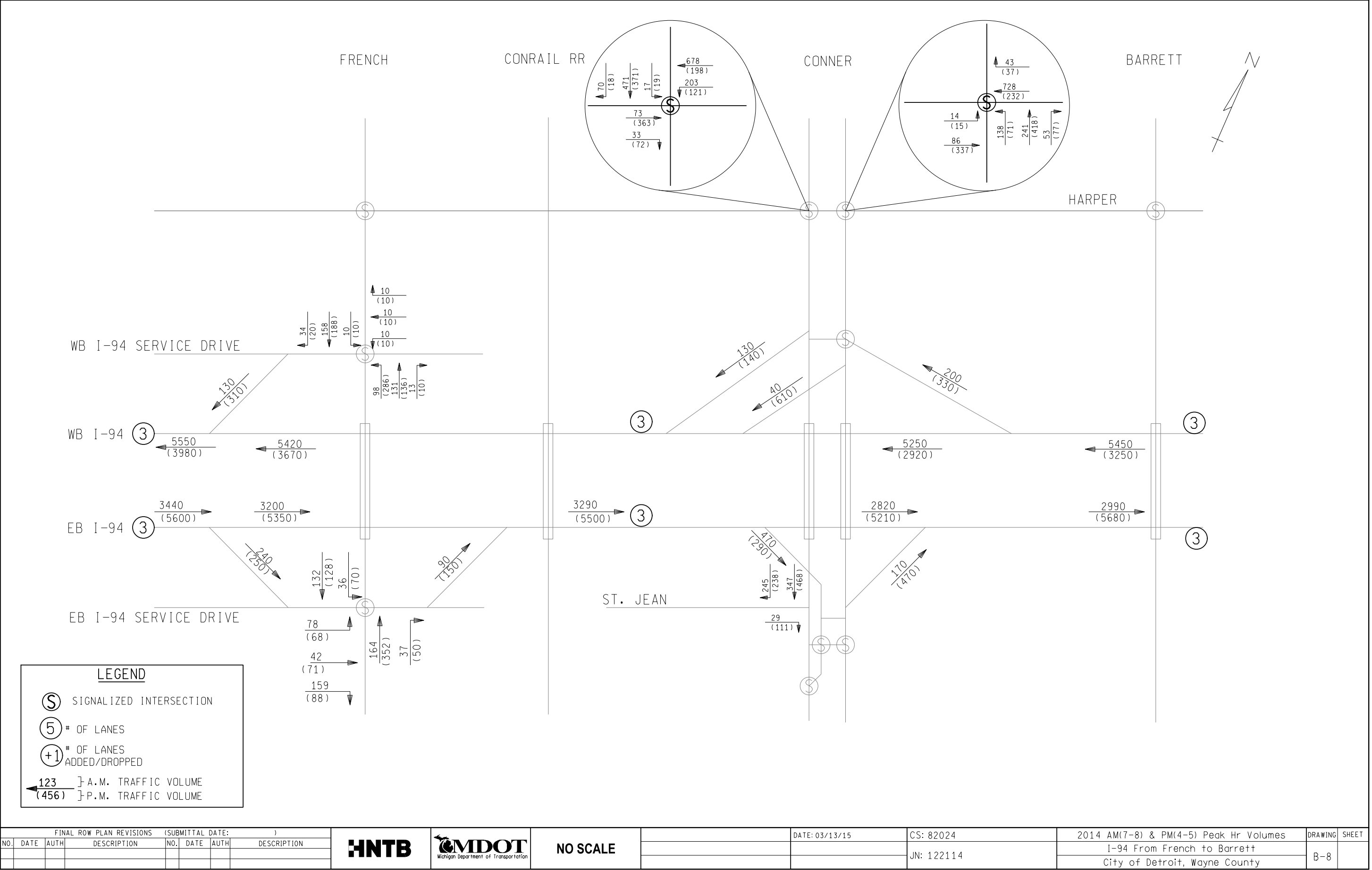


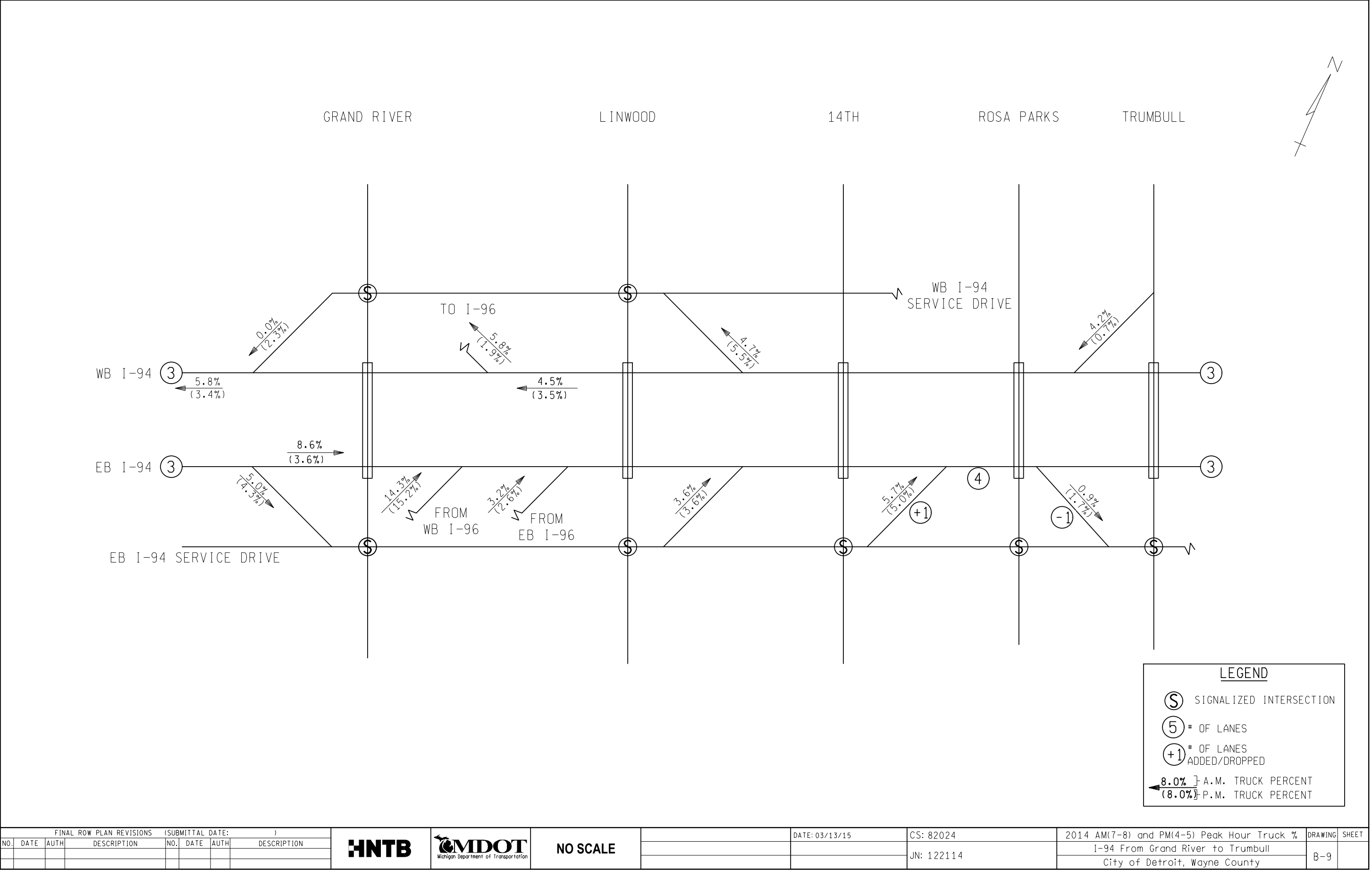


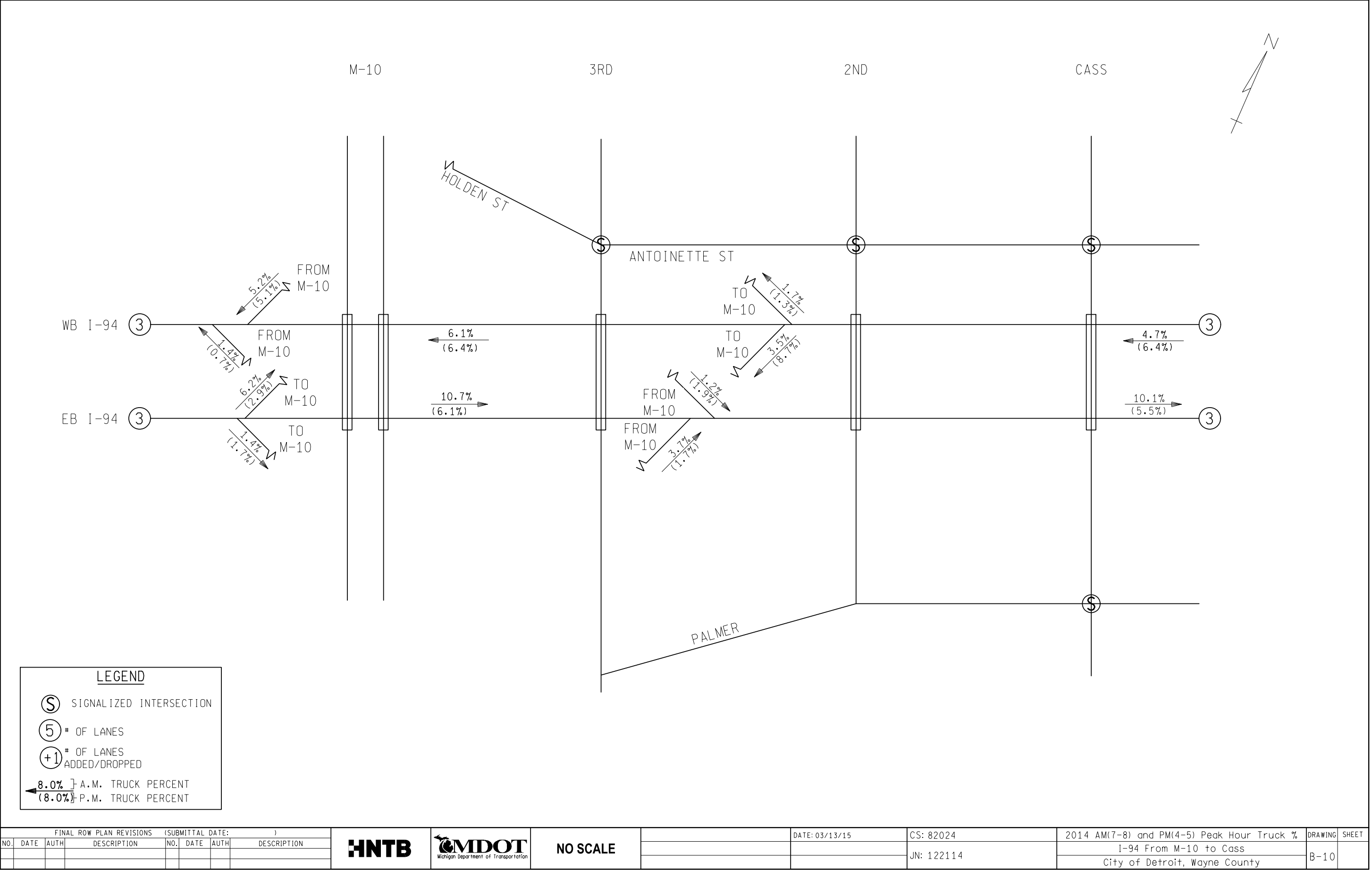


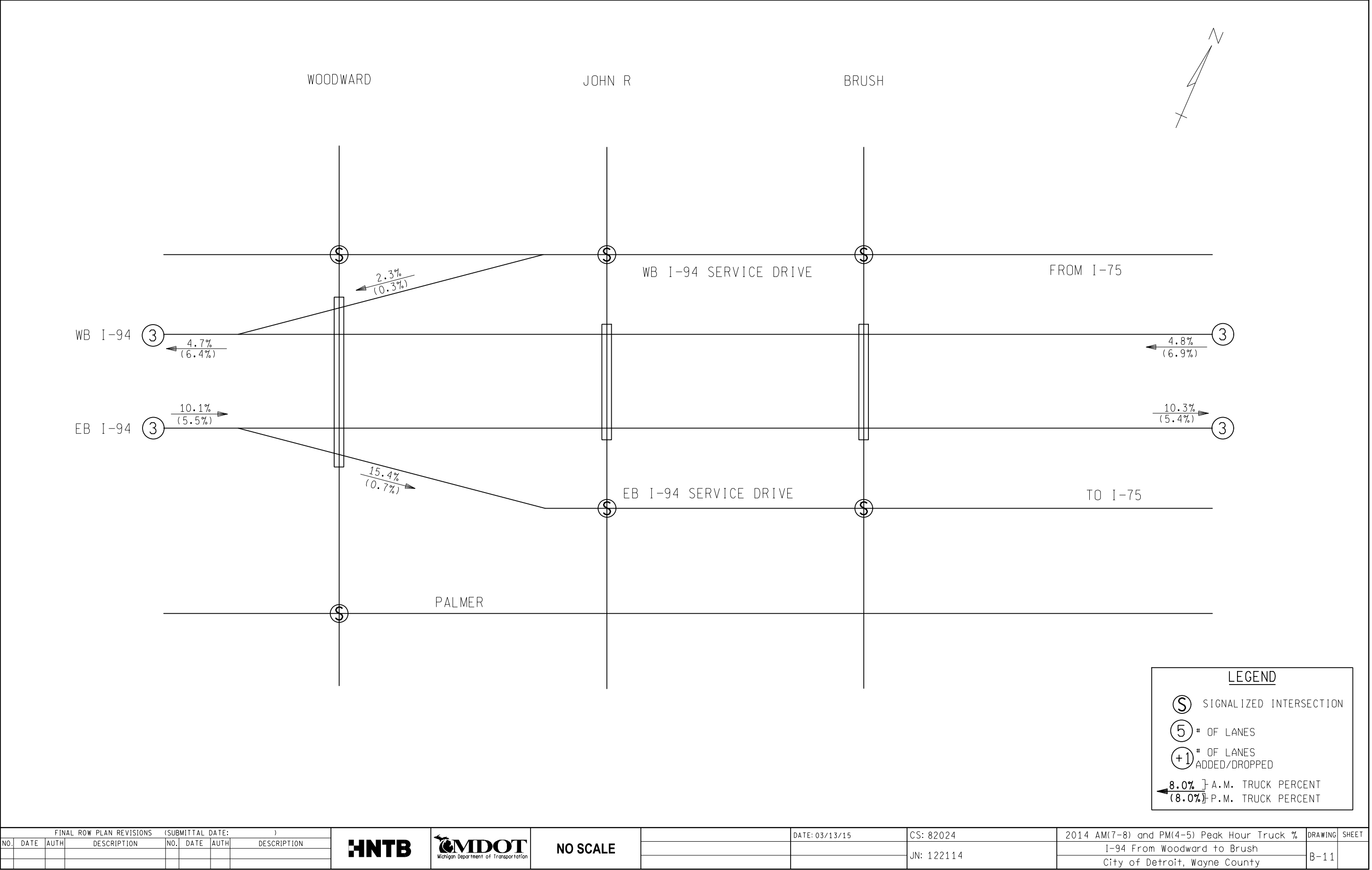


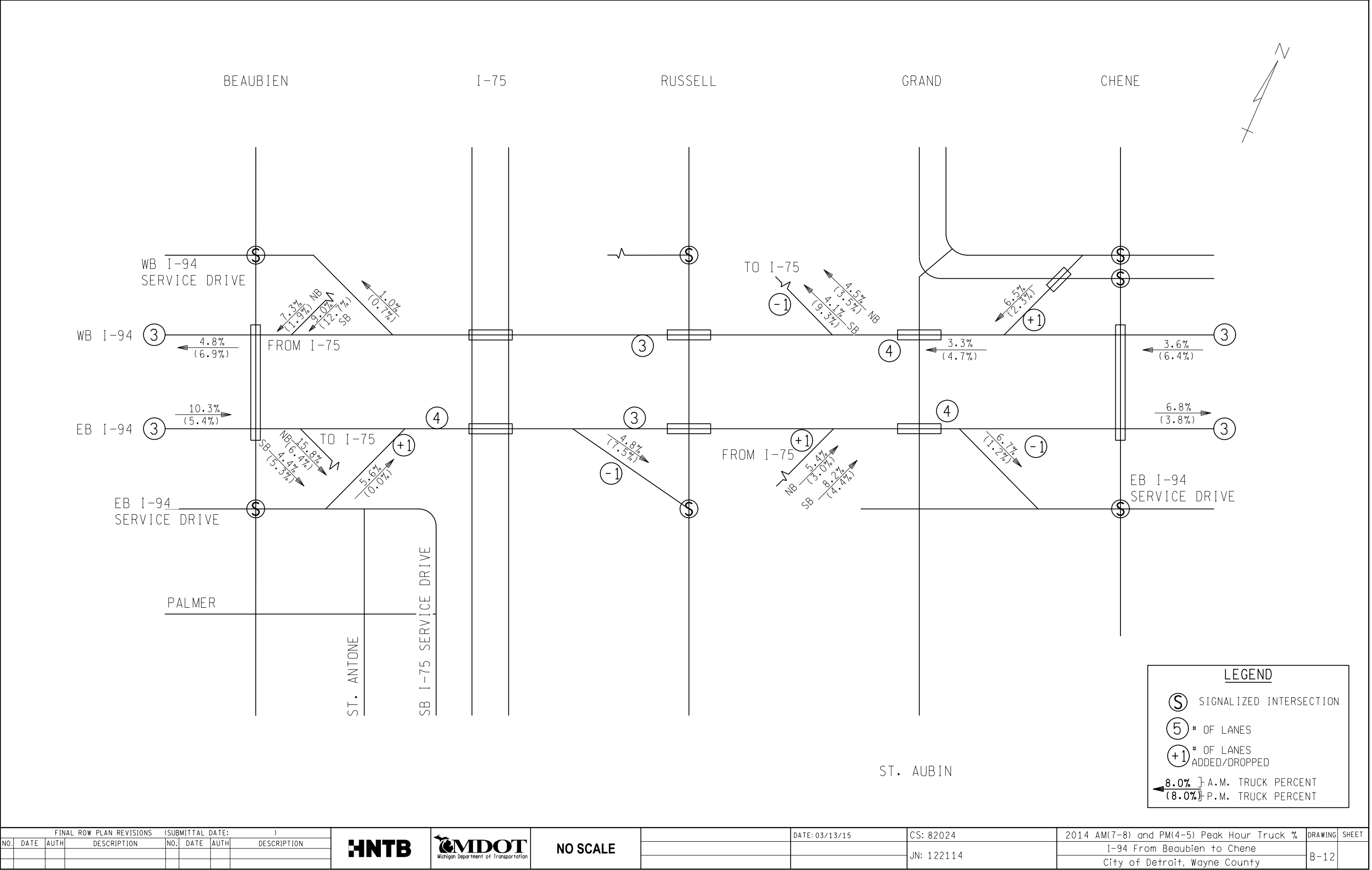


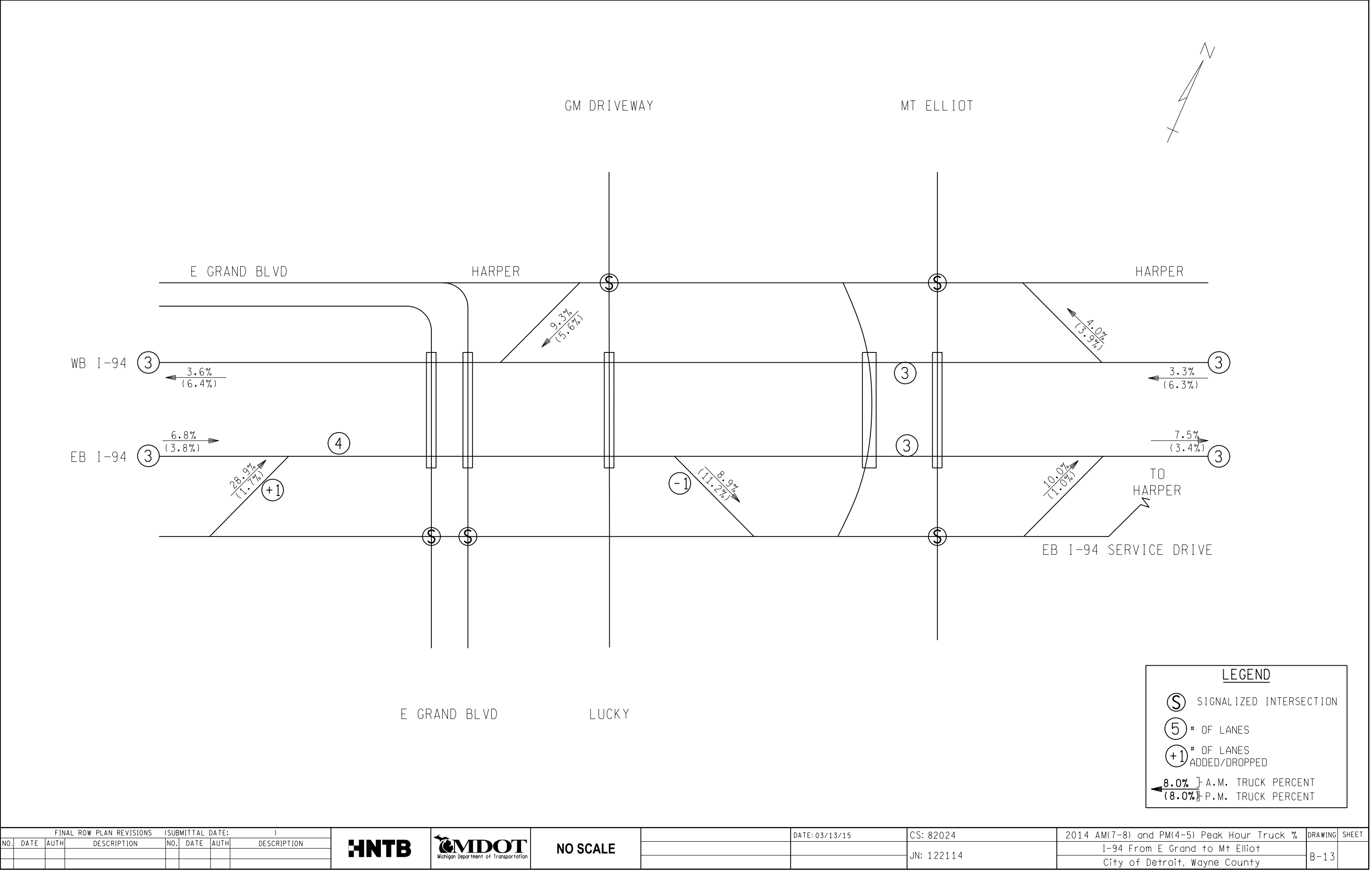


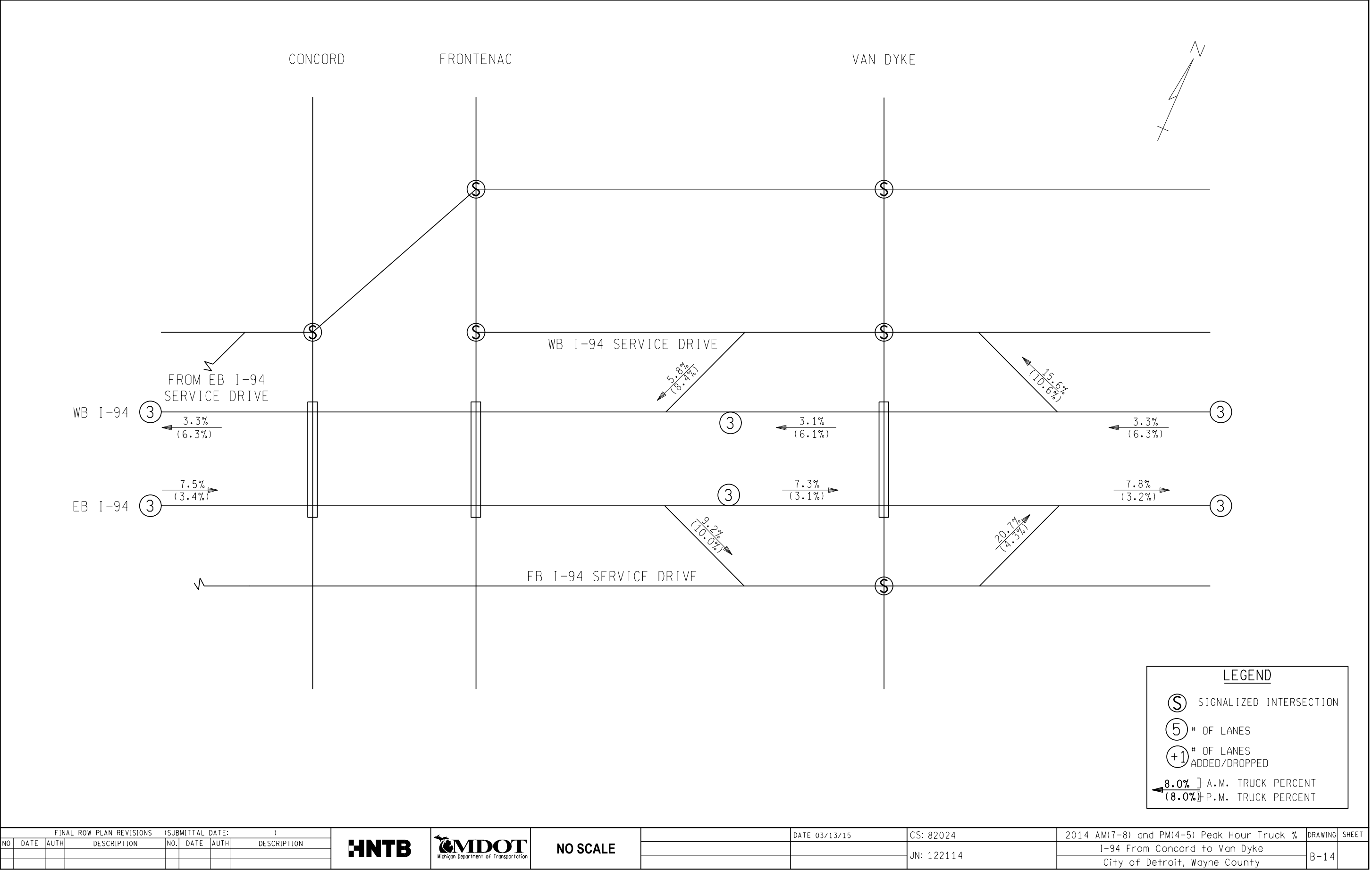


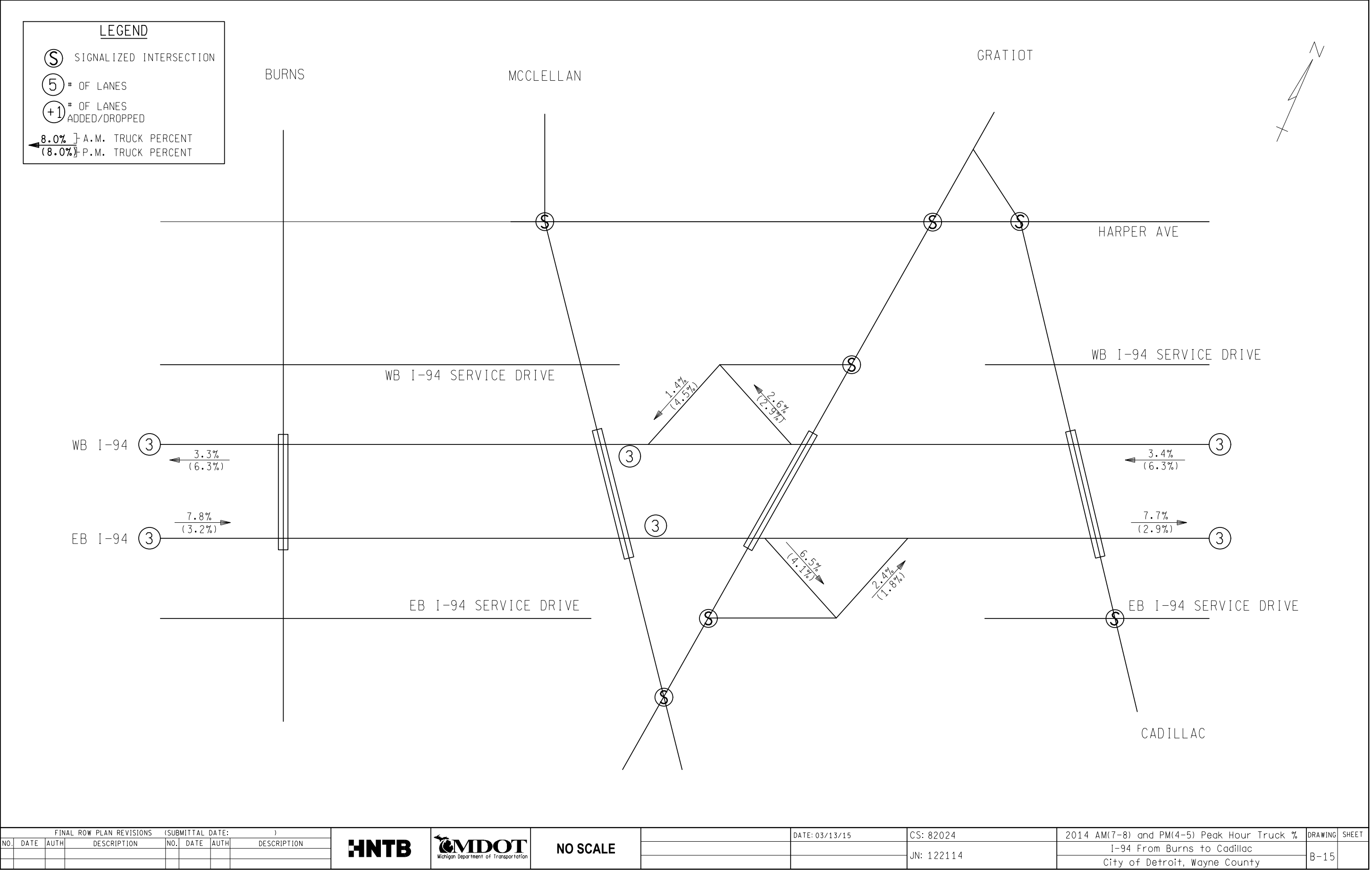


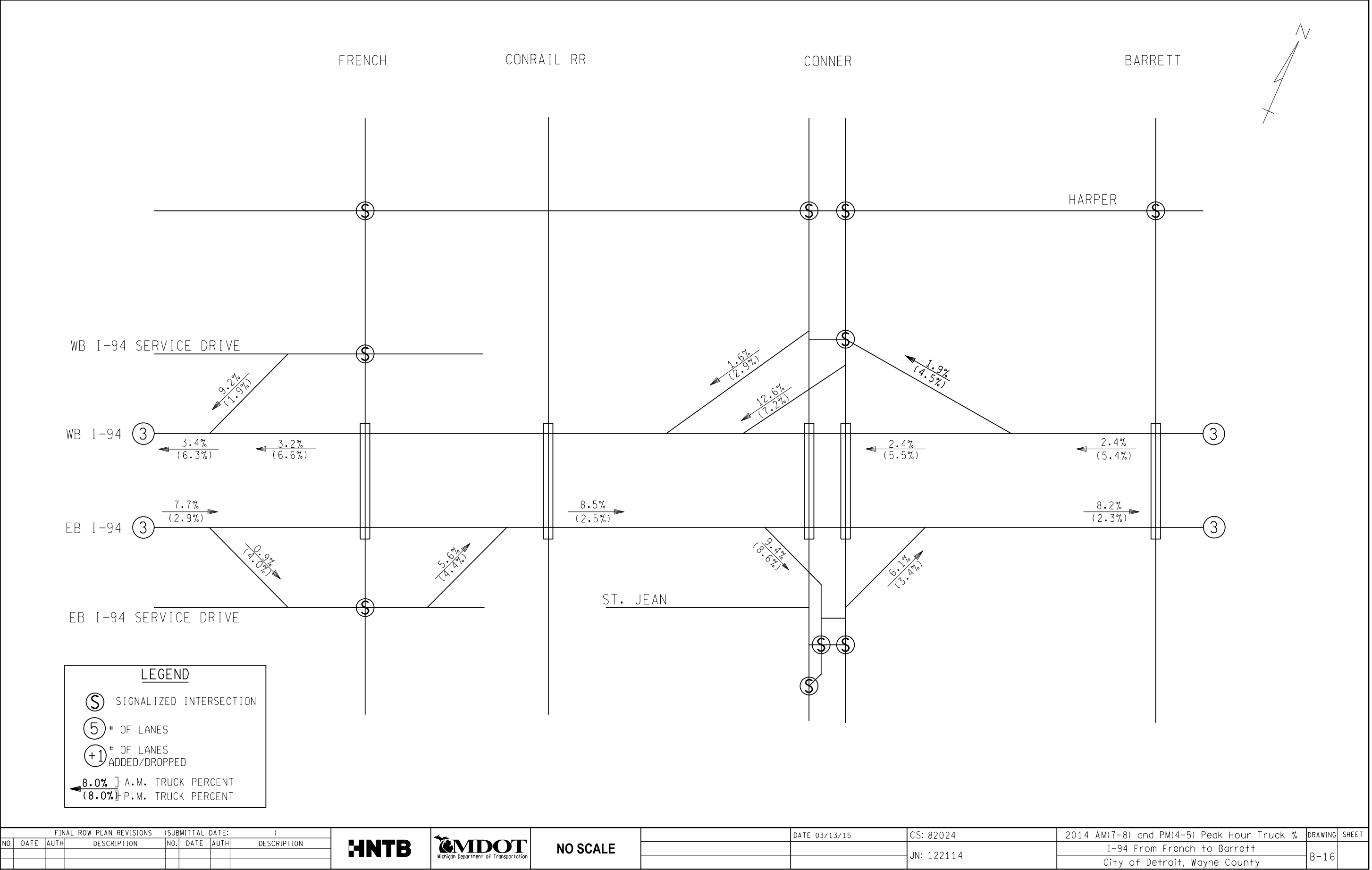


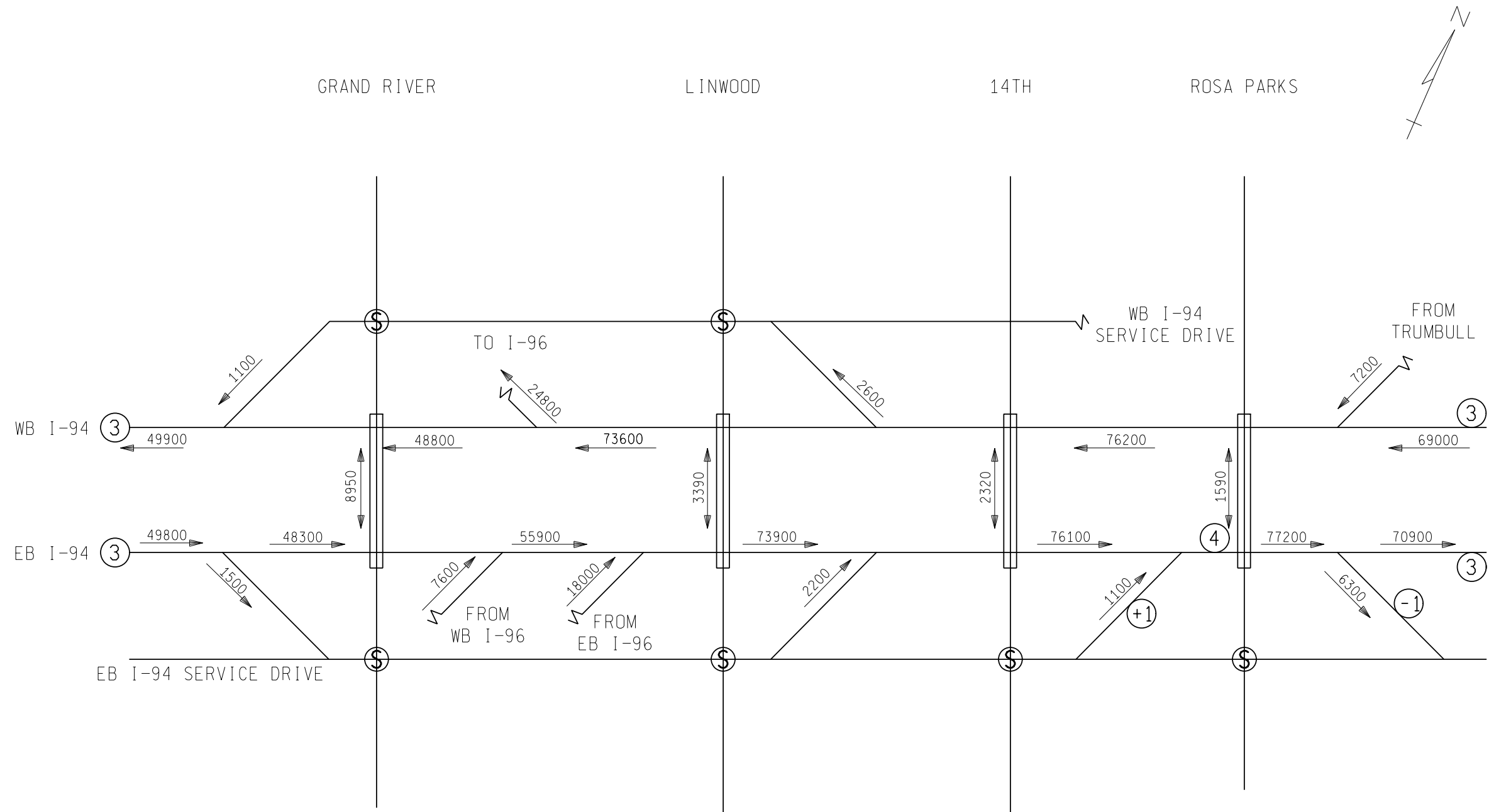








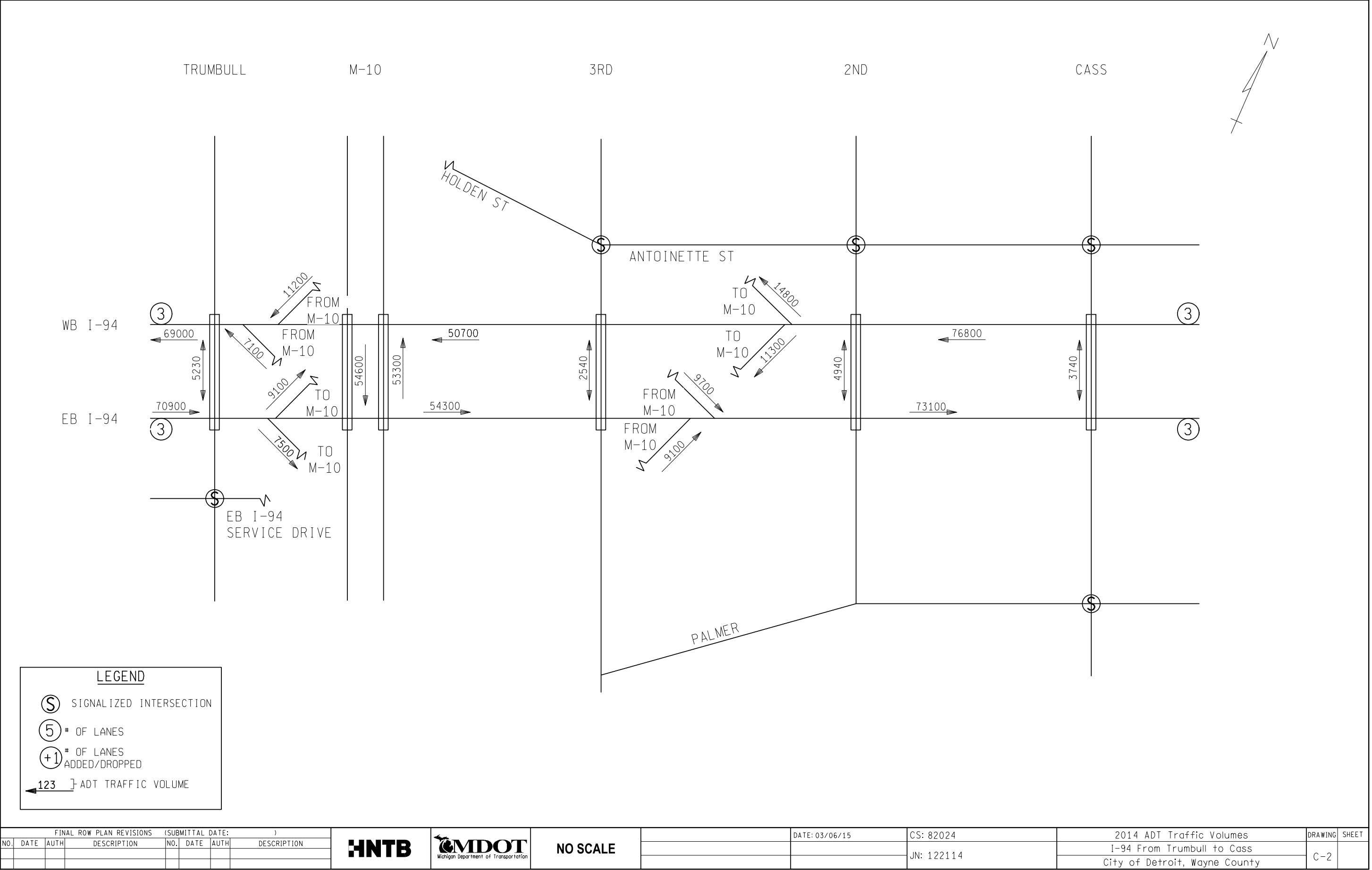


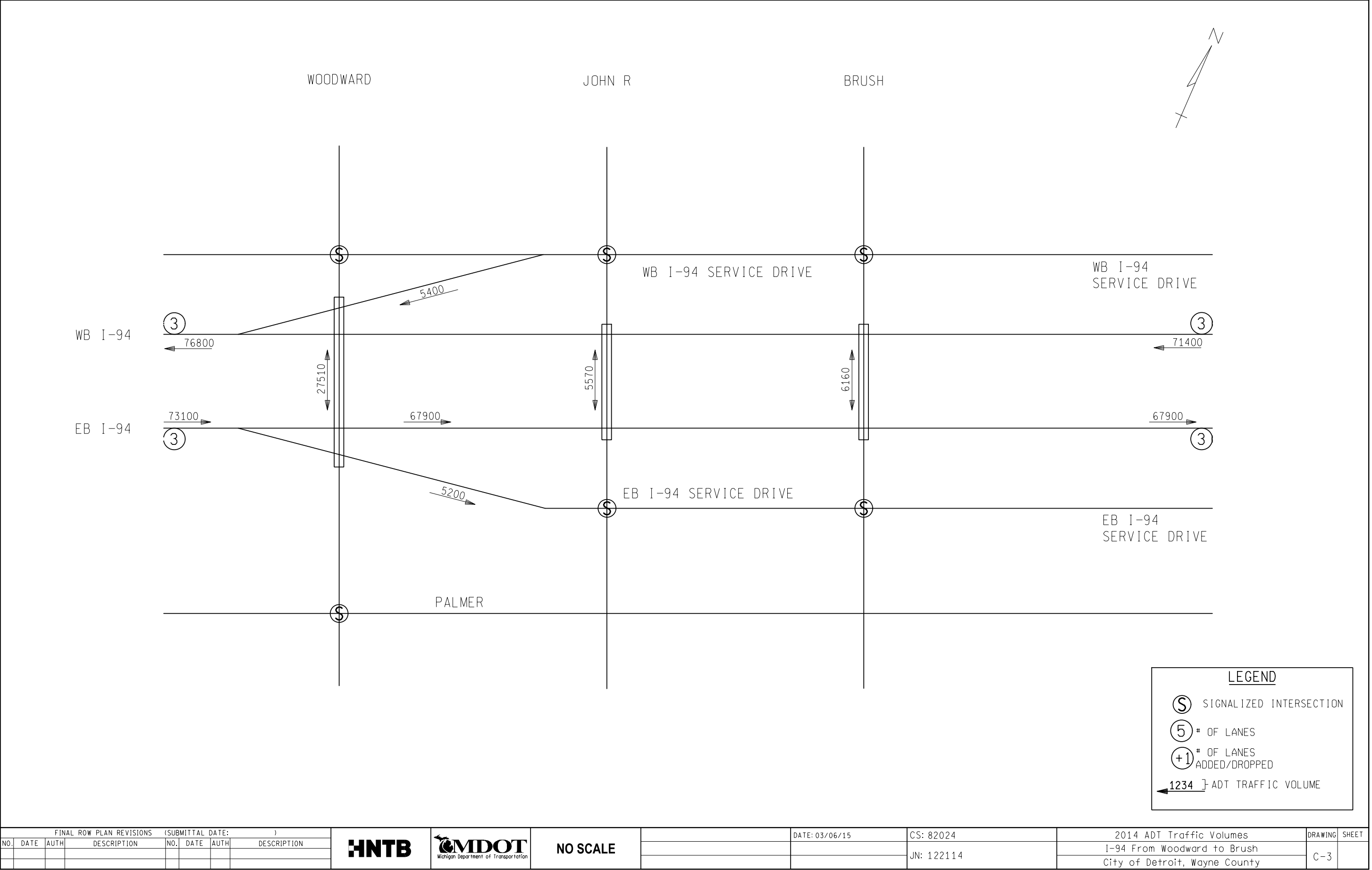


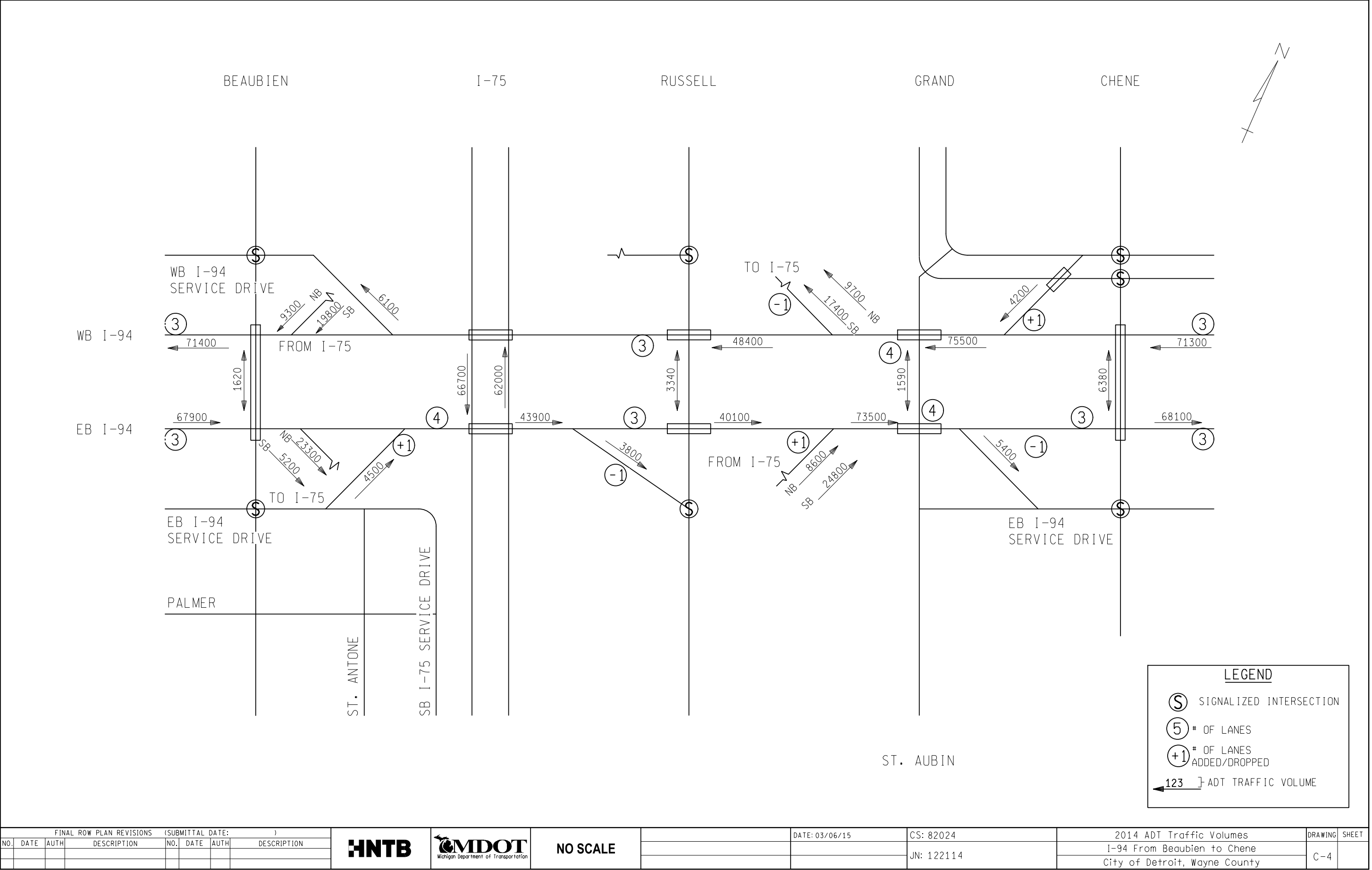
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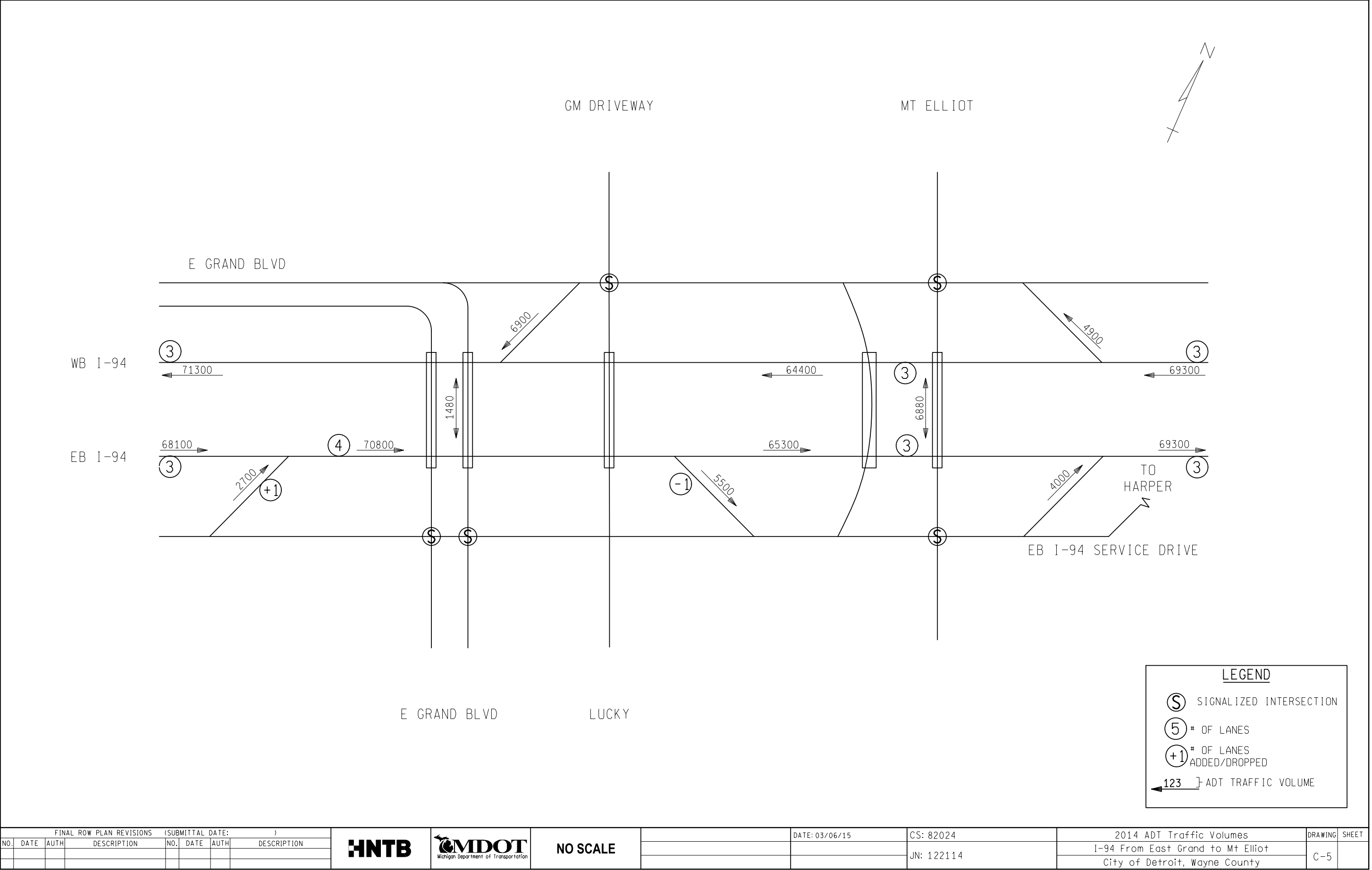
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- ⑤ # OF LANES
- ①+ # OF LANES ADDED/DROPPED
- 123 ADT TRAFFIC VOLUME

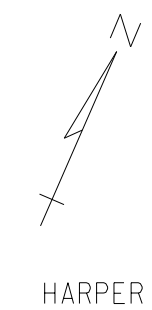
FINAL ROW PLAN REVISIONS				(SUBMITTAL DATE:)					 Michigan Department of Transportation	NO SCALE		DATE: 03/06/15	CS: 82024	2014 ADT Traffic Volumes	DRAWING	SHEET
NO.	DATE	AUTH	DESCRIPTION	NO.	DATE	AUTH	DESCRIPTION						JN: 122114	I-94 From Grand River to Rosa Parks	C-1	
														City of Detroit, Wayne County		











LEGEND

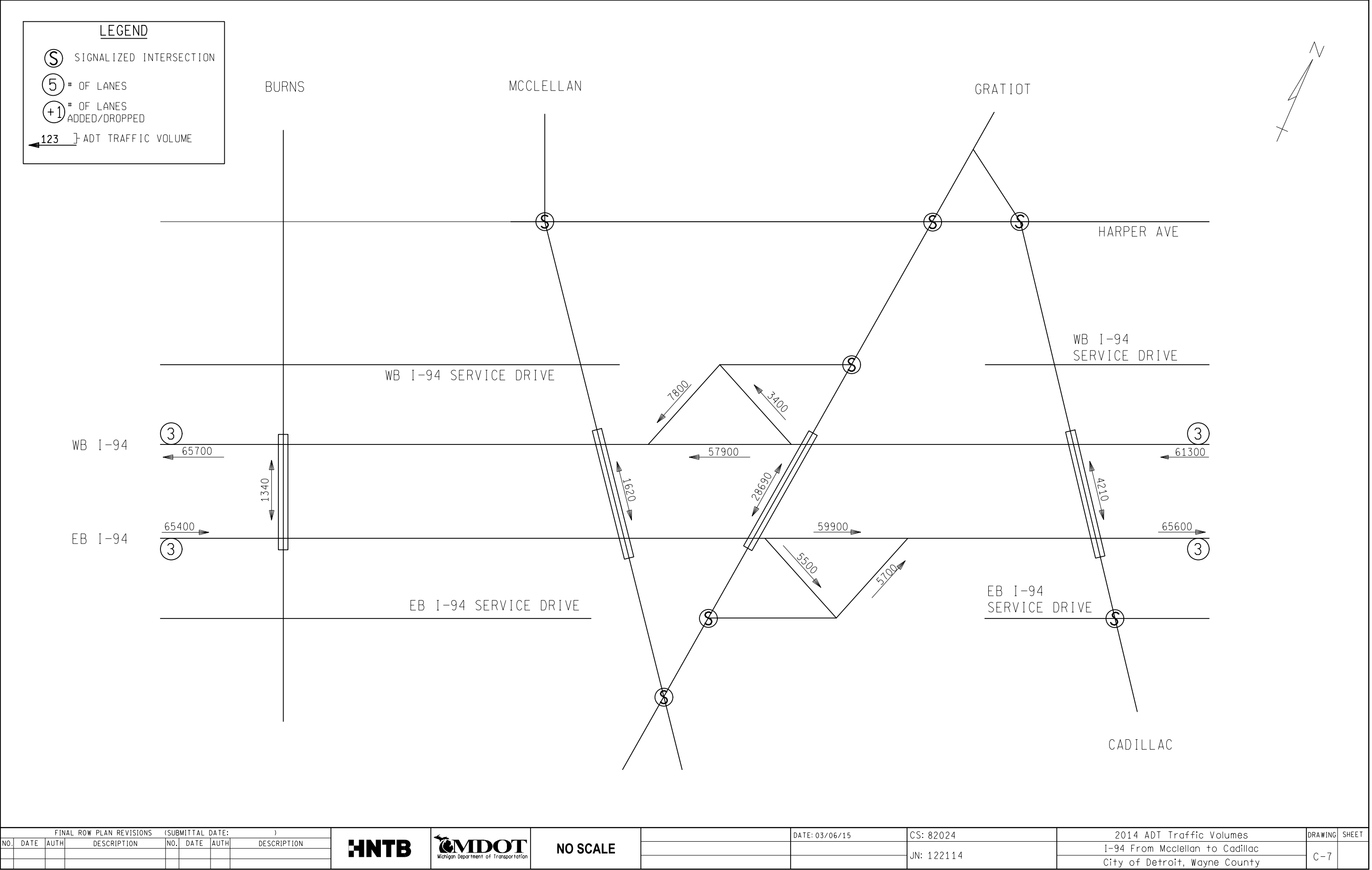
⑤ SIGNALIZED INTERSECTION

⑤ # OF LANES

① # OF LANES
ADDED/DROPPED

123 } ADT TRAFFIC VOLUME

FINAL ROW PLAN REVISIONS (SUBMITTAL DATE:)										NO SCALE	DATE: 03/06/15	CS: 82024	2014 ADT Traffic Volumes	DRAWING	SHEET
NO.	DATE	AUTH	DESCRIPTION	NO.	DATE	AUTH	DESCRIPTION					JN: 122114	I-94 From Concord to Van Dyke	C-6	
													City of Detroit, Wayne County		



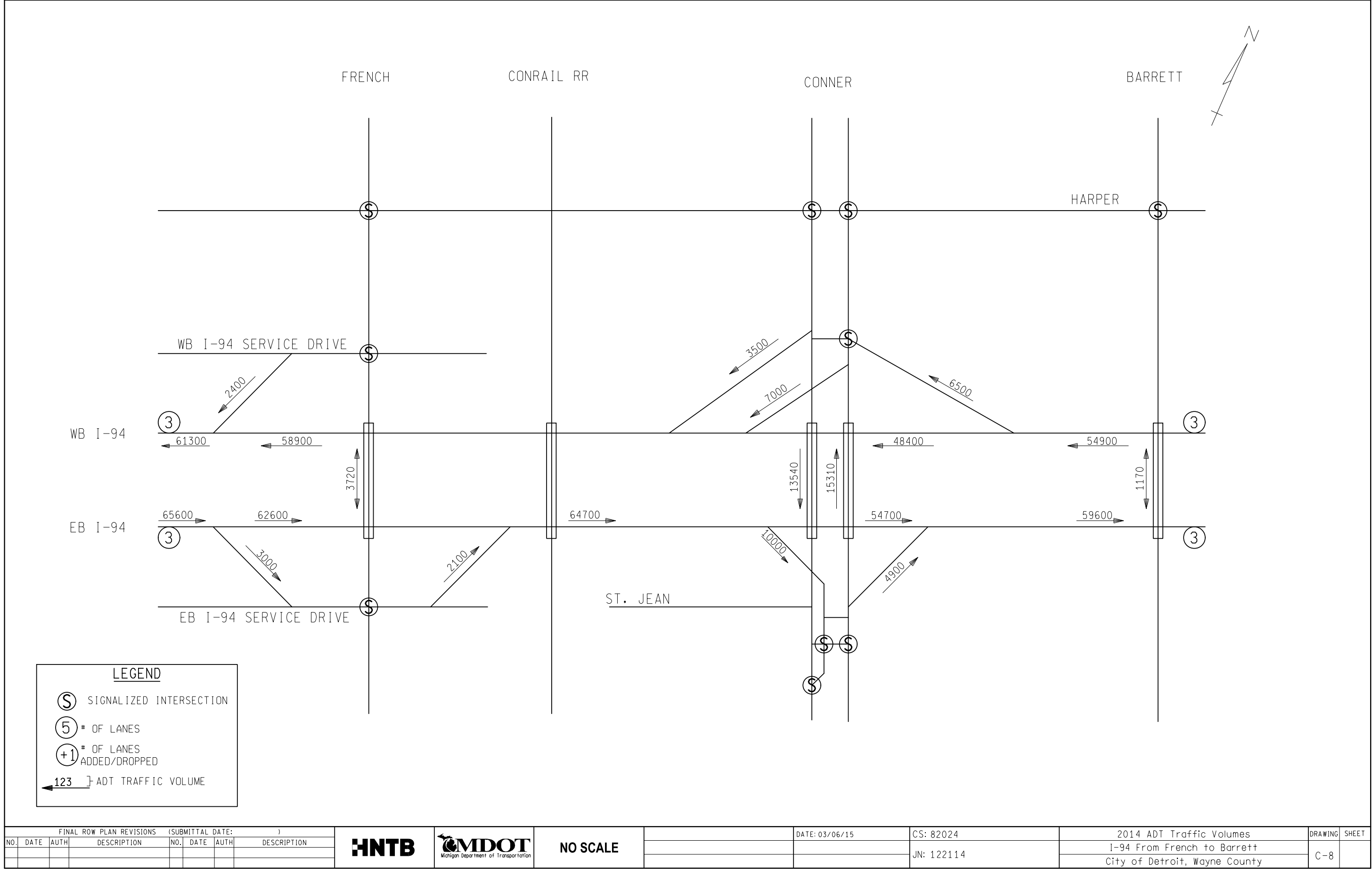


Exhibit 1

I-94 IACR Study Area

2014 Existing AM Modeled Level of Service

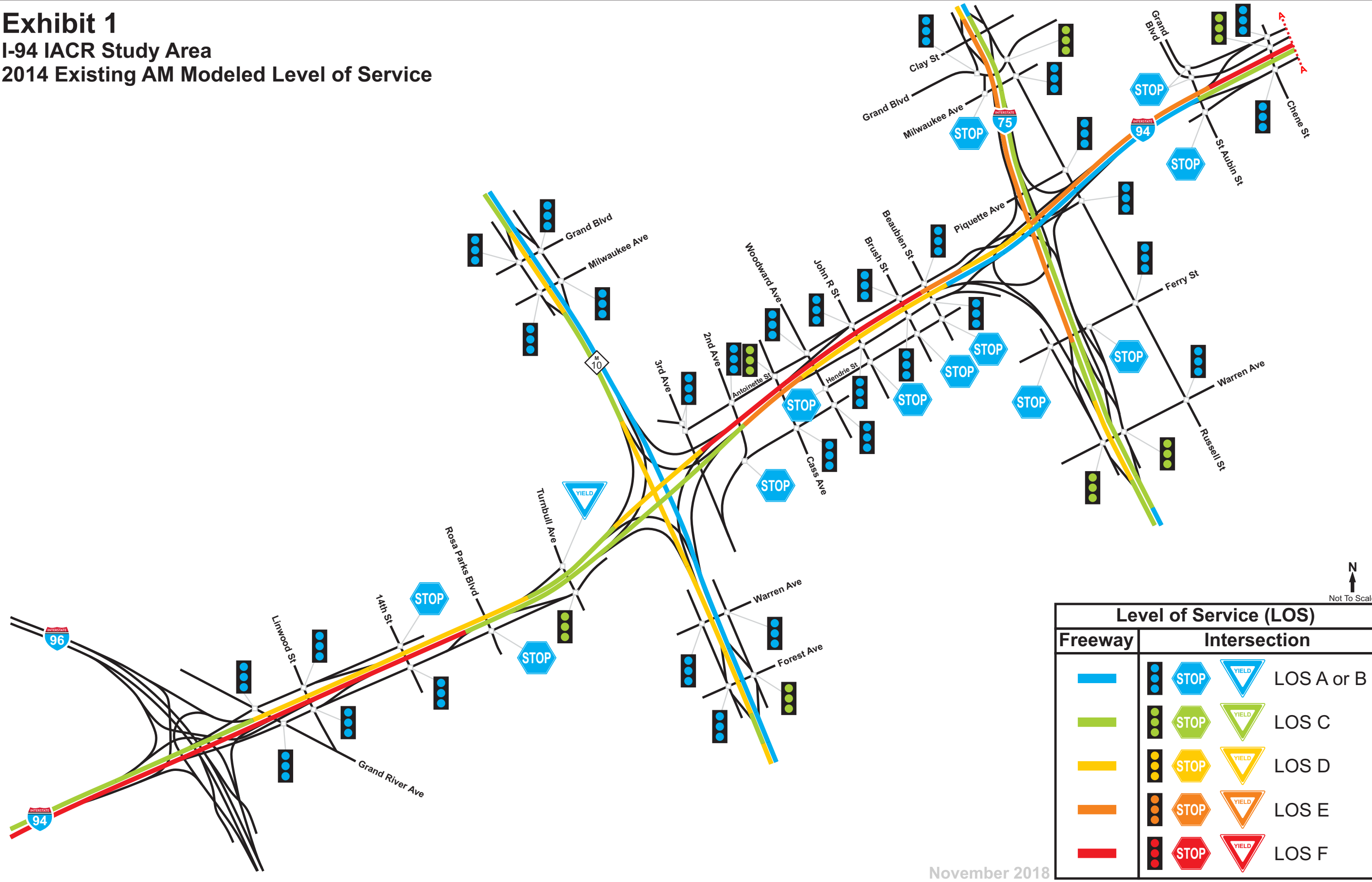
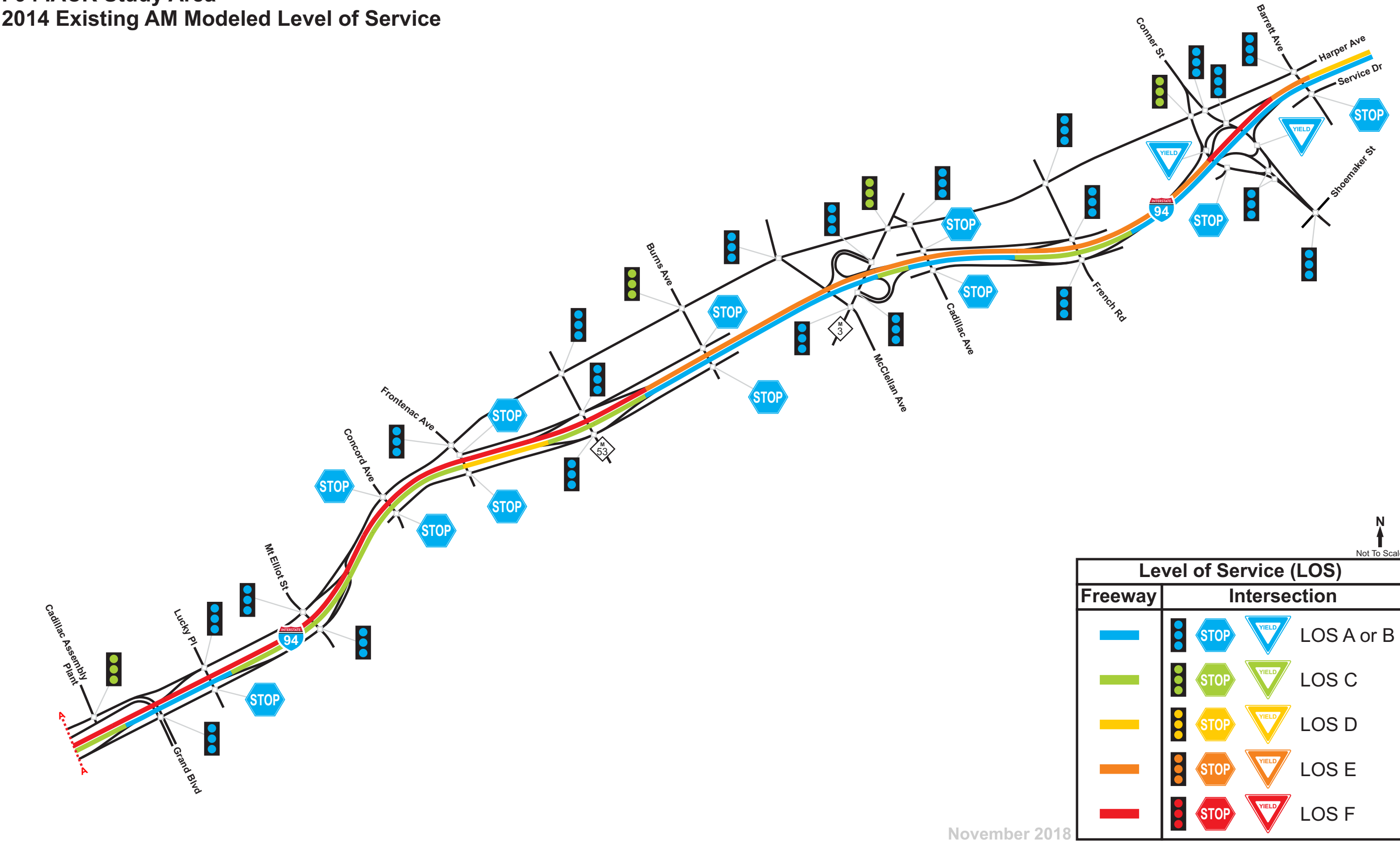


Exhibit 1

I-94 IACR Study Area

2014 Existing AM Modeled Level of Service



November 2018

Exhibit 2 I-94 IACR Study Area 2014 Existing PM Modeled Level of Service

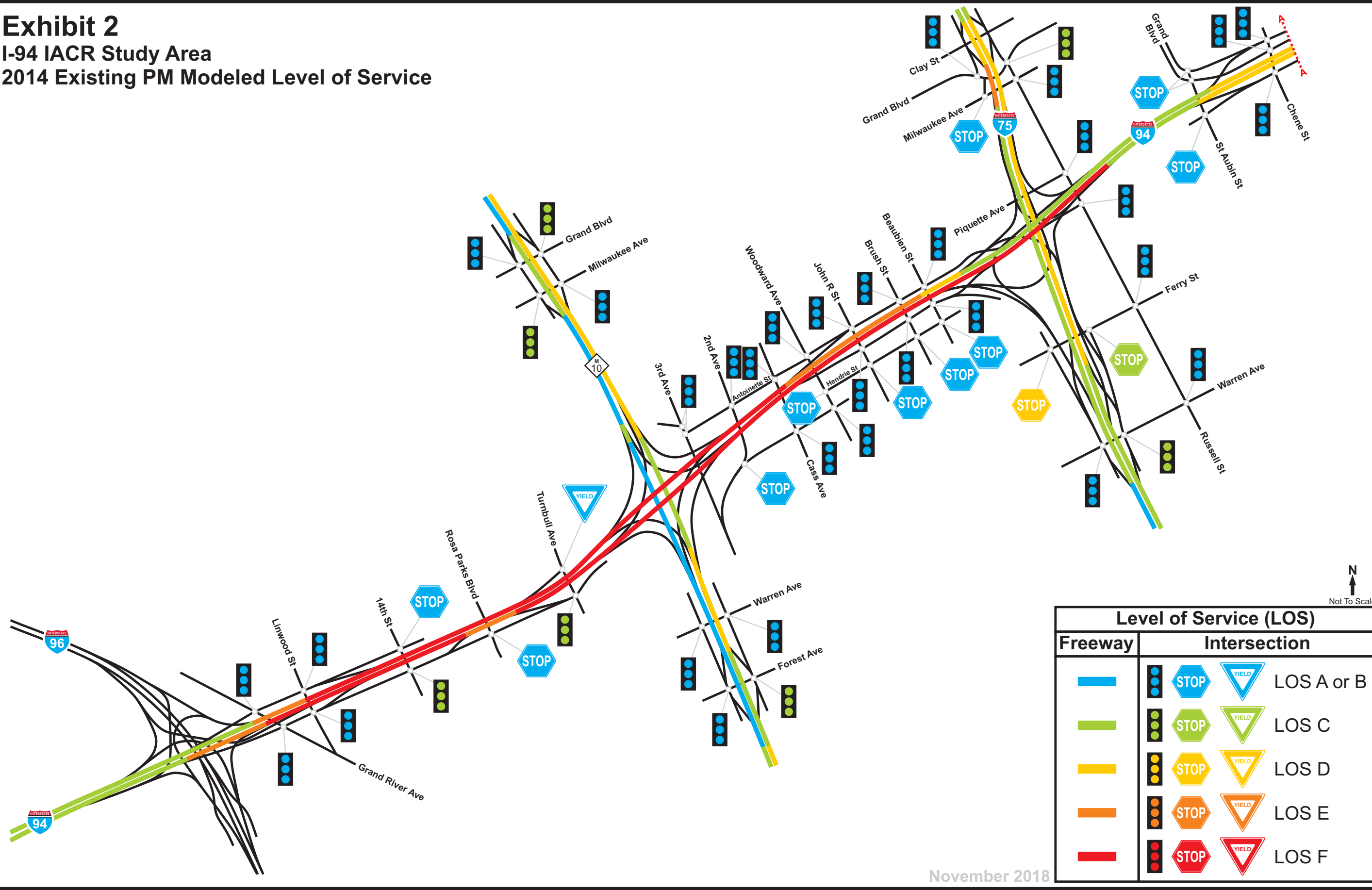
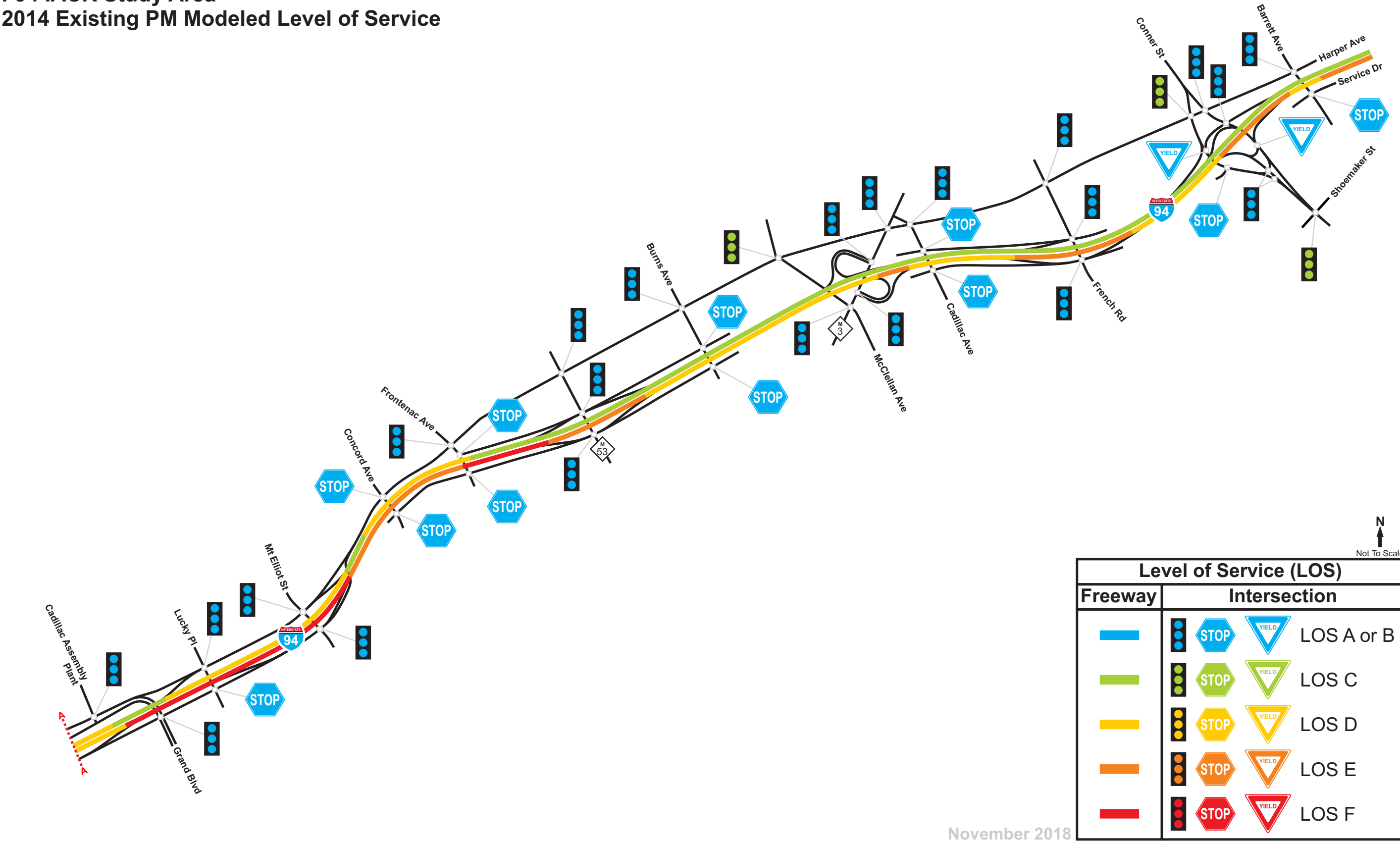


Exhibit 2 I-94 IACR Study Area 2014 Existing PM Modeled Level of Service



November 2018

Table D: Existing LOS in Analysis Area

Segment	Segment Type	Existing AM Peak		Existing PM Peak	
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS
Eastbound I-94					
Grand Blvd Entr Ramp to I-96 Exit Ramp	Weave	45.3	F	27.5	C
Grand River Ave Exit Ramp	Ramp	53.4	F	26.8	C
Grand River Ave Exit Ramp to I-96 S-E Entr Ramp	Basic	84.3	F	38.5	E
I-96 S-E Entr Ramp	Ramp	95.7	F	55.0	F
I-94 N-E Entr Ramp	Ramp	59.2	F	52.0	F
Linwood St Entr Ramp	Ramp	47.7	F	53.8	F
14th St Entr Ramp to Trumbull Ave Exit Ramp	Weave	25.5	C	41.4	E
M-10 Exit Ramps	Ramp	26.5	C	55.6	F
M-10 Exit Ramps to M-10 Entr Ramps	Basic	20.1	C	46.6	F
M-10 Entr Ramps to John R St Exit Ramp	Ramp*	37.5	E	56.9	F
John R St Exit Ramp to I-75 Exit Ramp	Basic	29.6	D	62.6	F
I-75 Exit Ramp	Ramp	28.4	D	95.3	F
I-75 Exit Ramp to Beaubien St Entr Ramp	Basic	14.7	B	102.2	F
Beaubien St Entr Ramp to Russell St Exit Ramp	Weave	13.0	B	92.5	F
Russell St Exit Ramp to I-75 Entr Ramp	Basic	15.2	B	74.9	F
I-75 Entr Ramp to Chene St Exit Ramp	Weave	15.9	B	27.1	C
Chene St Exit Ramp to Chene St Entr Ramp	Basic	21.3	C	32.0	D
Chene St Entr Ramp to Mt Elliott St Exit Ramp	Weave	16.8	B	45.2	F
Mt Elliott St Exit Ramp to Mt Elliott St Entr Ramp	Basic	22.9	C	45.3	F
Mt Elliott St Entr Ramp	Ramp	21.4	C	38.6	E
Mt Elliott St Entr Ramp to M-53 Exit Ramp	Basic	22.9	C	43.8	E
M-53 Exit Ramp	Ramp	28.4	D	58.4	F
M-53 Exit Ramp to M-53 Entr Ramp	Basic	24.9	C	38.9	E
M-53 Entr Ramp to Gratiot Ave Exit Ramp	Ramp*	19.6	B	29.7	D
Gratiot Ave Exit Ramp To Gratiot Ave Entr Ramp	Basic	20.3	C	39.1	E
Gratiot Ave Entr Ramp to French Rd Exit Ramp	Ramp*	17.6	B	32.3	D
French Rd Exit Ramp to French Rd Entr Ramp	Basic	20.2	C	39.6	E
French Rd Entr Ramp to Conner St Exit Ramp	Ramp*	18.7	B	31.6	D
Conner St Exit Ramp to Conner St Entr Ramp	Basic	17.2	B	41.3	E
Conner St Entr Ramp	Ramp	17.1	B	32.7	D
East of Conner St Entr Ramp	Basic	17.6	B	35.3	E
Westbound I-94					
East of Conner St Exit Ramp	Basic	33.9	D	21.2	C
Conner St Exit Ramp	Ramp	36.1	E	21.0	C
Conner St Exit Ramp to Conner St Entr Ramp	Basic	46.5	F	19.2	C
NB & SB Conner St Entr Ramps	Ramp	41.8	E	20.4	C
SB Conner St Entr Ramp to French Rd Entr Ramp	Basic	37.1	E	21.7	C
French Rd Entr Ramp to Gratiot Ave Exit Ramp	Ramp*	42.3	E	24.8	C
Gratiot Ave Exit Ramp to Gratiot Ave Entr Ramp	Basic	42.1	E	25.0	C
Gratiot Ave Entr Ramp to M-53 Exit Ramp	Ramp*	41.9	E	25.3	C
M-53 Exit Ramp to M-53 Entr Ramp	Basic	47.5	F	26.0	C
M-53 Entr Ramp	Ramp	47.4	F	26.7	C
M-53 Entr Ramp to Mt Elliott St Exit Ramp	Basic	47.2	F	27.3	D
Mt Elliott St Exit Ramp	Ramp	46.1	F	26.2	C
Mt Elliott St Exit Ramp to Harper Ave Entr Ramp	Basic	50.4	F	26.4	D
Harper Ave Entr Ramp	Ramp	52.2	F	26.8	C
Harper Ave Entr Ramp to Chene St Entr Ramp	Basic	54.0	F	27.2	D
Chene St Entr Ramp to I-75 Exit Ramp	Weave	40.0	E	24.1	C
I-75 Exit Ramp to Beaubien St Exit Ramp	Basic	41.1	E	21.5	C
Beaubien St Exit Ramp	Ramp	32.7	D	21.3	C
Beaubien St Exit Ramp to I-75 Entr Ramp	Basic	29.5	D	20.5	C
I-75 Entr Ramp	Ramp	41.1	E	31.6	D
I-75 Entr Ramp to John R St Entr Ramp	Basic	46.5	F	41.7	E
John R St Entr Ramp to M-10 Exit Ramps	Ramp*	43.5	F	46.0	F
M-10 Exit Ramps to M-10 Entr Ramps	Basic	26.2	D	59.8	F
M-10 Entr Ramps	Ramp	24.5	C	68.1	F
Trumbull Ave Entr Ramp to Linwood St Exit Ramp	Ramp*	31.1	D	46.7	F
Linwood St Exit Ramp to I-96 Exit Ramp	Basic	34.9	D	50.6	F
I-96 Exit Ramp	Ramp	33.9	D	40.1	E
I-96 Exit Ramp to Grand River Ave Entr Ramp	Basic	21.1	C	21.6	C
Grand River Ave Entr Ramp	Ramp	21.6	C	22.5	C
I-96 Entr Ramp to Grand Blvd Exit Ramp	Weave	20.2	C	23.1	C
Northbound M10					
South of Forest Ave Exit Ramp	Basic	16.8	B	26.1	D
Forest Ave Exit Ramp	Ramp	17.3	B	26.8	C
Forest Ave Exit Ramp to Forest Ave Entr Ramp	Basic	13.6	B	23.5	C
Forest Ave Entr Ramp to I-94 S-E Exit Ramp	Weave	14.3	B	29.9	D
I-94 S-W Exit Ramp	Ramp	15.0	B	30.7	D
I-94 S-W Exit Ramp to I-94 E-N Entr Ramp	Basic	12.9	B	25.2	C
I-94 E-N Entr Ramp to I-94 W-N Entr Ramp	Basic	16.2	B	33.0	D
I-94 W-N Entr Ramp to Milwaukee Ave Exit Ramp	Weave	18.2	B	32.8	D
Milwaukee Ave Exit Ramp to Grand Blvd Entr Ramp	Basic	15.4	B	28.3	D
North of Grand Blvd Entr Ramp	Basic	13.5	B	27.4	D
Southbound M10					
North of Grand Blvd Exit Ramp	Basic	25.1	C	17.0	B
Grand Blvd Exit Ramp to Milwaukee Ave Entr Ramp	Basic	32.1	D	20.2	C
Milwaukee Ave Entr Ramp to I-94 N-W Exit Ramp	Weave	25.2	C	19.7	B
I-94 N-E Exit Ramp	Ramp	30.1	D	20.4	C
I-94 N-E Exit Ramp to I-94 Entr Ramps	Basic	27.1	D	16.6	B
I-94 Entr Ramps to Forest Ave Exit Ramp	Weave	30.7	D	17.6	B
Forest Ave Exit Ramp to Forest Ave Entr Ramp	Basic	26.5	D	16.7	B
Forest Ave Entr Ramp	Ramp	27.8	C	18.6	B
South of Forest Ave Entr Ramp	Basic	27.9	D	18.7	C
Northbound I-75					
South of Warren Ave Exit Ramp	Basic	15.1	B	18.2	C
Warren Ave Exit Ramp to I-94 Exit Ramps	Basic	20.7	C	23.9	C
I-94 Exit Ramps to Warren Ave Entr Ramp	Basic	20.9	C	25.6	C
Warren Ave Entr Ramp	Ramp	22.4	C	27.5	C
Warren Ave Entr Ramp to I-94 E-N Entr Ramp	Basic	22.2	C	29.3	D
I-94 E-N Entr Ramp to I-94 W-N Entr Ramp	Basic	24.0	C	29.4	D
I-94 W-N Entr Ramp to Clay St Exit Ramp	Ramp*	26.5	C	32.7	D
Clay St Exit Ramp to Clay St Entr Ramp	Basic	18.8	C	28.3	D
North of Clay St Entr Ramp	Basic	15.8	B	25.0	C
Southbound I-75					
North of Clay St Exit Ramp	Basic	30.3	D	20.7	C
Clay St Exit Ramp to Clay St Entr Ramp	Basic	36.6	E	27.3	D
Clay St Entr Ramp to I-94 Exit Ramps	Weave	41.0	E	38.1	E
I-94 Exit Ramps to Warren Ave Exit Ramp	Basic	39.0	E	24.2	C
Warren Ave Exit Ramp	Ramp	35.3	E	24.0	C
Warren Ave Exit Ramp to I-94 Entr Ramps	Basic	25.9	C	20.0	C
I-94 Entr Ramps to Warren Ave Entr Ramp	Basic	27.7	D	19.6	C
South of Warren Ave Entr Ramp	Basic	22.6	C	16.9	B

*Overlapping ramp segment
Source: Paramics

Exhibit 3 I-94 IACR Study Area 2040 No Build AM Modeled Level of Service

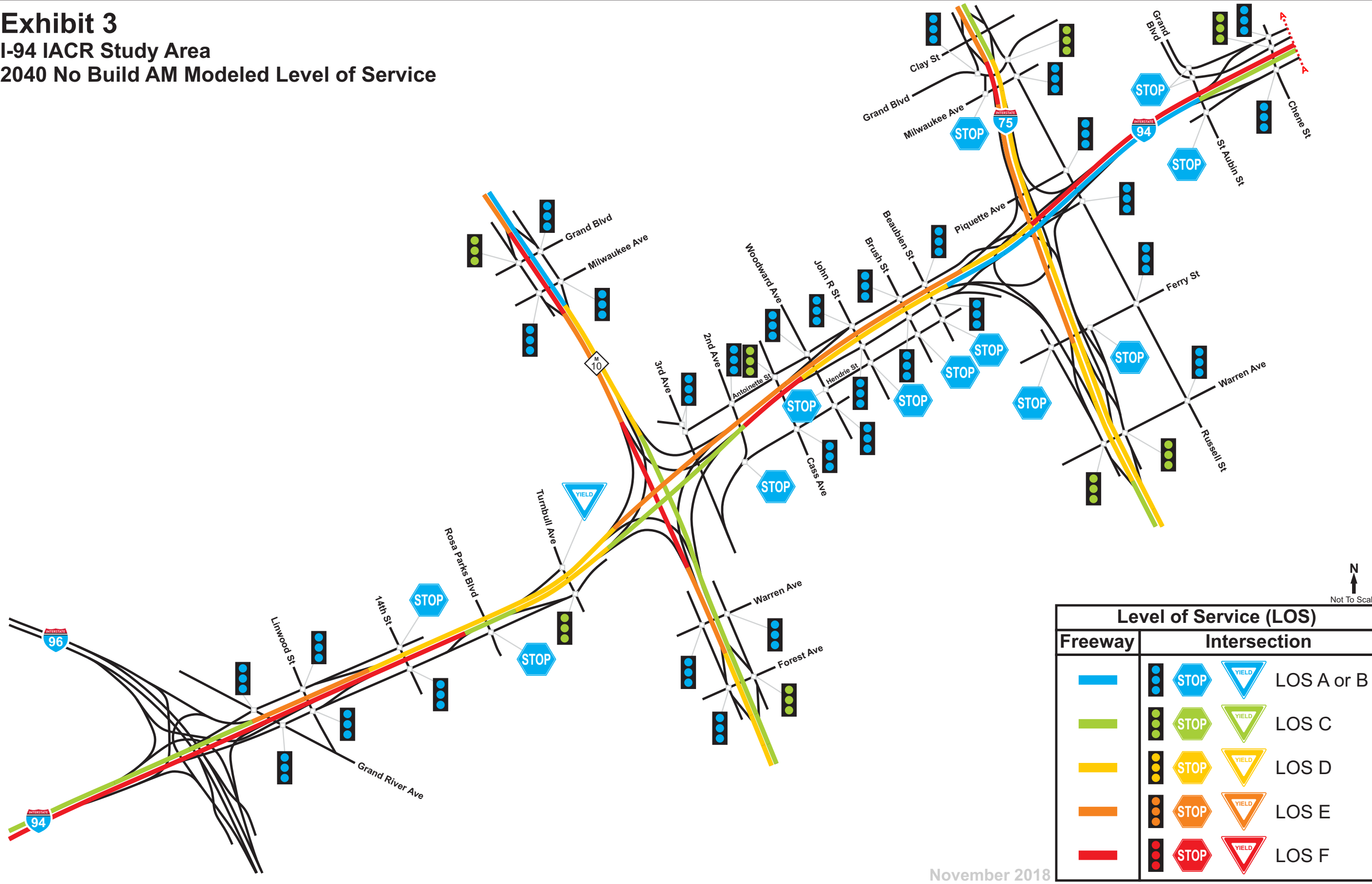
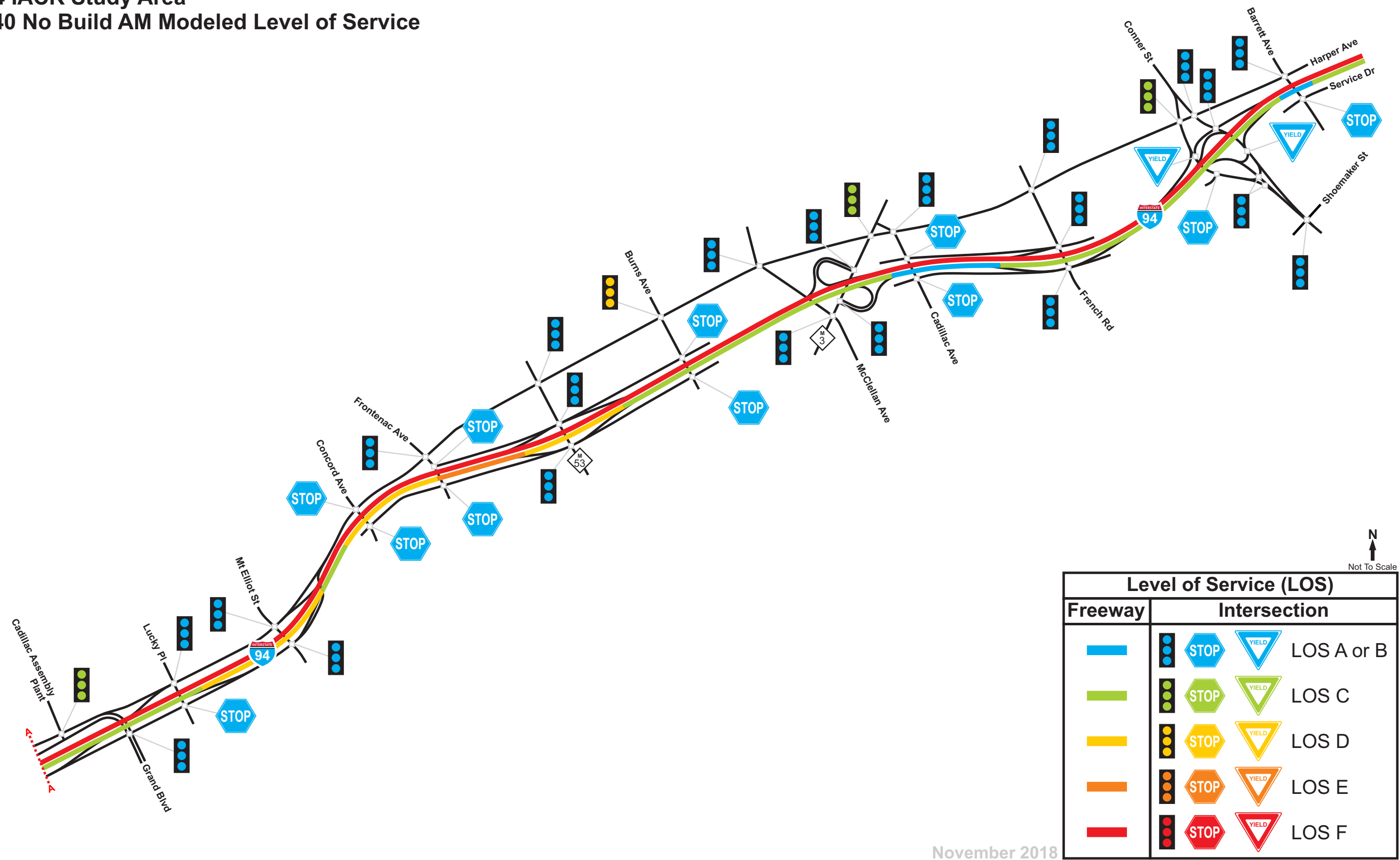


Exhibit 3
I-94 IACR Study Area
2040 No Build AM Modeled Level of Service



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Exhibit 4 I-94 IACR Study Area 2040 No Build PM Modeled Level of Service

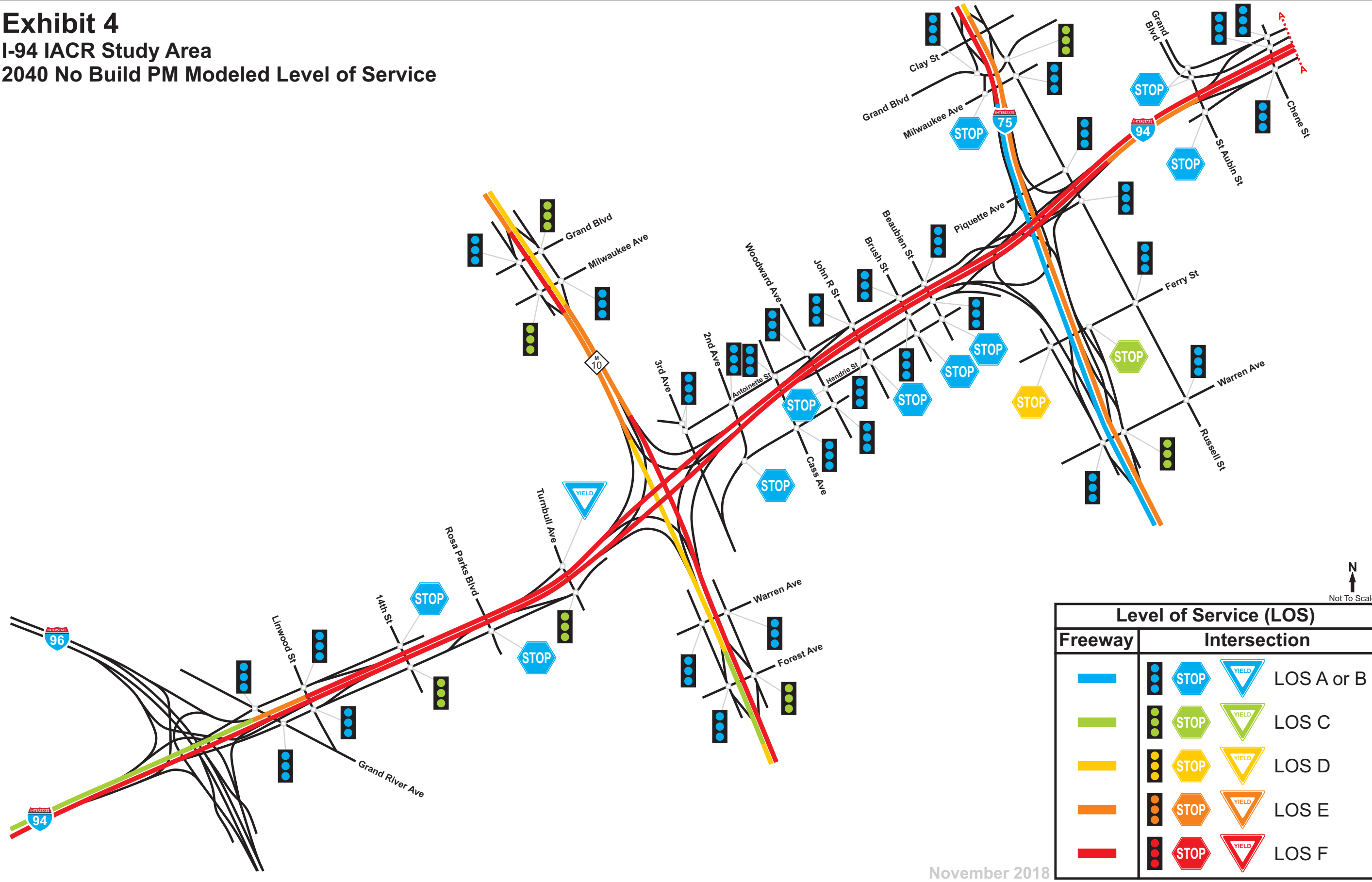
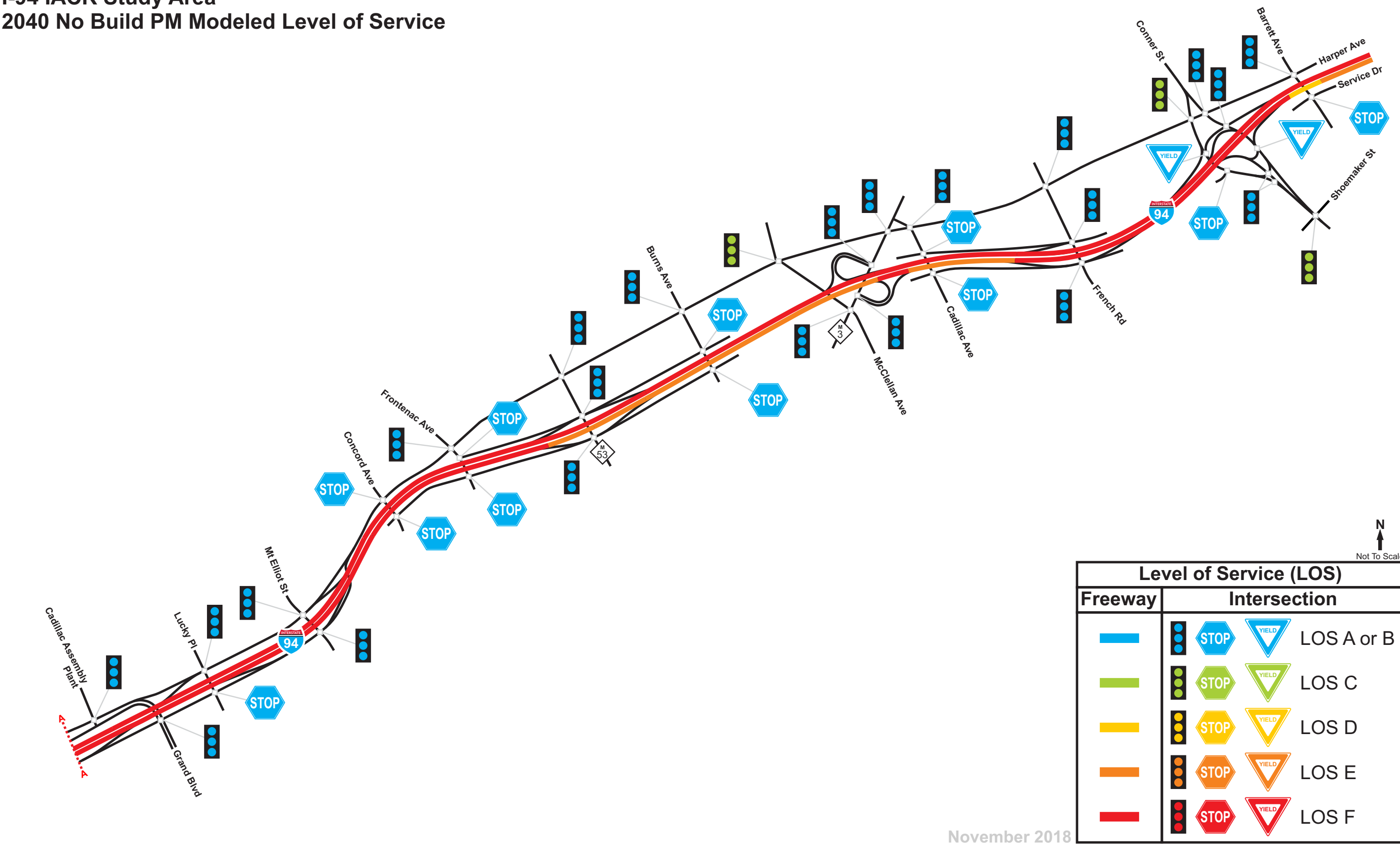


Exhibit 4 I-94 IACR Study Area 2040 No Build PM Modeled Level of Service



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Table G: Existing vs. No-Build LOS

Segment	Segment Type	Existing AM Peak		No Build AM Peak		Existing PM Peak		No Build PM Peak	
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS
Eastbound I-94									
Grand Blvd Entr Ramp to I-96 Exit Ramp	Weave	45.3	F	69.5	F	27.5	C	71.0	F
Grand River Ave Exit Ramp	Ramp	53.4	F	82.4	F	26.8	C	88.4	F
Grand River Ave Exit Ramp to I-96 S-E Entr Ramp	Basic	84.3	F	125.5	F	38.5	E	124.6	F
I-96 S-E Entr Ramp	Ramp	95.7	F	114.9	F	55.0	F	127.0	F
I-94 N-E Entr Ramp	Ramp	59.2	F	67.5	F	52.0	F	85.1	F
Linwood St Entr Ramp	Ramp	47.7	F	51.9	F	53.8	F	82.5	F
14th St Entr Ramp to Trumbull Ave Exit Ramp	Weave	25.5	C	25.4	C	41.4	E	56.5	F
M-10 Exit Ramps	Ramp	26.5	C	28.6	D	55.6	F	83.6	F
M-10 Exit Ramps to M-10 Entr Ramps	Basic	20.1	C	24.7	C	46.6	F	69.4	F
M-10 Entr Ramps to John R St Exit Ramp	Ramp*	37.5	E	44.6	F	56.9	F	59.2	F
John R St Exit Ramp to I-75 Exit Ramp	Basic	29.6	D	31.2	D	62.6	F	62.0	F
I-75 Exit Ramp	Ramp	28.4	D	30.3	D	95.3	F	98.4	F
I-75 Exit Ramp to Beaubien St Entr Ramp	Basic	14.7	B	17.3	B	102.2	F	81.6	F
Beaubien St Entr Ramp to Russell St Exit Ramp	Weave	13.0	B	14.3	B	92.5	F	71.3	F
Russell St Exit Ramp to I-75 Entr Ramp	Basic	15.2	B	17.4	B	74.9	F	72.9	F
I-75 Entr Ramp to Chene St Exit Ramp	Weave	15.9	B	18.1	B	27.1	C	35.4	E
Chene St Exit Ramp to Chene St Entr Ramp	Basic	21.3	C	23.7	C	32.0	D	71.3	F
Chene St Entr Ramp to Mt Elliott St Exit Ramp	Weave	16.8	B	21.2	C	45.2	F	72.2	F
Mt Elliott St Exit Ramp to Mt Elliott St Entr Ramp	Basic	22.9	C	29.4	D	45.3	F	53.3	F
Mt Elliott St Entr Ramp	Ramp	21.4	C	25.2	C	38.6	E	46.6	F
Mt Elliott St Entr Ramp to M-53 Exit Ramp	Basic	22.9	C	28.1	D	43.8	E	52.4	F
M-53 Exit Ramp	Ramp	28.4	D	37.8	E	58.4	F	69.5	F
M-53 Exit Ramp to M-53 Entr Ramp	Basic	24.9	C	29.5	D	38.9	E	42.7	E
M-53 Entr Ramp to Gratiot Ave Exit Ramp	Ramp*	19.6	B	23.1	C	29.7	D	38.5	E
Gratiot Ave Exit Ramp To Gratiot Ave Entr Ramp	Basic	20.3	C	21.1	C	39.1	E	56.0	F
Gratiot Ave Entr Ramp to French Rd Exit Ramp	Ramp*	17.6	B	18.7	B	32.3	D	42.8	E
French Rd Exit Ramp to French Rd Entr Ramp	Basic	20.2	C	23.0	C	39.6	E	52.3	F
French Rd Entr Ramp to Conner St Exit Ramp	Ramp*	18.7	B	21.0	C	31.6	D	53.0	F
Conner St Exit Ramp to Conner St Entr Ramp	Basic	17.2	B	19.4	C	41.3	E	68.6	F
Conner St Entr Ramp	Ramp	17.1	B	19.6	B	32.7	D	34.1	D
East of Conner St Entr Ramp	Basic	17.6	B	20.2	C	35.3	E	37.4	E
Westbound I-94									
East of Conner St Exit Ramp	Basic	33.9	D	79.7	F	21.2	C	125.6	F
Conner St Exit Ramp	Ramp	36.1	E	85.2	F	21.0	C	130.6	F
Conner St Exit Ramp to Conner St Entr Ramp	Basic	46.5	F	95.2	F	19.2	C	136.9	F
NB & SB Conner St Entr Ramps	Ramp	41.8	E	74.3	F	20.4	C	125.2	F
SB Conner St Entr Ramp to French Rd Entr Ramp	Basic	37.1	E	53.5	F	21.7	C	113.5	F
French Rd Entr Ramp to Gratiot Ave Exit Ramp	Ramp*	42.3	E	62.5	F	24.8	C	121.8	F
Gratiot Ave Exit Ramp to Gratiot Ave Entr Ramp	Basic	42.1	E	61.5	F	25.0	C	115.2	F
Gratiot Ave Entr Ramp to M-53 Exit Ramp	Ramp*	41.9	E	60.4	F	25.3	C	108.6	F
M-53 Exit Ramp to M-53 Entr Ramp	Basic	47.5	F	73.2	F	26.0	C	123.1	F
M-53 Entr Ramp	Ramp	47.4	F	64.5	F	26.7	C	113.1	F
M-53 Entr Ramp to Mt Elliott St Exit Ramp	Basic	47.2	F	55.7	F	27.3	D	103.0	F
Mt Elliott St Exit Ramp	Ramp	46.1	F	54.8	F	26.2	C	105.1	F
Mt Elliott St Exit Ramp to Harper Ave Entr Ramp	Basic	50.4	F	62.8	F	26.4	D	118.2	F
Harper Ave Entr Ramp	Ramp	52.2	F	61.6	F	26.8	C	109.3	F
Harper Ave Entr Ramp to Chene St Entr Ramp	Basic	54.0	F	60.4	F	27.2	D	100.4	F
Chene St Entr Ramp to I-75 Exit Ramp	Weave	40.0	E	43.9	F	24.1	C	63.2	F
I-75 Exit Ramp to Beaubien St Exit Ramp	Basic	41.1	E	45.5	F	21.5	C	69.4	F
Beaubien St Exit Ramp	Ramp	32.7	D	30.6	D	21.3	C	61.9	F
Beaubien St Exit Ramp to I-75 Entr Ramp	Basic	29.5	D	26.1	D	20.5	C	69.4	F
I-75 Entr Ramp	Ramp	41.1	E	35.3	E	31.6	D	109.5	F
I-75 Entr Ramp to John R St Entr Ramp	Basic	46.5	F	38.3	E	41.7	E	120.0	F
John R St Entr Ramp to M-10 Exit Ramps	Ramp*	43.5	F	39.3	E	46.0	F	82.5	F
M-10 Exit Ramps to M-10 Entr Ramps	Basic	26.2	D	36.3	E	59.8	F	89.7	F
M-10 Entr Ramps	Ramp	24.5	C	29.7	D	68.1	F	79.2	F
Trumbull Ave Entr Ramp to Linwood St Exit Ramp	Ramp*	31.1	D	33.4	D	46.7	F	49.5	F
Linwood St Exit Ramp to I-96 Exit Ramp	Basic	34.9	D	36.7	E	50.6	F	52.5	F
I-96 Exit Ramp	Ramp	33.9	D	35.9	E	40.1	E	41.4	E
I-96 Exit Ramp to Grand River Ave Entr Ramp	Basic	21.1	C	23.1	C	21.6	C	23.5	C
Grand River Ave Entr Ramp	Ramp	21.6	C	23.6	C	22.5	C	24.4	C
I-96 Entr Ramp to Grand Blvd Exit Ramp	Weave	20.2	C	22.1	C	23.1	C	24.5	C
Northbound M10									
South of Forest Ave Exit Ramp	Basic	16.8	B	21.8	C	26.1	D	74.8	F
Forest Ave Exit Ramp	Ramp	17.3	B	22.4	C	26.8	C	77.6	F
Forest Ave Exit Ramp to Forest Ave Entr Ramp	Basic	13.6	B	18.2	C	23.5	C	81.1	F
Forest Ave Entr Ramp to I-94 S-E Exit Ramp	Weave	14.3	B	20.2	C	29.9	D	64.6	F
I-94 S-W Exit Ramp	Ramp	15.0	B	21.5	C	30.7	D	59.6	F
I-94 S-W Exit Ramp to I-94 E-N Entr Ramp	Basic	12.9	B	21.5	C	25.2	C	80.3	F
I-94 E-N Entr Ramp to I-94 W-N Entr Ramp	Basic	16.2	B	28.1	D	33.0	D	96.4	F
I-94 W-N Entr Ramp to Milwaukee Ave Exit Ramp	Weave	18.2	B	30.3	D	32.8	D	42.9	E
Milwaukee Ave Exit Ramp to Grand Blvd Entr Ramp	Basic	15.4	B	17.6	B	28.3	D	31.3	D
North of Grand Blvd Entr Ramp	Basic	13.5	B	15.7	B	27.4	D	27.4	D
Southbound M10									
North of Grand Blvd Exit Ramp	Basic	25.1	C	43.7	E	17.0	B	36.8	E
Grand Blvd Exit Ramp to Milwaukee Ave Entr Ramp	Basic	32.1	D	51.2	F	20.2	C	45.4	F
Milwaukee Ave Entr Ramp to I-94 N-W Exit Ramp	Weave	25.2	C	41.4	E	19.7	B	38.7	E
I-94 N-E Exit Ramp	Ramp	30.1	D	57.5	F	20.4	C	37.2	E
I-94 N-E Exit Ramp to I-94 Entr Ramps	Basic	27.1	D	45.4	F	16.6	B	32.5	D
I-94 Entr Ramps to Forest Ave Exit Ramp	Weave	30.7	D	40.1	E	17.6	B	30.6	D
Forest Ave Exit Ramp to Forest Ave Entr Ramp	Basic	26.5	D	31.2	D	16.7	B	25.9	C
Forest Ave Entr Ramp	Ramp	27.8	C	33.0	D	18.6	B	26.8	C
South of Forest Ave Entr Ramp	Basic	27.9	D	33.1	D	18.7	C	26.9	D
Northbound I-75									
South of Warren Ave Exit Ramp	Basic	15.1	B	27.2	D	18.2	C	40.3	E
Warren Ave Exit Ramp to I-94 Exit Ramps	Basic	20.7	C	30.3	D	23.9	C	36.5	E
I-94 Exit Ramps to Warren Ave Entr Ramp	Basic	20.9	C	27.4	D	25.6	C	37.4	E
Warren Ave Entr Ramp	Ramp	22.4	C	28.8	D	27.5	C	38.2	E
Warren Ave Entr Ramp to I-94 E-N Entr Ramp	Basic	22.2	C	28.7	D	29.3	D	41.5	E
I-94 E-N Entr Ramp to I-94 W-N Entr Ramp	Basic	24.0	C	30.1	D	29.4	D	38.9	E
I-94 W-N Entr Ramp to Clay St Exit Ramp	Ramp*	26.5	C	34.0	D	32.7	D	40.9	E
Clay St Exit Ramp to Clay St Entr Ramp	Basic	18.8	C	23.0	C	28.3	D	36.4	E
North of Clay St Entr Ramp	Basic	15.8	B	19.3	C	25.0	C	31.5	D
Southbound I-75									
North of Clay St Exit Ramp	Basic	30.3	D	35.2	E	20.7	C	72.3	F
Clay St Exit Ramp to Clay St Entr Ramp	Basic	36.6	E	39.6	E	27.3	D	107.2	F
Clay St Entr Ramp to I-94 Exit Ramps	Weave	41.0	E	43.2	F	38.1	E	65.1	F
I-94 Exit Ramps to Warren Ave Exit Ramp	Basic	39.0	E	39.1	E	24.2	C	14.8	B
Warren Ave Exit Ramp	Ramp	35.3	E	36.4	E	24.0	C	14.5	B
Warren Ave Exit Ramp to I-94 Entr Ramps	Basic	25.9	C	28.3	D	20.0	C	12.5	B
I-94 Entr Ramps to Warren Ave Entr Ramp	Basic	27.7	D	28.4	D	19.6	C	12.8	B
South of Warren Ave Entr Ramp	Basic	22.6	C	23.2	C	16.9	B	11.9	B

*Overlapping ramp segment
Source: Paramics

Exhibit 5 I-94 IACR Study Area 2040 Build AM Modeled Level of Service

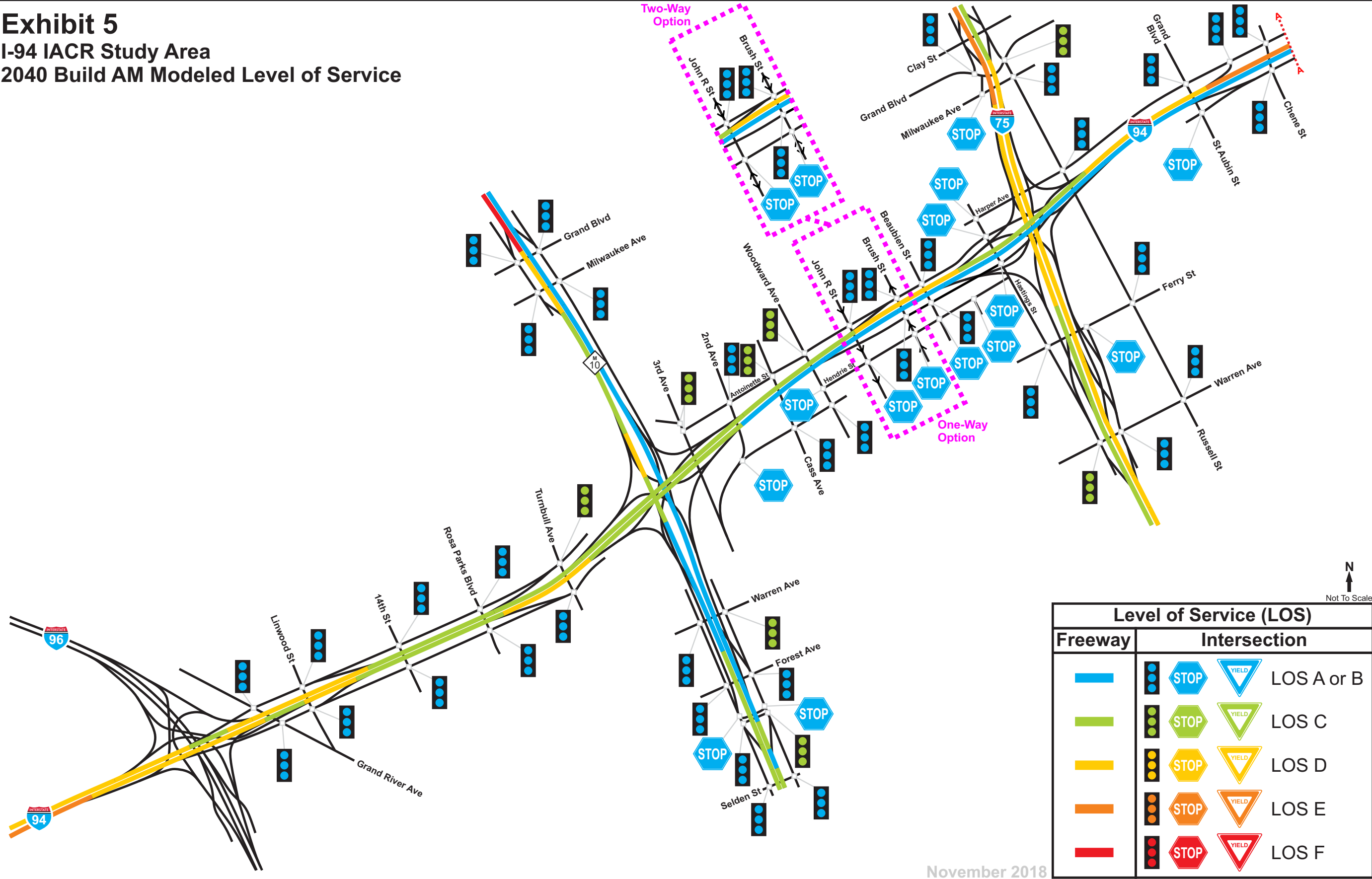
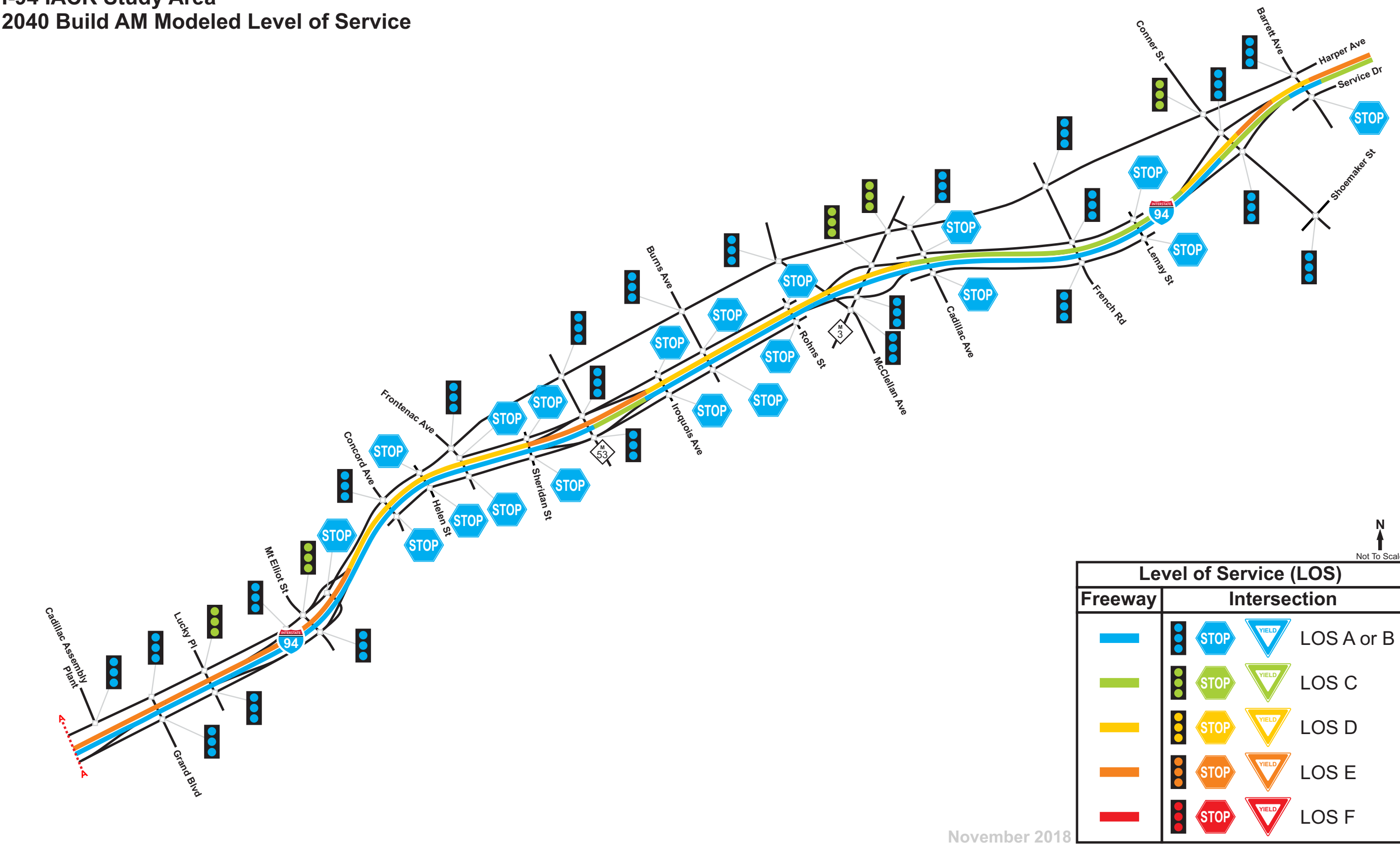


Exhibit 5 I-94 IACR Study Area 2040 Build AM Modeled Level of Service



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Exhibit 6 I-94 IACR Study Area 2040 Build PM Modeled Level of Service

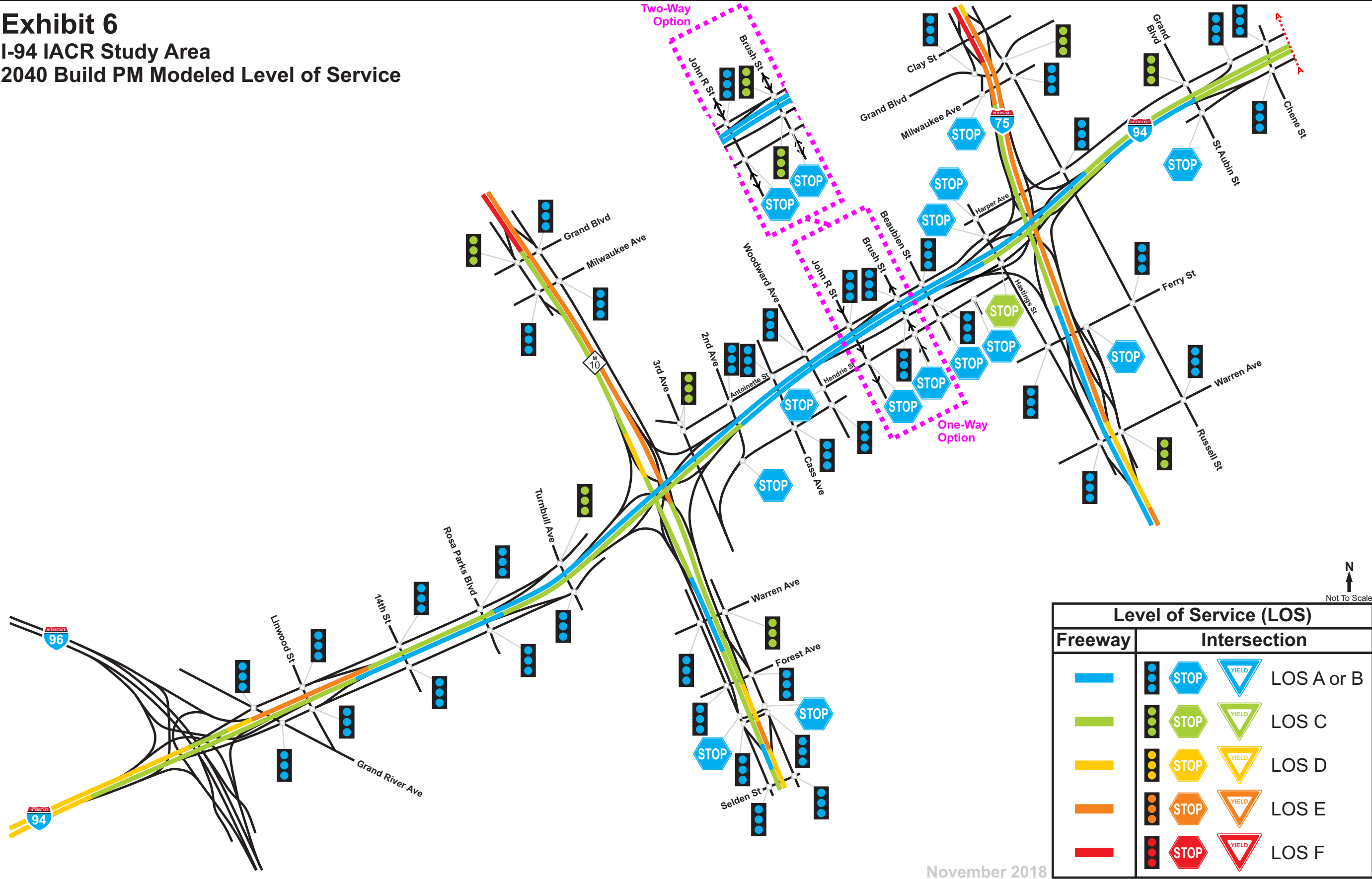


Exhibit 6 I-94 IACR Study Area 2040 Build PM Modeled Level of Service

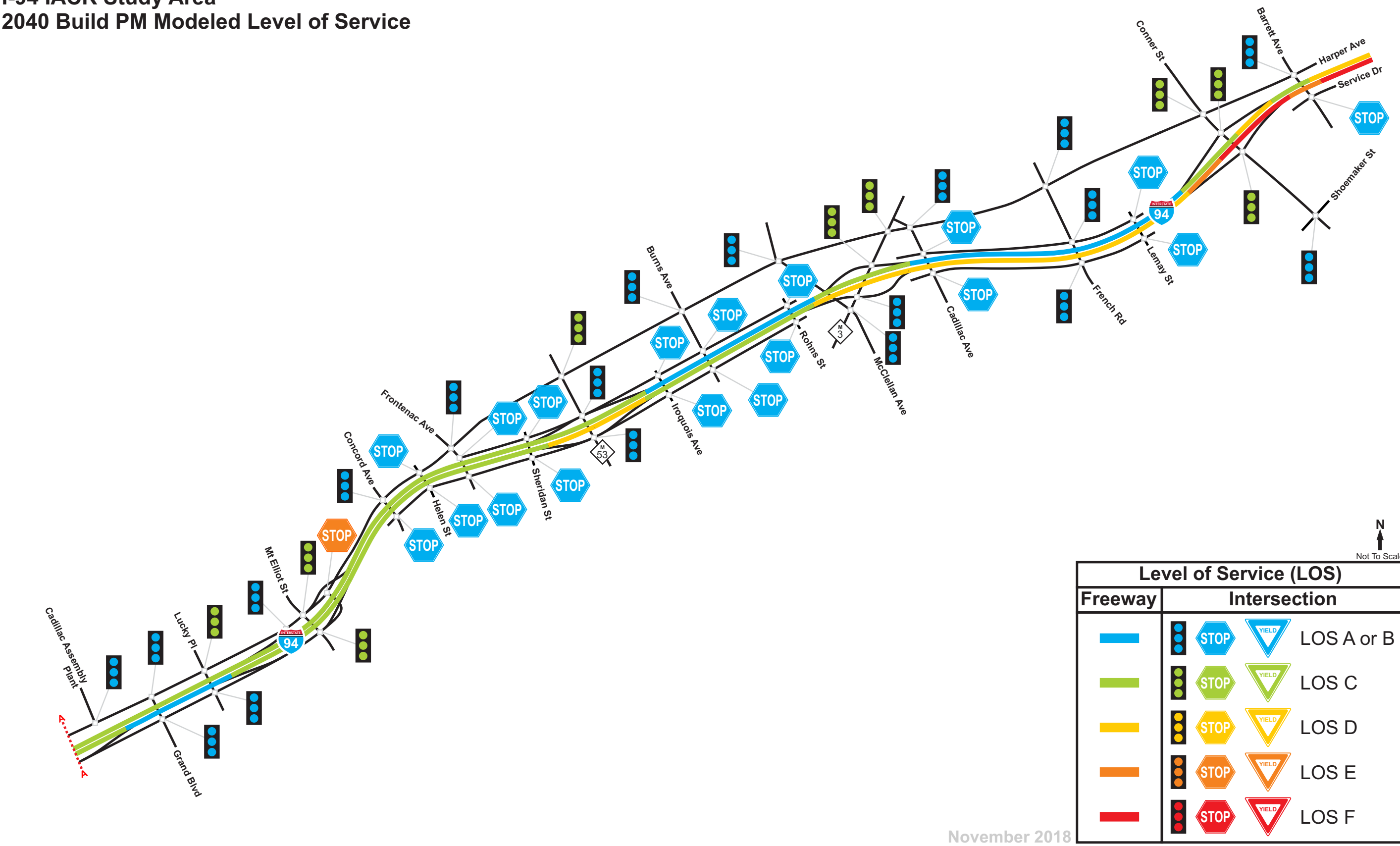


Table Q: Build Alternative vs. No-Build Alternative LOS

No-Build Alternative						Build Alternative					
Segment	Segment Type	AM Peak		PM Peak		Segment	Segment Type	AM Peak		PM Peak	
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS			Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS
Eastbound I-94											
Grand Blvd Entr Ramp to I-96 Exit Ramp	Weave	69.5	F	71.0	F	Grand Blvd Entr Ramp to I-96 Exit Ramp	Weave	36.3	E	35.0	D
Grand River Ave Exit Ramp	Ramp	82.4	F	88.4	F	Grand River Ave Exit Ramp	Ramp	29.8	D	26.7	C
Grand River Ave Exit Ramp to I-96 S-E Entr Ramp	Basic	125.5	F	124.6	F	Grand River Ave Exit Ramp to I-96 S-E Entr Ramp	Basic	29.6	D	25.3	C
I-96 S-E Entr Ramp	Ramp	114.9	F	127.0	F	I-96 S-E Entr Ramp to I-96 N-E Entr Ramp	Basic	25.8	C	20.2	C
I-94 N-E Entr Ramp	Ramp	67.5	F	85.1	F	I-96 N-E Entr Ramp to Linwood St Entr Ramp	Basic	28.1	D	20.4	C
Linwood St Entr Ramp	Ramp	51.9	F	82.5	F	Linwood St Entr Ramp to Trumbull Ave Exit Ramp	Weave	24.6	C	17.0	B
14th St Entr Ramp to Trumbull Ave Exit Ramp	Weave	25.4	C	56.5	F	Trumbull Ave Exit Ramp to M-10 Exit Ramps	Basic	26.8	D	18.5	C
M-10 Exit Ramps	Ramp	28.6	D	83.6	F	M-10 Exit Ramps to M-10 Entr Ramps	Basic	21.4	C	19.4	C
M-10 Exit Ramps to M-10 Entr Ramps	Basic	24.7	C	69.4	F	M-10 Entr Ramps to Brush St Exit Ramp	Weave	16.3	B	15.2	B
M-10 Entr Ramps to John R St Exit Ramp	Ramp*	44.6	F	59.2	F	Brush St Exit Ramp to I-75 Exit Ramps	Basic	15.9	B	13.7	B
John R St Exit Ramp to I-75 Exit Ramp	Basic	31.2	D	62.0	F	I-75 Exit Ramps to Lane Merge	Basic	11.6	B	13.2	B
I-75 Exit Ramp	Ramp	30.3	D	98.4	F	Lane Merge to Hastings St Entr Ramp	Basic	13.9	B	21.6	C
I-75 Exit Ramp to Beaubien St Entr Ramp	Basic	17.3	B	81.6	F	Hastings St Entr Ramp	Ramp	14.9	B	23.9	C
Beaubien St Entr Ramp to Russell St Exit Ramp	Weave	14.3	B	71.3	F	I-75 Entr Ramps to Chene St Exit Ramp	Weave	13.7	B	19.3	B
Russell St Exit Ramp to I-75 Entr Ramp	Basic	17.4	B	72.9	F	Chene St Exit Ramp to Chene St Entr Ramp	Basic	16.3	B	20.1	C
I-75 Entr Ramp to Chene St Exit Ramp	Weave	18.1	B	35.4	E	Chene St Entr Ramp to Mt Elliott St Exit Ramp	Weave	14.0	B	18.9	B
Chene St Exit Ramp to Chene St Entr Ramp	Basic	23.7	C	71.3	F	Mt Elliott St Exit Ramp to Mt Elliott St Entr Ramp	Basic	16.4	B	22.8	C
Chene St Entr Ramp to Mt Elliott St Exit Ramp	Weave	21.2	C	72.2	F	Mt Elliott St Entr Ramp to M-53 Exit Ramp	Weave	13.5	B	20.3	C
Mt Elliott St Exit Ramp to Mt Elliott St Entr Ramp	Basic	29.4	D	53.3	F	M-53 Exit Ramp to Lane Merge	Basic	15.6	B	30.0	D
Mt Elliott St Entr Ramp	Ramp	25.2	C	46.6	F	Lane Merge to M-53 Entr Ramp	Basic	19.4	C	28.2	D
Mt Elliott St Entr Ramp to M-53 Exit Ramp	Basic	28.1	D	52.4	F	M-53 Entr Ramp to Gratiot St Exit Ramp	Weave	15.8	B	23.6	C
M-53 Exit Ramp	Ramp	37.8	E	69.5	F	Gratiot St Exit Ramp to Gratiot St Entr Ramp	Basic	16.9	B	28.3	D
M-53 Exit Ramp to M-53 Entr Ramp	Basic	29.5	D	42.7	E	Gratiot St Entr Ramp to Conner St Exit Ramp	Weave	13.9	B	29.8	D
M-53 Entr Ramp to Gratiot Ave Exit Ramp	Ramp*	23.1	C	38.5	E	Conner St Exit Ramp to Lane Merge	Basic	15.8	B	37.8	E
Gratiot Ave Exit Ramp To Gratiot Ave Entr Ramp	Basic	21.1	C	56.0	F	Lane Merge to Conner St Entr Ramp	Basic	20.8	C	52.1	F
Gratiot Ave Entr Ramp to French Rd Exit Ramp	Ramp*	18.7	B	42.8	E	Conner St Entr Ramp	Ramp	16.2	B	40.9	E
French Rd Exit Ramp to French Rd Entr Ramp	Basic	23.0	C	52.3	F	East of Conner St Entr Ramp	Basic	22.5	C	50.9	F
French Rd Entr Ramp to Conner St Exit Ramp	Ramp*	21.0	C	53.0	F						
Conner St Exit Ramp to Conner St Entr Ramp	Basic	19.4	C	68.6	F						
Conner St Entr Ramp	Ramp	19.6	B	34.1	D						
East of Conner St Entr Ramp	Basic	20.2	C	37.4	E						
Westbound I-94											
East of Conner St Exit Ramp	Basic	79.7	F	125.6	F	East of Conner St Exit Ramp	Basic	43.2	E	30.9	D
Conner St Exit Ramp	Ramp	85.2	F	130.6	F	Conner St Exit Ramp	Ramp	34.0	D	24.3	C
Conner St Exit Ramp to Conner St Entr Ramp	Basic	95.2	F	136.9	F	Conner St Exit Ramp to Lane Add	Basic	39.3	E	27.2	D
NB & SB Conner St Entr Ramps	Ramp	74.3	F	125.2	F	Lane Add to Conner St Entr Ramp	Basic	31.1	D	21.0	C
SB Conner St Entr Ramp to French Rd Entr Ramp	Basic	53.5	F	113.5	F	Conner St Entr Ramp to Gratiot St Exit Ramp	Weave	25.1	C	16.3	B
French Rd Entr Ramp to Gratiot Ave Exit Ramp	Ramp*	62.5	F	121.8	F	Gratiot St Exit Ramp to Gratiot St Entr Ramp	Basic	32.7	D	20.5	C
Gratiot Ave Exit Ramp to Gratiot Ave Entr Ramp	Basic	61.5	F	115.2	F	Gratiot St Entr Ramp to M-53 Exit Ramp	Weave	32.5	D	19.9	B
Gratiot Ave Entr Ramp to M-53 Exit Ramp	Ramp*	60.4	F	108.6	F	M-53 Exit Ramp to M-53 Entr Ramp	Basic	41.1	E	24.5	C
M-53 Exit Ramp to M-53 Entr Ramp	Basic	73.2	F	123.1	F	M-53 Entr Ramp to Mt Elliott St Exit Ramp	Weave	34.1	D	20.5	C
M-53 Entr Ramp	Ramp	64.5	F	113.1	F	Mt Elliott St Exit Ramp to Mt Elliott St Entr Ramp	Basic	44.1	E	24.4	C
M-53 Entr Ramp to Mt Elliott St Exit Ramp	Basic	55.7	F	103.0	F	Mt Elliott St Entr Ramp	Ramp	38.2	E	24.4	C
Mt Elliott St Exit Ramp	Ramp	54.8	F	105.1	F	Mt Elliott St Entr Ramp to Chene St Entr Ramp	Basic	43.0	E	25.7	C
Mt Elliott St Exit Ramp to Harper Ave Entr Ramp	Basic	62.8	F	118.2	F	Chene St Entr Ramp to I-75 Exit Ramps	Weave	28.7	D	21.5	C
Harper Ave Entr Ramp	Ramp	61.6	F	109.3	F	Hastings St Exit Ramp	Ramp	27.3	C	18.3	B
Harper Ave Entr Ramp to Chene St Entr Ramp	Basic	60.4	F	100.4	F	Hastings St Exit Ramp to I-75 Entr Ramps	Basic	24.7	C	16.1	B
Chene St Entr Ramp to I-75 Exit Ramp	Weave	43.9	F	63.2	F	I-75 Entr Ramps	Ramp	30.5	D	14.3	B
I-75 Exit Ramp to Beaubien St Exit Ramp	Basic	45.5	F	69.4	F	Brush St Entr Ramp to M-10 Exit Ramps	Weave	26.4	C	18.7	B
Beaubien St Exit Ramp	Ramp	30.6	D	61.9	F	M-10 Exit Ramps to M-10 Entr Ramps	Basic	24.3	C	17.8	B
Beaubien St Exit Ramp to I-75 Entr Ramp	Basic	26.1	D	69.4	F	M-10 Entr Ramps	Ramp	23.5	C	19.3	B
I-75 Entr Ramp	Ramp	35.3	E	109.5	F	Trumbull Ave Entr Ramp to Linwood St Exit Ramp	Weave	22.2	C	23.2	C
I-75 Entr Ramp to John R St Entr Ramp	Basic	38.3	E	120.0	F	Linwood St Exit Ramp to I-96 Exit Ramps	Basic	34.2	D	35.3	E
John R St Entr Ramp to M-10 Exit Ramps	Ramp*	39.3	E	82.5	F	I-96 Exit Ramps to Lane Merge	Basic	27.6	D	33.5	D
M-10 Exit Ramps to M-10 Entr Ramps	Basic	36.3	E	89.7	F	Lane Merge to Grand River Ave Entr Ramp	Basic	21.8	C	23.7	C
M-10 Entr Ramps	Ramp	29.7	D	79.2	F	Grand River Ave Entr Ramp	Ramp	30.2	D	32.6	D
Trumbull Ave Entr Ramp to Linwood St Exit Ramp	Ramp*	33.4	D	49.5	F	I-96 Entr Ramp to Grand Blvd Exit Ramp	Weave	29.4	D	30.9	D
Linwood St Exit Ramp to I-96 Exit Ramp	Basic	36.7	E	52.5	F						
I-96 Exit Ramp	Ramp	35.9	E	41.4	E						
I-96 Exit Ramp to Grand River Ave Entr Ramp	Basic	23.1	C	23.5	C						
Grand River Ave Entr Ramp	Ramp	23.6	C	24.4	C						
I-96 Entr Ramp to Grand Blvd Exit Ramp	Weave	22.1	C	24.5	C						
Northbound M10											
South of Forest Ave Exit Ramp	Basic	21.8	C	74.8	F	South of Forest Ave Exit Ramp	Basic	21.3	C	34.1	D
Forest Ave Exit Ramp	Ramp	22.4	C	77.6	F	Forest Ave Exit Ramp	Ramp	17.6	B	30.1	D
Forest Ave Exit Ramp to Forest Ave Entr Ramp	Basic	18.2	C	81.1	F	Forest Ave Exit Ramp to I-94 Exit Ramps	Basic	19.0	C	37.4	E
Forest Ave Entr Ramp to I-94 S-E Exit Ramp	Weave	20.2	C	64.6	F	I-94 Exit Ramps	Ramp	16.9	B	29.4	D
I-94 S-W Exit Ramp	Ramp	21.5	C	59.6	F	I-94 Exit Ramps to Forest Ave Entr Ramp	Basic	14.0	B	21.8	C
I-94 S-W Exit Ramp to I-94 E-N Entr Ramp	Basic	21.5	C	80.3	F	Forest Ave Entr Ramp to Milwaukee Ave Exit Ramp	Weave	12.7	B	25.2	C
I-94 E-N Entr Ramp to I-94 W-N Entr Ramp	Basic	28.1	D	96.4	F	Milwaukee Ave Exit Ramp to I-94 Entr Ramps	Basic	10.5	A	43.1	E
I-94 W-N Entr Ramp to Milwaukee Ave Exit Ramp	Weave	30.3	D	42.9	E	I-94 Entr Ramps	Ramp	11.9	B	41.4	E
Milwaukee Ave Exit Ramp to Grand Blvd Entr Ramp	Basic	17.6	B	31.3	D	I-94 Entr Ramps to Grand Blvd Entr Ramp	Basic	15.1	B	36.0	E
North of Grand Blvd Entr Ramp	Basic	15.7	B	27.4	D	North of Grand Blvd Entr Ramp	Basic	15.2	B	35.3	E
Southbound M10											
North of Grand Blvd Exit Ramp	Basic	43.7	E	36.8	E	North of Grand Blvd Exit Ramp	Basic	46.1	F	51.9	F
Grand Blvd Exit Ramp to Milwaukee Ave Entr Ramp	Basic	51.2	F	45.4	F	Grand Blvd Exit Ramp to Lane Add	Basic	48.2	F	51.7	F
Milwaukee Ave Entr Ramp to I-94 N-W Exit Ramp	Weave	41.4	E	38.7	E	Lane Add to Milwaukee Ave Entr Ramp	Basic	27.1	D	24.7	C
I-94 N-E Exit Ramp	Ramp	57.5	F	37.2	E	Milwaukee Ave Entr Ramp to I-94 Exit Ramps	Weave	23.4	C	24.0	C
I-94 N-E Exit Ramp to I-94 Entr Ramps	Basic	45.4	F	32.5	D	I-94 Exit Ramps to Forest Ave Exit Ramp	Basic	30.5	D	29.2	D
I-94 Entr Ramps to Forest Ave Exit Ramp	Weave	40.1	E	30.6	D	Forest Ave Exit Ramp	Ramp	23.0	C	22.5	C
Forest Ave Exit Ramp to Forest Ave Entr Ramp	Basic	31.2	D	25.9	C	Forest Ave Exit Ramp to I-94 Entr Ramps	Basic	17.2	B	20.9	C
Forest Ave Entr Ramp	Ramp	33.0	D	26.8	C	I-94 Entr Ramps	Ramp	17.8	B	16.1	B
South of Forest Ave Entr Ramp	Basic	33.1	D	26.9	D	I-94 Entr Ramps to Forest Ave Entr Ramp	Basic	22.2	C	20.4	C
						Forest Ave Entr Ramp	Ramp	21.8	C	19.7	B
						South of Forest Ave Entr Ramp	Basic	22.8	C	20.7	C
Northbound I-75											
South of Warren Ave Exit Ramp	Basic	27.2	D	40.3	E	South of Warren Ave Exit Ramp	Basic	26.2	D	36.7	E
Warren Ave Exit Ramp to I-94 Exit Ramps	Basic	30.3	D	36.5	E	Warren Ave Exit Ramp to I-94 Exit Ramps	Basic	30.1	D	34.3	D
I-94 Exit Ramps to Warren Ave Entr Ramp	Basic	27.4	D	37.4	E	I-94 Exit Ramps to Warren Ave Entr Ramp	Basic	27.4	D	32.2	D
Warren Ave Entr Ramp	Ramp	28.8	D	38.2	E	Warren Ave Entr Ramp	Ramp	28.9	D	39.1	E
Warren Ave Entr Ramp to I-94 E-N Entr Ramp	Basic	28.7	D	41.5	E	Warren Ave Entr Ramp to I-94 Entr Ramps	Basic	30.9	D	41.8	E
I-94 E-N Entr Ramp to I-94 W-N Entr Ramp	Basic	30.1	D	38.9	E	I-94 Entr Ramps to Clay St Exit Ramp	Weave	28.4	D	37.3	E
I-94 W-N Entr Ramp to Clay St Exit Ramp	Ramp*	34.0	D	40.9	E	Clay St Exit Ramp to Clay St Entr Ramp	Basic	25.1	C	39.1	E
Clay St Exit Ramp to Clay St Entr Ramp	Basic	23.0	C	36.4	E	North of Clay St Entr Ramp	Basic	20.9	C	33.0	D
North of Clay St Entr Ramp	Basic	19.3	C	31.5	D						
Southbound I-75											
North of Clay St Exit Ramp	Basic	35.2	E	72.3	F	North of Clay St Exit Ramp	Basic	39.7	E	64.3	F
Clay St Exit Ramp to Clay St Entr Ramp	Basic	39.6	E	107.2	F	Clay St Exit Ramp to Clay St Entr Ramp	Basic	44.2	E	66.3	F
Clay St Entr Ramp to I-94 Exit Ramps	Weave	43.2	F	65.1	F	Clay St Entr Ramp to I-94 Exit Ramps	Weave	42.8	E	41.5	E
I-94 Exit Ramps to Warren Ave Exit Ramp	Basic	39.1	E	14.8	B	I-94 Exit Ramps to Warren Ave Exit Ramp	Basic	30.0	D	20.2	C
Warren Ave Exit Ramp	Ramp	36.4	E	14.5	B	Warren Ave Exit Ramp	Ramp	25.8	C	17.5	B
Warren Ave Exit Ramp to I-94 Entr Ramps	Basic	28.3	D	12.5	B	Warren Ave Exit Ramp to I-94 Entr Ramps	Basic	20.3	C	16.0	B
I-94 Entr Ramps to Warren Ave Entr Ramp	Basic	28.4	D	12.8	B	I-94 Entr Ramps to Warren Ave Entr Ramp	Basic	25.1	C	17.9	B
South of Warren Ave Entr Ramp	Basic	23.2	C	11.9	B	South of Warren Ave Entr Ramp	Basic	20.5	C	16.0	B

*Overlapping ramp segment

Source: Paramics