Development of a Guideline for Work Zone Diversion Rate and Capacity Reduction

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16. Abstract (Limit: 250 words)

This study develops a comprehensive guideline to estimate the traffic diversion rates and capacity reduction for work zones. The analysis of the traffic diversion patterns with data from past work zones in the metro freeway network in Minnesota resulted in a set of the diversion-estimation models that relate the diversion rates at freeway ramps with the travel times and speed levels on a freeway and alternative routes during construction. The interrelationship between diversion and work-zone traffic conditions has led to the development of an iterative process, where a freeway simulation model interacts with the diversion-estimation models until a convergence is achieved between diversion and resulting freeway delays. Freeval is adopted in this study as the simulation tool for freeways. The test results of the iterative process with the work zone data showed promising results in determining both the diversion rates and freeway delay for a given work-zone. Due to the types of the work zones used in developing the diversion models, the iterative process developed in this study can be applicable to only "two-to-one" lane reduction cases in estimating the diversion rates for the mainline exit flows, while the diversion rates at entrance ramps can be determined without such restrictions. The capacity analysis of the lane-closure sections performed in this study has also resulted in a set of the suggested capacity values for the work zones with two-to-one lane reduction.

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Final Report

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EXECUTIVE SUMMARY

This study develops a comprehensive guideline to estimate the traffic diversion rates and capacity reduction for work zones. The analysis of the traffic diversion patterns with data from past work zones in the metro freeway network resulted in a set of the diversion-estimation models that relate the diversion rates at entrance and exit ramps with the traffic delay on a freeway and alternative route travel times. The interrelationship between diversion and work-zone delays has led to the development of an iterative process, where a freeway simulation model interacts with the diversion-estimation models until a convergence is achieved between diversion and resulting freeway delays. Freeval is adopted in this study as the simulation tool for freeways. The test results of the iterative process with the work zone data showed promising results in determining both the diversion rates and freeway delay for a given work-zone. In particular, the test results with the work zone data not included in developing the process show the similar level of accuracy as those whose data were included. This indicates the transferability of the proposed methodology to new work zones. Due to the types of the work zones used in developing the diversion models, the iterative process developed in this study can be applicable to only “two-to-one” lane reduction cases in estimating the diversion rates for the mainline exit flows, while the diversion rates at entrance ramps can be determined with the current version. The capacity analysis of the lane-closure sections performed in this study has indicated that the geometric conditions of work zones, such as lane-closure configuration, lane-width, and median/shoulder type, directly affect the capacity values of a given work zone. The resulting guideline includes a set of the suggested capacity values for the work zones with two-to-one lane reduction. The above iterative process and capacity analysis results are integrated into a comprehensive guideline, which can provide practical assistance to field engineers in estimating the traffic diversion rates and capacity reduction for work zones. Future study needs to include the expansion of the diversion estimation process to the work zones with different lane-closure configurations other than two-to-one lane-reduction, e.g., three-to-two, by collecting and analyzing additional work-zone data. The capability of estimating diversion rates for multiple time periods would be needed for analyzing large-scale work zones. The advantages of adopting a microscopic network-simulation tool instead of the current macroscopic model can also be studied. Finally, a user-friendly, computerized process for the whole iterative process needs to be developed for efficient estimation of diversion rates by field engineers.

CHAPTER 1. INTRODUCTION

1.1 Background and Research Objectives

One of the critical elements for an effective management of the delays at work zones is the capability to accurately estimate the traffic diversion rates resulting from the reduced capacity at a given site. While there have been various studies to develop comprehensive dynamic network models that could be applicable in determining the network-wide redistribution patterns of traffic flows responding to the capacity changes in a given network, these models require an extensive set of data, e.g., time-variant origin/destination demand patterns, which are not easily available to the practicing engineers (1-3). Further, these models need to go through time-consuming calibration effort, while the accuracy and applicability of the results from those network models in developing a corridor-specific, work-zone traffic management plan have not been proven yet.

Because of the above issues, most field engineers have been using work-zone specific models, such as Quickzone (4), to quantify delays and develop transportation management plans for a given construction site. While the key input parameters for these work-zone specific models include the diversion rates at the ramps upstream of lane-closure sections and the reduced capacities of work-zone segments, no reliable tools have been developed to date for determining those parameter values with the data easily available to field engineers. The main goal of this research is to develop a specific guideline for practicing engineers in determining the diversion rates and capacity reduction for a given work-zone. Unlike the existing dynamic network-models, the proposed guideline adopts a corridor-specific estimation approach for a given work-zone and does not require origin/destination demand patterns. The specific objectives include:

- Analysis of traffic flow diversion and capacity reduction patterns with real data from the work-zone sites in metro area,
- Development and assessment of a traffic-diversion/capacity reduction estimation process for freeway work-zones,
- Development of a guideline for estimating traffic diversion and capacity reduction for freeway work-zones.

1.2 Report Organization

Chapter 2 descries the study work-zones and the types of data collected from those sites for this study. The example datasets for the collected data are included in Appendix. In Chapter 3, an automatic process is developed to access the arterial traffic data from Smart-Signal System managed by the metro district in Minnesota Department of Transportation (MnDOT). The analysis of traffic diversion patterns and development of the diversion-estimation process is described in Chapter 4, which also includes the testing results of the estimation process. The estimation of the capacities of the lane-closure sections for the work-zones used in this study is included in Chapter 5. Based on the estimated capacities from those sites, a set of the suggested capacity values for work-zones with different geometry/lane-closure configurations was also developed in Chapter 5. Using the results from this study, a guideline is developed in Chapter 6 for estimating traffic diversion and capacity reduction for a given work-zone. Finally Chapter 7 includes the conclusions and future research needs.

CHAPTER 2. WORK ZONE DATA COLLECTION FOR DIVERSION AND CAPACITY ANALYSIS

2.1 Data Collection Sites and Types of Collected Data

Figure 2.1.1 shows the locations of the total 12 work-zone sites whose data were collected for this study. These sites were selected in cooperation with the Metro District, Minnesota Department of Transportation (MnDOT). Table 2.1.1 includes the boundaries of each work-zone in terms of the mainline detector station IDs. The information about data collection period and lane-configuration during construction at each site are also included in Table 2.1.1. The construction sites with no lane-closure and/or missing-ramp data are used only for the capacity analysis in this study.

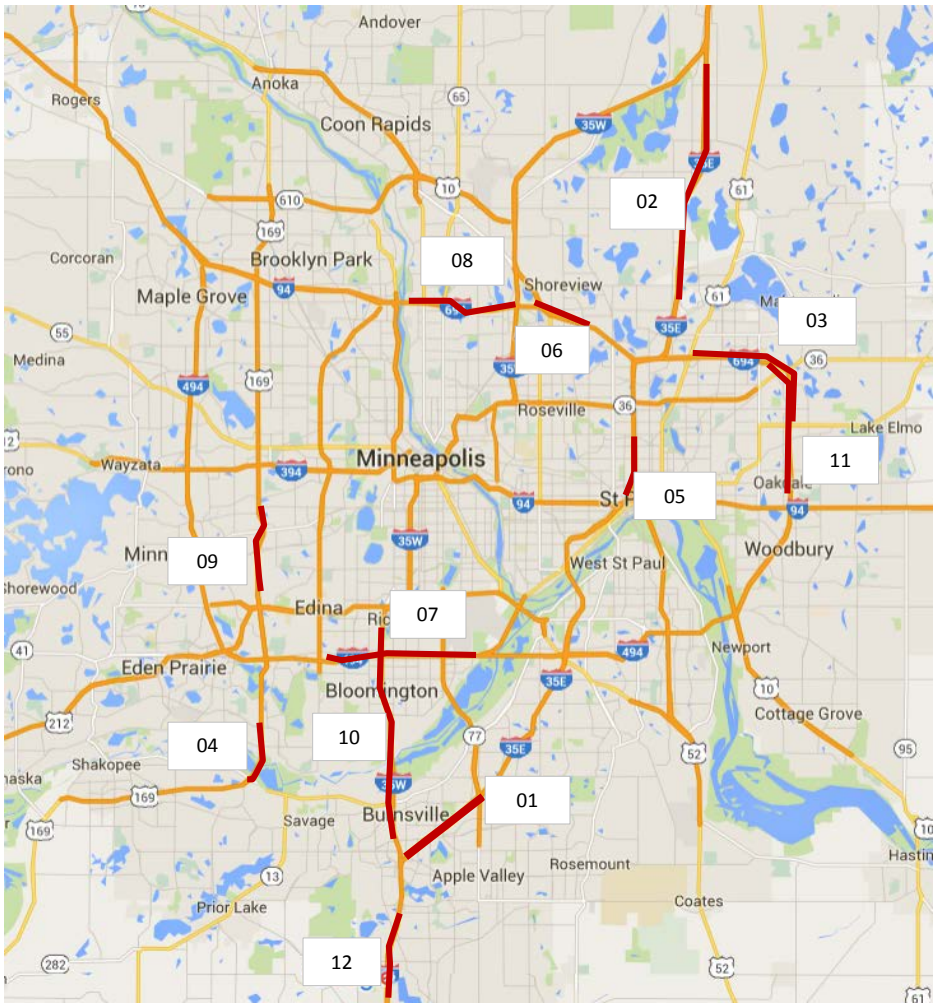


Figure 2.1.1 Locations of Work Zone Sites

Table 2.1.1 Work Zone Sites Information

#	Construction Project	Boundary (Detector Station ID)			Data Collection Period	Lane Configuration
		Direction	From	To		
1	I-35 from Split to Cliff Road	NB	870	882	2013-06-15 ~ 2013-07-30	2 to 1
		SB	893	905		
2	I-35E - North I-694	NB	1449	1503	2011-08-02 ~ 2011-10-13	2 to 1
		SB	1531	1462		
3	I-694 EB & WB	EB	1454	1403	2012-06-19 ~ 2012-11-07	2 to 1
		WB	1414	1445		
4	Hwy 169 Bloomington Ferry Bridge Improvement	NB	1447	1610	2013-06-26 ~ 2013-08-29	2 to 2 (NB), 2 to 1 (SB)
		SB	1611	1144		
5	I-35E Corridor projects	NB	621	625	2013-04-17 ~ 2013-10-11	3 to 3
		SB	638	642		
6	I-694 Interchange Reconstruction	EB	203	1450	2011-11-16 ~ 2013-07-18	2 to 2
		WB	1461	204		
7	I-494 Improvement	EB	192	493	2012-07-31 ~ 2013-04-25	3 to 3
		WB	506	1011		
8	I-694 Corridor North Central West	EB	134	179	2013-06-19 ~ 2013-09-25	3 to 2
		WB	156	143		
9	I-169 Bridge	NB	428	437	2013-06-11 ~ 2013-06-27	2 to 1
		SB	453	461		
10	35WN (SB TH35W 106th to TH 13)	NB	911	40	2009-04-01 ~ 2009-10-08	2 to 2
		SB	27	915		
11	TH-694 (50th st to I-94)	NB	1027	1420	2010-04-20 ~ 2010-09-23	2 to 1
		SB	1396	1028		
12	I-35/I-35E Improvements	NB	1585	910	2013-07-16 ~ 2013-10-24	2 to 1
		SB	916	1584		

The types of data collected in this study for each work-zone include:

1) *The time-variant lane-configuration changes at each work zone during construction*. The lane-closure configuration of each work zone was reconstructed by examining the availability of the traffic detector data during the construction period and the staging plans showing the planed lane-configurations for each site. The traffic data from the detector stations at each work zone were downloaded using TICAS (Traffic Information and Condition Analysis System), developed at UMD.

2) *Traffic flow data from all the detectors on mainline and ramps at each work zone before and during construction period*. For each work zone site, the previous year data was used as the 'before' data. The traffic data upstream of a lane-closure section was used for the diversion analysis, while the data collected from the detector stations within lane-closure sections are used for work-zone capacity estimation.

3) *Travel time and average mainline speed from each ramp to work-zone starting point before and during construction*. The travel time data are downloaded from TICAS and the average mainline speed from each ramp to work-zone boundary is estimated with the traffic flow data.

4) *Travel time and length of alternative route*. The coordinates of the intersections connected to a given work-zone and the speed limits of arterial links are collected to determine potential alternative route from each diversion point, i.e., entrance and exit ramps. An alternative route for a ramp is identified by finding the minimum-travel time path with the Dijkstra's algorithm.

Figure 2.1.2 illustrates a simplified structure of a work-zone and the specific types of data collected in this study. The sample traffic and alternative route data collected for each work-zone is included in Appendix.

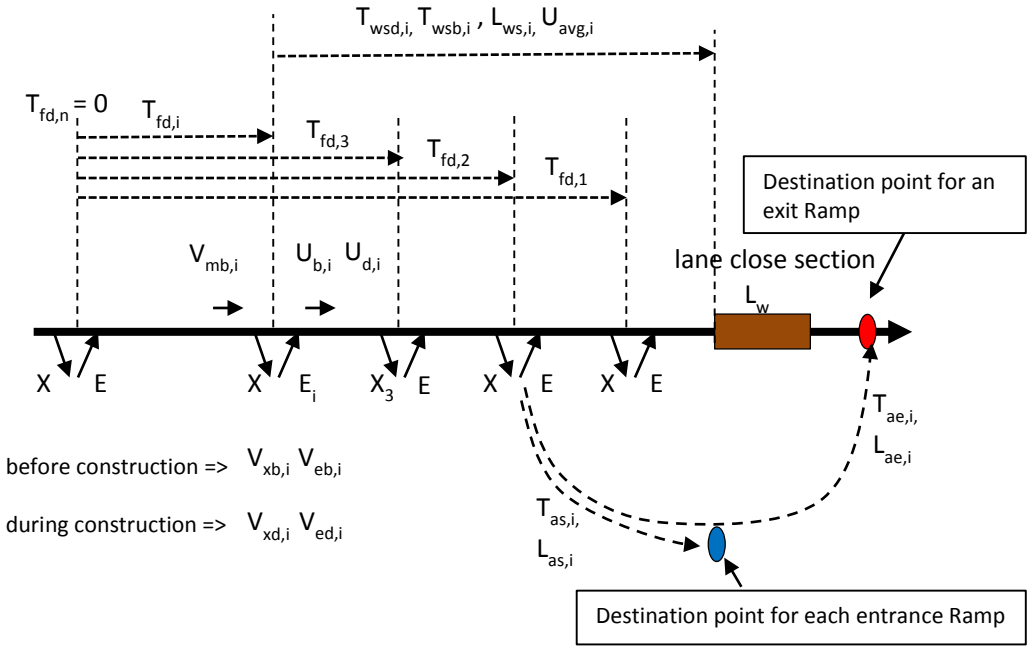


Figure 2.1.2 Data types collected for each work-zone

The definitions of the data types shown in Figure 2.2 are as follows:

$V_{xb,i}$ = Exit flow rate at exit ramp i during construction,
$V_{xd,i}$ = Exit flow rate at exit ramp i before construction,
$V_{eb,i}$ = Entering flow rate from entrance ramp i before construction,
$V_{ed,i}$ = Entering flow rate from entrance ramp i during construction,
$V_{mb,i}$ = Mainline flow rate approaching the exit ramp i before construction ,
$T_{wsb,i}$ = Freeway travel time to the upstream boundary of a work zone from ramp i before construction,
$T_{wsd,i}$ = Freeway travel time to the upstream boundary of a work zone from ramp i during construction,
$L_{ws,i}$ = Distance to the upstream boundary of a work zone from ramp i,
$U_{avg,i}$ = Average speed of the freeway section from the diversion point i to the upstream boundary of a lane closure section,
$U_{b,i}$ = Freeway speed at downstream of ramp i before construction,
$U_{d,i}$ = Freeway speed at downstream of ramp i during construction,
$T_{fd,i}$ =Freeway travel time from upstream reference point to diversion point i during construction,
$T_{as,i}$ = Alternative route travel time to the upstream boundary of a work zone from the diversion point i,
$L_{as,i}$ = Alternative route length to the upstream boundary of a work zone from the diversion point i,
$T_{ae,i}$ = Alternative route travel time to the end of work zone from the diversion point i,
$L_{ae,i}$ = Alternative route length to the end of work zone from the diversion point i.

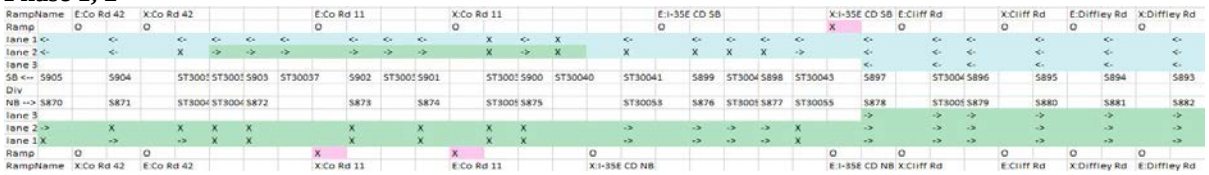
2.2 Identification of Work Zone Phases

To capture the effects of work-zone geometry changes on traffic diversion and capacity values, the construction period of a given work-zone was divided into multiple phases. A phase is defined as a time period without any changes in lane-closure length and crossover configuration. For each phase, 'before construction' traffic demand on mainline and ramps for a given site is determined by adjusting the average traffic flow rates collected at same locations from the same period of a previous year. To address the potential issues with seasonal variations in traffic demand, the duration of each phase does not exceed more than one week. I.e., there could be multiple phases in a given work-zone even though its lane-configuration was not changed. For the capacity estimation, the status of ramp-closures within a lane-closure section is used in identifying phases for a given site.

Phase Identification Example: Work Zone I-35E NB/SB, June-July 2013

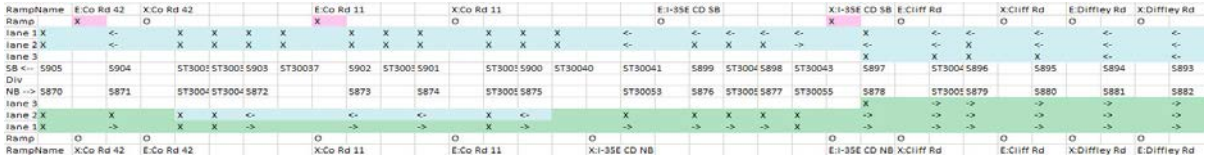
Figure 2.2.1 shows the schematic diagrams of the lane-closures at I-35E NB/SB work-zone, which has a total of 6 phases. Table 2.2.1 includes the time-duration and boundaries of lane-closure section for each phase. As noted in the figure, phases 1 and 2 have same lane-closure length but different time-periods, while other phases show different lane-closure lengths or crossover locations. For each phase, the 'before construction' flow-rates at each detector station were determined with the data from the previous year at the same location. The schematic diagrams for multiple phases of all the work-zones used in this study are attached in Appendix.

Phase 1, 2

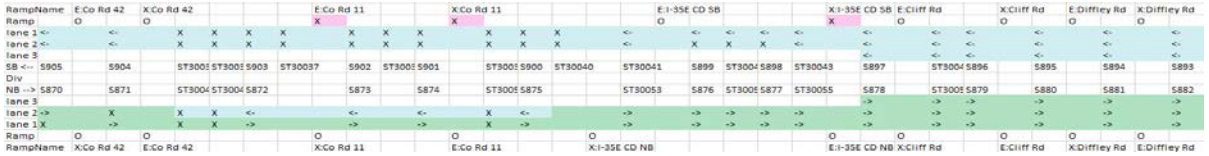


Phase 3

Phase 4



Phase 5



Phase 6

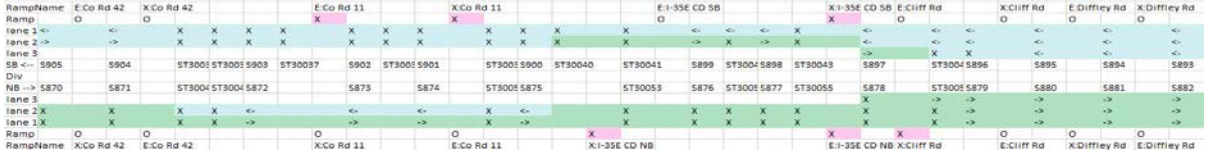


Figure 2.2.1 Schematic diagram for each phase at I-35E NB/SB work-zone

Table 2.2.1 Phase Identification of I-35E work-zone

Phase	Start Date	End Date	Lane Close Section	Median Type	Shoulder Type
1	6/18/2013	6/20/2013	S870-S875	tube delineator	open
2	6/25/2013	6/27/2013	S870-S875	tube delineator	open
3	7/2/2013	7/3/2013	S870-S878	tube delineator	open
4	7/9/2013	7/11/2013	S870-S878	tube delineator	open
5	7/16/2013	7/23/2013	S870-S875	tube delineator	open
6	7/24/2013	7/30/2013	S870-S878	tube delineator	open

2.3 Data Collection for Capacity Analysis

The data set collected for the capacity analysis includes 15-min traffic flow rate and density data from the detector stations located within lane-closure sections at each work-zone. In this study, the traffic data during 5 a.m.-10 a.m. or 2 p.m. to 7 p.m. were collected depending on the direction of peak-hour flow at each site. Additional information for each site, shown in Table 2.3.1, includes lane width, median/shoulder type and heavy vehicle proportion, and they were collected from the construction staging plans and historical AADT data. Figure 2.3.1 shows a sample data set collected for the capacity analysis for I-35E NB work-zone. The capacity dataset for other work-zones are included in Appendix.

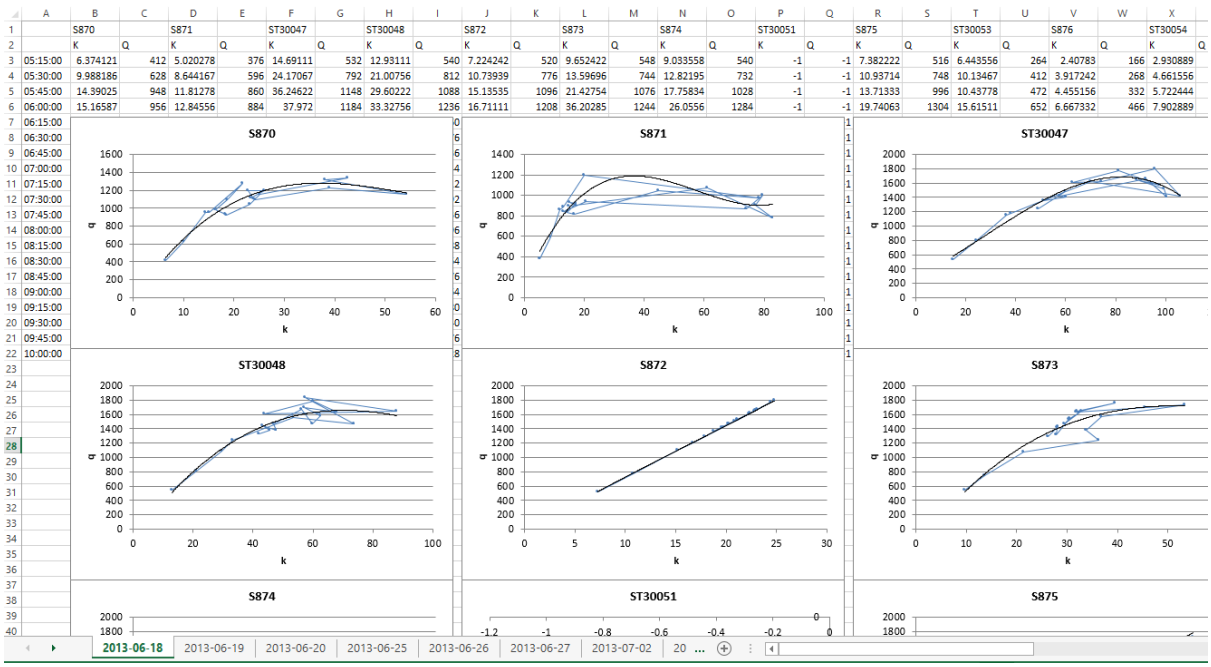


Figure 2.3.1 Example dataset for Capacity Analysis (WZ 1: I-35E NB)

Table 2.3.1 Work Zone Geometry Information for Capacity Analysis

WZ	Corridor	Lane Closure Configuration	Lane Width (ft)	Median	Shoulder	HV (%)
1	I-35E	2 to 1	12	Tube	Open	5.85
2	I-35E	2 to 1	12	Tube	Open	5.02
3	I-694	2 to 1	11	Concrete Barrier	Open	8.4
4	US-169	2 to 2 (NB) 2 to 1 (SB)	-	-	-	7.67
5	I-35E	3 to 3	11	Concrete Barrier	Drum	4.76
6	I-694	2 to 2	12	-	-	6.86
7	I-494	3 to 3	11	Open	Concrete Barrier	5.28
8	I-694	3 to 2	-	-	-	6.12
9	US-169	2 to 1	12	Drum	Open	5.93
10	I-35W	2 to 2	-	-	-	7.71
11	I-694	2 to 1	12	Concrete Barrier	Open	7.64
12	I-35	2 to 1	12	Tube	Open	10.4

CHAPTER 3. DEVELOPMENT OF AN AUTOMATIC PROCESS FOR ACCESSING TRAFFIC DATA IN SMART-SIGNAL SYSTEM

3.1 Overview of the Automatic Data Access Process

The capability to access the traffic data of the arterial streets that could be used as alternative routes to freeways is of critically important to understand the diversion behavior of traffic flow in the metro network. In this study, a computer-based automatic process is developed to download the traffic data from the intersections equipped with the MnDOT's Smart Signal System. First, the format of the traffic data available through the current Smart-Signal System was analyzed. Next, a computerized process was developed to read and download those traffic data. The automatic process was then integrated into the TICAS (Traffic Information and Condition Analysis System), developed originally at the University of Minnesota Duluth for accessing and analyzing the traffic data of the metro freeway network. A map-based graphical user interface was also developed to facilitate the selection and edition of the intersection features. The resulting system, whose current version has been developed as an off-line analysis tool, can be used to download the traffic data from the intersections located in diversion routes for a given work zone, as shown in Figure 3.1, and the impacts of a freeway work-zone on nearby arterials can be analyzed in a corridor-wide level. The rest of this chapter describes the architecture of the automatic process and an example data extraction process.

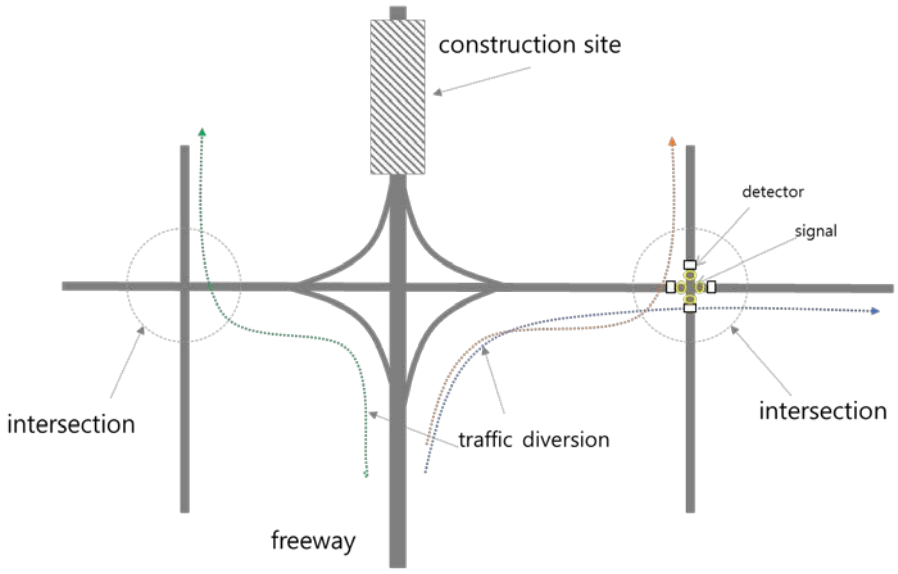


Figure 3.1.1 Freeway Corridor with Work Zone and Alternative Routes

3.2 Architecture of the Automatic Data Extraction Process

The intersection data access system is developed as a plugin for TICAS, so that intersection traffic data can be integrated with freeway flow data, so that a corridor-wide traffic analysis could be possible. Figure 3.2.1 shows the system architecture, whose main modules consist of the data importer, infra editor, map viewer and analyzer. The infra editor enables a user to edit the location and device properties of the given intersections. SQLite is used as the database management system. The rest of this section explains the main functionalities of each module.

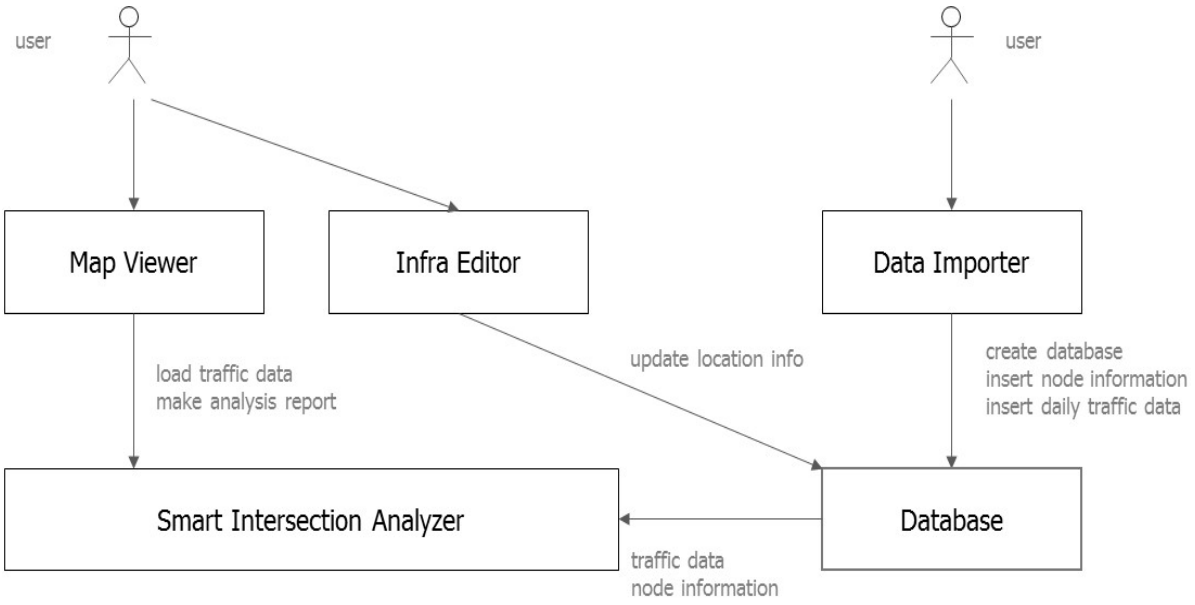


Figure 3.2.1 Architecture of Intersection Data Access System

Data Importer
Due to the lack of the on-line access capability of the Smart Signal System, the current version of the data importer assumes the raw intersection traffic data would be available in an off-line mode. The Data Importer developed in this study reads the raw traffic data, i.e., event time and duration in an Excel file format, and converts them into volume/occupancy information. The additional data that can be extracted with the current version include intersection geometry, detector and signal phase information. All the data extracted are stored in a database by the data importer.

Database
The database software library adopted in this study is SQLite, which is a self-contained, server-less, zero-configuration, transactional SQL database engine. The resulting database stores all the information of given intersections, including the location/properties of associated control devices and converted traffic data in a user-specified format.

Infra Editor
The infra editor enables a user to enter and edit the properties of given intersections including the detection/control devices with a map-based interface. The user can select an intersection from a metro area map by clicking the set button and enter the locations of each detector and traffic signal associated with a given intersection. All the data entered are automatically saved in the database. The current version of the Infra Editor requires the following detector information to calculate the directional volume at each intersection:

- Lane direction: THROUGH, LEFT, RIGHT, THROUGH_LEFT, THROUGH_RIGHT and THROUGH_LEFT_RIGHT
- Detector Location: E, W, S, N, SE, SW, NE and NW.
- Type: 'STOPLINE' or 'QUEUE' detector.

Map Viewer
The *Map Viewer* is the user interface of the Data Analyzer showing selected intersections and their devices. Further, the time-variant status of detectors and traffic signals can be visualized with the Map Viewer through time.

Data Analyzer

The current version of the *Data Analyzer* reads the data for a given intersection from the *Database*, and calculates the directional volumes of each approach. Further, all the data in the Database are re-organizes and saved in a report file. The flexible structure of the analyzer module allows the future addition of more complicated analysis functions as needed.

Database

Figure 3.2.2 shows the relation diagram of the current *Database* tables. '*Intersections'* table contains the name and geometry information of a given intersection. The '*detectors* and *signals'* table refers the IDs of the 'Intersections' table to identify associated intersections. The '*signal_events'* table is connected to the *signals* table, while the '*detector_events'* and '*detector_data'* tables are linked to the '*detectors'* table. The detailed database schemas are as follows:

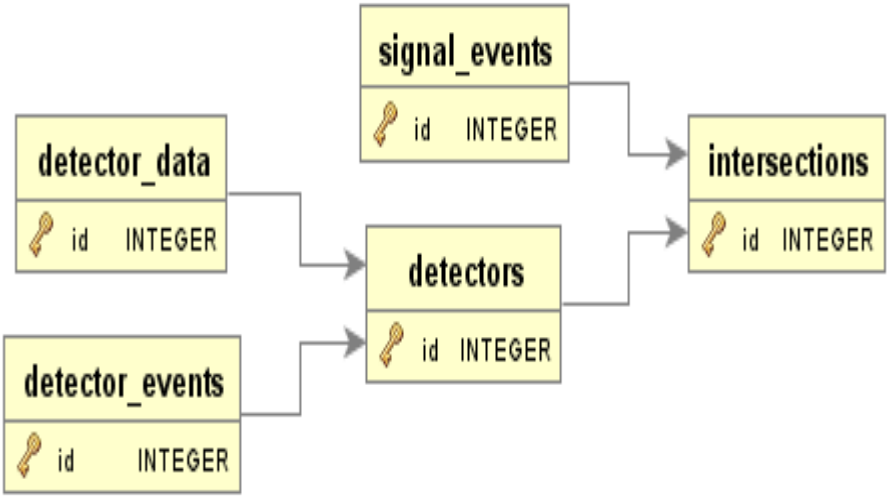


Figure 3.2.2 Database relation diagram

Database Schema

intersections

Name	Type	Not Null	PK
id	INTEGER	0	1
name	CHAR(50)	1	0
lat	REAL	0	0
lon	REAL	0	0

detectors

Name	Type	Not Null	PK
id	INTEGER	0	1
ints_id	INTEGER	1	0
name	INTEGER	1	0
lane_dir	VARCHAR(50)	0	0
lane	INTEGER	0	0
type	VARCHAR(50)	0	0
target_dirs	VARCHAR(50)	0	0
approach	VARCHAR(50)	0	0
lat	REAL	0	0
lon	REAL	0	0

detector_events

Name	Type	Not Null	PK
id	INTEGER	0	1
evt_time	NUMERIC	1	0
det_id	INTEGER	1	0
duration	REAL	1	0

detector_data

Name	Type	Not Null	PK
id	INTEGER	0	1
evt_day	NUMERIC	1	0
ints_id	INTEGER	1	0
det_id	INTEGER	1	0
volume	TEXT	1	0
occupancy	TEXT	1	0

signal_events

Name	Type	Not Null	PK
id	INTEGER	0	1
evt_time	NUMERIC	1	0
phase_id	INTEGER	1	0
status	CHAR(1)	1	0
duration	REAL	1	0

3.3 Integration of Intersection Data Access System with TICAS

Figure 3.3.1 shows the structure and the operational sequence of the integrated system that combined the Intersection Data Access System with TICAS. First, user executes the data importer module with a raw data file, which was downloaded from the Smart Signal System. The data importer populates the database with the geometry information and traffic data for selected intersections. After the database is populated, the user can launch the *Smart Intersection Data Analysis* module from TICAS, which opens the Map Viewer with intersection location/geometry information loaded from the Database. The features of the detectors and traffic signals associated with a given intersection are also shown on the Map Viewer. Further, the timeline controller in the Map Viewer makes it possible for a user to observe the time-variant status of the control devices with different colors. The geometry information of a selected intersection can also be entered with the Infra Editor that has its own map-based interface. Finally the Data Analyzer module enables a user to extract the directional volume for each approach for a given intersection and save them in an Excel format.

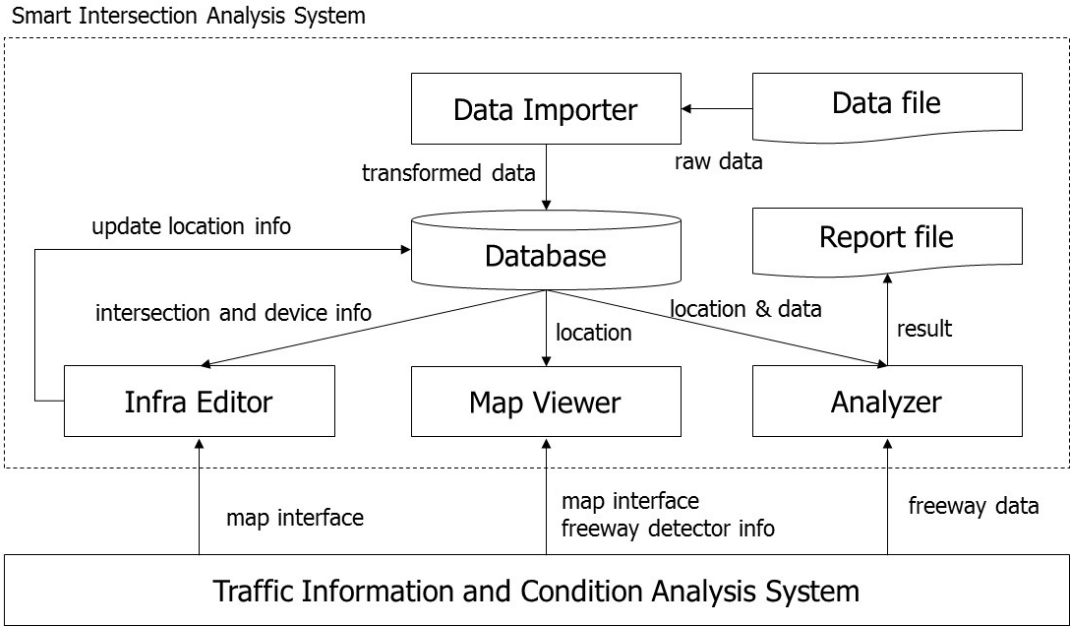


Figure 3.3.1 Structure of Integrated System

Example User Interface Screens

As noted earlier, the Intersection Data Access system has been developed as a plugin for TICAS, so that an integrated analysis of both freeway and arterial traffic data can be conducted in an efficient manner. Figures 3.3.2-4 show the screenshots of the current user interface of the Intersection Data Access System operated in the TICAS environment.

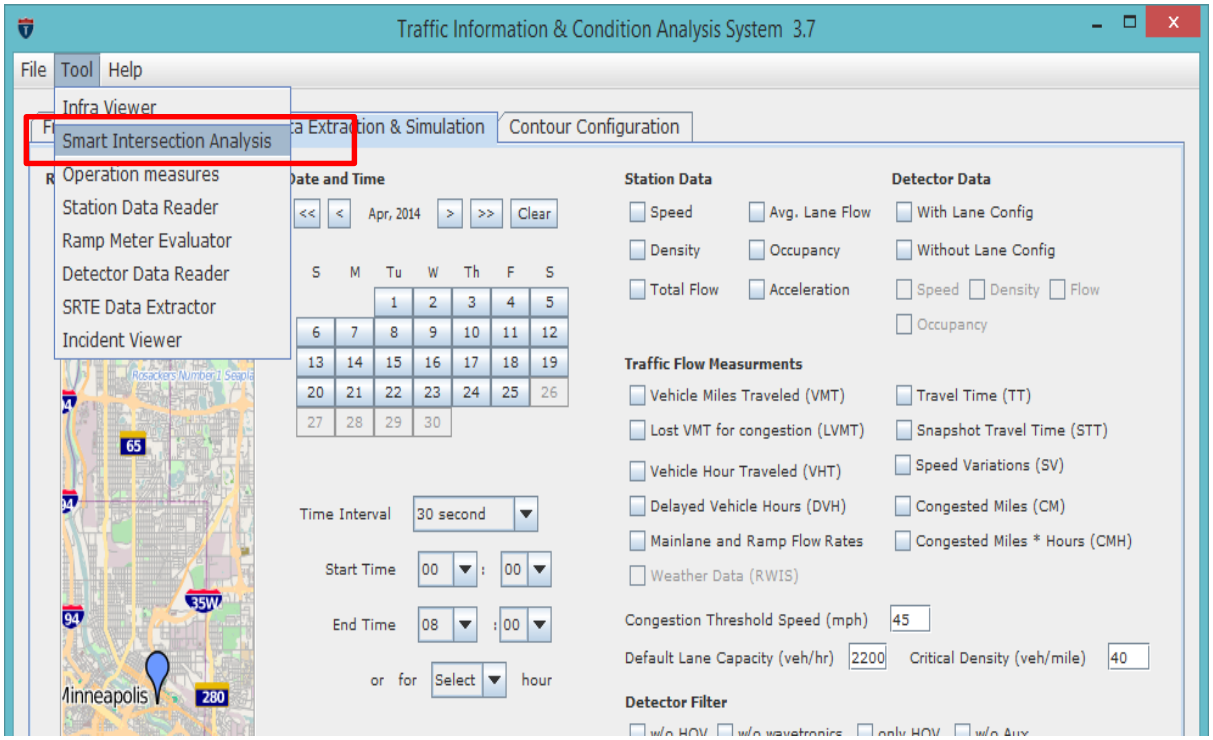


Figure 3.3.2 Smart Intersection Analysis Plug-in Module in TICAS

Map Viewer

The Map Viewer shows the traffic control devices located at a selected intersection. The device type can be selected in the control panel located in the right side of the map window. The color of a chosen device can be varied by moving the timeline controller to indicate the status of the device through time.

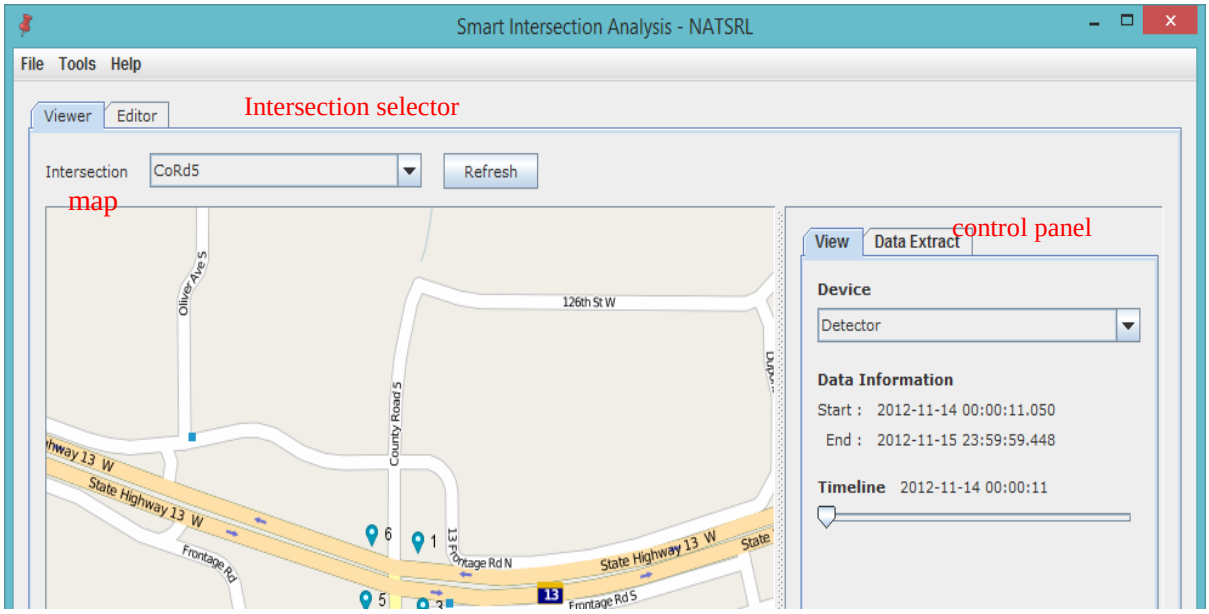


Figure 3.3.3 Map Viewer Interface

Data extraction panel

This screen shows the data extraction panel, where user can enter the parameters for the data analysis module, including event start time, dates and data aggregation interval. The resulting dataset includes volume and occupancy values for each direction for a given time period.

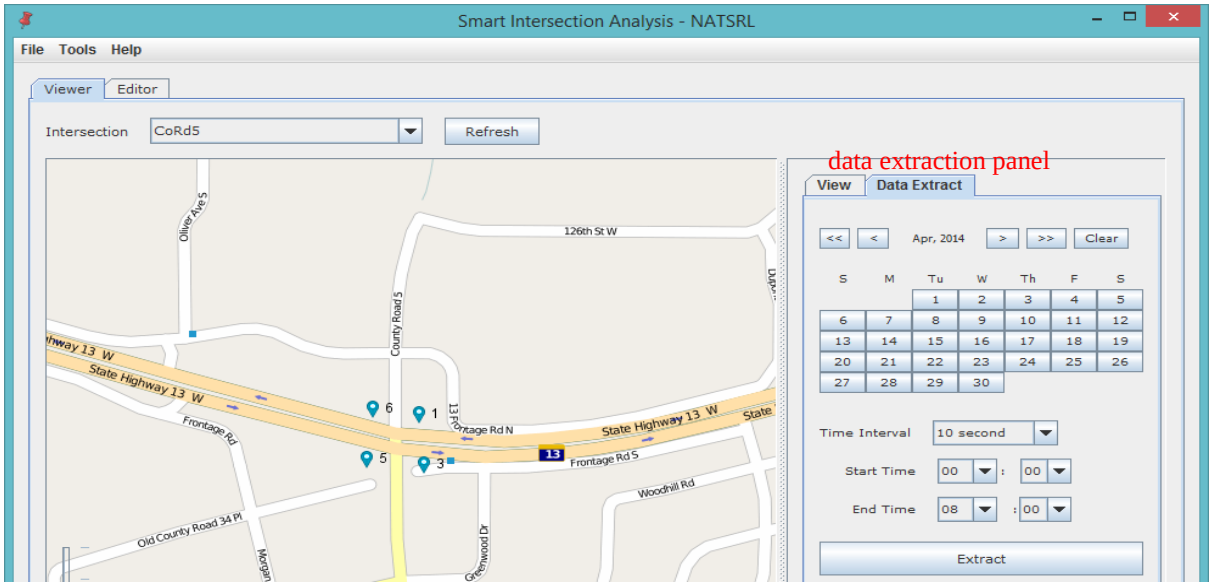


Figure 3.3.4 Data extraction interface

Infra Editor

Figure 3.3.5 shows the Infra Editor screen, where the locations of an intersection and associated control devices can be configured by clicking the 'Set location of the intersection' button. The properties of selected detectors can be also entered in this window.

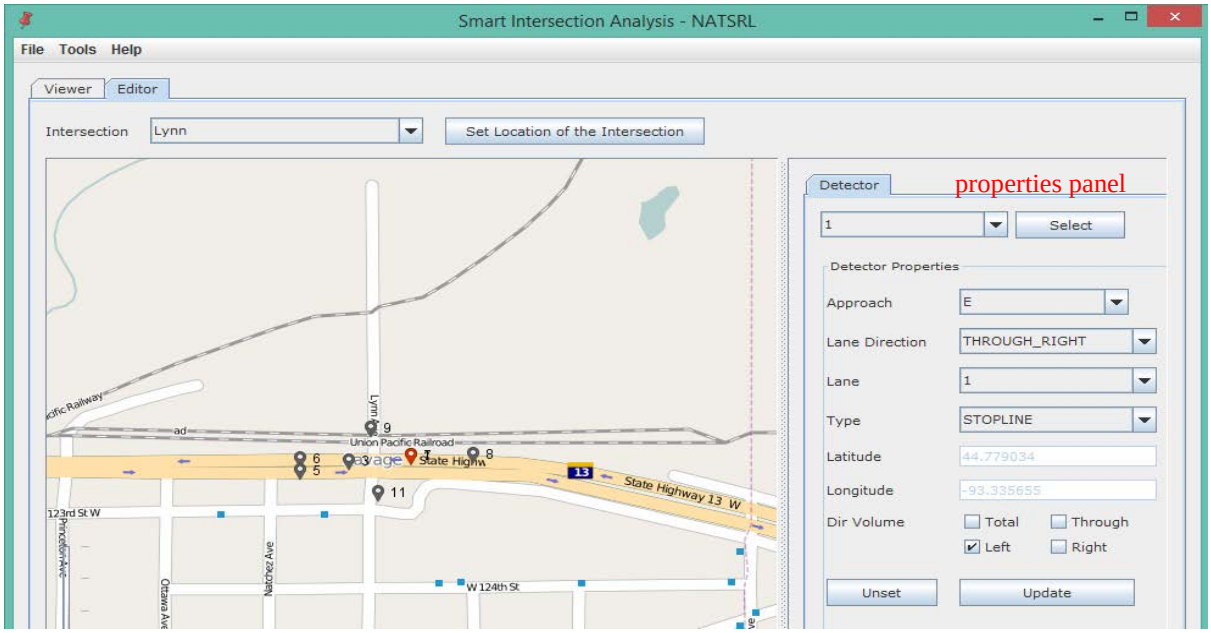


Figure 3.3.5 Infra Editor Interface

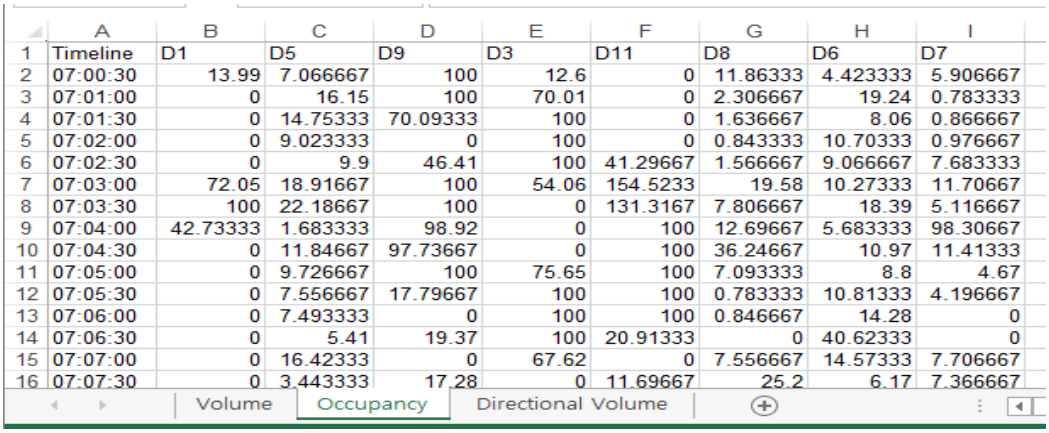
Sample Output Format

The current version of the Data Analysis module creates a report file in an Excel format. Figures 3.3.6–8 show the worksheets of an example report file including volume and occupancy data from each detector and the directional volumes of a given intersection.

	A	B	C	D	E	F	G	H	I	J
1	Timeline	D1	D5	D9	D3	D11	D8	D6	D7	
2	07:00:30	3	8	0	2	0	12	7	6	
3	07:01:00	0	9	0	1	0	3	12	1	
4	07:01:30	0	7	0	0	0	2	7	1	
5	07:02:00	0	10	0	0	0	1	12	1	
6	07:02:30	0	6	11	0	3	1	6	5	
7	07:03:00	1	4	0	0	3	5	2	5	
8	07:03:30	0	6	0	0	0	5	6	2	
9	07:04:00	0	2	0	0	0	14	3	4	
10	07:04:30	0	8	1	0	0	16	10	10	
11	07:05:00	0	7	0	1	0	8	9	5	
12	07:05:30	0	7	0	0	0	1	11	4	
13	07:06:00	0	8	0	0	0	1	9	0	
14	07:06:30	0	3	7	0	0	0	3	0	
15	07:07:00	0	5	0	2	0	4	4	4	
16	07:07:30	0	3	2	0	1	11	6	4	

Volume | Occupancy | Directional Volume

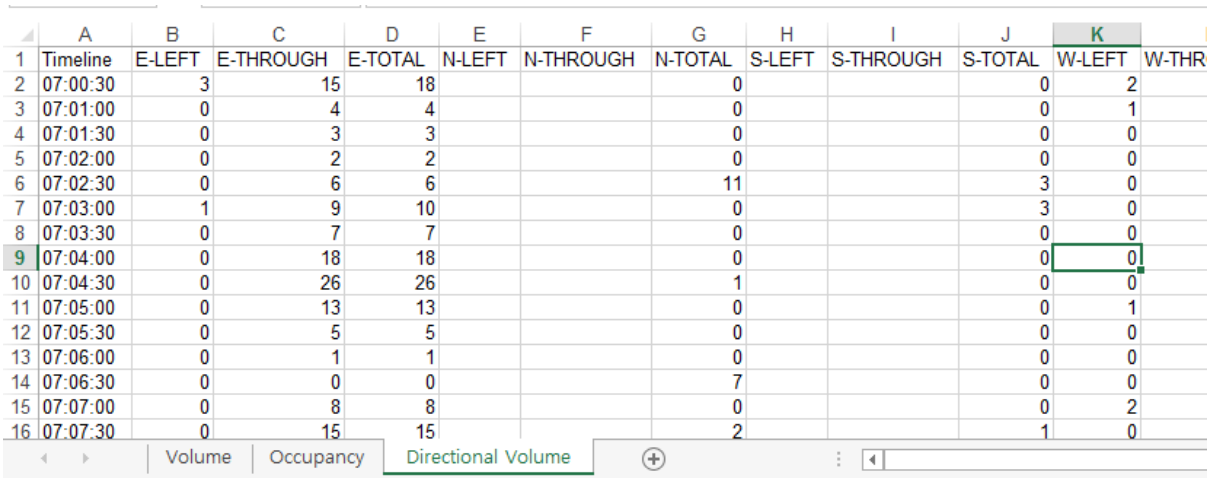
Figure 3.3.6 Sample Detector Volume Data



	A	B	C	D	E	F	G	H	I
1	Timeline	D1	D5	D9	D3	D11	D8	D6	D7
2	07:00:30	13.99	7.066667	100	12.6	0	11.86333	4.423333	5.906667
3	07:01:00	0	16.15	100	70.01	0	2.306667	19.24	0.783333
4	07:01:30	0	14.75333	70.09333	100	0	1.636667	8.06	0.866667
5	07:02:00	0	9.023333	0	100	0	0.843333	10.70333	0.976667
6	07:02:30	0	9.9	46.41	100	41.29667	1.566667	9.066667	7.683333
7	07:03:00	72.05	18.91667	100	54.06	154.5233	19.58	10.27333	11.70667
8	07:03:30	100	22.18667	100	0	131.3167	7.806667	18.39	5.116667
9	07:04:00	42.73333	1.683333	98.92	0	100	12.69667	5.683333	98.30667
10	07:04:30	0	11.84667	97.73667	0	100	36.24667	10.97	11.41333
11	07:05:00	0	9.726667	100	75.65	100	7.093333	8.8	4.67
12	07:05:30	0	7.556667	17.79667	100	100	0.783333	10.81333	4.196667
13	07:06:00	0	7.493333	0	100	100	0.846667	14.28	0
14	07:06:30	0	5.41	19.37	100	20.91333	0	40.62333	0
15	07:07:00	0	16.42333	0	67.62	0	7.556667	14.57333	7.706667
16	07:07:30	0	3.443333	17.28	0	11.69667	25.2	6.17	7.366667

Volume | Occupancy | Directional Volume

Figure 3.3.7 Sample Detector Occupancy Data



	A	B	C	D	E	F	G	H	I	J	K	
1	Timeline	E-LEFT	E-THROUGH	E-TOTAL	N-LEFT	N-THROUGH	N-TOTAL	S-LEFT	S-THROUGH	S-TOTAL	W-LEFT	W-THR
2	07:00:30	3	15	18			0			0	2	
3	07:01:00	0	4	4			0			0	1	
4	07:01:30	0	3	3			0			0	0	
5	07:02:00	0	2	2			0			0	0	
6	07:02:30	0	6	6			11			3	0	
7	07:03:00	1	9	10			0			3	0	
8	07:03:30	0	7	7			0			0	0	
9	07:04:00	0	18	18			0			0	0	
10	07:04:30	0	26	26			1			0	0	
11	07:05:00	0	13	13			0			0	1	
12	07:05:30	0	5	5			0			0	0	
13	07:06:00	0	1	1			0			0	0	
14	07:06:30	0	0	0			7			0	0	
15	07:07:00	0	8	8			0			0	2	
16	07:07:30	0	15	15			2			1	0	

Volume | Occupancy | Directional Volume

Figure 3.3.8 Sample Directional Volume Data of a Given Intersection

CHAPTER 4. DEVELOPMENT AND TESTING OF WORK ZONE DIVERSION ESTIMATION PROCESS

4.1 Work Zone Data Analysis and Modeling Traffic Flow Diversion

In this chapter, the traffic flow data collected from the work zone sites were analyzed and a process is developed to estimate the traffic diversion rates at entrance and exit ramps upstream of a given work zone. Table 4.1.1 includes the list of 6 work zones whose traffic data were used for the diversion analysis, since the detector data upstream of lane-closure sections at these sites were available before and during construction periods. Further, as noted in Chapter 2, to capture the effects of the work zone geometry changes on the traffic diversion, the whole construction period of a work zone was divided into the multiple phases, which are defined as the time durations with the same lane-closure configurations, e.g., same lane/ramp closure location and length, etc. The phases of a work zone were identified by comparing the construction staging-plans with the traffic detector data collected during the lane-closure periods at each site.

Table 4.1.1 List of the Work Zones used for Diversion Analysis and Modeling

WZ	Corridor	Lane Closure Pattern	Lane Width (ft)	Median	Shoulder	Speed Limit (mph)
1	I-35E	2 to 1	12	Tube	Open	55
2	I-35E	2 to 1	12	Tube	Open	55
3	I-694	2 to 1	11	Concrete Barrier	Open	55
4	US-169	2 to 2 (NB), 2 to 1 (SB)	-	-	-	-
9	US-169	2 to 1	12	Drum	Open	55
12	I-35	2 to 1	12	Tube	Open	55

Analysis of Traffic Diversion Pattern

Figure 4.1.1 shows the simplified work-zone structure and the types of data used for analyzing the traffic diversion behavior at entrance and exit ramps respectively. In this study the relationships between the traffic conditions during construction periods, e.g., speed levels and travel times of freeway and alternative routes, and the diversion rates, which are defined as follows:

Diversion rate at entrance *i*, $R_{e,i} = \frac{V_{eb,i} - V_{ed,i}}{V_{eb,i}}$

Mainline flow diversion rate at exit *i*, $R_{x,i} = \frac{\Delta V_{x,i}}{V_{mb,i} - V_{xb,i} - Sum(Upstream\ \Delta Vx)}$

where,

$V_{eb,i}$ = entrance volume before construction at location *i*,
$V_{ed,i}$ = entrance volume during construction at location *i*,
$V_{mb,i}$ = mainline volume approaching exit ramp i before construction,
$V_{xb,i}$ = exit volume before construction at location *i*,
$V_{xd,i}$ = exit volume during construction at location *i*,
$\Delta V_{x,I}$ = diversion volume at ramp i, : $V_{xd,i} - V_{xb,i}$,

The above definition of the diversion rate at an exit ramp *i*, $R_{X,i}$, denotes the proportion of the additional exit flow, i.e., the diverted flow to an exit ramp i, within the total mainline flow approaching the exit ramp i during construction. This definition is to capture the effects of the freeway condition during construction on the diversion behavior of the mainline flow more explicitly than the conventional definition that is based on only the before-construction exit volumes.

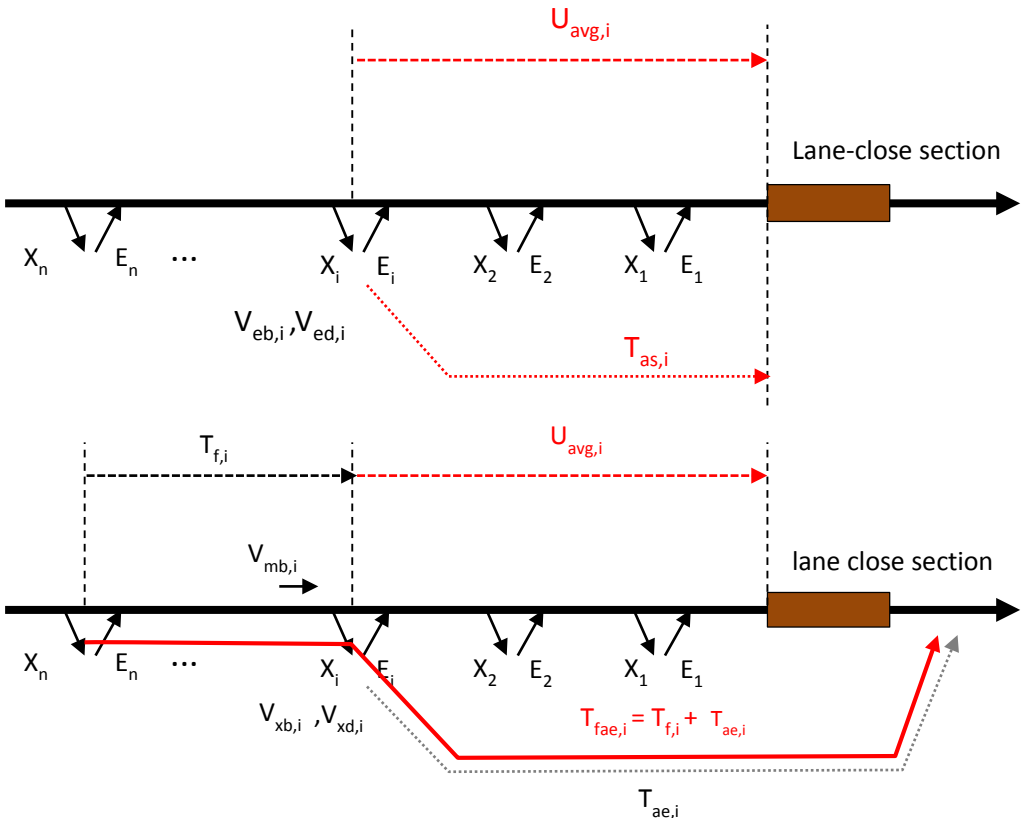


Figure 4.1.1 Simplified Work-Zone Structure and Types of Data

where,

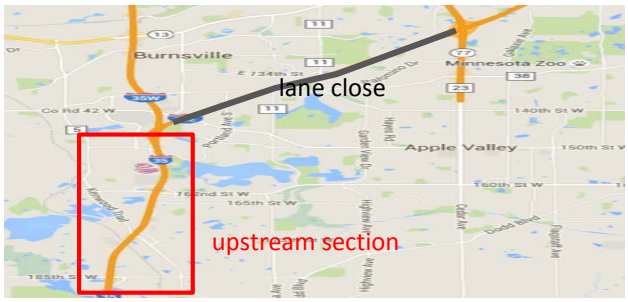
$U_{avg,i}$ = average speed to work zone from location *i*,
$T_{as,i}$ = travel time through alternative route to work zone start point,
$T_{as,min}$ = the minimum travel time of all alternative routes, $T_{as,i}$ from upstream entrances.
$T_{f,i}$ = freeway travel time from the most upstream exit to exit *i*,
$T_{ae,i}$ = alternative route travel time from ramp i to work-zone end point,
$T_{fae,i}$ = total travel time with diversion at i, i.e., sum of freeway travel time and alternative route travel time if diverted at exit i: ($T_{f,i}$ + $T_{ae,i}$),
$T_{fae,min}$ = minimum total travel time of all potential diversion routes, $T_{fae,i}$

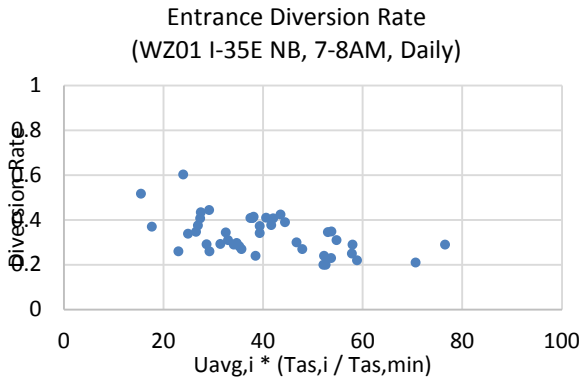
The analysis of the above data collected from the study sites indicate that there are significant relationships between the diversion rates and the traffic conditions during construction periods. In this study, the traffic conditions during the lane-closure periods a given work-zone are quantified with the following combined variables:

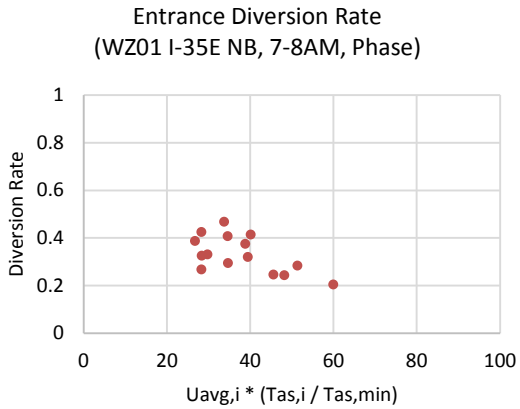
For diversion at an entrance ramp i: $U_{avg,i} * (T_{fae,i} / T_{fae,min})$
For mainline flow diversion at an exit ramp i: $U_{avg,i} * (T_{fae,i} / T_{fae,min})$

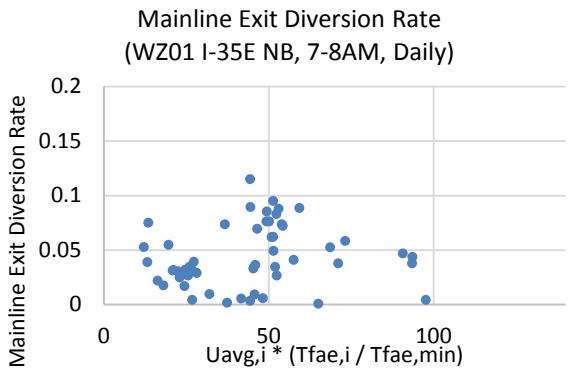
The above combined variables try to reflect the attractiveness of diverting at ramp i given freeway traffic condition, $U_{avg,i}$, and the relative value of the alternative route from i compared with other available diversion routes. The above diversion rates and the combined values of freeway average speed and alternative travel time ratio were estimated with the traffic flow data, i.e., flow rate, density and speed, at the potential diversion points upstream of each work zone on weekdays during construction periods. Further, the daily values at each diversion location were aggregated for each phase. Figures 4.1.2-6 show the relationships between the diversion rate and the combined values of freeway average speed and alternative-route travel-time ratio at each ramp upstream of each work zone site. As noted in these graphs, there is a clear and consistent pattern between those two quantities.

Site 1: I-35E NB









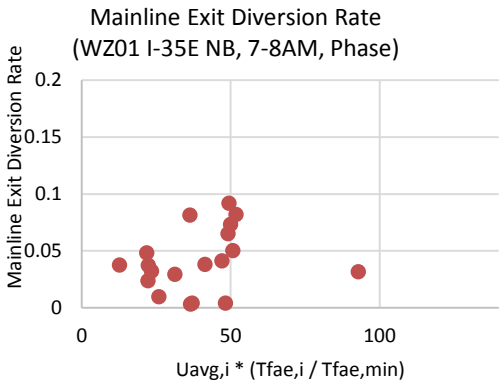
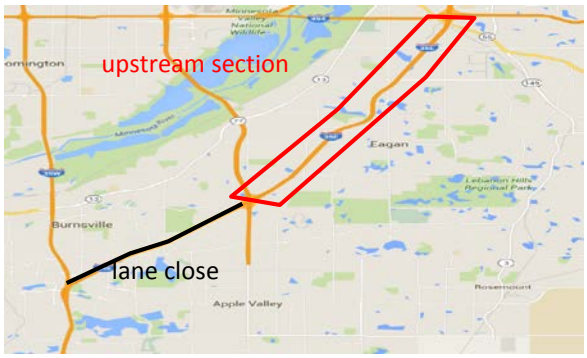
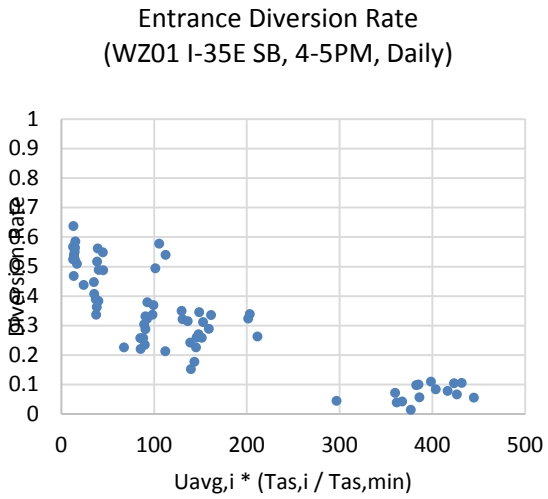
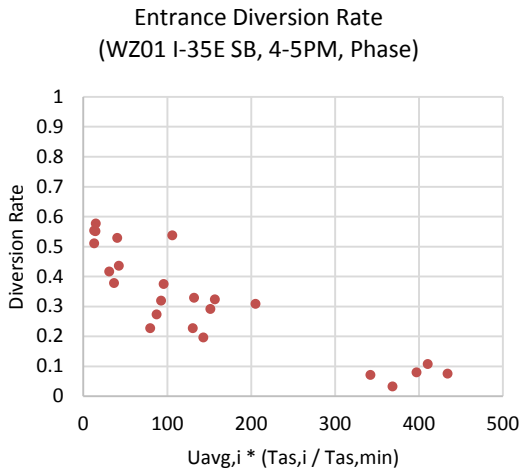


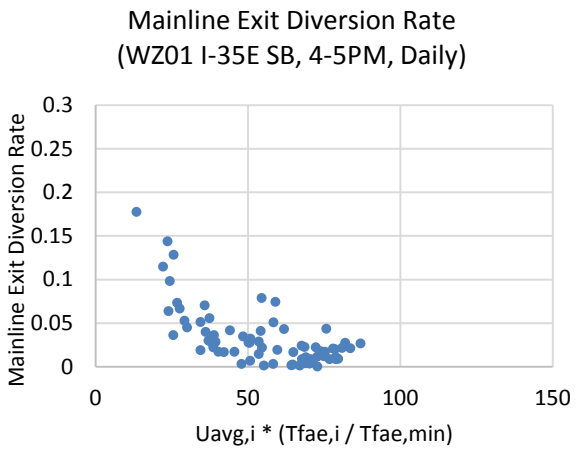
Figure 4.1.2 Diversion Rate and Traffic Condition during Construction (WZ 1: I-35E NB)

Site 1: I-35E SB









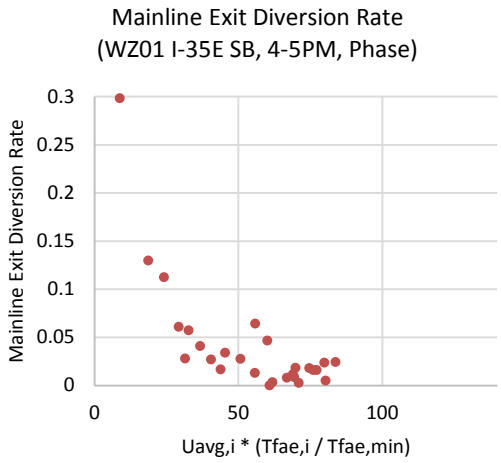
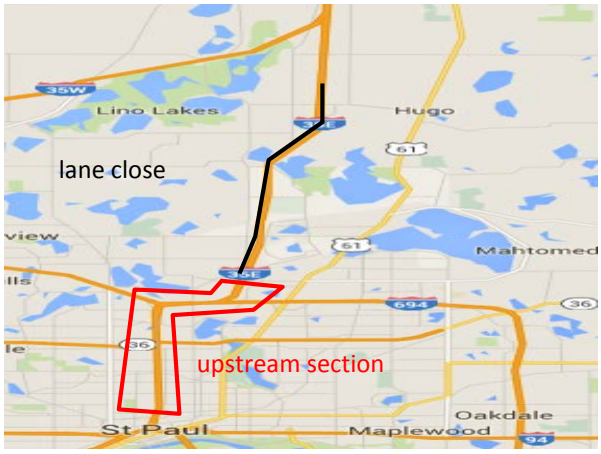
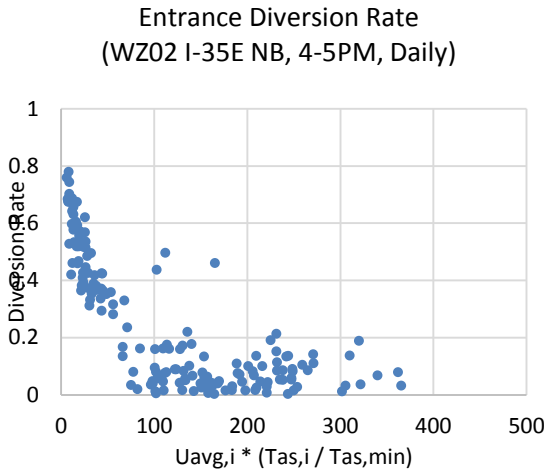
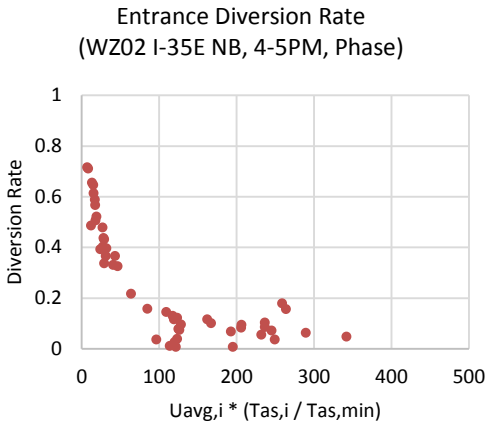


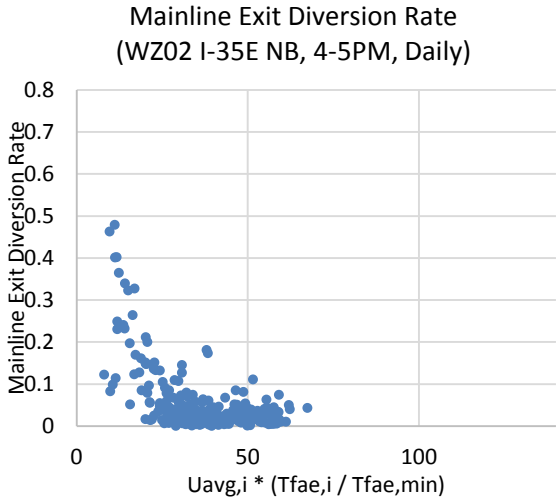
Figure 4.1.3 Diversion Rate and Traffic Condition during Construction (WZ 1: I-35E SB)

Site 02: I-35E NB









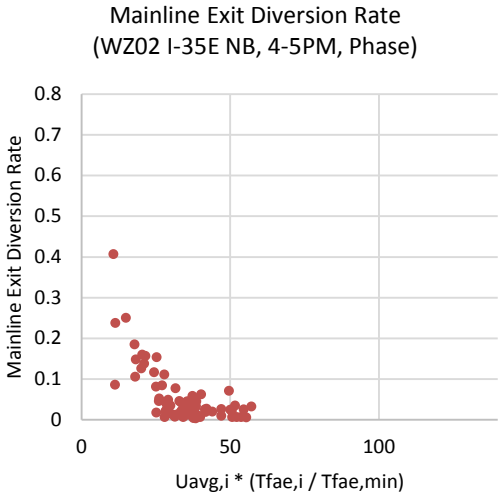


Figure 4.1.4 Diversion Rate and Traffic Condition during Construction (WZ 2: I-35E NB)

Site 03: I-694 WB

Figure 4.1.5 Diversion Rate and Traffic Condition during Construction (WZ 3: I-694 WB)

Site 04: US169 SB

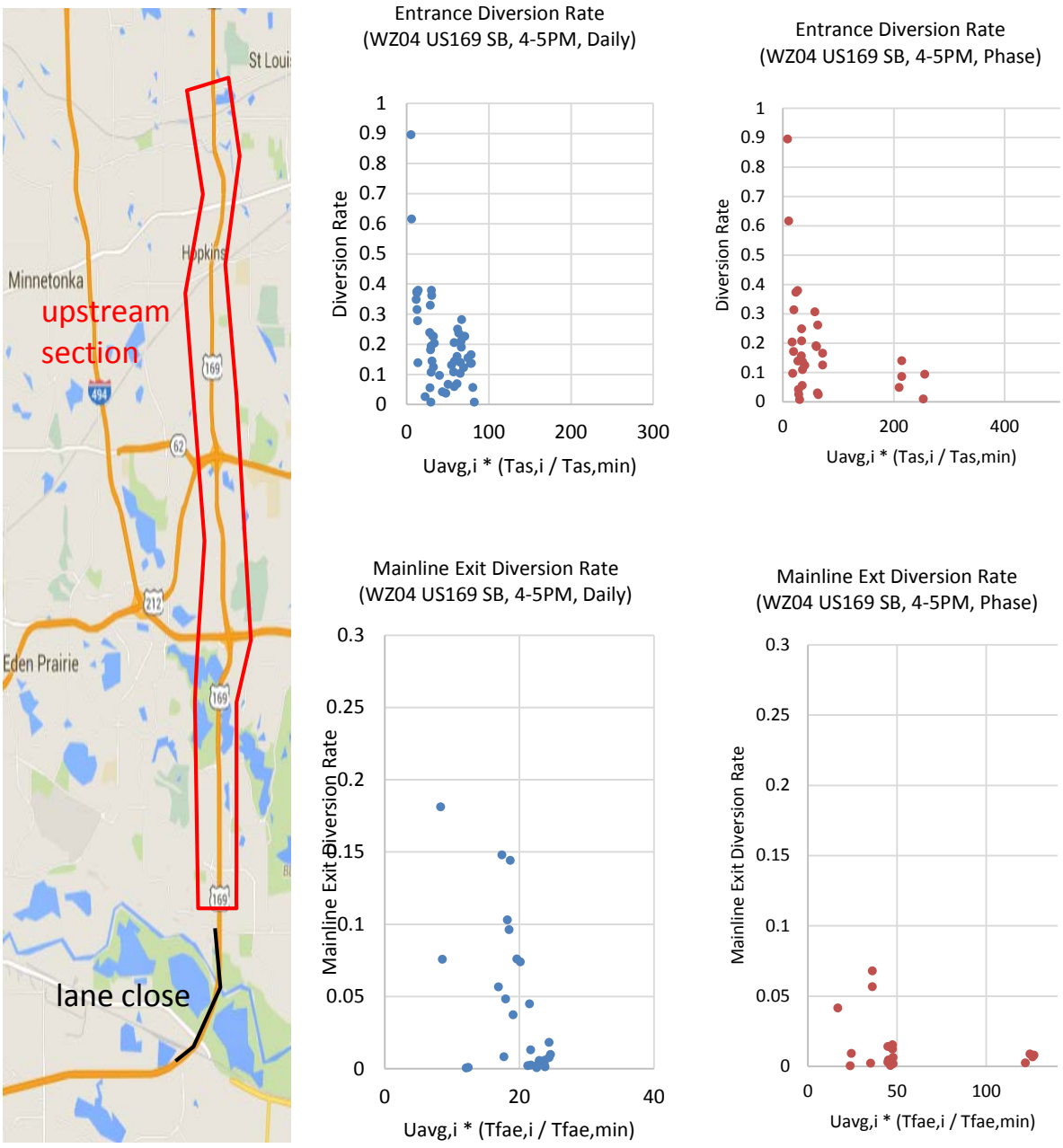


Figure 4.1.6 Diversion Rate and Traffic Condition during Construction (WZ 4: I-694 SB)

Site 12: I-35 SB

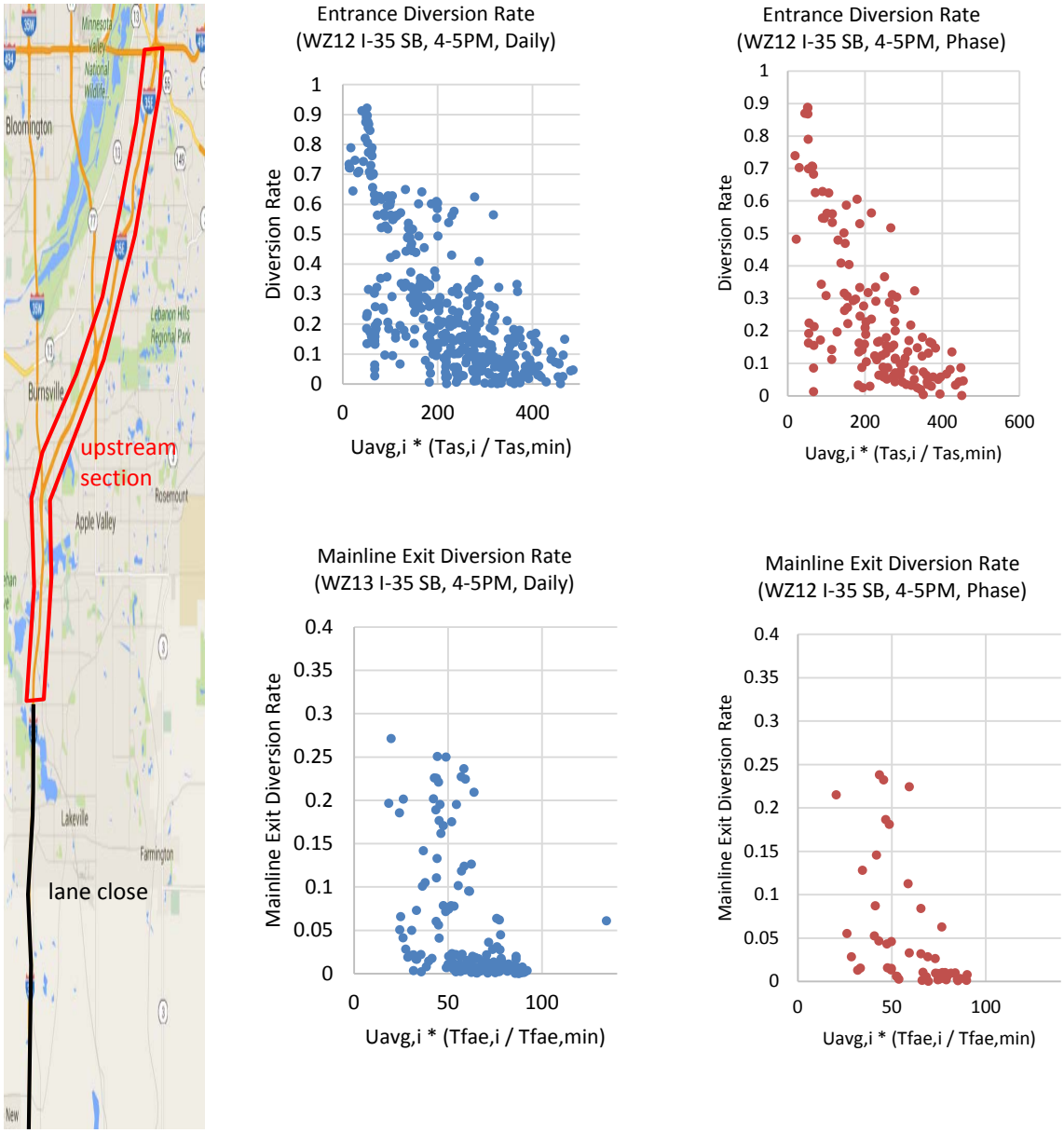


Figure 4.1.7 Diversion Rate and Traffic Condition during Construction (WZ 12: I-35 SB)

Modeling Traffic Flow Diversion

As noted in the above figures, there exist clear and significant patterns between the diversion rates and the traffic conditions, quantified with combined traffic flow parameters, during construction periods. Further, the correlation patterns shown in the above figures indicate that the work-zone sites used in this study can be categorized into two groups in terms of the sensitivity of the diversion rates with respect to the traffic conditions. Figure 4.1.8 shows the diversion rate variation patterns of those two groups, i.e., Group 1 consists of the work zones 1 (NB/SB), 2 (NB), and 4 (SB), while the work zones 3 (WB) and 13 (SB) can be grouped together as Group 2. The work zones in Group 2 have longer lane closure sections, thus their diversion routes take substantially higher travel times than those in Group 1. It was also noted that the diversion rates of the entering flow are sensitive to the diversion route travel times to the starting points of work zones, while the mainline flow exit diversion was affected by the total diversion travel time to the end point of each work zone.

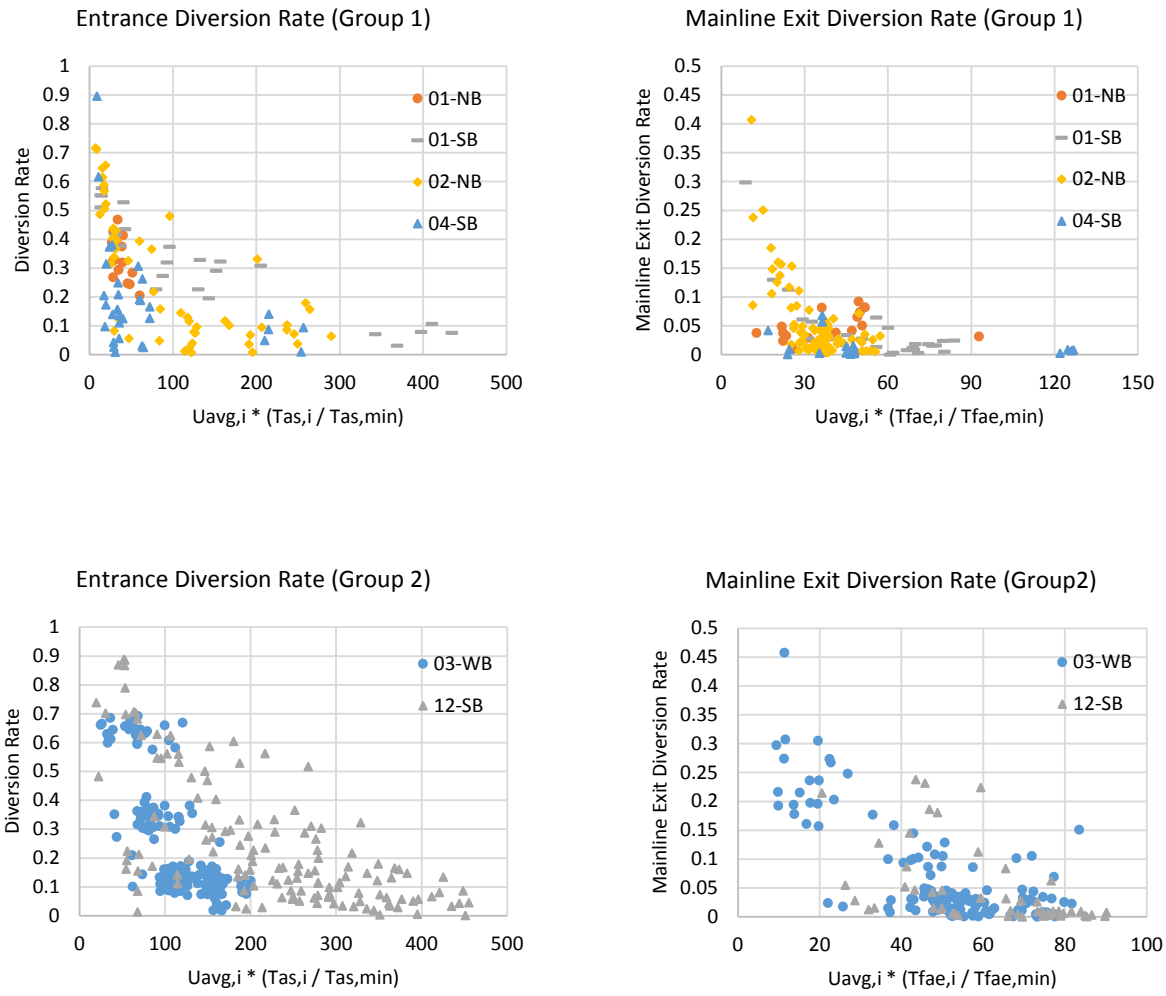


Figure 4.1.8 Diversion Rate Variation Patterns of Two Work-Zone Groups

Based on the diversion pattern analysis results, a new set of the diversion models were developed and calibrated for both the mainline flow diversion at exit ramps and the entering flow diversion at entrance ramps for each group. The general form of the new diversion models are as follows:

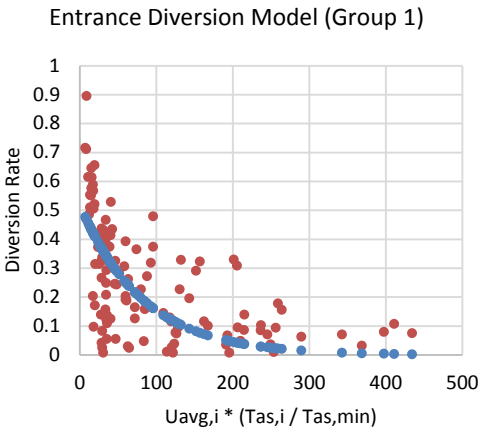
$$\text{Entrance Diversion Rate} = \frac{\alpha}{\left(1+e^{\beta\left(U_{avg,i} * \frac{T_{as,i}}{T_{as,min}}\right)}\right)^{\gamma}}$$

$$\text{Mainline Exit Diversion Rate} = \frac{\alpha'}{\left(1+e^{\beta'\left(U_{avg,i} * \frac{T_{fae,i}}{T_{fae,min}}\right)}\right)^{\gamma'}}$$

where,

$U_{avg,i}$ = average speed to work zone from location *i*,
$T_{as,i}$ = travel time through alternative route to around work zone start point,
$T_{as,min}$ = minimum travel time among $T_{as,i}$ values of all upstream entrances.
$T_{fae,i}$ = sum of freeway travel time and alternative route travel time,
$T_{fae,min}$ = minimum travel time among $T_{fae,i}$ values of all upstream entrances.

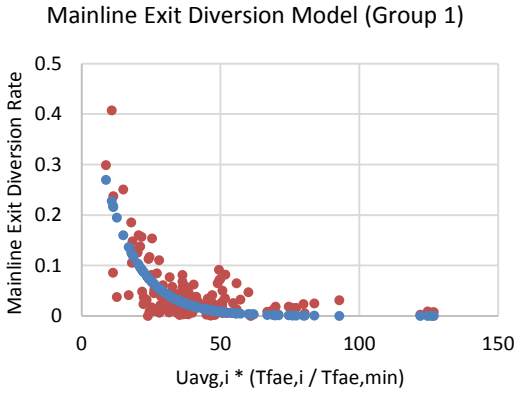
In the above formulation, α, α', β, β', **γ, γ'** are the parameters that need to be calibrated. In this study, those parameters were calibrated by using the Excel Solver with the phase data from each work zone. Figures 4.1.9-10 show the parameter values for each diversion model calibrated in this study. As noted, each model has relatively high R^2 values ranging from 53% to 69%.



Entrance Diversion Rate (Group 1) =

$$\frac{0.521}{\left(1+e^{0.464*\left(U_{avg,i}*\frac{T_{as,i}}{T_{as,min}}\right)}\right)^{0.026}}$$

$R^2 = 0.599$

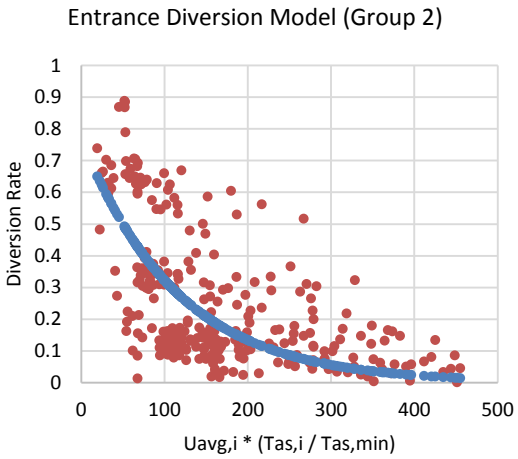


Mainline Exit Diversion Rate (Group 1) =

$$\frac{0.563}{\left(1+e^{1.135*\left(U_{avg,i}*\frac{T_{fae,i}}{T_{fae,min}}\right)}\right)^{0.074}}$$

$R^2 = 0.681$

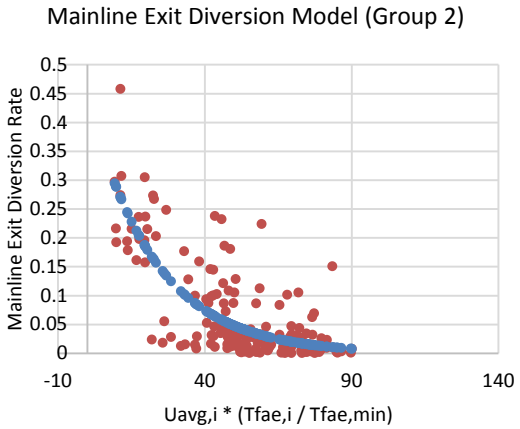
Figure 4.1.9 Diversion Models for Group 1



Entrance Diversion Rate (Group 2) =

$$\frac{0.777}{\left(1+e^{0.118*\left(U_{avg,i}*\frac{T_{as,i}}{T_{as,min}}\right)}\right)^{0.075}}$$

$R^2 = 0.526$



Mainline Exit Diversion Rate (Group 2) =

$$\frac{0.45}{\left(1+e^{0.475*\left(U_{avg,i}*\frac{T_{fae,i}}{T_{fae,min}}\right)}\right)^{0.094}}$$

$R^2 = 0.606$

Figure 4.1.10 Diversion Models for Group 2

4.2 Development and Evaluation of a New Process to Estimate Traffic Diversion at Work Zones

The data analysis results and the models calibrated in the previous section indicate that the diversion of the traffic flows approaching a freeway work-zone with lane-closures is a function of the mainline traffic condition during construction and the travel times of alternative routes from diversion points. Since the diversion rates and the freeway traffic conditions during the lane-closure periods are interrelated, in this study, an iterative process with a freeway traffic simulation model is developed to estimate both the mainline exit and the entering flow diversion rates. The Freeval simulation model (5), developed as the computation engine for the 2010 Highway Capacity Manual by the North Carolina State University, is used as the simulation tool for this process.

Figure 4.2.1 shows the framework of the iterative process, where a given work zone is first modeled with Freeval. After Freeval is calibrated with 'before construction' data, the work zone condition is modeled by adjusting the capacity of the lane-closure section. The first iteration of the simulation is conducted with the 'before construction' traffic demand data, i.e., without considering diversion. The resulting freeway travel times and speeds at each diversion points are entered to the appropriate diversion models, which estimate the first set of the diversion rates at all the exit and entrance ramps. Those estimated diversion rates are converted to the demand adjustment factors in Freeval, which proceeds with the second iteration of simulation with the adjusted origin/destination volumes and results in the updated freeway travel times and speed values. The diversion models then estimate the new set of the diversion rates at each exit and entrance ramp with those updated freeway travel times and speed values. The updated diversion rates are converted to a new set of origin/destination volumes for Freeval and the next iteration of the freeway simulation is performed. This diversion estimation- simulation process keeps iterating until the changes in freeway travel times/speeds between iterations are within the pre-specified thresholds. The diversion rates at each ramp at convergence are selected as the final estimates of the diversion rates for a subjective work zone under given lane-closure and demand condition.

In this study, the key module in the above the iterative process, Simulation Controller, is developed with the C# language. The Simulation Controller manages the iteration process involving the data exchange between Freeval and the diversion models. Further, the procedure to identify the alternative route at each diversion point is developed with the Google Map engine, which is used to determine the shortest path in the arterial network surrounding a given work zone.

Testing the Iterative Process for Diversion Estimation

The iterative simulation process developed in this study for estimating the diversion rates of the traffic flows approaching the exit and entrance ramps during a lane-closure period is tested with two groups of the work zone data: First, the process was tested with the data from those work zones whose data were used to develop the diversion models. They include WZ 1 (35E-NB/SB), 2 (35E-NB), 3 (694-WB), 13 (35E-SB) and 4 (169-SB). Next, the process was applied to the work zones whose data were not included in the diversion modeling. The work zones in this category are WZ 2 (35E-SB), WZ 9 (169-SB) and Hwy 100 (NB).

For each work zone site, a Freeval simulation model was developed and calibrated with the geometry and traffic data for 'before' lane-closure condition. Further, for each diversion point in a given work zone, an alternative route was identified and its travel time data were estimated. Finally, the iterative simulation-diversion estimation process was applied to each work zone until the interaction between freeway traffic condition and diversion reach equilibrium, i.e., freeway travel times and diversion rates at each diversion point converge to certain values. For this testing, the peak one hour traffic data were used, i.e., 7:00-8:00 a.m. or 4:00-5:00 p.m. depending on the traffic direction of each site. Therefore, the resulting diversion rates for each work zone are for the peak one-hour period. Further, for those work zones with changes in lane-closure configurations, multiple Freeval simulation models were developed and the diversion rates were estimated for each phase. The rest of this section includes the diversion estimation results for the ramps upstream of the lane-closure section at each work zone.

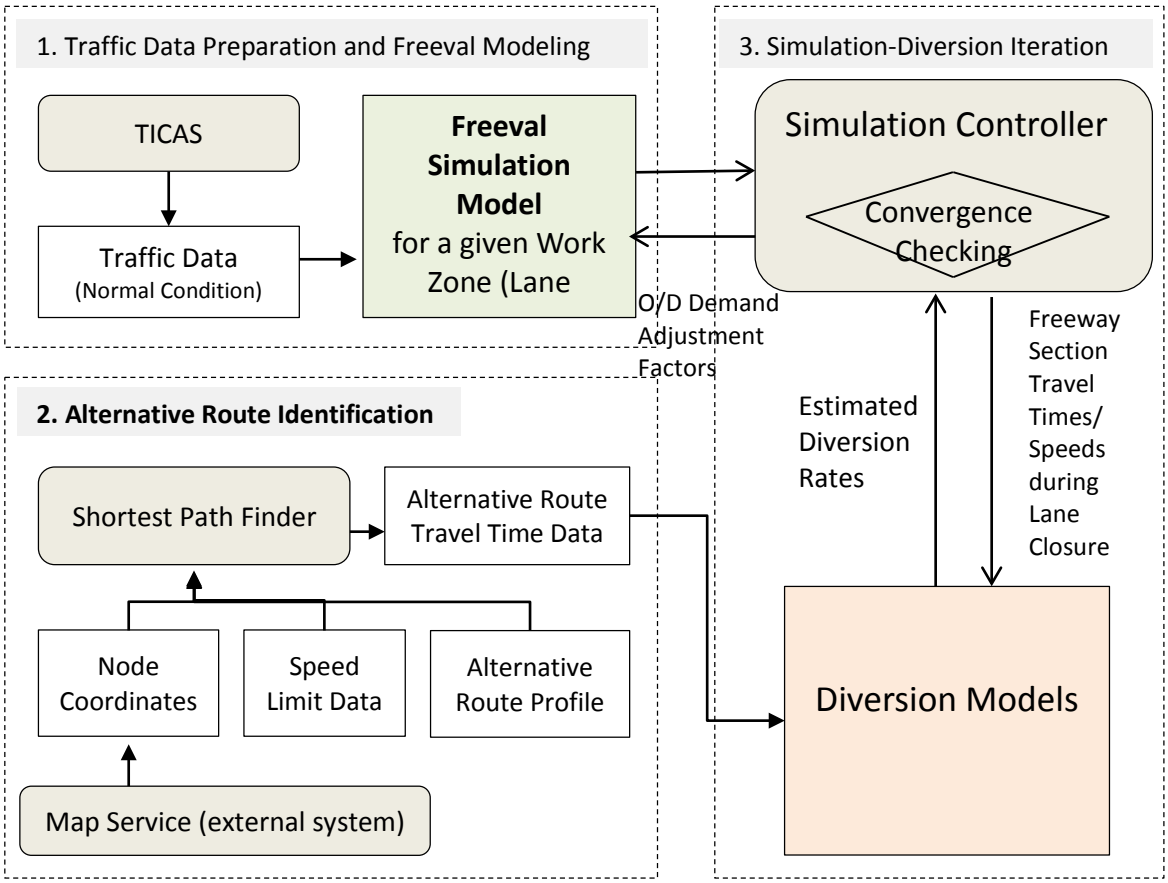


Figure 4.2.1 Framework for Iterative Process for Diversion Estimation

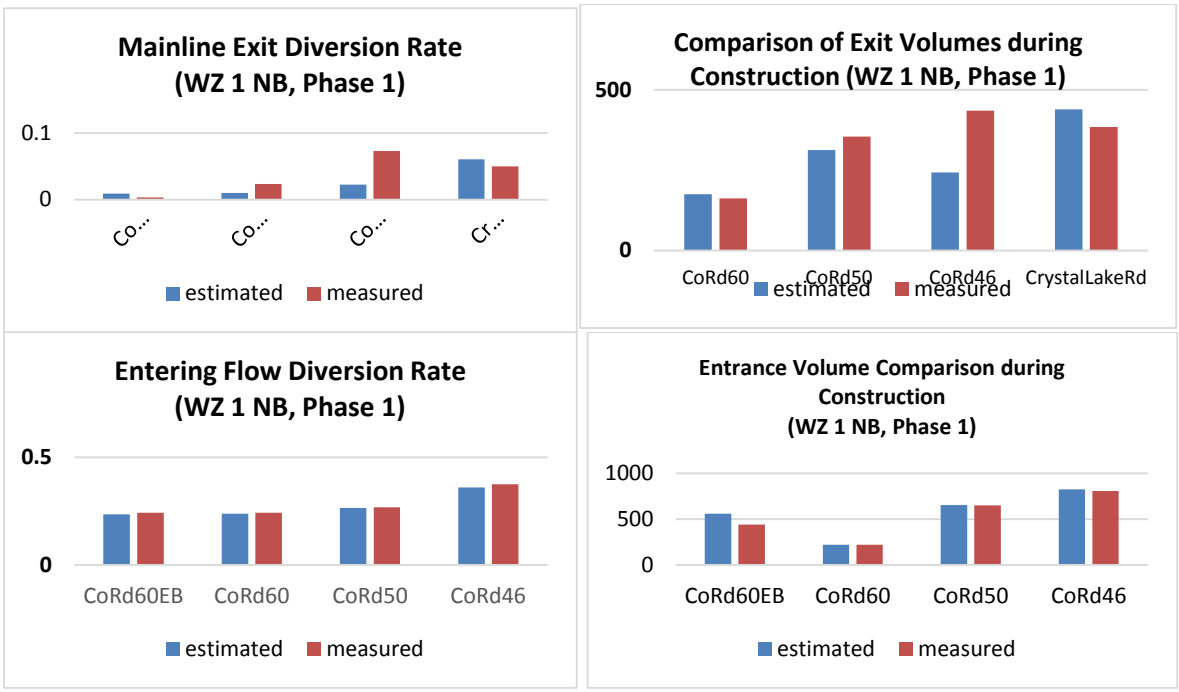


Figure 4.2.2 Diversion Rate Estimation Results for WZ 1 (35E-NB, 7:00-8:00 a.m. Phase 1)

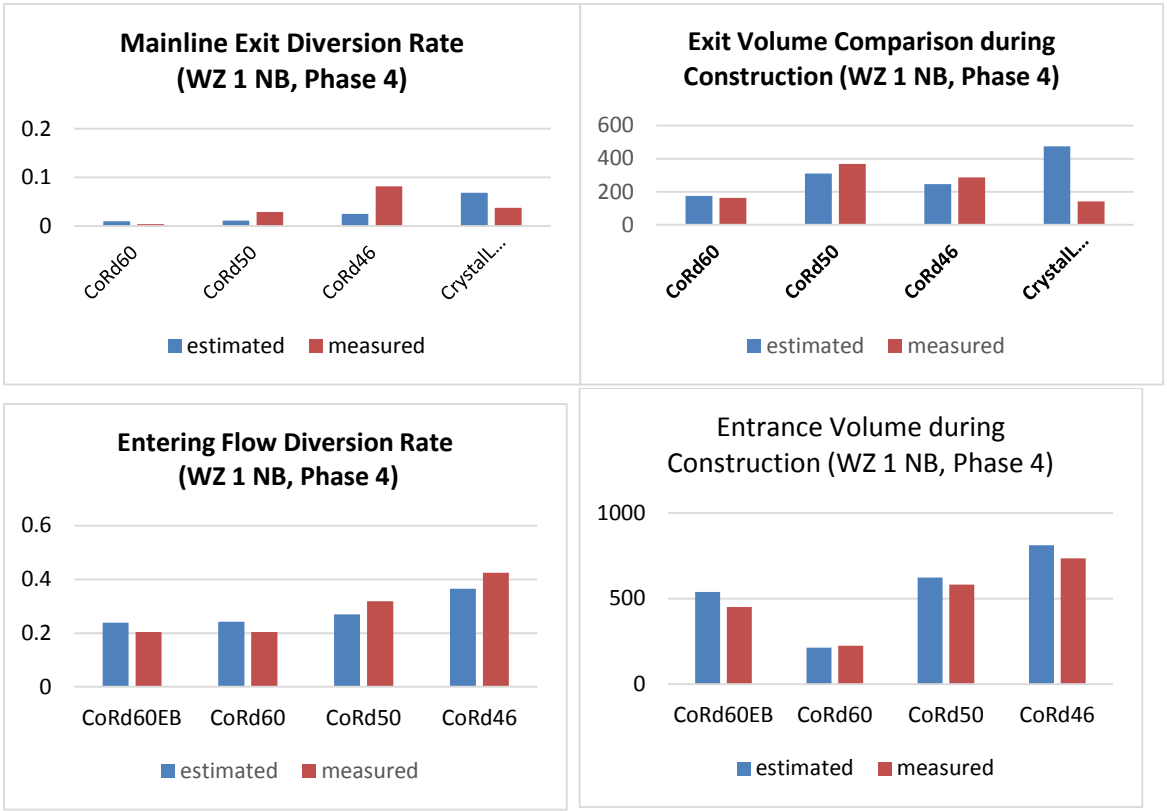


Figure 4.2.3 Diversion Rate Estimation Results for WZ 1 (35E-NB, 7:00-8:00 a.m. Phase 4)

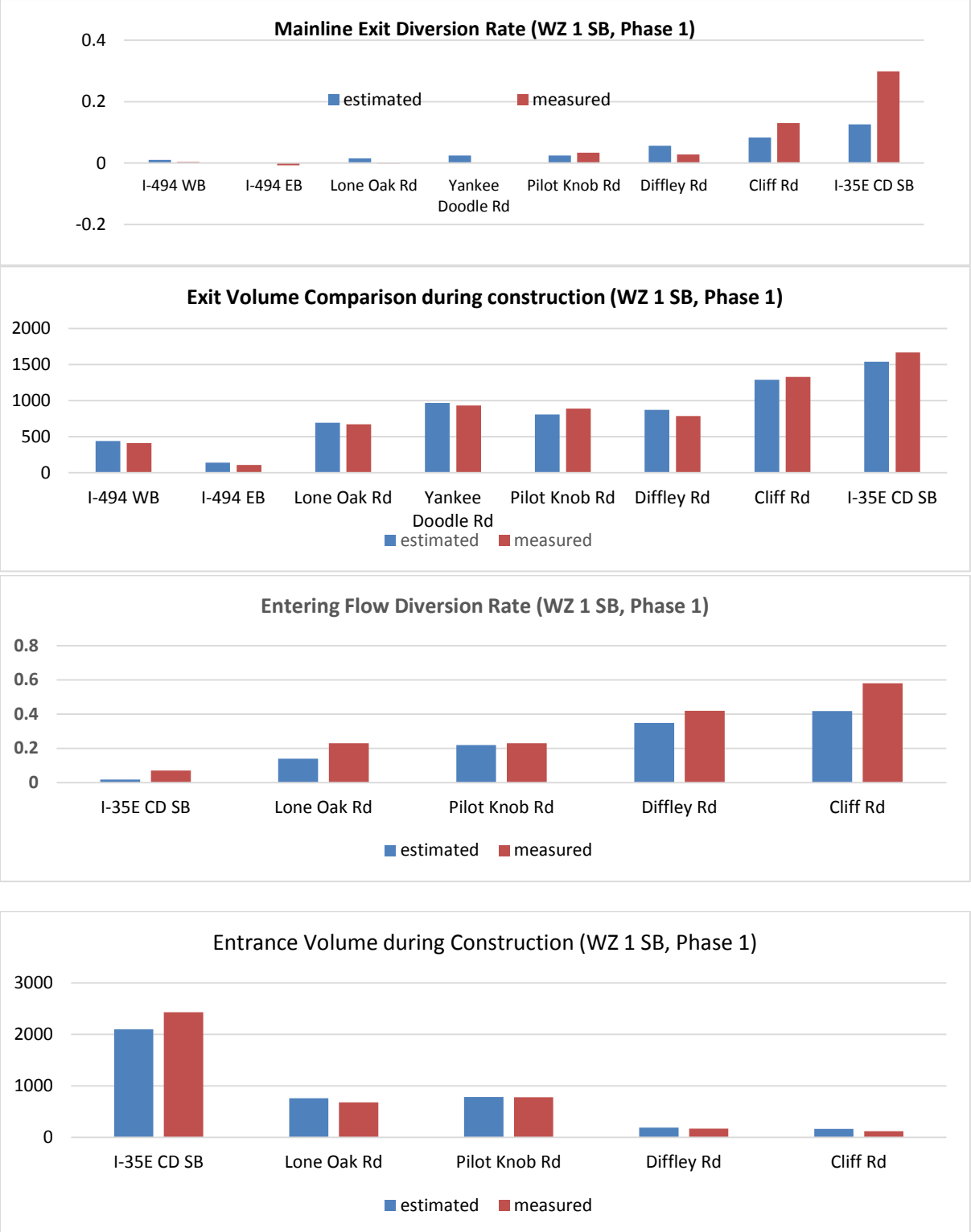


Figure 4.2.4 Diversion Rate Estimation Results for WZ 1 (35E-SB, 4:00-5:00 p.m. Phase 1)

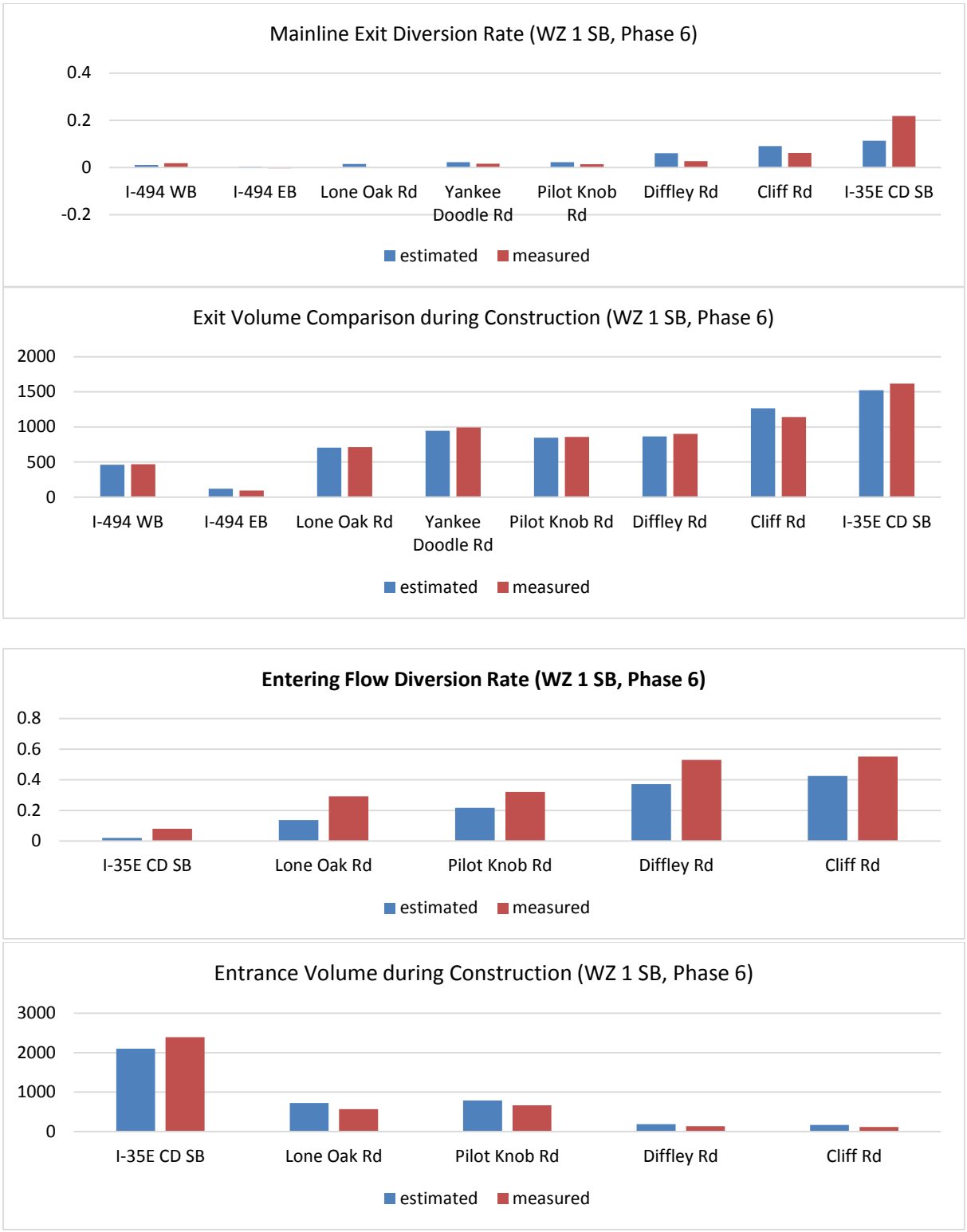


Figure 4.2.5 Diversion Rate Estimation Results for WZ 1 (35E-SB, 4:00-5:00 p.m. Phase 6)

Figure 4.2.6 Diversion Rate Estimation Results for WZ 2 (35E-NB, 4:00-5:00 p.m. Phase 1)

Figure 4.2.7 Diversion Rate Estimation Results for WZ 2 (35E-NB, 4:00-5:00 p.m. Phase 4)

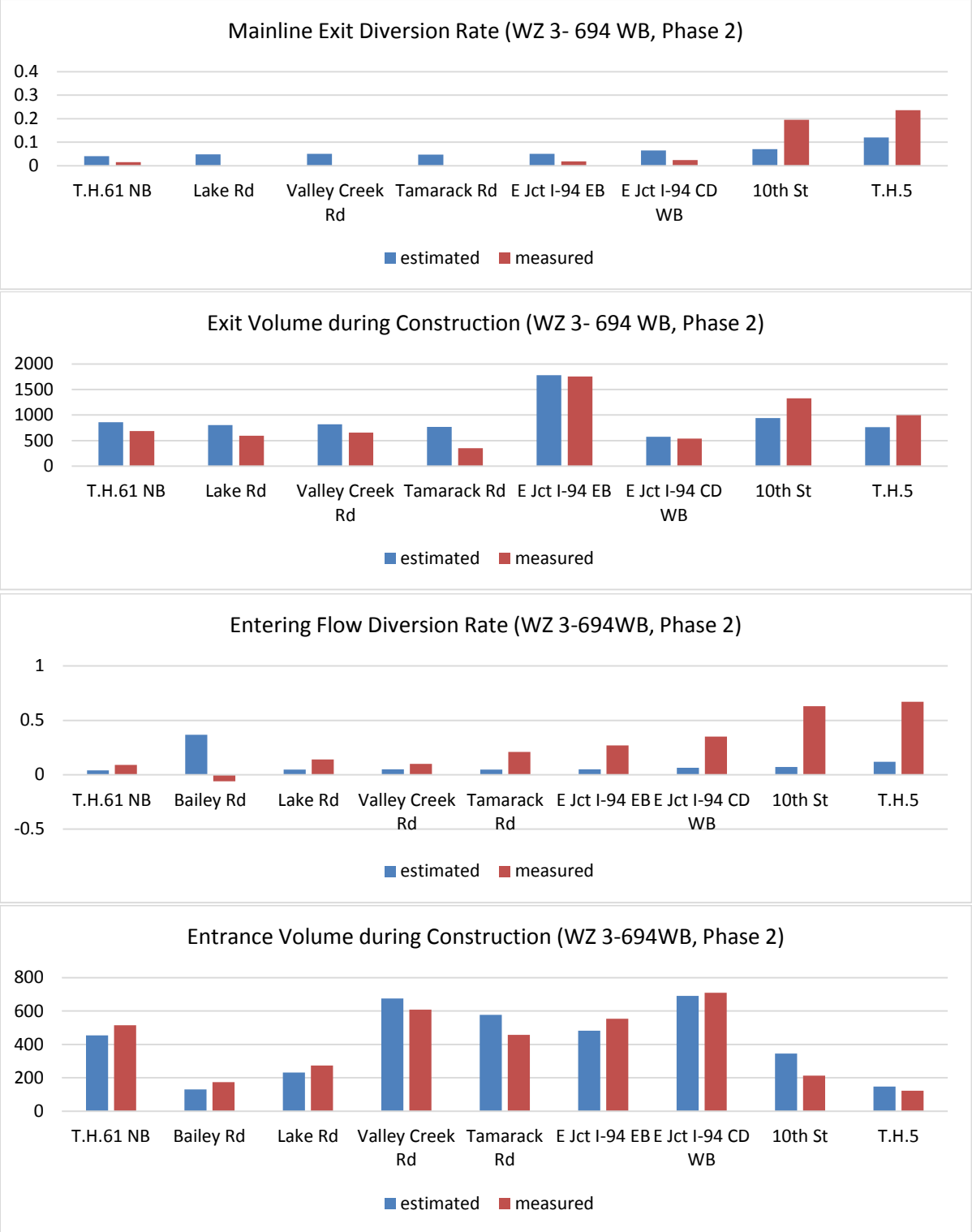
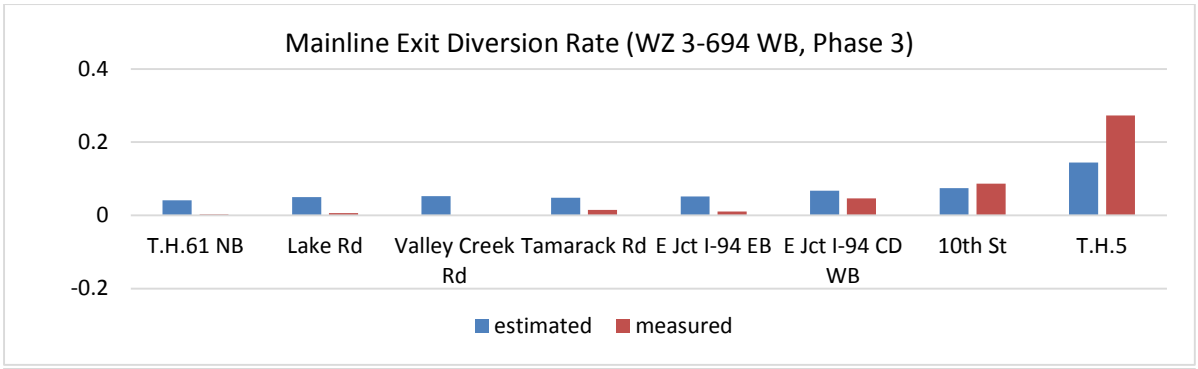
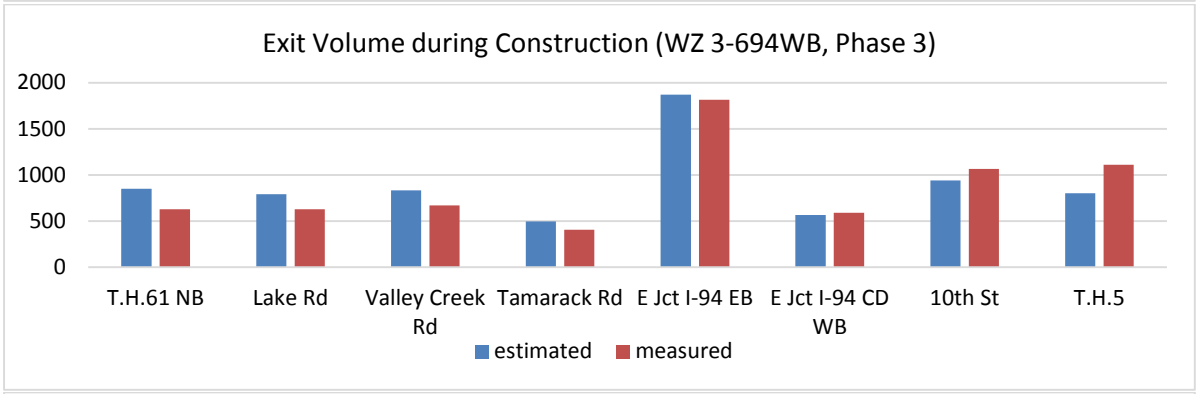
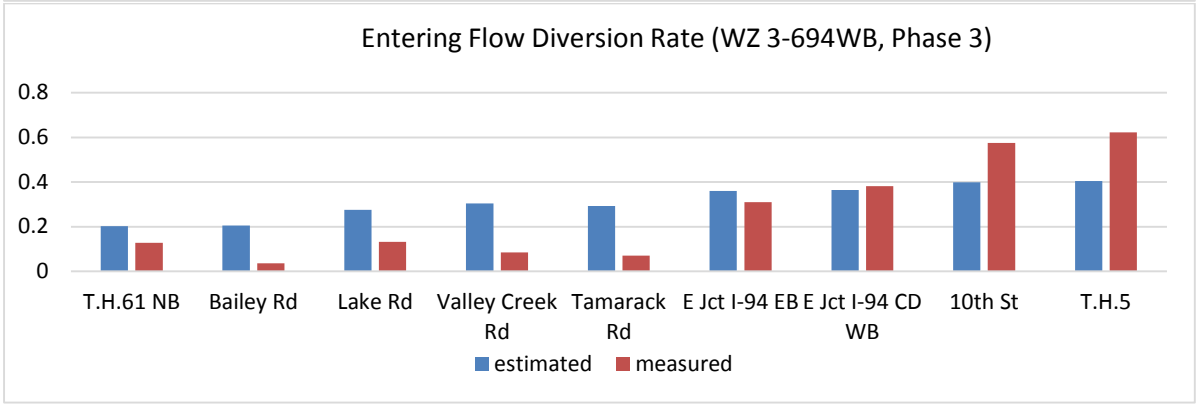


Figure 4.2.8 Diversion Rate Estimation Results for WZ 3 (694WB, 4:00-5:00 p.m. Phase 2)







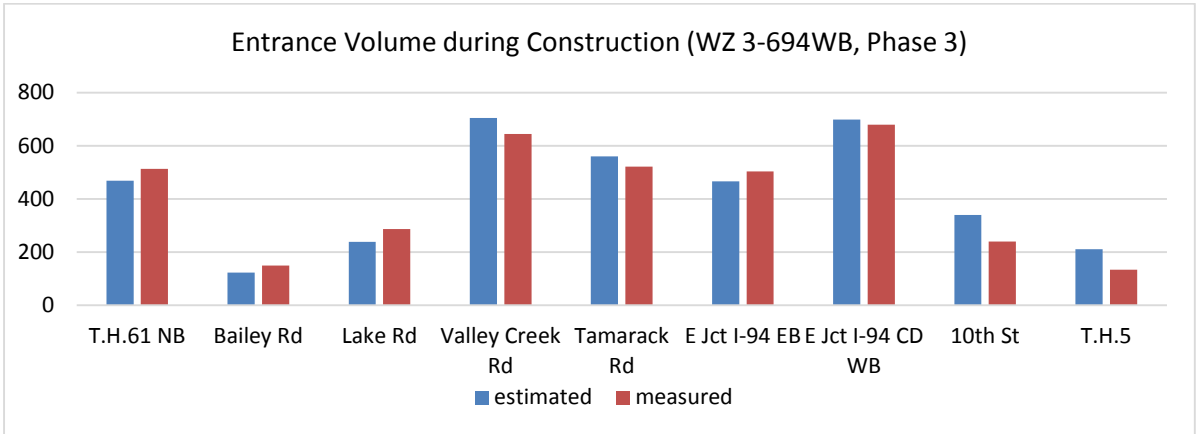


Figure 4.2.9 Diversion Rate Estimation Results for WZ 3 (694WB, 4:00-5:00 p.m. Phase 3)

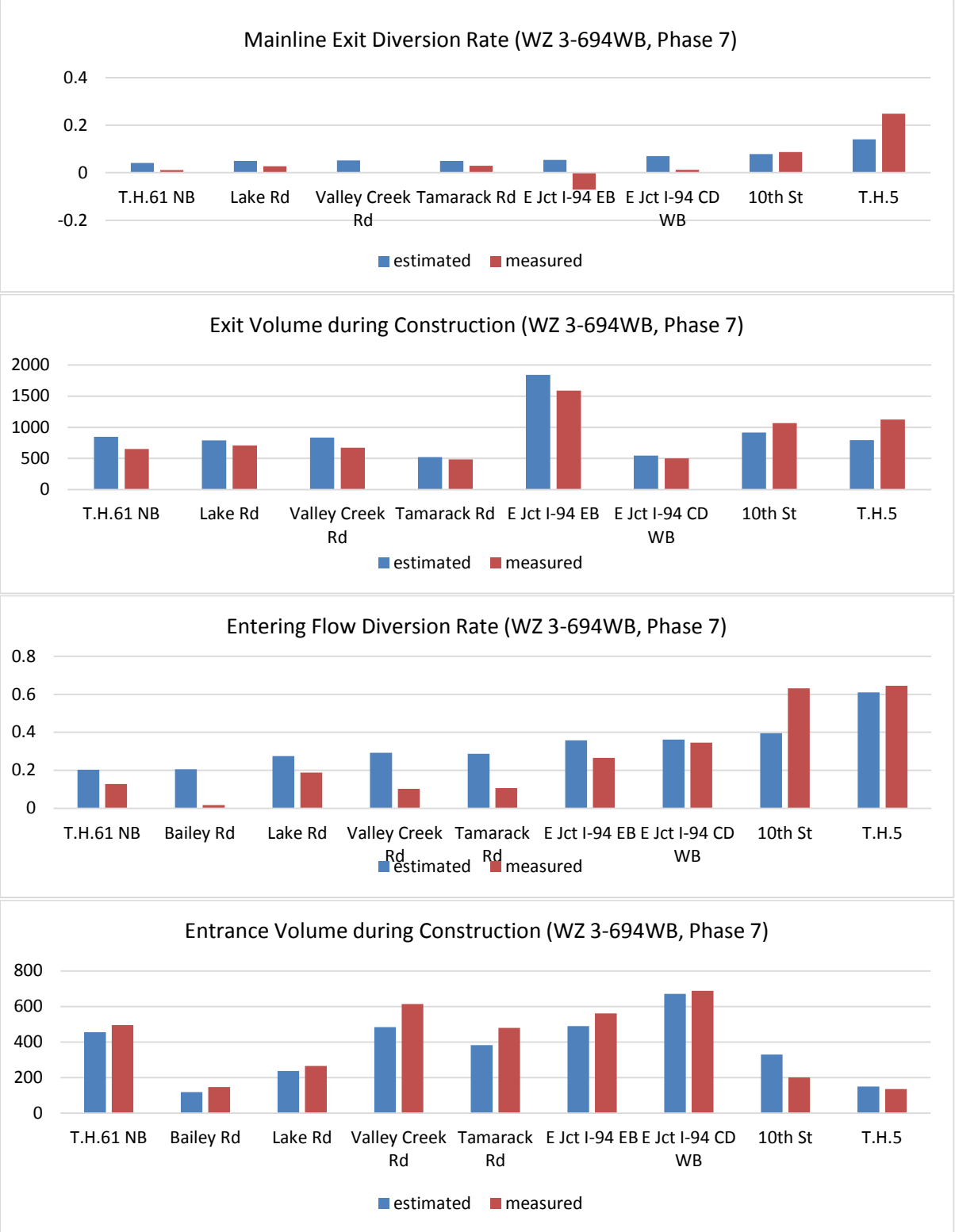
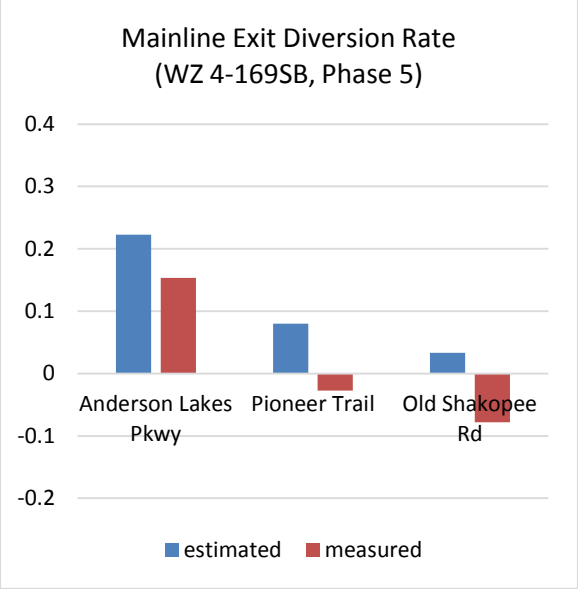
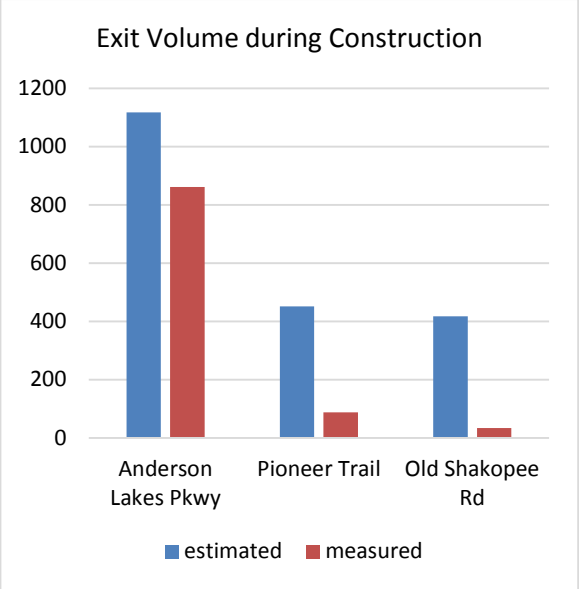
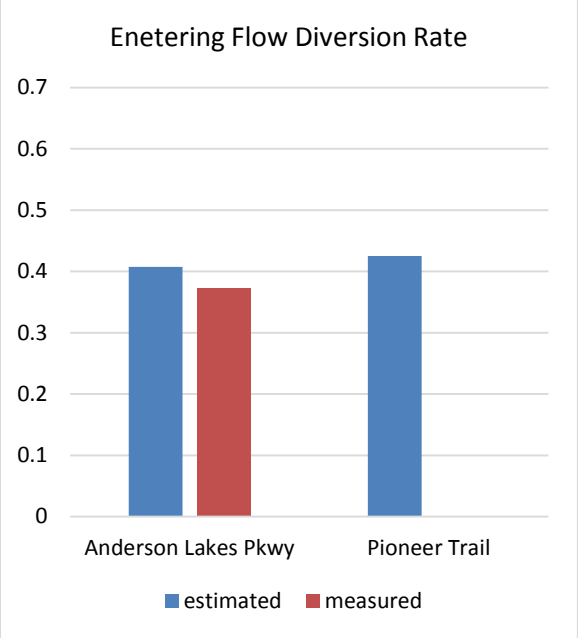


Figure 4.2.10 Diversion Rate Estimation Results for WZ 3 (694WB, 4:00-5:00 p.m. Phase 7)







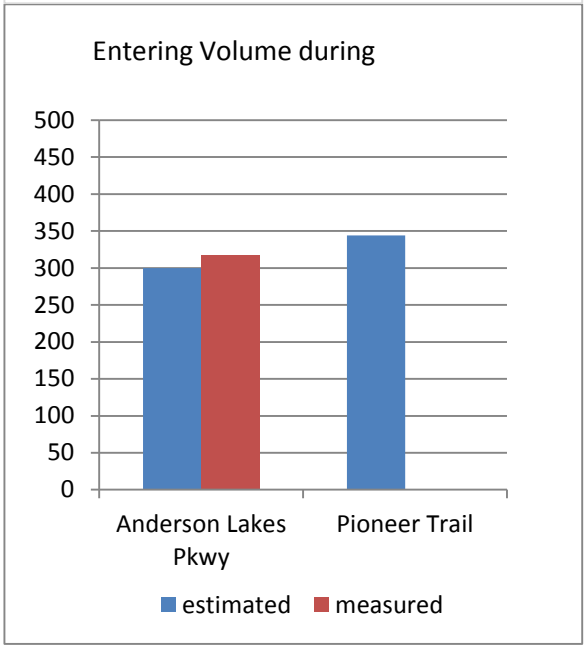


Figure 4.2.11 Diversion Estimation Results for WZ 4 (169SB, 4:00-5:00 p.m. Phase 5)

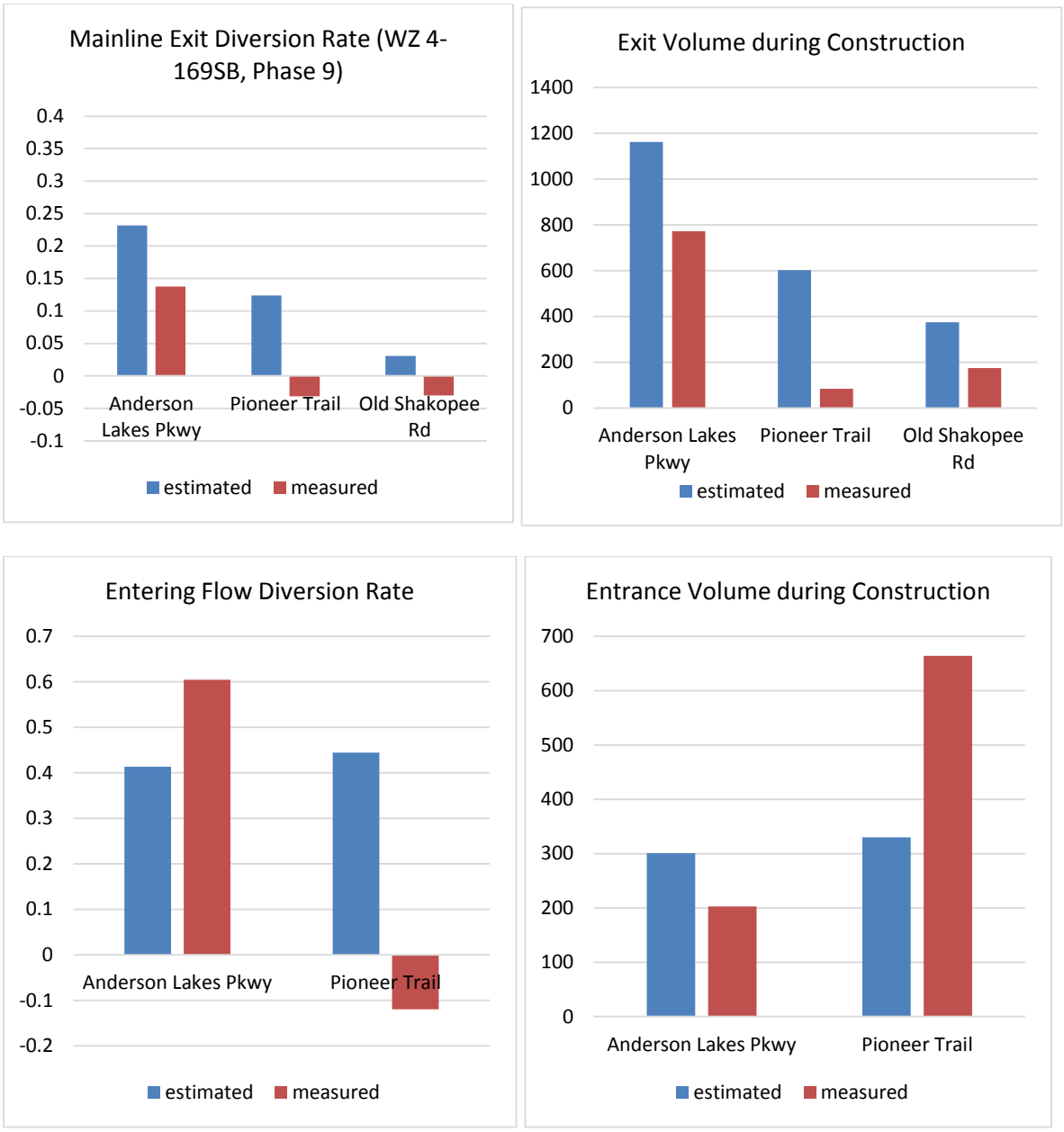


Figure 4.2.12 Diversion Estimation Results for WZ 4 (169SB, 4:00-5:00 p.m. Phase 9)

Figure 4.2.13 Diversion Estimation Results for WZ 13 (35E SB, 4:00-5:00 p.m. Phase 1)

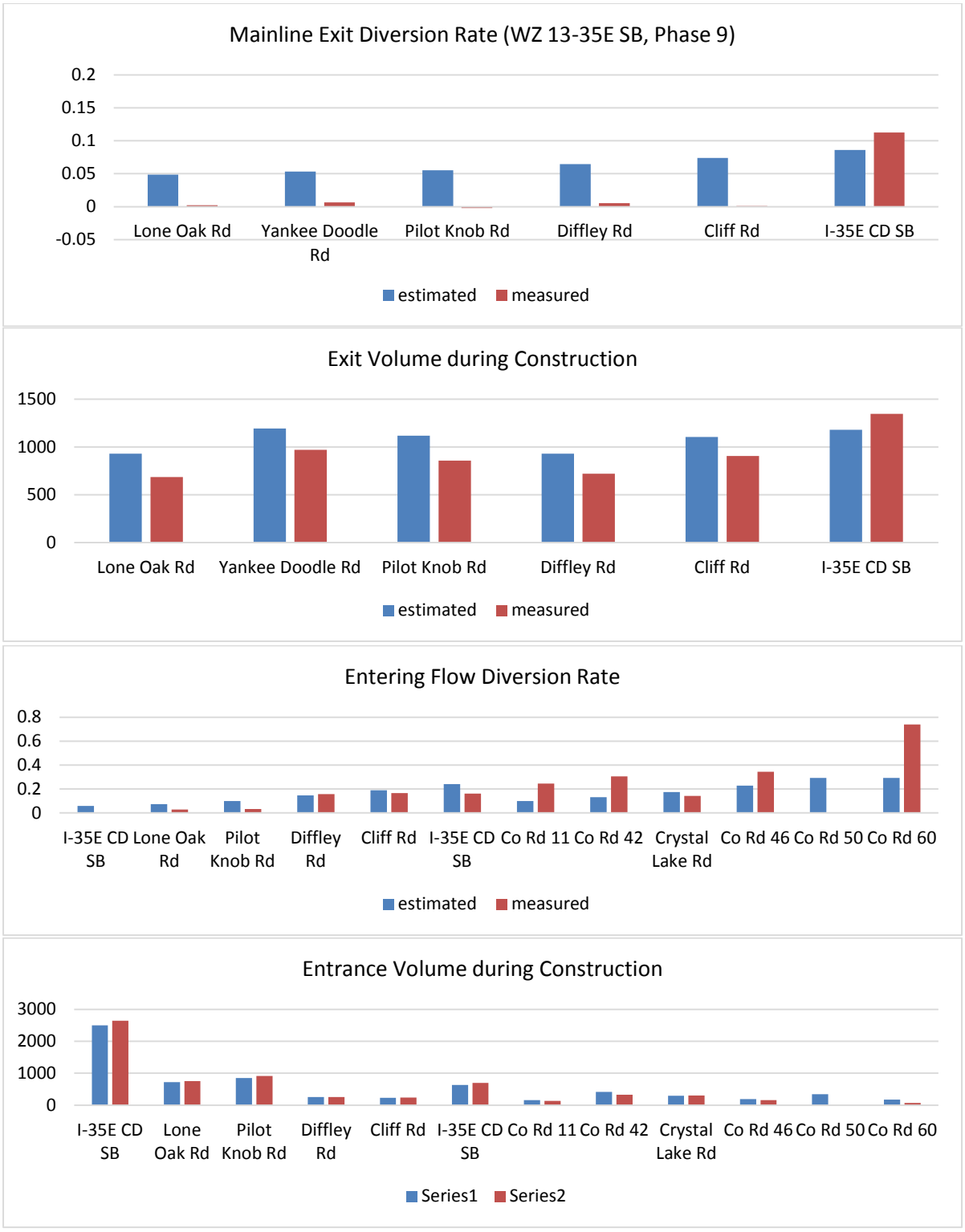
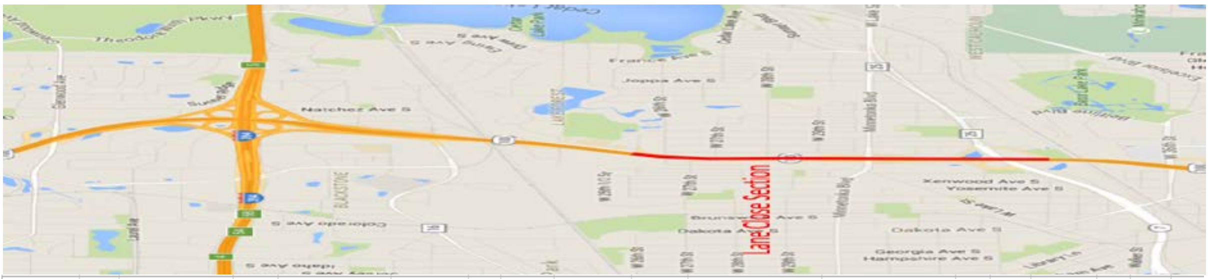


Figure 4.2.14 Diversion Estimation Results for WZ 13 (35E SB, 4:00-5:00 p.m. Phase 9)

4.3 Testing Diversion Estimation Process with New Work Zone Data

In this section, the iterative simulation process was applied to the work zones whose data were not included in the development of the diversion models. Those are WZ 9-169 SB and WZ 14-100 NB. In particular, the work zone in Hwy 100 NB is a new site and the same set of the traffic/geometry data, as for other work zones used in the previous tasks, were collected. Figure 4.3.1 shows the location and layout of the 100 NB work zone site, where the mainline lanes were reduced from three to two at the upstream boundary of the construction section.

For WZ 100 NB, the diversion rates of only the entering flows at each entrance ramp were estimated and compared with the measured values during the lane-closure periods, since there were 3 lanes on 100NB and the mainline exit diversion models developed in this study are for those with two mainline lanes. The iterative simulation for the 100NB site was conducted by fixing the exit volumes with the measured values during construction, while the entrance volumes are changed with the estimated diversion rates. Figures 4.3.2-4 show the diversion estimation results at those sites. As shown in those figures, the accuracy of the diversion rates estimated by the new process for the new work zones are compatible with those sites whose data were used in developing the diversion models. This indicates the feasibility of applying the new diversion models and iterative estimation process for new work zone sites whose lane configurations are compatible with those used in this study.



RampName		E:T.H.100 CD SB		X:T.H.100 CD SB	E:T.H.7	E:T.H.100 CD SB				X:T.H.100 CD SB	X:Minnetonka Blvd	E:27th St			E:T.H.100 CD SB		
Ramp		O		O	X	X				X	X	X			O		
lane 1	<-		<-				<-		X				X			<-	
lane 2	<-		<-				<-		X				X			<-	
lane 3	<-		<-										X			<-	
SB <--	S413		S412				ST1001		S410				S409			S408	
Div																	
NB -->	S383		S384				S386		ST1000				S387			S388	
lane 3	->		->				X		->				X			->	
lane 2	->		->				X		->				X			->	
lane 1	->		->				X		X				X			->	
Ramp		O		O	X			X		X	X			X			
RampName		X:T.H.100 CD NB		E:T.H.100 CD NB	X:T.H.7			E:T.H.7		X:Minnetonka Blvd	E:Minnetonka Blvd			X:25th St			

Figure 4.3.1 Location and Lane Configuration of 100NB Work Zone site

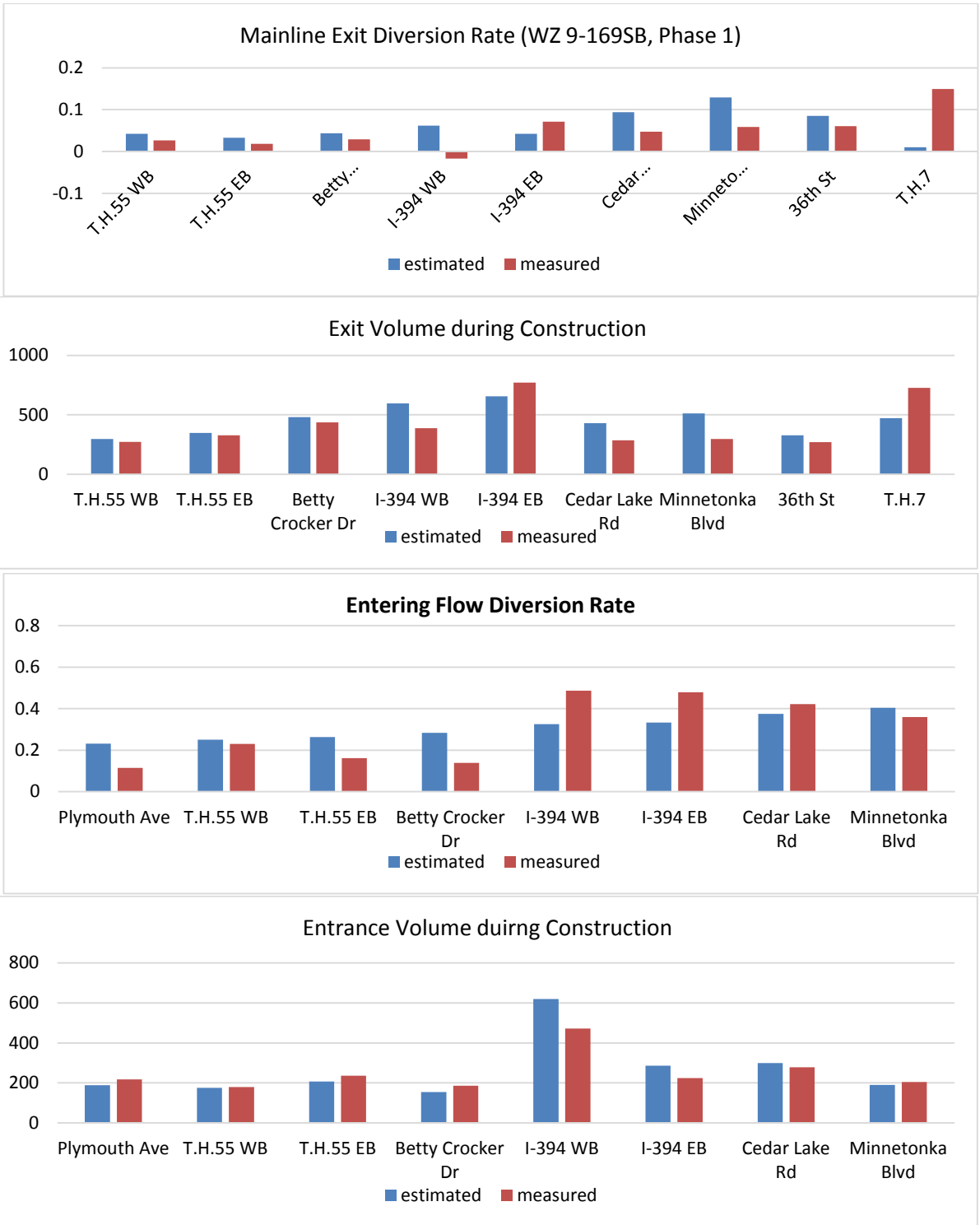


Figure 4.3.2 Diversion Estimation Results for WZ 9 169 SB, 4:00-5:00 p.m. Phase 1)

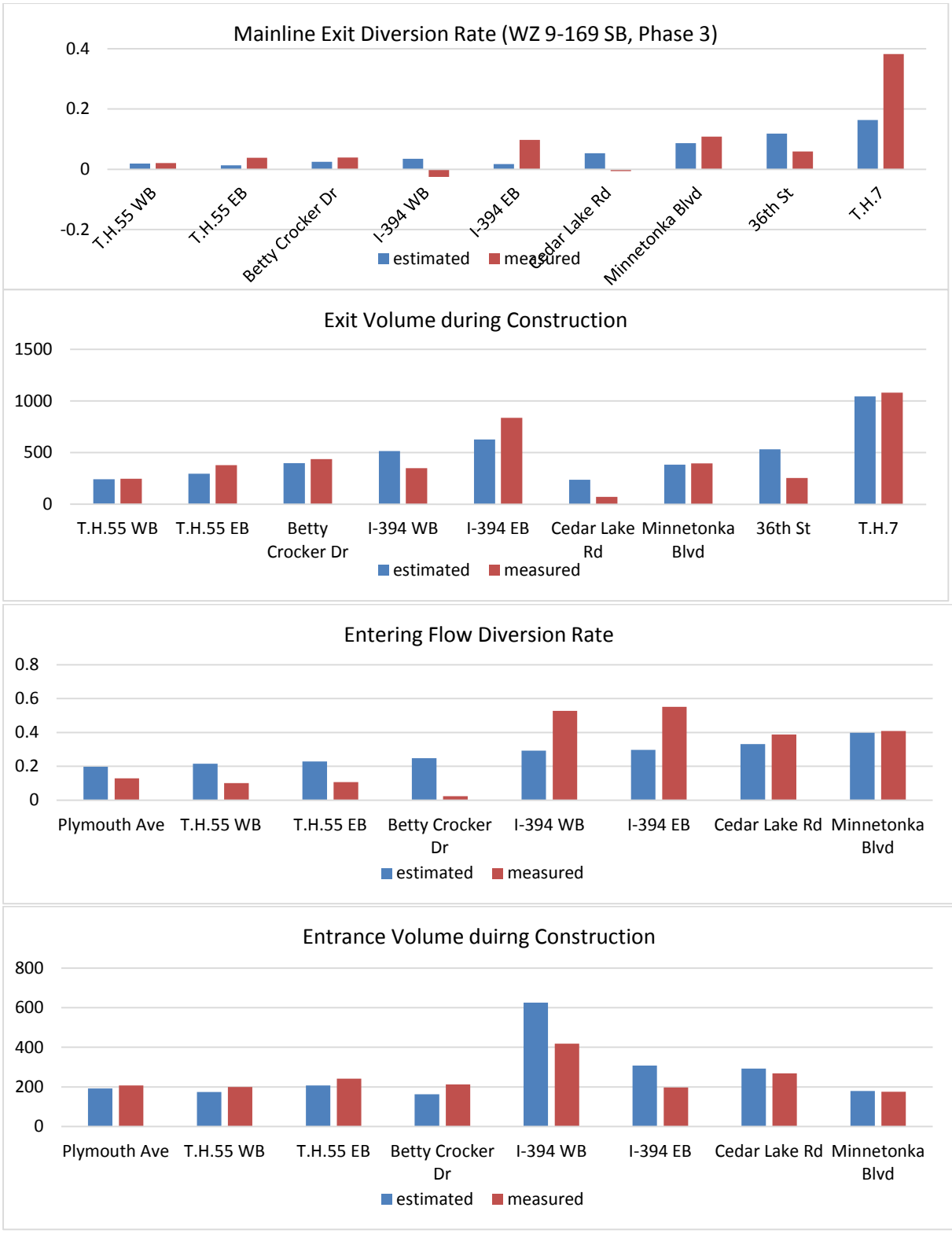


Figure 4.3.3 Diversion Estimation Results for WZ 9 169 SB, 4:00-5:00 p.m. Phase 3)

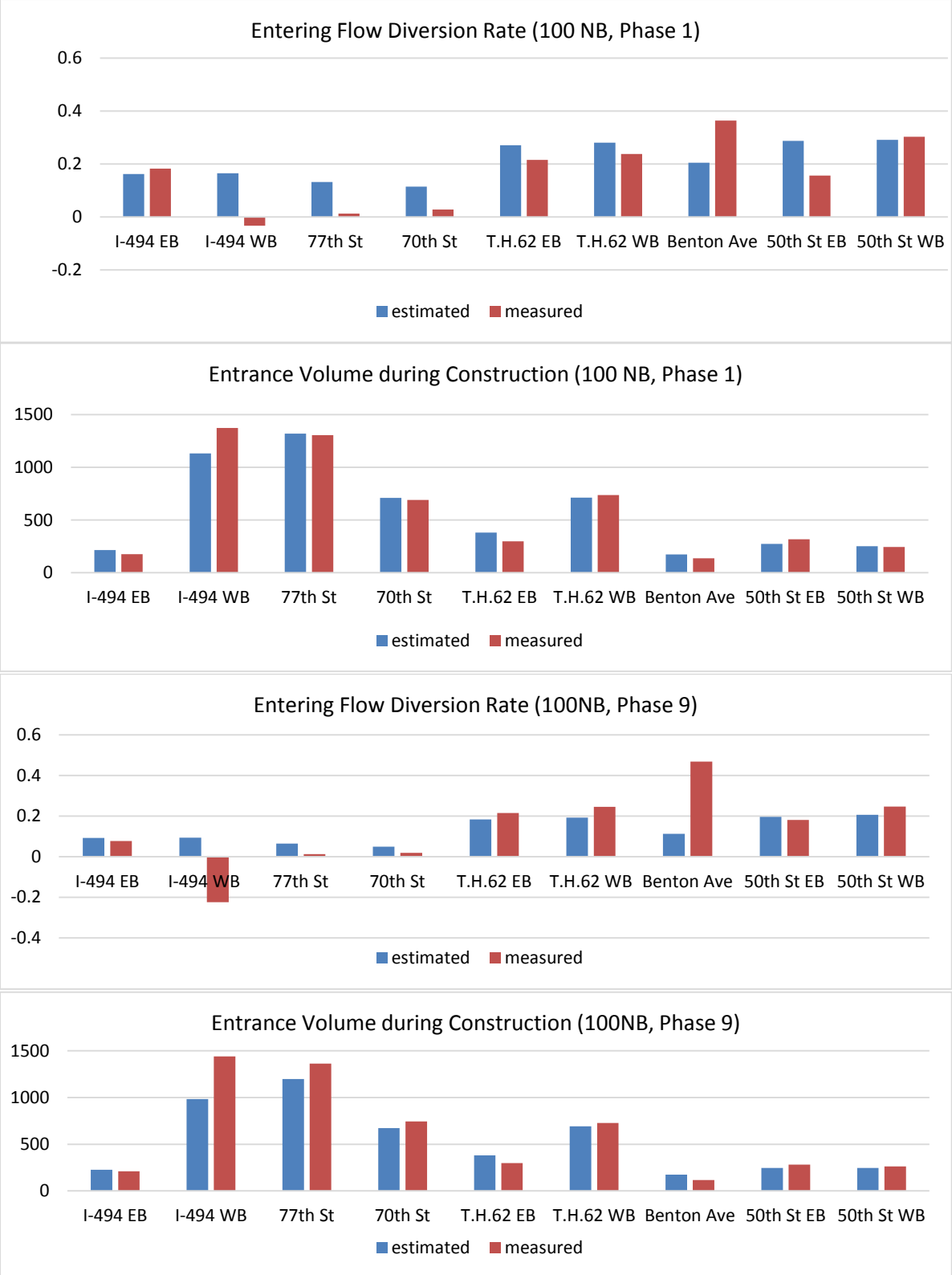


Figure 4.3.4 Diversion Estimation Results for WZ 14- 100NB, 4:00-5:00 p.m. Phases 1 & 9)

CHAPER 5. DEVELOPMENT AND TESTING OF WORK ZONE CAPACITY ESTIMATION PROCESS

In this chapter, a set of the capacity data was collected from the study work-zone sites during lane-closure periods and a guideline is developed to determine the capacity value of a given work-zone with lane-closures. The 'post-breakdown capacity', recently adopted by the Highway Capacity and Quality Service Committee, TRB, and defined as the 85th %ile value of the queue discharge rate, is estimated in this study as the capacity of a given lane closure section. Further, the capacity data was collected only at the locations downstream of an entrance ramp or upstream of an exit ramp.

5.1 Collection and Analysis of Work Zone Capacity Data

In this study, a methodology to estimate a capacity value at a given location was developed using the flow rate and density data collected from the detectors. The step-by-step procedure to estimate the post-breakdown capacity is as follows:

1) Collect traffic and geometry data for a given work zone.

- Collect 15-minute flow rates and traffic density data from all the stations in a lane-closure section for a given work zone.
- Collect geometry data for a given work zone including the ramp closure status and lane closure lengths, etc.

2) Identify Critical Density, K_{cr}, for each detector station as shown in Figure 5.1.1. K_{cr} is used as the threshold to determine queue discharge status.

- Identify a polynomial trend function for the flow rate-density data set from each station for each day.
- Find the K_{cr} value, where the maximum flow rate occurs using the polynomial function.
- Determine an average K_{cr} value for each phase for each station.

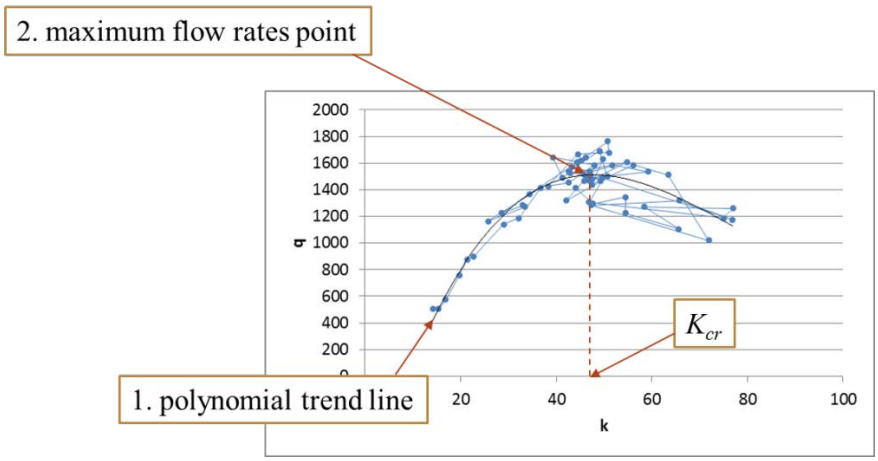


Figure 5.1.1 Critical Density K_{cr} on Q-K Relationship Graph

3) Determination of Capacity

- Select the detector stations either downstream of an entrance ramp or upstream of an exit ramp.
- From those stations, identify and store the congested data set, i.e., those including the densities greater than K_{cr}.

- Identify and store the uncongested data set, i.e., those with the densities lower than K_{cr}, from a downstream station.
- From the two data sets above, identify those data points with the common timeline.
- Determine the 85th percentile value from the data set with the common timeline. This process is illustrated in Figure 5.1.2.

-

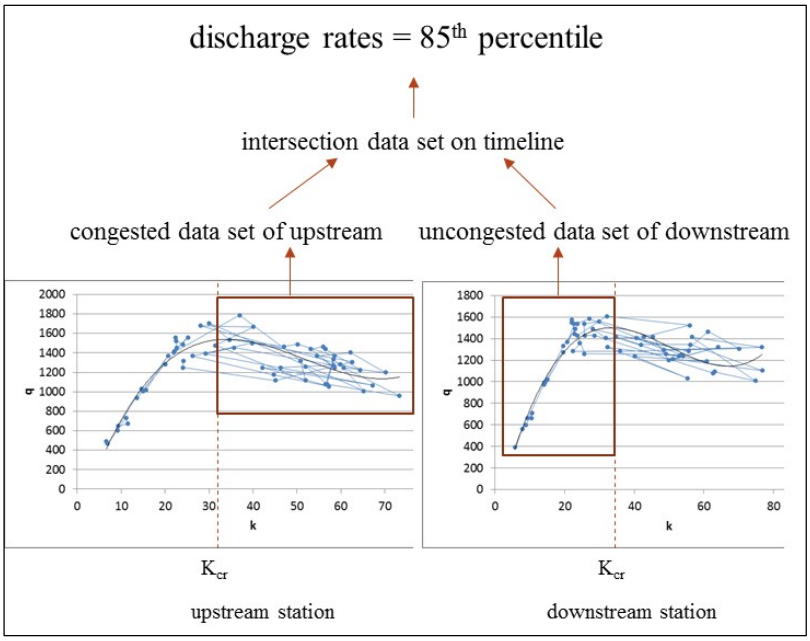


Figure 5.1.2 Determination of Capacity using Upstream and Downstream Station Data

In this research, the above process was computerized and the capacity values for each lane-closure section are determined on a daily basis. Further, to reflect the geometry changes on the capacity values, the daily estimates of the capacity values were grouped to each phase, defined as the time period with the same geometry, and the average capacity value for each phase was estimated. An example phase configuration for capacity estimation is presented in appendix. The output from the above process includes the daily capacity estimates and the average value for each phase for a given work zone. The following figure shows the sample output from the software developed in this study.

Phase	Stage	Date	S870	X:Co Rd 4	S871	E:Co Rd 4	ST30047	ST30048	S872	X:Co Rd 1
1	2	2013-06-18	C	X	C	E	1795	1714		
1	2	2013-06-19	C	X	C	E	1760	1706		
1	2	2013-06-20	C	X	C	E	C	1689		
1	2	2013-06-25	C	X	1054	E	1772	1749		
1	2	2013-06-26	C	X	C	E	1773		1748	
1	2	2013-06-27	C	X	C	E	1765	C	1629	
2	2A	2013-07-02		X	C	E	1775	1679		
2	2A	2013-07-03		X		E				
3	3	2013-07-10	C	X	951	E	missing	missing	C	X
3	3	2013-07-11	C	X	C	E	missing	missing	C	X

Phase	DataCount	Days	Station	AvgCapacity(p85,pc/h/ln)	AvgCapacity(Avg,pc/h/ln)	HV	PCE	K
1	5	6	ST30047	1773	1719	0.0585	2	
1	4	6	ST30048	1715	1680	0.0585	2	
3	2	2	S875	1675	1561	0.0585	2	
4	3	4	S875	1739	1717	0.0585	2	
5	2	3	S875	1767	1686	0.0585	2	

Figure 5.1.3 Example Estimates of Daily Capacity Values

The above process was applied to estimate the daily capacity values of the study work zones, whose list is included in Table 5.1.1. Further, the daily capacity estimates are aggregated for each phase for a

given work zone. Tables 5.1.2 shows the average capacity value for each phase for all the work zones used in this study.

Table 5.1.1 List of work zones used in this study

WZ	Corridor	Lane Closure Configuration	Lane Width (ft)	Median	Shoulder	Speed Limit (mph)	HV (%)	Note
1	I-35E	2 to 1	12	Tube	Open	55	5.85	Crossover
2	I-35E	2 to 1	12	Tube	Open	55	5.02	Crossover
3	I-694	2 to 1	11	Concrete Barrier	Open	55	8.4	Crossover
4	US-169	2 to 2 (NB) 2 to 1 (SB)	-	-	-	-	7.67	-
5	I-35E	3 to 3	11	Concrete Barrier	Drum	55	4.76	No-lane-close
6	I-694	2 to 2	12	-	-	-	6.86	No-lane-close
7	I-494	3 to 3	11	Open	Concrete Barrier	55	5.28	No-lane-close
8	I-694	3 to 2	-	-	-	-	6.12	-
9	US-169	2 to 1	12	Drum	Open	55	5.93	-
10	I-35W	2 to 2	-	-	-	-	7.71	No-lane-close
11	I-694	2 to 1	12	Concrete Barrier	Open	55	7.64	Crossover
12	I-35	2 to 1	12	Tube	Open	55	10.4	Crossover

Table 5.1.2 Capacity Estimates for Each Phase for Study Work Zones

Site 1: I-35E, Jun-Jul 2013 (2 to 1)

Dir	Phase	Station	Capacity (pc/h)	Capacity (veh/h)	Lane Config	Lane Width (ft)	Lane Closure Length (mile)	Median
NB	1	ST30047	1773	1675	2 to 1	12	4.39	Tube
NB	1	ST30048	1715	1620	2 to 1	12	4.39	Tube
NB	3	S875	1675	1582	2 to 1	12	7.34	Tube
NB	4	S875	1739	1643	2 to 1	12	4.39	Tube
NB	5	S875	1767	1669	2 to 1	12	7.34	Tube

Site 2: I-35E, Aug-Oct 2011 (2 to 1)

Dir	Phase	Station	Capacity (pc/h)	Capacity (veh/h)	Lane Config	LaneWidth (ft)	LaneCloseLength (mile)	Median
NB	1	S1489	1775	1690	2 to 1	12	12.21	Tube
NB	1	S1490	1760	1676	2 to 1	12	12.21	Tube
NB	1	S1491	1721	1639	2 to 1	12	12.21	Tube
NB	2	S1489	1746	1663	2 to 1	12	13.83	Tube
NB	3	S1489	1819	1732	2 to 1	12	12.21	Tube
NB	5	S1497	1828	1741	2 to 1	12	0.92	-
NB	5	S1498	1758	1674	2 to 1	12	0.92	-
SB	1	S1541	1741	1593	2 to 1	12	12.13	Tube
SB	1	S1543	1773	1688	2 to 1	12	12.13	Tube
SB	1	S1544	1746	1663	2 to 1	12	12.13	Tube

Site 3: I-694, Jun-Nov 2012 (2 to 1)

Dir	Phase	Station	Capacity (pc/h)	Capacity (veh/h)	Lane Config	LaneWidth (ft)	LaneCloseLength (mile)	Median
EB	2	S1399	1469	1307	2 to 1	11	9.28	Concrete
EB	6	S1398	1528	1410	2 to 1	11	9.28	Concrete
EB	10	S1393	1589	1466	2 to 1	11	6.9	Concrete
WB	2	S1422	1668	1539	2 to 1	11	8	Concrete
WB	2	S1424	1682	1552	2 to 1	11	8	Concrete
WB	3	S1422	1617	1492	2 to 1	11	8	Concrete
WB	3	S1424	1633	1464	2 to 1	11	8	Concrete
WB	6	S1422	1588	1465	2 to 1	11	9.54	Concrete
WB	7	S1422	1649	1414	2 to 1	11	9.54	Concrete
WB	9	S1424	1589	1466	2 to 1	11	9.54	Concrete

Site 7: I-494, Aug 2012 – Apr 2013 (3 to 3, no-lane-close)

Dir	Phase	Station	Capacity (pc/h)	Capacity (veh/h)	Lane Config	LaneWidth (ft)	LaneCloseLength (mile)	Median
WB	5	S186	2280	2166	3 to 3	11	6.53	Open
WB	6	S186	2244	2131	3 to 3	11	7.43	Open
WB	11	S186	2159	2051	3 to 3	11	7.43	Open

Site 8: I-694, Jun-Sep 2013 (3 to 2)

Dir	Phase	Station	Capacity (pc/h)	Capacity (veh/h)	Lane Config	LaneWidth (ft)	LaneCloseLength (mile)	Median
EB	2	ST30004	1786	1683	4 to 2	-	2.57	-
EB	3	ST30004	1774	1672	4 to 2	-	4.33	-
EB	4	ST30004	1876	1768	4 to 2	-	6.76	-
EB	5	ST30004	1879	1771	4 to 2	-	6.76	-
EB	6	ST30004	1818	1713	4 to 2	-	6.76	-
EB	7	ST30004	1744	1643	4 to 2	-	7.3	-
WB	1	S158	1789	1686	3 to 2	-	0.59	-
WB	2	S158	1886	1777	3 to 2	-	0.59	-
WB	3	S158	1786	1683	3 to 2	-	2.19	-
WB	4	S158	1852	1745	3 to 2	-	3.87	-

Site 9: U.S.169 Jun 2013 (2 to 1):Capacity estimated from upstream of entrance

Dir	Phase	Station	Capacity (pc/h)	Capacity (veh/h)	Lane Config	LaneWidth (ft)	LaneCloseLength (mile)	Median
NB	1	S431	1742	1644	2 to 1	12	2.6	Drum
NB	1	S432	1750	1652	2 to 1	12	2.6	Drum

Site 10: I-35W, Apr-Oct 2009 (2 to 2)

Dir	Phase	Station	Capacity (pc/h)	Capacity (veh/h)	Lane Config	LaneWidth (ft)	LaneCloseLength (mile)	Median
SB	1	S31	2282	2119	2 to 2	-	2.8	-
SB	2	S31	2235	2075	2 to 2	-	6.61	-
SB	3	S31	2203	2045	2 to 2	-	6.61	-
SB	4	S29	2218	2059	2 to 2	-	8.1	-
SB	4	S31	2216	2057	2 to 2	-	8.1	-

Site 11: I-694, Apr-Sep 2010 (2 to 1)

Dir	Phase	Station	Capacity (pc/h)	Capacity (veh/h)	Lane Config	LaneWidth (ft)	LaneCloseLength (mile)	Median
EB	1	S1400	1619	1504	2 to 1	12	2.54	Drum
EB	1	S1402	1874	1741	2 to 1	12	2.54	Drum
EB	3	S1405	1625	1470	2 to 1	12	4.95	Concrete
EB	4	S1402	1674	1615	2 to 1	12	3.27	Concrete
EB	4	S1405	1629	1513	2 to 1	12	3.27	Concrete
WB	2	S1415	1711	1590	2 to 1	12	3.34	Concrete
WB	3	S1411	1728	1545	2 to 1	12	5.1	Concrete
WB	3	S1415	1726	1552	2 to 1	12	5.1	Concrete
WB	8	S1414	1702	1581	2 to 1	12	5.1	Concrete
WB	9	S1414	1688	1568	2 to 1	12	5.1	Concrete

5.2 Development and Testing Work Zone Capacity Estimation Process

To develop a guideline to determine the capacity values for work zones with different geometry and lane-closure conditions, the average capacity estimates for different phases at each work zone site were grouped as shown in Figure 5.2.1, where a total of 6 clusters were identified in terms of the lane-closure lengths, number of closed lanes and median types. Table 5.2.1 includes the resulting average capacity values for different work-zone types in terms of lane-closure configurations, e.g., lane width, median type and number of closed lanes. The capacity values shown in Table 5.2.1 can be used as the capacity guideline for new work-zones with similar configurations.

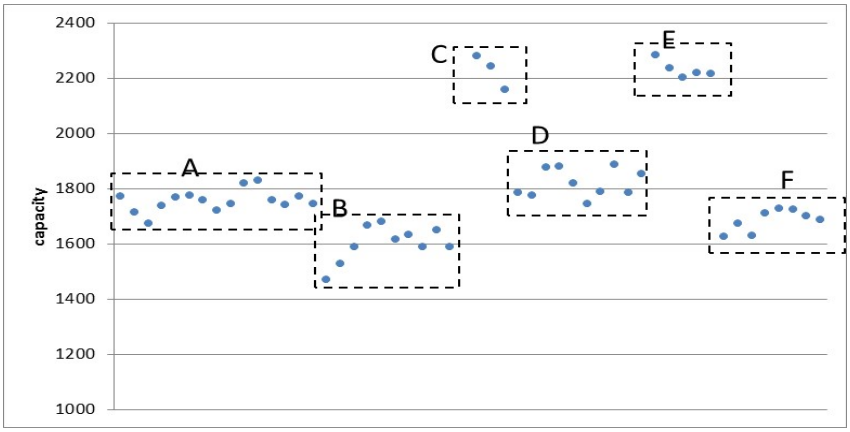


Figure 5.2.1 Clusters of the Capacity Values (pc/hr/lane)

Table 5.2.1 Average Capacity Values for Work-Zone Groups

Lane Config	Lane Width	Median Type	Capacity (pc/hr/lane)	Capacity (veh/hr/lane)	Std dev	Group	Note
2 to 1	12	Tube Delineator with Crossover	1750	1669	33.7	A	A, WZ-1,2
2 to 1	12	Concrete Barrier with Crossover	1685	1579	37.7	F	WZ-12 p value of T-Test with Group A : 0.0024
2 to 1	11	Concrete Barrier with Crossover	1601	1478	61.5	B	WZ-3 p value of T-Test with Group F : 0.0042
2 to 2	12	-	2231	2158	27.5	E	WZ-11, No-lane-close
3 to 2	-	-	1819	1723	48.1	D	WZ-8 p value of T-Test with Group E : 1.9E-10
3 to 3	11	Open	2228	2136	50.7	C	WZ-7, No-lane-close, Concrete Barrier Shoulder p of T-Test with Group E : 0.94

Comparison of New Work Zone Capacity Values with Suggested in Guideline

The suggested capacity values in Table 5.2.1 can be used as the guideline for new work zones. In this section, the capacity values of two work-zones, whose data were not included in developing Table 5.2.1, were estimated and their values were compared with those in the guideline. The new work zones are WZ 12, located in I-35 SB, and WZ 14 on TH 100 NB. Table 5.2.2 includes the daily estimates of the capacity value at I-35 SB work-zone, whose average capacity value is 1716 pc/hr/lane, while the suggested value in Table 5.2.1 for the similar configuration is 1750 pc/hr/lane.

Table 5.2.2 Capacity Estimates of WZ 12 (I-35 SB) and Comparison with Table 5.2.1

WZ	Dir	Date	Station	Estimated (pc/hr/lane)
12	SB	2013-10-03	ST762	1678
12	SB	2013-10-10	ST762	1674
12	SB	2013-10-10	ST762	1634
12	SB	2013-10-15	ST762	1616
12	SB	2013-10-17	ST762	1766
12	SB	2013-10-22	ST762	1797
12	SB	2013-10-23	ST762	1788
12	SB	2013-10-24	ST762	1771

Comparison of Average Capacity Value with Suggested in Table 5.2.1

WZ	Dir	Days	Station	Estimated (pc/hr/lane)	Table 5.2.1 Value (pc/hr/lane)	Note
12	SB	9	ST762	1716	1750	2 to 1 Lane Configuration, Crossover with Tube Delineator => Group A in Table 2

The capacity of the TH 100NB work zone is estimated with the traffic flow data collected from the lane- closure section, where three lanes are reduced to two lanes with 11 ft lanes divided by a concrete barrier. Table 5.2.3 includes the estimated capacity values at ST 1000 during the lane-closure period.

Table 5.2.3 Capacity Estimates of 100 NB Work Zone

Phase	Date	(pc/h/ln)	(veh/h/ln)
1	2015-05-12	2271	2201
1	2015-05-28	2111	2046
1	2015-06-09	2054	1991
1	2015-06-16	2205	2137
1	2015-06-17	2138	2072
1	2015-06-18	2080	2016
1	2015-06-24	2042	1979
1	2015-06-25	2014	1952
1	2015-07-08	2187	2120
1	2015-07-15	1979	1918
1	2015-07-22	2025	1963
1	2015-07-29	2020	1958
1	2015-07-30	1912	1853
1	2015-08-05	2109	2044
1	2015-08-11	1866	1809
1	2015-08-12	1969	1908
1	2015-08-13	2073	2009

The average capacity value from the 00NB lane-closure section was compared with that of the I-694 work zone, whose capacity value was included in Table 5.2.1 as the three to two lane reduction case. Table 5.2.4 shows the comparison of those two sites:

Table 5.2.4 Capacity Comparison between I-694 and TH 100 work zones

WZ	Dir	Lane Configuration	Lane Width	Capacity (pc/h/ln)	Capacity (veh/h/ln)	Note
T.H.100	NB	3 -> 2	11	2049	1991	Lane closure section length: 1.3 miles Concrete Barrier Median
I-694	WB	3 -> 2	-	1819	1723	Lane closure section length: 5.0 miles.

Tables.5.2.3 and 4 indicate the 100NB work zone has slightly but consistently higher capacity than that of the I-694 work zone which had significantly longer lane closure length than 100 NB work zone. It can be concluded that the capacity of a 3 to 2 lane-reduction site varies between 1800 and 2000 pc/hr/lane depending on the lane-closure length and median type, while more data are needed to develop a specific guideline for this case. However, the suggested capacity values in Table 5.2.1 can be applicable for the work zone sites with 2 to 1 lane-reduction.

CHAPTER 6. A GUIDELINE FOR WORK-ZONE DIVERSION AND CAPACITY ESTIMATION

6.1 Guideline for Traffic Diversion Estimation for Work Zones

Figure 6.1.1 illustrates the overall process to estimate the diversion rates at freeway exit and entrance ramp areas upstream of a lane-closure section. As shown in this figure, the process adopts an iterative process involving the Freeval simulation model and the diversion-estimation models developed in this study. The whole process is divided into 3 modules: 1) Freeway work zone data preparation and Freeval modeling, 2) Alternative route data preparation, and 3) Iterative estimation of Simulation-Diversion Estimation.

First, a given work zone is modeled with Freeval using the geometry and the traffic data collected for normal condition, i.e., before lane-closure. The Freeval model is then calibrated for the normal traffic condition before the lane-closure. The calibration can be performed by adjusting the Freeval parameters, which include free flow speeds, peak-hour factors and the link capacity factors, to minimize the differences between the estimated freeway travel times and the field measured ones. After the Freeval case file is calibrated with the 'before construction' data for a given work zone site, the next step is to model the lane-closure condition by adjusting the capacities of the freeway segments to reflect the low free-flow speeds and lane restrictions. Next, the alternative or diversion route from each diversion point is identified in the road network surrounding a given work zone. For an exit ramp upstream of a lane-closure section, the alternative route is assumed to be the minimum-time path to the entrance ramp after the end of a lane-closure section. For the diversion traffic at an entrance ramp, the alternative route is defined as the minimum-time path to the upstream boundary of the lane-closure section. The travel time of each diversion route is then estimated with the posted speed limit values of the road links included in each route. The travel time data for the alternative routes on a given work zone are used as the input to the diversion estimation models.

Once the travel time data for all the alternative routes are determined and the given work zone condition is modeled with Freeval, the first iteration of the simulation can be conducted with the 'before construction' traffic demand, i.e., without considering diversion. The resulting freeway travel times and speeds at each diversion points are entered to the diversion models, which estimate the first set of the diversion rates at all the exit and entrance ramps upstream of a given lane-closure section. Those estimated diversion rates are then converted to the demand adjustment factors in Freeval, which proceeds with the second iteration of simulation with the adjusted origin/destination volumes. The output from the 2nd simulation includes the updated freeway travel times and speed values at each detector station upstream of the lane-closure section. The diversion models then estimate the new set of the diversion rates at each exit and entrance ramp with those updated freeway travel times and speed values. The updated diversion rates are converted again to a new set of origin/destination volumes for Freeval and the next iteration of the freeway simulation can be conducted. The simulation-diversion estimation process continues until the changes in the simulated freeway travel times between two successive iterations is within the pre-specified thresholds. The diversion rates at each ramp at convergence are selected as the final estimates of the diversion rates for a subjective work zone under given lane-closure and demand condition. The rest of this section describes the diversion models and the detailed process included in Figure 6.1.1.

Diversion Rate Estimation Models

The models developed in this study determine the diversion rate of the mainline exit flow at ramp i, $R_{MX,i}$, and the diversion rate of the entering flow at entrance ramp i, $R_{E,u}$, as the function of the mainline and alternative route traffic condition as follows:

$$R_{E,i} = \alpha \ / \ \{(1 + \exp [\beta \ * (T_{As,i}/T_{As,min})* U_{avg,i}])\}^{\gamma}$$
$$R_{MX,i} = \alpha' / \{(1 + \exp [\beta' * (T_{d,i}/T_{d,min})* U_{avg,i}])\}^{\gamma'}$$

where,

$R_{MX,i}$, = the proportion of the diverted exit volume at ramp i, i.e., additional to the normal exit demand, to the mainline flow,
$R_{E,i}$, = the proportion of the diverted volume to the normal entrance demand during the construction
$T_{Fd,i}$ = Freeway travel time from upstream reference point to diversion point i during construction,
$T_{Ae,i}$ = Alternative Route Travel Time to the end of work zone from the diversion point i,
$T_{As,i}$ = Alternative Route Travel Time to the upstream boundary of a work zone from the diversion point i,
$T_{As,min}$ = the minimum travel time of all non-freeway alternative routes from entrance ramp i to the work zone starting point in a given work zone during construction,
$U_{avg,i}$ = Average speed of the freeway section from the diversion point i to the upstream boundary of a lane- closure section,
α, β, γ, α', β', γ' = diversion model parameters.

Figure 6.1.2 shows a simplified work zone and the types of the traffic data used in estimating the diversion rates with the above models. Table 6.1.1 shows the values of the parameters in the above models calibrated with the data from the past work zones in the metro area. It needs to be noted that the parameters for the mainline exit flow diversion model, $R_{MX,i,}$ were calibrated for the work zone sections whose lanes were reduced from 2 to 1, thus applicable to only those configurations.

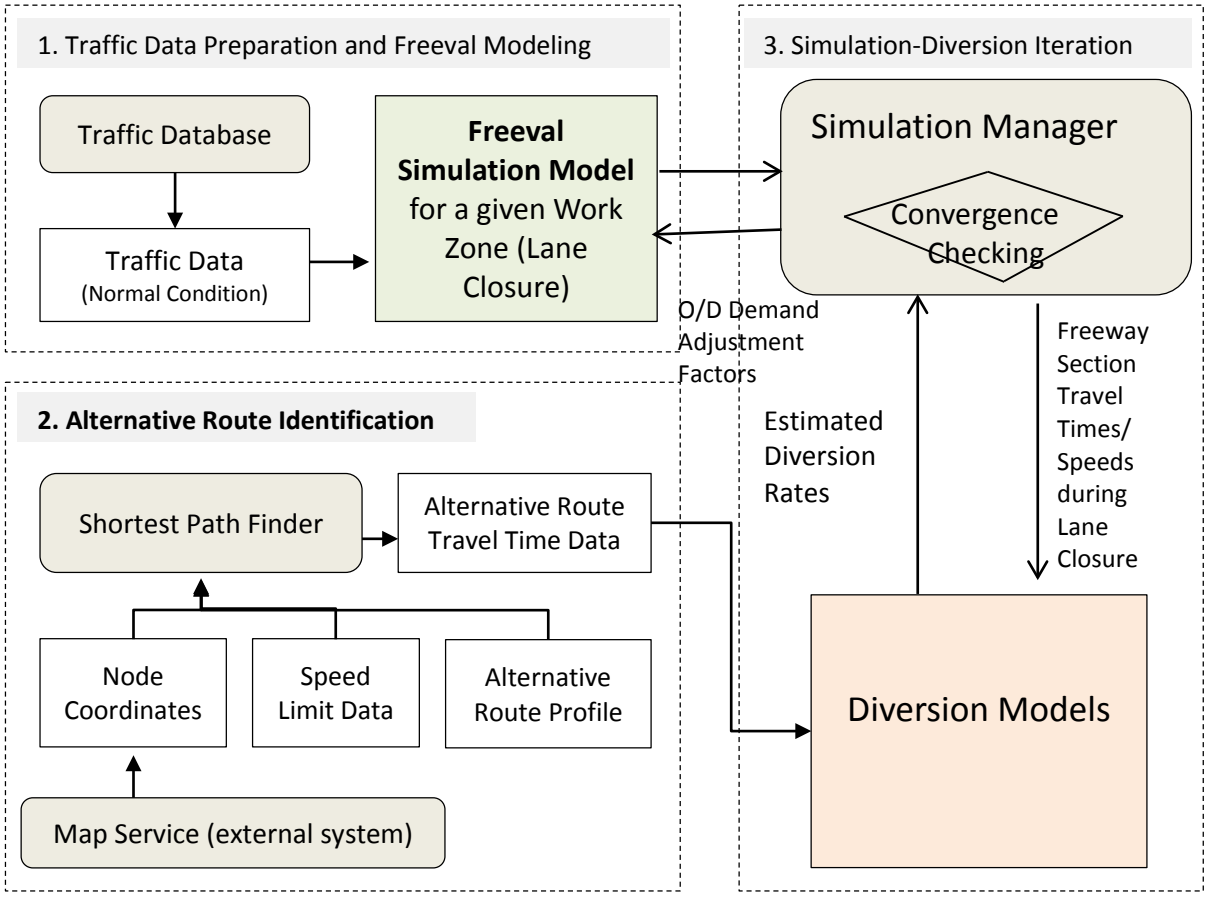


Figure 6.1.1 Framework of Diversion Estimation Process

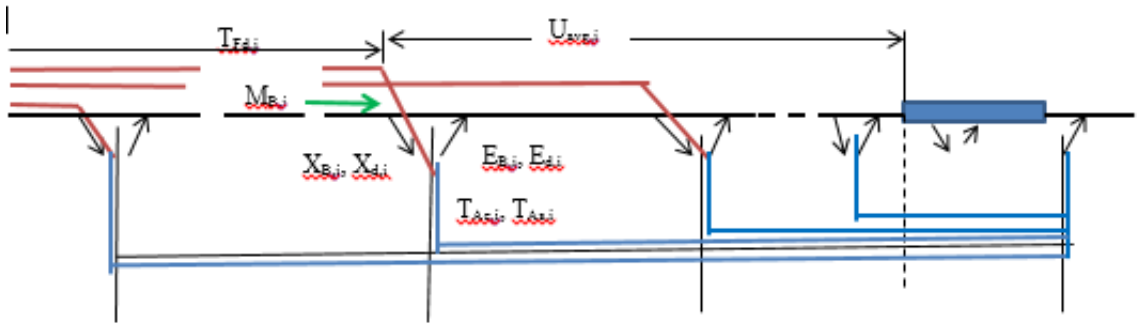


Figure 6.1.2 Simplified Structure of a Work Zone and Data Types

$M_{B,i}$ = Mainline flow rate approaching the exit ramp i before construction,
$X_{B,i}$ = Exit flow rate at exit ramp i before construction,
$X_{d,i}$ = Exit flow rate at exit ramp i during construction,
$E_{B,i}$ = Entering flow rate from entrance ramp i before construction,
$E_{d,i}$ = Entering flow rate from entrance ramp i during construction,
$T_{Fd,i}$ = Freeway travel time from upstream reference point to diversion point i during construction,
$T_{Ae,i}$ = Alternative Route Travel Time to the end of work zone from the diversion point i,
$T_{As,i}$ = Alternative Route Travel Time to the upstream boundary of a work zone from the diversion point i,
$Td,i = TF_{d,i} + TA_{e,i}$ = Total diversion route travel time at exit ramp i for the mainline flow,
$T_{d,min}$ = the minimum total diversion travel time of all exit diversion routes in a given work zone during construction,
$T_{As,min}$ = the minimum of alternative route travel times from all entrance ramps to the work zone starting point in a given work zone during construction.
$U_{avg,i}$ = Average speed of the freeway section from the diversion point i to the upstream boundary of a lane-closure section

Table 6.1.1 Parameters for Diversion Models

	Entering Flow Diversion Model		Mainline Exit Flow Diversion Model	
	Group 1	Group 2	Group 1	Group 2
α	0.521	0.777	0.564	0.450
β	0.464	0.118	1.135	0.475
γ	0.026	0.075	0.074	0.094
$\mathbf{R^2}$	0.599	0.526	0.681	0.606

Group 1: Work Zones with the lane-closure length <= 6 miles
Group 2: Work Zones with the lane-closure length > 6 miles.

Detailed Procedures for Diversion Estimation

Figure 6.1.3 illustrates the flow chart of the iterative simulation-estimation process. In this section, each step in this process is explained in detail using the 35NB work zone as an example. Figure 6.1.4 shows the location and lane-configuration of the I-35NB work zone.

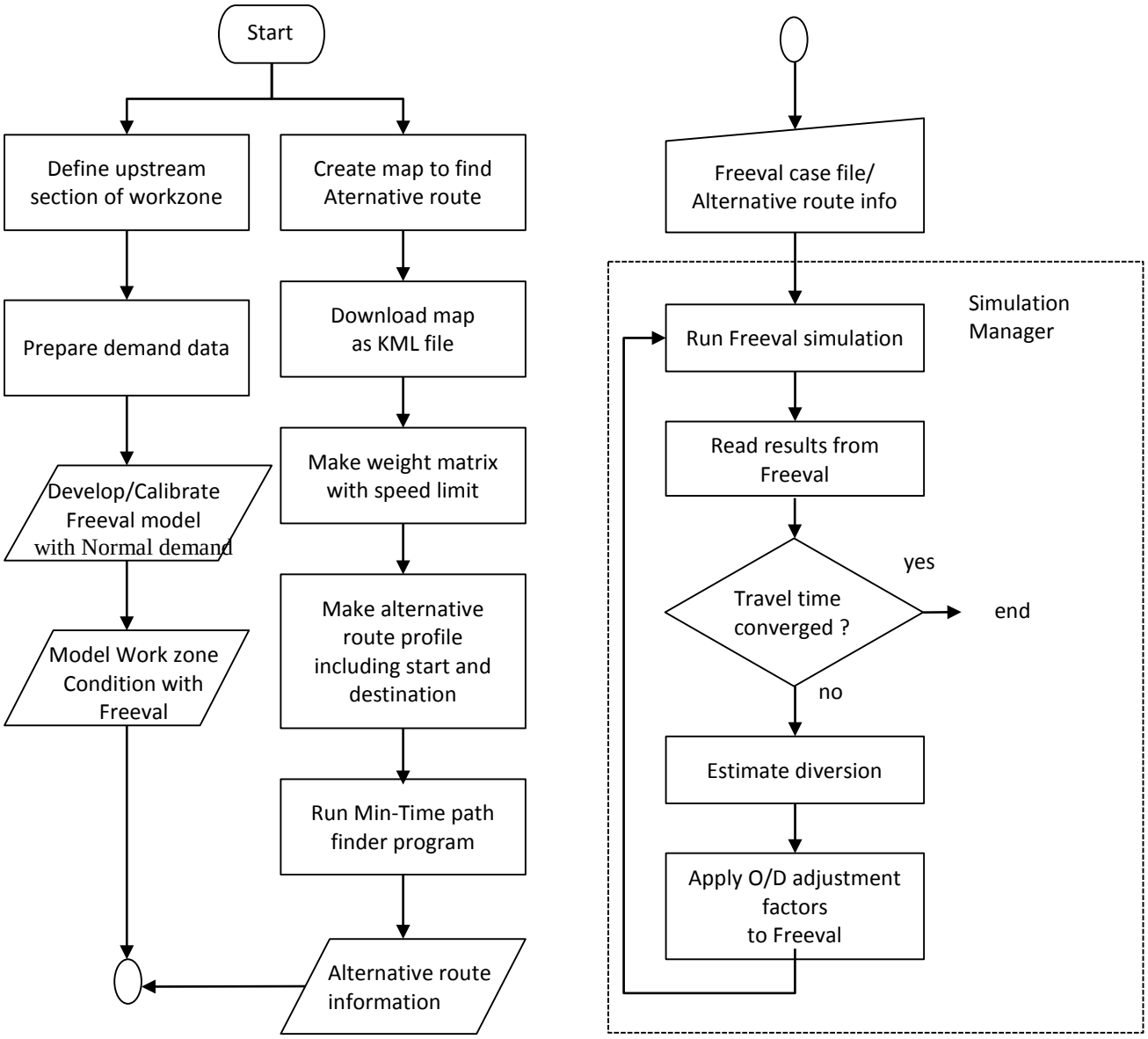
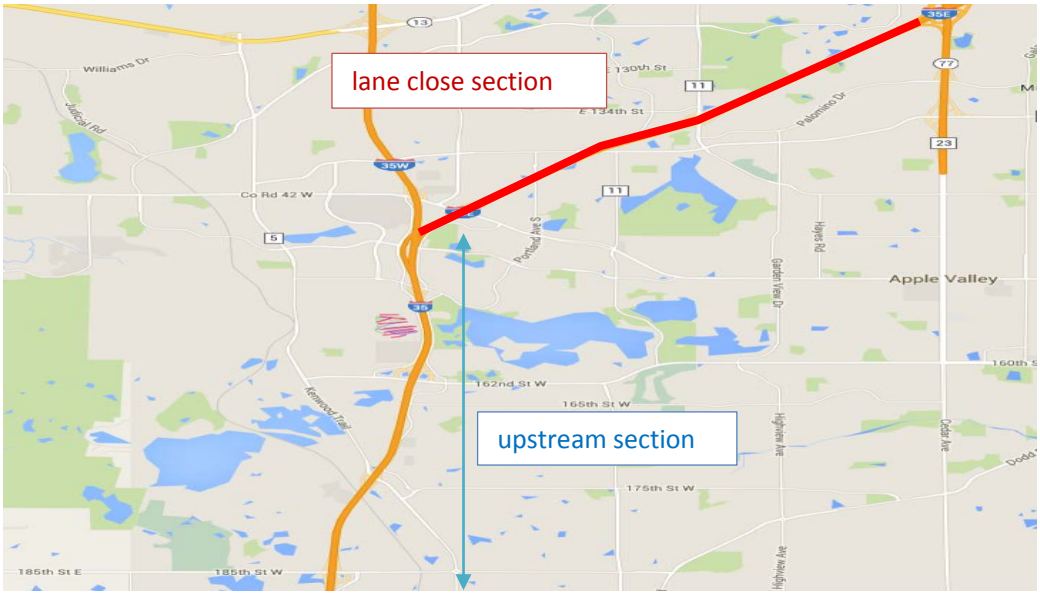


Figure 6.1.3 Flow Chart of the Iterative Diversion Estimation Process



RampName	E:Co Rd 42	X:Co Rd 42	E:Co Rd 11	X:Co Rd 11	E:I-35E CD SB	X:I-35E CD SB	E:Cliff Rd	X:Cliff Rd	E:Diffley Rd	X:Diffley Rd
Ramp	0	0	0	0	0	X	0	0	0	0
lane 1	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-
lane 2	<-	X	->	->	->	X	<-	<-	<-	<-
lane 3						<-	<-	<-	<-	<-
SB <--	S905	S904	ST3005 ST3005 S903	ST30037	S902 ST3005 S901	ST3005 S900 ST30040	ST30041	S899 ST3004 S898 ST30043	S897	ST3004 S896	S895	S894	S893
Div										
NB -->	S870	S871	ST3004 ST3004 S872	S873	S874	ST3005 S875	ST30053	S876 ST3005 S877 ST30055	S878	ST3005 S879	S880	S881	S882
lane 3									->	-> ->	->	->	->
lane 2	->	X	X X X	X	X	X X	->	-> -> -> X	->	-> ->	->	->	->
lane 1	X	->	-> X X	X	X	X X	->	-> -> -> X	->	-> ->	->	->	->
Ramp	0	0	X	X	0	0	0	0	0	0	0	0	0
RampName	X:Co Rd 42	E:Co Rd 42	X:Co Rd 11	E:Co Rd 11	X:I-35E CD NB	E:I-35E CD NB	X:Cliff Rd	E:Cliff Rd	X:Diffley Rd	E:Diffley Rd

Figure 6.1.4 Location and Lane Configuration of I-35NB Work Zone

Traffic Data Preparation and Freeval Modeling

The first step in preparing the data is to define the upstream mainline section of a given work zone. The upstream section is defined from the upstream boundary of the lane-closure section to the furthest upstream ramp, where traffic diversion is not expected.

Sample Work Zone Information

- Lane close start : June 18, 2013
- Lane close section : Split of I-35E and I-35W to TH77
- Lane closure configuration : 2 to 1

In this section, the traffic data preparation process for a given work zone is illustrated with TICAS. The first step is to create a route in TICAS for the freeway section upstream of the given work zone as shown in Figure 6.1.5.

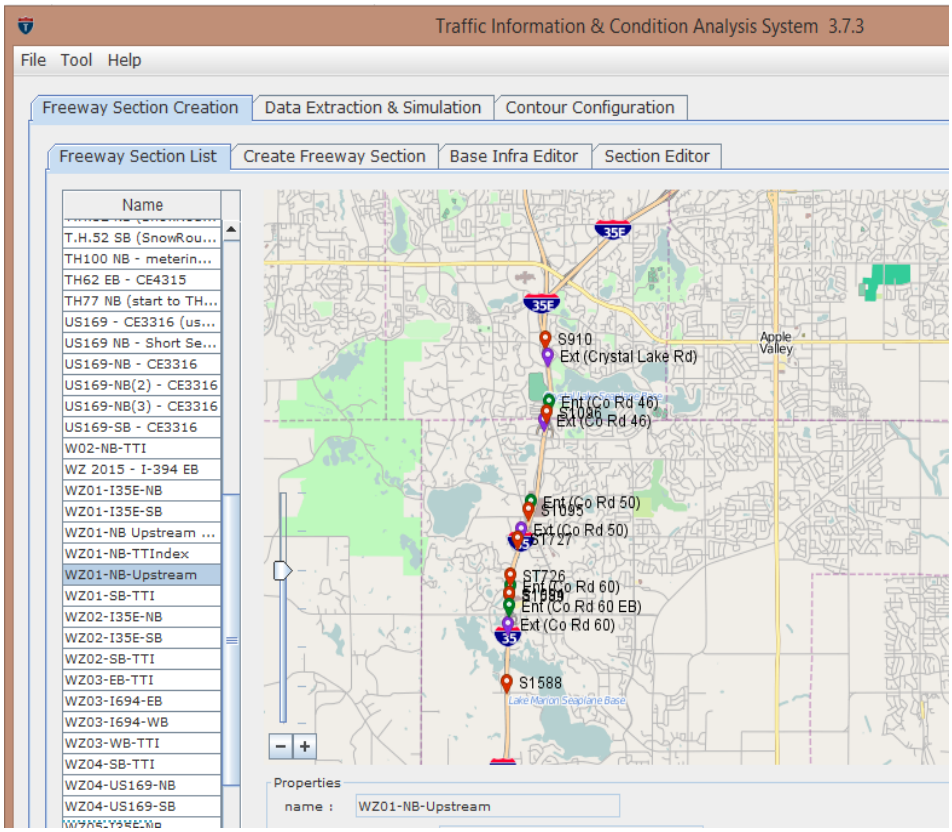


Figure 6.1.5 Upstream Section Defined on TICAS

Next, the traffic data under normal condition needs to be extracted from the traffic database to determine 'before' traffic demand data. In the example I-35E NB work zone, the lane closure started on June 18th, 2013. The traffic demand data during 'normal condition' was developed by averaging the weekday flow-rate data of the 2nd, 3rd and 4th week of June 2012. It needs to be noted that one peak-hour period is used in this example as the time duration, while different time periods can be used depending on the specific analysis needs. Figure 6.1.6 shows the screen shot of TICAS extracting the traffic data during those periods.

Traffic Data Extraction Process with TICAS

1) Select upstream section route, dates and peak hour
2) Select "mainline and ramp flow rates" as a measurement
3) Choose "Output folder" by clicking "browse" button
4) Click "Traffic Data/Measures Extraction" button

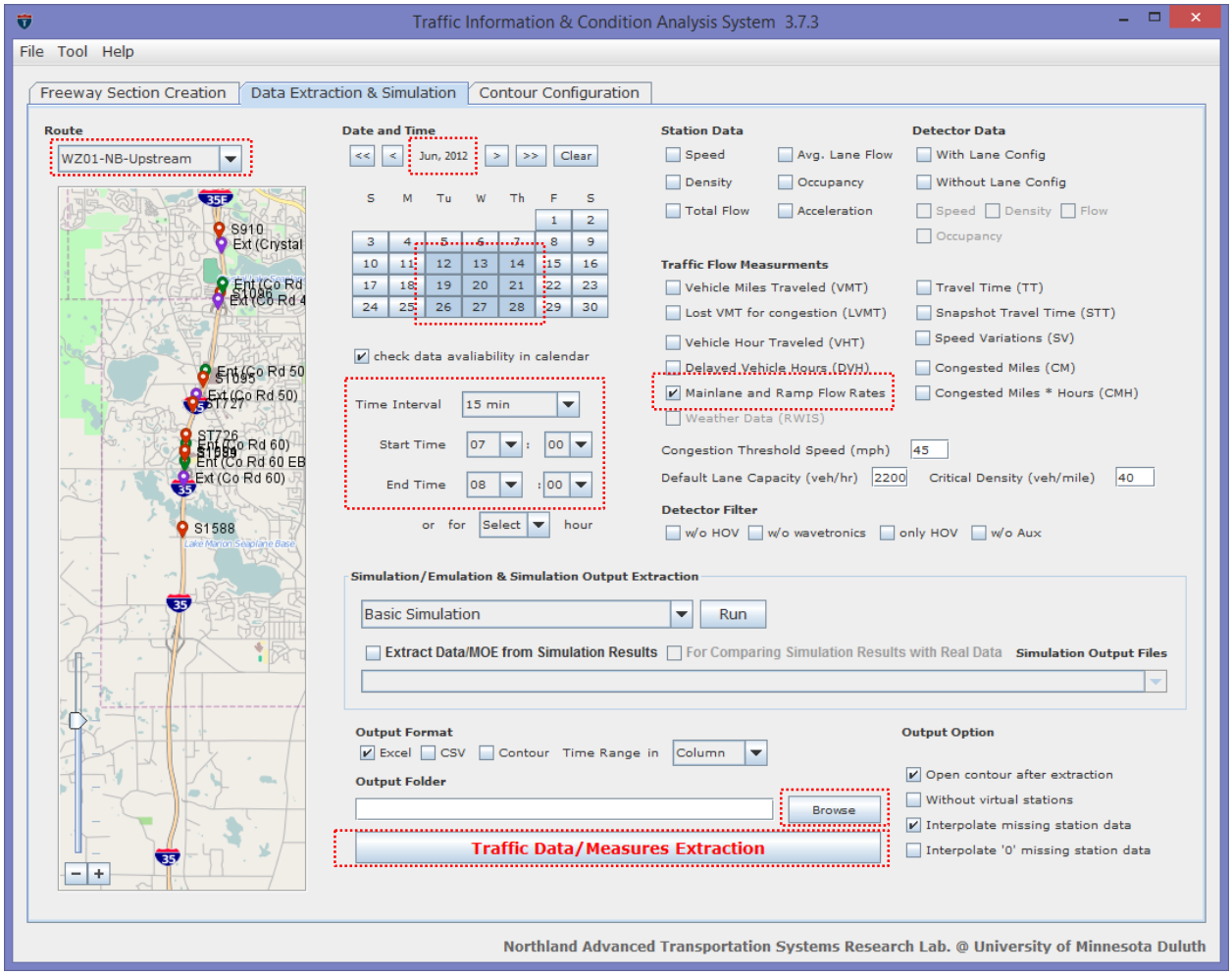


Figure 6.1.6 Screenshot of TICAS for Data Extraction

Figure 6.1.7 shows an example TICAS output with the average flow rate data for the upstream boundary station and each entrance/exit ramp in the upstream section for the I-35E NB work zone. The 3-week average flow rate data for the peak one-hour period at each location will be used as the normal demand for the Freeval simulation.

Traffic Demand Data Development for Before Condition

- Open the result file and make 3-week average with 1-hour average flow data of each day

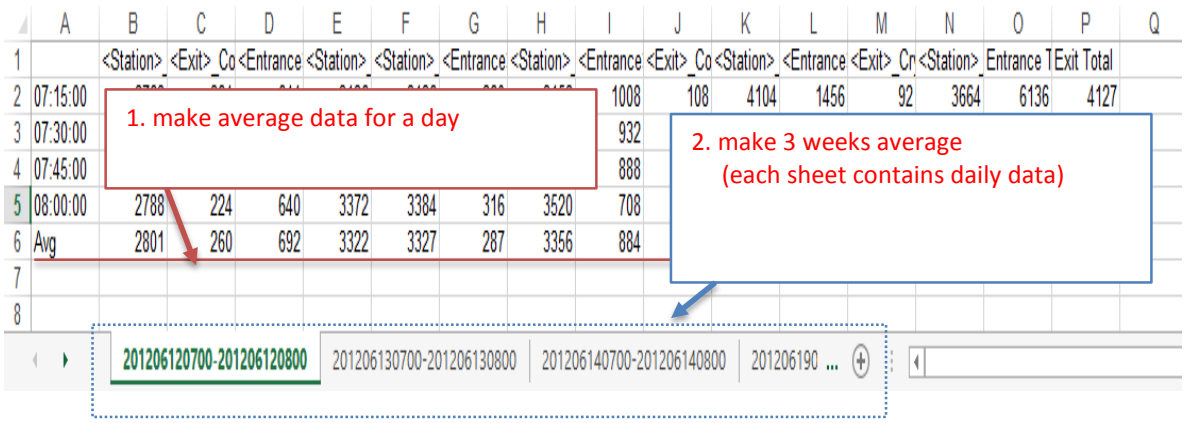


Figure 6.1.7 Output Sample from TICAS

Next step is to develop a Freeval case file for the given work zone and calibrate it with the traffic data under normal condition. Figures 6.1.8-9 show the Freeval input screens for the I-35E NB work zone with the traffic flow data processed in the previous step. The calibration of Freeval can be done by adjusting the capacity factors for each link to make the differences between the estimated speed levels and the field measurements as small as possible. Figure 6.1.10 shows a sample speed comparison for the upstream section of the I-35E NB work zone modeled in this study. Once the Freeval case file is calibrated, then the lane-closure condition can be modeled by adjusting the capacity of the work zone sections. Table 6.1.2 shows the suggested capacity values for different types of lane-closure sections.

Table 6.1.2 Estimated Work Zone Capacity Values by Lane Close Configuration

Lane Config	Lane Width	Median Type	Capacity (pc/hr/lane)	Capacity (veh/hr/lane)
2 to 1	12	Tube Delineator with Crossover	1750	1669
2 to 1	12	Concrete Barrier with Crossover	1685	1579
2 to 1	11	Concrete Barrier with Crossover	1601	1478
2 to 2	12	-	2231	2158

Freeval Case File Development and Calibration

1) *Create a Freeval case file and set the number of intervals as 4 as shown in Figure 6.1.8.*

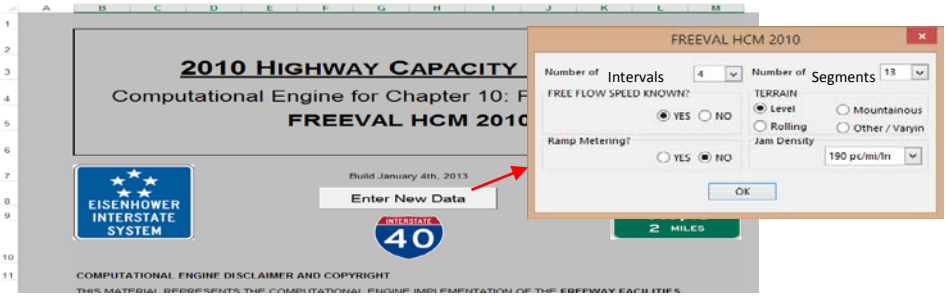


Figure 6.1.8 Initial dialog of Freeval

2) *Enter segment geometry and demand data as shown in Figure 6.1.9.*

Input Worksheet - Directional Freeway Facility	Build January 4th, 2013												
FREEWAY SYSTEM TITLE:	WZ01-NB-Phase1-Before												
SEGMENT NUMBER :	1	2	3	4	5	6	7	8	9	10	11	12	13
SECTION NUMBER :	1	2	3	4	5	6	7	8	9	10	11	12	13
SEGMENT LABEL :	S1588	oRd60(X(X)-CoRdsRd60EB(CoRd60(E				CoRd50(X0(X)-CoRiving 50E-6(X)-CoR				CoRd46(EstalLakeR		To35W	S870
Type (B, ONR, OFR, R, or W)	B	OFR	B	ONR	ONR	OFR	B	W	B	ONR	OFR	OFR	B
Length (ft)	1971	1971	1222	1340	1964	1964	1969	5646	1278	1559	1559	3693	500
Number of Lanes	2	2	2	2	2	2	2	2	3	3	3	3	2
FF Speed (Mi/hr)	70	70	70	70	70	70	70	70	70	70	70	70	70
Segment Demand (vph)	2,725	2,725	2,572	3,303	3,595	3,595	3,312	4,203	4,029	5,319	5,319	5,131	2,607
Capacity Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Origin Demand Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Destination Demand Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
% Trucks	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
% RV's	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
On-Ramp Demand (vph)				731	292			891		1,290			
On-Ramp % Trucks				5	5			5		5			
On-Ramp % RV's				0	0			0		0			
Off-Ramp Demand(vph)		153				283		174			188	2,624	
Off-Ramp % Trucks		5				5		5			5	5	
Off-Ramp % RV's		0				0		0			0	0	
Acc/ Dec Lane Length (ft)		300		300	300	300				300	300	300	
Number of Lanes on Ramp		1		1	1	1		1		1	1	1	
Ramp on Left or Right (L / R)		Right		Right	Right	Right				Right	Right	Left	
Ramp FFS (mi/hr)		45		45	45	45		45		45	45	45	

t=1 t=2 t=3 t=4

Figure 6.1.9 Freeval Case File Example

3) *Calibrate the case with the traffic data under normal condition by adjusting capacity and free flow speed of each segment. Figure 6.1.10 shows the simulation results of the sample work zone after calibration.*

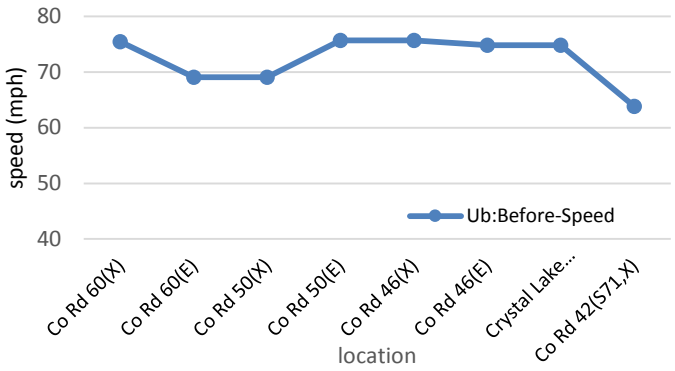


Figure 6.1.10 Freeway Section Speed of the Sample Work Zone After Calibration

4) *Using the case file calibrated for the 'before' condition, create a Freeval case file for 'during construction' condition, i.e., change the lane-configuration and adjust the simulation parameters, e.g., link capacities and free flow speeds.*

Alternative Route Identification

In this section, the process to identity the alternative route from each diversion point is described. The process includes *1)* Create a digital map for the work zone area network using Google Map Engine and Download the map as a XML (KML) file, *2)* Develop a network link-node matrix using speed limits as weights, *3)* Make alternative route profiles with origin and destination node IDs, *4)* Execute the Shortest Path Finder module, developed in this study, with the XML file, weight matrix and alternative route profile data. The minimum-time path finder developed in this study uses the Dijkstra algorithm. Arterial intersections and freeway ramps are defined as "Nodes" and the travel time between two nodes is used as the weight of a link. The location information of all the nodes and the speed limit value of each link are required to develop the graph network and the weights of links for a given work zone.

1) Create a Digital Network Map to Identify Alternative Routes

To create a digital map for a network surrounding a given work zone, open the google map engine (https://www.google.com/maps/d/) and place markers at the intersections and the ramps in a road network.

- *A marker represents a Node in a graph network.*
- *Set the name of a marker as "Point <NodeID>"*

- *Enter the connected node IDs into 'description field' of each marker, so that the min-time path finder can identify a link connecting two nodes*
- *The ramp nodes for the freeway containing the subject work zone must not be connected to each other, so that the freeway links would not be included in a minimum-time path.*

Figures 6.1.11-12 show the process to create a digital map and the completed network map for the sample site. The completed map can be downloaded in a KML format as shown in Figure 6.1.13.

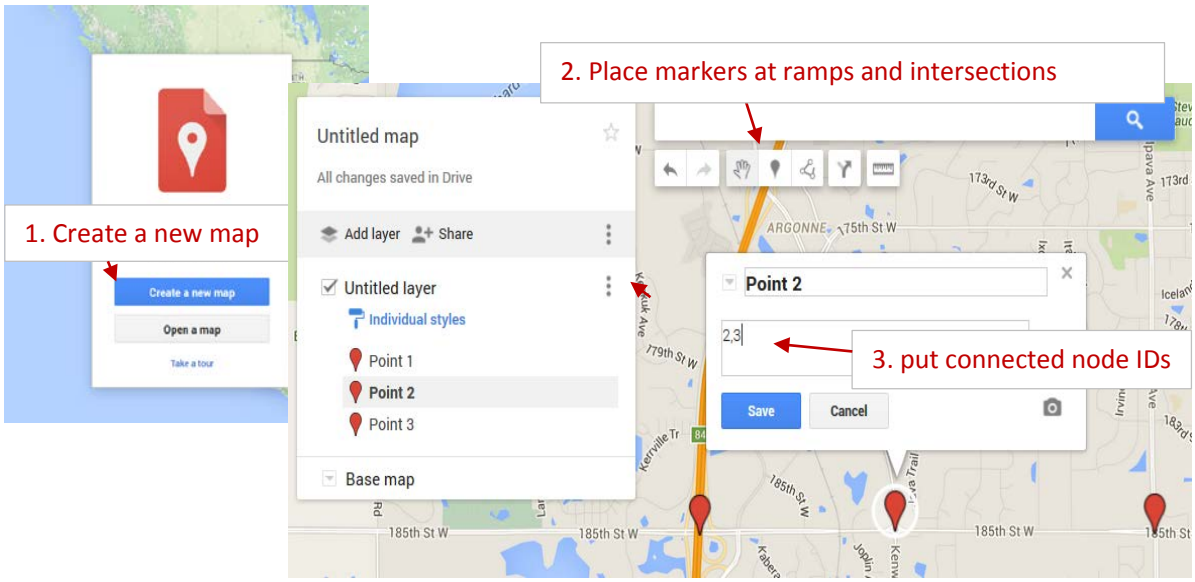


Figure 6.1.11 Process to Create a Map with Markers

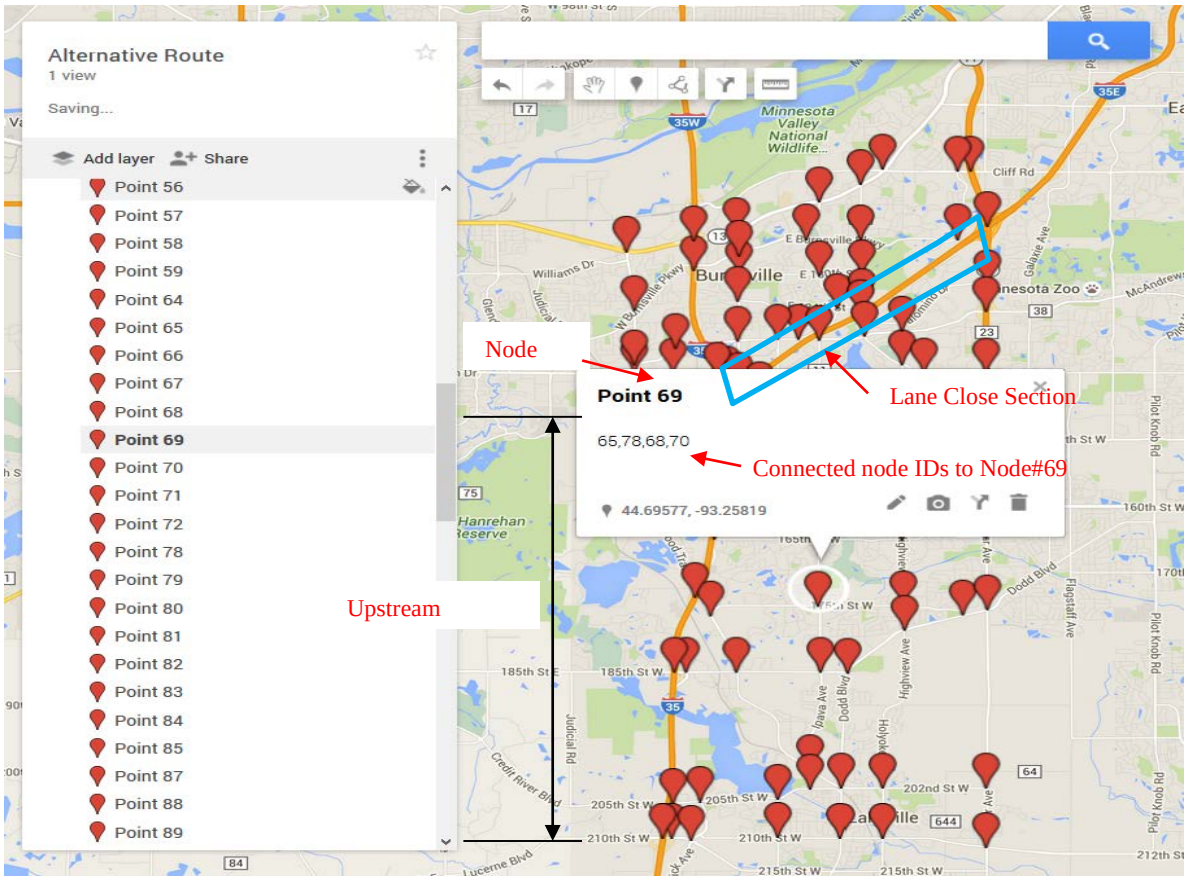


Figure 6.1.12 Completed Node Location and Connection Information

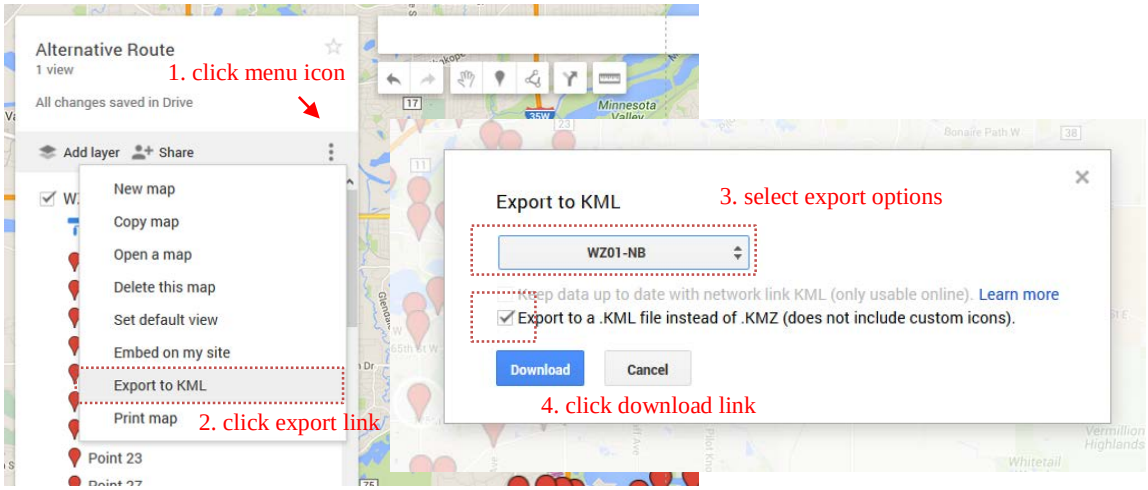


Figure 6.1.13 Procedure to Download a Network Map in KML Format

2) Develop a weight matrix for the links in a network with speed limit values between nodes

The minimum-time path finder developed in this study uses the travel time of a link, i.e., the roadway between two nodes, as the weight of a link. The travel time of a link is estimated with the length and the speed limit of a given link. The link lengths are calculated from the node coordinates in the downloaded KML file, while the speed limit of each link can be entered manually as shown in Figure 6.1.14.

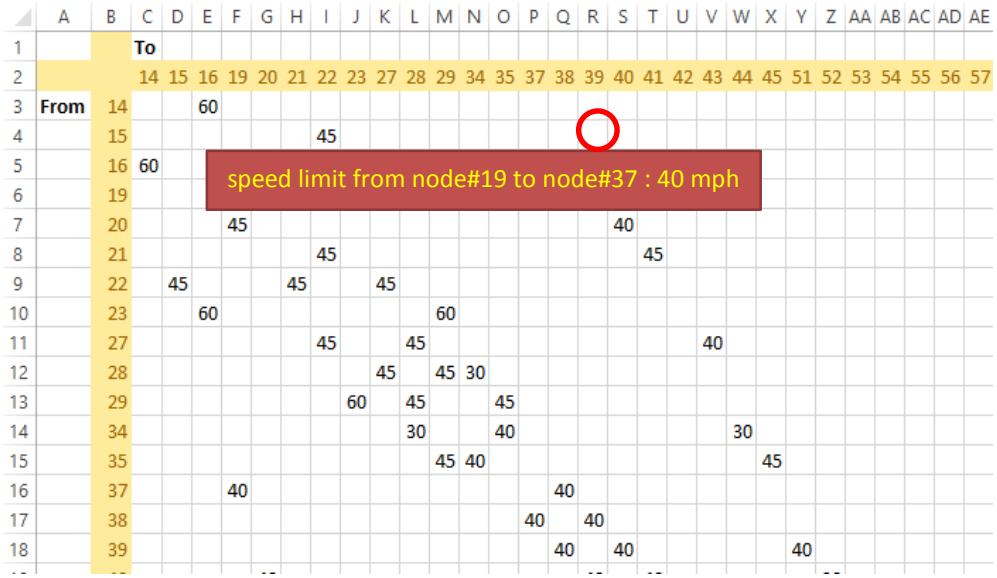


Figure 6.1.14 Weight Matrix with Speed Limit

Example Creation of a Weight Matrix and Identification of Alternative Minimum-Time Paths

a) As shown in Figure 6.1.15, make a profile directory for a case in the "ShortestPathFinder/profiles" directory, where the KML file needs to be stored. The name of a KML file must be "<Profile Name>.kml", e.g. "WZ01-NB.kml".

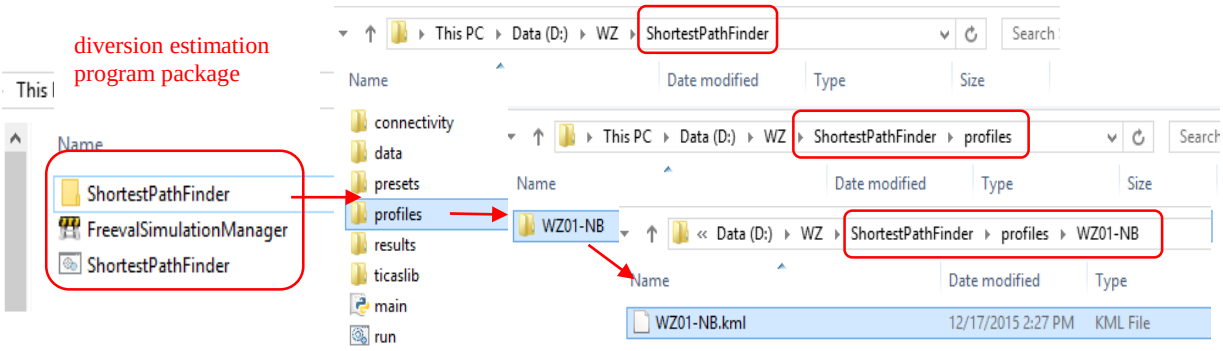


Figure 6.1.15. Profile Directory and KML File

b) Run the minimum-time path finder by executing "ShortestPathFinder.bat" and select the task "Make Matrix Template based on KML file" when prompted. Finally, create the weight matrix by entering a default speed limit, which will be used as the initial value as shown in Figure 6.1.16.

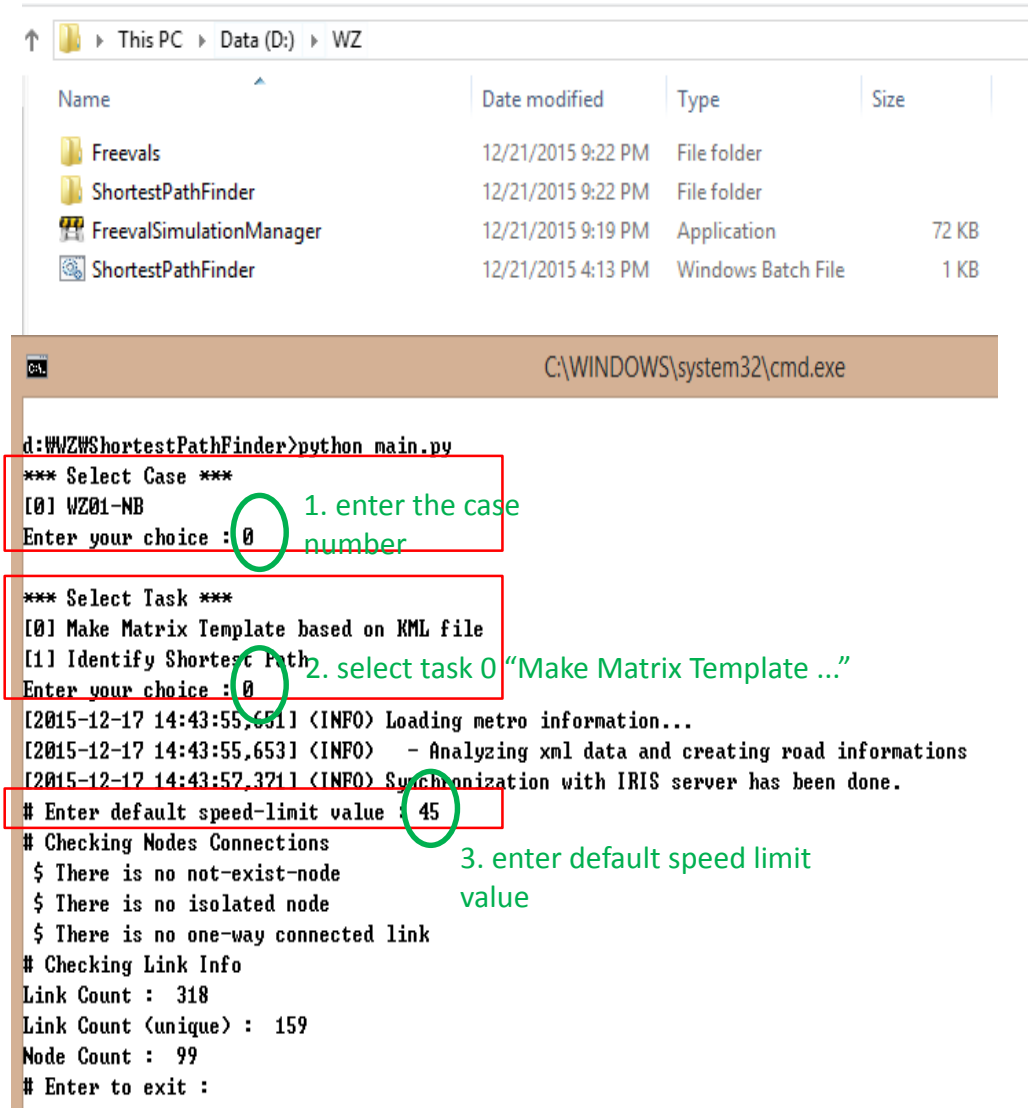


Figure 6.1.16 Creating a Speed Limit matrix Template File

c) Copy the created speed limit matrix file in “ShourtestPathFinder/results/<Profile Name>” directory to the profile directory and update speed limit data with real speed limit values of all the links in a given network. The name of the weight matrix file needs to be “<Profile Name>-SL.csv”, e.g. “WZ01-NB-SL.csv” in this example shown in Figure 6.1.17.

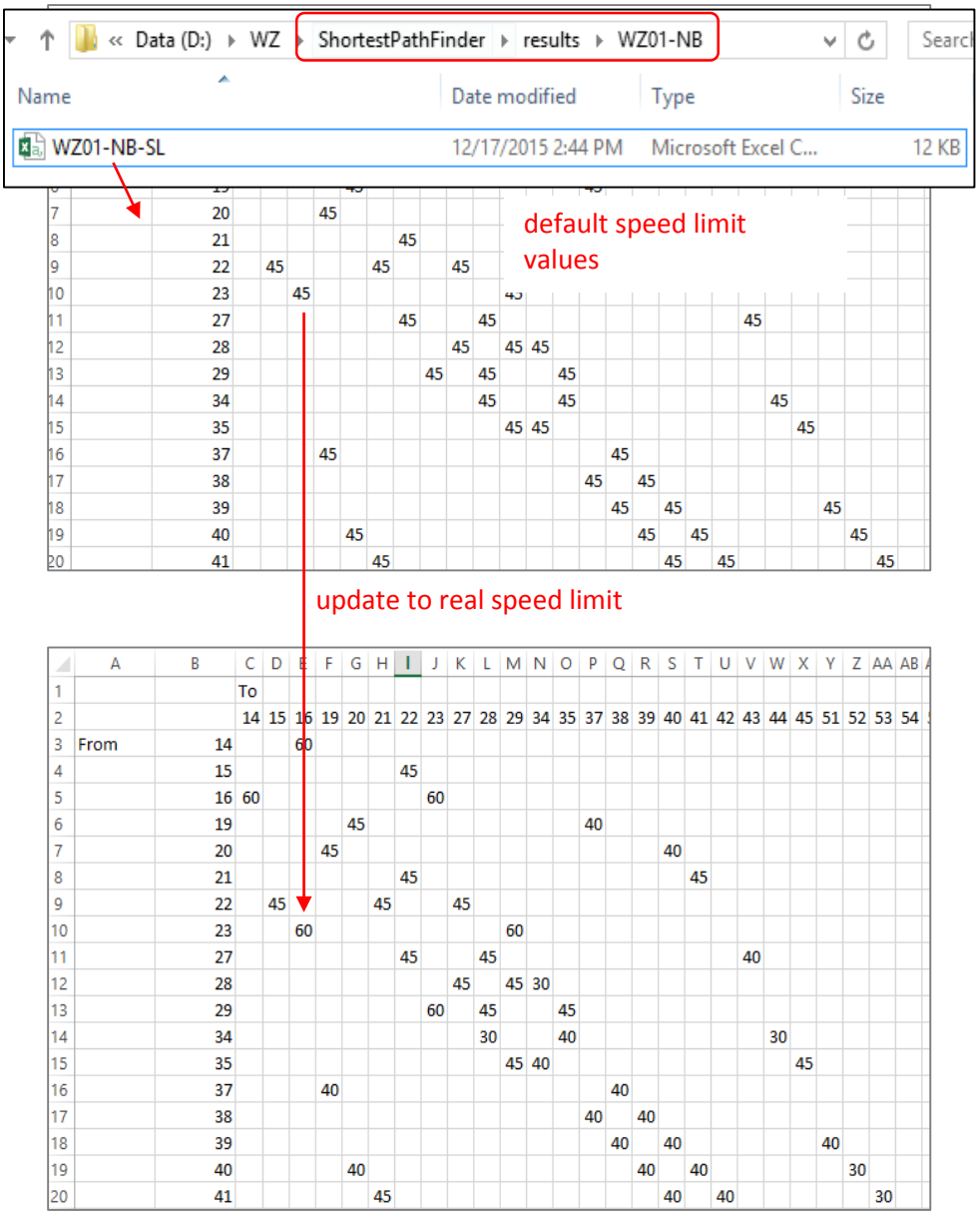


Figure 6.1.17 Example Speed Limit Matrix File

3) Develop Alternative Route Profile file (CSV format) with Origin/Destination Node IDs

The minimum-time path finder requires the origin and destination node IDs to determine the alternative route for each ramp. All the entrance and exit ramps in the upstream of a lane-closure section are considered as the origin nodes. The alternative route profile file must be located in the profile directory and should have 6 data columns as follows:

- *Ramp : ramp name*
- *RNodeName : RNode ID from IRIS*
- *Except Points : IDs of the Nodes to be removed from the graph network because the node located upstream of the ramp is not needed to find alternative route (Figure 6.1.18 shows 'Except nodes' for Co Rd 50)*
- *Except Links : links (pair of node ID) to be removed*
- *AltRouteSrc : alternative route start point, node ID for each ramp*
- *AltRouteDst : alternative route destination point, e.g.,a ramp on the freeway after the lane-closure section in a given work zone.*

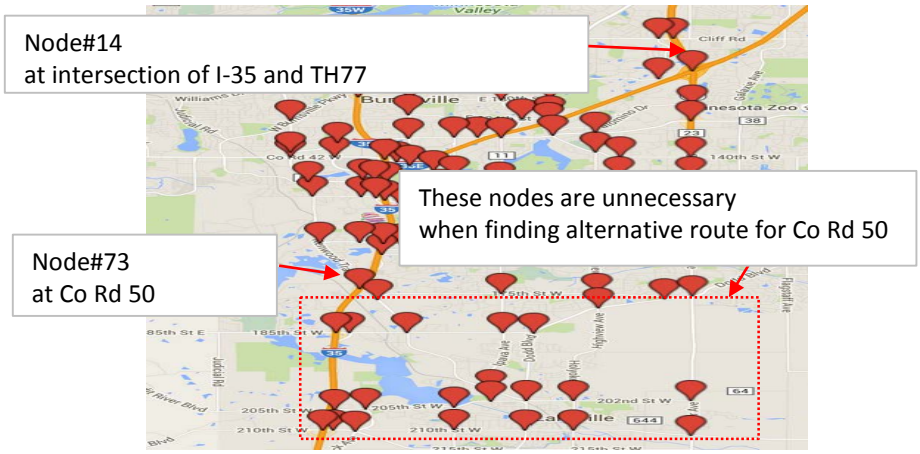


Figure 6.1.18 Example 'Except nodes' for Co Rd 50

For all the exit ramps upstream of a lane-closure section, the entrance ramp right after the end of a given work zone is set as the destination node. For each entrance ramp upstream of a lane-closure section, the arterial intersection node closest to the upstream boundary of a given work zone is considered as the destination node. The destination points for exit ramps can be located from the map, while the destination node for each entrance ramp can be determined after the minimum-time path to the end point of a given work zone is determined for each exit ramp. Figure 6.1.19 illustrates the determination of the destination nodes for the exit and entrance ramps upstream of a given work zone. Figure 6.1.20 shows a sample profile file for the sample work zone.

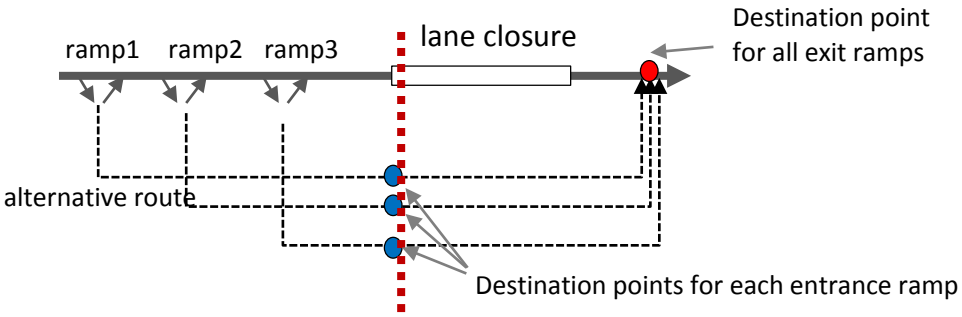
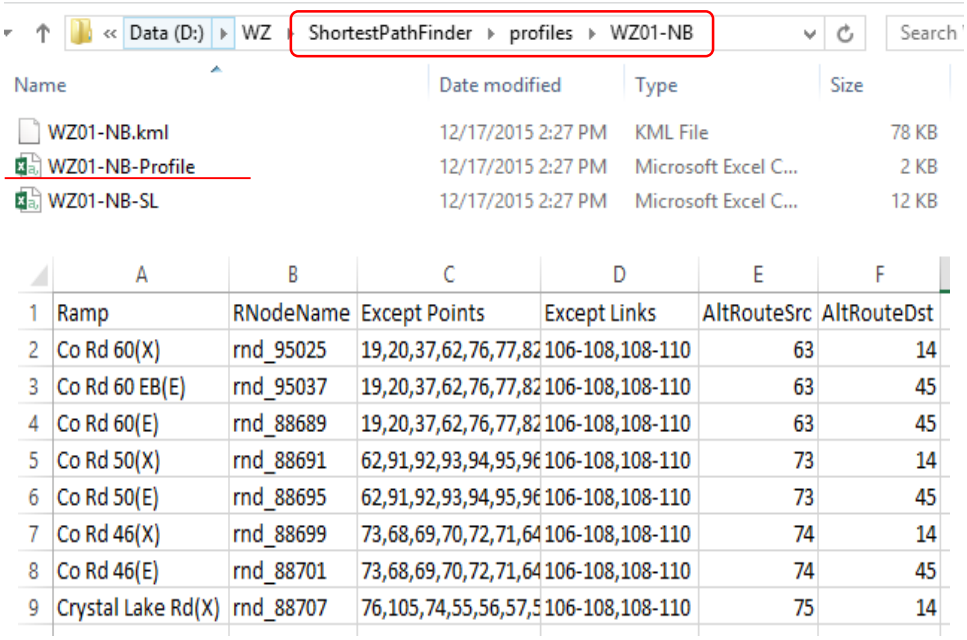


Figure 6.1.19 Alternative Route Destination Points



	A	B	C	D	E	F
1	Ramp	RNodeName	Except Points	Except Links	AltRouteSrc	AltRouteDst
2	Co Rd 60(X)	rnd_95025	19,20,37,62,76,77,82	106-108,108-110	63	14
3	Co Rd 60 EB(E)	rnd_95037	19,20,37,62,76,77,82	106-108,108-110	63	45
4	Co Rd 60(E)	rnd_88689	19,20,37,62,76,77,82	106-108,108-110	63	45
5	Co Rd 50(X)	rnd_88691	62,91,92,93,94,95,96	106-108,108-110	73	14
6	Co Rd 50(E)	rnd_88695	62,91,92,93,94,95,96	106-108,108-110	73	45
7	Co Rd 46(X)	rnd_88699	73,68,69,70,72,71,64	106-108,108-110	74	14
8	Co Rd 46(E)	rnd_88701	73,68,69,70,72,71,64	106-108,108-110	74	45
9	Crystal Lake Rd(X)	rnd_88707	76,105,74,55,56,57,5	106-108,108-110	75	14

Figure 6.1.20 Alternative Route Profile File

4) Execute Minimum-Time Path Finder Module

The input data files required for the minimum-time path finder module, developed in Python 2.7, include 1) the KML file containing the node coordinates and connection information, 2) the speed limit matrix file and 3) the alternative route profile file. Using those 3 files, the minimum-time path finder generates a XML file with the alternative route information. Figures 6.1.21-23 show the process to execute the minimum-time path finder.

a) Run “ShortestPathFinder.bat” file

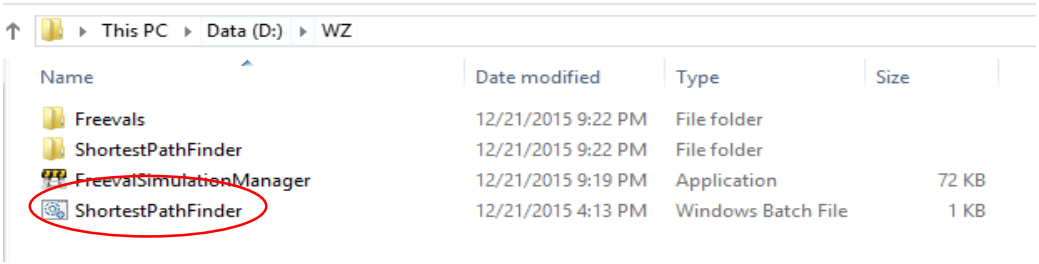


Figure 6.1.21 Execution of Minimum-time Path Finder

b) Select the case and the task to identify minimum-time path.

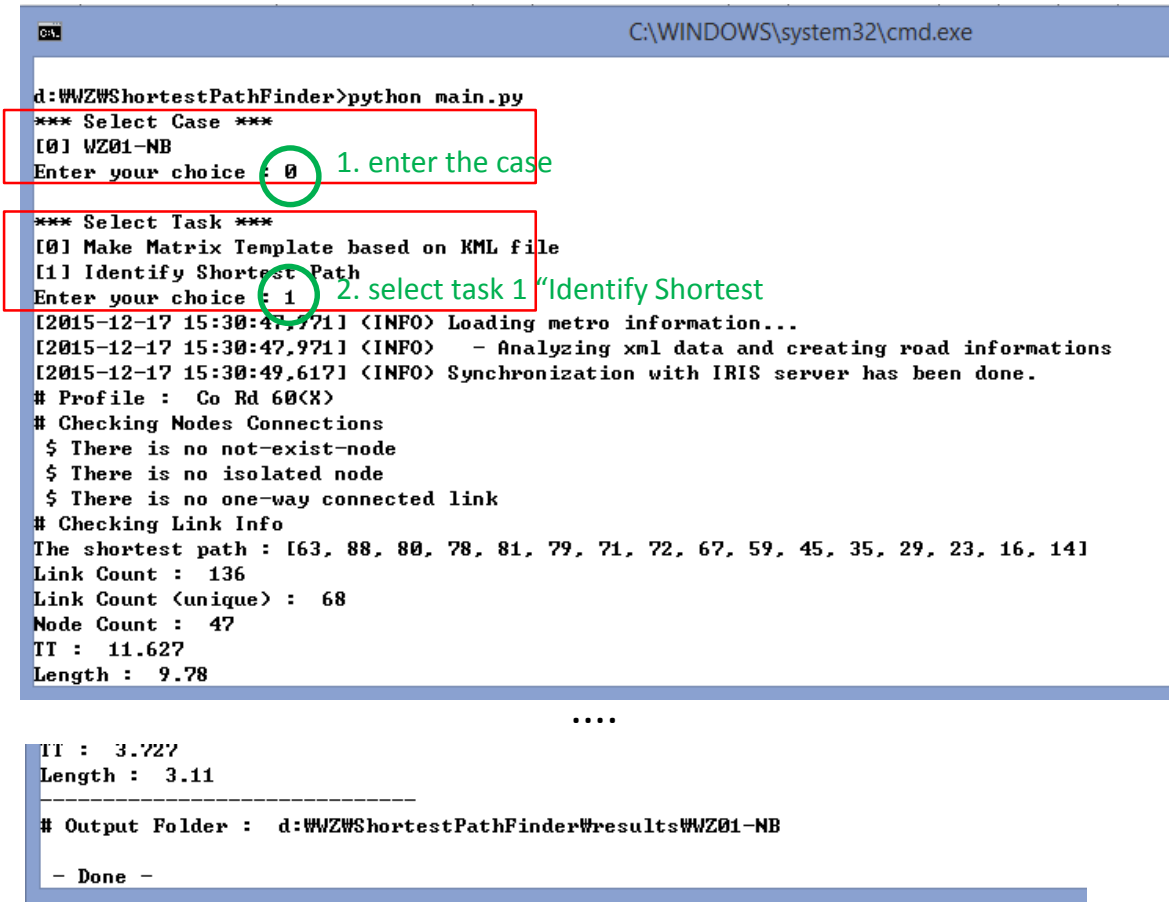


Figure 6.1.22 Screenshot of Minimum-time Path Finder

c) The output files are stored in the "shortest path finder/results/<Profile Name>" directory.

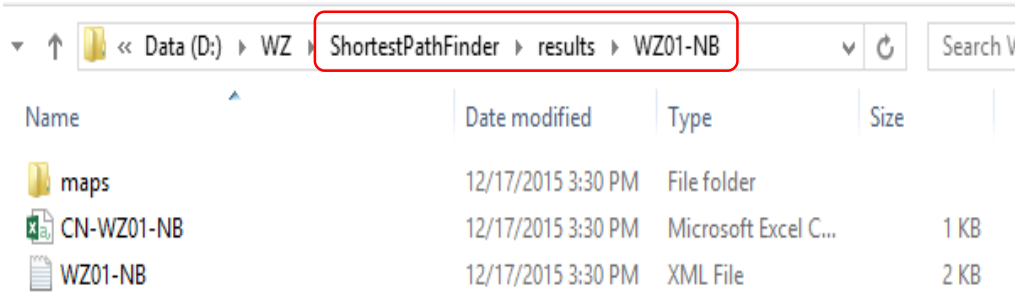


Figure 6.1.23 Output from Minimum-time Path Finder

d) The “maps” directory contains the individual minimum-time path map for each diversion point.

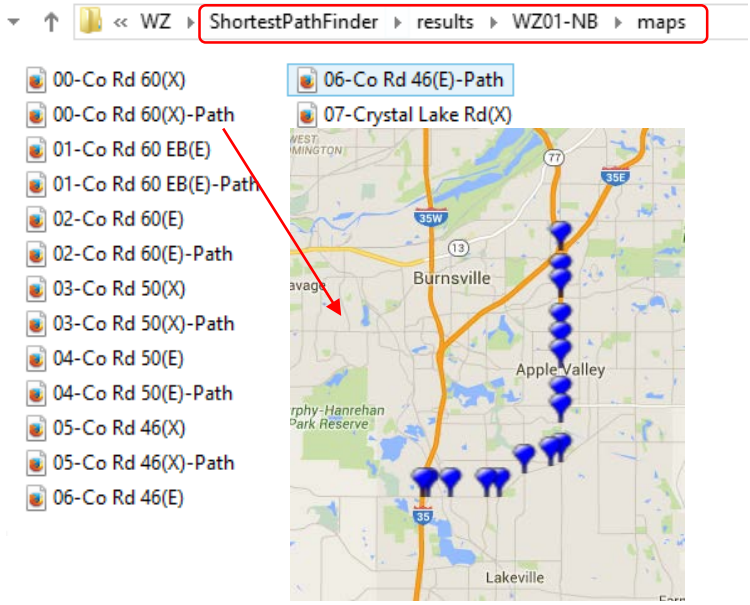


Figure 6.1.24 “maps” directory and Minimum-time Path Map of Co Rd 60 Exit

e) “CN-<Profile Name>.csv” file contains the Minimum-time path information for each diversion point as shown in Figure 6.1.25.

	A	B	C	D	E	F	G
1	RampName	RNodeName	Links#_Networks	Nodes#_Networks	Nodes#_ShortestPath	TT_ShortestPath	Length_ShortestPath
2	Co Rd 60(X)	rnd_95025	68	47	16	11.627	9.78
3	Co Rd 60 EB(E)	rnd_95037	68	47	16	11.627	9.78
4	Co Rd 60(E)	rnd_88689	68	47	16	11.627	9.78
5	Co Rd 50(X)	rnd_88691	122	78	14	11.366	9.1
6	Co Rd 50(E)	rnd_88695	122	78	14	11.366	9.1
7	Co Rd 46(X)	rnd_88699	105	68	12	8.959	7.48
8	Co Rd 46(E)	rnd_88701	105	68	12	8.959	7.48
9	Crystal Lake Rd(X)	rnd_88707	91	60	14	8.298	6.17

Figure 6.1.25 “CN-WZ01-NB.csv” File

f) The output from the Alternative Route Profile generation process is stored in the "<Profile Name>.xml" file, which includes the travel time data of the alternative routes to be used by the Simulation Manager module in the next step. It needs to be noted that the segment geometry information in the .XML file should be updated to match with those in the Freeval case file. Figure 6.1.26 shows an example xml file including alternative route information for a sample work zone.

```
<?xml version="1.0" encoding="utf-8" ?>
<wz>
    <workzone_info model_group="0"/>
    <segments>
        <seg type="OFR" segment_number="" AltTT="11.627" label="Co Rd 60 (X)"/>
        <seg type="ONR" segment_number="" AltTT="8.104" label="Co Rd 60 EB (E)"/>
        <seg type="ONR" segment_number="" AltTT="8.104" label="Co Rd 60 (E)"/>
        <seg type="OFR" segment_number="" AltTT="11.366" label="Co Rd 50 (X)"/>
        <seg type="ONR" segment_number="" AltTT="7.843" label="Co Rd 50 (E)"/>
        <seg type="OFR" segment_number="" AltTT="8.959" label="Co Rd 46 (X)"/>
        <seg type="ONR" segment_number="" AltTT="5.436" label="Co Rd 46 (E)"/>
        <seg type="OFR" segment_number="" AltTT="7.511" label="Crystal Lake Rd (X)"/>
    </segments>
</wz>
```

Figure 6.1.26 "WZ01-NB.xml" File (Alternative route information file)

Diversion Estimation Process with Iterative Simulation

The alternative route information at each diversion point needs to be organized in a XML file, which is used by the Simulation Manager for the iterative estimation of the diversion rates. In the previous step, a draft XML file with the alternative route information for a given work zone is created. In order for the Simulation Manager to link the segments in the Freeval case file to the alternative route information generated in the previous step, the "segment number" in the Freeval case file must be entered correctly into the XML file. The "seg" tag in a XML file corresponds to "segment" in Freeval and has the following attributes:

- segment_number : segment number of corresponding segment in Freeval
- type : segment type of corresponding segment in Freeval
- label : ramp name
- AltTT : alternative route travel time

Figure 6.1.27 shows an example XML file with updated segment numbers for a sample site. If there is a weaving area in Freeval, attach "subseg" tag for the entrance and exit ramp in a given weaving segment.

```
<?xml version="1.0" encoding="utf-8" ?>
<wz>
                                    segment number of Freeval
    <segments>
        <seg segment_number="2" type="OFR" AltTT="11.627" Label="CoRd60(X)"/>
        <seg segment_number="4" type="ONR" AltTT="8.104" Label="CoRd60EB(E)"/>
        <seg segment_number="5" type="ONR" AltTT="8.104" Label="CoRd60(E)"/>
        <seg segment_number="6" type="OFR" AltTT="11.366" Label="CoRd50(X)"/>
        <seg segment_number="8" type="W">
            <subseg type="ONR" AltTT="7.843" Label="CoRd50(E)"/>     weaving area
            <subseg type="OFR" AltTT="8.959" Label="CoRd46(X)"/>
        </seg>
        <seg segment_number="10" type="ONR" AltTT="5.436" Label="CoRd46(E)"/>
        <seg segment_number="11" type="OFR" AltTT="8.298" Label="CrystalLakeRd(X)"/>
        <seg segment_number="12" type="OFR" NoDiversion="1" Label="To 35W NB"/>
    </segments>

</wz>
```

Figure 6.1.27 Updated Alternative Route Information

Iterative Simulation-Diversion Estimation with Simulation Manager

Finally the Simulation Manager can be executed with the Freeval case file and the XML file that has the alternative route information. Figure 6.1.28 shows the graphical user interface of the Simulation Manager developed in this study. User can enter the name of the Freeval case file and also select a set of the diversion model parameters from the default options or specify a new set of parameters if available.

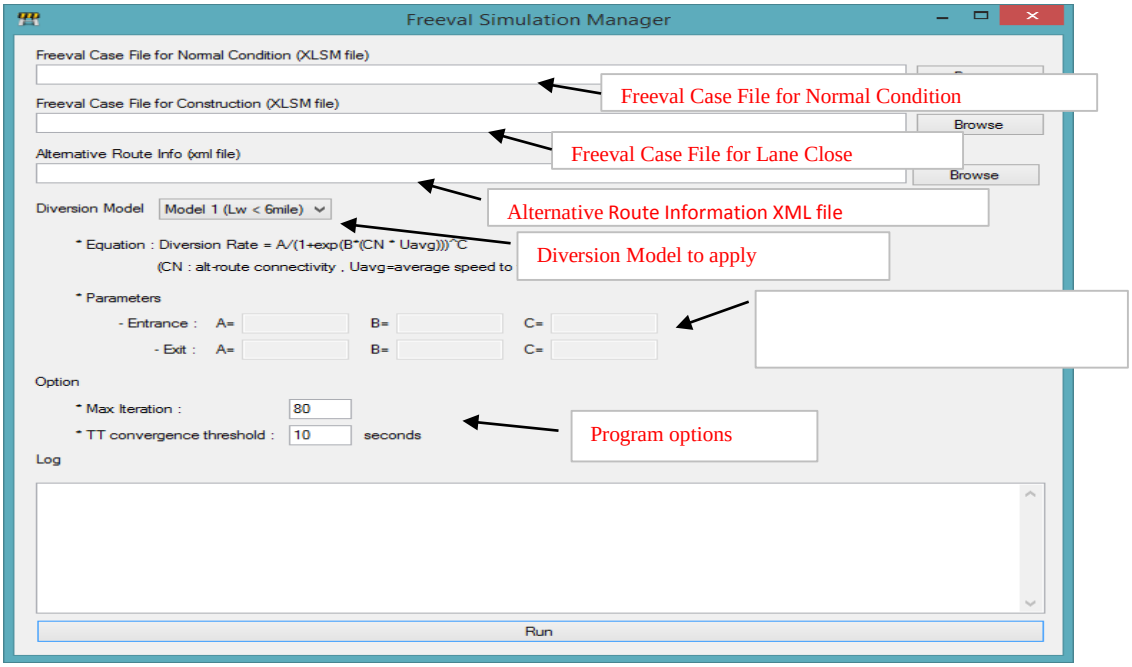


Figure 6.1.28 GUI of Simulation Manager Module

The Simulation Manager manages the interaction between the Freeval simulation model and the diversion rate estimation module. The estimated freeway travel times from Freeval and the alternative route information are entered to the diversion module that determines the diversion rates for all the entrance and ramp areas upstream of a lane-closure section. The new diversion rates are converted to the origin/destination demand adjust factors for Freeval, which simulates the given freeway section with the updated origin/destination demand data. The interaction between Freeval and diversion models are continued until the differences in the freeway section travel time between two successive iterations become less than or equal to a pre-specified threshold. Figure 6.1.29 shows the simulated freeway travel time is converged after 17th iterations for the sample I-35E NB work zone.

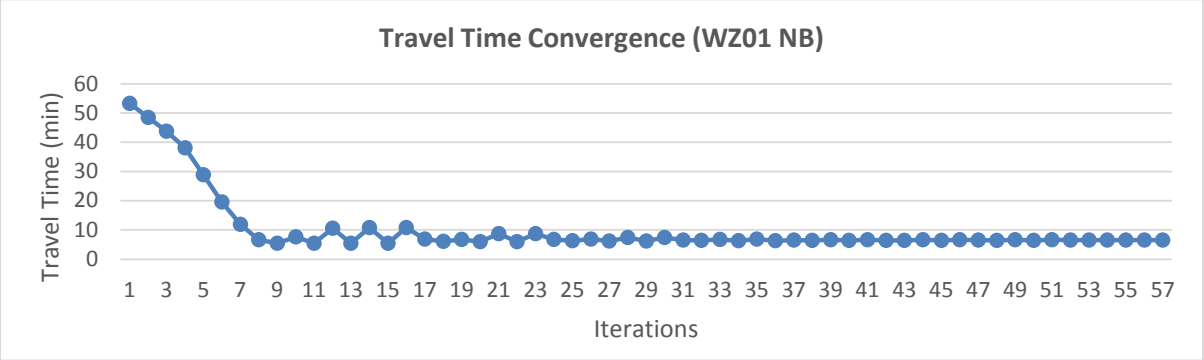


Figure 6.1.29 An Example Convergence of Freeway Travel Time (I-35E NB Work Zone)

Example Execution Process of the Simulation Manager for Diversion Estimation

a) Place Freeval case files and alternative route information XML file in a same directory as shown in Figure 6.1.30.

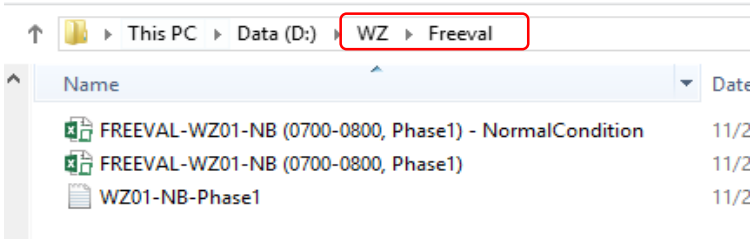


Figure 6.1.30 All Input Files for Simulation Manager

b) Run "Freeval Simulation Manager" and enter required input data as illustrated in Figure 6.1.31.

- Select appropriate Freeval case files for "Normal Condition" and Construction"
- Select the alternative route XML file
- Select diversion model. If "Custom Model" is selected, 6 parameters in the model must be entered.
- Enter maximum number of iterations when selected.
- Enter Travel Time convergence threshold value when selected.
- Click "Run" button

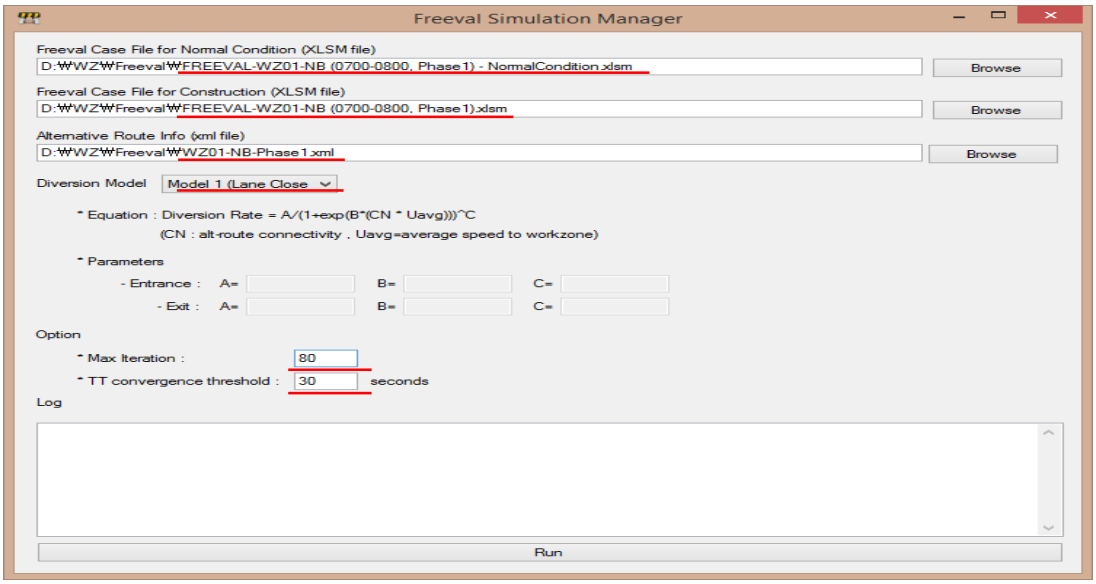


Figure 6.1.31 GUI of Simulation Manager

c) After a convergence is achieved, the final diversion rates at each ramps and the estimated freeway travel time data can be found from *-Result.xsl, which stores the Freeval simulation results. The inte interim simulation-diversion estimation results are also shown in the log field of the Simulation Manager. Figure 6.1.32 includes an example Freeval output screen after the convergence was achieved for the sample work zone.

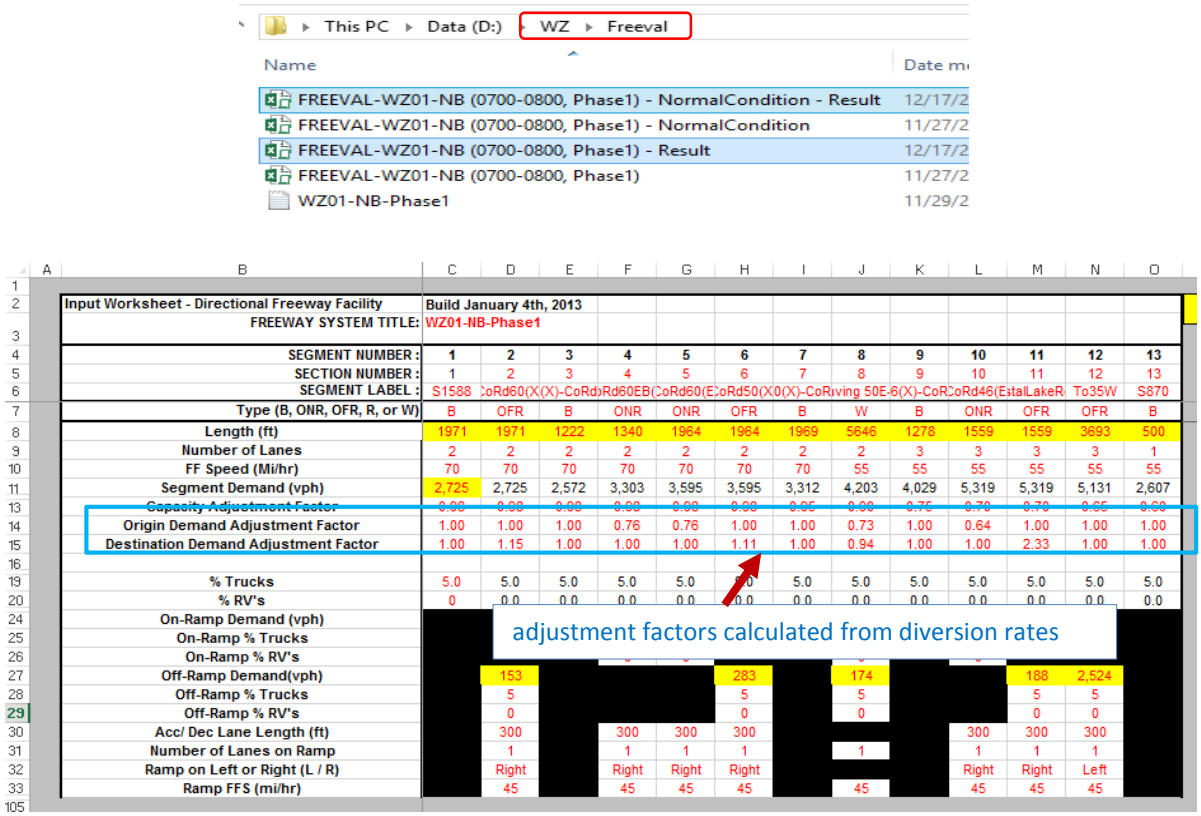


Figure 6.1.32 A Sample Freeval Input/Output Screen After Convergence (I-35E NB Work Zone)

6.2 Guideline for Work Zone Capacity

Table 6.2.1 includes the suggested work zone capacity values based on the analysis conducted in this study,

Table 6.2.1 Suggested Capacity Values for 2 to 1 Work Zones

Lane Config	Lane Width	Median Type	Capacity (pc/hr/lane)	Capacity (veh/hr/lane)
2 to 1	12	Tube Delineator with Crossover	1750	1650
2 to 1	12	Concrete Barrier with Crossover	1700	1600
2 to 1	11	Concrete Barrier with Crossover	1600	1500
2 to 2	12	-	2200	2150

The capacity analysis for two work zones with 3 to 2 lane-reduction resulted in the capacity value ranging from 1800 pc/hr/lane to 2000 pc/hr/lane depending on the lane-closure length. However, additional data and analysis would be needed to provide specific guidelines for those cases.

CHAPTER 7. CONCLUSIONS AND FUTURE RESEARCH NEEDS

The capability to accurately estimate the traffic diversion induced by work-zone delays and the capacity reduction associated with lane closures is of critical importance in developing effective traffic-management plans for a given construction site. In this study, an iterative estimation process is developed to determine the traffic diversion rates for a freeway work zone by incorporating a freeway simulation model, Freeval, with the new diversion models developed in this study.

First, a set of traffic data was collected from a total of 12 work zone sites in the metro freeway network. Due to the missing-data issues from some sites, 6 of those sites were used for the diversion modeling, while most sites were included in the capacity study. The analysis of the traffic-diversion patterns at entrance and exit ramps upstream of lane-closure sections has resulted in a set of models that relate the diversion rates at given ramps as the function of the freeway delays and the alternative-route travel times. The functional relationship between the diversion rates and the work-zone delays has led to the development of an iterative process, where a simulation model interacts with the diversion-estimation models until equilibrium is reached between the diversion rates and the freeway delays for a given work zone. The test results of the iterative process with both existing and new work-zone data showed very promising results, indicating the transferability of the proposed methodology in determining both the diversion rates and freeway delays. It needs to be noted that, due to the types of the work zones used for this study, the mainline exit-flow diversion model in the current iterative process can be applicable to only 'two-to-one' lane reduction cases, while the estimation of the diversion rates at entrance ramps does not have such restriction.

The capacity analysis of the lane closure sections performed in this study has indicated that the geometric conditions of work zones, such as lane closure configurations, lane widths, and median/shoulder types, directly affect the capacity values of a given work-zone. The resulting guideline includes a set of the suggested capacity values for the work-zones with "two-to-one" lane reduction. The above iterative process and capacity analysis results are integrated into a comprehensive guideline, which can provide a practical assistance to the field engineers in estimating the traffic diversion rates and capacity reduction for work zones.

Future study needs to include the expansion of the diversion estimation process to the work-zones with different lane-closure configurations other than "two-to-one" lane-reduction, e.g., "three-to-two", by collecting and analyzing additional work zone data. Further, the capability of estimating diversion rates for multiple time periods would be needed for analyzing large-scale work zones. The advantages of adopting a microscopic network-simulation tool instead of the current macroscopic model can also be studied. Finally, a user-friendly, computerized process for the whole iterative process needs to be developed for efficient estimation of diversion rates by field engineers.

REFERENCES

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APPENDIX A: Sample Daily Data for Diversion Analysis

Definition of Terms

Abbr	Description
Vb	ramp volume before construction
Vd	ramp volume during construction
Re	diversion rate for entrance
Rx	mainline exit diversion rate
Uavg	average speed to work zone from ramp
Tf+Tae	freeway travel time from the most upstream + alternative route travel time to end of work zone
Tasi/Tasm	alternative travel time ratio (to work zone start)
Ub	speed at downstream of ramp before construction
Ud	speed at downstream of ramp during construction
Lws	distance to work zone start point from ramp
Twsb	travel time to work zone start point from ramp before construction
Twsd	travel time to work zone start point from ramp during construction
Lwe	distance to work zone end point from ramp
Tweb	travel time to work zone end point from ramp before construction
Twed	travel time to work zone end point from ramp during construction
Lw	lane close length
Vib	mainline volume from upstream before construction
Vob	mainline volume to downstream before construction
Vid	mainline volume from upstream during construction
Vod	mainline volume to downstream during construction
Tas	alternative route travel time to around upstream boundary of work zone from ramp
Las	alternative route length to around upstream boundary of work zone from ramp
Nsis	number of signalized intersections on alternative route to work zone start
Nstops	number of stop signs on alternative route to work zone start
Nras	number of roundabouts on alternative route to work zone start
Tae	alternative route travel time to work zone end from ramp
Lae	alternative route length to work zone end from ramp
Nsie	number of signalized intersections on alternative route to work zone end
Nstope	number of stop signs on alternative route to work zone end
Nrae	number of roundabouts on alternative route to work zone end

Site 1 - NB: I-35E (NB), Jun-Jul 2013 (2 to 1)

Name	Date	RNodeName	Vb	Vd	Re	Rx	Uavg	Tf+Tae	Tasi/Tasm	Ub	Ud	Lws	Twsb	Twsd	Lwe	Tweb	Twed	Lw	Vib	Vob	Vid	Vod	Tas	Las	Nsis	Nstops	Nras	Tae	Lae	Nsie	Nstope	Nrae
Co Rd 42(X)	6/18	rnd_86331	2524	2407	0.0	-0.09				63.8	53.1							4.4	5254	7778	3432	5839						7.4	6.5	12	1	0
Crystal Lake Rd(X)	6/18	rnd_88707	188	400	1.1	0.05	59.3	12.7	1.1	74.8	51.3	0.8	0.5	0.9	3.8	2.7	5.5	4.4	5424	5254	3832	3432	5.7	3.4	1	4	0	8.3	6.2	12	1	0
Co Rd 46(E)	6/18	rnd_88701	1290	850	0.3		39.4	12.3	1.0	74.8	51.3	1.4	1.2	2.0	4.4	3.4	6.6	4.4	4134	5424	2982	3832	5.4	4.3	0	7	0	9.0	7.5	11	0	0
Co Rd 46(X)	6/18	rnd_88699	174	399	1.3	0.06	46.0	12.3	1.0	75.7	41.2	1.7	1.2	2.0	4.7	3.4	6.6	4.4	4308	4134	3381	2982	5.4	4.3	0	7	0	9.0	7.5	11	0	0
Co Rd 50(E)	6/18	rnd_88695	891	660	0.3		20.3	11.0	1.4	75.7	41.2	2.8	2.3	5.7	5.8	4.5	10.5	4.4	3336	4227	2682	3342	7.8	5.9	0	10	1	11.4	9.1	14	0	1
Co Rd 50(X)	6/18	rnd_88691	283	360	0.3	0.02	23.0	11.0	1.4	69.1	76.4	3.1	2.3	5.7	6.1	4.5	10.5	4.4	3619	3336	3042	2682	7.8	5.9	0	10	1	11.4	9.1	14	0	1
Co Rd 60(E)	6/18	rnd_88689	1023	823	0.2		35.3	11.7	1.5	69.1	76.4	3.9	3.3	5.3	6.9	5.5	9.9	4.4	3312	3621	2805	3042	8.1	6.6	1	10	1	11.6	9.8	14	1	1
Co Rd 60(X)	6/18	rnd_95025	153	152	0.0	0.00	39.2	11.6	1.5	75.5	77.3	4.4	3.4	5.4	7.4	5.6	10.0	4.4	2750	2598	2371	2219	8.1	6.6	1	10	1	11.6	9.8	14	1	1
Co Rd 42(X)	6/19	rnd_86331	2524	2320	-0.1	-0.17				63.8	48.5							4.4	5254	7778	3235	5555						7.4	6.5	12	1	0
Crystal Lake Rd(X)	6/19	rnd_88707	188	327	0.7	0.04	35.2	13.6	1.1	74.8	46.1	0.8	0.5	2.4	3.8	2.7	10.5	4.4	5424	5254	3562	3235	5.7	3.4	1	4	0	8.3	6.2	12	1	0
Co Rd 46(E)	6/19	rnd_88701	1290	761	0.4		37.8	14.0	1.0	74.8	46.1	1.4	1.2	2.6	4.4	3.4	10.8	4.4	4134	5424	2801	3562	5.4	4.3	0	7	0	9.0	7.5	11	0	0
Co Rd 46(X)	6/19	rnd_88699	174	491	1.8	0.09	44.1	14.0	1.0	75.7	21.1	1.7	1.2	2.6	4.7	3.4	10.8	4.4	4308	4134	3292	2801	5.4	4.3	0	7	0	9.0	7.5	11	0	0
Co Rd 50(E)	6/19	rnd_88695	891	659	0.3		16.0	10.4	1.4	75.7	21.1	2.8	2.3	8.6	5.8	4.5	17.4	4.4	3336	4227	2640	3299	7.8	5.9	0	10	1	11.4	9.1	14	0	1
Co Rd 50(X)	6/19	rnd_88691	283	336	0.2	0.02	18.1	10.4	1.4	69.1	65.5	3.1	2.3	8.6	6.1	4.5	17.4	4.4	3619	3336	2976	2640	7.8	5.9	0	10	1	11.4	9.1	14	0	1
Co Rd 60(E)	6/19	rnd_88689	1023	773	0.2		25.8	11.7	1.5	69.1	65.5	3.9	3.3	7.6	6.9	5.5	16.3	4.4	3312	3621	2740	2976	8.1	6.6	1	10	1	11.6	9.8	14	1	1
Co Rd 60(X)	6/19	rnd_95025	153	177	0.2	0.01	28.8	11.6	1.5	75.5	76.6	4.4	3.4	7.7	7.4	5.6	16.3	4.4	2750	2598	2380	2203	8.1	6.6	1	10	1	11.6	9.8	14	1	1
Co Rd 42(X)	6/20	rnd_86331	2524	2252	-0.1	-0.24				63.8	49.1							4.4	5254	7778	3188	5440						7.4	6.5	12	1	0
Crystal Lake Rd(X)	6/20	rnd_88707	188	427	1.3	0.06	50.9	11.3	1.1	74.8	39.2	0.8	0.5	2.5	3.8	2.7	10.1	4.4	5424	5254	3615	3188	5.7	3.4	1	4	0	8.3	6.2	12	1	0
Co Rd 46(E)	6/20	rnd_88701	1290	809	0.4		39.4	11.4	1.0	74.8	39.2	1.4	1.2	3.0	4.4	3.4	10.7	4.4	4134	5424	2806	3615	5.4	4.3	0	7	0	9.0	7.5	11	0	0
Co Rd 46(X)	6/20	rnd_88699	174	416	1.4	0.07	46.0	11.4	1.0	75.7	48.2	1.7	1.2	3.0	4.7	3.4	10.7	4.4	4308	4134	3222	2806	5.4	4.3	0	7	0	9.0	7.5	11	0	0
Co Rd 50(E)	6/20	rnd_88695	891	639	0.3		24.4	11.5	1.4	75.7	48.2	2.8	2.3	5.4	5.8	4.5	13.7	4.4	3336	4227	2541	3180	7.8	5.9	0	10	1	11.4	9.1	14	0	1
Co Rd 50(X)	6/20	rnd_88691	283	370	0.3	0.03	27.7	11.5	1.4	69.1	76.2	3.1	2.3	5.4	6.1	4.5	13.7	4.4	3619	3336	2911	2541	7.8	5.9	0	10	1	11.4	9.1	14	0	1
Co Rd 60(E)	6/20	rnd_88689	1023	727	0.3		38.9	11.7	1.5	69.1	76.2	3.9	3.3	5.4	6.9	5.5	13.4	4.4	3312	3621	2703	2911	8.1	6.6	1	10	1	11.6	9.8	14	1	1
Co Rd 60(X)	6/20	rnd_95025	153	161	0.1	0.00	43.1	11.6	1.5	75.5	76.1	4.4	3.4	5.5	7.4	5.6	13.5	4.4	2750	2598	2345	2184	8.1	6.6	1	10	1	11.6	9.8	14	1	1
Co Rd 42(X)	6/25	rnd_86331	2481	2341	-0.1	-0.13				67.4	65.4							4.4	5152	7633	3242	5583						7.4	6.5	12	1	0
Crystal Lake Rd(X)	6/25	rnd_88707	183	406	1.2	0.06	66.3	12.0	1.1	75.1	45.9	0.8	0.5	2.1	3.8	2.7	9.9	4.4	5338	5152	3648	3242	5.7	3.4	1	4	0	8.3	6.2	12	1	0
Co Rd 46(E)	6/25	rnd_88701	1281	798	0.4		41.7	12.1	1.0	75.1	45.9	1.4	1.2	2.6	4.4	3.4	10.4	4.4	4057	5338	2850	3648	5.4	4.3	0	7	0	9.0	7.5	11	0	0
Co Rd 46(X)	6/25	rnd_88699	165	414	1.5	0.07	48.6	12.1	1.0	76.0	38.4	1.7	1.2	2.6	4.7	3.4	10.4	4.4	4222	4057	3264	2850	5.4	4.3	0	7	0	9.0	7.5	11	0	0
Co Rd 50(E)	6/25	rnd_88695	880	623	0.3		19.9	10.9	1.4	76.0	38.4	2.8	2.3	6.3	5.8	4.5	14.8	4.4	3232	4112	2643	3266	7.8	5.9	0	10	1	11.4	9.1	14	0	1
Co Rd 50(X)	6/25	rnd_88691	276	366	0.3	0.03	22.6	10.9	1.4	71.1	79.2	3.1	2.3	6.3	6.1	4.5	14.8	4.4	3508	3232	3009	2643	7.8	5.9	0	10	1	11.4	9.1	14	0	1
Co Rd 60(E)	6/25	rnd_88689	1008	769	0.2		35.1	11.7	1.5	71.1	79.2	3.9	3.3	5.8	6.9	5.5	13.7	4.4	3222	3525	2804	3009	8.1	6.6	1	10	1	11.6	9.8	14	1	1
Co Rd 60(X)	6/25	rnd_95025	148	161	0.1	0.01	39.0	11.6	1.5	76.5	73.8	4.4	3.3	5.8	7.4	5.6	13.8	4.4	2664	2517	2401	2240	8.1	6.6	1	10	1	11.6	9.8	14	1	1
Co Rd 42(X)	6/26	rnd_86331	2481	2249	-0.1	-0.22				67.4	71.1							4.4	5152	7633	3087	5336						7.4	6.5	12	1	0
Crystal Lake Rd(X)	6/26	rnd_88707	183	243	0.3	0.02	17.7	13.2	1.1	75.1	31.9	0.8	0.5	3.6	3.8	2.7	13.6	4.4	5338	5152	3330	3087	5.7	3.4	1	4	0	8.3	6.2	12	1	0
Co Rd 46(E)	6/26	rnd_88701	1281	724	0.4		27.5	13.3	1.0	75.1	31.9	1.4	1.2	4.2	4.4	3.4	14.3	4.4	4057	5338	2606	3330	5.4	4.3	0	7	0	9.0	7.5	11	0	0
Co Rd 46(X)	6/26	rnd_88699	165	560	2.4	0.12	32.1	13.3	1.0	76.0	18.1	1.7	1.2	4.2	4.7	3.4	14.3	4.4	4222	4057	3166	2606	5.4	4.3	0	7	0	9.0	7.5	11	0	0
Co Rd 50(E)	6/26	rnd_88695	880	577	0.3		22.6	9.6	1.4	76.0	18.1	2.8	2.3	10.3	5.8	4.5	20.7	4.4	3232	4112	2697	3274	7.8	5.9	0	10	1	11.4	9.1	14	0	1
Co Rd 50(X)	6/26	rnd_88691	276	355	0.3	0.03	25.6	9.6	1.4	71.1	76.4	3.1	2.3	10.3	6.1	4.5	20.7	4.4	3508	3232	3052	2697	7.8	5.9	0	10	1	11.4	9.1	14	0	1
Co Rd 60(E)	6/26	rnd_88689	1008	779	0.2		36.0	11.7	1.5	71.1	76.4	3.9	3.3	8.4	6.9	5.5	18.5	4.4	3222	3525	2825	3052	8.1	6.6	1	10	1	11.6	9.8	14	1	1
Co Rd 60(X)	6/26	rnd_95025	148	162	0.1	0.01	39.8	11.6	1.5	76.5	71.4	4.4	3.3	8.5	7.4	5.6	18.6	4.4	2664	2517	2435	2273	8.1	6.6	1	10	1	11.6	9.8	14	1	1
Co Rd 42(X)	6/27	rnd_86331	2481	2291	-0.1	-0.19				67.4	57.3							4.4	5152	7633	3193	5484						7.4	6.5	12	1	0
Crystal Lake Rd(X)	6/27	rnd_88707	183	319	0.7	0.04	60.7	13.5	1.1	75.1	41.5	0.8	0.5	2.5	3.8	2.7	10.7	4.4	5338	5152	3512	3193	5.7	3.4	1	4	0	8.3	6.2	12	1	0
Co Rd 46(E)	6/27	rnd_88701	1281	758	0.4		38.0	13.8	1.0	75.1	41.5	1.4	1.2	2.9	4.4	3.4	11.1	4.4	4057	5338	2754	3512	5.4	4.3	0	7	0	9.0	7.5	11	0	0
Co Rd 46(X)	6/27	rnd_88699	165	456	1.8	0.09	44.3	13.8	1.0	76.0	32.1	1.7	1.2	2.9	4.7	3.4	11.1	4.4	4222	4057	3210	2754	5.4	4.3	0	7	0	9.0	7.5	11	0	0
Co Rd 50(E)	6/27	rnd_88695	880	582	0.3		17.3	11.6	1.4	76.0	32.1	2.8	2.3	7.6	5.8	4.5	16.6	4.4	3232	4112	2517	3099	7.8	5.9	0	10	1	11.4	9.1	14	0	1

Co Rd 50(X)	6/27	rnd_88691	276	437	0.6	0.05	19.6	11.6	1.4	71.1	62.1	3.1	2.3	7.6	6.1	4.5	16.6	4.4	3508	3232	2954	2517	7.8	5.9	0	10	1	11.4	9.1	14	0	1
Co Rd 60(E)	6/27	rnd_88689	1008	731	0.3		23.9	11.7	1.5	71.1	62.1	3.9	3.3	7.7	6.9	5.5	16.5	4.4	3222	3525	2734	2954	8.1	6.6	1	10	1	11.6	9.8	14	1	1
Co Rd 60(X)	6/27	rnd_95025	148	158	0.1	0.00	26.7	11.6	1.5	76.5	77.2	4.4	3.3	7.8	7.4	5.6	16.6	4.4	2664	2517	2381	2223	8.1	6.6	1	10	1	11.6	9.8	14	1	1
Co Rd 42(X)	7/10	rnd_86331	2414	2295	0.0	-0.10				63.0	72.6							7.3	5183	7597	3096	5391						7.4	6.5	12	1	0
Crystal Lake Rd(X)	7/10	rnd_88707	197	278	0.4	0.02	13.3	12.1	1.1	76.2	33.8	0.8	0.5	4.1	5.8	4.2	19.7	7.3	5383	5183	3374	3096	5.7	3.4	1	4	0	8.3	6.2	12	1	0
Co Rd 46(E)	7/10	rnd_88701	1278	711	0.4		29.2	12.9	1.0	76.2	33.8	1.4	1.2	4.1	6.4	4.9	19.6	7.3	4105	5383	2663	3374	5.4	4.3	0	7	0	9.0	7.5	11	0	0
Co Rd 46(X)	7/10	rnd_88699	172	488	1.8	0.09	34.1	12.9	1.0	76.8	19.0	1.7	1.2	4.1	6.7	4.9	19.6	7.3	4277	4105	3151	2663	5.4	4.3	0	7	0	9.0	7.5	11	0	0
Co Rd 50(E)	7/10	rnd_88695	853	604	0.3		21.8	9.9	1.4	76.8	19.0	2.8	2.2	9.5	7.7	6.0	25.5	7.3	3318	4172	2663	3267	7.8	5.9	0	10	1	11.4	9.1	14	0	1
Co Rd 50(X)	7/10	rnd_88691	278	377	0.4	0.03	24.7	9.9	1.4	75.1	78.3	3.1	2.2	9.5	8.1	6.0	25.5	7.3	3597	3318	3040	2663	7.8	5.9	0	10	1	11.4	9.1	14	0	1
Co Rd 60(E)	7/10	rnd_88689	990	794	0.2		35.0	11.7	1.5	75.1	78.3	3.9	3.1	7.9	8.9	6.9	23.2	7.3	3312	3593	2810	3040	8.1	6.6	1	10	1	11.6	9.8	14	1	1
Co Rd 60(X)	7/10	rnd_95025	150	174	0.2	0.01	38.8	11.6	1.5	78.0	77.5	4.4	3.2	8.0	9.3	6.9	23.3	7.3	2753	2603	2420	2246	8.1	6.6	1	10	1	11.6	9.8	14	1	1
Co Rd 42(X)	7/11	rnd_86331	2414	2373	0.0	-0.03				63.0	71.5							7.3	5183	7597	3096	5469						7.4	6.5	12	1	0
Crystal Lake Rd(X)	7/11	rnd_88707	197	398	1.0	0.05	12.2	9.4	1.1	76.2	34.8	0.8	0.5	4.4	5.8	4.2	19.8	7.3	5383	5183	3494	3096	5.7	3.4	1	4	0	8.3	6.2	12	1	0
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Site 1 - SB: I-35E (SB), Jun-Jul 2013 (2 to 1)

Name	Date	RNodeName	Vb	Vd	Re	Rx	Uavg	Tf+Tae	Tasi/Tasm	Ub	Ud	Lws	Twsb	Twsd	Lwe	Tweb	Twed	Lw	Vib	Vob	Vid	Vod	Tas	Las	Nsis	Nstops	Nras	Tae	Lae	Nsie	Nstope	Nrae
I-35E CD SB(X)	6/18	rnd_86873	47	122	1.6	0.05	9.8	14.7	1.0	72.8	13.0	0.3	0.4	2.6	3.3	2.9	9.7	4.5	3022	2975	1112	990	2.0	2.2	1	0	0	8.8	7.5	11	0	0
Cliff Rd(E)	6/18	rnd_85973	289	142	0.5		12.7	14.1	1.3	69.7	28.6	0.7	1.4	3.6	3.6	2.9	9.7	4.5	3910	4199	2679	2821	2.7	2.0	6	0	0	9.2	8.7	11	0	0
Cliff Rd(X)	6/18	rnd_85969	946	1233	0.3	0.10	24.4	13.7	1.3	74.2	64.5	1.2	1.8	4.0	4.2	3.3	10.1	4.5	4856	3910	3912	2679	2.7	2.0	6	0	0	9.2	8.7	11	0	0
Diffley Rd(E)	6/18	rnd_85965	293	187	0.4		31.2	14.8	1.2	74.1	69.7	1.8	2.2	4.1	4.7	3.8	10.3	4.5	4574	4868	3733	3920	2.5	1.9	4	0	1	10.5	9.8	11	0	1
Diffley Rd(X)	6/18	rnd_85961	676	789	0.2	0.03	35.5	14.3	1.2	74.3	74.7	2.4	3.1	4.6	5.4	4.6	10.9	4.5	5251	4574	4522	3733	2.5	1.9	4	0	1	10.5	9.8	11	0	1
Pilot Knob Rd(E)	6/18	rnd_85953	1010	773	0.2		42.8	15.3	2.1	69.6	70.1	4.0	4.5	6.3	7.0	6.0	12.7	4.5	4301	5311	3788	4561	4.3	3.4	9	0	0	13.2	12.1	17	0	0
Pilot Knob Rd(X)	6/18	rnd_85949	753	877	0.2	0.03	46.4	15.0	2.1	67.6	67.6	4.5	4.9	6.6	7.5	6.4	12.9	4.5	5054	4301	4665	3788	4.3	3.4	9	0	0	13.2	12.1	17	0	0
Yankee Doodle Rd(X)	6/18	rnd_85945	929	909	0.0	0.00	60.0	15.9	2.1	70.5	68.8	4.9	3.9	5.6	7.9	6.4	12.9	4.5	5983	5054	5574	4665	4.2	3.3	9	0	0	13.1	12.0	16	0	0
Lone Oak Rd(E)	6/18	rnd_85941	884	684	0.2		51.4	16.0	2.8	68.9	68.0	5.4	5.3	7.1	8.4	6.8	13.3	4.5	5188	6071	5031	5715	5.7	4.5	6	1	0	14.6	13.2	13	1	0
Lone Oak Rd(X)	6/18	rnd_85937	677	652	0.0	-0.01	53.1	15.4	2.8	71.1	72.0	6.0	5.8	7.7	9.0	7.4	13.9	4.5	5864	5188	5683	5031	5.7	4.5	6	1	0	14.6	13.2	13	1	0
I-35E CD SB(E)	6/18	rnd_85935	2617	2362	0.1		59.0	17.0	6.5	71.1	72.0	6.4	5.6	7.5	9.4	8.2	14.7	4.5	3288	5904	3321	5683	13.1	11.7	15	1	0	16.0	14.5	14	1	0
I-494 EB(X)	6/18	rnd_85931	130	100	-0.2	-0.01	62.1	22.9	6.5	65.4	64.8	6.8	5.6	7.5	9.8	8.2	14.7	4.5	3418	3288	3421	3321	13.1	11.7	15	1	0	21.9	19.0	27	1	0
I-494 WB(X)	6/18	rnd_85929	399	428	0.1	0.01	57.9	16.0	3.5	65.4	64.8	7.2	6.4	8.5	10.2	9.0	15.7	4.5	3817	3418	3849	3421	7.1	5.8	6	1	0	16.0	14.5	14	1	0
I-35E CD SB(X)	6/19	rnd_86873	47	105	1.2	0.04	8.4	14.4	1.0	72.8	11.4	0.3	0.4	2.8	3.3	2.9	11.0	4.5	3022	2975	1093	988	2.0	2.2	1	0	0	8.8	7.5	11	0	0
Cliff Rd(E)	6/19	rnd_85973	289	120	0.6		11.3	13.8	1.3	69.7	25.3	0.7	1.4	3.8	3.6	2.9	11.0	4.5	3910	4199	2593	2713	2.7	2.0	6	0	0	9.2	8.7	11	0	0
Cliff Rd(X)	6/19	rnd_85969	946	1287	0.4	0.11	22.2	13.6	1.3	74.2	60.5	1.2	1.8	3.9	4.2	3.3	11.1	4.5	4856	3910	3880	2593	2.7	2.0	6	0	0	9.2	8.7	11	0	0
Diffley Rd(E)	6/19	rnd_85965	293	162	0.4		28.6	14.6	1.2	74.1	68.4	1.8	2.2	4.2	4.7	3.8	11.3	4.5	4574	4868	3762	3924	2.5	1.9	4	0	1	10.5	9.8	11	0	1
Diffley Rd(X)	6/19	rnd_85961	676	748	0.1	0.02	33.3	14.1	1.2	74.3	74.7	2.4	3.1	4.7	5.4	4.6	11.8	4.5	5251	4574	4510	3762	2.5	1.9	4	0	1	10.5	9.8	11	0	1
Pilot Knob Rd(E)	6/19	rnd_85953	1010	787	0.2		40.6	15.1	2.1	69.6	70.3	4.0	4.5	6.4	7.0	6.0	13.5	4.5	4301	5311	3756	4543	4.3	3.4	9	0	0	13.2	12.1	17	0	0
Pilot Knob Rd(X)	6/19	rnd_85949	753	888	0.2	0.03	44.4	14.9	2.1	67.6	68.4	4.5	4.9	6.6	7.5	6.4	13.8	4.5	5054	4301	4644	3756	4.3	3.4	9	0	0	13.2	12.1	17	0	0
Yankee Doodle Rd(X)	6/19	rnd_85945	929	921	0.0	0.00	56.8	15.8	2.1	70.5	70.8	4.9	3.9	5.6	7.9	6.4	13.8	4.5	5983	5054	5565	4644	4.2	3.3	9	0	0	13.1	12.0	16	0	0
Lone Oak Rd(E)	6/19	rnd_85941	884	670	0.2		49.1	16.0	2.8	68.9	69.1	5.4	5.3	7.1	8.4	6.8	14.2	4.5	5188	6071	4987	5657	5.7	4.5	6	1	0	14.6	13.2	13	1	0
Lone Oak Rd(X)	6/19	rnd_85937	677	669	0.0	0.00	50.6	15.4	2.8	71.1	72.1	6.0	5.8	7.6	9.0	7.4	14.8	4.5	5864	5188	5656	4987	5.7	4.5	6	1	0	14.6	13.2	13	1	0
I-35E CD SB(E)	6/19	rnd_85935	2617	2429	0.1		55.5	17.0	6.5	71.1	72.1	6.4	5.6	7.4	9.4	8.2	15.5	4.5	3288	5904	3227	5656	13.1	11.7	15	1	0	16.0	14.5	14	1	0
I-494 EB(X)	6/19	rnd_85931	130	112	-0.1	-0.01	58.4	22.9	6.5	65.4	65.2	6.8	5.6	7.4	9.8	8.2	15.5	4.5	3418	3288	3339	3227	13.1	11.7	15	1	0	21.9	19.0	27	1	0
I-494 WB(X)	6/19	rnd_85929	399	404	0.0	0.00	54.7	16.0	3.5	65.4	65.2	7.2	6.4	8.4	10.2	9.0	16.5	4.5	3817	3418	3743	3339	7.1	5.8	6	1	0	16.0	14.5	14	1	0
I-35E CD SB(X)	6/20	rnd_86873	47	82	0.7	0.03	6.9	14.6	1.0	72.8	10.0	0.3	0.4	3.3	3.3	2.9	11.9	4.5	3022	2975	1031	949	2.0	2.2	1	0	0	8.8	7.5	11	0	0
Cliff Rd(E)	6/20	rnd_85973	289	105	0.6		9.9	14.0	1.3	69.7	17.5	0.7	1.4	4.3	3.6	2.9	11.9	4.5	3910	4199	2408	2513	2.7	2.0	6	0	0	9.2	8.7	11	0	0
Cliff Rd(X)	6/20	rnd_85969	946	1468	0.6	0.18	13.5	13.3	1.3	74.2	48.6	1.2	1.8	5.0	4.2	3.3	12.6	4.5	4856	3910	3876	2408	2.7	2.0	6	0	0	9.2	8.7	11	0	0
Diffley Rd(E)	6/20	rnd_85965	293	165	0.4		19.6	14.5	1.2	74.1	60.1	1.8	2.2	5.2	4.7	3.8	12.7	4.5	4574	4868	3732	3897	2.5	1.9	4	0	1	10.5	9.8	11	0	1

Diffley Rd(X)	6/20	rnd_85961	676	815	0.2	0.04	24.4	14.0	1.2	74.3	69.4	2.4	3.1	5.7	5.4	4.6	13.2	4.5	5251	4574	4547	3732	2.5	1.9	4	0	1	10.5	9.8	11	0	1
Pilot Knob Rd(E)	6/20	rnd_85953	1010	782	0.2		32.1	14.9	2.1	69.6	69.2	4.0	4.5	7.4	7.0	6.0	15.0	4.5	4301	5311	3799	4581	4.3	3.4	9	0	0	13.2	12.1	17	0	0
Pilot Knob Rd(X)	6/20	rnd_85949	753	896	0.2	0.04	35.1	14.7	2.1	67.6	68.3	4.5	4.9	7.6	7.5	6.4	15.2	4.5	5054	4301	4695	3799	4.3	3.4	9	0	0	13.2	12.1	17	0	0
Yankee Doodle Rd(X)	6/20	rnd_85945	929	961	0.0	0.01	43.2	15.6	2.1	70.5	70.6	4.9	3.9	6.6	7.9	6.4	15.2	4.5	5983	5054	5656	4695	4.2	3.3	9	0	0	13.1	12.0	16	0	0
Lone Oak Rd(E)	6/20	rnd_85941	884	696	0.2		39.6	15.8	2.8	68.9	68.4	5.4	5.3	8.0	8.4	6.8	15.7	4.5	5188	6071	5118	5814	5.7	4.5	6	1	0	14.6	13.2	13	1	0
Lone Oak Rd(X)	6/20	rnd_85937	677	691	0.0	0.00	41.6	15.3	2.8	71.1	71.5	6.0	5.8	8.5	9.0	7.4	16.2	4.5	5864	5188	5809	5118	5.7	4.5	6	1	0	14.6	13.2	13	1	0
I-35E CD SB(E)	6/20	rnd_85935	2617	2499	0.0		45.7	17.0	6.5	71.1	71.5	6.4	5.6	8.2	9.4	8.2	16.9	4.5	3288	5904	3310	5809	13.1	11.7	15	1	0	16.0	14.5	14	1	0
I-494 EB(X)	6/20	rnd_85931	130	106	-0.2	-0.01	48.2	22.9	6.5	65.4	65.7	6.8	5.6	8.2	9.8	8.2	16.9	4.5	3418	3288	3416	3310	13.1	11.7	15	1	0	21.9	19.0	27	1	0
I-494 WB(X)	6/20	rnd_85929	399	403	0.0	0.00	45.9	16.0	3.5	65.4	65.7	7.2	6.4	9.2	10.2	9.0	17.7	4.5	3817	3418	3819	3416	7.1	5.8	6	1	0	16.0	14.5	14	1	0
I-35E CD SB(X)	6/25	rnd_86873				0.00	7.4	13.4	1.0	75.0	11.0	0.3	0.4	2.6	3.3	2.8	11.1	4.5		2932		889	2.0	2.2	1	0	0	8.8	7.5	11	0	0
Cliff Rd(E)	6/25	rnd_85973	284	131	0.5		10.4	12.9	1.3	70.7	49.7	0.7	1.4	3.6	3.6	2.8	11.1	4.5	3858	4142	2436	2567	2.7	2.0	6	0	0	9.2	8.7	11	0	0
Cliff Rd(X)	6/25	rnd_85969	925	1302	0.4	0.13	24.2	13.7	1.3	74.8	73.2	1.2	1.8	2.8	4.2	3.2	10.3	4.5	4783	3858	3738	2436	2.7	2.0	6	0	0	9.2	8.7	11	0	0
Diffley Rd(E)	6/25	rnd_85965	283	188	0.3		30.4	14.5	1.2	74.3	72.6	1.8	2.2	3.3	4.7	3.6	10.7	4.5	4519	4803	3552	3740	2.5	1.9	4	0	1	10.5	9.8	11	0	1
Diffley Rd(X)	6/25	rnd_85961	665	772	0.2	0.03	35.2	13.9	1.2	73.7	75.0	2.4	3.0	3.9	5.4	4.5	11.3	4.5	5185	4519	4324	3552	2.5	1.9	4	0	1	10.5	9.8	11	0	1
Pilot Knob Rd(E)	6/25	rnd_85953	1007	701	0.3		42.5	14.9	2.1	69.9	70.5	4.0	4.4	5.5	7.0	5.8	12.8	4.5	4241	5249	3658	4359	4.3	3.4	9	0	0	13.2	12.1	17	0	0
Pilot Knob Rd(X)	6/25	rnd_85949	736	849	0.2	0.03	46.6	14.8	2.1	67.8	68.6	4.5	4.9	5.7	7.5	6.3	13.0	4.5	4978	4241	4507	3658	4.3	3.4	9	0	0	13.2	12.1	17	0	0
Yankee Doodle Rd(X)	6/25	rnd_85945	924	989	0.1	0.01	60.4	15.7	2.1	70.8	70.7	4.9	3.9	4.7	7.9	6.3	13.0	4.5	5902	4978	5496	4507	4.2	3.3	9	0	0	13.1	12.0	16	0	0
Lone Oak Rd(E)	6/25	rnd_85941	838	621	0.3		51.6	15.8	2.8	69.3	68.3	5.4	5.3	6.1	8.4	6.7	13.4	4.5	5047	5885	5023	5644	5.7	4.5	6	1	0	14.6	13.2	13	1	0
Lone Oak Rd(X)	6/25	rnd_85937	678	667	0.0	0.00	52.9	15.3	2.8	71.4	72.2	6.0	5.8	6.6	9.0	7.2	13.8	4.5	5725	5047	5690	5023	5.7	4.5	6	1	0	14.6	13.2	13	1	0
I-35E CD SB(E)	6/25	rnd_85935	2548	2511	0.0		58.1	17.0	6.5	71.4	72.2	6.4	5.6	6.3	9.4	8.0	14.6	4.5	3242	5790	3179	5690	13.1	11.7	15	1	0	16.0	14.5	14	1	0
I-494 EB(X)	6/25	rnd_85931	132	96	-0.3	-0.01	61.2	22.9	6.5	66.0	66.0	6.8	5.6	6.3	9.8	8.0	14.6	4.5	3373	3242	3275	3179	13.1	11.7	15	1	0	21.9	19.0	27	1	0
I-494 WB(X)	6/25	rnd_85929	407	430	0.1	0.01	57.1	16.0	3.5	66.0	66.0	7.2	6.4	7.3	10.2	8.8	15.5	4.5	3780	3373	3705	3275	7.1	5.8	6	1	0	16.0	14.5	14	1	0
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Site 2 - NB: I-35E (NB), Aug-Oct 2011 (2 to 1)

Name	Date	RNodeName	Vb	Vd	Re	Rx	Uavg	Tf+Tae	Tasi/Tasm	Ub	Ud	Lws	Twsb	Twsd	Lwe	Tweb	Twed	Lw	Vib	Vob	Vid	Vod	Tas	Las	Nsis	Nstops	Nras	Tae	Lae	Nsie	Nstope	Nrae
Co Rd 96(X)	8/2	rnd_94396	1023	1486	0.5					65.7	19.3	0.1			8.4	7.5	10.3	12.2														
Co Rd E(E)	8/2	rnd_94390	633	398	0.4		43.2	30.0	1.1	52.5	48.3	1.9	2.3	3.7	10.3	9.8	14.1	12.2	3696	4329	2754	3152	1.5	1.1	4	0	0	22.0	18.2	25	0	2
Co Rd E(X)	8/2	rnd_90679	923	985	0.1	0.03	50.0	30.0	1.1	40.8	71.1	2.2	2.3	3.7	10.6	9.8	14.1	12.2	4619	3696	3739	2754	1.5	1.1	4	0	0	22.0	18.2	25	0	2
I-694 WB(E)	8/2	rnd_90675	1287	863	0.3		47.7	30.1	1.1	40.8	71.1	2.6	3.4	4.2	11.0	10.9	14.7	12.2	3409	4696	2834	3697	2.1	1.9	4	0	0	22.6	19.1	25	0	2
E Jct I-694 EB(X)	8/2	rnd_90617	2868	3057	0.1	0.07	56.9	30.1	1.1	63.4	69.0	3.1	3.4	4.2	11.5	10.9	14.7	12.2	6277	3409	5891	2834	2.1	1.9	4	0	0	22.6	19.1	25	0	2
I-694 EB(E)	8/2	rnd_90615	3193	3385	-0.1		54.0	29.0	1.0	68.2	68.6	3.9	4.4	5.3	12.3	12.0	15.9	12.2	3195		2589		2.1	1.9	4	0	0	22.6	19.1	25	0	2
I-694 WB(X)	8/2	rnd_89045	1519	1409	-0.1	-0.05				66.4	67.8		30.4	28.0		37.9	38.3	12.2	4714	3195	3998	2589	2.1	1.9	4	0	0	22.6	19.1	25	0	2
Little Canada Rd(E)	8/2	rnd_87775	308	284	0.1					66.4	67.8		30.4	28.0		37.9	38.3	12.2	4812	5120	4409	4693	6.4	4.2	7	2	0	26.9	21.3	25	2	2
Little Canada Rd(X)	8/2	rnd_87771	545	710	0.3	0.04	60.1	32.5	1.4	56.6	66.1	5.1	5.1	6.0	13.4	12.7	16.7	12.2	5357	4812	5119	4409	6.4	4.2	7	2	0	26.9	21.3	25	2	2
T.H.36 WB(E)	8/2	rnd_87769	226	243	-0.1		57.0	30.8	1.2	56.6	66.1	5.5	6.0	6.7	13.9	13.5	17.4	12.2	5113	5339	4876		5.2	4.5	7	0	0	25.8	21.7	25	0	2
T.H.36 WB(X)	8/2	rnd_87765	805	1020	0.3	0.05	58.5	30.8	1.2	64.3	62.5	5.7	6.0	6.7	14.0	13.5	17.4	12.2	5918	5113	5896	4876	5.2	4.5	7	0	0	25.8	21.7	25	0	2
T.H.36 EB(E)	8/2	rnd_87763	893	832	0.1		58.5	30.8	1.2	64.3	62.5	5.7	6.0	6.7	14.0	13.5	17.4	12.2	5026	5919	5086	5918	5.2	4.5	7	0	0	25.8	21.7	25	0	2
T.H.36 EB(X)	8/2	rnd_87761	646	819	0.3	0.04	54.4	30.2	1.1	64.3	62.5	5.8	6.5	7.2	14.2	14.1	17.9	12.2	5672	5026	5905	5086	5.2	4.5	7	0	0	25.8	21.7	25	0	2
Roselawn Ave(E)	8/2	rnd_87757	165	150	0.1		52.9	31.5	1.3	53.8	58.5	6.0	6.8	7.7	14.4	14.4	18.3	12.2	5514	5679	5758	5908	7.0	5.0	10	1	0	27.5	22.1	28	1	2
Roselawn Ave(X)	8/2	rnd_87753	152	203	0.3	0.01	56.4	31.5	1.3	54.2	58.4	6.4	6.8	7.7	14.8	14.4	18.3	12.2	5666	5514	5961	5758	7.0	5.0	10	1	0	27.5	22.1	28	1	2
Larpenteur Ave(E)	8/2	rnd_87751	332	375	-0.1		52.8	31.0	1.2	54.2	58.4	6.6	7.4	8.4	14.9	15.0	18.9	12.2	5300	5632	5585	5960	7.2	5.4	13	0	0	27.7	22.5	31	0	2
Wheelock Pkwy(X)	8/2	rnd_87741	311	433	0.4	0.02	54.2	30.6	1.2	49.8	55.1	7.1	7.8	8.8	15.4	15.4	19.3	12.2	5611	5300	6018	5585	7.2	5.4	13	0	0	27.7	22.5	31	0	2
Maryland Ave(E)	8/2	rnd_87739	513	545	-0.1		52.1	31.2	1.3	49.8	55.1	7.6	8.8	9.7	15.9	16.3	20.2	12.2	5115	5628	5493	6038	8.6	6.1	16	0	0	29.1	23.3	34	0	2
Maryland Ave(X)	8/2	rnd_87735	305	495	0.6	0.04	49.0	30.2	1.1	30.1	38.8	8.0	9.5	10.6	16.3	17.1	21.2	12.2	5419	5115	5988	5493	8.6	6.1	16	0	0	29.1	23.3	34	0	2
Pennsylvania Ave(E)	8/2	rnd_87729	663	618	0.1		48.4	30.9	1.2	32.2	47.5	8.8	11.1	11.7	17.1	18.6	22.3	12.2	4877	5540	5538	6156	10.4	7.1	19	0	0	30.9	24.3	37	0	2
Pennsylvania Ave(X)	8/2	rnd_90811	275	450	0.6	0.04	49.6	30.9	1.2	26.7	37.3	9.0	11.1	11.7	17.3	18.6	22.3	12.2	5152	4877	5988	5538	10.4	7.1	19	0	0	30.9	24.3	37	0	2

Co Rd 96(X)	8/3	rnd_94396	1023	1481	0.4					65.7	18.2	0.1			8.4	7.5	10.0	12.2														
Co Rd E(E)	8/3	rnd_94390	633	393	0.4		34.1	30.6	1.1	52.5	51.3	1.9	2.3	3.8	10.3	9.8	14.3	12.2	3696	4329	2767	3160	1.5	1.1	4	0	0	22.0	18.2	25	0	2
Co Rd E(X)	8/3	rnd_90679	923	952	0.0	0.01	39.5	30.6	1.1	40.8	71.1	2.2	2.3	3.8	10.6	9.8	14.3	12.2	4619	3696	3719	2767	1.5	1.1	4	0	0	22.0	18.2	25	0	2
I-694 WB(E)	8/3	rnd_90675	1287	880	0.3		39.3	30.7	1.1	40.8	71.1	2.6	3.4	4.4	11.0	10.9	14.9	12.2	3409	4696	2808	3688	2.1	1.9	4	0	0	22.6	19.1	25	0	2
E Jct I-694 EB(X)	8/3	rnd_90617	2868	3089	0.1	0.08	46.9	30.7	1.1	63.4	67.7	3.1	3.4	4.4	11.5	10.9	14.9	12.2	6277	3409	5897	2808	2.1	1.9	4	0	0	22.6	19.1	25	0	2
I-694 EB(E)	8/3	rnd_90615					46.0	29.5	1.0	68.2	68.3	3.9	4.4	5.6	12.3	12.0	16.1	12.2	3195		2600		2.1	1.9	4	0	0	22.6	19.1	25	0	2
I-694 WB(X)	8/3	rnd_89045	1519	1427	-0.1	-0.04				66.4	67.7		30.4	32.5		37.9	42.4	12.2	4714	3195	4027	2600	2.1	1.9	4	0	0	22.6	19.1	25	0	2
Little Canada Rd(E)	8/3	rnd_87775	308	326	-0.1					66.4	67.7		30.4	32.5		37.9	42.4	12.2	4812	5120	4348	4674	6.4	4.2	7	2	0	26.9	21.3	25	2	2
Little Canada Rd(X)	8/3	rnd_87771	545	684	0.3	0.03	52.5	33.0	1.4	56.6	66.4	5.1	5.1	6.3	13.4	12.7	16.8	12.2	5357	4812	5032	4348	6.4	4.2	7	2	0	26.9	21.3	25	2	2
T.H.36 WB(E)	8/3	rnd_87769	226	231	0.0		52.2	31.4	1.2	56.6	66.4	5.5	6.0	6.9	13.9	13.5	17.4	12.2	5113	5339	4791	5022	5.2	4.5	7	0	0	25.8	21.7	25	0	2
T.H.36 WB(X)	8/3	rnd_87765	805	971	0.2	0.04	53.5	31.4	1.2	64.3	63.3	5.7	6.0	6.9	14.0	13.5	17.4	12.2	5918	5113	5762	4791	5.2	4.5	7	0	0	25.8	21.7	25	0	2
T.H.36 EB(E)	8/3	rnd_87763	893	825	0.1		53.5	31.4	1.2	64.3	63.3	5.7	6.0	6.9	14.0	13.5	17.4	12.2	5026	5919	4948	5773	5.2	4.5	7	0	0	25.8	21.7	25	0	2
T.H.36 EB(X)	8/3	rnd_87761	646	748	0.2	0.02	50.6	30.8	1.1	64.3	63.3	5.8	6.5	7.5	14.2	14.1	17.9	12.2	5672	5026	5696	4948	5.2	4.5	7	0	0	25.8	21.7	25	0	2
Roselawn Ave(E)	8/3	rnd_87757	165	140	0.2		49.2	31.9	1.3	53.8	55.6	6.0	6.8	8.0	14.4	14.4	18.4	12.2	5514	5679	5565	5705	7.0	5.0	10	1	0	27.5	22.1	28	1	2
Roselawn Ave(X)	8/3	rnd_87753	152	177	0.2	0.00	52.5	31.9	1.3	54.2	56.6	6.4	6.8	8.0	14.8	14.4	18.4	12.2	5666	5514	5742	5565	7.0	5.0	10	1	0	27.5	22.1	28	1	2
Larpenteur Ave(E)	8/3	rnd_87751	332	393	-0.2		49.2	31.5	1.2	54.2	56.6	6.6	7.4	8.7	14.9	15.0	19.1	12.2	5300	5632	5382	5775	7.2	5.4	13	0	0	27.7	22.5	31	0	2
Wheelock Pkwy(X)	8/3	rnd_87741	311	384	0.2	0.01	50.5	31.0	1.2	49.8	52.8	7.1	7.8	9.1	15.4	15.4	19.6	12.2	5611	5300	5766	5382	7.2	5.4	13	0	0	27.7	22.5	31	0	2
Maryland Ave(E)	8/3	rnd_87739	513	523	0.0		48.8	31.5	1.2	49.8	52.8	7.6	8.8	10.0	15.9	16.3	20.5	12.2	5115	5628	5237	5760	8.6	6.1	16	0	0	29.1	23.3	34	0	2
Maryland Ave(X)	8/3	rnd_87735	305	430	0.4	0.03	45.7	30.4	1.1	30.1	32.4	8.0	9.5	11.2	16.3	17.1	21.6	12.2	5419	5115	5667	5237	8.6	6.1	16	0	0	29.1	23.3	34	0	2
Pennsylvania Ave(E)	8/3	rnd_87729	663	639	0.0		45.8	30.9	1.2	32.2		8.8	11.1	12.5	17.1	18.6	22.8	12.2	4877	5540	5052	5691	10.4	7.1	19	0	0	30.9	24.3	37	0	2
Pennsylvania Ave(X)	8/3	rnd_90811	275	389	0.4	0.02	46.9	30.9	1.2	26.7	32.7	9.0	11.1	12.5	17.3	18.6	22.8	12.2	5152	4877	5441	5052	10.4	7.1	19	0	0	30.9	24.3	37	0	2
Co Rd 96(X)	8/4	rnd_94396	1023	1251	0.2					65.7	18.1	0.1			8.4	7.5	9.8	12.2														
Co Rd E(E)	8/4	rnd_94390	633	342	0.5		17.7	31.5	1.1	52.5	18.4	1.9	2.3	7.0	10.3	9.8	17.3	12.2	3696	4329	2396	2738	1.5	1.1	4	0	0	22.0	18.2	25	0	2
Co Rd E(X)	8/4	rnd_90679	923	1193	0.3	0.10	20.5	31.5	1.1	40.8	50.2	2.2	2.3	7.0	10.6	9.8	17.3	12.2	4619	3696	3589	2396	1.5	1.1	4	0	0	22.0	18.2	25	0	2
I-694 WB(E)	8/4	rnd_90675	1287	860	0.3		21.9	31.6	1.1	40.8	50.2	2.6	3.4	7.5	11.0	10.9	17.9	12.2	3409	4696	2756	3616	2.1	1.9	4	0	0	22.6	19.1	25	0	2
E Jct I-694 EB(X)	8/4	rnd_90617	2868	3005	0.0	0.04	26.1	31.6	1.1	63.4	68.1	3.1	3.4	7.5	11.5	10.9	17.9	12.2	6277	3409	5761	2756	2.1	1.9	4	0	0	22.6	19.1	25	0	2
I-694 EB(E)	8/4	rnd_90615					29.0	30.5	1.0	68.2	68.1	3.9	4.4	8.6	12.3	12.0	18.9	12.2	3195		2459		2.1	1.9	4	0	0	22.6	19.1	25	0	2
I-694 WB(X)	8/4	rnd_89045	1519	1413	-0.1	-0.04				66.4	68.0		30.4	39.1		37.9	49.4	12.2	4714	3195	3872	2459	2.1	1.9	4	0	0	22.6	19.1	25	0	2
Little Canada Rd(E)	8/4	rnd_87775	308	306	0.0					66.4	68.0		30.4	39.1		37.9	49.4	12.2	4812	5120	4104	4410	6.4	4.2	7	2	0	26.9	21.3	25	2	2
Little Canada Rd(X)	8/4	rnd_87771	545	678	0.2	0.03	34.2	34.0	1.3	56.6	66.7	5.1	5.1	9.4	13.4	12.7	19.7	12.2	5357	4812	4782	4104	6.4	4.2	7	2	0	26.9	21.3	25	2	2
T.H.36 WB(E)	8/4	rnd_87769	226	249	-0.1		35.1	32.4	1.2	56.6	66.7	5.5	6.0	9.9	13.9	13.5	20.2	12.2	5113	5339	4532	4781	5.2	4.5	7	0	0	25.8	21.7	25	0	2
T.H.36 WB(X)	8/4	rnd_87765	805	756	-0.1	-0.01	36.0	32.4	1.2	64.3	63.6	5.7	6.0	9.9	14.0	13.5	20.2	12.2	5918	5113	5288	4532	5.2	4.5	7	0	0	25.8	21.7	25	0	2
T.H.36 EB(E)	8/4	rnd_87763	893	751	0.2		36.0	32.4	1.2	64.3	63.6	5.7	6.0	9.9	14.0	13.5	20.2	12.2	5026	5919	4691	5442	5.2	4.5	7	0	0	25.8	21.7	25	0	2
T.H.36 EB(X)	8/4	rnd_87761	646	738	0.1	0.02	35.3	31.9	1.1	64.3	63.6	5.8	6.5	10.3	14.2	14.1	20.7	12.2	5672	5026	5429	4691	5.2	4.5	7	0	0	25.8	21.7	25	0	2
Roselawn Ave(E)	8/4	rnd_87757	165	158	0.0		34.4	33.1	1.3	53.8	54.0	6.0	6.8	10.9	14.4	14.4	21.2	12.2	5514	5679	5270	5428	7.0	5.0	10	1	0	27.5	22.1	28	1	2
Roselawn Ave(X)	8/4	rnd_87753	152	173	0.1	0.00	36.6	33.1	1.3	54.2	52.1	6.4	6.8	10.9	14.8	14.4	21.2	12.2	5666	5514	5443	5270	7.0	5.0	10	1	0	27.5	22.1	28	1	2
Larpenteur Ave(E)	8/4	rnd_87751	332	358	-0.1		34.4	32.5	1.2	54.2	52.1	6.6	7.4	11.7	14.9	15.0	22.1	12.2	5300	5632	5090	5448	7.2	5.4	13	0	0	27.7	22.5	31	0	2
Wheelock Pkwy(X)	8/4	rnd_87741	311	324	0.0	0.00	34.7	31.7	1.1	49.8	43.7	7.1	7.8	12.4	15.4	15.4	22.8	12.2	5611	5300	5414	5090	7.2	5.4	13	0	0	27.7	22.5	31	0	2
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Site 2 - SB: I-35E (SB), Aug-Oct 2011 (2 to 1)

Name	Date	RNodeName	Vb	Vd	Re	Rx	Uavg	Tf+Tae	Tasi/Tasm	Ub	Ud	Lws	Twsb	Twsd	Lwe	Tweb	Twed	Lw	Vib	Vob	Vid	Vod	Tas	Las	Nsis	Nstops	Nras	Tae	Lae	Nsie	Nstope	Nrae
Co Rd 21(S1568,X)	8/2	rnd_94607	1978	2269	0.1	0.2		29.1	1.0	74.1	71.0							12.1	4248	2270	3338	1069	6.7	7.2	4	0	0	21.2	17.9	14	3	0
Co Rd 23(E)	8/2	rnd_94591	998	713	0.3		61.4	23.8	1.0	77.4	79.6	3.1	3.0	3.0	11.4	11.2	13.7	12.1	3219	4217	2576	3289	6.6	6.1	1	1	0	18.8	15.0	6	4	0
Co Rd 23(X)	8/2	rnd_94565	179	434	1.4	0.1	69.1	23.8	1.0	79.2	78.0	3.4	3.0	3.0	11.8	11.2	13.7	12.1	3398	3219	3010	2576	6.6	6.1	1	1	0	18.8	15.0	6	4	0
Co Rd 2(E)	8/2	rnd_94585	619				68.1	25.2	1.8	77.6	82.8	5.4	4.7	4.8	13.7	12.9	15.4	12.1	2688	3307			11.6	9.4	27	0	2	22.0	18.2	27	0	2
Co Rd 2(X)	8/2	rnd_94571	377			0.0	71.0	25.2	1.8	79.1		5.6	4.7	4.8	14.0	12.9	15.4	12.1	3065	2688			11.6	9.4	27	0	2	22.0	18.2	27	0	2

U.S.8(E)	8/2	rnd_94579	1527	1035	0.3		68.4	25.6	1.9	79.1		5.9	5.2	5.2	14.3	13.4	15.9	12.1	1574	3101	1686	2721	12.5	10.1	23	0	2	22.9	19.0	23	0	2
Co Rd 22(E)	8/2	rnd_94597	325	444	-0.4		70.5	26.1	2.4	75.8	77.7	9.3	8.1	8.0	17.6	16.3	18.6	12.1	1177	1502	1238	1682	15.7	12.8	28	0	2	26.1	21.7	28	0	2
Co Rd 22(X)	8/2	rnd_94569	347			0.0	72.7	26.1	2.4	80.7	78.4	9.6	8.1	8.0	17.9	16.3	18.6	12.1	1524	1177		1238	15.7	12.8	28	0	2	26.1	21.7	28	0	2
Co Rd 21(S1568,X)	8/3	rnd_94607	1978	2228	0.1	0.2		29.1	1.0	74.1	72.1							12.1	4248	2270	3508	1280	6.7	7.2	4	0	0	21.2	17.9	14	3	0
Co Rd 23(E)	8/3	rnd_94591	998	707	0.3		62.0	23.8	1.0	77.4	81.1	3.1	3.0	3.0	11.4	11.2	15.2	12.1	3219	4217	2721	3428	6.6	6.1	1	1	0	18.8	15.0	6	4	0
Co Rd 23(X)	8/3	rnd_94565	179	579	2.2	0.1	69.8	23.8	1.0	79.2	78.8	3.4	3.0	3.0	11.8	11.2	15.2	12.1	3398	3219	3300	2721	6.6	6.1	1	1	0	18.8	15.0	6	4	0
Co Rd 2(E)	8/3	rnd_94585	619				68.5	25.2	1.8	77.6	84.2	5.4	4.7	4.8	13.7	12.9	17.1	12.1	2688	3307			11.6	9.4	27	0	2	22.0	18.2	27	0	2
Co Rd 2(X)	8/3	rnd_94571	377			0.0	71.4	25.2	1.8	79.1		5.6	4.7	4.8	14.0	12.9	17.1	12.1	3065	2688			11.6	9.4	27	0	2	22.0	18.2	27	0	2
U.S.8(E)	8/3	rnd_94579	1527	1054	0.3		69.0	25.6	1.9	79.1		5.9	5.2	5.2	14.3	13.4	17.6	12.1	1574	3101	898	1952	12.5	10.1	23	0	2	22.9	19.0	23	0	2
Co Rd 22(E)	8/3	rnd_94597	325	451	-0.4		70.7	26.1	2.4	75.8	79.2	9.3	8.1	8.0	17.6	16.3	20.2	12.1	1177	1502	1282	1733	15.7	12.8	28	0	2	26.1	21.7	28	0	2
Co Rd 22(X)	8/3	rnd_94569	347			0.0	73.0	26.1	2.4	80.7	80.3	9.6	8.1	8.0	17.9	16.3	20.2	12.1	1524	1177		1282	15.7	12.8	28	0	2	26.1	21.7	28	0	2
Co Rd 21(S1568,X)	8/4	rnd_94607	1978	2144	0.1	0.1		29.1	1.0	74.1	71.5							12.1	4248	2270	3435	1291	6.7	7.2	4	0	0	21.2	17.9	14	3	0
Co Rd 23(E)	8/4	rnd_94591	998	701	0.3		61.4	23.7	1.0	77.4	80.5	3.1	3.0	3.0	11.4	11.2	14.5	12.1	3219	4217	2652	3353	6.6	6.1	1	1	0	18.8	15.0	6	4	0
Co Rd 23(X)	8/4	rnd_94565	179	517	1.9	0.1	69.1	23.7	1.0	79.2	78.5	3.4	3.0	3.0	11.8	11.2	14.5	12.1	3398	3219	3169	2652	6.6	6.1	1	1	0	18.8	15.0	6	4	0
Co Rd 2(E)	8/4	rnd_94585	619				68.5	25.2	1.8	77.6	83.7	5.4	4.7	4.7	13.7	12.9	16.3	12.1	2688	3307			11.6	9.4	27	0	2	22.0	18.2	27	0	2
Co Rd 2(X)	8/4	rnd_94571	377			0.0	71.4	25.2	1.8	79.1		5.6	4.7	4.7	14.0	12.9	16.3	12.1	3065	2688			11.6	9.4	27	0	2	22.0	18.2	27	0	2
U.S.8(E)	8/4	rnd_94579	1527	1080	0.3		69.0	25.6	1.9	79.1		5.9	5.2	5.2	14.3	13.4	16.7	12.1	1574	3101	1758	2838	12.5	10.1	23	0	2	22.9	19.0	23	0	2
Co Rd 22(E)	8/4	rnd_94597	325	468	-0.4		71.2	26.1	2.4	75.8	78.1	9.3	8.1	7.9	17.6	16.3	19.4	12.1	1177	1502	1278	1746	15.7	12.8	28	0	2	26.1	21.7	28	0	2
Co Rd 22(X)	8/4	rnd_94569	347			0.0	73.5	26.1	2.4	80.7	80.9	9.6	8.1	7.9	17.9	16.3	19.4	12.1	1524	1177		1278	15.7	12.8	28	0	2	26.1	21.7	28	0	2
Co Rd 21(S1568,X)	8/9	rnd_94607	1946	2317	0.2	0.4		29.1	1.0	73.6	71.1							12.1	4208	2262	3422	1105	6.7	7.2	4	0	0	21.2	17.9	14	3	0
Co Rd 23(E)	8/9	rnd_94591	1003	711	0.3		60.2	23.7	1.0	77.0	80.3	3.1	3.0	3.0	11.4	11.2	14.2	12.1	3180	4183	2698	3409	6.6	6.1	1	1	0	18.8	15.0	6	4	0
Co Rd 23(X)	8/9	rnd_94565	166	790	3.8	0.2	67.7	23.7	1.0	78.7	77.8	3.4	3.0	3.0	11.8	11.2	14.2	12.1	3346	3180	3488	2698	6.6	6.1	1	1	0	18.8	15.0	6	4	0
Co Rd 2(E)	8/9	rnd_94585	637				67.4	25.2	1.8	77.5	83.2	5.4	4.8	4.8	13.7	12.9	15.9	12.1	2687	3324			11.6	9.4	27	0	2	22.0	18.2	27	0	2
Co Rd 2(X)	8/9	rnd_94571	372			0.0	70.3	25.2	1.8	78.9		5.6	4.8	4.8	14.0	12.9	15.9	12.1	3060	2687			11.6	9.4	27	0	2	22.0	18.2	27	0	2
U.S.8(E)	8/9	rnd_94579	1536	1044	0.3		68.0	25.6	1.9	78.9		5.9	5.2	5.2	14.3	13.4	16.4	12.1	1557	3094	1844	2888	12.5	10.1	23	0	2	22.9	19.0	23	0	2
Co Rd 22(E)	8/9	rnd_94597	307	481	-0.6		70.3	26.1	2.4	75.5	77.8	9.3	8.2	7.9	17.6	16.4	19.0	12.1	1152	1459	1351	1832	15.7	12.8	28	0	2	26.1	21.7	28	0	2
Co Rd 22(X)	8/9	rnd_94569	345			0.0	72.6	26.1	2.4	80.7	79.7	9.6	8.2	7.9	17.9	16.4	19.0	12.1	1497	1152		1351	15.7	12.8	28	0	2	26.1	21.7	28	0	2
Co Rd 21(S1568,X)	8/10	rnd_94607	1946	2259	0.2	0.4		28.9	1.0	73.6	72.5							12.1	4208	2262	3457	1198	6.7	7.2	4	0	0	21.2	17.9	14	3	0
Co Rd 23(E)	8/10	rnd_94591	1003	680	0.3		62.2	23.6	1.0	77.0	81.6	3.1	3.0	2.9	11.4	11.2	14.3	12.1	3180	4183	2681	3361	6.6	6.1	1	1	0	18.8	15.0	6	4	0
Co Rd 23(X)	8/10	rnd_94565	166	990	5.0	0.3	70.0	23.6	1.0	78.7	78.5	3.4	3.0	2.9	11.8	11.2	14.3	12.1	3346	3180	3671	2681	6.6	6.1	1	1	0	18.8	15.0	6	4	0
Co Rd 2(E)	8/10	rnd_94585	637				69.4	25.1	1.8	77.5	83.3	5.4	4.8	4.7	13.7	12.9	16.0	12.1	2687	3324			11.6	9.4	27	0	2	22.0	18.2	27	0	2
Co Rd 2(X)	8/10	rnd_94571	372			0.0	72.4	25.1	1.8	78.9		5.6	4.8	4.7	14.0	12.9	16.0	12.1	3060	2687			11.6	9.4	27	0	2	22.0	18.2	27	0	2
U.S.8(E)	8/10	rnd_94579	1536	1084	0.3		69.9	25.5	1.9	78.9		5.9	5.2	5.1	14.3	13.4	16.5	12.1	1557	3094	1839	2923	12.5	10.1	23	0	2	22.9	19.0	23	0	2
Co Rd 22(E)	8/10	rnd_94597	307	486	-0.6		73.0	26.1	2.4	75.5	80.0	9.3	8.2	7.7	17.6	16.4	19.0	12.1	1152	1459	1326	1812	15.7	12.8	28	0	2	26.1	21.7	28	0	2
Co Rd 22(X)	8/10	rnd_94569	345			0.0	75.3	26.1	2.4	80.7	81.7	9.6	8.2	7.7	17.9	16.4	19.0	12.1	1497	1152		1326	15.7	12.8	28	0	2	26.1	21.7	28	0	2
Co Rd 21(S1568,X)	8/11	rnd_94607	1946	2223	0.1	0.3		29.0	1.0	73.6	71.4							12.1	4208	2262	3481	1258	6.7	7.2	4	0	0	21.2	17.9	14	3	0
Co Rd 23(E)	8/11	rnd_94591	1003	670	0.3		62.2	23.7	1.0	77.0	81.0	3.1	3.0	2.9	11.4	11.2	13.8	12.1	3180	4183	2728	3398	6.6	6.1	1	1	0	18.8	15.0	6	4	0
Co Rd 23(X)	8/11	rnd_94565	166	786	3.7	0.2	70.0	23.7	1.0	78.7	78.3	3.4	3.0	2.9	11.8	11.2	13.8	12.1	3346	3180	3514	2728	6.6	6.1	1	1	0	18.8	15.0	6	4	0
Co Rd 2(E)	8/11	rnd_94585	637				69.1	25.1	1.8	77.5	83.1	5.4	4.8	4.7	13.7	12.9	15.6	12.1	2687	3324			11.6	9.4	27	0	2	22.0	18.2	27	0	2
Co Rd 2(X)	8/11	rnd_94571	372			0.0	72.1	25.1	1.8	78.9		5.6	4.8	4.7	14.0	12.9	15.6	12.1	3060	2687			11.6	9.4	27	0	2	22.0	18.2	27	0	2
U.S.8(E)	8/11	rnd_94579	1536	1092	0.3		69.6	25.5	1.9	78.9		5.9	5.2	5.2	14.3	13.4	16.0	12.1	1557	3094	1815	2907	12.5	10.1	23	0	2	22.9	19.0	23	0	2
Co Rd 22(E)	8/11	rnd_94597	307	462	-0.5		72.2	26.1	2.4	75.5	78.8	9.3	8.2	7.8	17.6	16.4	18.7	12.1	1152	1459	1319	1781	15.7	12.8	28	0	2	26.1	21.7	28	0	2
Co Rd 22(X)	8/11	rnd_94569	345			0.0	74.5	26.1	2.4	80.7	80.7	9.6	8.2	7.8	17.9	16.4	18.7	12.1	1497	1152		1319	15.7	12.8	28	0	2	26.1	21.7	28	0	2
Co Rd 21(S1568,X)	8/16	rnd_94607	1976	2293	0.2	0.3		29.0	1.0	73.3	71.3							12.1	4301	2325	3551	1258	6.7	7.2	4	0	0	21.2	17.9	14	3	0
Co Rd 23(E)	8/16	rnd_94591	990	703	0.3		62.0	23.7	1.0	76.6	81.2	3.1	3.0	3.0	11.4	11.4	14.2	12.1	3272	4262	2751	3454	6.6	6.1	1	1	0	18.8	15.0	6	4	0
Co Rd 23(X)	8/16	rnd_94565	104	748	6.2	0.2	69.8	23.7	1.0	77.4	78.4	3.4	3.0	3.0	11.8	11.4	14.2	12.1	3376	3272	3499	2751	6.6	6.1	1	1	0	18.8	15.0	6	4	0
Co Rd 2(E)	8/16	rnd_94585	583				69.1	25.1	1.8	76.8	84.0	5.4	4.8	4.7	13.7	13.3	16.0	12.1	2851	3435			11.6	9.4	27	0	2	22.0	18.2	27	0	2
Co Rd 2(X)	8/16	rnd_94571	385			0.0	72.1	25.1	1.8	78.1		5.6	4.8	4.7	14.0	13.3	16.0	12.1	3236	2851			11.6	9.4	27	0	2	22.0	18.2	27	0	2

U.S.8(E)	8/16	rnd_94579	1483	1107	0.3		69.5	25.6	1.9	78.1		5.9	5.3	5.2	14.3	13.7	16.4	12.1	1763	3246	1799	2906	12.5	10.1	23	0	2	22.9	19.0	23	0	2
Co Rd 22(E)	8/16	rnd_94597	385	520	-0.4		71.6	26.1	2.4	76.2	78.3	9.3	8.1	7.8	17.6	16.6	19.1	12.1	1343	1728	1264	1784	15.7	12.8	28	0	2	26.1	21.7	28	0	2
Co Rd 22(X)	8/16	rnd_94569	271			0.0	73.9	26.1	2.4	80.2	79.8	9.6	8.1	7.8	17.9	16.6	19.1	12.1	1614	1343		1264	15.7	12.8	28	0	2	26.1	21.7	28	0	2
…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…

Site 3: I-694, Jun-Nov 2012 (2 to 1)

Name	Date	RNodeName	Vb	Vd	Re	Rx	Uavg	Tf+Tae	Tasi/Tasm	Ub	Ud	Lws	Twsb	Twsd	Lwe	Tweb	Twed	Lw	Vib	Vob	Vid	Vod	Tas	Las	Nsis	Nstops	Nras	Tae	Lae	Nsie	Nstope	Nrae
T.H.5(E)	6/27	rnd_90487	366	116	0.7		29.3	21.6	1.0	78.3	19.4	0.7	0.6	1.3	6.2	5.3	11.5	8.0	3288	3655	1061	1177	4.3	2.8	5	3	0	8.5	5.8	17	3	0
T.H.5(X)	6/27	rnd_90485	662	1159	0.7	0.2	17.5	19.1	1.0	76.1	18.4	1.1	1.1	3.8	6.6	5.9	14.0	8.0	3951	3288	2220	1061	4.3	2.8	5	3	0	8.5	5.8	17	3	0
10th St(E)	6/27	rnd_90467	574	258	0.6		24.5	17.3	1.8	79.5	22.9	3.2	2.9	9.1	8.7	7.7	19.6	8.0	3411	3985	2080	2338	7.8	5.0	11	0	0	12.0	8.0	23	0	0
10th St(X)	6/27	rnd_90465	867	1185	0.4	0.1	26.4	17.3	1.8	64.8	57.6	3.5	2.9	9.1	9.0	7.7	19.6	8.0	4278	3411	3265	2080	7.8	5.0	11	0	0	12.0	8.0	23	0	0
E Jct I-94 CD WB(E)	6/27	rnd_89493	1093	707	0.4		28.8	17.2	2.0	64.8	57.6	4.0	3.8	9.8	9.5	8.6	20.3	8.0	3208	4301	2509	3216	8.5	6.2	8	0	0	12.7	9.2	20	0	0
E Jct I-94 CD WB(X)	6/27	rnd_89489	477	512	0.1	0.0	30.5	17.2	2.0	45.8	49.4	4.2	3.8	9.8	9.7	8.6	20.3	8.0	3685	3208	3021	2509	8.5	6.2	8	0	0	12.7	9.2	20	0	0
E Jct I-94 EB(E)	6/27	rnd_89487	761	591	0.2		28.7	16.8	2.0	45.8	49.4	4.3	4.0	10.2	9.8	8.8	20.8	8.0	2924	3685	2430	3021	8.5	6.2	8	0	0	12.7	9.2	20	0	0
E Jct I-94 EB(X)	6/27	rnd_89483	1705	1618	-0.1	0.0	29.6	19.1	2.6	62.6	66.0	4.4	4.0	10.2	9.9	8.8	20.8	8.0	4629	2924	4048	2430	11.1	8.8	10	4	0	14.9	10.6	9	5	0
Tamarack Rd(E)	6/27	rnd_89481	577	447	0.2		30.9	19.0	2.6	62.6	66.0	4.8	4.4	10.6	10.3	9.2	21.2	8.0	4052	4629	3601	4048	11.0	7.2	14	1	0	15.2	10.2	26	1	0
Tamarack Rd(X)	6/27	rnd_89479	364	340	-0.1	0.0	32.0	19.0	2.6	77.2	82.7	5.0	4.4	10.6	10.5	9.2	21.2	8.0	4415	4052	3941	3601	11.0	7.2	14	1	0	15.2	10.2	26	1	0
Valley Creek Rd(E)	6/27	rnd_89919	676	615	0.1		33.2	17.1	2.3	83.2	85.4	5.7	5.2	11.5	11.2	10.0	22.0	8.0	3866	4541	3303	3918	10.0	7.1	14	0	0	14.2	10.1	26	0	0
Valley Creek Rd(X)	6/27	rnd_89913	658	607	-0.1	0.0	35.7	17.1	2.3	78.2	80.1	6.1	5.2	11.5	11.6	10.0	22.0	8.0	4524	3866	3910	3303	10.0	7.1	14	0	0	14.2	10.1	26	0	0
Lake Rd(E)	6/27	rnd_89911	320	268	0.2		36.5	16.7	2.4	78.2	80.1	6.8	6.1	12.3	12.3	10.8	22.8	8.0	4196	4515	3617	3885	10.4	7.2	15	0	0	14.7	10.2	27	0	0
Lake Rd(X)	6/27	rnd_89475	618	562	-0.1	0.0	38.3	16.7	2.4	80.7	82.7	7.2	6.1	12.3	12.7	10.8	22.8	8.0	4814	4196	4179	3617	10.4	7.2	15	0	0	14.7	10.2	27	0	0
Bailey Rd(E)	6/27	rnd_89471	163	168	0.0		41.7	17.2	2.9	69.1	70.8	8.9	7.5	13.8	14.4	12.3	24.3	8.0	4973	4810	4327	4159	12.4	9.1	14	1	0	16.6	12.1	26	1	0
T.H.61 NB(E)	6/27	rnd_89467	568	512	0.1		41.7	17.1	2.9	78.6	80.0	9.1	7.6	13.9	14.6	12.4	24.5	8.0	4058	4626	3433	3945	12.5	9.2	11	1	0	16.7	12.1	23	1	0
T.H.61 NB(X)	6/27	rnd_89463	624	676	0.1	0.0	42.2	17.1	2.9	80.6	81.9	9.1	7.6	13.9	14.7	12.4	24.5	8.0	4682	4058	4109	3433	12.5	9.2	11	1	0	16.7	12.1	23	1	0
T.H.61 SB(X)	6/27	rnd_89461	1722	1539	-0.1	0.0	42.8			80.6	81.9	9.3	7.6	13.9	14.8	12.4	24.5	8.0	6403	4682	5648	4109										
Maxwell Ave(X)	6/27	rnd_89457	331	362	0.1	0.0	42.1	17.3	3.1	72.1	72.4	9.5	7.9	14.4	15.0	12.7	25.0	8.0	6800	6469	5684	5322	13.1	9.3	13	2	0	17.3	12.3	25	2	0
T.H.5(E)	6/28	rnd_90487	366	129	0.6		23.9	26.1	1.0	78.3	13.9	0.7	0.6	1.6	6.2	5.3	12.5	8.0	3288	3655	725	854	4.3	2.8	5	3	0	8.5	5.8	17	3	0
T.H.5(X)	6/28	rnd_90485	662	833	0.3	0.2	12.0	22.4	1.0	76.1	13.3	1.1	1.1	5.2	6.6	5.9	16.1	8.0	3951	3288	1558	725	4.3	2.8	5	3	0	8.5	5.8	17	3	0
10th St(E)	6/28	rnd_90467	574	167	0.7		13.8	17.1	1.8	79.5	14.2	3.2	2.9	14.0	8.7	7.7	25.2	8.0	3411	3985	1687	1854	7.8	5.0	11	0	0	12.0	8.0	23	0	0
10th St(X)	6/28	rnd_90465	867	1473	0.7	0.3	14.9	17.1	1.8	64.8	36.7	3.5	2.9	14.0	9.0	7.7	25.2	8.0	4278	3411	3160	1687	7.8	5.0	11	0	0	12.0	8.0	23	0	0
E Jct I-94 CD WB(E)	6/28	rnd_89493	1093	710	0.4		16.1	16.6	2.0	64.8	36.7	4.0	3.8	15.3	9.5	8.6	26.0	8.0	3208	4301	2351	3061	8.5	6.2	8	0	0	12.7	9.2	20	0	0
E Jct I-94 CD WB(X)	6/28	rnd_89489	477	565	0.2	0.0	17.0	16.6	2.0	45.8	46.9	4.2	3.8	15.3	9.7	8.6	26.0	8.0	3685	3208	2916	2351	8.5	6.2	8	0	0	12.7	9.2	20	0	0
E Jct I-94 EB(E)	6/28	rnd_89487	761	516	0.3		17.7	16.9	2.0	45.8	46.9	4.3	4.0	14.9	9.8	8.8	25.9	8.0	2924	3685	2400	2916	8.5	6.2	8	0	0	12.7	9.2	20	0	0
E Jct I-94 EB(X)	6/28	rnd_89483	1705	1886	0.1	0.1	18.2	19.1	2.6	62.6	62.6	4.4	4.0	14.9	9.9	8.8	25.9	8.0	4629	2924	4286	2400	11.1	8.8	10	4	0	14.9	10.6	9	5	0
Tamarack Rd(E)	6/28	rnd_89481	577	466	0.2		19.4	19.0	2.6	62.6	62.6	4.8	4.4	15.4	10.3	9.2	26.4	8.0	4052	4629	3820	4286	11.0	7.2	14	1	0	15.2	10.2	26	1	0
Tamarack Rd(X)	6/28	rnd_89479	364	361	0.0	0.0	20.1	19.0	2.6	77.2	79.2	5.0	4.4	15.4	10.5	9.2	26.4	8.0	4415	4052	4181	3820	11.0	7.2	14	1	0	15.2	10.2	26	1	0
Valley Creek Rd(E)	6/28	rnd_89919	676	600	0.1		22.0	16.9	2.3	83.2	84.1	5.7	5.2	16.4	11.2	10.0	27.3	8.0	3866	4541	3631	4231	10.0	7.1	14	0	0	14.2	10.1	26	0	0
Valley Creek Rd(X)	6/28	rnd_89913	658	706	0.1	0.0	23.7	16.9	2.3	78.2	79.1	6.1	5.2	16.4	11.6	10.0	27.3	8.0	4524	3866	4337	3631	10.0	7.1	14	0	0	14.2	10.1	26	0	0
Lake Rd(E)	6/28	rnd_89911	320	280	0.1		25.6	16.8	2.4	78.2	79.1	6.8	6.1	17.0	12.3	10.8	27.8	8.0	4196	4515	4004	4284	10.4	7.2	15	0	0	14.7	10.2	27	0	0
Lake Rd(X)	6/28	rnd_89475	618	626	0.0	0.0	26.9	16.8	2.4	80.7	81.8	7.2	6.1	17.0	12.7	10.8	27.8	8.0	4814	4196	4630	4004	10.4	7.2	15	0	0	14.7	10.2	27	0	0
Bailey Rd(E)	6/28	rnd_89471	163	178	-0.1		30.7	17.3	2.9	69.1	69.8	8.9	7.5	18.5	14.4	12.3	29.3	8.0	4973	4810	4825	4647	12.4	9.1	14	1	0	16.6	12.1	26	1	0
T.H.61 NB(E)	6/28	rnd_89467	568	518	0.1		30.9	17.2	2.9	78.6	78.8	9.1	7.6	18.7	14.6	12.4	29.4	8.0	4058	4626	3942	4460	12.5	9.2	11	1	0	16.7	12.1	23	1	0
T.H.61 NB(X)	6/28	rnd_89463	624	693	0.1	0.0	31.2	17.2	2.9	80.6	81.1	9.1	7.6	18.7	14.7	12.4	29.4	8.0	4682	4058	4635	3942	12.5	9.2	11	1	0	16.7	12.1	23	1	0
T.H.61 SB(X)	6/28	rnd_89461	1722	1691	0.0	0.0	31.7			80.6	81.1	9.3	7.6	18.7	14.8	12.4	29.4	8.0	6403	4682	6326	4635										
Maxwell Ave(X)	6/28	rnd_89457	331	405	0.2	0.0	31.4	17.3	3.1	72.1	71.4	9.5	7.9	19.2	15.0	12.7	29.9	8.0	6800	6469	6755	6350	13.1	9.3	13	2	0	17.3	12.3	25	2	0
T.H.5(E)	7/10	rnd_90487	355	133	0.6		36.8	16.7	1.0	78.4	26.5	0.7	0.5	1.1	6.2	5.3	10.2	8.0	3244	3599	1099	1232	4.3	2.8	5	3	0	8.5	5.8	17	3	0
T.H.5(X)	7/10	rnd_90485	677	1166	0.7	0.3	28.4	15.2	1.0	76.4	31.0	1.1	1.1	2.6	6.6	5.9	11.8	8.0	3921	3244	2265	1099	4.3	2.8	5	3	0	8.5	5.8	17	3	0

10th St(E)	7/10	rnd_90467	566	259	0.5		54.5	17.3	1.8	79.9	75.1	3.2	2.8	3.9	8.7	7.6	13.2	8.0	3395	3961	2064	2323	7.8	5.0	11	0	0	12.0	8.0	23	0	0
10th St(X)	7/10	rnd_90465	869	1041	0.2	0.1	58.8	17.3	1.8	67.7	76.3	3.5	2.8	3.9	9.0	7.6	13.2	8.0	4264	3395	3105	2064	7.8	5.0	11	0	0	12.0	8.0	23	0	0
E Jct I-94 CD WB(E)	7/10	rnd_89493	1098	675	0.4		56.7	17.4	2.0	67.7	76.3	4.0	3.8	4.5	9.5	8.6	13.8	8.0	3161	4259	2410	3085	8.5	6.2	8	0	0	12.7	9.2	20	0	0
E Jct I-94 CD WB(X)	7/10	rnd_89489	471	586	0.2	0.0	60.0	17.4	2.0	48.0	49.5	4.2	3.8	4.5	9.7	8.6	13.8	8.0	3633	3161	2996	2410	8.5	6.2	8	0	0	12.7	9.2	20	0	0
E Jct I-94 EB(E)	7/10	rnd_89487	730	503	0.3		52.4	16.7	2.0	48.0	49.5	4.3	4.0	5.2	9.8	8.8	14.4	8.0	2903	3633	2493	2996	8.5	6.2	8	0	0	12.7	9.2	20	0	0
E Jct I-94 EB(X)	7/10	rnd_89483	1790	1851	0.0	0.0	54.1	18.9	2.6	64.6	61.9	4.4	4.0	5.2	9.9	8.8	14.4	8.0	4693	2903	4344	2493	11.1	8.8	10	4	0	14.9	10.6	9	5	0
Tamarack Rd(E)	7/10	rnd_89481	560	517	0.1		54.6	18.9	2.6	64.6	61.9	4.8	4.4	5.6	10.3	9.2	14.8	8.0	4133	4693	3827	4344	11.0	7.2	14	1	0	15.2	10.2	26	1	0
Tamarack Rd(X)	7/10	rnd_89479	346	366	0.1	0.0	56.6	18.9	2.6	80.4	82.7	5.0	4.4	5.6	10.5	9.2	14.8	8.0	4478	4133	4193	3827	11.0	7.2	14	1	0	15.2	10.2	26	1	0
Valley Creek Rd(E)	7/10	rnd_89919	704	628	0.1		56.9	17.0	2.3	83.4	84.7	5.7	5.2	6.5	11.2	10.0	15.8	8.0	3806	4509	3559	4187	10.0	7.1	14	0	0	14.2	10.1	26	0	0
Valley Creek Rd(X)	7/10	rnd_89913	670	683	0.0	0.0	61.1	17.0	2.3	78.2	79.8	6.1	5.2	6.5	11.6	10.0	15.8	8.0	4476	3806	4242	3559	10.0	7.1	14	0	0	14.2	10.1	26	0	0
Lake Rd(E)	7/10	rnd_89911	330	278	0.2		60.5	16.7	2.4	78.2	79.8	6.8	6.0	7.2	12.3	10.8	16.5	8.0	4139	4469	3966	4244	10.4	7.2	15	0	0	14.7	10.2	27	0	0
Lake Rd(X)	7/10	rnd_89475	605	677	0.1	0.0	63.6	16.7	2.4	81.1	83.0	7.2	6.0	7.2	12.7	10.8	16.5	8.0	4744	4139	4643	3966	10.4	7.2	15	0	0	14.7	10.2	27	0	0
Bailey Rd(E)	7/10	rnd_89471	155	156	0.0		64.5	17.1	2.9	69.1	70.8	8.9	7.5	8.7	14.4	12.3	18.0	8.0	4898	4742	4819	4663	12.4	9.1	14	1	0	16.6	12.1	26	1	0
T.H.61 NB(E)	7/10	rnd_89467	588	499	0.2		64.3	17.1	2.9	78.5	79.4	9.1	7.6	8.9	14.6	12.4	18.1	8.0	3991	4579	4003	4502	12.5	9.2	11	1	0	16.7	12.1	23	1	0
T.H.61 NB(X)	7/10	rnd_89463	614	657	0.1	0.0	65.0	17.1	2.9	80.6	81.3	9.1	7.6	8.9	14.7	12.4	18.1	8.0	4604	3991	4660	4003	12.5	9.2	11	1	0	16.7	12.1	23	1	0
T.H.61 SB(X)	7/10	rnd_89461	1750	1734	0.0	0.0	66.0			80.6	81.3	9.3	7.6	8.9	14.8	12.4	18.1	8.0	6355	4604	6394	4660										
Maxwell Ave(X)	7/10	rnd_89457	335	366	0.1	0.0	64.4	17.3	3.1	72.2	73.6	9.5	7.9	9.2	15.0	12.7	18.5	8.0	6695	6360	6416	6050	13.1	9.3	13	2	0	17.3	12.3	25	2	0
…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…

Site 4: U.S.169, Jun-Aug 2013 (2 to 1)

Name	Date	RNodeName	Vb	Vd	Re	Rx	Uavg	Tf+Tae	Tasi/Tasm	Ub	Ud	Lws	Twsb	Twsd	Lwe	Tweb	Twed	Lw	Vib	Vob	Vid	Vod	Tas	Las	Nsis	Nstops	Nras	Tae	Lae	Nsie	Nstope	Nrae
Old Shakopee Rd(X)	7/30	rnd_89683	303	42	-0.9			37.9	1.7	71.8	19.3	0.1		0.0	1.5	1.1		1.7	4430	4127	1424	1382	5.8	3.1	0	1	0	15.1	11.4	5	1	0
Pioneer Trail(E)	7/30	rnd_89681	599				13.5	32.4	1.0	71.8	19.3	0.7	0.6	3.0	2.0	1.7	6.8	1.7	3824	4423	1406		3.3	2.5	4	0	0	12.7	10.7	9	0	0
Pioneer Trail(X)	7/30	rnd_89679	172	88	-0.5		17.3	32.4	1.0	71.7	7.1	0.9	0.6	3.0	2.2	1.7	6.8	1.7	3996	3824	1494	1406	3.3	2.5	4	0	0	12.7	10.7	9	0	0
Anderson Lakes Pkwy(E)	7/30	rnd_89691	507	319	0.4		7.6	22.4	1.7	71.7	7.1	2.0	1.7	15.4	3.3	2.8	19.1	1.7	3672	4179	1238	1557	5.7	3.3	3	0	0	15.0	11.5	8	0	0
Anderson Lakes Pkwy(X)	7/30	rnd_89687	299	829	1.8		8.3	22.4	1.7	68.7	7.2	2.1	1.7	15.4	3.5	2.8	19.1	1.7	3971	3672	2067	1238	5.7	3.3	3	0	0	15.0	11.5	8	0	0
Marth Rd(E)	7/30	rnd_1507						37.5	1.6			3.3	2.9		4.7	4.0	34.5	1.7					5.4	4.0	4	0	2	14.7	12.2	9	0	2
I-494 EB(E)	7/30	rnd_1505						37.7	1.7			3.4	2.9		4.7	4.0	34.5	1.7					5.6	5.2	8	0	0	15.0	13.4	13	0	0
I-494 WB(E)	7/30	rnd_1504						37.7	1.7			3.4	2.9		4.8	4.0	34.5	1.7					5.6	5.2	8	0	0	15.0	13.4	13	0	0
I-494 EB(X)	7/30	rnd_89163						37.7	1.7			3.6	3.0		5.0	4.1	35.4	1.7					5.6	5.2	8	0	0	15.0	13.4	13	0	0
W 78th St(X)	7/30	rnd_1503						38.1	1.8			4.1	3.8		5.4	4.9	43.0	1.7					6.0	4.2	8	0	1	15.3	12.5	13	0	1
Valley View Rd(E)	7/30	rnd_85245						37.9	1.8			4.3	4.4		5.7	5.5	45.2	1.7					5.8	4.1	12	0	0	15.1	12.4	17	0	0
Valley View Rd(X)	7/30	rnd_85241	479	1011	1.1	0.3		37.9	1.8	49.0	77.9	4.7	4.4		6.1	5.5	45.2	1.7					5.8	4.1	12	0	0	15.1	12.4	17	0	0
T.H.62 EB(E)	7/30	rnd_85237	242	195	0.2		17.6	19.6	1.7	67.2	71.3	5.3	6.2	18.2	6.7	7.3	24.3	1.7	2357	2599	1706	1901	5.7	5.1	9	0	0	15.0	13.3	14	0	0
T.H.62 EB(X)	7/30	rnd_85233	587	604	0.0	0.0	18.2	19.6	1.7	67.9	68.1	5.5	6.2	18.2	6.9	7.3	24.3	1.7	2945	2357	2310	1706	5.7	5.1	9	0	0	15.0	13.3	14	0	0
T.H.62 WB(E)	7/30	rnd_85231	209	179	0.1		18.2	19.6	1.7	67.9	68.1	5.5	6.2	18.2	6.9	7.3	24.3	1.7	2735	2945	2131	2310	5.7	5.1	9	0	0	15.0	13.3	14	0	0
T.H.62 WB(X)	7/30	rnd_85229	1582	1790	0.1	0.1	18.7	19.6	1.7	67.9	68.1	5.7	6.2	18.2	7.0	7.3	24.3	1.7	4317	2735	3921	2131	5.7	5.1	9	0	0	15.0	13.3	14	0	0
Bren Rd(E)	7/30	rnd_85227	1219	1272	0.0		18.0	22.1	2.7	67.9	68.1	5.7	7.0	18.9	7.0	8.1	25.0	1.7	3087	4306	2636	3908	8.9	6.6	16	1	0	18.2	14.9	21	1	0
Bren Rd(X)	7/30	rnd_85223	241	229	0.0	0.0	19.1	22.1	2.7	67.0	66.1	6.0	7.0	18.9	7.4	8.1	25.0	1.7	3328	3087	2865	2636	8.9	6.6	16	1	0	18.2	14.9	21	1	0
Lincoln Dr(E)	7/30	rnd_85221	203	236	-0.2		18.4	23.6	3.4	67.0	66.1	6.0	7.7	19.6	7.4	8.8	25.7	1.7	3152	3355	2628	2864	11.1	8.1	18	4	0	20.5	16.3	23	4	0
Lincoln Dr(X)	7/30	rnd_85217	162	173	0.1	0.0	19.2	23.6	3.4	67.9	68.5	6.3	7.7	19.6	7.7	8.8	25.7	1.7	3314	3152	2801	2628	11.1	8.1	18	4	0	20.5	16.3	23	4	0
Excelsior Blvd(E)	7/30	rnd_85215	545	467	0.1		18.5	22.2	3.2	67.9	68.5	6.3	8.5	20.4	7.7	9.7	26.6	1.7	2774	3319	2340	2807	10.5	8.3	21	1	0	19.8	16.5	26	1	0
Excelsior Blvd(X)	7/30	rnd_89607	566	533	-0.1	0.0	19.1	22.2	3.2	67.8	69.0	6.5	8.5	20.4	7.9	9.7	26.6	1.7	3339	2774	2873	2340	10.5	8.3	21	1	0	19.8	16.5	26	1	0
T.H.7 EB(E)	7/30	rnd_85211	103	81	0.2		19.3	22.4	3.4	67.8	69.0	6.8	9.1	21.0	8.1	10.2	27.2	1.7	3240	3342	2777	2858	11.4	10.5	13	0	0	20.7	18.7	18	0	0
T.H.7 WB(E)	7/30	rnd_85207	275	213	0.2		19.7	22.2	3.4	68.4	69.4	7.0	9.3	21.3	8.4	10.4	27.5	1.7	2964	3240	2564	2777	11.4	10.5	13	0	0	20.7	18.7	18	0	0
T.H.7(X)	7/30	rnd_85203	563	575	0.0	0.0	20.5	22.2	3.4	65.4	65.9	7.3	9.3	21.3	8.7	10.4	27.5	1.7	3527	2964	3139	2564	11.4	10.5	13	0	0	20.7	18.7	18	0	0
36th St(X)	7/30	rnd_85201	312	316	0.0	0.0	20.0	23.4	4.1	65.4	65.9	7.4	9.9	22.2	8.8	11.0	28.4	1.7	3839	3527	3439	3123	13.4	11.7	17	1	0	22.8	19.9	22	1	0

Minnetonka Blvd(E)	7/30	rnd_85199	194	167	0.1		20.6	22.6	3.8	65.4	65.9	7.6	9.9	22.2	9.0	11.0	28.4	1.7	3646	3839	3272	3439	12.7	11.1	13	0	0	22.1	19.3	18	0	0
Minnetonka Blvd(X)	7/30	rnd_85195	318	365	0.1	-0.1	21.1	22.6	3.8	64.9	66.1	7.8	9.9	22.2	9.2	11.0	28.4	1.7	3964	3646	3637	3272	12.7	11.1	13	0	0	22.1	19.3	18	0	0
Cedar Lake Rd(E)	7/30	rnd_85193	335	369	-0.1		20.6	23.0	4.1	64.9	66.1	7.8	10.5	22.8	9.2	11.6	29.0	1.7	3636	3972	3306	3675	13.7	11.6	17	0	0	23.0	19.8	22	0	0
Cedar Lake Rd(X)	7/30	rnd_85189	195	222	0.1	0.0	20.9	23.0	4.1	63.3	65.0	7.9	10.5	22.8	9.3	11.6	29.0	1.7	3831	3636	3528	3306	13.7	11.6	17	0	0	23.0	19.8	22	0	0
Old Shakopee Rd(X)	7/31	rnd_89683	303	25	-0.9			38.1	1.7	71.8	24.1	0.1		0.0	1.5	1.1		1.7	4430	4127	1389	1364	5.8	3.1	0	1	0	15.1	11.4	5	1	0
Pioneer Trail(E)	7/31	rnd_89681	599				14.1	32.8	1.0	71.8	24.1	0.7	0.6	2.9	2.0	1.7	6.1	1.7	3824	4423	1315		3.3	2.5	4	0	0	12.7	10.7	9	0	0
Pioneer Trail(X)	7/31	rnd_89679	172	88	-0.5		18.1	32.8	1.0	71.7	6.6	0.9	0.6	2.9	2.2	1.7	6.1	1.7	3996	3824	1403	1315	3.3	2.5	4	0	0	12.7	10.7	9	0	0
Anderson Lakes Pkwy(E)	7/31	rnd_89691	507	317	0.4		7.4	22.1	1.7	71.7	6.6	2.0	1.7	15.9	3.3	2.8	18.7	1.7	3672	4179	1204	1521	5.7	3.3	3	0	0	15.0	11.5	8	0	0
Anderson Lakes Pkwy(X)	7/31	rnd_89687	299	893	2.0		8.1	22.1	1.7	68.7	7.1	2.1	1.7	15.9	3.5	2.8	18.7	1.7	3971	3672	2097	1204	5.7	3.3	3	0	0	15.0	11.5	8	0	0
Marth Rd(E)	7/31	rnd_1507						37.7	1.6			3.3	2.9		4.7	4.0	33.4	1.7					5.4	4.0	4	0	2	14.7	12.2	9	0	2
I-494 EB(E)	7/31	rnd_1505						38.0	1.7			3.4	2.9		4.7	4.0	33.4	1.7					5.6	5.2	8	0	0	15.0	13.4	13	0	0
I-494 WB(E)	7/31	rnd_1504						38.0	1.7			3.4	2.9		4.8	4.0	33.4	1.7					5.6	5.2	8	0	0	15.0	13.4	13	0	0
I-494 EB(X)	7/31	rnd_89163						38.0	1.7			3.6	3.0		5.0	4.1	34.3	1.7					5.6	5.2	8	0	0	15.0	13.4	13	0	0
W 78th St(X)	7/31	rnd_1503						38.3	1.8			4.1	3.8		5.4	4.9	41.3	1.7					6.0	4.2	8	0	1	15.3	12.5	13	0	1
Valley View Rd(E)	7/31	rnd_85245						38.2	1.8			4.3	4.4		5.7	5.5	43.4	1.7					5.8	4.1	12	0	0	15.1	12.4	17	0	0
Valley View Rd(X)	7/31	rnd_85241	479	1011	1.1	0.3		38.2	1.8	49.0	80.0	4.7	4.4		6.1	5.5	43.4	1.7					5.8	4.1	12	0	0	15.1	12.4	17	0	0
T.H.62 EB(E)	7/31	rnd_85237	242	198	0.2		17.2	19.4	1.7	67.2	72.7	5.3	6.2	18.6	6.7	7.3	23.3	1.7	2357	2599	1685	1883	5.7	5.1	9	0	0	15.0	13.3	14	0	0
T.H.62 EB(X)	7/31	rnd_85233	587	579	0.0	0.0	17.7	19.4	1.7	67.9	69.0	5.5	6.2	18.6	6.9	7.3	23.3	1.7	2945	2357	2264	1685	5.7	5.1	9	0	0	15.0	13.3	14	0	0
T.H.62 WB(E)	7/31	rnd_85231	209	130	0.4		17.7	19.4	1.7	67.9	69.0	5.5	6.2	18.6	6.9	7.3	23.3	1.7	2735	2945	2134	2264	5.7	5.1	9	0	0	15.0	13.3	14	0	0
T.H.62 WB(X)	7/31	rnd_85229	1582	1722	0.1	0.1	18.3	19.4	1.7	67.9	69.0	5.7	6.2	18.6	7.0	7.3	23.3	1.7	4317	2735	3856	2134	5.7	5.1	9	0	0	15.0	13.3	14	0	0
Bren Rd(E)	7/31	rnd_85227	1219	1228	0.0		17.5	21.8	2.7	67.9	69.0	5.7	7.0	19.4	7.0	8.1	24.0	1.7	3087	4306	2626	3854	8.9	6.6	16	1	0	18.2	14.9	21	1	0
Bren Rd(X)	7/31	rnd_85223	241	225	-0.1	0.0	18.6	21.8	2.7	67.0	69.2	6.0	7.0	19.4	7.4	8.1	24.0	1.7	3328	3087	2851	2626	8.9	6.6	16	1	0	18.2	14.9	21	1	0
Lincoln Dr(E)	7/31	rnd_85221	203	216	-0.1		18.0	23.4	3.4	67.0	69.2	6.0	7.7	20.1	7.4	8.8	24.7	1.7	3152	3355	2642	2858	11.1	8.1	18	4	0	20.5	16.3	23	4	0
Lincoln Dr(X)	7/31	rnd_85217	162	169	0.0	0.0	18.8	23.4	3.4	67.9	69.8	6.3	7.7	20.1	7.7	8.8	24.7	1.7	3314	3152	2811	2642	11.1	8.1	18	4	0	20.5	16.3	23	4	0
Excelsior Blvd(E)	7/31	rnd_85215	545	486	0.1		18.1	22.0	3.2	67.9	69.8	6.3	8.5	20.8	7.7	9.7	25.5	1.7	2774	3319	2358	2844	10.5	8.3	21	1	0	19.8	16.5	26	1	0
Excelsior Blvd(X)	7/31	rnd_89607	566	582	0.0	0.0	18.7	22.0	3.2	67.8	68.9	6.5	8.5	20.8	7.9	9.7	25.5	1.7	3339	2774	2940	2358	10.5	8.3	21	1	0	19.8	16.5	26	1	0
T.H.7 EB(E)	7/31	rnd_85211	103	92	0.1		19.0	22.3	3.4	67.8	68.9	6.8	9.1	21.4	8.1	10.2	26.1	1.7	3240	3342	2859	2951	11.4	10.5	13	0	0	20.7	18.7	18	0	0
T.H.7 WB(E)	7/31	rnd_85207	275	223	0.2		19.4	22.1	3.4	68.4	69.2	7.0	9.3	21.6	8.4	10.4	26.4	1.7	2964	3240	2636	2859	11.4	10.5	13	0	0	20.7	18.7	18	0	0
T.H.7(X)	7/31	rnd_85203	563	577	0.0	0.0	20.2	22.1	3.4	65.4	63.6	7.3	9.3	21.6	8.7	10.4	26.4	1.7	3527	2964	3213	2636	11.4	10.5	13	0	0	20.7	18.7	18	0	0
36th St(X)	7/31	rnd_85201	312	322	0.0	0.0	19.8	23.3	4.1	65.4	63.6	7.4	9.9	22.5	8.8	11.0	27.2	1.7	3839	3527	3523	3201	13.4	11.7	17	1	0	22.8	19.9	22	1	0
Minnetonka Blvd(E)	7/31	rnd_85199	194	167	0.1		20.3	22.6	3.8	65.4	63.6	7.6	9.9	22.5	9.0	11.0	27.2	1.7	3646	3839	3356	3523	12.7	11.1	13	0	0	22.1	19.3	18	0	0
Minnetonka Blvd(X)	7/31	rnd_85195	318	361	0.1	-0.1	20.9	22.6	3.8	64.9	66.1	7.8	9.9	22.5	9.2	11.0	27.2	1.7	3964	3646	3717	3356	12.7	11.1	13	0	0	22.1	19.3	18	0	0
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Name	Date	RNodeName	Vb	Vd	Re	Rx	Uavg	Tf+Tae	Tasi/Tasm	Ub	Ud	Lws	Twsb	Twsd	Lwe	Tweb	Twed	Lw	Vib	Vob	Vid	Vod	Tas	Las	Nsis	Nstops	Nras	Tae	Lae	Nsie	Nstope	Nrae
T.H.7(X)	6/11	rnd_85203	452	524	0.2	0.1		22.6	1.0	54.0	12.3	0.2			1.3	1.8	3.0	2.7	4235	3783	1577	1053	3.7	2.8				8.8	8.9			
36th St(X)	6/11	rnd_85201	121	232	0.9	0.1	4.9	19.7	1.5	54.0	12.3	0.4	0.8	4.8	1.4	2.5	7.9	2.7	4408	4287	1723	1491	5.6	3.9				10.7	10.0			
Minnetonka Blvd(E)	6/11	rnd_85199	319	238	0.3		7.5	19.2	1.4	54.0	12.3	0.6	0.8	4.8	1.6	2.5	7.9	2.7	4088	4408	1485	1723	5.1	3.5				10.2	9.5			
Minnetonka Blvd(X)	6/11	rnd_85195	147	924		0.3	10.4	19.2	1.4	60.9	7.6	0.8	0.8	4.8	1.8	2.5	7.9	2.7	4235	4088		1485	5.1	3.5				10.2	9.5			
Cedar Lake Rd(E)	6/11	rnd_85193	480	287	0.4		4.4	14.0	1.6	60.9	7.6	0.8	1.4	10.9	1.8	3.2	14.1	2.7	3769	4249	2122	2409	6.0	3.9				11.1	10.0			
Cedar Lake Rd(X)	6/11	rnd_85189	165	490	2.0	0.1	5.0	14.0	1.6	56.9	22.1	0.9	1.4	10.9	1.9	3.2	14.1	2.7	3934	3769	2612	2122	6.0	3.9				11.1	10.0			
I-394 EB(E)	6/11	rnd_85185	428	243	0.4		8.0	10.9	1.5	55.5	34.5	1.5	3.0	13.3	2.5	4.8	16.5	2.7	3533	3961	2522	2765	5.4	6.1				10.5	12.2			
I-394 EB(X)	6/11	rnd_85181	578	750	0.3	0.1	8.9	13.9	1.8	45.3	61.4	1.7	3.0	13.3	2.7	4.8	16.5	2.7	4111	3533	3272	2522	6.6	5.8				13.4	12.9			
I-394 WB(E)	6/11	rnd_85179	920	547	0.4		9.2	11.4	1.5	45.3	61.4	1.7	3.4	12.9	2.8	5.1	16.1	2.7	3223	4143	2721	3268	5.4	6.1				10.5	12.2			
I-394 WB(X)	6/11	rnd_90397	436	395	-0.1	0.0	10.0	11.4	1.5	45.7	64.6	1.9	3.4	12.9	2.9	5.1	16.1	2.7	3659	3223	3116	2721	5.4	6.1				10.5	12.2			
Betty Crocker Dr(E)	6/11	rnd_90395	216	184	0.1		10.6	12.7	1.8	45.7	64.6	2.0	3.4	12.9	3.0	5.1	16.1	2.7	3443	3659	2932	3116	6.7	6.2				11.8	12.3			
Betty Crocker Dr(X)	6/11	rnd_90393	344	446	0.3	0.0	10.6	12.4	1.8	45.7	64.6	2.1	4.0	13.2	3.1	5.7	16.4	2.7	3787	3443	3378	2932	6.7	6.2				11.8	12.3			

T.H.55 EB(E)	6/11	rnd_90391	281	253	0.1		10.6	13.2	2.0	45.7	64.6	2.1	4.0	13.2	3.1	5.7	16.4	2.7	3572	3853	3418	3671	7.3	6.4				12.6	13.9			
T.H.55 EB(X)	6/11	rnd_85173	267	328	0.2	0.0	11.2	14.7	2.5	50.7	64.5	2.2	4.0	13.2	3.2	5.7	16.4	2.7	3839	3572	3746	3418	9.1	8.9				14.1	13.5			
T.H.55 WB(E)	6/11	rnd_85171	233	170	0.3		11.0	13.1	2.0	50.7	64.5	2.2	4.2	13.4	3.2	6.0	16.6	2.7	3563	3796	3535	3705	7.6	7.3				12.7	13.4			
T.H.55 WB(X)	6/11	rnd_85167	179	287	0.6	0.0	11.7	13.1	2.0	49.7	62.5	2.3	4.2	13.4	3.3	6.0	16.6	2.7	3742	3563	3822	3535	7.6	7.3				12.7	13.4			
Plymouth Ave(E)	6/11	rnd_85165	246	219	0.1		11.4	13.1	2.2	49.7	62.5	2.3	4.8	13.8	3.3	6.6	17.0	2.7	3535	3781	3614	3833	8.1	7.3				13.1	13.4			
T.H.7(X)	6/13	rnd_85203	452	930	1.1	0.3		14.4	1.0	54.0	13.7	0.2			1.3	1.8	2.6	2.7	4235	3783	2040	1110	3.7	2.8				8.8	8.9			
36th St(X)	6/13	rnd_85201	121	310	1.6	0.1	7.1	12.4	1.5	54.0	13.7	0.4	0.8	4.0	1.4	2.5	6.9	2.7	4408	4287	2404	2094	5.6	3.9				10.7	10.0			
Minnetonka Blvd(E)	6/13	rnd_85199	319	171	0.5		10.9	11.9	1.4	54.0	13.7	0.6	0.8	4.0	1.6	2.5	6.9	2.7	4088	4408	2233	2404	5.1	3.5				10.2	9.5			
Minnetonka Blvd(X)	6/13	rnd_85195	147	296	1.0	0.1	15.0	11.9	1.4	60.9	34.5	0.8	0.8	4.0	1.8	2.5	6.9	2.7	4235	4088	2529	2233	5.1	3.5				10.2	9.5			
Cedar Lake Rd(E)	6/13	rnd_85193	480	268	0.4		22.5	13.1	1.6	60.9	34.5	0.8	1.4	3.7	1.8	3.2	6.6	2.7	3769	4249	2277	2545	6.0	3.9				11.1	10.0			
Cedar Lake Rd(X)	6/13	rnd_85189	165	83	-0.5	0.0	25.7	13.1	1.6	56.9	66.2	0.9	1.4	3.7	1.9	3.2	6.6	2.7	3934	3769	2360	2277	6.0	3.9				11.1	10.0			
I-394 EB(E)	6/13	rnd_85185	428	204	0.5		28.2	11.7	1.5	55.5	64.8	1.5	3.0	4.4	2.5	4.8	7.3	2.7	3533	3961	2146	2350	5.4	6.1				10.5	12.2			
I-394 EB(X)	6/13	rnd_85181	578	794	0.4	0.1	31.6	14.6	1.8	45.3	65.8	1.7	3.0	4.4	2.7	4.8	7.3	2.7	4111	3533	2940	2146	6.6	5.8				13.4	12.9			
I-394 WB(E)	6/13	rnd_85179	920	397	0.6		30.5	11.5	1.5	45.3	65.8	1.7	3.4	4.7	2.8	5.1	7.6	2.7	3223	4143	2562	2959	5.4	6.1				10.5	12.2			
I-394 WB(X)	6/13	rnd_90397	436	381	-0.1	0.0	33.0	11.5	1.5	45.7	67.0	1.9	3.4	4.7	2.9	5.1	7.6	2.7	3659	3223	2943	2562	5.4	6.1				10.5	12.2			
Betty Crocker Dr(E)	6/13	rnd_90395	216	188	0.1		34.9	12.8	1.8	45.7	67.0	2.0	3.4	4.7	3.0	5.1	7.6	2.7	3443	3659	2755	2943	6.7	6.2				11.8	12.3			
Betty Crocker Dr(X)	6/13	rnd_90393	344	427	0.2	0.0	32.2	12.3	1.8	45.7	67.0	2.1	4.0	5.1	3.1	5.7	8.0	2.7	3787	3443	3182	2755	6.7	6.2				11.8	12.3			
T.H.55 EB(E)	6/13	rnd_90391	281	218	0.2		32.2	13.2	2.0	45.7	67.0	2.1	4.0	5.1	3.1	5.7	8.0	2.7	3572	3853	3287	3505	7.3	6.4				12.6	13.9			
T.H.55 EB(X)	6/13	rnd_85173	267	330	0.2	0.0	34.1	14.6	2.5	50.7	65.3	2.2	4.0	5.1	3.2	5.7	8.0	2.7	3839	3572	3617	3287	9.1	8.9				14.1	13.5			
T.H.55 WB(E)	6/13	rnd_85171	233	188	0.2		32.5	13.1	2.0	50.7	65.3	2.2	4.2	5.3	3.2	6.0	8.2	2.7	3563	3796	3394	3582	7.6	7.3				12.7	13.4			
T.H.55 WB(X)	6/13	rnd_85167	179	257	0.4	0.0	34.4	13.1	2.0	49.7	63.8	2.3	4.2	5.3	3.3	6.0	8.2	2.7	3742	3563	3651	3394	7.6	7.3				12.7	13.4			
Plymouth Ave(E)	6/13	rnd_85165	246	216	0.1		31.4	13.1	2.2	49.7	63.8	2.3	4.8	5.6	3.3	6.6	8.6	2.7	3535	3781	3436	3652	8.1	7.3				13.1	13.4			
T.H.7(X)	6/18	rnd_85203	436	831	0.9	0.1		12.8	1.0	57.5	17.8	0.2			1.3	1.7	2.5	2.7	4256	3820	2097	1266	3.7	2.8				8.8	8.9			
36th St(X)	6/18	rnd_85201	116	211	0.8	0.0	8.1	11.8	1.5	57.5	17.8	0.4	0.7	2.8	1.4	2.4	5.5	2.7	4381	4265	2417	2206	5.6	3.9				10.7	10.0			
Minnetonka Blvd(E)	6/18	rnd_85199	316	160	0.5		12.4	11.3	1.4	57.5	17.8	0.6	0.7	2.8	1.6	2.4	5.5	2.7	4065	4381	2257	2417	5.1	3.5				10.2	9.5			
Minnetonka Blvd(X)	6/18	rnd_85195	131	170	0.3	0.0	17.1	11.3	1.4	61.9	65.3	0.8	0.7	2.8	1.8	2.4	5.5	2.7	4196	4065	2427	2257	5.1	3.5				10.2	9.5			
Cedar Lake Rd(E)	6/18	rnd_85193	459	277	0.4		30.2	13.5	1.6	61.9	65.3	0.8	1.3	1.6	1.8	3.0	4.2	2.7	3781	4240	2164	2441	6.0	3.9				11.1	10.0			
Cedar Lake Rd(X)	6/18	rnd_85189	105	67	-0.4	0.0	34.6	13.5	1.6	57.9	67.3	0.9	1.3	1.6	1.9	3.0	4.2	2.7	3887	3781	2231	2164	6.0	3.9				11.1	10.0			
I-394 EB(E)	6/18	rnd_85185	451	195	0.6		33.2	11.7	1.5	55.4	66.6	1.5	3.0	2.7	2.5	4.7	5.4	2.7	3439	3889	2039	2234	5.4	6.1				10.5	12.2			
I-394 EB(X)	6/18	rnd_85181	570	704	0.2	0.0	37.2	14.7	1.8	43.5	66.9	1.7	3.0	2.7	2.7	4.7	5.4	2.7	4009	3439	2743	2039	6.6	5.8				13.4	12.9			
I-394 WB(E)	6/18	rnd_85179	903	480	0.5		35.4	11.5	1.5	43.5	66.9	1.7	3.3	3.0	2.8	5.0	5.7	2.7	3155	4058	2269	2749	5.4	6.1				10.5	12.2			
I-394 WB(X)	6/18	rnd_90397	431	361	-0.2	0.0	38.3	11.5	1.5	43.2	67.2	1.9	3.3	3.0	2.9	5.0	5.7	2.7	3585	3155	2630	2269	5.4	6.1				10.5	12.2			
Betty Crocker Dr(E)	6/18	rnd_90395	221	196	0.1		40.5	12.8	1.8	43.2	67.2	2.0	3.3	3.0	3.0	5.0	5.7	2.7	3364	3585	2434	2630	6.7	6.2				11.8	12.3			
Betty Crocker Dr(X)	6/18	rnd_90393	341	348	0.0	0.0	36.7	12.3	1.8	43.2	67.2	2.1	4.0	3.4	3.1	5.7	6.1	2.7	3705	3364	2782	2434	6.7	6.2				11.8	12.3			
T.H.55 EB(E)	6/18	rnd_90391	279	296	-0.1		36.7	13.1	2.0	43.2	67.2	2.1	4.0	3.4	3.1	5.7	6.1	2.7	3488	3767	2588	2884	7.3	6.4				12.6	13.9			
T.H.55 EB(X)	6/18	rnd_85173	263	238	-0.1	0.0	38.8	14.6	2.5	46.7	67.7	2.2	4.0	3.4	3.2	5.7	6.1	2.7	3751	3488	2826	2588	9.1	8.9				14.1	13.5			
T.H.55 WB(E)	6/18	rnd_85171	223	192	0.1		36.9	13.0	2.0	46.7	67.7	2.2	4.3	3.6	3.2	6.0	6.3	2.7	3511	3734	2624	2816	7.6	7.3				12.7	13.4			
T.H.55 WB(X)	6/18	rnd_85167	174	159	-0.1	0.0	39.2	13.0	2.0	46.0	67.2	2.3	4.3	3.6	3.3	6.0	6.3	2.7	3685	3511	2783	2624	7.6	7.3				12.7	13.4			
Plymouth Ave(E)	6/18	rnd_85165	238	238	0.0		35.5	13.1	2.2	46.0	67.2	2.3	5.0	4.0	3.3	6.7	6.6	2.7	3489	3727	2541	2779	8.1	7.3				13.1	13.4			
T.H.7(X)	6/19	rnd_85203	436	792	0.8	0.2		17.7	1.0	57.5	14.9	0.2			1.3	1.7	3.2	2.7	4256	3820	1874	1082	3.7	2.8				8.8	8.9			
36th St(X)	6/19	rnd_85201	116	242	1.1	0.1	7.1	15.4	1.5	57.5	14.9	0.4	0.7	4.2	1.4	2.4	7.4	2.7	4381	4265	2184	1942	5.6	3.9				10.7	10.0			
Minnetonka Blvd(E)	6/19	rnd_85199	316	215	0.3		10.9	14.9	1.4	57.5	14.9	0.6	0.7	4.2	1.6	2.4	7.4	2.7	4065	4381	1969	2184	5.1	3.5				10.2	9.5			
Minnetonka Blvd(X)	6/19	rnd_85195	131	835		0.3	15.0	14.9	1.4	61.9	24.4	0.8	0.7	4.2	1.8	2.4	7.4	2.7	4196	4065		1969	5.1	3.5				10.2	9.5			
Cedar Lake Rd(E)	6/19	rnd_85193	459	291	0.4		12.2	12.5	1.6	61.9	24.4	0.8	1.3	7.5	1.8	3.0	10.8	2.7	3781	4240	2513	2804	6.0	3.9				11.1	10.0			
Cedar Lake Rd(X)	6/19	rnd_85189	105	77	-0.3	0.0	14.0	12.5	1.6	57.9	60.5	0.9	1.3	7.5	1.9	3.0	10.8	2.7	3887	3781	2590	2513	6.0	3.9				11.1	10.0			
I-394 EB(E)	6/19	rnd_85185	451	207	0.5		19.6	11.9	1.5	55.4	63.2	1.5	3.0	7.5	2.5	4.7	10.9	2.7	3439	3889	2376	2583	5.4	6.1				10.5	12.2			
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

Site 12: I-35, Jul 2013 – Oct 2013 (2 to 1)

Name	Date	RNodeName	Vb	Vd	Re	Rx	Uavg	Tf+Tae	Tasi/Tasm	Ub	Ud	Lws	Twsb	Twsd	Lwe	Tweb	Twed	Lw	Vib	Vob	Vid	Vod	Tas	Las	Nsis	Nstops	Nras	Tae	Lae	Nsie	Nstope	Nrae
Co Rd 60(E)	7/16	rnd_95043	258	212	0.2		67.3	45.8	1.0			0.9	0.9	0.8	1.8	1.7	1.6	1.2	2930	3188	2680	2892	3.3	2.9	2	0	1	9.9	8.9	3	1	2
Co Rd 60(X)	7/16	rnd_95047					81.8	45.7	0.3	78.8	78.3	1.2	1.0	0.9	2.1	1.7	1.7	1.2		2930		2680	3.3	2.9	2	0	1	9.9	8.9	3	1	2
Co Rd 50(E)	7/16	rnd_95218					74.9	47.1	1.7			2.1	1.8	1.7	3.0	2.6	2.5	1.2	3791		3399		5.5	4.6	6	0	1	12.2	10.6	7	1	2
Co Rd 50(X)	7/16	rnd_88723	969	769	-0.2		82.9	47.1	0.5			2.4	1.8	1.7	3.2	2.6	2.5	1.2	4761	3791	4168	3399	5.5	4.6	6	0	1	12.2	10.6	7	1	2
Co Rd 46(E)	7/16	rnd_88721	245	409	-0.7		79.0	48.2	2.3			3.5	2.9	2.6	4.3	3.7	3.5	1.2	4516	4761	3759	4168	7.6	5.9	7	0	2	14.2	11.9	8	1	3
Co Rd 46(X)	7/16	rnd_88717	1454	1083	-0.3		84.0	48.2	0.6	67.4	74.3	3.7	2.9	2.6	4.5	3.7	3.5	1.2	5970	4516	4842	3759	7.6	5.9	7	0	2	14.2	11.9	8	1	3
Crystal Lake Rd(E)	7/16	rnd_88715	415	442	-0.1		78.1	49.2	2.8	67.4	74.3	4.3	3.8	3.3	5.1	4.5	4.1	1.2	5554	5970	4400	4842	9.2	6.9	8	1	2	15.9	12.9	9	2	3
Co Rd 42(E)	7/16	rnd_85993	534	492	0.1		83.9	50.4	3.3	66.0	80.0	5.4	4.4	3.8	6.2	5.2	4.6	1.2	2089	2623	868	1360	11.0	8.2	11	1	3	17.6	14.1	12	2	3
Co Rd 42(X)	7/16	rnd_85989	1216	565	-0.5		80.5	49.8	0.9	77.4	75.9	6.0	4.9	4.4	6.8	5.7	5.2	1.2	3305	2089	1433	868	11.0	8.2	11	1	3	17.6	14.1	12	2	3
Co Rd 11(E)	7/16	rnd_85985	182				74.2	50.6	3.9	63.7		7.1	6.1	5.7	7.9	6.9	6.5	1.2	3148	3330	14		12.8	8.9	12	4	0	19.7	15.2	13	5	0
Co Rd 11(X)	7/16	rnd_85979	767				73.5	50.0	1.1	72.4	51.8	7.7	6.5	6.3	8.6	7.3	7.1	1.2	3916	3148		14	12.8	8.9	12	4	0	19.7	15.2	13	5	0
I-35E CD SB(E)	7/16	rnd_86877	1018				59.0	46.5	3.6	66.5		8.9	8.0	9.0	9.7	8.8	9.8	1.2	2969	3987	825		11.9	10.4	12	1	1	18.8	16.7	13	2	1
I-35E CD SB(X)	7/16	rnd_86873	1189	1463	0.2	0.20	18.5	23.3	1.0	65.7	11.2	9.9	9.0	32.2	10.8	9.8	33.0	1.2	4158	2969	2288	825	11.9	10.4	12	1	1	18.8	16.7	13	2	1
Cliff Rd(E)	7/16	rnd_85973	291	139	0.5		19.0	25.4	4.3	68.5	62.2	10.2	9.0	32.2	11.1	9.8	33.0	1.2	3981	4271	2433	2572	14.0	12.2	16	1	1	20.9	18.5	17	2	1
Cliff Rd(X)	7/16	rnd_85969	922	1058	0.1	0.05	21.1	26.8	1.2	74.5	72.9	10.8	9.4	30.7	11.7	10.2	31.5	1.2	4903	3981	3491	2433	14.0	12.2	16	1	1	20.9	18.5	17	2	1
Diffley Rd(E)	7/16	rnd_85965	299	135	0.5		21.6	28.1	4.9	74.1	71.8	11.3	9.8	31.4	12.2	10.6	32.2	1.2	4580	4879	3339	3474	16.0	13.1	15	1	1	22.9	19.4	16	2	1
Diffley Rd(X)	7/16	rnd_85961	676	825	0.2	0.04	22.2	27.3	1.3	73.2	72.8	11.9	10.6	32.2	12.8	11.4	33.0	1.2	5255	4580	4164	3339	16.0	13.1	15	1	1	22.9	19.4	16	2	1
Pilot Knob Rd(E)	7/16	rnd_85953	1012	672	0.3		23.7	27.5	5.6	69.7	71.1	13.6	12.0	34.4	14.5	12.8	35.3	1.2	4321	5334	3520	4192	18.3	15.1	21	1	1	25.3	21.4	22	2	1
Pilot Knob Rd(X)	7/16	rnd_85949	807	878	0.1	0.02	24.4	27.3	1.5	67.5	68.3	14.1	12.5	34.6	15.0	13.2	35.5	1.2	5128	4321	4398	3520	18.3	15.1	21	1	1	25.3	21.4	22	2	1
Yankee Doodle Rd(X)	7/16	rnd_85945	904	1001	0.1	0.02	25.0	27.8	1.6	70.7	70.8	14.4	12.5	34.6	15.3	13.2	35.5	1.2	6044	5140	5393	4392	18.9	16.3	21	1	1	25.8	22.6	22	2	1
Lone Oak Rd(E)	7/16	rnd_85941	843	600	0.3		25.5	28.9	6.2	69.6	69.7	14.9	12.9	35.1	15.8	13.7	36.0	1.2	5345	6188	4926	5526	20.4	17.5	18	2	1	27.4	23.8	19	3	1
Lone Oak Rd(X)	7/16	rnd_85937	692	709	0.0	0.00	26.2	28.3	1.7	71.2	71.7	15.6	13.5	35.7	16.5	14.3	36.6	1.2	6037	5345	5635	4926	20.4	17.5	18	2	1	27.4	23.8	19	3	1
I-35E CD SB(E)	7/16	rnd_85935	2611	2406	0.1		26.2	28.8	6.7	71.2	71.7	16.0	14.4	36.6	16.9	15.1	37.4	1.2	3444	6055	3229	5635	21.8	18.8	19	2	1	28.8	25.1	20	3	1
Co Rd 60(E)	7/17	rnd_95043	258	251	0.0		67.7	42.8	1.0			0.9	0.9	0.8	1.8	1.7	1.6	1.2	2930	3188	2720	2971	3.3	2.9	2	0	1	9.9	8.9	3	1	2
Co Rd 60(X)	7/17	rnd_95047					81.8	42.7	0.3	78.8	78.5	1.2	1.0	0.9	2.1	1.7	1.7	1.2		2930		2720	3.3	2.9	2	0	1	9.9	8.9	3	1	2
Co Rd 50(E)	7/17	rnd_95218					75.1	44.1	1.7			2.1	1.8	1.7	3.0	2.6	2.5	1.2	3791		3469		5.5	4.6	6	0	1	12.2	10.6	7	1	2
Co Rd 50(X)	7/17	rnd_88723	969	805	-0.2		83.2	44.1	0.5			2.4	1.8	1.7	3.2	2.6	2.5	1.2	4761	3791	4274	3469	5.5	4.6	6	0	1	12.2	10.6	7	1	2
Co Rd 46(E)	7/17	rnd_88721	245	395	-0.6		79.0	45.2	2.3			3.5	2.9	2.6	4.3	3.7	3.4	1.2	4516	4761	3879	4274	7.6	5.9	7	0	2	14.2	11.9	8	1	3
Co Rd 46(X)	7/17	rnd_88717	1454	1213	-0.2		84.0	45.2	0.6	67.4	73.7	3.7	2.9	2.6	4.5	3.7	3.4	1.2	5970	4516	5092	3879	7.6	5.9	7	0	2	14.2	11.9	8	1	3
Crystal Lake Rd(E)	7/17	rnd_88715	415	440	-0.1		77.3	46.2	2.8	67.4	73.7	4.3	3.8	3.3	5.1	4.5	4.1	1.2	5554	5970	4652	5092	9.2	6.9	8	1	2	15.9	12.9	9	2	3
Co Rd 42(E)	7/17	rnd_85993	534	474	0.1		82.7	47.4	3.3	66.0	78.4	5.4	4.4	3.9	6.2	5.2	4.7	1.2	2089	2623	860	1334	11.0	8.2	11	1	3	17.6	14.1	12	2	3
Co Rd 42(X)	7/17	rnd_85989	1216	505	-0.6		79.2	46.8	0.9	77.4	74.9	6.0	4.9	4.5	6.8	5.7	5.3	1.2	3305	2089	1365	860	11.0	8.2	11	1	3	17.6	14.1	12	2	3
Co Rd 11(E)	7/17	rnd_85985	182				72.3	47.5	3.9	63.7		7.1	6.1	5.9	7.9	6.9	6.7	1.2	3148	3330			12.8	8.9	12	4	0	19.7	15.2	13	5	0
Co Rd 11(X)	7/17	rnd_85979	767				70.7	46.8	1.1	72.4	7.6	7.7	6.5	6.6	8.6	7.3	7.4	1.2	3916	3148			12.8	8.9	12	4	0	19.7	15.2	13	5	0
I-35E CD SB(E)	7/17	rnd_86877	1018				41.4	39.6	3.6	66.5	2.7	8.9	8.0	12.8	9.7	8.8	13.7	1.2	2969	3987	727		11.9	10.4	12	1	1	18.8	16.7	13	2	1
I-35E CD SB(X)	7/17	rnd_86873	1189	1554	0.3	0.27	19.8	22.5	1.0	65.7	10.0	9.9	9.0	30.0	10.8	9.8	30.8	1.2	4158	2969	2281	727	11.9	10.4	12	1	1	18.8	16.7	13	2	1
Cliff Rd(E)	7/17	rnd_85973	291	125	0.6		20.4	24.5	4.3	68.5	43.4	10.2	9.0	30.0	11.1	9.8	30.8	1.2	3981	4271	2389	2514	14.0	12.2	16	1	1	20.9	18.5	17	2	1
Cliff Rd(X)	7/17	rnd_85969	922	1100	0.2	0.07	22.1	25.2	1.2	74.5	71.1	10.8	9.4	29.3	11.7	10.2	30.2	1.2	4903	3981	3489	2389	14.0	12.2	16	1	1	20.9	18.5	17	2	1
Diffley Rd(E)	7/17	rnd_85965	299	131	0.6		22.8	26.7	4.9	74.1	71.7	11.3	9.8	29.8	12.2	10.6	30.6	1.2	4580	4879	3335	3466	16.0	13.1	15	1	1	22.9	19.4	16	2	1
Diffley Rd(X)	7/17	rnd_85961	676	776	0.1	0.03	23.6	26.1	1.3	73.2	73.0	11.9	10.6	30.4	12.8	11.4	31.2	1.2	5255	4580	4111	3335	16.0	13.1	15	1	1	22.9	19.4	16	2	1
Pilot Knob Rd(E)	7/17	rnd_85953	1012	721	0.3		25.5	27.0	5.6	69.7	70.7	13.6	12.0	31.9	14.5	12.8	32.8	1.2	4321	5334	3419	4140	18.3	15.1	21	1	1	25.3	21.4	22	2	1
Pilot Knob Rd(X)	7/17	rnd_85949	807	886	0.1	0.02	26.4	26.9	1.5	67.5	68.1	14.1	12.5	32.1	15.0	13.2	32.9	1.2	5128	4321	4305	3419	18.3	15.1	21	1	1	25.3	21.4	22	2	1
Yankee Doodle Rd(X)	7/17	rnd_85945	904	981	0.1	0.02	27.0	27.4	1.6	70.7	71.4	14.4	12.5	32.1	15.3	13.2	32.9	1.2	6044	5140	5288	4307	18.9	16.3	21	1	1	25.8	22.6	22	2	1
Lone Oak Rd(E)	7/17	rnd_85941	843	552	0.3		27.7	28.7	6.2	69.6	70.1	14.9	12.9	32.4	15.8	13.7	33.2	1.2	5345	6188	4870	5422	20.4	17.5	18	2	1	27.4	23.8	19	3	1
Lone Oak Rd(X)	7/17	rnd_85937	692	702	0.0	0.00	28.5	28.2	1.7	71.2	72.4	15.6	13.5	32.8	16.5	14.3	33.6	1.2	6037	5345	5572	4870	20.4	17.5	18	2	1	27.4	23.8	19	3	1
I-35E CD SB(E)	7/17	rnd_85935	2611	2350	0.1		28.5	28.8	6.7	71.2	72.4	16.0	14.4	33.6	16.9	15.1	34.4	1.2	3444	6055	3222	5572	21.8	18.8	19	2	1	28.8	25.1	20	3	1

Co Rd 60(E)	7/18	rnd_95043	258	245	0.0		67.7	38.5	1.0			0.9	0.9	0.8	1.8	1.7	1.6	1.2	2930	3188	2761	3006	3.3	2.9	2	0	1	9.9	8.9	3	1	2
Co Rd 60(X)	7/18	rnd_95047					82.2	38.4	0.3	78.8	79.0	1.2	1.0	0.9	2.1	1.7	1.7	1.2		2930		2761	3.3	2.9	2	0	1	9.9	8.9	3	1	2
Co Rd 50(E)	7/18	rnd_95218					75.8	39.8	1.7			2.1	1.8	1.7	3.0	2.6	2.5	1.2	3791		3462		5.5	4.6	6	0	1	12.2	10.6	7	1	2
Co Rd 50(X)	7/18	rnd_88723	969	778	-0.2		83.9	39.8	0.5			2.4	1.8	1.7	3.2	2.6	2.5	1.2	4761	3791	4240	3462	5.5	4.6	6	0	1	12.2	10.6	7	1	2
Co Rd 46(E)	7/18	rnd_88721	245	393	-0.6		79.8	41.0	2.3			3.5	2.9	2.6	4.3	3.7	3.4	1.2	4516	4761	3847	4240	7.6	5.9	7	0	2	14.2	11.9	8	1	3
Co Rd 46(X)	7/18	rnd_88717	1454	1153	-0.2		84.9	41.0	0.6	67.4	73.4	3.7	2.9	2.6	4.5	3.7	3.4	1.2	5970	4516	5000	3847	7.6	5.9	7	0	2	14.2	11.9	8	1	3
Crystal Lake Rd(E)	7/18	rnd_88715	415	415	0.0		77.8	41.9	2.8	67.4	73.4	4.3	3.8	3.3	5.1	4.5	4.1	1.2	5554	5970	4585	5000	9.2	6.9	8	1	2	15.9	12.9	9	2	3
Co Rd 42(E)	7/18	rnd_85993	534	450	0.2		83.4	43.1	3.3	66.0	77.2	5.4	4.4	3.9	6.2	5.2	4.7	1.2	2089	2623	910	1360	11.0	8.2	11	1	3	17.6	14.1	12	2	3
Co Rd 42(X)	7/18	rnd_85989	1216	529	-0.6		79.4	42.5	0.9	77.4	72.9	6.0	4.9	4.5	6.8	5.7	5.3	1.2	3305	2089	1439	910	11.0	8.2	11	1	3	17.6	14.1	12	2	3
Co Rd 11(E)	7/18	rnd_85985	182				45.1	39.6	3.9	63.7	6.7	7.1	6.1	9.4	7.9	6.9	10.2	1.2	3148	3330			12.8	8.9	12	4	0	19.7	15.2	13	5	0
Co Rd 11(X)	7/18	rnd_85979	767				45.0	38.7	1.1	72.4	9.5	7.7	6.5	10.3	8.6	7.3	11.1	1.2	3916	3148			12.8	8.9	12	4	0	19.7	15.2	13	5	0
I-35E CD SB(E)	7/18	rnd_86877	1018				31.6	31.3	3.6	66.5	25.4	8.9	8.0	16.8	9.7	8.8	17.7	1.2	2969	3987	804		11.9	10.4	12	1	1	18.8	16.7	13	2	1
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Site 13: T.H.100 NB, Apr – Aug 2015 (3 to 2)

Name	Date	RNodeName	Vb	Vd	Re	Rx	Uavg	Tf+Tae	Tasi/Tasm	Ub	Ud	Lws	Twsb	Twsd	Lwe	Tweb	Twed	Lw	Vib	Vob	Vid	Vod	Tas	Las	Nsis	Nstops	Nras	Tae	Lae	Nsie	Nstope	Nrae
T.H.7(X)	4/29	rnd_90725	245			0.00		28.9	1.0	21.3		0.2			0.9	1.6	1.2	1.3	4456	4211			1.5	1.0				7.8	4.6	3	1	0
T.H.100 CD NB(E)	4/29	rnd_90721	885	1065	-0.2		14.0	28.6	1.9	21.3		0.4	2.2	1.6	1.1	3.9	2.8	1.3	3603	4488	2728	3793	2.9	1.5				9.1	5.1	3	1	0
T.H.100 CD NB(X)	4/29	rnd_90707	496	482	0.0	-0.01	7.0	22.8	1.9	22.7	8.2	0.9	3.4	7.5	1.6	5.0	8.8	1.3	4099	3603	3210	2728	2.9	1.5				9.1	5.1	3	1	0
Excelsior Blvd(X)	4/29	rnd_85387	663	581	-0.1	-0.03	8.8	23.8	2.6	31.2	14.9	1.1	3.4	7.5	1.8	5.0	8.8	1.3	4764	4101	3791	3210	3.9	2.2				10.2	5.7	9	1	0
50th St WB(E)	4/29	rnd_85383	353	247	0.3		9.2	21.0	5.2	27.1	15.7	2.1	6.4	13.5	2.8	8.1	14.7	1.3	4423	4776	3538	3785	7.8	4.5				13.4	9.6	10	0	0
50th St EB(E)	4/29	rnd_85381	376	312	0.2		10.0	21.0	5.2	27.1	15.7	2.3	6.4	13.5	3.0	8.1	14.7	1.3	4047	4423	3226	3538	7.8	4.5				13.4	9.6	10	0	0
Eden Ave(X)	4/29	rnd_85377	630	671	0.1	0.01	10.7	21.0	5.2	34.5	12.4	2.4	6.4	13.5	3.1	8.1	14.7	1.3	4739	4109	3903	3232	7.8	4.5				13.4	9.6	10	0	0
Benton Ave(E)	4/29	rnd_85373	214	139	0.4		10.6	18.1	6.3	40.4	17.9	3.2	8.7	18.0	3.9	10.3	19.1	1.3	4661	4876	3791	3930	9.5	5.3				15.1	10.4	11	4	0
T.H.62 WB(E)	4/29	rnd_85369	967	710	0.3		11.8	15.5	4.6	41.1	15.8	3.6	8.7	18.0	4.3	10.3	19.1	1.3	3720	4687	3087	3797	6.9	6.3				12.4	11.4	0	0	0
T.H.62 WB(X)	4/29	rnd_85367	451	704	0.6	0.07	11.0	13.1	4.6	41.1	15.8	3.8	9.5	20.5	4.5	11.1	21.6	1.3	4171	3720	3791	3087	6.9	6.3				12.4	11.4	0	0	0
T.H.62 EB(E)	4/29	rnd_85365	381	292	0.2		11.0	13.1	4.6	41.1	15.8	3.8	9.5	20.5	4.5	11.1	21.6	1.3	3790	4171	3499	3791	6.9	6.3				12.4	11.4	0	0	0
T.H.62 EB(X)	4/29	rnd_85361	560	676	0.2	0.03	12.0	17.3	9.3	53.5	42.4	4.0	9.9	20.0	4.7	11.5	21.1	1.3	4350	3790	4175	3499	14.1	8.4				16.2	9.4	0	0	0
70th St(E)	4/29	rnd_85357	710	698	0.0		12.6	17.8	7.7	58.3	56.9	4.3	10.4	20.5	5.0	12.1	21.6	1.3	3681	4391	3492	4190	11.7	9.2				17.2	14.2	20	0	1
70th St(X)	4/29	rnd_85353	296	344	0.2	0.01	13.7	17.8	7.7	63.0	63.7	4.7	10.4	20.5	5.4	12.1	21.6	1.3	3977	3681	3836	3492	11.7	9.2				17.2	14.2	20	0	1
77th St(E)	4/29	rnd_85351	1321	1301	0.0		14.6	16.4	7.2	63.0	63.7	5.1	11.2	21.1	5.8	12.9	22.2	1.3	2741	4062	2625	3926	10.9	8.1				16.4	13.2	5	0	1
77th St(X)	4/29	rnd_85347	194	203	0.0	0.00	15.1	16.4	7.2	64.9	66.2	5.3	11.2	21.1	6.0	12.9	22.2	1.3	2935	2741	2828	2625	10.9	8.1				16.4	13.2	5	0	1
I-494 WB(E)	4/29	rnd_90930	1329	1330	0.0		16.0	14.3	5.8	64.9	66.2	5.6	11.2	21.1	6.3	12.9	22.2	1.3	1606	2935	1498	2828	8.8	8.2				14.3	13.3	0	0	0
I-494 WB(X)	4/29	rnd_90932	654	589	-0.1	-0.04	16.1	14.3	5.8	64.9	66.2	5.7	11.2	21.1	6.4	12.9	22.2	1.3	2260	1606	2087	1498	8.8	8.2				14.3	13.3	0	0	0
I-494 EB(E)	4/29	rnd_90928	215	190	0.1		16.1	14.3	5.8	64.9	66.2	5.7	11.2	21.1	6.4	12.9	22.2	1.3	2045	2260	1897	2087	8.8	8.2				14.3	13.3	0	0	0
I-494 EB(X)	4/29	rnd_90934	291	306	0.1	0.01	16.3	17.5	7.9	64.9	66.2	5.8	11.2	21.1	6.5	12.9	22.2	1.3	2335	2045	2203	1897	12.0	10.4				17.5	15.4	0	0	0
T.H.7(X)	4/30	rnd_90725	245			0.00		27.0	1.0	21.3		0.2			0.9	1.6	1.1	1.3	4456	4211			1.5	1.0				7.8	4.6	3	1	0
T.H.100 CD NB(E)	4/30	rnd_90721	885	1099	-0.2		15.3	26.9	1.9	21.3		0.4	2.2	1.5	1.1	3.9	2.6	1.3	3603	4488	2744	3843	2.9	1.5				9.1	5.1	3	1	0
T.H.100 CD NB(X)	4/30	rnd_90707	496	476	0.0	-0.01	7.5	21.3	1.9	22.7	8.8	0.9	3.4	7.1	1.6	5.0	8.3	1.3	4099	3603	3220	2744	2.9	1.5				9.1	5.1	3	1	0
Excelsior Blvd(X)	4/30	rnd_85387	663	653	0.0	0.00	9.3	22.4	2.6	31.2	14.6	1.1	3.4	7.1	1.8	5.0	8.3	1.3	4764	4101	3873	3220	3.9	2.2				10.2	5.7	9	1	0
50th St WB(E)	4/30	rnd_85383	353	245	0.3		9.8	19.9	5.2	27.1	17.3	2.1	6.4	12.7	2.8	8.1	13.8	1.3	4423	4776	3624	3869	7.8	4.5				13.4	9.6	10	0	0
50th St EB(E)	4/30	rnd_85381	376	323	0.1		10.7	19.9	5.2	27.1	17.3	2.3	6.4	12.7	3.0	8.1	13.8	1.3	4047	4423	3301	3624	7.8	4.5				13.4	9.6	10	0	0
Eden Ave(X)	4/30	rnd_85377	630	748	0.2	0.03	11.3	19.9	5.2	34.5	13.4	2.4	6.4	12.7	3.1	8.1	13.8	1.3	4739	4109	4101	3353	7.8	4.5				13.4	9.6	10	0	0
Benton Ave(E)	4/30	rnd_85373	214	134	0.4		11.3	17.5	6.3	40.4	19.5	3.2	8.7	16.8	3.9	10.3	17.9	1.3	4661	4876	3963	4097	9.5	5.3				15.1	10.4	11	4	0
T.H.62 WB(E)	4/30	rnd_85369	967	765	0.2		12.6	14.9	4.6	41.1	22.2	3.6	8.7	16.8	4.3	10.3	17.9	1.3	3720	4687	3272	4037	6.9	6.3				12.4	11.4	0	0	0
T.H.62 WB(X)	4/30	rnd_85367	451	626	0.4	0.05	12.0	13.0	4.6	41.1	22.2	3.8	9.5	18.7	4.5	11.1	19.8	1.3	4171	3720	3898	3272	6.9	6.3				12.4	11.4	0	0	0

T.H.62 EB(E)	4/30	rnd_85365	381	306	0.2		12.0	13.0	4.6	41.1	22.2	3.8	9.5	18.7	4.5	11.1	19.8	1.3	3790	4171	3592	3898	6.9	6.3				12.4	11.4	0	0	0
T.H.62 EB(X)	4/30	rnd_85361	560	631	0.1	0.02	13.2	17.3	9.3	53.5	61.5	4.0	9.9	18.1	4.7	11.5	19.2	1.3	4350	3790	4223	3592	14.1	8.4				16.2	9.4	0	0	0
70th St(E)	4/30	rnd_85357	710	682	0.0		13.9	17.9	7.7	58.3	62.3	4.3	10.4	18.6	5.0	12.1	19.7	1.3	3681	4391	3568	4250	11.7	9.2				17.2	14.2	20	0	1
70th St(X)	4/30	rnd_85353	296	327	0.1	0.01	15.1	17.9	7.7	63.0	64.0	4.7	10.4	18.6	5.4	12.1	19.7	1.3	3977	3681	3895	3568	11.7	9.2				17.2	14.2	20	0	1
77th St(E)	4/30	rnd_85351	1321	1309	0.0		16.0	16.4	7.2	63.0	64.0	5.1	11.2	19.3	5.8	12.9	20.3	1.3	2741	4062	2712	4021	10.9	8.1				16.4	13.2	5	0	1
77th St(X)	4/30	rnd_85347	194	218	0.1	0.01	16.6	16.4	7.2	64.9	66.5	5.3	11.2	19.3	6.0	12.9	20.3	1.3	2935	2741	2930	2712	10.9	8.1				16.4	13.2	5	0	1
I-494 WB(E)	4/30	rnd_90930	1329	1416	-0.1		17.5	14.3	5.8	64.9	66.5	5.6	11.2	19.3	6.3	12.9	20.3	1.3	1606	2935	1514	2930	8.8	8.2				14.3	13.3	0	0	0
I-494 WB(X)	4/30	rnd_90932	654	587	-0.1	-0.04	17.7	14.3	5.8	64.9	66.5	5.7	11.2	19.3	6.4	12.9	20.3	1.3	2260	1606	2101	1514	8.8	8.2				14.3	13.3	0	0	0
I-494 EB(E)	4/30	rnd_90928	215	162	0.2		17.7	14.3	5.8	64.9	66.5	5.7	11.2	19.3	6.4	12.9	20.3	1.3	2045	2260	1939	2101	8.8	8.2				14.3	13.3	0	0	0
I-494 EB(X)	4/30	rnd_90934	291	339	0.2	0.02	17.9	17.5	7.9	64.9	66.5	5.8	11.2	19.3	6.5	12.9	20.3	1.3	2335	2045	2278	1939	12.0	10.4				17.5	15.4	0	0	0
T.H.7(X)	5/5	rnd_90725	241			0.00		25.9	1.0	24.9		0.2			0.9	1.6	1.1	1.3	4359	4117			1.5	1.0				7.8	4.6	3	1	0
T.H.100 CD NB(E)	5/5	rnd_90721	865	1052	-0.2		15.4	25.8	1.9	24.9		0.4	2.3	1.5	1.1	3.9	2.6	1.3	3519	4384	2887	3939	2.9	1.5				9.1	5.1	3	1	0
T.H.100 CD NB(X)	5/5	rnd_90707	506	474	-0.1	-0.01	7.8	20.5	1.9	23.6	9.1	0.9	3.6	6.8	1.6	5.2	8.0	1.3	4025	3519	3361	2887	2.9	1.5				9.1	5.1	3	1	0
Excelsior Blvd(X)	5/5	rnd_85387	636	624	0.0	0.00	9.7	21.6	2.6	31.8	14.3	1.1	3.6	6.8	1.8	5.2	8.0	1.3	4646	4010	3985	3361	3.9	2.2				10.2	5.7	9	1	0
50th St WB(E)	5/5	rnd_85383	373	270	0.3		10.3	19.4	5.2	26.7	17.7	2.1	7.0	12.1	2.8	8.7	13.2	1.3	4304	4677	3713	3983	7.8	4.5				13.4	9.6	10	0	0
50th St EB(E)	5/5	rnd_85381	382	262	0.3		11.2	19.4	5.2	26.7	17.7	2.3	7.0	12.1	3.0	8.7	13.2	1.3	3922	4304	3451	3713	7.8	4.5				13.4	9.6	10	0	0
Eden Ave(X)	5/5	rnd_85377	640	756	0.2	0.03	11.9	19.4	5.2	27.6	14.5	2.4	7.0	12.1	3.1	8.7	13.2	1.3	4615	3975	4213	3457	7.8	4.5				13.4	9.6	10	0	0
Benton Ave(E)	5/5	rnd_85373	200	146	0.3		12.0	17.3	6.3	34.3	20.6	3.2	9.7	15.9	3.9	11.3	16.9	1.3	4535	4735	4138	4284	9.5	5.3				15.1	10.4	11	4	0
T.H.62 WB(E)	5/5	rnd_85369	927	795	0.1		13.4	14.7	4.6	36.4	27.1	3.6	9.7	15.9	4.3	11.3	16.9	1.3	3605	4532	3355	4150	6.9	6.3				12.4	11.4	0	0	0
T.H.62 WB(X)	5/5	rnd_85367	476	515	0.1	0.01	12.9	13.1	4.6	36.4	27.1	3.8	10.6	17.5	4.5	12.2	18.5	1.3	4082	3605	3870	3355	6.9	6.3				12.4	11.4	0	0	0
T.H.62 EB(E)	5/5	rnd_85365	365	326	0.1		12.9	13.1	4.6	36.4	27.1	3.8	10.6	17.5	4.5	12.2	18.5	1.3	3717	4082	3544	3870	6.9	6.3				12.4	11.4	0	0	0
T.H.62 EB(X)	5/5	rnd_85361	588	617	0.0	0.01	14.0	17.3	9.3	46.5	64.7	4.0	11.1	17.0	4.7	12.7	18.0	1.3	4305	3717	4161	3544	14.1	8.4				16.2	9.4	0	0	0
70th St(E)	5/5	rnd_85357	706	685	0.0		14.8	17.9	7.7	51.4	63.1	4.3	11.7	17.5	5.0	13.3	18.5	1.3	3627	4333	3488	4173	11.7	9.2				17.2	14.2	20	0	1
70th St(X)	5/5	rnd_85353	313	323	0.0	0.00	16.1	17.9	7.7	59.4	65.3	4.7	11.7	17.5	5.4	13.3	18.5	1.3	3940	3627	3811	3488	11.7	9.2				17.2	14.2	20	0	1
77th St(E)	5/5	rnd_85351	1315	1321	0.0		17.0	16.4	7.2	59.4	65.3	5.1	12.5	18.2	5.8	14.1	19.2	1.3	2701	4016	2578	3899	10.9	8.1				16.4	13.2	5	0	1
77th St(X)	5/5	rnd_85347	195	210	0.1	0.01	17.6	16.4	7.2	65.4	67.5	5.3	12.5	18.2	6.0	14.1	19.2	1.3	2895	2701	2788	2578	10.9	8.1				16.4	13.2	5	0	1
I-494 WB(E)	5/5	rnd_90930	1259	1336	-0.1		18.6	14.3	5.8	65.4	67.5	5.6	12.5	18.2	6.3	14.1	19.2	1.3	1636	2895	1452	2788	8.8	8.2				14.3	13.3	0	0	0
I-494 WB(X)	5/5	rnd_90932	671	551	-0.2	-0.08	18.8	14.3	5.8	65.4	67.5	5.7	12.5	18.2	6.4	14.1	19.2	1.3	2307	1636	2003	1452	8.8	8.2				14.3	13.3	0	0	0
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APPENDIX B: Sample Phase Data for Diversion Analysis

Definition of Terms

Abbr	Description
Vb	ramp volume before construction
Vd	ramp volume during construction
Re	diversion rate for entrance
Rx	mainline exit diversion rate
Uavg	average speed to work zone from ramp
Tf+Tae	freeway travel time from the most upstream + alternative route travel time to end of work zone
Tasi/Tasm	alternative travel time ratio (to work zone start)
Ub	speed at downstream of ramp before construction
Ud	speed at downstream of ramp during construction
Lws	distance to work zone start point from ramp
Twsb	travel time to work zone start point from ramp before construction
Twsd	travel time to work zone start point from ramp during construction
Lwe	distance to work zone end point from ramp
Tweb	travel time to work zone end point from ramp before construction
Twed	travel time to work zone end point from ramp during construction
Lw	lane close length
Vib	mainline volume from upstream before construction
Vob	mainline volume to downstream before construction
Vid	mainline volume from upstream during construction
Vod	mainline volume to downstream during construction
Tas	alternative route travel time to around upstream boundary of work zone from ramp
Las	alternative route length to around upstream boundary of work zone from ramp
Nsis	number of signalized intersections on alternative route to work zone start
Nstops	number of stop signs on alternative route to work zone start
Nras	number of roundabouts on alternative route to work zone start
Tae	alternative route travel time to work zone end from ramp
Lae	alternative route length to work zone end from ramp
Nsie	number of signalized intersections on alternative route to work zone end
Nstope	number of stop signs on alternative route to work zone end
Nrae	number of roundabouts on alternative route to work zone end

Site 1 - NB: I-35E (NB), Jun-Jul 2013 (2 to 1)

Name	Phase	RNodeName	Vb	Vd	Re	Rx	Uavg	Tf+Tae	Tasi/Tasm	Ub	Ud	Lws	Twsb	Twsd	Lwe	Tweb	Twed	Lw	Vib	Vob	Vid	Vod	Tas	Las	Nsis	Nstops	Nras	Tae	Lae	Nsie	Nstope	Nrae
Co Rd 42(S71,X)	1	rnd_86331	2524	2326	-0.1					63.8	50.2							4.4	5254	7778	3285	5611						7.4	6.5	12	1	0
Crystal Lake Rd(X)	1	rnd_88707	188	385	1.0	0.05	46.2	12.6	1.1	74.8	45.5	0.8	0.5	1.9	3.8	2.7	8.7	4.4	5424	5254	3670	3285	5.7	3.4	1	4	0	8.3	6.2	12	1	0
Co Rd 46(E)	1	rnd_88701	1290	807	0.4		38.8	12.6	1.0	74.8	45.5	1.4	1.2	2.6	4.4	3.4	9.3	4.4	4134	5424	2863	3670	5.4	4.3	0	7	0	9.0	7.5	11	0	0
Co Rd 46(X)	1	rnd_88699	174	435	1.5	0.07	45.3	12.6	1.0	75.7	36.8	1.7	1.2	2.6	4.7	3.4	9.3	4.4	4308	4134	3298	2863	5.4	4.3	0	7	0	9.0	7.5	11	0	0
Co Rd 50(E)	1	rnd_88695	891	653	0.3		19.6	11.4	1.4	75.7	36.8	2.8	2.3	6.1	5.8	4.5	13.9	4.4	3336	4227	2621	3274	7.8	5.9	0	10	1	11.4	9.1	14	0	1
Co Rd 50(X)	1	rnd_88691	283	355	0.3	0.02	22.3	11.4	1.4	69.1	72.7	3.1	2.3	6.1	6.1	4.5	13.9	4.4	3619	3336	2976	2621	7.8	5.9	0	10	1	11.4	9.1	14	0	1
Co Rd 60(E)	1	rnd_88689	1023	774	0.2		32.3	11.7	1.5	69.1	72.7	3.9	3.3	6.1	6.9	5.5	13.2	4.4	3312	4335	2749	3524	8.1	6.6	1	10	1	11.6	9.8	14	1	1
Co Rd 60(X)	1	rnd_95025	153	163	0.1	0.00	36.0	11.6	1.5	75.5	76.7	4.4	3.4	6.2	7.4	5.6	13.3	4.4	3465	3312	2913	2749	8.1	6.6	1	10	1	11.6	9.8	14	1	1
Co Rd 42(S71,X)	2	rnd_86331	2481	2294	-0.1					67.4	64.6							4.4	5152	7633	3174	5468						7.4	6.5	12	1	0
Crystal Lake Rd(X)	2	rnd_88707	183	323	0.8	0.04	34.1	12.9	1.1	75.1	39.8	0.8	0.5	2.7	3.8	2.7	11.4	4.4	5338	5152	3497	3174	5.7	3.4	1	4	0	8.3	6.2	12	1	0
Co Rd 46(E)	2	rnd_88701	1281	760	0.4		34.6	13.1	1.0	75.1	39.8	1.4	1.2	3.3	4.4	3.4	11.9	4.4	4057	5338	2737	3497	5.4	4.3	0	7	0	9.0	7.5	11	0	0

Co Rd 46(X)	2	rnd_88699	165	477	1.9	0.09	40.4	13.1	1.0	76.0	29.5	1.7	1.2	3.3	4.7	3.4	11.9	4.4	4222	4057	3213	2737	5.4	4.3	0	7	0	9.0	7.5	11	0	0
Co Rd 50(E)	2	rnd_88695	880	594	0.3		19.7	10.7	1.4	76.0	29.5	2.8	2.3	8.1	5.8	4.5	17.4	4.4	3232	4112	2619	3213	7.8	5.9	0	10	1	11.4	9.1	14	0	1
Co Rd 50(X)	2	rnd_88691	276	386	0.4	0.04	22.3	10.7	1.4	71.1	72.5	3.1	2.3	8.1	6.1	4.5	17.4	4.4	3508	3232	3005	2619	7.8	5.9	0	10	1	11.4	9.1	14	0	1
Co Rd 60(E)	2	rnd_88689	1008	760	0.2		30.6	11.7	1.5	71.1	72.5	3.9	3.3	7.3	6.9	5.5	16.2	4.4	3222	4230	2788	3547	8.1	6.6	1	10	1	11.6	9.8	14	1	1
Co Rd 60(X)	2	rnd_95025	148	160	0.1	0.00	34.0	11.6	1.5	76.5	74.2	4.4	3.3	7.4	7.4	5.6	16.3	4.4	3370	3222	2948	2788	8.1	6.6	1	10	1	11.6	9.8	14	1	1
Co Rd 42(S71,X)	4	rnd_86331	2414	2334	0.0					63.0	72.0							7.3	5183	7597	3096	5430						7.4	6.5	12	1	0
Crystal Lake Rd(X)	4	rnd_88707	197	338	0.7	0.04	12.7	10.7	1.1	76.2	34.3	0.8	0.5	4.3	5.8	4.2	19.8	7.3	5383	5183	3434	3096	5.7	3.4	1	4	0	8.3	6.2	12	1	0
Co Rd 46(E)	4	rnd_88701	1278	735	0.4		28.3	11.8	1.0	76.2	34.3	1.4	1.2	3.9	6.4	4.9	19.6	7.3	4105	5383	2699	3434	5.4	4.3	0	7	0	9.0	7.5	11	0	0
Co Rd 46(X)	4	rnd_88699	172	459	1.7	0.08	33.0	11.8	1.0	76.8	34.4	1.7	1.2	3.9	6.7	4.9	19.6	7.3	4277	4105	3158	2699	5.4	4.3	0	7	0	9.0	7.5	11	0	0
Co Rd 50(E)	4	rnd_88695	853	581	0.3		27.4	10.8	1.4	76.8	34.4	2.8	2.2	7.3	7.7	6.0	23.1	7.3	3318	4172	2625	3206	7.8	5.9	0	10	1	11.4	9.1	14	0	1
Co Rd 50(X)	4	rnd_88691	278	369	0.3	0.03	31.0	10.8	1.4	75.1	78.2	3.1	2.2	7.3	8.1	6.0	23.1	7.3	3597	3318	2994	2625	7.8	5.9	0	10	1	11.4	9.1	14	0	1
Co Rd 60(E)	4	rnd_88689	990	788	0.2		40.2	11.7	1.5	75.1	78.2	3.9	3.1	6.7	8.9	6.9	22.0	7.3	3312	4301	2768	3555	8.1	6.6	1	10	1	11.6	9.8	14	1	1
Co Rd 60(X)	4	rnd_95025	150	163	0.1	0.00	44.6	11.6	1.5	78.0	77.4	4.4	3.2	6.7	9.3	6.9	22.0	7.3	3461	3312	2931	2768	8.1	6.6	1	10	1	11.6	9.8	14	1	1
Co Rd 42(S71,X)	5	rnd_86331	2451	2483	0.0					63.6	71.8							4.4	5243	7694	3182	5665						7.4	6.5	12	1	0
Crystal Lake Rd(X)	5	rnd_88707	197	351	0.8	0.04	42.7	12.3	1.1	75.8	49.5	0.8	0.5	1.6	3.8	2.7	9.8	4.4	5440	5243	3534	3182	5.7	3.4	1	4	0	8.3	6.2	12	1	0
Co Rd 46(E)	5	rnd_88701	1285	754	0.4		40.1	12.3	1.0	75.8	49.5	1.4	1.2	2.2	4.4	3.4	10.5	4.4	4155	5440	2780	3534	5.4	4.3	0	7	0	9.0	7.5	11	0	0
Co Rd 46(X)	5	rnd_88699	181	467	1.6	0.08	46.9	12.3	1.0	76.9	38.7	1.7	1.2	2.2	4.7	3.4	10.5	4.4	4336	4155	3246	2780	5.4	4.3	0	7	0	9.0	7.5	11	0	0
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Site 1 - SB: I-35E (SB), Jun-Jul 2013 (2 to 1)

Name	Phase	RNodeName	Vb	Vd	Re	Rx	Uavg	Tf+Tae	Tasi/Tasm	Ub	Ud	Lws	Twsb	Twsd	Lwe	Tweb	Twed	Lw	Vib	Vob	Vid	Vod	Tas	Las	Nsis	Nstops	Nras	Tae	Lae	Nsie	Nstope	Nrae
I-35E CD SB(X)	1	rnd_86873	1230	1667	0.4	0.30	8.2	14.5	1.0	72.8	11.4	0.3	0.4	2.9	3.3	2.9	10.9	4.5	3022	2975	1079	976	2.0	2.2	1	0	0	8.8	7.5	11	0	0
Cliff Rd(E)	1	rnd_85973	289	122	0.6		11.2	13.9	1.3	69.7	23.8	0.7	1.4	3.9	3.6	2.9	10.9	4.5	3910	4199	2560	2682	2.7	2.0	6	0	0	9.2	8.7	11	0	0
Cliff Rd(X)	1	rnd_85969	946	1329	0.4	0.13	18.7	13.5	1.3	74.2	57.9	1.2	1.8	4.3	4.2	3.3	11.3	4.5	4856	3910	3889	2560	2.7	2.0	6	0	0	9.2	8.7	11	0	0
Diffley Rd(E)	1	rnd_85965	293	171	0.4		25.4	14.6	1.2	74.1	66.1	1.8	2.2	4.5	4.7	3.8	11.4	4.5	4574	4868	3742	3914	2.5	1.9	4	0	1	10.5	9.8	11	0	1
Diffley Rd(X)	1	rnd_85961	676	784	0.2	0.03	30.2	14.1	1.2	74.3	72.9	2.4	3.1	5.0	5.4	4.6	12.0	4.5	5251	4574	4526	3742	2.5	1.9	4	0	1	10.5	9.8	11	0	1
Pilot Knob Rd(E)	1	rnd_85953	1010	781	0.2		37.9	15.1	2.1	69.6	69.9	4.0	4.5	6.7	7.0	6.0	13.7	4.5	4301	5311	3781	4562	4.3	3.4	9	0	0	13.2	12.1	17	0	0
Pilot Knob Rd(X)	1	rnd_85949	753	887	0.2	0.03	41.3	14.9	2.1	67.6	68.1	4.5	4.9	7.0	7.5	6.4	14.0	4.5	5054	4301	4668	3781	4.3	3.4	9	0	0	13.2	12.1	17	0	0
Yankee Doodle Rd(X)	1	rnd_85945	929	930	0.0	0.00	52.3	15.8	2.1	70.5	70.1	4.9	3.9	6.0	7.9	6.4	14.0	4.5	5983	5054	5598	4668	4.2	3.3	9	0	0	13.1	12.0	16	0	0
Lone Oak Rd(E)	1	rnd_85941	884	683	0.2		46.1	15.9	2.8	68.9	68.5	5.4	5.3	7.4	8.4	6.8	14.4	4.5	5188	6071	5045	5729	5.7	4.5	6	1	0	14.6	13.2	13	1	0
Lone Oak Rd(X)	1	rnd_85937	677	671	0.0	0.00	47.9	15.4	2.8	71.1	71.9	6.0	5.8	7.9	9.0	7.4	14.9	4.5	5864	5188	5716	5045	5.7	4.5	6	1	0	14.6	13.2	13	1	0
I-35E CD SB(E)	1	rnd_85935	2617	2430	0.1		52.8	17.0	6.5	71.1	71.9	6.4	5.6	7.7	9.4	8.2	15.7	4.5	3288	5904	3286	5716	13.1	11.7	15	1	0	16.0	14.5	14	1	0
I-494 EB(X)	1	rnd_85931	130	106	-0.2	-0.01	55.6	22.9	6.5	65.4	65.2	6.8	5.6	7.7	9.8	8.2	15.7	4.5	3418	3288	3392	3286	13.1	11.7	15	1	0	21.9	19.0	27	1	0
I-494 WB(X)	1	rnd_85929	399	412	0.0	0.00	52.3	16.0	3.5	65.4	65.2	7.2	6.4	8.7	10.2	9.0	16.6	4.5	3817	3418	3804	3392	7.1	5.8	6	1	0	16.0	14.5	14	1	0
I-35E CD SB(X)	2	rnd_86873					7.0	14.0	1.0	75.0	10.0	0.3	0.4	3.1	3.3	2.8	12.1	4.5		2932		873	2.0	2.2	1	0	0	8.8	7.5	11	0	0
Cliff Rd(E)	2	rnd_85973	284	139	0.5		10.0	13.4	1.3	70.7	35.2	0.7	1.4	4.1	3.6	2.8	12.1	4.5	3858	4142	2482	2621	2.7	2.0	6	0	0	9.2	8.7	11	0	0
Cliff Rd(X)	2	rnd_85969	925	1256	0.4	0.11	23.6	13.7	1.3	74.8	68.3	1.2	1.8	3.8	4.2	3.2	11.8	4.5	4783	3858	3738	2482	2.7	2.0	6	0	0	9.2	8.7	11	0	0
Diffley Rd(E)	2	rnd_85965	283	176	0.4		29.8	14.7	1.2	74.3	68.4	1.8	2.2	4.0	4.7	3.6	12.0	4.5	4519	4803	3621	3798	2.5	1.9	4	0	1	10.5	9.8	11	0	1
Diffley Rd(X)	2	rnd_85961	665	824	0.2	0.04	34.7	14.2	1.2	73.7	73.4	2.4	3.0	4.6	5.4	4.5	12.6	4.5	5185	4519	4445	3621	2.5	1.9	4	0	1	10.5	9.8	11	0	1
Pilot Knob Rd(E)	2	rnd_85953	1007	732	0.3		41.6	15.1	2.1	69.9	70.6	4.0	4.4	6.4	7.0	5.8	14.4	4.5	4241	5249	3760	4492	4.3	3.4	9	0	0	13.2	12.1	17	0	0
Pilot Knob Rd(X)	2	rnd_85949	736	847	0.1	0.03	45.8	14.9	2.1	67.8	67.2	4.5	4.9	6.6	7.5	6.3	14.5	4.5	4978	4241	4607	3760	4.3	3.4	9	0	0	13.2	12.1	17	0	0
Yankee Doodle Rd(X)	2	rnd_85945	924	965	0.0	0.01	59.0	15.8	2.1	70.8	70.3	4.9	3.9	5.6	7.9	6.3	14.5	4.5	5902	4978	5572	4607	4.2	3.3	9	0	0	13.1	12.0	16	0	0
Lone Oak Rd(E)	2	rnd_85941	838	674	0.2		50.6	15.9	2.8	69.3	69.2	5.4	5.3	7.0	8.4	6.7	15.0	4.5	5047	5885	5054	5728	5.7	4.5	6	1	0	14.6	13.2	13	1	0
Lone Oak Rd(X)	2	rnd_85937	678	664	0.0	0.00	51.9	15.4	2.8	71.4	71.8	6.0	5.8	7.5	9.0	7.2	15.5	4.5	5725	5047	5718	5054	5.7	4.5	6	1	0	14.6	13.2	13	1	0
I-35E CD SB(E)	2	rnd_85935	2548	2467	0.0		56.8	17.0	6.5	71.4	71.8	6.4	5.6	7.3	9.4	8.0	16.3	4.5	3242	5790	3251	5718	13.1	11.7	15	1	0	16.0	14.5	14	1	0
I-494 EB(X)	2	rnd_85931	132	102	-0.2	-0.01	59.8	22.9	6.5	66.0	66.3	6.8	5.6	7.3	9.8	8.0	16.3	4.5	3373	3242	3353	3251	13.1	11.7	15	1	0	21.9	19.0	27	1	0

I-494 WB(X)	2	rnd_85929	407	434	0.1	0.01	55.9	16.0	3.5	66.0	66.3	7.2	6.4	8.3	10.2	8.8	17.2	4.5	3780	3373	3787	3353	7.1	5.8	6	1	0	16.0	14.5	14	1	0
I-35E CD SB(X)	4	rnd_86873					7.0	12.9	1.0	67.4	9.6	0.3	0.4	3.0	3.3	3.2	14.2	4.5		2867		769	2.0	2.2	1	0	0	8.8	7.5	11	0	0
Cliff Rd(E)	4	rnd_85973	289	129	0.6		10.0	12.3	1.3	69.8	56.7	0.7	1.4	4.0	3.6	3.2	14.2	4.5	3932	4221	2320	2449	2.7	2.0	6	0	0	9.2	8.7	11	0	0
Cliff Rd(X)	4	rnd_85969	914	1057	0.2	0.06	29.4	13.7	1.3	75.0	74.2	1.2	1.8	2.6	4.2	3.6	12.9	4.5	4846	3932	3376	2320	2.7	2.0	6	0	0	9.2	8.7	11	0	0
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Site 2 - NB: I-35E (NB), Aug-Oct 2011 (2 to 1)

Name	Phase	RNodeName	Vb	Vd	Re	Rx	Uavg	Tf+Tae	Tasi/Tasm	Ub	Ud	Lws	Twsb	Twsd	Lwe	Tweb	Twed	Lw	Vib	Vob	Vid	Vod	Tas	Las	Nsis	Nstops	Nras	Tae	Lae	Nsie	Nstope	Nrae
Co Rd 96(X)	1	rnd_94396	1023	1406	0.4					65.7	18.5	0.1			8.4	7.5	10.0	12.2														
Co Rd E(E)	1	rnd_94390	633	378	0.4		27.5	30.7	1.0	52.5	39.3	1.9	2.3	4.8	10.3	9.8	15.2	12.2	3696	4329	2639	3017	1.5	1.1	4	0	0	22.0	18.2	25	0	2
Co Rd E(X)	1	rnd_90679	923	1043	0.1	0.05	31.8	30.7	1.0	40.8	64.1	2.2	2.3	4.8	10.6	9.8	15.2	12.2	4619	3696	3682	2639	1.5	1.1	4	0	0	22.0	18.2	25	0	2
I-694 WB(E)	1	rnd_90675	1287	868	0.3		32.6	30.8	1.4	40.8	64.1	2.6	3.4	5.4	11.0	10.9	15.8	12.2	3409	4696	2799	3667	2.1	1.9	4	0	0	22.6	19.1	25	0	2
E Jct I-694 EB(X)	1	rnd_90617	2868	3050	0.1	0.06	38.9	30.8	1.4	63.4	68.2	3.1	3.4	5.4	11.5	10.9	15.8	12.2	6277	3409	5850	2799	2.1	1.9	4	0	0	22.6	19.1	25	0	2
I-694 EB(E)	1	rnd_90615					40.2	29.7	1.4	68.2	68.3	3.9	4.4	6.5	12.3	12.0	17.0	12.2	3195		2549		2.1	1.9	4	0	0	22.6	19.1	25	0	2
I-694 WB(X)	1	rnd_89045	1519	1416	-0.1				1.4	66.4	67.8		30.4	33.2		37.9	43.4	12.2	4714	3195	3966	2549	2.1	1.9	4	0	0	22.6	19.1	25	0	2
Little Canada Rd(E)	1	rnd_87775	308	305	0.0				4.3	66.4	67.8		30.4	33.2		37.9	43.4	12.2	4812	5120	4287	4592	6.4	4.2	7	2	0	26.9	21.3	25	2	2
Little Canada Rd(X)	1	rnd_87771	545	691	0.3	0.03	46.2	33.2	4.3	56.6	66.4	5.1	5.1	7.2	13.4	12.7	17.7	12.2	5357	4812	4978	4287	6.4	4.2	7	2	0	26.9	21.3	25	2	2
T.H.36 WB(E)	1	rnd_87769	226	240	-0.1		46.0	31.5	3.5	56.6	66.4	5.5	6.0	7.8	13.9	13.5	18.3	12.2	5113	5339	4733	4973	5.2	4.5	7	0	0	25.8	21.7	25	0	2
T.H.36 WB(X)	1	rnd_87765	805	916	0.1	0.02	47.2	31.5	3.5	64.3	63.1	5.7	6.0	7.8	14.0	13.5	18.3	12.2	5918	5113	5649	4733	5.2	4.5	7	0	0	25.8	21.7	25	0	2
T.H.36 EB(E)	1	rnd_87763	893	803	0.1		47.2	31.5	3.5	64.3	63.1	5.7	6.0	7.8	14.0	13.5	18.3	12.2	5026	5919	4908	5711	5.2	4.5	7	0	0	25.8	21.7	25	0	2
T.H.36 EB(X)	1	rnd_87761	646	768	0.2	0.03	45.1	31.0	3.5	64.3	63.1	5.8	6.5	8.3	14.2	14.1	18.8	12.2	5672	5026	5677	4908	5.2	4.5	7	0	0	25.8	21.7	25	0	2
Roselawn Ave(E)	1	rnd_87757	165	149	0.1		43.9	32.2	4.7	53.8	56.1	6.0	6.8	8.9	14.4	14.4	19.3	12.2	5514	5679	5531	5680	7.0	5.0	10	1	0	27.5	22.1	28	1	2
Roselawn Ave(X)	1	rnd_87753	152	184	0.2	0.01	46.8	32.2	4.7	54.2	55.7	6.4	6.8	8.9	14.8	14.4	19.3	12.2	5666	5514	5715	5531	7.0	5.0	10	1	0	27.5	22.1	28	1	2
Larpenteur Ave(E)	1	rnd_87751	332	375	-0.1		43.9	31.7	4.8	54.2	55.7	6.6	7.4	9.6	14.9	15.0	20.0	12.2	5300	5632	5352	5728	7.2	5.4	13	0	0	27.7	22.5	31	0	2
Wheelock Pkwy(X)	1	rnd_87741	311	380	0.2		44.7	31.1	4.8	49.8	50.5	7.1	7.8	10.1	15.4	15.4	20.6	12.2	5611	5300	5733	5352	7.2	5.4	13	0	0	27.7	22.5	31	0	2
Maryland Ave(E)	1	rnd_87739	513	538	0.0		43.3	31.6	5.8	49.8	50.5	7.6	8.8	11.1	15.9	16.3	21.5	12.2	5115	5628	5209	5747	8.6	6.1	16	0	0	29.1	23.3	34	0	2
Maryland Ave(X)	1	rnd_87735	305	440	0.4	0.03	41.1	30.4	5.8	30.1	32.8	8.0	9.5	12.3	16.3	17.1	22.7	12.2	5419	5115	5649	5209	8.6	6.1	16	0	0	29.1	23.3	34	0	2
Pennsylvania Ave(E)	1	rnd_87729	663	621	0.1		41.2	30.9	7.0	32.2	47.5	8.8	11.1	13.5	17.1	18.6	24.0	12.2	4877	5540	5103	5725	10.4	7.1	19	0	0	30.9	24.3	37	0	2
Pennsylvania Ave(X)	1	rnd_90811	275	370	0.3	0.02	42.3	30.9	7.0	26.7	31.8	9.0	11.1	13.5	17.3	18.6	24.0	12.2	5152	4877	5473	5103	10.4	7.1	19	0	0	30.9	24.3	37	0	2
Co Rd 96(X)	2	rnd_94396	960	1169	0.2					65.3	18.4	0.1			8.4	7.5	10.2	12.2										20.6	16.7	22	0	2
Co Rd E(E)	2	rnd_94390	630	311	0.5		17.8	30.8	1.0	50.5	19.4	1.9	2.4	7.2	10.3	9.9	17.7	12.2	3599	4229	2367	2678	1.5	1.1	4	0	0	22.0	18.2	25	0	2
Co Rd E(X)	2	rnd_90679	953	1327	0.4	0.16	20.6	30.8	1.0	36.3	47.3	2.2	2.4	7.2	10.6	9.9	17.7	12.2	4552	3599	3693	2367	1.5	1.1	4	0	0	22.0	18.2	25	0	2
I-694 WB(E)	2	rnd_90675	1260	835	0.3		20.5	30.3	1.4	36.3	47.3	2.6	3.6	8.3	11.0	11.1	18.9	12.2	3382	4642	2865	3700	2.1	1.9	4	0	0	22.6	19.1	25	0	2
E Jct I-694 EB(X)	2	rnd_90617	2791	3023	0.1	0.08	24.4	30.3	1.4	60.2	68.1	3.1	3.6	8.3	11.5	11.1	18.9	12.2	6173	3382	5888	2865	2.1	1.9	4	0	0	22.6	19.1	25	0	2
I-694 EB(E)	2	rnd_90615					28.0	29.5	1.4	67.7	68.1	3.9	4.7	9.1	12.3	12.2	19.7	12.2	3189		2618		2.1	1.9	4	0	0	22.6	19.1	25	0	2
I-694 WB(X)	2	rnd_89045	1480	1293	-0.1				1.4	66.1	67.0		32.1	35.8		39.6	46.4	12.2	4669	3189	3911	2618	2.1	1.9	4	0	0	22.6	19.1	25	0	2
Little Canada Rd(E)	2	rnd_87775	304	298	0.0				4.3	66.1	67.0		32.1	35.8		39.6	46.4	12.2	4761	5064	4231	4529	6.4	4.2	7	2	0	26.9	21.3	25	2	2
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Site 2 - SB: I-35E (SB), Aug-Oct 2011 (2 to 1)

Name	Phase	RNodeName	Vb	Vd	Re	Rx	Uavg	Tf+Tae	Tasi/Tasm	Ub	Ud	Lws	Twsb	Twsd	Lwe	Tweb	Twed	Lw	Vib	Vob	Vid	Vod	Tas	Las	Nsis	Nstops	Nras	Tae	Lae	Nsie	Nstope	Nrae
Co Rd 21(S1568,X)	1	rnd_94607	1978	2214	0.1	0.18		29.1	1.0	74.1	71.5							12.1	4248	2270	3427	1213	6.7	7.2	4	0	0	21.2	17.9	14	3	0
Co Rd 23(E)	1	rnd_94591	998	707	0.3		61.6	23.8	1.0	77.4	80.4	3.1	3.0	3.0	11.4	11.2	14.5	12.1	3219	4217	2650	3357	6.6	6.1	1	1	0	18.8	15.0	6	4	0
Co Rd 23(X)	1	rnd_94565	179	510	1.8	0.12	69.3	23.8	1.0	79.2	78.4	3.4	3.0	3.0	11.8	11.2	14.5	12.1	3398	3219	3160	2650	6.6	6.1	1	1	0	18.8	15.0	6	4	0
Co Rd 2(E)	1	rnd_94585	619				68.4	25.2	1.8	77.6	83.5	5.4	4.7	4.8	13.7	12.9	16.3	12.1	2688	3307			11.6	9.4	27	0	2	22.0	18.2	27	0	2
Co Rd 2(X)	1	rnd_94571	377				71.3	25.2	1.8	79.1		5.6	4.7	4.8	14.0	12.9	16.3	12.1	3065	2688			11.6	9.4	27	0	2	22.0	18.2	27	0	2

U.S.8(E)	1	rnd_94579	1527	1056	0.3		68.8	25.6	1.9	79.1		5.9	5.2	5.2	14.3	13.4	16.7	12.1	1574	3101	1447	2504	12.5	10.1	23	0	2	22.9	19.0	23	0	2
Co Rd 22(E)	1	rnd_94597	325	454	-0.4		70.8	26.1	2.4	75.8	78.3	9.3	8.1	7.9	17.6	16.3	19.4	12.1	1177	1502	1266	1720	15.7	12.8	28	0	2	26.1	21.7	28	0	2
Co Rd 22(X)	1	rnd_94569	347				73.1	26.1	2.4	80.7	79.8	9.6	8.1	7.9	17.9	16.3	19.4	12.1	1524	1177		1266	15.7	12.8	28	0	2	26.1	21.7	28	0	2
Co Rd 21(S1568,X)	2	rnd_94607	1946	2266	0.2	0.33		21.4	1.0	73.6	71.6							12.1	4208	2262	3453	1187	6.7	7.2	4	0	0	21.2	17.9	14	3	0
Co Rd 23(E)	2	rnd_94591	1003	687	0.3		61.5	18.9	1.0	77.0	81.0	3.1	3.0	3.0	11.4	11.2	14.1	12.1	3180	4183	2702	3389	6.6	6.1	1	1	0	18.8	15.0	6	4	0
Co Rd 23(X)	2	rnd_94565	166	855	4.2	0.24	69.2	18.9	1.0	78.7	78.2	3.4	3.0	3.0	11.8	11.2	14.1	12.1	3346	3180	3558	2702	6.6	6.1	1	1	0	18.8	15.0	6	4	0
Co Rd 2(E)	2	rnd_94585	637				68.6	22.1	1.8	77.5	83.2	5.4	4.8	4.7	13.7	12.9	15.8	12.1	2687	3324			11.6	9.4	27	0	2	22.0	18.2	27	0	2
Co Rd 2(X)	2	rnd_94571	372				71.5	22.1	1.8	78.9		5.6	4.8	4.7	14.0	12.9	15.8	12.1	3060	2687			11.6	9.4	27	0	2	22.0	18.2	27	0	2
U.S.8(E)	2	rnd_94579	1536	1073	0.3		69.2	22.9	1.9	78.9		5.9	5.2	5.2	14.3	13.4	16.3	12.1	1557	3094	1833	2906	12.5	10.1	23	0	2	22.9	19.0	23	0	2
Co Rd 22(E)	2	rnd_94597	307	476	-0.6		71.8	26.1	2.4	75.5	78.9	9.3	8.2	7.8	17.6	16.4	18.9	12.1	1152	1459	1332	1808	15.7	12.8	28	0	2	26.1	21.7	28	0	2
Co Rd 22(X)	2	rnd_94569	345				74.1	26.1	2.4	80.7	80.7	9.6	8.2	7.8	17.9	16.4	18.9	12.1	1497	1152		1332	15.7	12.8	28	0	2	26.1	21.7	28	0	2
Co Rd 21(S1568,X)	3	rnd_94607	1976	2267	0.1	0.26		21.4	1.0	73.3	71.5							12.1	4301	2325	3547	1279	6.7	7.2	4	0	0	21.2	17.9	14	3	0
Co Rd 23(E)	3	rnd_94591	990	692	0.3		61.8	18.9	1.0	76.6	80.8	3.1	3.0	3.0	11.4	11.4	14.4	12.1	3272	4262	2762	3454	6.6	6.1	1	1	0	18.8	15.0	6	4	0
Co Rd 23(X)	3	rnd_94565	104	709	5.8	0.20	69.4	18.9	1.0	77.4	78.1	3.4	3.0	3.0	11.8	11.4	14.4	12.1	3376	3272	3470	2762	6.6	6.1	1	1	0	18.8	15.0	6	4	0
Co Rd 2(E)	3	rnd_94585	583				68.6	22.1	1.8	76.8	83.3	5.4	4.8	4.7	13.7	13.3	16.2	12.1	2851	3435			11.6	9.4	27	0	2	22.0	18.2	27	0	2
Co Rd 2(X)	3	rnd_94571	385				71.5	22.1	1.8	78.1		5.6	4.8	4.7	14.0	13.3	16.2	12.1	3236	2851			11.6	9.4	27	0	2	22.0	18.2	27	0	2
U.S.8(E)	3	rnd_94579	1483	1108	0.3		69.1	22.9	1.9	78.1		5.9	5.3	5.2	14.3	13.7	16.6	12.1	1763	3246	1800	2908	12.5	10.1	23	0	2	22.9	19.0	23	0	2
Co Rd 22(E)	3	rnd_94597	385	476	-0.2		71.5	26.1	2.4	76.2	78.5	9.3	8.1	7.8	17.6	16.6	19.3	12.1	1343	1728	1310	1786	15.7	12.8	28	0	2	26.1	21.7	28	0	2
Co Rd 22(X)	3	rnd_94569	271				73.8	26.1	2.4	80.2	81.6	9.6	8.1	7.8	17.9	16.6	19.3	12.1	1614	1343		1310	15.7	12.8	28	0	2	26.1	21.7	28	0	2
Co Rd 21(S1568,X)	4	rnd_94607	2058	2326	0.1	0.23		21.4	1.0	74.1	70.9							12.6	4488	2430	3503	1177	6.7	7.2	4	0	0	21.2	17.9	14	3	0
Co Rd 23(E)	4	rnd_94591	1001	673	0.3		61.8	18.9	1.0	76.7	80.3	3.1	3.0	3.0	11.7	12.2	18.3	12.6	3446	4447	2749	3422	6.6	6.1	1	1	0	18.8	15.0	6	4	0
Co Rd 23(X)	4	rnd_94565	174	755	3.3	0.19	69.5	18.9	1.0	77.7	77.9	3.4	3.0	3.0	12.1	12.2	18.3	12.6	3620	3446	3504	2749	6.6	6.1	1	1	0	18.8	15.0	6	4	0
Co Rd 2(E)	4	rnd_94585	547				68.6	22.1	1.8	77.3	82.9	5.4	4.8	4.7	14.1	14.1	19.9	12.6	3051	3597			11.6	9.4	27	0	2	22.0	18.2	27	0	2
Co Rd 2(X)	4	rnd_94571	402				71.5	22.1	1.8	79.0		5.6	4.8	4.7	14.3	14.1	19.9	12.6	3452	3051			11.6	9.4	27	0	2	22.0	18.2	27	0	2
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Site 3: I-694, Jun-Nov 2012 (2 to 1)

Name	Phase	RNodeName	Vb	Vd	Re	Rx	Uavg	Tf+Tae	Tasi/Tasm	Ub	Ud	Lws	Twsb	Twsd	Lwe	Tweb	Twed	Lw	Vib	Vob	Vid	Vod	Tas	Las	Nsis	Nstops	Nras	Tae	Lae	Nsie	Nstope	Nrae
T.H.5(E)	2	rnd_90487	366	123	0.7		26.4	23.8	1.0	78.3	16.6	0.7	0.6	1.4	6.2	5.3	12.0	8.0	3288	3655	893	1016	4.3	2.8	5	3	0	8.5	5.8	17	3	0
T.H.5(X)	2	rnd_90485	662	996	0.5	0.24	14.2	20.8	1.0	76.1	15.9	1.1	1.1	4.5	6.6	5.9	15.1	8.0	3951	3288	1889	893	4.3	2.8	5	3	0	8.5	5.8	17	3	0
10th St(E)	2	rnd_90467	574	213	0.6		17.6	17.2	1.8	79.5	18.6	3.2	2.9	11.5	8.7	7.7	22.4	8.0	3411	3985	1884	2096	7.8	5.0	11	0	0	12.0	8.0	23	0	0
10th St(X)	2	rnd_90465	867	1329	0.5	0.20	19.0	17.2	1.8	64.8	47.1	3.5	2.9	11.5	9.0	7.7	22.4	8.0	4278	3411	3213	1884	7.8	5.0	11	0	0	12.0	8.0	23	0	0
E Jct I-94 CD WB(E)	2	rnd_89493	1093	709	0.4		20.7	16.9	2.0	64.8	47.1	4.0	3.8	12.5	9.5	8.6	23.1	8.0	3208	4301	2430	3139	8.5	6.2	8	0	0	12.7	9.2	20	0	0
E Jct I-94 CD WB(X)	2	rnd_89489	477	539	0.1	0.02	21.9	16.9	2.0	45.8	48.2	4.2	3.8	12.5	9.7	8.6	23.1	8.0	3685	3208	2969	2430	8.5	6.2	8	0	0	12.7	9.2	20	0	0
E Jct I-94 EB(E)	2	rnd_89487	761	554	0.3		21.9	16.9	2.0	45.8	48.2	4.3	4.0	12.6	9.8	8.8	23.3	8.0	2924	3685	2415	2969	8.5	6.2	8	0	0	12.7	9.2	20	0	0
E Jct I-94 EB(X)	2	rnd_89483	1705	1752	0.0	0.02	22.6	19.1	2.6	62.6	64.3	4.4	4.0	12.6	9.9	8.8	23.3	8.0	4629	2924	4167	2415	11.1	8.8	10	4	0	14.9	10.6	9	5	0
Tamarack Rd(E)	2	rnd_89481	577	457	0.2		23.8	19.0	2.6	62.6	64.3	4.8	4.4	13.0	10.3	9.2	23.8	8.0	4052	4629	3711	4167	11.0	7.2	14	1	0	15.2	10.2	26	1	0
Tamarack Rd(X)	2	rnd_89479	364	351	0.0	0.00	24.7	19.0	2.6	77.2	80.9	5.0	4.4	13.0	10.5	9.2	23.8	8.0	4415	4052	4061	3711	11.0	7.2	14	1	0	15.2	10.2	26	1	0
Valley Creek Rd(E)	2	rnd_89919	676	608	0.1		26.5	17.0	2.3	83.2	84.8	5.7	5.2	14.0	11.2	10.0	24.6	8.0	3866	4541	3467	4075	10.0	7.1	14	0	0	14.2	10.1	26	0	0
Valley Creek Rd(X)	2	rnd_89913	658	657	0.0	0.00	28.5	17.0	2.3	78.2	79.6	6.1	5.2	14.0	11.6	10.0	24.6	8.0	4524	3866	4124	3467	10.0	7.1	14	0	0	14.2	10.1	26	0	0
Lake Rd(E)	2	rnd_89911	320	274	0.1		30.1	16.8	2.4	78.2	79.6	6.8	6.1	14.6	12.3	10.8	25.3	8.0	4196	4515	3811	4085	10.4	7.2	15	0	0	14.7	10.2	27	0	0
Lake Rd(X)	2	rnd_89475	618	594	0.0	-0.01	31.6	16.8	2.4	80.7	82.3	7.2	6.1	14.6	12.7	10.8	25.3	8.0	4814	4196	4405	3811	10.4	7.2	15	0	0	14.7	10.2	27	0	0
Bailey Rd(E)	2	rnd_89471	163	173	-0.1		35.4	17.3	2.9	69.1	70.3	8.9	7.5	16.1	14.4	12.3	26.8	8.0	4973	4810	4576	4403	12.4	9.1	14	1	0	16.6	12.1	26	1	0
T.H.61 NB(E)	2	rnd_89467	568	515	0.1		35.5	17.2	2.9	78.6	79.4	9.1	7.6	16.3	14.6	12.4	27.0	8.0	4058	4626	3688	4203	12.5	9.2	11	1	0	16.7	12.1	23	1	0
T.H.61 NB(X)	2	rnd_89463	624	685	0.1	0.02	35.9	17.2	2.9	80.6	81.5	9.1	7.6	16.3	14.7	12.4	27.0	8.0	4682	4058	4372	3688	12.5	9.2	11	1	0	16.7	12.1	23	1	0
T.H.61 SB(X)	2	rnd_89461	1722	1615	-0.1		36.4			80.6	81.5	9.3	7.6	16.3	14.8	12.4	27.0	8.0	6403	4682	5987	4372										

Maxwell Ave(X)	2	rnd_89457	331	384	0.2	0.01	36.0	17.3	3.1	72.1	71.9	9.5	7.9	16.8	15.0	12.7	27.4	8.0	6800	6469	6220	5836	13.1	9.3	13	2	0	17.3	12.3	25	2	0
T.H.5(E)	3	rnd_90487	355	134	0.6		33.5	17.0	1.0	78.4	24.3	0.7	0.5	1.1	6.2	5.3	11.2	8.0	3244	3599	1124	1258	4.3	2.8	5	3	0	8.5	5.8	17	3	0
T.H.5(X)	3	rnd_90485	677	1110	0.6	0.27	22.4	15.3	1.0	76.4	26.9	1.1	1.1	2.9	6.6	5.9	12.9	8.0	3921	3244	2234	1124	4.3	2.8	5	3	0	8.5	5.8	17	3	0
10th St(E)	3	rnd_90467	566	240	0.6		46.8	17.4	1.8	79.9	70.0	3.2	2.8	4.3	8.7	7.6	14.3	8.0	3395	3961	2061	2301	7.8	5.0	11	0	0	12.0	8.0	23	0	0
10th St(X)	3	rnd_90465	869	1064	0.2	0.09	50.6	17.4	1.8	67.7	73.4	3.5	2.8	4.3	9.0	7.6	14.3	8.0	4264	3395	3125	2061	7.8	5.0	11	0	0	12.0	8.0	23	0	0
E Jct I-94 CD WB(E)	3	rnd_89493	1098	679	0.4		50.3	17.5	2.0	67.7	73.4	4.0	3.8	4.8	9.5	8.6	14.9	8.0	3161	4259	2407	3086	8.5	6.2	8	0	0	12.7	9.2	20	0	0
E Jct I-94 CD WB(X)	3	rnd_89489	471	590	0.3	0.05	53.3	17.5	2.0	48.0	49.3	4.2	3.8	4.8	9.7	8.6	14.9	8.0	3633	3161	2996	2407	8.5	6.2	8	0	0	12.7	9.2	20	0	0
E Jct I-94 EB(E)	3	rnd_89487	730	504	0.3		47.3	16.8	2.0	48.0	49.3	4.3	4.0	5.5	9.8	8.8	15.5	8.0	2903	3633	2493	2996	8.5	6.2	8	0	0	12.7	9.2	20	0	0
E Jct I-94 EB(X)	3	rnd_89483	1790	1816	0.0	0.01	48.9	19.1	2.6	64.6	61.2	4.4	4.0	5.5	9.9	8.8	15.5	8.0	4693	2903	4309	2493	11.1	8.8	10	4	0	14.9	10.6	9	5	0
Tamarack Rd(E)	3	rnd_89481	560	521	0.1		48.9	18.9	2.6	64.6	61.2	4.8	4.4	5.9	10.3	9.2	16.0	8.0	4133	4693	3788	4309	11.0	7.2	14	1	0	15.2	10.2	26	1	0
Tamarack Rd(X)	3	rnd_89479	346	404	0.2	0.01	50.7	18.9	2.6	80.4	75.6	5.0	4.4	5.9	10.5	9.2	16.0	8.0	4478	4133	4192	3788	11.0	7.2	14	1	0	15.2	10.2	26	1	0
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Site 4: U.S.169, Jun-Aug 2013 (2 to 1)

Name	Phase	RNodeName	Vb	Vd	Re	Rx	Uavg	Tf+Tae	Tasi/Tasm	Ub	Ud	Lws	Twsb	Twsd	Lwe	Tweb	Twed	Lw	Vib	Vob	Vid	Vod	Tas	Las	Nsis	Nstops	Nras	Tae	Lae	Nsie	Nstope	Nrae
Old Shakopee Rd(X)	5	rnd_89683	303	34	-0.9			37.5	1.7	71.8	21.7	0.1			1.5	1.1		1.7	4430	4127	1407	1373	5.8	3.1	0	1	0	15.1	11.4	5	1	0
Pioneer Trail(E)	5	rnd_89681	599				13.8	32.2	1.0	71.8	21.7	0.7	0.6	2.9	2.0	1.7		1.7	3824	4423	1361		3.3	2.5	4	0	0	12.7	10.7	9	0	0
Pioneer Trail(X)	5	rnd_89679	172	88	-0.5		17.7	32.2	1.0	71.7	6.8	0.9	0.6	2.9	2.2	1.7		1.7	3996	3824	1449	1361	3.3	2.5	4	0	0	12.7	10.7	9	0	0
Anderson Lakes Pkwy(E)	5	rnd_89691	507	318	0.4		7.5	21.8	1.7	71.7	6.8	2.0	1.7	15.6	3.3	2.8		1.7	3672	4179	1221	1539	5.7	3.3	3	0	0	15.0	11.5	8	0	0
Anderson Lakes Pkwy(X)	5	rnd_89687	299	861	1.9		8.2	21.8	1.7	68.7	7.2	2.1	1.7	15.6	3.5	2.8		1.7	3971	3672	2082	1221	5.7	3.3	3	0	0	15.0	11.5	8	0	0
Marth Rd(E)	5	rnd_1507						37.2	1.6			3.3	2.9		4.7	4.0		1.7					5.4	4.0	4	0	2	14.7	12.2	9	0	2
I-494 EB(E)	5	rnd_1505						37.4	1.7			3.4	2.9		4.7	4.0		1.7					5.6	5.2	8	0	0	15.0	13.4	13	0	0
I-494 WB(E)	5	rnd_1504						37.4	1.7			3.4	2.9		4.8	4.0		1.7					5.6	5.2	8	0	0	15.0	13.4	13	0	0
I-494 EB(X)	5	rnd_89163						37.4	1.7			3.6	3.0		5.0	4.1		1.7					5.6	5.2	8	0	0	15.0	13.4	13	0	0
W 78th St(X)	5	rnd_1503						37.8	1.8			4.1	3.8		5.4	4.9		1.7					6.0	4.2	8	0	1	15.3	12.5	13	0	1
Valley View Rd(E)	5	rnd_85245						37.6	1.8			4.3	4.4		5.7	5.5		1.7					5.8	4.1	12	0	0	15.1	12.4	17	0	0
Valley View Rd(X)	5	rnd_85241	479	1011	1.1			37.6	1.8	49.0	72.0	4.7	4.4		6.1	5.5		1.7					5.8	4.1	12	0	0	15.1	12.4	17	0	0
T.H.62 EB(E)	5	rnd_85237	242	197	0.2		17.8	19.5	1.7	67.2	72.0	5.3	6.2	17.9	6.7	7.3		1.7	2357	2599	1696	1892	5.7	5.1	9	0	0	15.0	13.3	14	0	0
T.H.62 EB(X)	5	rnd_85233	587	592	0.0	0.00	18.4	19.5	1.7	67.9	68.6	5.5	6.2	17.9	6.9	7.3		1.7	2945	2357	2287	1696	5.7	5.1	9	0	0	15.0	13.3	14	0	0
T.H.62 WB(E)	5	rnd_85231	209	155	0.3		18.4	19.5	1.7	67.9	68.6	5.5	6.2	17.9	6.9	7.3		1.7	2735	2945	2133	2287	5.7	5.1	9	0	0	15.0	13.3	14	0	0
T.H.62 WB(X)	5	rnd_85229	1582	1756	0.1	0.07	18.9	19.5	1.7	67.9	68.6	5.7	6.2	17.9	7.0	7.3		1.7	4317	2735	3889	2133	5.7	5.1	9	0	0	15.0	13.3	14	0	0
Bren Rd(E)	5	rnd_85227	1219	1250	0.0		18.2	22.0	2.7	67.9	68.6	5.7	7.0	18.7	7.0	8.1		1.7	3087	4306	2631	3881	8.9	6.6	16	1	0	18.2	14.9	21	1	0
Bren Rd(X)	5	rnd_85223	241	227	-0.1	0.00	19.3	22.0	2.7	67.0	67.7	6.0	7.0	18.7	7.4	8.1		1.7	3328	3087	2858	2631	8.9	6.6	16	1	0	18.2	14.9	21	1	0
Lincoln Dr(E)	5	rnd_85221	203	226	-0.1		18.6	23.5	3.4	67.0	67.7	6.0	7.7	19.4	7.4	8.8		1.7	3152	3355	2635	2861	11.1	8.1	18	4	0	20.5	16.3	23	4	0
Lincoln Dr(X)	5	rnd_85217	162	171	0.1	0.00	19.4	23.5	3.4	67.9	69.1	6.3	7.7	19.4	7.7	8.8		1.7	3314	3152	2806	2635	11.1	8.1	18	4	0	20.5	16.3	23	4	0
Excelsior Blvd(E)	5	rnd_85215	545	477	0.1		18.7	22.1	3.2	67.9	69.1	6.3	8.5	20.2	7.7	9.7		1.7	2774	3319	2349	2826	10.5	8.3	21	1	0	19.8	16.5	26	1	0
Excelsior Blvd(X)	5	rnd_89607	566	558	0.0	0.00	19.3	22.1	3.2	67.8	69.0	6.5	8.5	20.2	7.9	9.7		1.7	3339	2774	2907	2349	10.5	8.3	21	1	0	19.8	16.5	26	1	0
T.H.7 EB(E)	5	rnd_85211	103	87	0.2		19.6	22.4	3.4	67.8	69.0	6.8	9.1	20.8	8.1	10.2		1.7	3240	3342	2818	2905	11.4	10.5	13	0	0	20.7	18.7	18	0	0
T.H.7 WB(E)	5	rnd_85207	275	218	0.2		20.0	22.1	3.4	68.4	69.3	7.0	9.3	21.0	8.4	10.4		1.7	2964	3240	2600	2818	11.4	10.5	13	0	0	20.7	18.7	18	0	0
T.H.7(X)	5	rnd_85203	563	576	0.0	0.00	20.8	22.1	3.4	65.4	64.7	7.3	9.3	21.0	8.7	10.4		1.7	3527	2964	3176	2600	11.4	10.5	13	0	0	20.7	18.7	18	0	0
36th St(X)	5	rnd_85201	312	319	0.0	0.00	20.3	23.3	4.1	65.4	64.7	7.4	9.9	21.9	8.8	11.0		1.7	3839	3527	3481	3162	13.4	11.7	17	1	0	22.8	19.9	22	1	0
Minnetonka Blvd(E)	5	rnd_85199	194	167	0.1		20.8	22.6	3.8	65.4	64.7	7.6	9.9	21.9	9.0	11.0		1.7	3646	3839	3314	3481	12.7	11.1	13	0	0	22.1	19.3	18	0	0
Minnetonka Blvd(X)	5	rnd_85195	318	363	0.1	0.01	21.4	22.6	3.8	64.9	66.1	7.8	9.9	21.9	9.2	11.0		1.7	3964	3646	3677	3314	12.7	11.1	13	0	0	22.1	19.3	18	0	0
Cedar Lake Rd(E)	5	rnd_85193	335	358	-0.1		20.9	23.0	4.1	64.9	66.1	7.8	10.5	22.4	9.2	11.6		1.7	3636	3972	3359	3717	13.7	11.6	17	0	0	23.0	19.8	22	0	0
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Site 9: U.S.169 Jun 2013 (2 to 1)

Name	Phase	RNodeName	Vb	Vd	Re	Rx	Uavg	Tf+Tae	Tasi/Tasm	Ub	Ud	Lws	Twsb	Twsd	Lwe	Tweb	Twed	Lw	Vib	Vob	Vid	Vod	Tas	Las	Nsis	Nstops	Nras	Tae	Lae	Nsie	Nstope	Nrae
T.H.7(X)	1	rnd_85203	452	727	0.6	0.15		18.5	1.0	54.0	13.0	0.2			1.3	1.8	2.8	2.7	4235	3783	1809	1082	3.7	2.8	5	0	0	8.8	8.9			
36th St(X)	1	rnd_85201	121	271	1.2	0.06	5.8	16.0	1.5	54.0	13.0	0.4	0.8	4.4	1.4	2.5	7.4	2.7	4408	4287	2064	1793	5.6	3.9	9	1	0	10.7	10.0			
Minnetonka Blvd(E)	1	rnd_85199	319	205	0.4		8.9	15.5	1.4	54.0	13.0	0.6	0.8	4.4	1.6	2.5	7.4	2.7	4088	4408	1859	2064	5.1	3.5	5	0	0	10.2	9.5			
Minnetonka Blvd(X)	1	rnd_85195	147	296	1.0	0.06	12.3	15.5	1.4	60.9	21.1	0.8	0.8	4.4	1.8	2.5	7.4	2.7	4235	4088	2155	1859	5.1	3.5	5	0	0	10.2	9.5			
Cedar Lake Rd(E)	1	rnd_85193	480	278	0.4		7.3	13.5	1.6	60.9	21.1	0.8	1.4	7.3	1.8	3.2	10.3	2.7	3769	4249	2200	2477	6.0	3.9	9	0	0	11.1	10.0			
Cedar Lake Rd(X)	1	rnd_85189	165	287	0.7	0.05	8.4	13.5	1.6	56.9	44.2	0.9	1.4	7.3	1.9	3.2	10.3	2.7	3934	3769	2486	2200	6.0	3.9	9	0	0	11.1	10.0			
I-394 EB(E)	1	rnd_85185	428	224	0.5		12.4	11.3	1.5	55.5	49.6	1.5	3.0	8.9	2.5	4.8	11.9	2.7	3533	3961	2334	2558	5.4	6.1	8	0	0	10.5	12.2			
I-394 EB(X)	1	rnd_85181	578	772	0.3	0.07	13.9	14.2	1.8	45.3	63.6	1.7	3.0	8.9	2.7	4.8	11.9	2.7	4111	3533	3106	2334	6.6	5.8	8	0	0	13.4	12.9			
I-394 WB(E)	1	rnd_85179	920	472	0.5		14.2	11.4	1.5	45.3	63.6	1.7	3.4	8.8	2.8	5.1	11.8	2.7	3223	4143	2642	3114	5.4	6.1	8	0	0	10.5	12.2			
I-394 WB(X)	1	rnd_90397	436	388	-0.1	-0.02	15.3	11.4	1.5	45.7	65.8	1.9	3.4	8.8	2.9	5.1	11.8	2.7	3659	3223	3030	2642	5.4	6.1	8	0	0	10.5	12.2			
Betty Crocker Dr(E)	1	rnd_90395	216	186	0.1		16.2	12.7	1.8	45.7	65.8	2.0	3.4	8.8	3.0	5.1	11.8	2.7	3443	3659	2844	3030	6.7	6.2	11	1	0	11.8	12.3			
Betty Crocker Dr(X)	1	rnd_90393	344	437	0.3	0.03	15.9	12.3	1.8	45.7	65.8	2.1	4.0	9.1	3.1	5.7	12.2	2.7	3787	3443	3280	2844	6.7	6.2	11	1	0	11.8	12.3			
T.H.55 EB(E)	1	rnd_90391	281	236	0.2		15.9	13.2	2.0	45.7	65.8	2.1	4.0	9.1	3.1	5.7	12.2	2.7	3572	3853	3353	3588	7.3	6.4	9	0	0	12.6	13.9			
T.H.55 EB(X)	1	rnd_85173	267	329	0.2	0.02	16.8	14.7	2.5	50.7	64.9	2.2	4.0	9.1	3.2	5.7	12.2	2.7	3839	3572	3682	3353	9.1	8.9	9	0	0	14.1	13.5			
T.H.55 WB(E)	1	rnd_85171	233	179	0.2		16.5	13.1	2.0	50.7	64.9	2.2	4.2	9.3	3.2	6.0	12.4	2.7	3563	3796	3465	3644	7.6	7.3	9	0	0	12.7	13.4			
T.H.55 WB(X)	1	rnd_85167	179	272	0.5	0.03	17.5	13.1	2.0	49.7	63.1	2.3	4.2	9.3	3.3	6.0	12.4	2.7	3742	3563	3737	3465	7.6	7.3	9	0	0	12.7	13.4			
Plymouth Ave(E)	1	rnd_85165	246	218	0.1		16.7	13.1	2.2	49.7	63.1	2.3	4.8	9.7	3.3	6.6	12.8	2.7	3535	3781	3525	3743	8.1	7.3	12	2	0	13.1	13.4			
T.H.7(X)	2	rnd_85203	436	848	0.9	0.18		16.0	1.0	57.5	14.7	0.2			1.3	1.7	2.9	2.7	4256	3820	1961	1113	3.7	2.8	5	0	0	8.8	8.9			
36th St(X)	2	rnd_85201	116	235	1.0	0.04	7.0	13.9	1.5	57.5	14.7	0.4	0.7	4.1	1.4	2.4	7.2	2.7	4381	4265	2271	2037	5.6	3.9	9	1	0	10.7	10.0			
Minnetonka Blvd(E)	2	rnd_85199	316	193	0.4		10.7	13.3	1.4	57.5	14.7	0.6	0.7	4.1	1.6	2.4	7.2	2.7	4065	4381	2078	2271	5.1	3.5	5	0	0	10.2	9.5			
Minnetonka Blvd(X)	2	rnd_85195	131	170	0.3	0.01	14.7	13.3	1.4	61.9	38.9	0.8	0.7	4.1	1.8	2.4	7.2	2.7	4196	4065	2248	2078	5.1	3.5	5	0	0	10.2	9.5			
Cedar Lake Rd(E)	2	rnd_85193	459	281	0.4		17.9	12.9	1.6	61.9	38.9	0.8	1.3	5.4	1.8	3.0	8.6	2.7	3781	4240	2371	2652	6.0	3.9	9	0	0	11.1	10.0			
Cedar Lake Rd(X)	2	rnd_85189	105	81	-0.2	-0.01	20.4	12.9	1.6	57.9	64.0	0.9	1.3	5.4	1.9	3.0	8.6	2.7	3887	3781	2451	2371	6.0	3.9	9	0	0	11.1	10.0			
I-394 EB(E)	2	rnd_85185	451	202	0.6		25.0	11.9	1.5	55.4	64.6	1.5	3.0	5.8	2.5	4.7	9.0	2.7	3439	3889	2250	2452	5.4	6.1	8	0	0	10.5	12.2			
I-394 EB(X)	2	rnd_85181	570	808	0.4	0.08	28.0	14.8	1.8	43.5	64.6	1.7	3.0	5.8	2.7	4.7	9.0	2.7	4009	3439	3058	2250	6.6	5.8	8	0	0	13.4	12.9			
I-394 WB(E)	2	rnd_85179	903	473	0.5		27.2	11.6	1.5	43.5	64.6	1.7	3.3	6.1	2.8	5.0	9.3	2.7	3155	4058	2595	3068	5.4	6.1	8	0	0	10.5	12.2			
I-394 WB(X)	2	rnd_90397	431	370	-0.1	-0.02	29.4	11.6	1.5	43.2	64.4	1.9	3.3	6.1	2.9	5.0	9.3	2.7	3585	3155	2965	2595	5.4	6.1	8	0	0	10.5	12.2			
Betty Crocker Dr(E)	2	rnd_90395	221	204	0.1		31.1	12.9	1.8	43.2	64.4	2.0	3.3	6.1	3.0	5.0	9.3	2.7	3364	3585	2760	2965	6.7	6.2	11	1	0	11.8	12.3			
Betty Crocker Dr(X)	2	rnd_90393	341	398	0.2	0.02	28.8	12.4	1.8	43.2	64.4	2.1	4.0	6.6	3.1	5.7	9.8	2.7	3705	3364	3159	2760	6.7	6.2	11	1	0	11.8	12.3			
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Site 12: I-35, Jul 2013 – Oct 2013 (2 to 1)

Name	Phase	RNodeName	Vb	Vd	Re	Rx	Uavg	Tf+Tae	Tasi/Tasm	Ub	Ud	Lws	Twsb	Twsd	Lwe	Tweb	Twed	Lw	Vib	Vob	Vid	Vod	Tas	Las	Nsis	Nstops	Nras	Tae	Lae	Nsie	Nstope	Nrae
Co Rd 60(E)	1	rnd_95043	258	236	0.1		67.6	42.3	1.0			0.9	0.9	0.8	1.8	1.7	1.6	1.2	2930	3188	2720	2956	3.3	2.9	2	0	1	9.9	8.9	3	1	2
Co Rd 60(X)	1	rnd_95047					81.9	42.2	0.3	78.8	78.6	1.2	1.0	0.9	2.1	1.7	1.7	1.2		2930		2720	3.3	2.9	2	0	1	9.9	8.9	3	1	2
Co Rd 50(E)	1	rnd_95218					75.2	43.7	1.7			2.1	1.8	1.7	3.0	2.6	2.5	1.2	3791		3443		5.5	4.6	6	0	1	12.2	10.6	7	1	2
Co Rd 50(X)	1	rnd_88723	969	784	-0.2		83.3	43.7	0.5			2.4	1.8	1.7	3.2	2.6	2.5	1.2	4761	3791	4227	3443	5.5	4.6	6	0	1	12.2	10.6	7	1	2
Co Rd 46(E)	1	rnd_88721	245	399	-0.6		79.3	44.8	2.3			3.5	2.9	2.6	4.3	3.7	3.4	1.2	4516	4761	3828	4227	7.6	5.9	7	0	2	14.2	11.9	8	1	3
Co Rd 46(X)	1	rnd_88717	1454	1150	-0.2		84.3	44.8	0.6	67.4	73.8	3.7	2.9	2.6	4.5	3.7	3.4	1.2	5970	4516	4978	3828	7.6	5.9	7	0	2	14.2	11.9	8	1	3
Crystal Lake Rd(E)	1	rnd_88715	415	432	0.0		77.7	45.8	2.8	67.4	73.8	4.3	3.8	3.3	5.1	4.5	4.1	1.2	5554	5970	4546	4978	9.2	6.9	8	1	2	15.9	12.9	9	2	3

Co Rd 42(E)	1	rnd_85993	534	472	0.1		83.3	47.0	3.3	66.0	78.5	5.4	4.4	3.9	6.2	5.2	4.7	1.2	2089	2623	879	1351	11.0	8.2	11	1	3	17.6	14.1	12	2	3
Co Rd 42(X)	1	rnd_85989	1216	533	-0.6		79.7	46.4	0.9	77.4	74.6	6.0	4.9	4.5	6.8	5.7	5.3	1.2	3305	2089	1412	879	11.0	8.2	11	1	3	17.6	14.1	12	2	3
Co Rd 11(E)	1	rnd_85985	182				60.7	45.9	3.9	63.7	6.7	7.1	6.1	7.0	7.9	6.9	7.8	1.2	3148	3330	14		12.8	8.9	12	4	0	19.7	15.2	13	5	0
Co Rd 11(X)	1	rnd_85979	767				60.0	45.2	1.1	72.4	23.0	7.7	6.5	7.7	8.6	7.3	8.5	1.2	3916	3148		14	12.8	8.9	12	4	0	19.7	15.2	13	5	0
I-35E CD SB(E)	1	rnd_86877	1018				41.3	39.1	3.6	66.5	14.1	8.9	8.0	12.9	9.7	8.8	13.7	1.2	2969	3987	785		11.9	10.4	12	1	1	18.8	16.7	13	2	1
I-35E CD SB(X)	1	rnd_86873	1189	1508	0.3	0.21	20.5	23.1	1.0	65.7	10.7	9.9	9.0	28.9	10.8	9.8	29.7	1.2	4158	2969	2293	785	11.9	10.4	12	1	1	18.8	16.7	13	2	1
Cliff Rd(E)	1	rnd_85973	291	132	0.5		21.2	25.2	4.3	68.5	52.2	10.2	9.0	28.9	11.1	9.8	29.7	1.2	3981	4271	2429	2560	14.0	12.2	16	1	1	20.9	18.5	17	2	1
Cliff Rd(X)	1	rnd_85969	922	1077	0.2	0.06	23.2	26.2	1.2	74.5	71.8	10.8	9.4	27.9	11.7	10.2	28.8	1.2	4903	3981	3506	2429	14.0	12.2	16	1	1	20.9	18.5	17	2	1
Diffley Rd(E)	1	rnd_85965	299	140	0.5		23.9	27.6	4.9	74.1	70.8	11.3	9.8	28.5	12.2	10.6	29.3	1.2	4580	4879	3354	3493	16.0	13.1	15	1	1	22.9	19.4	16	2	1
Diffley Rd(X)	1	rnd_85961	676	780	0.2	0.03	24.6	26.9	1.3	73.2	72.7	11.9	10.6	29.1	12.8	11.4	30.0	1.2	5255	4580	4134	3354	16.0	13.1	15	1	1	22.9	19.4	16	2	1
Pilot Knob Rd(E)	1	rnd_85953	1012	693	0.3		26.3	27.5	5.6	69.7	70.6	13.6	12.0	31.0	14.5	12.8	31.8	1.2	4321	5334	3476	4169	18.3	15.1	21	1	1	25.3	21.4	22	2	1
Pilot Knob Rd(X)	1	rnd_85949	807	855	0.1	0.01	27.1	27.3	1.5	67.5	67.9	14.1	12.5	31.2	15.0	13.2	32.0	1.2	5128	4321	4331	3476	18.3	15.1	21	1	1	25.3	21.4	22	2	1
Yankee Doodle Rd(X)	1	rnd_85945	904	975	0.1	0.02	27.8	27.8	1.6	70.7	70.8	14.4	12.5	31.2	15.3	13.2	32.0	1.2	6044	5140	5302	4327	18.9	16.3	21	1	1	25.8	22.6	22	2	1
Lone Oak Rd(E)	1	rnd_85941	843	592	0.3		28.3	28.9	6.2	69.6	69.7	14.9	12.9	31.7	15.8	13.7	32.5	1.2	5345	6188	4834	5426	20.4	17.5	18	2	1	27.4	23.8	19	3	1
Lone Oak Rd(X)	1	rnd_85937	692	682	0.0	0.00	28.9	28.2	1.7	71.2	71.5	15.6	13.5	32.3	16.5	14.3	33.1	1.2	6037	5345	5516	4834	20.4	17.5	18	2	1	27.4	23.8	19	3	1
I-35E CD SB(E)	1	rnd_85935	2611	2383	0.1		28.9	28.8	6.7	71.2	71.5	16.0	14.4	33.2	16.9	15.1	34.0	1.2	3444	6055	3133	5516	21.8	18.8	19	2	1	28.8	25.1	20	3	1
Co Rd 60(E)	2	rnd_95043	261	257	0.0		67.6	31.0	1.0			0.9	0.9	0.8	1.8	1.7	1.6	1.2	2948	3209	2731	2988	3.3	2.9	2	0	1	9.9	8.9	3	1	2
Co Rd 60(X)	2	rnd_95047					81.9	30.9	0.3	79.0	78.7	1.2	1.0	0.9	2.1	1.7	1.7	1.2		2948		2731	3.3	2.9	2	0	1	9.9	8.9	3	1	2
Co Rd 50(E)	2	rnd_95218					75.3	32.3	1.7			2.1	1.8	1.7	3.0	2.6	2.5	1.2	3949		3514		5.5	4.6	6	0	1	12.2	10.6	7	1	2
Co Rd 50(X)	2	rnd_88723	977	816	-0.2		83.4	32.3	0.5			2.4	1.8	1.7	3.2	2.6	2.5	1.2	4926	3949	4330	3514	5.5	4.6	6	0	1	12.2	10.6	7	1	2
Co Rd 46(E)	2	rnd_88721	240	354	-0.5		79.2	33.5	2.3			3.5	2.9	2.6	4.3	3.7	3.4	1.2	4686	4926	3976	4330	7.6	5.9	7	0	2	14.2	11.9	8	1	3
Co Rd 46(X)	2	rnd_88717	1438	1358	-0.1		84.3	33.5	0.6	69.8	73.7	3.7	2.9	2.6	4.5	3.7	3.4	1.2	6124	4686	5334	3976	7.6	5.9	7	0	2	14.2	11.9	8	1	3
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

Site 13: T.H.100 NB, Apr – Aug 2015 (3 to 2)

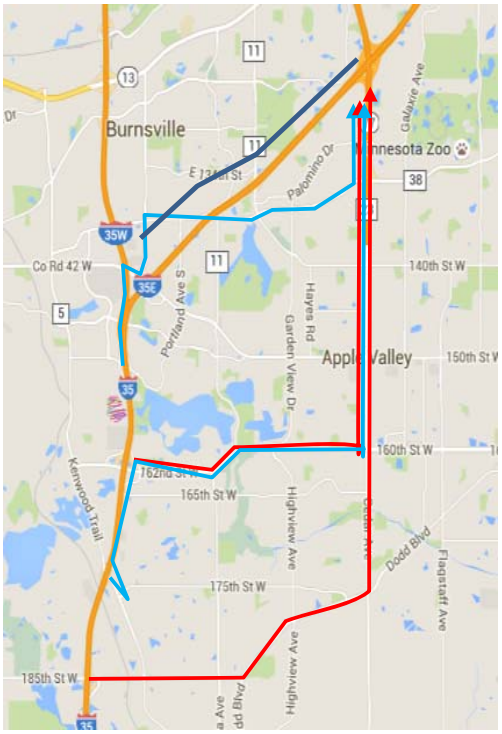
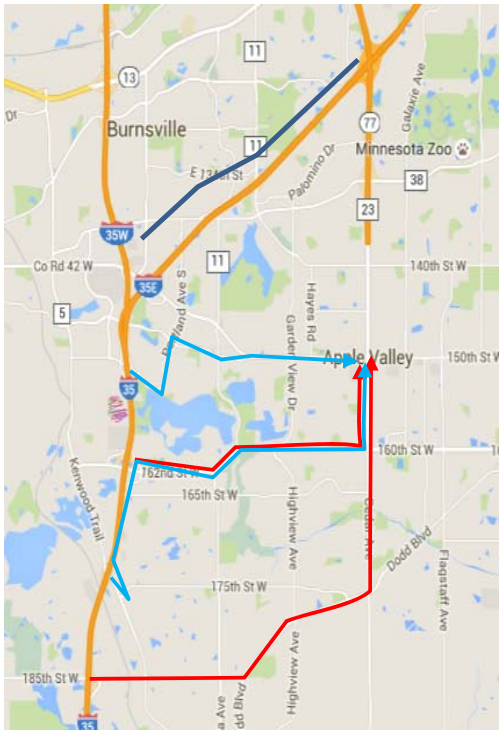
Name	Phase	RNodeName	Vb	Vd	Re	Rx	Uavg	Tf+Tae	Tasi/Tasm	Ub	Ud	Lws	Twsb	Twsd	Lwe	Tweb	Twed	Lw	Vib	Vob	Vid	Vod	Tas	Las	Nsis	Nstops	Nras	Tae	Lae	Nsie	Nstope	Nrae
T.H.7(X)	1	rnd_90725	245					28.0	1.0	21.3		0.2			0.9	1.6	1.1	1.3	4456	4211			1.5	1.0	3	1	0	7.8	4.6	3	1	0
T.H.100 CD NB(E)	1	rnd_90721	885	1082	-0.2		14.6	27.8	1.9	21.3		0.4	2.2	1.6	1.1	3.9	2.7	1.3	3603	4488	2736	3818	2.9	1.5	3	1	0	9.1	5.1	3	1	0
T.H.100 CD NB(X)	1	rnd_90707	496	479	0.0	-0.01	7.2	22.0	1.9	22.7	8.5	0.9	3.4	7.3	1.6	5.0	8.5	1.3	4099	3603	3215	2736	2.9	1.5	3	1	0	9.1	5.1	3	1	0
Excelsior Blvd(X)	1	rnd_85387	663	617	-0.1	-0.01	9.1	23.1	2.6	31.2	14.7	1.1	3.4	7.3	1.8	5.0	8.5	1.3	4764	4101	3832	3215	3.9	2.2	9	1	0	10.2	5.7	9	1	0
50th St WB(E)	1	rnd_85383	353	246	0.3		9.5	20.5	5.2	27.1	16.5	2.1	6.4	13.1	2.8	8.1	14.2	1.3	4423	4776	3581	3827	7.8	4.1	10	0	0	13.4	9.6	10	0	0
50th St EB(E)	1	rnd_85381	376	318	0.2		10.4	20.5	5.2	27.1	16.5	2.3	6.4	13.1	3.0	8.1	14.2	1.3	4047	4423	3264	3581	7.8	4.1	10	0	0	13.4	9.6	10	0	0
Eden Ave(X)	1	rnd_85377	630	710	0.1	0.02	11.0	20.5	5.2	34.5	12.9	2.4	6.4	13.1	3.1	8.1	14.2	1.3	4739	4109	4002	3293	7.8	4.1	10	0	0	13.4	9.6	10	0	0
Benton Ave(E)	1	rnd_85373	214	137	0.4		10.9	17.8	6.5	40.4	18.7	3.2	8.7	17.4	3.9	10.3	18.5	1.3	4661	4876	3877	4014	9.8	5.1	11	4	0	15.1	10.4	11	4	0
T.H.62 WB(E)	1	rnd_85369	967	738	0.2		12.2	15.2	4.0	41.1	19.0	3.6	8.7	17.4	4.3	10.3	18.5	1.3	3720	4687	3180	3917	6.0	5.5	0	0	0	12.4	11.4	0	0	0
T.H.62 WB(X)	1	rnd_85367	451	665	0.5	0.06	11.5	13.0	4.0	41.1	19.0	3.8	9.5	19.6	4.5	11.1	20.7	1.3	4171	3720	3845	3180	6.0	5.5	0	0	0	12.4	11.4	0	0	0
T.H.62 EB(E)	1	rnd_85365	381	299	0.2		11.5	13.0	4.0	41.1	19.0	3.8	9.5	19.6	4.5	11.1	20.7	1.3	3790	4171	3546	3845	6.0	5.5	0	0	0	12.4	11.4	0	0	0
T.H.62 EB(X)	1	rnd_85361	560	654	0.2	0.03	12.5	17.3	6.5	53.5	52.0	4.0	9.9	19.1	4.7	11.5	20.1	1.3	4350	3790	4199	3546	9.9	5.8	0	0	0	16.2	9.4	0	0	0
70th St(E)	1	rnd_85357	710	690	0.0		13.2	17.8	8.2	58.3	59.6	4.3	10.4	19.5	5.0	12.1	20.6	1.3	3681	4391	3530	4220	12.4	6.6	20	0	1	17.2	14.2	20	0	1
70th St(X)	1	rnd_85353	296	336	0.1	0.01	14.4	17.8	8.2	63.0	63.8	4.7	10.4	19.5	5.4	12.1	20.6	1.3	3977	3681	3866	3530	12.4	6.6	20	0	1	17.2	14.2	20	0	1
77th St(E)	1	rnd_85351	1321	1305	0.0		15.2	16.4	6.6	63.0	63.8	5.1	11.2	20.2	5.8	12.9	21.3	1.3	2741	4062	2669	3974	10.0	7.3	5	0	1	16.4	13.2	5	0	1
77th St(X)	1	rnd_85347	194	211	0.1	0.01	15.8	16.4	6.6	64.9	66.3	5.3	11.2	20.2	6.0	12.9	21.3	1.3	2935	2741	2879	2669	10.0	7.3	5	0	1	16.4	13.2	5	0	1
I-494 WB(E)	1	rnd_90930	1329	1373	0.0		16.7	14.3	5.2	64.9	66.3	5.6	11.2	20.2	6.3	12.9	21.3	1.3	1606	2935	1506	2879	7.9	7.4	0	0	0	14.3	13.3	0	0	0
I-494 WB(X)	1	rnd_90932	654	588	-0.1	-0.04	16.9	14.3	5.2	64.9	66.3	5.7	11.2	20.2	6.4	12.9	21.3	1.3	2260	1606	2094	1506	7.9	7.4	0	0	0	14.3	13.3	0	0	0
I-494 EB(E)	1	rnd_90928	215	176	0.2		16.9	14.3	5.2	64.9	66.3	5.7	11.2	20.2	6.4	12.9	21.3	1.3	2045	2260	1918	2094	7.9	7.4	0	0	0	14.3	13.3	0	0	0
I-494 EB(X)	1	rnd_90934	291	323	0.1	0.02	17.1	17.5	8.4	64.9	66.3	5.8	11.2	20.2	6.5	12.9	21.3	1.3	2335	2045	2241	1918	12.7	7.8	0	0	0	17.5	15.4	0	0	0

T.H.7(X)	2	rnd_90725	241					25.5	1.0	24.9		0.2			0.9	1.6	1.1	1.3	4359	4117			1.5	1.0	3	1	0	7.8	4.6	3	1	0
T.H.100 CD NB(E)	2	rnd_90721	865	1045	-0.2		15.2	25.4	1.9	24.9		0.4	2.3	1.5	1.1	3.9	2.6	1.3	3519	4384	2862	3908	2.9	1.5	3	1	0	9.1	5.1	3	1	0
T.H.100 CD NB(X)	2	rnd_90707	506	529	0.0	0.01	7.8	20.1	1.9	23.6	9.1	0.9	3.6	6.8	1.6	5.2	8.0	1.3	4025	3519	3391	2862	2.9	1.5	3	1	0	9.1	5.1	3	1	0
Excelsior Blvd(X)	2	rnd_85387	636	659	0.0	0.01	9.7	21.1	2.6	31.8	15.3	1.1	3.6	6.8	1.8	5.2	8.0	1.3	4646	4010	4051	3391	3.9	2.2	9	1	0	10.2	5.7	9	1	0
50th St WB(E)	2	rnd_85383	373	237	0.4		10.5	19.2	5.2	26.7	18.5	2.1	7.0	11.9	2.8	8.7	13.0	1.3	4304	4677	3786	4023	7.8	4.1	10	0	0	13.4	9.6	10	0	0
50th St EB(E)	2	rnd_85381	382	282	0.3		11.4	19.2	5.2	26.7	18.5	2.3	7.0	11.9	3.0	8.7	13.0	1.3	3922	4304	3504	3786	7.8	4.1	10	0	0	13.4	9.6	10	0	0
Eden Ave(X)	2	rnd_85377	640	758	0.2	0.03	12.1	19.2	5.2	27.6	15.3	2.4	7.0	11.9	3.1	8.7	13.0	1.3	4615	3975	4259	3501	7.8	4.1	10	0	0	13.4	9.6	10	0	0
Benton Ave(E)	2	rnd_85373	200	150	0.2		12.3	17.3	6.5	34.3	20.8	3.2	9.7	15.5	3.9	11.3	16.6	1.3	4535	4735	4116	4267	9.8	5.1	11	4	0	15.1	10.4	11	4	0
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

APPENDIX C: Alternative Route Data for Work Zones

Site 1: I-35E, Jun-Jul 2013 (2 to 1)

NB

Exit	Entrance
	

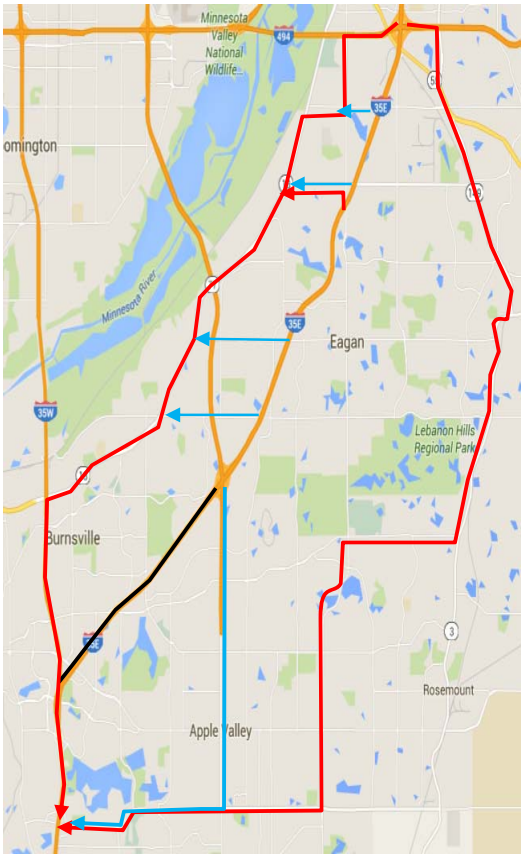
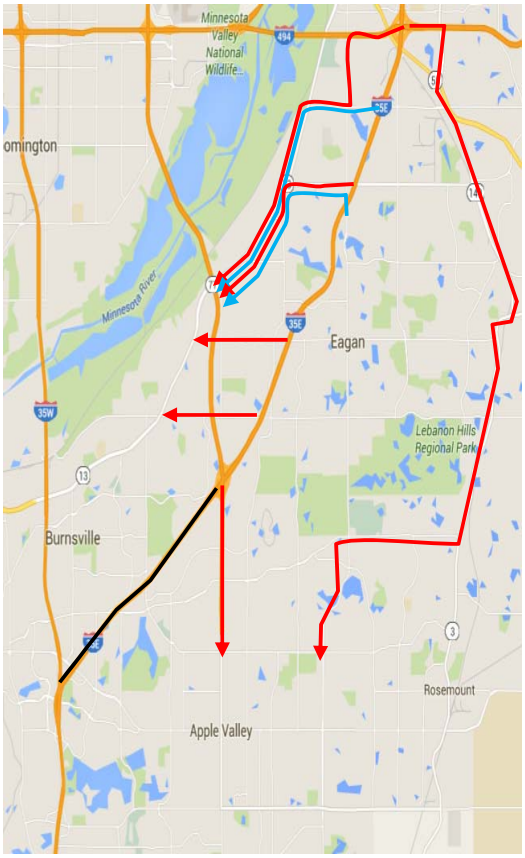
To Work Zone End Point

RampName	TT (min)	Length (mile)	Signalized Intersection#	Stop#	Roundabout#
Co Rd 60	11.627	9.78	14	1	1
Co Rd 50	11.366	9.1	14	0	1
Co Rd 46	8.959	7.48	11	0	0
Crystal Lake Rd	8.298	6.17	12	1	0

To Work Zone Start Point

RampName	TT (min)	Length (mile)	Signalized Intersection#	Stop#	Roundabout#
Co Rd 60	8.104	6.59	1	10	1
Co Rd 50	7.843	5.91	0	10	1
Co Rd 46	5.436	4.29	0	7	0
Crystal Lake Rd	5.732	3.36	1	4	0

SB

Exit	Entrance
	

To Work Zone End Point

RampName	TT (min)	Length (mile)	Signalized Intersection#	Stop#	Roundabout#
I-35E CD SB	8.791	7.48	11	0	0
Cliff Rd	9.202	8.73	11	0	0
Diffley Rd	10.478	9.81	11	0	1
Pilot Knob Rd	13.166	12.1	17	0	0
Yankee Doodle Rd	13.059	12.02	16	0	0
Lone Oak Rd	14.632	13.2	13	1	0
I-35E CD SB	16.029	14.52	14	1	0
I-494 EB	21.924	18.98	27	1	0
I-494 WB	16.029	14.52	14	1	0

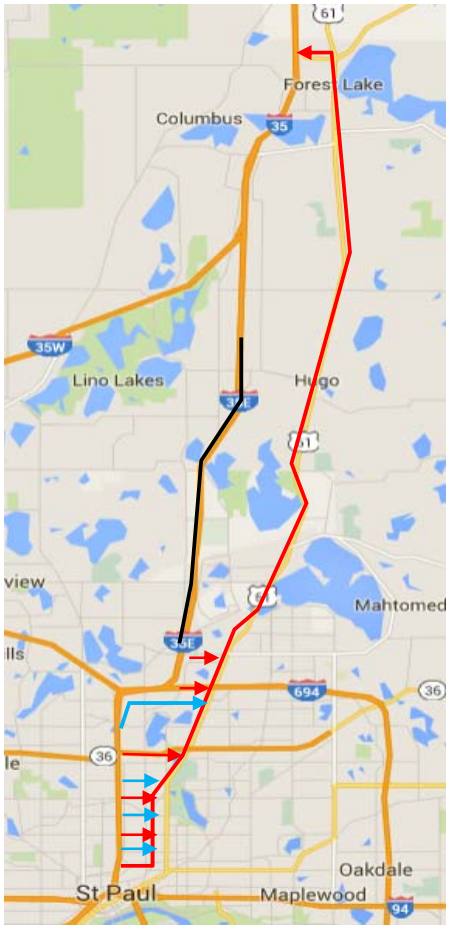
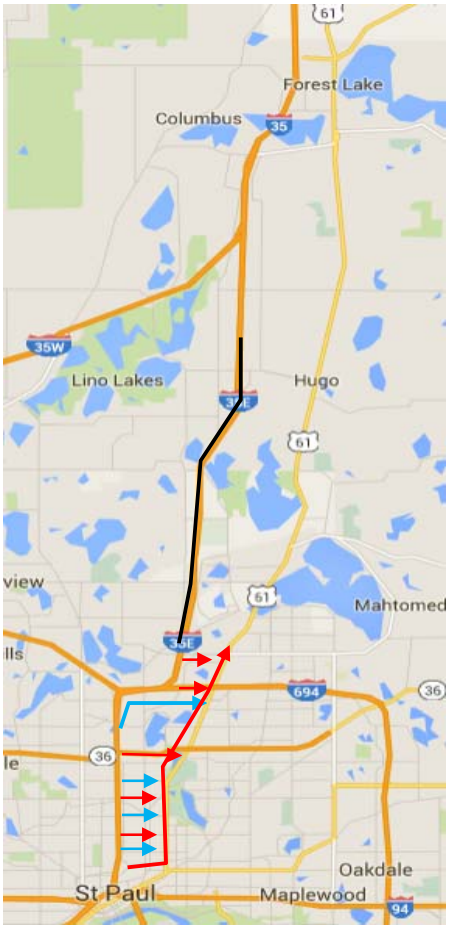
To Work Zone Start Point

RampName	TT (min)	Length (mile)	Signalized Intersection #	Stop#	Roundabout#
I-35E CD SB	2.022	2.19	1	0	0

Cliff Rd	2.693	2.02	6	0	0
Diffley Rd	2.493	1.87	4	0	1
Pilot Knob Rd	4.257	3.39	9	0	0
Yankee Doodle Rd	4.151	3.31	9	0	0
Lone Oak Rd	5.724	4.49	6	1	0
I-35E CD SB	13.12	11.68	15	1	0
I-494 EB	13.12	11.68	15	1	0
I-494 WB	7.121	5.81	6	1	0

Site 2: I-35E, Aug-Oct 2011 (2 to 1)

NB

Exit	Entrance
	

To Work Zone End Point

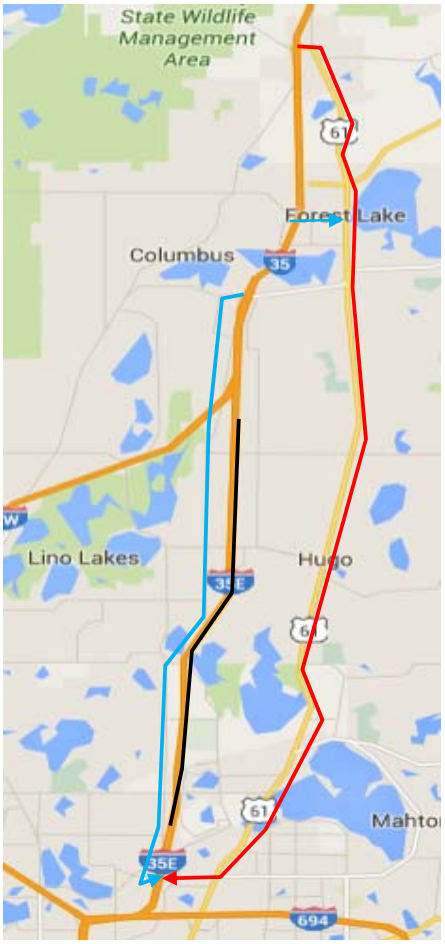
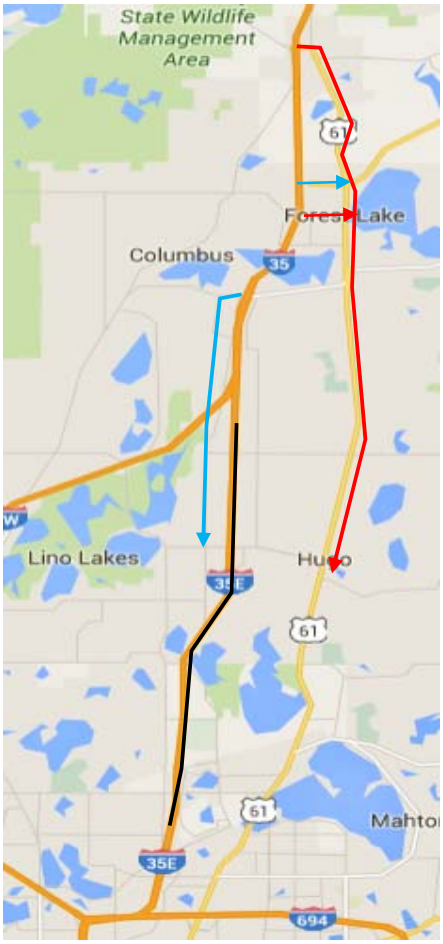
RampName	TT (min)	Length (mile)	Signalized Intersection #	Stop#	Roundabout#
Co Rd E	22.017	18.24	25	0	2
Co Rd E	22.017	18.24	25	0	2
I-694	22.643	19.05	25	0	2
Little Canada Rd	26.892	21.32	25	2	2
T.H.36	25.786	21.66	25	0	2
Roselawn Ave	27.493	22.14	28	1	2
Wheelock Pkwy	27.713	22.5	31	0	2
Maryland Ave	29.138	23.25	34	0	2
Pennsylvania Ave	30.929	24.26	37	0	2

To Work Zone Start Point

RampName	TT (min)	Length (mile)	Signalized Intersection#	Stop#	Roundabout#

Co Rd E	1.48	1.11	4	0	0
I-694	2.106	1.92	4	0	0
Little Canada Rd	6.356	4.19	7	2	0
T.H.36	5.249	4.53	7	0	0
Roselawn Ave	6.956	5.01	10	1	0
Wheelock Pkwy	7.177	5.37	13	0	0
Maryland Ave	8.601	6.12	16	0	0
Pennsylvania Ave	10.393	7.13	19	0	0

SB

Exit	Entrance
	

To Work Zone End Point

RampName	TT (min)	Length (mile)	Signalized Intersection #	Stop#	Roundabout#
Co Rd 21	21.16	17.86	14	3	0
Co Rd 23	18.833	14.95	6	4	0
Co Rd 2	22.017	18.24	27	0	2
U.S.8	22.885	18.97	23	0	2

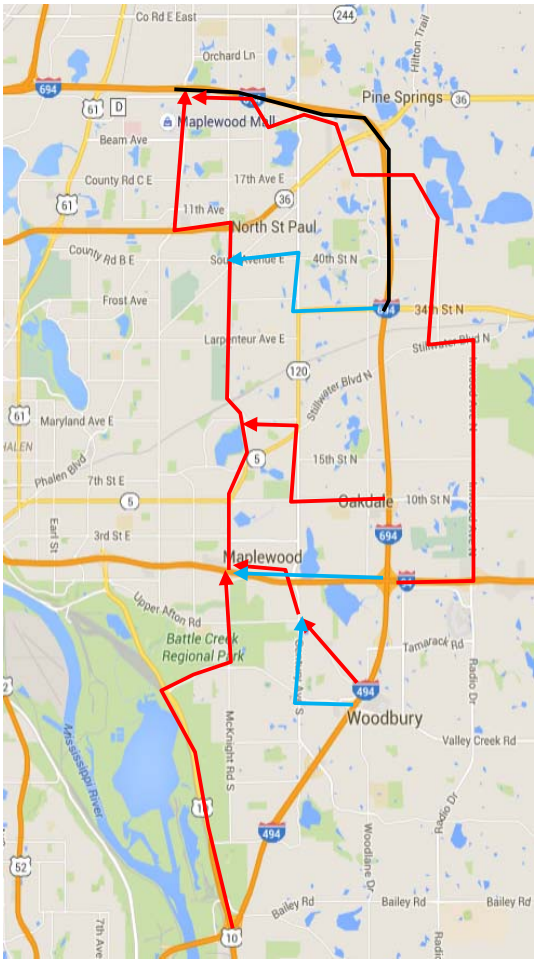
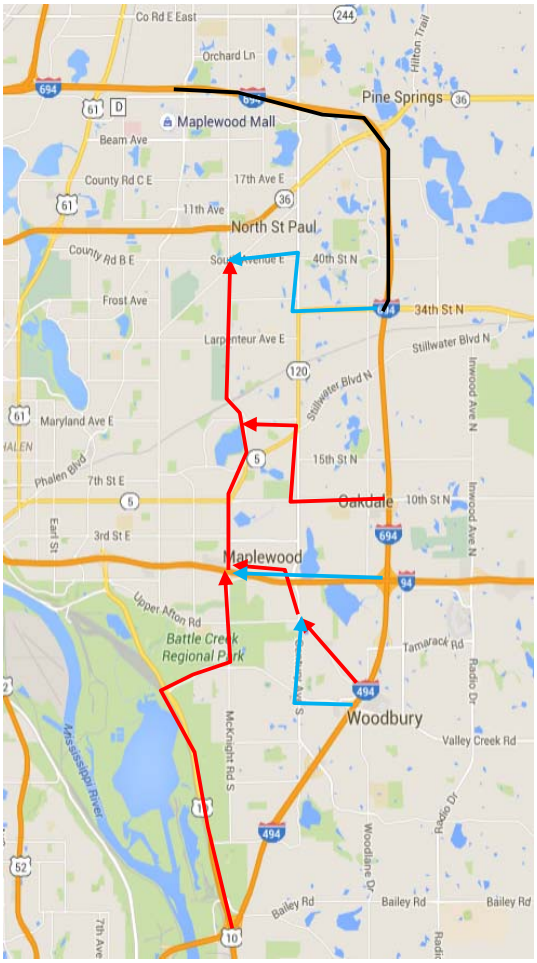
Co Rd 22	26.125	21.69	28	0	2

To Work Zone Start Point

RampName	TT (min)	Length (mile)	Signalized Intersection#	Stop#	Roundabout#
Co Rd 21	6.715	7.24	4	0	0
Co Rd 23	6.622	6.07	1	1	0
Co Rd 2	11.622	9.37	27	0	2
U.S.8	12.491	10.1	23	0	2
Co Rd 22	15.731	12.82	28	0	2

Site 3: I-694, Jun-Nov 2012 (2 to 1)

WB

Exit	Entrance
	

To Work Zone End Point

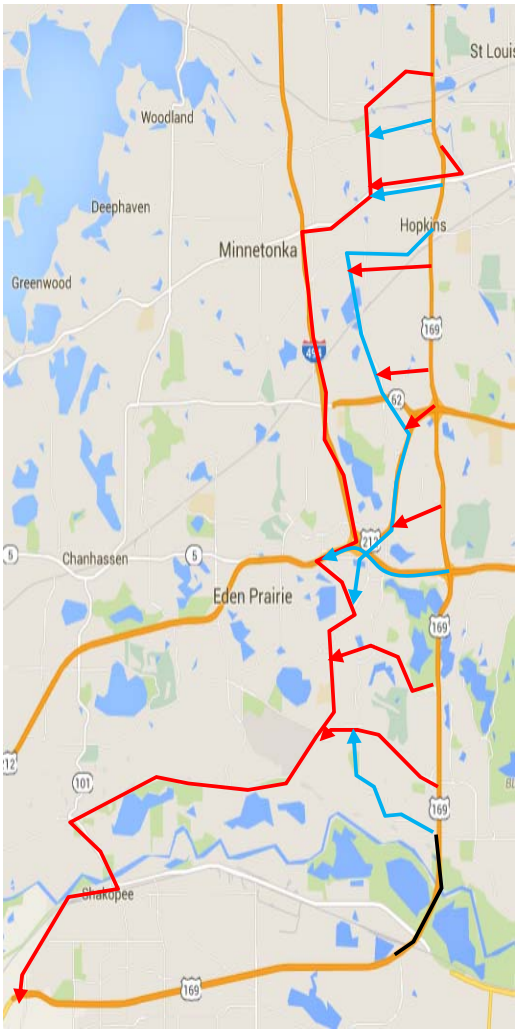
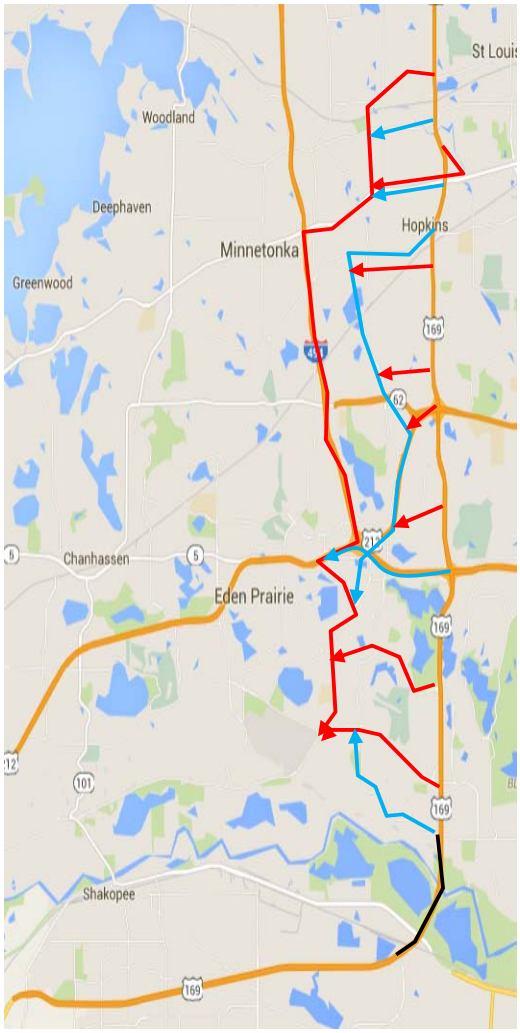
RampName	TT (min)	Length (mile)	Signalized Intersection #	Stop#	Roundabout#
T.H.5	8.507	5.83	17	3	0
10th St	11.997	7.96	23	0	0
E Jct I-94 CD WB	12.691	9.21	20	0	0
E Jct I-94 EB (E)	12.691	9.21	20	0	0
E Jct I-94 EB (X)	14.91	10.57	9	5	0
Tamarack Rd	15.243	10.22	26	1	0
Valley Creek Rd	14.239	10.09	26	0	0
Lake Rd	14.653	10.21	27	0	0
Bailey Rd	16.632	12.06	26	1	0
T.H.61 NB	16.72	12.14	23	1	0

To Work Zone Start Point

RampName	TT (min)	Length (mile)	Signalized Intersection#	Stop#	Roundabout#
T.H.5	4.265	2.84	5	3	0
10th St	7.756	4.97	11	0	0
E Jct I-94 CD WB	8.45	6.22	8	0	0
E Jct I-94 EB	8.45	6.22	8	0	0
E Jct I-94 EB	11.094	8.76	10	4	0
Tamarack Rd	11.002	7.23	14	1	0
Valley Creek Rd	9.997	7.1	14	0	0
Lake Rd	10.411	7.22	15	0	0
Bailey Rd	12.391	9.07	14	1	0
T.H.61 NB	12.478	9.15	11	1	0

Site 4: U.S.169, Jun-Aug 2013 (2 to 1)

SB

Exit	Entrance
	

To Work Zone End Point

RampName	TT (min)	Length (mile)	Signalized Intersection #	Stop#	Roundabout#
Old Shakopee Rd	15.1	11.37	5	1	0
Pioneer Trail	12.654	10.71	9	0	0
Anderson Lakes Pkwy	15.003	11.49	8	0	0
Marth Rd	14.728	12.23	9	0	2
I-494	14.959	13.43	13	0	0
W 78th St	15.324	12.46	13	0	1
Valley View Rd	15.149	12.37	17	0	0
T.H.62	15.02	13.29	14	0	0
Bren Rd	18.204	14.85	21	1	0
Lincoln Dr	20.477	16.34	23	4	0

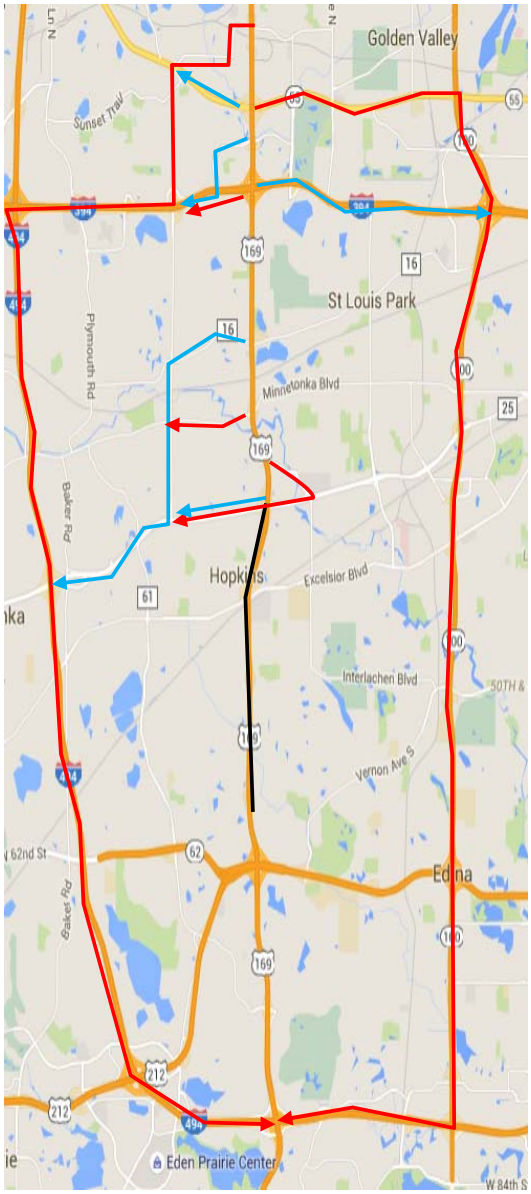
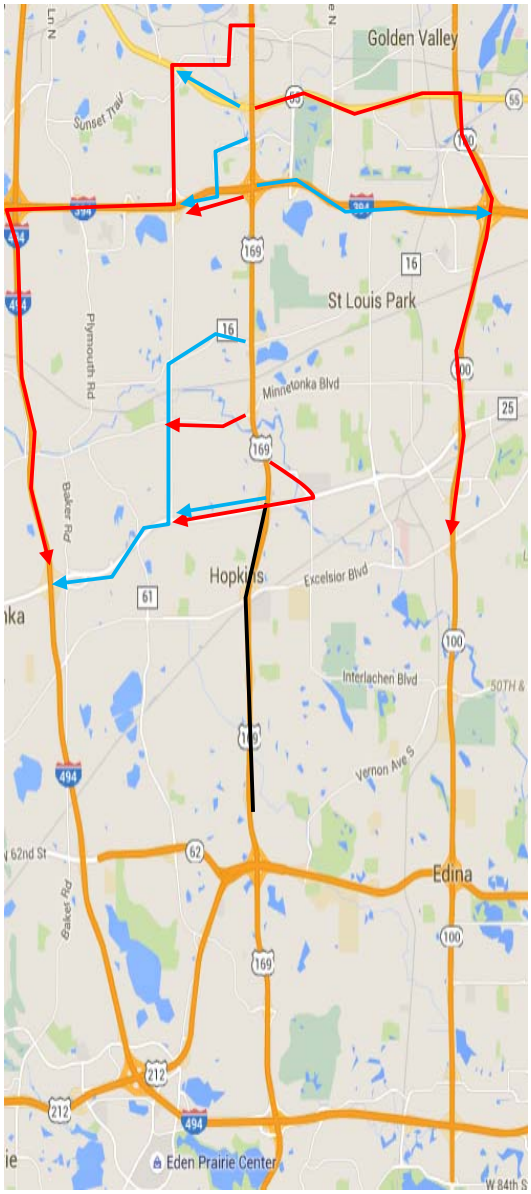
Excelsior Blvd	19.809	16.5	26	1	0
T.H.7	20.704	18.69	18	0	0
36th St	22.764	19.9	22	1	0
Minnetonka Blvd	22.058	19.34	18	0	0
Cedar Lake Rd	23.005	19.83	22	0	0

To Work Zone Start Point

RampName	TT (min)	Length (mile)	Signalized Intersection#	Stop#	Roundabout#
Old Shakopee Rd	5.753	3.14	0	1	0
Pioneer Trail	3.307	2.48	4	0	0
Anderson Lakes Pkwy	5.656	3.26	3	0	0
Marth Rd	5.381	4	4	0	2
I-494 EB	5.612	5.2	8	0	0
W 78th St	5.977	4.23	8	0	1
Valley View Rd	5.802	4.14	12	0	0
T.H.62 WB	5.673	5.06	9	0	0
Bren Rd	8.857	6.62	16	1	0
Lincoln Dr	11.13	8.11	18	4	0
Excelsior Blvd	10.462	8.27	21	1	0
T.H.7	11.357	10.46	13	0	0
36th St	13.417	11.67	17	1	0
Minnetonka Blvd	12.711	11.11	13	0	0
Cedar Lake Rd	13.658	11.6	17	0	0

Site 9: U.S.169 Jun 2013 (2 to 1)

SB

Exit	Entrance
	

Work Zone End Point

RampName	TT (min)	Length (mile)	Signalized Intersection #	Stop#	Roundabout#
Excelsior Blvd	7.885	6.43	9	0	0
T.H.7	8.787	8.87	10	0	0
36th St	10.713	10.01	14	1	0
Minnetonka Blvd	10.17	9.54	10	0	0
Cedar Lake Rd	11.087	10.01	14	0	0

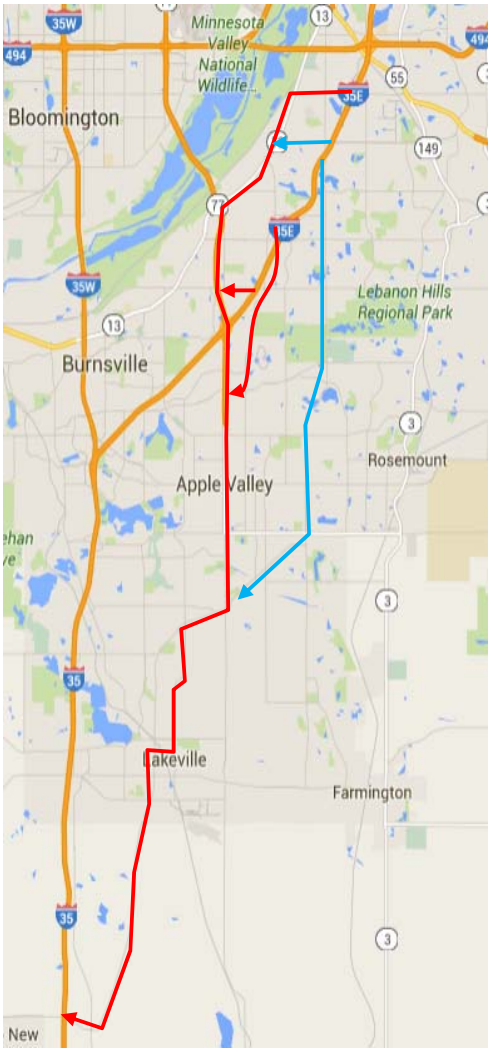
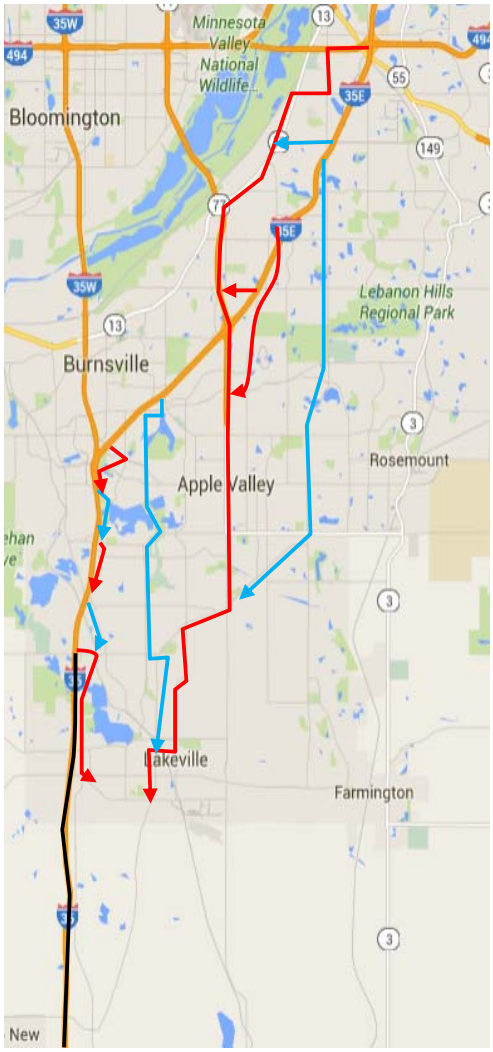
I-394	10.493	12.2	13	0	0
I-394 EB(X)	13.41	12.87	13	0	0
Betty Crocker Dr	11.795	12.31	16	1	0
T.H.55 EB(E)	12.603	13.88	14	0	0
T.H.55 EB(X)	14.099	13.52	14	0	0
T.H.55 WB	12.688	13.38	14	0	0
Plymouth Ave	13.122	13.38	17	2	0

To Work Zone Start Point

RampName	TT (min)	Length (mile)	Signalized Intersection#	Stop#	Roundabout#
Excelsior Blvd	1.89	1.26	4	0	0
T.H.7	3.72	2.79	5	0	0
36th St	5.647	3.93	9	1	0
Minnetonka Blvd	5.103	3.46	5	0	0
Cedar Lake Rd	6.02	3.93	9	0	0
I-394	5.426	6.12	8	0	0
I-394 EB(X)	6.588	5.77	8	0	0
Betty Crocker Dr	6.729	6.23	11	1	0
T.H.55 EB(E)	7.277	6.42	9	0	0
T.H.55 EB(X)	9.144	8.87	9	0	0
T.H.55 WB	7.622	7.3	9	0	0
Plymouth Ave	8.055	7.3	12	2	0

Site 12: I-35, Jul 2013 – Oct 2013 (2 to 1)

SB

Exit	Entrance
	

Work Zone End Point

RampName	TT (min)	Length (mile)	Signalized Intersection #	Stop#	Roundabout#
Co Rd 60	9.94	8.86	3	1	2
Co Rd 50	12.194	10.55	7	1	2
Co Rd 46	14.227	11.89	8	1	3
Crystal Lake Rd	15.89	12.92	9	2	3
Co Rd 42	17.635	14.14	12	2	3
Co Rd 11	19.708	15.16	13	5	0
I-35E CD SB	18.847	16.69	13	2	1
Cliff Rd	20.934	18.52	17	2	1
Diffley Rd	22.869	19.37	16	2	1

Pilot Knob Rd	25.262	21.42	22	2	1
Yankee Doodle Rd	25.789	22.58	22	2	1
Lone Oak Rd	27.362	23.76	19	3	1
I-35E CD SB	28.759	25.08	20	3	1

To Work Zone Start Point

RampName	TT (min)	Length (mile)	Signalized Intersection#	Stop#	Roundabout#
Co Rd 60	3.28	2.87	2	0	1
Co Rd 50	5.533	4.56	6	0	1
Co Rd 46	7.566	5.9	7	0	2
Crystal Lake Rd	9.23	6.93	8	1	2
Co Rd 42	10.975	8.15	11	1	3
Co Rd 11	12.792	8.87	12	4	0
I-35E CD SB	11.931	10.4	12	1	1
Cliff Rd	14.019	12.23	16	1	1
Diffley Rd	15.954	13.08	15	1	1
Pilot Knob Rd	18.347	15.13	21	1	1
Yankee Doodle Rd	18.874	16.29	21	1	1
Lone Oak Rd	20.447	17.47	18	2	1
I-35E CD SB	21.844	18.79	19	2	1

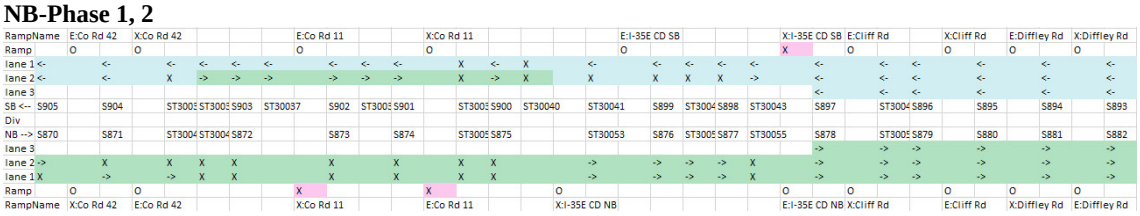
Appendix D: Phase Identification for Diversion Analysis

Site 1: I-35E, Jun-Jul 2013 (2 to 1)

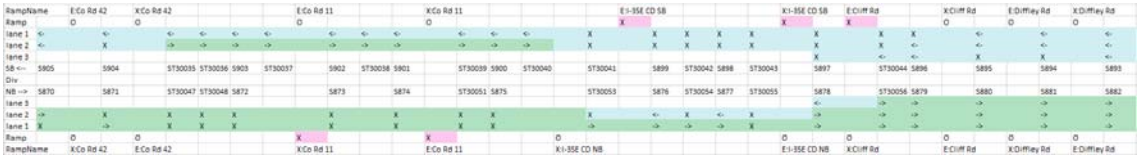
NB Phases

Phase	StartDate	EndDate	LaneCloseSection	MmedianType	ShoulderType
1	6/18/2013	6/20/2013	S870-S875	tube delineator	open
2	6/25/2013	6/27/2013	S870-S875	tube delineator	open
3	7/2/2013	7/3/2013	S870-S878	tube delineator	open
4	7/9/2013	7/11/2013	S870-S878	tube delineator	open
5	7/16/2013	7/23/2013	S870-S875	tube delineator	open
6	7/24/2013	7/30/2013	S870-S878	tube delineator	open

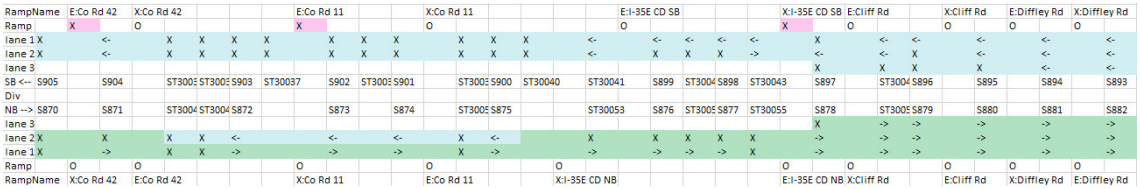
NB-Phase 1, 2



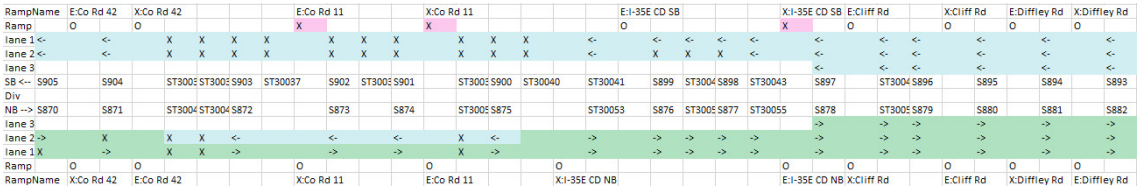
NB-Phase 3



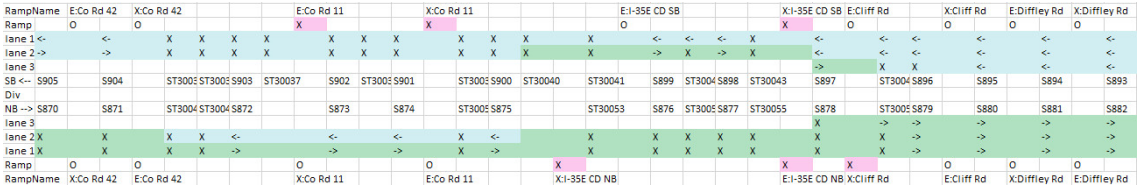
NB-Phase 4



NB-Phase 5



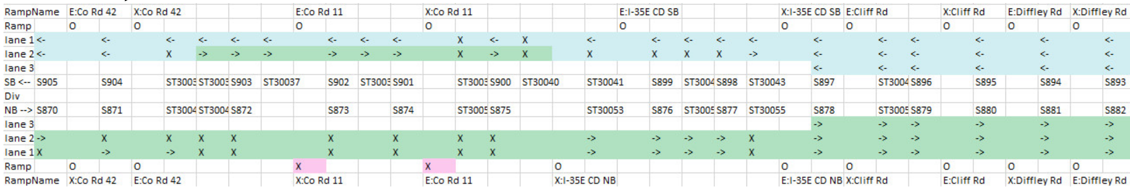
NB-Phase 6



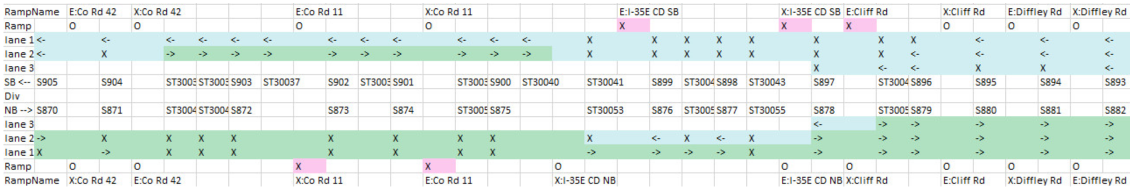
SB Phases

Phase	StartDate	EndDate	LaneCloseSection	MedianType	ShoulderType
1	6/18/2013	6/20/2013	S898-S903	tube delineator	open
2	6/25/2013	6/27/2013	S898-S903	tube delineator	open
3	7/2/2013	7/3/2013	S894-S904	tube delineator	open
4	7/9/2013	7/11/2013	S898-S903	tube delineator	open
5	7/16/2013	7/23/2013	S898-S903	tube delineator	open
6	7/24/2013	7/30/2013	S896-S903	tube delineator	open

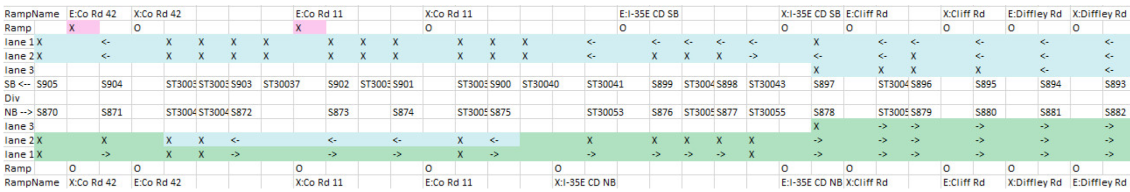
SB-Phase 1, 2



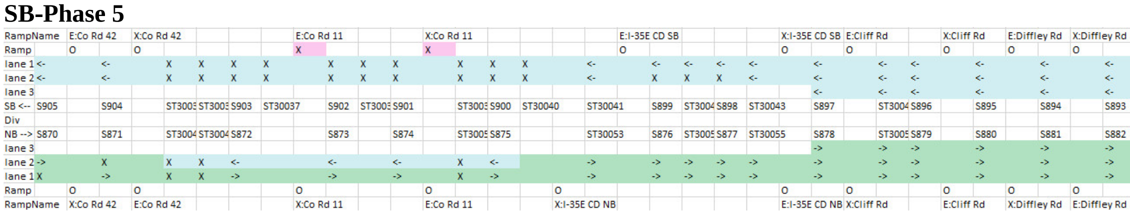
SB-Phase 3



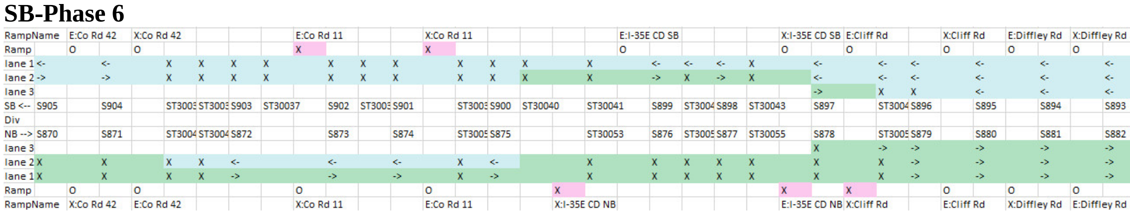
SB-Phase 4



SB-Phase 5



SB-Phase 6



Site 2: I-35E, Aug-Oct 2011 (2 to 1)

NB Phases

Phase	StartDate	EndDate	LaneCloseSection	MedianType	ShoulderType
1	8/2/2011	8/4/2011	S1488-S1502	tube delineator	open
2	8/9/2011	8/11/2011	S1488-S1502	tube delineator	open
3	8/16/2011	8/23/2011	S1488-S1502	tube delineator	open
4	8/24/2011	8/31/2011	S1486-S1502	tube delineator	open
5	9/1/2011	9/8/2011	S1486-S1502	tube delineator	open
6	9/13/2011	9/15/2011	S1488-S1502	tube delineator	open
7	9/20/2011	9/22/2011	S1488-S1502	tube delineator	open
8	9/27/2011	9/29/2011	S1488-S1502	tube delineator	open
9	10/4/2011	10/4/2011	S1489-S1489;S1493-S1499	-	open
10	10/5/2011	10/6/2011	S1497-S1498	-	open
11	10/11/2011	10/13/2011	S1497-S1498	-	open

NB-Phase 1, 2, 3

RampName	X:Co Rd E				E:Co Rd 96		X:Co Rd 96						E:Co Rd J						E:Co Rd 14		X:Co Rd 14			
Ramp	O				O		O						O						X		O			
lane 1	<-		<-	<-	<-		X		X	X	X	X	X		X	X	X	X	X		X		X	X	<-
lane 2	<-		<-	<-	<-		<-		X	X	X	X	X		X	X	X	X	X		X		X	X	X
lane 3	<-																								
SB <--	S1462		S1549	S1548	S1547		S1546		S1545	S1544	S1543	S1542	S1541		S1540	S1539	S1538	S1537	S1536		S1535		S1534	S1532	S1531
Div																									
NB -->	S1449		S1485	S1486	S1487		S1488		S1489	S1490	S1491	S1492	S1493		S1494	S1495	S1496	S1497	S1498		S1499		S1500	S1502	S1503
lane 3	->																								
lane 2	->		->	->	->		->		X	<-	<-	<-	<-		<-	<-	<-	<-	<-		<-		X	<-	->
lane 1	->		->	->	->		->		->	->	->	->	->		->	->	->	->	->		->		X	->	->
Ramp	O				O		O						O						O		O			
RampName	E:Co Rd E				X:Co Rd 96		E:Co Rd 96						X:Co Rd J						X:Co Rd 14		E:Co Rd 14			

NB-Phase 4, 5

RampName	X:Co Rd E				E:Co Rd 96		X:Co Rd 96						E:Co Rd J						E:Co Rd 14		X:Co Rd 14			
Ramp	O				X		X						O						X		O			
lane 1	<-		<-	<-	X		X		X	X	X	X	X		X	X	X	X	X		X		X	X	<-
lane 2	<-		<-	<-	X		X		X	X	X	X	X		X	X	X	X	X		X		X	X	X
lane 3	<-																								
SB <--	S1462		S1549	S1548	S1547		S1546		S1545	S1544	S1543	S1542	S1541		S1540	S1539	S1538	S1537	S1536		S1535		S1534	S1532	S1531
Div																									
NB -->	S1449		S1485	S1486	S1487		S1488		S1489	S1490	S1491	S1492	S1493		S1494	S1495	S1496	S1497	S1498		S1499		S1500	S1502	S1503
lane 3	->																								
lane 2	->		->	->	X		<-		<-	<-	<-	<-	<-		<-	<-	<-	<-	<-		<-		X	<-	->
lane 1	X		->	->	->		->		->	->	->	->	->		->	->	->	->	->		->		X	->	->
Ramp	O				O		O						O						O		O			
RampName	E:Co Rd E				X:Co Rd 96		E:Co Rd 96						X:Co Rd J						X:Co Rd 14		E:Co Rd 14			

NB-Phase 6, 7, 8

RampName	X:Co Rd E				E:Co Rd 96		X:Co Rd 96						E:Co Rd J						E:Co Rd 14		X:Co Rd 14			
Ramp	O				O		O						X						O		X			
lane 1	<-		<-	<-	<-		X		X	X	X	X	X		X	X	X	X	X		X		X	X	<-
lane 2	<-		<-	<-	<-		X		X	X	X	X	X		X	X	X	X	X		X		X	X	X
lane 3	<-																								
SB <--	S1462		S1549	S1548	S1547		S1546		S1545	S1544	S1543	S1542	S1541		S1540	S1539	S1538	S1537	S1536		S1535		S1534	S1532	S1531
Div																									
NB -->	S1449		S1485	S1486	S1487		S1488		S1489	S1490	S1491	S1492	S1493		S1494	S1495	S1496	S1497	S1498		S1499		S1500	S1502	S1503
lane 3	->																								
lane 2	->		->	->	->		<-		X	<-	<-	<-	<-		<-	<-	<-	<-	<-		<-		X	<-	->
lane 1	->		->	->	->		->		->	->	->	->	->		->	->	->	->	->		->		X	->	->
Ramp	O				O		O						O						O		O			
RampName	E:Co Rd E				X:Co Rd 96		E:Co Rd 96						X:Co Rd J						X:Co Rd 14		E:Co Rd 14			

NB-Phase 9

RampName	X:Co Rd E				E:Co Rd 96		X:Co Rd 96						E:Co Rd J						E:Co Rd 14		X:Co Rd 14			
Ramp	O				O		O						O						O		O			
lane 1	<-		<-	<-	<-	X		<-	<-	<-	<-	<-		<-	<-	<-	X	<-		<-		X	X	<-
lane 2	<-		<-	<-	<-	X		<-	<-	X	<-	<-		<-	X	<-	<-	<-		X		X	X	<-
lane 3	<-																							
SB <--	S1462		S1549	S1548	S1547		S1546		S1545	S1544	S1543	S1542	S1541		S1540	S1539	S1538	S1537	S1536		S1535		S1534	S1532	S1531
Div																								
NB -->	S1449		S1485	S1486	S1487		S1488		S1489	S1490	S1491	S1492	S1493		S1494	S1495	S1496	S1497	S1498		S1499		S1500	S1502	S1503
lane 3	->																							
lane 2	->		->	->	->		->		X	X	X	X	X		->	X	X	X	->		X		X	->	->
lane 1	->		->	->	->		->		->	X	X	->	->		X	->	->	->	X		->		X	->	->
Ramp		O				O		O						O						O		O			
RampName		E:Co Rd E				X:Co Rd 96		E:Co Rd 96						X:Co Rd J						X:Co Rd 14		E:Co Rd 14		

NB-Phase 10, 11

RampName	X:Co Rd E				E:Co Rd 96		X:Co Rd 96						E:Co Rd J						E:Co Rd 14		X:Co Rd 14			
Ramp	O				O		O						O						O		O			
lane 1	<-		<-	<-	<-	X		<-	<-	<-	<-	<-		<-	<-	<-	X	<-		<-		X	X	<-
lane 2	<-		<-	<-	<-	X		<-	<-	X	<-	<-		<-	X	<-	<-	<-		X		X	X	<-
lane 3	<-																							
SB <--	S1462		S1549	S1548	S1547		S1546		S1545	S1544	S1543	S1542	S1541		S1540	S1539	S1538	S1537	S1536		S1535		S1534	S1532	S1531
Div																								
NB -->	S1449		S1485	S1486	S1487		S1488		S1489	S1490	S1491	S1492	S1493		S1494	S1495	S1496	S1497	S1498		S1499		S1500	S1502	S1503
lane 3	->																							
lane 2	->		->	->	->		->		->	->	->	->	->		->	->	->	X	->		->		X	->	->
lane 1	->		->	->	->		->		->	->	->	->	->		->	->	->	->	X		->		X	->	->
Ramp		O				O		O						O						O		O			
RampName		E:Co Rd E				X:Co Rd 96		E:Co Rd 96						X:Co Rd J						X:Co Rd 14		E:Co Rd 14		

SB Phases

Phase	StartDate	EndDate	LaneCloseSection	MedianType	ShoulderType
1	8/2/2011	8/4/2011	S1532-S1546	tube delineator	open
2	8/9/2011	8/11/2011	S1532-S1546	tube delineator	open
3	8/16/2011	8/23/2011	S1532-S1546	tube delineator	open
4	8/24/2011	8/31/2011	S1532-S1547	tube delineator	open
5	9/1/2011	9/8/2011	S1532-S1547	tube delineator	open
6	9/13/2011	9/15/2011	S1532-S1546	tube delineator	open
7	9/20/2011	9/22/2011	S1532-S1546	tube delineator	open
8	9/27/2011	9/29/2011	S1532-S1546	tube delineator	open
9	10/4/2011	10/6/2011	S1532-S1535	-	open
10	10/11/2011	10/13/2011	S1532-S1535	-	open

SB-Phase 1-3

RampName	X:Co Rd E				E:Co Rd 96		X:Co Rd 96						E:Co Rd J						E:Co Rd 14		X:Co Rd 14			
Ramp	O				O		O						O						X		O			
lane 1	<-		<-	<-	<-	X		X	X	X	X	X		X	X	X	X	X		X		X	X	<-
lane 2	<-		<-	<-	<-	<-		X	X	X	X	X		X	X	X	X	X		X		X	X	X
lane 3	<-																							
SB <--	S1462		S1549	S1548	S1547		S1546		S1545	S1544	S1543	S1542	S1541		S1540	S1539	S1538	S1537	S1536		S1535		S1534	S1532	S1531
Div																								
NB -->	S1449		S1485	S1486	S1487		S1488		S1489	S1490	S1491	S1492	S1493		S1494	S1495	S1496	S1497	S1498		S1499		S1500	S1502	S1503
lane 3	->																							
lane 2	->		->	->	->		->		X	<-	<-	<-	<-		<-	<-	<-	<-	<-		<-		X	<-	->
lane 1	->		->	->	->		->		->	->	->	->	->		->	->	->	->	->		->		X	->	->
Ramp		O				O		O						O						O		O			
RampName		E:Co Rd E				X:Co Rd 96		E:Co Rd 96						X:Co Rd J						X:Co Rd 14		E:Co Rd 14		

SB-Phase 4, 5

RampName	X:Co Rd E				E:Co Rd 96		X:Co Rd 96					E:Co Rd J					E:Co Rd 14		X:Co Rd 14		
Ramp	O				X		X					O					O		O		
lane 1	<-		<-	<-	X		X		X	X	X	X	X		X	X	X	X		X		X	X	<-
lane 2	<-		<-	<-	X		X		X	X	X	X	X		X	X	X	X	X		X		X	X	X
lane 3	<-																							
SB <--	S1462		S1549	S1548	S1547		S1546		S1545	S1544	S1543	S1542	S1541		S1540	S1539	S1538	S1537	S1536		S1535		S1534	S1532	S1531
Div																									
NB -->	S1449		S1485	S1486	S1487		S1488		S1489	S1490	S1491	S1492	S1493		S1494	S1495	S1496	S1497	S1498		S1499		S1500	S1502	S1503
lane 3	->																								
lane 2	->		->	->	X		<-		<-	<-	<-	<-	<-		<-	<-	<-	<-	<-		<-		X	<-	->
lane 1	X		->	->	->		->		->	->	->	->	->		->	->	->	->	->		->		X	->	->
Ramp		O				O		O					O							O		O			
RampName		E:Co Rd E				X:Co Rd 96		E:Co Rd 96					X:Co Rd J							X:Co Rd 14		E:Co Rd 14			

SB-Phase 6- 8

RampName	X:Co Rd E				E:Co Rd 96		X:Co Rd 96					E:Co Rd J					E:Co Rd 14		X:Co Rd 14		
Ramp	O				O		O					X					O		O		
lane 1	<-		<-	<-	<-		X		X	X	X	X	X		X	X	X	X		X		X	X	<-
lane 2	<-		<-	<-	<-		X		X	X	X	X	X		X	X	X	X	X		X		X	X	X
lane 3	<-																							
SB <--	S1462		S1549	S1548	S1547		S1546		S1545	S1544	S1543	S1542	S1541		S1540	S1539	S1538	S1537	S1536		S1535		S1534	S1532	S1531
Div																									
NB -->	S1449		S1485	S1486	S1487		S1488		S1489	S1490	S1491	S1492	S1493		S1494	S1495	S1496	S1497	S1498		S1499		S1500	S1502	S1503
lane 3	->																								
lane 2	->		->	->	->		<-		X	<-	<-	<-	<-		<-	<-	<-	<-	<-		<-		X	<-	->
lane 1	->		->	->	->		->		->	->	->	->	->		->	->	->	->	->		->		X	->	->
Ramp		O				O		O					O							O		O			
RampName		E:Co Rd E				X:Co Rd 96		E:Co Rd 96					X:Co Rd J							X:Co Rd 14		E:Co Rd 14			

SB-Phase 9, 10

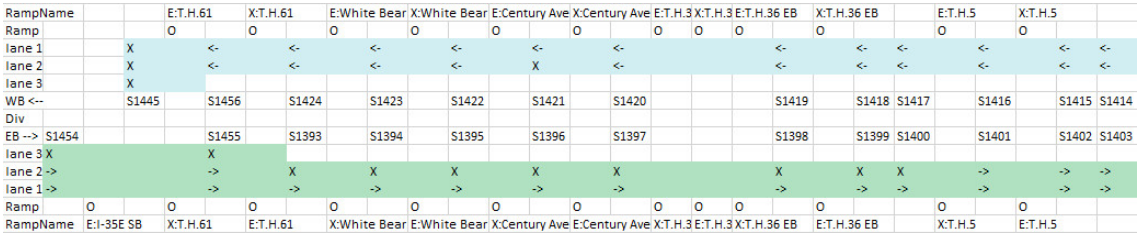
RampName	X:Co Rd E				E:Co Rd 96		X:Co Rd 96					E:Co Rd J					E:Co Rd 14		X:Co Rd 14		
Ramp	O				O		O					O					O		O		
lane 1	<-		<-	<-	<-		X		<-	<-	<-	<-	<-		<-	<-	<-	X		<-		X	X	<-
lane 2	<-		<-	<-	<-		X		<-	<-	X	<-	<-		<-	X	<-	<-	<-		X		X	X	<-
lane 3	<-																							
SB <--	S1462		S1549	S1548	S1547		S1546		S1545	S1544	S1543	S1542	S1541		S1540	S1539	S1538	S1537	S1536		S1535		S1534	S1532	S1531
Div																									
NB -->	S1449		S1485	S1486	S1487		S1488		S1489	S1490	S1491	S1492	S1493		S1494	S1495	S1496	S1497	S1498		S1499		S1500	S1502	S1503
lane 3	->																								
lane 2	->		->	->	->		->		X	X	X	X	X		->	X	X	X	->		X		X	->	->
lane 1	->		->	->	->		->		->	X	X	->	->		X	->	->	->	X		->		X	->	->
Ramp		O				O		O					O							O		O			
RampName		E:Co Rd E				X:Co Rd 96		E:Co Rd 96					X:Co Rd J							X:Co Rd 14		E:Co Rd 14			

Site 3: I-694, Jun-Nov 2012 (2 to 1)

WB Phases

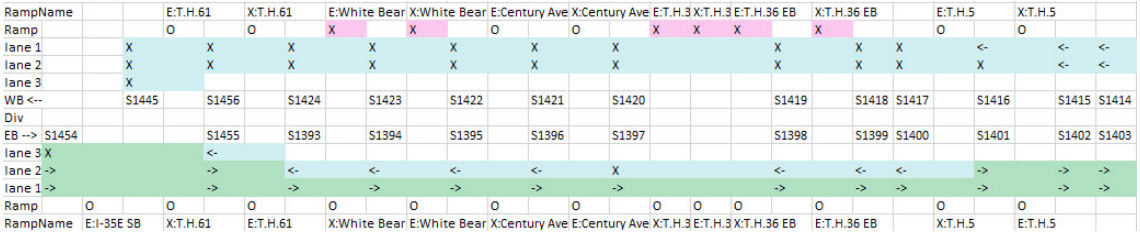
Phase	StartDate	EndDate	LaneCloseSection	MedianType
1	6/19/2012	6/26/2012	-	concrete barrier
2	6/27/2012	7/5/2012	S1417-S1456	concrete barrier
3	7/10/2012	7/12/2012	S1417-S1456	concrete barrier
4	7/17/2012	7/19/2012	S1417-S1456	concrete barrier
5	7/24/2012	7/31/2012	S1417-S1456	concrete barrier
6	8/1/2012	8/2/2012	S1417-S1456	concrete barrier
7	8/7/2012	8/9/2012	S1417-S1456	concrete barrier
8	8/14/2012	8/21/2012	S1417-S1456	concrete barrier
9	8/22/2012	8/23/2012	S1416-S1456	concrete barrier
10	8/28/2012	8/30/2012	S1416-S1445	concrete barrier
11	9/4/2012	9/6/2012	S1416-S1445	concrete barrier
12	9/11/2012	9/13/2012	S1416-S1445	concrete barrier
13	9/18/2012	9/20/2012	S1416-S1445	concrete barrier
14	9/25/2012	9/27/2012	S1416-S1445	concrete barrier
15	10/2/2012	10/4/2012	S1416-S1445	concrete barrier
16	10/9/2012	10/10/2012	S1416-S1445	concrete barrier
17	10/11/2012	10/18/2012	S1416-S1445	concrete barrier
18	10/23/2012	10/25/2012	S1416-S1445	concrete barrier
19	10/30/2012	10/31/2012	S1416-S1445	concrete barrier
20	11/1/2012	11/7/2012	S1416-S1445	concrete barrier

WB-Phase 1



RampName			E:T.H.61		X:T.H.61		E:White Bear		X:White Bear		E:Century Ave		X:Century Ave		E:T.H.3	X:T.H.3	E:T.H.36 EB		X:T.H.36 EB			E:T.H.5		X:T.H.5		
Ramp			O		O		O		O		O		O		O	O	O		O			O		O		
lane 1		X		<-		<-		<-		<-		<-		<-				<-		<-	<-		<-		<-	<-
lane 2		X		<-		<-		<-		<-	X		<-					<-		<-	<-		<-		<-	<-
lane 3		X																								
WB <--		S1445		S1456		S1424		S1423		S1422		S1421		S1420				S1419		S1418	S1417		S1416		S1415	S1414
Div																										
EB -->	S1454				S1455		S1393		S1394		S1395		S1396		S1397			S1398		S1399	S1400		S1401		S1402	S1403
lane 3	X				X																					
lane 2	->				->		X		X		X		X		X			X		X	X		->		->	->
lane 1	->				->		->		->		->		->		->			->		->	->		->		->	->
Ramp		O		O		O		O		O		O		O		O	O	O		O			O		O	
RampName		E:I-35E SB		X:T.H.61		E:T.H.61		X:White Bear		E:White Bear		X:Century Ave		E:Century Ave		X:T.H.3	E:T.H.3	X:T.H.36 EB		E:T.H.36 EB			X:T.H.5		E:T.H.5	

WB-Phase 2-7



RampName			E:T.H.61		X:T.H.61		E:White Bear		X:White Bear		E:Century Ave		X:Century Ave		E:T.H.3	X:T.H.3	E:T.H.36 EB		X:T.H.36 EB			E:T.H.5		X:T.H.5		
Ramp			O		O		X		X		O		O		X	X	X		X			O		O		
lane 1		X		X		X		X		X		X		X				X		X	X		<-		<-	<-
lane 2		X		X		X		X		X		X		X				X		X	X		X		<-	<-
lane 3		X																								
WB <--		S1445		S1456		S1424		S1423		S1422		S1421		S1420				S1419		S1418	S1417		S1416		S1415	S1414
Div																										
EB -->	S1454				S1455		S1393		S1394		S1395		S1396		S1397			S1398		S1399	S1400		S1401		S1402	S1403
lane 3	X				<-																					
lane 2	->				->		<-		<-		<-		<-		X			<-		<-	<-		->		->	->
lane 1	->				->		->		->		->		->		->			->		->	->		->		->	->
Ramp		O		O		O		O		O		O		O		O	O	O		O			O		O	
RampName		E:I-35E SB		X:T.H.61		E:T.H.61		X:White Bear		E:White Bear		X:Century Ave		E:Century Ave		X:T.H.3	E:T.H.3	X:T.H.36 EB		E:T.H.36 EB			X:T.H.5		E:T.H.5	

WB-Phase 8

RampName			E:T.H.61		X:T.H.61		E:White Bear		X:White Bear		E:Century Ave		X:Century Ave		E:T.H.3	X:T.H.3	E:T.H.36 EB		X:T.H.36 EB			E:T.H.5		X:T.H.5	
Ramp			O		X		X		X		X		X		O	X	X		X			O		O	
lane 1		X		X		X		X		X		X		X				X		X	<-		<-		<-	<-
lane 2		X		X		X		X		X		X		X				X		<-	X		X		<-	<-
lane 3		X																								
WB <--		S1445		S1456		S1424		S1423		S1422		S1421		S1420				S1419		S1418	S1417		S1416		S1415	S1414
Div																										
EB -->	S1454			S1455		S1393		S1394		S1395		S1396		S1397				S1398		S1399	S1400		S1401		S1402	S1403
lane 3	X			<-																						
lane 2	->			->		<-		<-		<-		<-		X				X		X	X		->		->	->
lane 1	->			->		->		->		->		->		X				->		->	->		->		->	->
Ramp		O		O		O		O		O		O		X	O	O		O		O			O		O	
RampName		E:I-35E SB		X:T.H.61		E:T.H.61		X:White Bear		E:White Bear		X:Century Ave		E:Century Ave		X:T.H.3	E:T.H.3	X:T.H.36 EB		E:T.H.36 EB			X:T.H.5		E:T.H.5	

WB-Phase 9

RampName			E:T.H.5		X:T.H.5			E:T.H.36 EB		X:T.H.3	E:T.H.3	X:T.H.36 WB		E:Century Av		X:Century Av		E:White Bear		X:White Bear		E:T.H.61		X:T.H.61		E:I-35E SB	
Ramp			O		O			X		X	X	X		O		X		O		O		O		O		O	
lane 1	<-	<-		<-		X	X		X				X		<-		<-		<-		<-						<-
lane 2	<-	<-		<-		X	X		X				X		->		->		->		->						<-
lane 3																							->				X
EB <--	S1403	S1402		S1401		S1400	S1399		S1398				S1397		S1396		S1395		S1394		S1393		S1455				S1454
Div																											
WB -->	S1414	S1415		S1416		S1417	S1418		S1419				S1420		S1421		S1422		S1423		S1424		S1456		S1445		
lane 3																									X		
lane 2	->	->		X		<-	<-		<-				<-		X		X		X		X		X		X		
lane 1	->	->		->		->	->		->				->		X		X		X		X		X		X		
Ramp			O		O			O		O	O	O		X		X		X		X		X		O			

WB-Phase 10-16

RampName			E:T.H.61		X:T.H.61		E:White Bear		X:White Bear		E:Century Ave		X:Century Ave		E:T.H.3	X:T.H.3	E:T.H.36 EB		X:T.H.36 EB			E:T.H.5		X:T.H.5	
Ramp			O		O		O		X		O		O		X	X	X		X			O		O	
lane 1		X		X		X		X		X		X		X				X		X	X		<-		<-	<-
lane 2		X		X		X		X		X		X		X				X		X	X		X		<-	<-
lane 3		X																								
WB <--		S1445		S1456		S1424		S1423		S1422		S1421		S1420				S1419		S1418	S1417		S1416		S1415	S1414
Div																										
EB -->	S1454			S1455		S1393		S1394		S1395		S1396		S1397				S1398		S1399	S1400		S1401		S1402	S1403
lane 3	X			<-																						
lane 2	->			->		<-		<-		<-		<-		X				<-		<-	<-		->		->	->
lane 1	->			->		->		X		->		->		X				->		->	->		->		->	->
Ramp		O		O		O		O		O		O		O	O	O		O					O		O	
RampName		E:I-35E SB		X:T.H.61		E:T.H.61		X:White Bear		E:White Bear		X:Century Ave		E:Century Ave		X:T.H.3	E:T.H.3	X:T.H.36 EB		E:T.H.36 EB			X:T.H.5		E:T.H.5	

WB-Phase 17,18

RampName			E:T.H.61		X:T.H.61		E:White Bear		X:White Bear		E:Century Ave		X:Century Ave		E:T.H.3	X:T.H.3	E:T.H.36 EB		X:T.H.36 EB			E:T.H.5		X:T.H.5	
Ramp			O		X		X		X		X		X		O	X	X		X			O		O	
lane 1		X		X		X		X		X		X		X				X		X	<-		<-		<-	<-
lane 2		X		X		X		X		X		X		X				X		<-	X		X		<-	<-
lane 3		X																								
WB <--		S1445		S1456		S1424		S1423		S1422		S1421		S1420				S1419		S1418	S1417		S1416		S1415	S1414
Div																										
EB -->	S1454			S1455		S1393		S1394		S1395		S1396		S1397				S1398		S1399	S1400		S1401		S1402	S1403
lane 3	X			<-																						
lane 2	->			->		<-		<-		<-		<-		X				X		X	X		->		->	->
lane 1	->			->		->		->		->		->		X				->		->	->		->		->	->
Ramp		O		O		O		O		O		O		X	O	O		O					O		O	
RampName		E:I-35E SB		X:T.H.61		E:T.H.61		X:White Bear		E:White Bear		X:Century Ave		E:Century Ave		X:T.H.3	E:T.H.3	X:T.H.36 EB		E:T.H.36 EB			X:T.H.5		E:T.H.5	

WB-Phase 19,20

RampName			E:T.H.61		X:T.H.61		E:White Bear		X:White Bear		E:Century Ave		X:Century Ave		E:T.H.3	X:T.H.3	E:T.H.36 EB		X:T.H.36 EB			E:T.H.5		X:T.H.5	
Ramp			X		O		O		O		O		O		O	O	O		X			O		O	
lane 1		X		X		X		<-		<-		X		<-				<-		<-	X		<-		<-	<-
lane 2		X		X		<-		X		X		X		X				X		X	<-		X		<-	<-
lane 3		X																								
WB <--		S1445		S1456		S1424		S1423		S1422		S1421		S1420				S1419		S1418	S1417		S1416		S1415	S1414
Div																										
EB -->	S1454			S1455		S1393		S1394		S1395		S1396		S1397				S1398		S1399	S1400		S1401		S1402	S1403
lane 3	X			X																						
lane 2	->			->		X		X		X		X		X				->		->	->		->		->	->
lane 1	->			->		->		->		->		->		->				->		->	->		->		->	->
Ramp		O		X		O		O		O		O		O	X	O	O	O		O			O		O	
RampName		E:I-35E SB		X:T.H.61		E:T.H.61		X:White Bear		E:White Bear		X:Century Ave		E:Century Ave		X:T.H.3	E:T.H.3	X:T.H.36 EB		E:T.H.36 EB			X:T.H.5		E:T.H.5	

Site 4: U.S.169, Jun-Aug 2013 (2 to 1)

SB Phases

Phase	StartDate	EndDate	LaneCloseSection	MedianType	ShoulderType
1	6/26/2013	7/3/2013	-	-	-
2	7/9/2013	7/11/2013	-	-	-
3	7/16/2013	7/18/2013	-	-	-
4	7/23/2013	7/25/2013	-	-	-
5	7/30/2013	7/31/2013	S1141-S1610	-	-
6	8/1/2013	8/7/2013	S1141-S1610	-	-
7	8/8/2013	8/20/2013	-	-	-
8	8/21/2013	8/22/2013	S1141-S1610	-	-
9	8/27/2013	8/29/2013	S1141-S1610	-	-

SB-Phase 1-4

RampName		X:Andersc	E:Pioneer Trail		X:Pioneer	E:Old Shakopee Rd		X:Old Shal	E:T.H.101	NB	
Ramp		O	O		O	O		O	O		
lane 1	<-			<-			X				<-
lane 2	<-			<-			<-				<-
NB <--	S1144			S1143			S1142				S1611
Div											
SB -->	S1147			S1140			S1141				S1610
lane 2	->			->			->				->
lane 1	->			->			->				->
Ramp		O	O		O	O			O	O	
RampName		E:Andersc	X:Pioneer Trail		E:Pioneer	X:Old Shakopee Rd			X:T.H.101	X:T.H.101	SB

SB-Phase 5, 6

RampName		X:Andersc	E:Pioneer Trail		X:Pioneer	E:Old Shakopee Rd		X:Old Shal	E:T.H.101	NB	
Ramp		O	O		O	O		O	O		
lane 1	<-			<-			X				<-
lane 2	<-			<-			<-				<-
NB <--	S1144			S1143			S1142				S1611
Div											
SB -->	S1147			S1140			S1141				S1610
lane 2	->			->			X				X
lane 1	->			->			->				X
Ramp		O	O		X	O			X	X	
RampName		E:Andersc	X:Pioneer Trail		E:Pioneer	X:Old Shakopee Rd			X:T.H.101	X:T.H.101	SB

SB-Phase 7

RampName		X:Andersc	E:Pioneer Trail		X:Pioneer	E:Old Shakopee Rd		X:Old Shal	E:T.H.101	NB	
Ramp		O	O		O	X		X	X		
lane 1	<-			<-			X				X
lane 2	<-			<-			X				X
NB <--	S1144			S1143			S1142				S1611
Div											
SB -->	S1147			S1140			S1141				S1610
lane 2	->			->			->				->
lane 1	->			->			->				->
Ramp		O	O		O	O			O	O	
RampName		E:Andersc	X:Pioneer Trail		E:Pioneer	X:Old Shakopee Rd			X:T.H.101	X:T.H.101	SB

SB-Phase 8, 9

RampName		X:Andersc	E:Pioneer Trail		X:Pioneer	E:Old Shakopee Rd		X:Old Shal	E:T.H.101	NB	
Ramp		O	O		O	O		O	O		
lane 1	<-			<-			<-				<-
lane 2	<-			<-			<-				<-
NB <--	S1144			S1143			S1142				S1611
Div											
SB -->	S1147			S1140			S1141				S1610
lane 2	->			->			X				X
lane 1	->			->			->				->
Ramp		O	O		O	O			O	O	
RampName		E:Andersc	X:Pioneer Trail		E:Pioneer	X:Old Shakopee Rd			X:T.H.101	X:T.H.101	SB

Site 9: U.S.169 Jun 2013 (2 to 1)

SB Phases

Phase	StartDate	EndDate	LaneCloseSection	MedianType	ShoulderType
1	6/11/2013	6/13/2013	S455-S458	drum-like channelizer	open
2	6/18/2013	6/20/2013	S455-S458	drum-like channelizer	open
3	6/25/2013	6/27/2013	S455-S458	drum-like channelizer	open

SB-Phase 1, 2

RampName	E:T.H.62 EB		X:T.H.6	E:T.H.6	X:T.H.6	E:Bren Rd		X:Bren	E:Lincoln Dr		X:Linco	E:Excelsior Bl	X:Excelsior Blvd			E:T.H.7 EB		E:T.H.7 WB		X:T.H.7	X:36th St			E:Minnetonka Blvd	
Ramp		O		O	O	O	O		O	O		O	X		O			O		O		O	O			O	
lane 1	<-		<-				<-		<-				<-					<-		<-						<-	
lane 2	<-		<-				<-		X				X					X		X						<-	
SB <--	S461		S460				S459		S458				S457					S456		S455						S453	
Div																											
NB -->	S428		S429				S430			S431				S432				S433		S434			S435			S437	
lane 2	->		->				X			X				X				->		->			->			->	
lane 1	->		->				->			->				->				->		->			->			->	
Ramp		O		O	O	O	O		O	O		O	O			O	O				O			O	O		
RampName	X:T.H.62 EB		E:T.H.6	X:T.H.6	E:T.H.6	X:Bren Rd		E:Bren	X:Lincoln Dr		E:Linco	X:Excelsior Blvd		E:Excel	X:T.H.7			E:T.H.7			E:36th	X:Minnetonka Blvd				

SB-Phase 3

RampName	E:T.H.62 EB		X:T.H.6	E:T.H.6	X:T.H.6	E:Bren Rd		X:Bren	E:Lincoln Dr		X:Linco	E:Excelsior Bl	X:Excelsior Blvd			E:T.H.7 EB		E:T.H.7 WB		X:T.H.7	X:36th St			E:Minnetonka Blvd	
Ramp		O		O	O	O	O		O	X		O	X		O			O		O		O	O			O	
lane 1	<-		<-				<-		X				X					<-		<-						<-	
lane 2	<-		<-				<-		<-				<-					X		X						<-	
SB <--	S461		S460				S459		S458				S457					S456		S455						S453	
Div																											
NB -->	S428		S429				S430			S431				S432				S433		S434			S435			S437	
lane 2	->		->				->			->				->				->		->			->			->	
lane 1	->		->				->			X				X				->		->			->			->	
Ramp		O		O	O	O	O		X	X		O	X			X	O				O			O	O		
RampName	X:T.H.62 EB		E:T.H.6	X:T.H.6	E:T.H.6	X:Bren Rd		E:Bren	X:Lincoln Dr		E:Linco	X:Excelsior Blvd		E:Excel	X:T.H.7			E:T.H.7			E:36th	X:Minnetonka Blvd				

Site 12: I-35, Jul 2013 – Oct 2013 (2 to 1)

SB Phases

Phase	StartDate	EndDate	LaneCloseSection	MedianType	ShoulderType
1	7/16/2013	7/18/2013	S1581-S1583	-	-
2	7/23/2013	7/25/2013	S1581-S1583	-	-
3	7/30/2013	8/1/2013	S1581-S1583	-	-
4	8/6/2013	8/8/2013	S1581-S1583	-	-
5	8/13/2013	8/15/2013	S1581-S1583	-	-
6	8/20/2013	8/22/2013	S1581-S1583	-	-
7	8/27/2013	8/28/2013	S1581-S1583	-	-
8	8/29/2013	9/5/2013	S1583-S1583	-	-
9	9/10/2013	9/12/2013	S1583-S1583	-	-
10	9/17/2013	9/24/2013	S1583-S1583	-	-
11	9/25/2013	9/26/2013	S1578-S1584	tube delineator	open
12	10/1/2013	10/3/2013	S1578-S1584	tube delineator	open
13	10/8/2013	10/10/2013	S1578-S1584	tube delineator	open
14	10/15/2013	10/17/2013	S1578-S1584	tube delineator	open
15	10/22/2013	10/24/2013	S1578-S1584	tube delineator	open

SB-Phase 1-7

RampName	X:210th St					E:Co Rd 60				X:Co Rd 60		E:Co Rd 50	X:Co R	E:Co Rd 46		X:Co R	E:Crystal Lake Rd
Ramp	O					O				O		O	O	O		O	O
lane 1	<-		X	X	<-	X		<-	<-		X		X		<-		<-
lane 2	<-		X	X	<-	X		<-	<-		X		X		<-		<-
lane 3															<-		<-
SB <--	S1584		S1583	S1582	S1581	ST30000		S1580	S1579		ST762		S1578		S1097		S916
Div																	
NB -->	S1585	S1586	S1587		S1588				S1589	S1094			S1095		S1096		S910
lane 3															->		X
lane 2	->	X	X		->				->	->			->		->		->
lane 1	->	X	X		->				->	->			->		->		X
Ramp	O					O	O			O		O	O	O		O	O
RampName	E:210th St WB					X:Co R	E:Co Rd 60 EB			E:Co Rd 60		X:Co Rd 50	E:Co R	X:Co Rd 46		E:Co R	X:Crystal Lake Rd

SB-Phase 8-10

RampName	X:210th St					E:Co Rd 60				X:Co Rd 60		E:Co Rd 50	X:Co R	E:Co Rd 46		X:Co R	E:Crystal Lake Rd
Ramp	O					O				O		O	O	O		O	O
lane 1	<-		X	<-	<-	<-		<-	<-		<-		<-		<-		<-
lane 2	<-		X	<-	<-	<-		<-	<-		<-		<-		<-		<-
lane 3															<-		<-
SB <--	S1584		S1583	S1582	S1581	ST30000		S1580	S1579		ST762		S1578		S1097		S916
Div																	
NB -->	S1585	S1586	S1587		S1588				S1589	S1094			S1095		S1096		S910
lane 3															->		X
lane 2	->	X	X		X				->	->			->		->		->
lane 1	->	X	X		->				->	->			->		->		->
Ramp	O					O	O			O		O	O	O		O	O
RampName	E:210th St WB					X:Co R	E:Co Rd 60 EB			E:Co Rd 60		X:Co Rd 50	E:Co R	X:Co Rd 46		E:Co R	X:Crystal Lake Rd

SB-Phase 11-15

RampName	X:210th St					E:Co Rd 60				X:Co Rd 60		E:Co Rd 50	X:Co R	E:Co Rd 46		X:Co R	E:Crystal Lake Rd
Ramp	O					O				O		X	O	O		O	O
lane 1	<-		<-	<-	<-	<-		<-	<-		<-		<-		<-		<-
lane 2	->		->	->	->	->		->	->		->		->		<-		<-
lane 3															X		<-
SB <--	S1584		S1583	S1582	S1581	ST30000		S1580	S1579		ST762		S1578		S1097		S916
Div																	
NB -->	S1585	S1586	S1587		S1588				S1589	S1094			S1095		S1096		S910
lane 3															->		X
lane 2	X	X	X		X				X	X			X		->		->
lane 1	X	X	X		X				X	X			X		->		->
Ramp	O					O	X			X		X	O	O		O	O
RampName	E:210th St WB					X:Co R	E:Co Rd 60 EB			E:Co Rd 60		X:Co Rd 50	E:Co R	X:Co Rd 46		E:Co R	X:Crystal Lake Rd

Appendix E: Phase Identification for Capacity Estimation

Site 1: I-35E, Jun-Jul 2013 (2 to 1)

NB-Phase 1

RampName	E:Co Rd 42		X:Co Rd 42					E:Co Rd 11				X:Co Rd 11						E:I-35E CD SB					X:I-35E CD SB	E:Cliff Rd			X:Cliff Rd		E:Diffley Rd	X:Diffley Rd
Ramp	O		O					O				O						O					X	O			O		O	O
lane 1	<-		<-		<-	<-	<-	<-		<-	<-	<-		X	<-	X		<-		<-	<-	<-	<-	<-		<-	<-		<-		<-	<-
lane 2	<-		<-		X	->	->	->		->	->	->		X	->	X		X		X	X	X	->	<-		<-	<-		<-		<-	<-
lane 3																								<-		<-	<-		<-		<-	<-
SB <--	S905		S904		ST3005	ST3005	S903	ST30037		S902	ST3005	S901		ST3005	S900	ST30040		ST30041		S899	ST3004	S898	ST30043	S897		ST3004	S896		S895		S894		S893
Div																																
NB -->	S870		S871		ST3004	ST3004	S872			S873		S874		ST3005	S875			ST30053		S876	ST3005	S877	ST30055	S878		ST3005	S879		S880		S881		S882
lane 3																								->		->	->		->		->	->
lane 2	->		X		X	X	X			X		X		X	X			->		->	->	->	X	->		->	->		->		->	->
lane 1	X		->		->	X	X			X		X		X	X			->		->	->	->	X	->		->	->		->		->	->
Ramp		O		O					X				X				O							O		O		O		O	O
RampName		X:Co Rd 42		E:Co Rd 42					X:Co Rd 11				E:Co Rd 11				X:I-35E CD NB						E:I-35E CD NB	X:Cliff Rd			E:Cliff Rd		X:Diffley Rd	E:Diffley Rd

NB-Phase 3

RampName	E:Co Rd 42		X:Co Rd 42					E:Co Rd 11				X:Co Rd 11						E:I-35E CD SB					X:I-35E CD SB	E:Cliff Rd			X:Cliff Rd		E:Diffley Rd	X:Diffley Rd
Ramp	X		O					X				O						O					X	O			O		O	O
lane 1	X		<-		X	X	X	X		X	X	X		X	X	X		<-		<-	<-	<-	<-	X		<-	<-		<-		<-	<-
lane 2	X		<-		X	X	X	X		X	X	X		X	X	X		<-		X	X	X	->	<-		<-	X		<-		<-	<-
lane 3																								X		X	X		X		<-	<-
SB <--	S905		S904		ST3005	ST3005	S903	ST30037		S902	ST3005	S901		ST3005	S900	ST30040		ST30041		S899	ST3004	S898	ST30043	S897		ST3004	S896		S895		S894		S893
Div																																
NB -->	S870		S871		ST3004	ST3004	S872			S873		S874		ST3005	S875			ST30053		S876	ST3005	S877	ST30055	S878		ST3005	S879		S880		S881		S882
lane 3																								X		->	->		->		->	->
lane 2	X		X		X	X	<-			<-		<-		X	<-			X		X	X	X	X	->		->	->		->		->	->
lane 1	X		->		X	X	->			->		->		X	->			->		->	->	->	X	->		->	->		->		->	->
Ramp		O		O					O				O				O							O		O		O		O	O
RampName		X:Co Rd 42		E:Co Rd 42					X:Co Rd 11				E:Co Rd 11				X:I-35E CD NB						E:I-35E CD NB	X:Cliff Rd			E:Cliff Rd		X:Diffley Rd	E:Diffley Rd

NB-Phase 4

RampName	E:Co Rd 42		X:Co Rd 42					E:Co Rd 11				X:Co Rd 11						E:I-35E CD SB					X:I-35E CD SB	E:Cliff Rd			X:Cliff Rd		E:Diffley Rd	X:Diffley Rd
Ramp	O		O					X				X						O					X	O			O		O	O
lane 1	<-		<-		X	X	X	X		X	X	X		X	X	X		<-		<-	<-	<-	<-	<-		<-	<-		<-		<-	<-
lane 2	<-		<-		X	X	X	X		X	X	X		X	X	X		<-		X	X	X	<-	<-		<-	<-		<-		<-	<-
lane 3																								<-		<-	<-		<-		<-	<-
SB <--	S905		S904		ST3005	ST3005	S903	ST30037		S902	ST3005	S901		ST3005	S900	ST30040		ST30041		S899	ST3004	S898	ST30043	S897		ST3004	S896		S895		S894		S893
Div																																
NB -->	S870		S871		ST3004	ST3004	S872			S873		S874		ST3005	S875			ST30053		S876	ST3005	S877	ST30055	S878		ST3005	S879		S880		S881		S882
lane 3																								->		->	->		->		->	->
lane 2	->		X		X	X	<-			<-		<-		X	<-			->		->	->	->	->	->		->	->		->		->	->
lane 1	X		->		X	X	->			->		->		X	->			->		->	->	->	->	->		->	->		->		->	->
Ramp		O		O					O				O				O							O		O		O		O	O
RampName		X:Co Rd 42		E:Co Rd 42					X:Co Rd 11				E:Co Rd 11				X:I-35E CD NB						E:I-35E CD NB	X:Cliff Rd			E:Cliff Rd		X:Diffley Rd	E:Diffley Rd

NB-Phase 5

RampName	E:Co Rd 42		X:Co Rd 42					E:Co Rd 11				X:Co Rd 11						E:I-35E CD SB					X:I-35E CD SB	E:Cliff Rd			X:Cliff Rd		E:Diffley Rd	X:Diffley Rd
Ramp	O		O					X				X						O					X	O			O		O	O
lane 1	<-		<-		X	X	X	X		X	X	X		X	X	X		X		<-	<-	<-	X	<-		<-	<-		<-		<-	<-
lane 2	->		->		X	X	X	X		X	X	X		X	X	X		X		->	X	->	X	<-		<-	<-		<-		<-	<-
lane 3																								->		X	X		<-		<-	<-
SB <--	S905		S904		ST3005	ST3005	S903	ST30037		S902	ST3005	S901		ST3005	S900	ST30040		ST30041		S899	ST3004	S898	ST30043	S897		ST3004	S896		S895		S894		S893
Div																																
NB -->	S870		S871		ST3004	ST3004	S872			S873		S874		ST3005	S875			ST30053		S876	ST3005	S877	ST30055	S878		ST3005	S879		S880		S881		S882
lane 3																								X		->	->		->		->	->
lane 2	X		X		X	X	<-			<-		<-		X	<-			X		X	X	X	X	X		X	->		->		->	->
lane 1	X		X		X	X	->			->		->		X	->			X		X	X	X	X	X		X	->		->		->	->
Ramp		O		O					O				O				X							X	X			O		O	O
RampName		X:Co Rd 42		E:Co Rd 42					X:Co Rd 11				E:Co Rd 11				X:I-35E CD NB						E:I-35E CD NB	X:Cliff Rd			E:Cliff Rd		X:Diffley Rd	E:Diffley Rd

SB-Phase 1

RampName	E:Co Rd 42		X:Co Rd 42					E:Co Rd 11				X:Co Rd 11						E:I-35E CD SB					X:I-35E CD SB	E:Cliff Rd			X:Cliff Rd		E:Diffley Rd	X:Diffley Rd
Ramp	O		O					O				O						O					O	O			O		O	O
lane 1	<-		<-		<-	<-	<-	<-		<-	<-	<-		X	<-	X		<-		<-	<-	<-	<-	<-		<-	<-		<-		<-	<-
lane 2	<-		<-		X	->	->	->		->	->	->		X	->	X		X		X	X	X	->	<-		<-	<-		<-		<-	<-
lane 3																								<-		<-	<-		<-		<-	<-
SB <--	S905		S904		ST3005	ST3005	S903	ST30037		S902	ST3005	S901		ST3005	S900	ST30040		ST30041		S899	ST3004	S898	ST30043	S897		ST3004	S896		S895		S894		S893
Div																																
NB -->	S870		S871		ST3004	ST3004	S872			S873		S874		ST3005	S875			ST30053		S876	ST3005	S877	ST30055	S878		ST3005	S879		S880		S881		S882
lane 3																								->		->	->		->		->	->
lane 2	->		X		X	X	X			X		X		X	X			->		->	->	->	X	->		->	->		->		->	->
lane 1	X		->		->	X	X			X		X		X	X			->		->	->	->	X	->		->	->		->		->	->
Ramp		O		O					X				X				O							O		O		O		O	O
RampName		X:Co Rd 42		E:Co Rd 42					X:Co Rd 11				E:Co Rd 11				X:I-35E CD NB						E:I-35E CD NB	X:Cliff Rd			E:Cliff Rd		X:Diffley Rd	E:Diffley Rd

SB-Phase 2

RampName	E:Co Rd 42		X:Co Rd 42					E:Co Rd 11				X:Co Rd 11						E:I-35E CD SB					X:I-35E CD SB	E:Cliff Rd			X:Cliff Rd		E:Diffley Rd	X:Diffley Rd
Ramp	O		O					O				O						X					X	X			O		O	O
lane 1	<-		<-		<-	<-	<-	<-		<-	<-	<-		<-	<-	<-		X		X	X	X	X	X		X	<-		<-		<-	<-
lane 2	<-		X		->	->	->	->		->	->	->		->	->	->		X		X	X	X	X	X		X	<-		<-		<-	<-
lane 3																								X		<-	<-		X		X	<-
SB <--	S905		S904		ST3005	ST3005	S903	ST30037		S902	ST3005	S901		ST3005	S900	ST30040		ST30041		S899	ST3004	S898	ST30043	S897		ST3004	S896		S895		S894		S893
Div																																
NB -->	S870		S871		ST3004	ST3004	S872			S873		S874		ST3005	S875			ST30053		S876	ST3005	S877	ST30055	S878		ST3005	S879		S880		S881		S882
lane 3																								<-		->	->		->		->	->
lane 2	->		X		X	X	X			X		X		X	X			X	<-	X	<-	X		->		->	->		->		->	->
lane 1	X		->		X	X	X			X		X		X	X			->		->	->	->	X	->		->	->		->		->	->
Ramp		O		O					X				X				O							O		O		O		O	O
RampName		X:Co Rd 42		E:Co Rd 42					X:Co Rd 11				E:Co Rd 11				X:I-35E CD NB						E:I-35E CD NB	X:Cliff Rd			E:Cliff Rd		X:Diffley Rd	E:Diffley Rd

SB-Phase 3

RampName	E:Co Rd 42		X:Co Rd 42					E:Co Rd 11				X:Co Rd 11					E:I-35E CD SB				X:I-35E CD SB	E:Cliff Rd			X:Cliff Rd		E:Diffley Rd		X:Diffley Rd	
Ramp	X		O					X				O					O				O	O			O		O		O	
lane 1	X		<-		X	X	X	X		X	X	X		X	X	X	<-		<-	<-	<-	<-	X		<-	<-		<-		<-	
lane 2	X		<-		X	X	X	X		X	X	X		X	X	X	<-		X	X	X	->	<-		<-	X		<-		<-	
lane 3																							X		X	X		X		<-	
SB <--	S905		S904		ST3005	ST3005	S903	ST30037		S902	ST3005	S901		ST3005	S900	ST30040	ST30041		S899	ST3004	S898	ST30043	S897		ST3004	S896		S895		S894		S893
Div																															
NB -->	S870		S871		ST3004	ST3004	S872			S873		S874		ST3005	S875		ST30053		S876	ST3005	S877	ST30055	S878		ST3005	S879		S880		S881		S882
lane 3																							X		->	->		->		->	
lane 2	X		X		X	X	<-			<-		<-		X	<-		X		X	X	X	X	->		->	->		->		->	
lane 1	X		->		X	X	->			->		->		X	->		->		->	->	->	X	->		->	->		->		->	
Ramp		O		O				O				O				O							O		O		O		O		O	
RampName	X:Co Rd 42		E:Co Rd 42					X:Co Rd 11				E:Co Rd 11				X:I-35E CD NB						E:I-35E CD NB	X:Cliff Rd			E:Cliff Rd		X:Diffley Rd		E:Diffley Rd	

SB-Phase 4

RampName	E:Co Rd 42		X:Co Rd 42					E:Co Rd 11				X:Co Rd 11					E:I-35E CD SB				X:I-35E CD SB	E:Cliff Rd			X:Cliff Rd		E:Diffley Rd		X:Diffley Rd	
Ramp		O		O				X				X					O				O	O			O		O		O	
lane 1	<-		<-		X	X	X	X		X	X	X		X	X	X	<-		<-	<-	<-	<-	<-		<-	<-		<-		<-	
lane 2	<-		<-		X	X	X	X		X	X	X		X	X	X	<-		X	X	X	<-	<-		<-	<-		<-		<-	
lane 3																							<-		<-	<-		<-		<-	
SB <--	S905		S904		ST3005	ST3005	S903	ST30037		S902	ST3005	S901		ST3005	S900	ST30040	ST30041		S899	ST3004	S898	ST30043	S897		ST3004	S896		S895		S894		S893
Div																															
NB -->	S870		S871		ST3004	ST3004	S872			S873		S874		ST3005	S875		ST30053		S876	ST3005	S877	ST30055	S878		ST3005	S879		S880		S881		S882
lane 3																							->		->	->		->		->	
lane 2	->		X		X	X	<-			<-		<-		X	<-		->		->	->	->	->	->		->	->		->		->	
lane 1	X		->		X	X	->			->		->		X	->		->		->	->	->	->	->		->	->		->		->	
Ramp		O		O				O				O				O							O		O		O		O		O	
RampName	X:Co Rd 42		E:Co Rd 42					X:Co Rd 11				E:Co Rd 11				X:I-35E CD NB						E:I-35E CD NB	X:Cliff Rd			E:Cliff Rd		X:Diffley Rd		E:Diffley Rd	

SB-Phase 5

RampName	E:Co Rd 42		X:Co Rd 42					E:Co Rd 11				X:Co Rd 11					E:I-35E CD SB				X:I-35E CD SB	E:Cliff Rd			X:Cliff Rd		E:Diffley Rd		X:Diffley Rd	
Ramp		O		O				X				X					O				O	O			O		O		O	
lane 1	<-		<-		X	X	X	X		X	X	X		X	X	X	X		<-	<-	<-	X	<-		<-	<-		<-		<-	
lane 2	->		->		X	X	X	X		X	X	X		X	X	X	X		->	X	->	X	<-		<-	<-		<-		<-	
lane 3																							->		X	X		<-		<-	
SB <--	S905		S904		ST3005	ST3005	S903	ST30037		S902	ST3005	S901		ST3005	S900	ST30040	ST30041		S899	ST3004	S898	ST30043	S897		ST3004	S896		S895		S894		S893
Div																															
NB -->	S870		S871		ST3004	ST3004	S872			S873		S874		ST3005	S875		ST30053		S876	ST3005	S877	ST30055	S878		ST3005	S879		S880		S881		S882
lane 3																							X		->	->		->		->	
lane 2	X		X		X	X	<-			<-		<-		X	<-		X		X	X	X	X	X		X	->		->		->	
lane 1	X		X		X	X	->			->		->		X	->		X		X	X	X	X	X		X	->		->		->	
Ramp		O		O				O				O				X							X		X		O		O		O	
RampName	X:Co Rd 42		E:Co Rd 42					X:Co Rd 11				E:Co Rd 11				X:I-35E CD NB						E:I-35E CD NB	X:Cliff Rd			E:Cliff Rd		X:Diffley Rd		E:Diffley Rd	

Site 2: I-35E, Aug-Oct 2011 (2 to 1)

NB-Phase 1

RampName	X:Co Rd E				E:Co Rd 96		X:Co Rd 96						E:Co Rd J						E:Co Rd 14		X:Co Rd 14			
Ramp	O				O		O						O						X		O			
lane 1	<-		<-	<-	<-	X		X	X	X	X	X		X	X	X	X	X		X		X	X	<-
lane 2	<-		<-	<-	<-	<-		X	X	X	X	X		X	X	X	X	X		X		X	X	X
lane 3	<-																							
SB <--	S1462		S1549	S1548	S1547		S1546		S1545	S1544	S1543	S1542	S1541		S1540	S1539	S1538	S1537	S1536		S1535		S1534	S1532	S1531
Div																								
NB -->	S1449		S1485	S1486	S1487		S1488		S1489	S1490	S1491	S1492	S1493		S1494	S1495	S1496	S1497	S1498		S1499		S1500	S1502	S1503
lane 3	->																							
lane 2	->		->	->	->		->		X	<-	<-	<-	<-		<-	<-	<-	<-	<-		<-		X	<-	->
lane 1	->		->	->	->		->		->	->	->	->	->		->	->	->	->	->		->		X	->	->
Ramp	O				O		O						O						O		O			
RampName	E:Co Rd E				X:Co Rd 96		E:Co Rd 96						X:Co Rd J						X:Co Rd 14		E:Co Rd 14			

NB-Phase 2

RampName	X:Co Rd E				E:Co Rd 96		X:Co Rd 96						E:Co Rd J						E:Co Rd 14		X:Co Rd 14			
Ramp	O				X		X						O						X		O			
lane 1	<-		<-	<-	X	X		X	X	X	X	X		X	X	X	X	X		X		X	X	<-
lane 2	<-		<-	<-	X	X		X	X	X	X	X		X	X	X	X	X		X		X	X	X
lane 3	<-																							
SB <--	S1462		S1549	S1548	S1547		S1546		S1545	S1544	S1543	S1542	S1541		S1540	S1539	S1538	S1537	S1536		S1535		S1534	S1532	S1531
Div																								
NB -->	S1449		S1485	S1486	S1487		S1488		S1489	S1490	S1491	S1492	S1493		S1494	S1495	S1496	S1497	S1498		S1499		S1500	S1502	S1503
lane 3	->																							
lane 2	->		->	->	X		<-		<-	<-	<-	<-	<-		<-	<-	<-	<-	<-		<-		X	<-	->
lane 1	X		->	->	->		->		->	->	->	->	->		->	->	->	->	->		->		X	->	->
Ramp	O				O		O						O						O		O			
RampName	E:Co Rd E				X:Co Rd 96		E:Co Rd 96						X:Co Rd J						X:Co Rd 14		E:Co Rd 14			

NB-Phase 3

RampName	X:Co Rd E				E:Co Rd 96		X:Co Rd 96						E:Co Rd J						E:Co Rd 14		X:Co Rd 14			
Ramp	O				O		O						X						O		X			
lane 1	<-		<-	<-	<-	X		X	X	X	X	X		X	X	X	X	X		X		X	X	<-
lane 2	<-		<-	<-	<-	X		X	X	X	X	X		X	X	X	X	X		X		X	X	X
lane 3	<-																							
SB <--	S1462		S1549	S1548	S1547		S1546		S1545	S1544	S1543	S1542	S1541		S1540	S1539	S1538	S1537	S1536		S1535		S1534	S1532	S1531
Div																								
NB -->	S1449		S1485	S1486	S1487		S1488		S1489	S1490	S1491	S1492	S1493		S1494	S1495	S1496	S1497	S1498		S1499		S1500	S1502	S1503
lane 3	->																							
lane 2	->		->	->	->		<-		X	<-	<-	<-	<-		<-	<-	<-	<-	<-		<-		X	<-	->
lane 1	->		->	->	->		->		->	->	->	->	->		->	->	->	->	->		->		X	->	->
Ramp	O				O		O						O						O		O			
RampName	E:Co Rd E				X:Co Rd 96		E:Co Rd 96						X:Co Rd J						X:Co Rd 14		E:Co Rd 14			

NB-Phase 4

RampName	X:Co Rd E				E:Co Rd 96		X:Co Rd 96						E:Co Rd J						E:Co Rd 14		X:Co Rd 14			
Ramp	O				O		O						O						O		O			
lane 1	<-		<-	<-	<-	X		<-	<-	<-	<-	<-		<-	<-	<-	X	<-		<-		X	X	<-
lane 2	<-		<-	<-	<-	X		<-	<-	X	<-	<-		<-	X	<-	<-	<-		X		X	X	<-
lane 3	<-																							
SB <--	S1462		S1549	S1548	S1547		S1546		S1545	S1544	S1543	S1542	S1541		S1540	S1539	S1538	S1537	S1536		S1535		S1534	S1532	S1531
Div																								
NB -->	S1449		S1485	S1486	S1487		S1488		S1489	S1490	S1491	S1492	S1493		S1494	S1495	S1496	S1497	S1498		S1499		S1500	S1502	S1503
lane 3	->																							
lane 2	->		->	->	->		->		X	X	X	X	X		->	X	X	X	->		X		X	->	->
lane 1	->		->	->	->		->		->	X	X	->	->		X	->	->	->	X		->		X	->	->
Ramp	O				O		O						O						O		O			
RampName	E:Co Rd E				X:Co Rd 96		E:Co Rd 96						X:Co Rd J						X:Co Rd 14		E:Co Rd 14			

NB-Phase 5

RampName	X:Co Rd E				E:Co Rd 96		X:Co Rd 96						E:Co Rd J						E:Co Rd 14		X:Co Rd 14			
Ramp	O				O		O						O						O		O			
lane 1	<-		<-	<-	<-	X		<-	<-	<-	<-	<-		<-	<-	<-	X	<-		<-		X	X	<-
lane 2	<-		<-	<-	<-	X		<-	<-	X	<-	<-		<-	X	<-	<-	<-		X		X	X	<-
lane 3	<-																							
SB <--	S1462		S1549	S1548	S1547		S1546		S1545	S1544	S1543	S1542	S1541		S1540	S1539	S1538	S1537	S1536		S1535		S1534	S1532	S1531
Div																								
NB -->	S1449		S1485	S1486	S1487		S1488		S1489	S1490	S1491	S1492	S1493		S1494	S1495	S1496	S1497	S1498		S1499		S1500	S1502	S1503
lane 3	->																							
lane 2	->		->	->	->		->		->	->	->	->	->		->	->	->	X	->		->		X	->	->
lane 1	->		->	->	->		->		->	->	->	->	->		->	->	->	->	X		->		X	->	->
Ramp	O				O		O						O						O		O			
RampName	E:Co Rd E				X:Co Rd 96		E:Co Rd 96						X:Co Rd J						X:Co Rd 14		E:Co Rd 14			

SB-Phase 1

RampName	X:Co Rd E				E:Co Rd 96		X:Co Rd 96						E:Co Rd J						E:Co Rd 14		X:Co Rd 14			
Ramp	O				O		O						O						X		O			
lane 1	<-		<-	<-	<-		X		X	X	X	X	X		X	X	X	X	X		X		X	X	<-
lane 2	<-		<-	<-	<-		<-		X	X	X	X	X		X	X	X	X	X		X		X	X	X
lane 3	<-																								
SB <--	S1462		S1549	S1548	S1547		S1546		S1545	S1544	S1543	S1542	S1541		S1540	S1539	S1538	S1537	S1536		S1535		S1534	S1532	S1531
Div																									
NB -->	S1449		S1485	S1486	S1487		S1488		S1489	S1490	S1491	S1492	S1493		S1494	S1495	S1496	S1497	S1498		S1499		S1500	S1502	S1503
lane 3	->																								
lane 2	->		->	->	->		->		X	<-	<-	<-	<-		<-	<-	<-	<-	<-		<-		X	<-	->
lane 1	->		->	->	->		->		->	->	->	->	->		->	->	->	->	->		->		X	->	->
Ramp		O				O		O						O						O		O			
RampName		E:Co Rd E				X:Co Rd 96		E:Co Rd 96						X:Co Rd J						X:Co Rd 14		E:Co Rd 14			

SB-Phase 2

RampName	X:Co Rd E				E:Co Rd 96		X:Co Rd 96						E:Co Rd J						E:Co Rd 14		X:Co Rd 14			
Ramp		O				X		X						O						O		O			
lane 1	<-		<-	<-	X		X		X	X	X	X	X		X	X	X	X	X		X		X	X	<-
lane 2	<-		<-	<-	X		X		X	X	X	X	X		X	X	X	X	X		X		X	X	X
lane 3	<-																								
SB <--	S1462		S1549	S1548	S1547		S1546		S1545	S1544	S1543	S1542	S1541		S1540	S1539	S1538	S1537	S1536		S1535		S1534	S1532	S1531
Div																									
NB -->	S1449		S1485	S1486	S1487		S1488		S1489	S1490	S1491	S1492	S1493		S1494	S1495	S1496	S1497	S1498		S1499		S1500	S1502	S1503
lane 3	->																								
lane 2	->		->	->	X		<-		<-	<-	<-	<-	<-		<-	<-	<-	<-	<-		<-		X	<-	->
lane 1	X		->	->	->		->		->	->	->	->	->		->	->	->	->	->		->		X	->	->
Ramp		O				O		O						O						O		O			
RampName		E:Co Rd E				X:Co Rd 96		E:Co Rd 96						X:Co Rd J						X:Co Rd 14		E:Co Rd 14			

SB-Phase 3

RampName	X:Co Rd E				E:Co Rd 96		X:Co Rd 96						E:Co Rd J						E:Co Rd 14		X:Co Rd 14			
Ramp		O				O		O						X						O		O			
lane 1	<-		<-	<-	<-		X		X	X	X	X	X		X	X	X	X	X		X		X	X	<-
lane 2	<-		<-	<-	<-		X		X	X	X	X	X		X	X	X	X	X		X		X	X	X
lane 3	<-																								
SB <--	S1462		S1549	S1548	S1547		S1546		S1545	S1544	S1543	S1542	S1541		S1540	S1539	S1538	S1537	S1536		S1535		S1534	S1532	S1531
Div																									
NB -->	S1449		S1485	S1486	S1487		S1488		S1489	S1490	S1491	S1492	S1493		S1494	S1495	S1496	S1497	S1498		S1499		S1500	S1502	S1503
lane 3	->																								
lane 2	->		->	->	->		<-		X	<-	<-	<-	<-		<-	<-	<-	<-	<-		<-		X	<-	->
lane 1	->		->	->	->		->		->	->	->	->	->		->	->	->	->	->		->		X	->	->
Ramp		O				O		O						O						O		O			
RampName		E:Co Rd E				X:Co Rd 96		E:Co Rd 96						X:Co Rd J						X:Co Rd 14		E:Co Rd 14			

SB-Phase 4

RampName	X:Co Rd E				E:Co Rd 96		X:Co Rd 96						E:Co Rd J						E:Co Rd 14		X:Co Rd 14			
Ramp		O				O		O						O						O		O			
lane 1	<-		<-	<-	<-		X		X	X	X	X	X		X	X	X	X	X		X		X	X	<-
lane 2	<-		<-	<-	<-		X		X	X	X	X	X		X	X	X	X	X		X		X	X	X
lane 3	<-																								
SB <--	S1462		S1549	S1548	S1547		S1546		S1545	S1544	S1543	S1542	S1541		S1540	S1539	S1538	S1537	S1536		S1535		S1534	S1532	S1531
Div																									
NB -->	S1449		S1485	S1486	S1487		S1488		S1489	S1490	S1491	S1492	S1493		S1494	S1495	S1496	S1497	S1498		S1499		S1500	S1502	S1503
lane 3	->																								
lane 2	->		->	->	->		<-		X	<-	<-	<-	<-		<-	<-	<-	<-	<-		<-		X	<-	->
lane 1	->		->	->	->		->		->	->	->	->	->		->	->	->	->	->		->		X	->	->
Ramp		O				O		O						O						O		O			
RampName		E:Co Rd E				X:Co Rd 96		E:Co Rd 96						X:Co Rd J						X:Co Rd 14		E:Co Rd 14			

SB-Phase 5

RampName	X:Co Rd E				E:Co Rd 96		X:Co Rd 96						E:Co Rd J						E:Co Rd 14		X:Co Rd 14			
Ramp		O				O		O						O						O		O			
lane 1	<-		<-	<-	<-		X		<-	<-	<-	<-	<-		<-	<-	<-	X	<-		<-		X	X	<-
lane 2	<-		<-	<-	<-		X		<-	<-	X	<-	<-		<-	X	<-	<-	<-		X		X	X	<-
lane 3	<-																								
SB <--	S1462		S1549	S1548	S1547		S1546		S1545	S1544	S1543	S1542	S1541		S1540	S1539	S1538	S1537	S1536		S1535		S1534	S1532	S1531
Div																									
NB -->	S1449		S1485	S1486	S1487		S1488		S1489	S1490	S1491	S1492	S1493		S1494	S1495	S1496	S1497	S1498		S1499		S1500	S1502	S1503
lane 3	->																								
lane 2	->		->	->	->		->		X	X	X	X	X		->	X	X	X	->		X		X	->	->
lane 1	->		->	->	->		->		->	X	X	->	->		X	->	->	->	X		->		X	->	->
Ramp		O				O		O						O						O		O			
RampName		E:Co Rd E				X:Co Rd 96		E:Co Rd 96						X:Co Rd J						X:Co Rd 14		E:Co Rd 14			

Site 3: I-694, Jun-Nov 2012 (2 to 1)

EB-Phase 1

RampName			E:T.H.61		X:T.H.61		E:White Bear		X:White Bear		E:Century Ave		X:Century Ave		E:T.H.3	X:T.H.3	E:T.H.36 EB		X:T.H.36 EB			E:T.H.5		X:T.H.5		
Ramp			O		O		O		O		O		O		O	O	O		O			O		O		
lane 1		X		<-		<-		<-		<-		<-		<-				<-		<-	<-		<-		<-	<-
lane 2		X		<-		<-		<-		<-		X		<-				<-		<-	<-		<-		<-	<-
lane 3		X																								
WB <--		S1445		S1456		S1424		S1423		S1422		S1421		S1420				S1419		S1418	S1417		S1416		S1415	S1414
Div																										
EB -->	S1454			S1455		S1393		S1394		S1395		S1396		S1397				S1398		S1399	S1400		S1401		S1402	S1403
lane 3	X			X																						
lane 2	->			->		X		X		X		X		X				X		X	X		->		->	->
lane 1	->			->		->		->		->		->		->				->		->	->		->		->	->
Ramp		O		O		O		O		O		O		O	O	O	O		O			O		O		
RampName		E:I-35E SB		X:T.H.61		E:T.H.61		X:White Bear		E:White Bear		X:Century Ave		E:Century Ave		X:T.H.3	E:T.H.3	X:T.H.36 EB		E:T.H.36 EB			X:T.H.5		E:T.H.5	

EB-Phase 2

RampName			E:T.H.61		X:T.H.61		E:White Bear		X:White Bear		E:Century Ave		X:Century Ave		E:T.H.3	X:T.H.3	E:T.H.36 EB		X:T.H.36 EB			E:T.H.5		X:T.H.5		
Ramp			O		O		X		X		O		O		X	X	X		X			O		O		
lane 1		X		X		X		X		X		X		X				X		X	X		<-		<-	<-
lane 2		X		X		X		X		X		X		X				X		X	X		X		<-	<-
lane 3		X																								
WB <--		S1445		S1456		S1424		S1423		S1422		S1421		S1420				S1419		S1418	S1417		S1416		S1415	S1414
Div																										
EB -->	S1454			S1455		S1393		S1394		S1395		S1396		S1397				S1398		S1399	S1400		S1401		S1402	S1403
lane 3	X			<-																						
lane 2	->			->		<-		<-		<-		<-		X				<-		<-	<-		->		->	->
lane 1	->			->		->		->		->		->		->				->		->	->		->		->	->
Ramp		O		O		O		O		O		O		O	O	O	O		O			O		O		
RampName		E:I-35E SB		X:T.H.61		E:T.H.61		X:White Bear		E:White Bear		X:Century Ave		E:Century Ave		X:T.H.3	E:T.H.3	X:T.H.36 EB		E:T.H.36 EB			X:T.H.5		E:T.H.5	

EB-Phase 3

RampName			E:T.H.61		X:T.H.61		E:White Bear		X:White Bear		E:Century Ave		X:Century Ave		E:T.H.3	X:T.H.3	E:T.H.36 EB		X:T.H.36 EB			E:T.H.5		X:T.H.5		
Ramp			O		O		X		X		X		X		X	X	X		X			O		O		
lane 1		X		X		X		X		X		X		X				X		X	X		<-		<-	<-
lane 2		X		X		X		X		X		X		X				X		X	X		X		<-	<-
lane 3		X																								
WB <--		S1445		S1456		S1424		S1423		S1422		S1421		S1420				S1419		S1418	S1417		S1416		S1415	S1414
Div																										
EB -->	S1454			S1455		S1393		S1394		S1395		S1396		S1397				S1398		S1399	S1400		S1401		S1402	S1403
lane 3	X			<-																						
lane 2	->			->		<-		<-		X		X		X				<-		<-	<-		->		->	->
lane 1	->			->		->		->		X		X		X				->		X	->		->		->	->
Ramp		O		O		O		O		O		X		X		X	O	O		O			O		O		
RampName		E:I-35E SB		X:T.H.61		E:T.H.61		X:White Bear		E:White Bear		X:Century Ave		E:Century Ave		X:T.H.3	E:T.H.3	X:T.H.36 EB		E:T.H.36 EB			X:T.H.5		E:T.H.5	

EB-Phase 4

RampName			E:T.H.61		X:T.H.61		E:White Bear		X:White Bear		E:Century Ave		X:Century Ave		E:T.H.3	X:T.H.3	E:T.H.36 EB		X:T.H.36 EB			E:T.H.5		X:T.H.5		
Ramp			O		O		X		X		O		O		X	X	X		X			O		O		
lane 1		X		X		X		X		X		X		X				X		X	X		<-		<-	<-
lane 2		X		X		X		X		X		X		X				X		X	X		X		<-	<-
lane 3		X																								
WB <--		S1445		S1456		S1424		S1423		S1422		S1421		S1420				S1419		S1418	S1417		S1416		S1415	S1414
Div																										
EB -->	S1454			S1455		S1393		S1394		S1395		S1396		S1397				S1398		S1399	S1400		S1401		S1402	S1403
lane 3	X			<-																						
lane 2	->			->		X		<-		<-		<-		X				<-		<-	<-		->		->	->
lane 1	->			->		->		->		->		->		X				->		X	->		->		->	->
Ramp		O		O		O		O		O		O		O		X	O	X		O			O		O		
RampName		E:I-35E SB		X:T.H.61		E:T.H.61		X:White Bear		E:White Bear		X:Century Ave		E:Century Ave		X:T.H.3	E:T.H.3	X:T.H.36 EB		E:T.H.36 EB			X:T.H.5		E:T.H.5	

EB-Phase 5

RampName			E:T.H.61		X:T.H.61		E:White Bear		X:White Bear		E:Century Ave		X:Century Ave		E:T.H.3	X:T.H.3	E:T.H.36 EB		X:T.H.36 EB			E:T.H.5		X:T.H.5		
Ramp			O		X		X		X		X		X		O	X	X		O			O		O		
lane 1		X		X		X		X		X		X		X				X		X	<-		<-		<-	<-
lane 2		X		X		X		X		X		X		X				X		<-	X		X		<-	<-
lane 3		X																								
WB <--		S1445		S1456		S1424		S1423		S1422		S1421		S1420				S1419		S1418	S1417		S1416		S1415	S1414
Div																										
EB -->	S1454			S1455		S1393		S1394		S1395		S1396		S1397				S1398		S1399	S1400		S1401		S1402	S1403
lane 3	X			<-																						
lane 2	->			->		<-		<-		<-		<-		X				X		X	X		->		->	->
lane 1	->			->		->		->		->		->		X				->		->	->		->		->	->
Ramp		O		O		O		O		O		O		O		X	O	O		O			O		O		
RampName		E:I-35E SB		X:T.H.61		E:T.H.61		X:White Bear		E:White Bear		X:Century Ave		E:Century Ave		X:T.H.3	E:T.H.3	X:T.H.36 EB		E:T.H.36 EB			X:T.H.5		E:T.H.5	

EB-Phase 6

RampName			E:T.H.61	X:T.H.61	E:White Bear	X:White Bear	E:Century Ave	X:Century Ave	E:T.H.3	X:T.H.3	E:T.H.36 EB	X:T.H.36 EB		E:T.H.5	X:T.H.5	
Ramp			O	X	X	X	X	X	O	O	O	O		O	O	
lane 1		X	X	X	X	X	X	<-				<-	<-	<-	<-	<-
lane 2		X	X	X	X	X	X	->				->	->	->	X	<-
lane 3		X														
WB <--		S1445	S1456	S1424	S1423	S1422	S1421	S1420				S1419	S1418	S1417	S1416	S1415
Div																
EB -->	S1454		S1455	S1393	S1394	S1395	S1396	S1397				S1398	S1399	S1400	S1401	S1402
lane 3	X		<-													
lane 2	->		->	X	<-	<-	<-	X				X	X	X	->	->
lane 1	->		->	->	->	->	->	X				X	X	X	->	->
Ramp		O	O	O	O	O	O	O	X	X	X		X		O	O
RampName		E:I-35E SB	X:T.H.61	E:T.H.61	X:White Bear	E:White Bear	X:Century Ave	E:Century Ave	X:T.H.3	E:T.H.3	X:T.H.36 EB	E:T.H.36 EB		X:T.H.5	E:T.H.5	

EB-Phase 7

RampName			E:T.H.61	X:T.H.61	E:White Bear	X:White Bear	E:Century Ave	X:Century Ave	E:T.H.3	X:T.H.3	E:T.H.36 EB	X:T.H.36 EB		E:T.H.5	X:T.H.5	
Ramp			O	O	O	O	O	O	O	O	X	O		O	O	
lane 1		X	<-	<-	<-	<-	X	<-				<-	<-	<-	<-	<-
lane 2		X	->	->	->	->	X	->				->	->	->	X	<-
lane 3		X														
WB <--		S1445	S1456	S1424	S1423	S1422	S1421	S1420				S1419	S1418	S1417	S1416	S1415
Div																
EB -->	S1454		S1455	S1393	S1394	S1395	S1396	S1397				S1398	S1399	S1400	S1401	S1402
lane 3	X		X													
lane 2	->		X	X	X	X	X	X				X	X	X	->	->
lane 1	->		X	X	X	X	X	X				X	X	X	->	->
Ramp		O	O	O	O	X	O	O	X	X	X		O		O	O
RampName		E:I-35E SB	X:T.H.61	E:T.H.61	X:White Bear	E:White Bear	X:Century Ave	E:Century Ave	X:T.H.3	E:T.H.3	X:T.H.36 EB	E:T.H.36 EB		X:T.H.5	E:T.H.5	

EB-Phase 8

RampName			E:T.H.61	X:T.H.61	E:White Bear	X:White Bear	E:Century Ave	X:Century Ave	E:T.H.3	X:T.H.3	E:T.H.36 EB	X:T.H.36 EB		E:T.H.5	X:T.H.5	
Ramp			O	O	X	O	O	O	X	O	X	X		O	O	
lane 1		X	X	<-	<-	<-	X	<-				<-	<-	<-	<-	<-
lane 2		X	X	->	->	->	X	->				->	->	->	X	<-
lane 3		X														
WB <--		S1445	S1456	S1424	S1423	S1422	S1421	S1420				S1419	S1418	S1417	S1416	S1415
Div																
EB -->	S1454		S1455	S1393	S1394	S1395	S1396	S1397				S1398	S1399	S1400	S1401	S1402
lane 3	X		X													
lane 2	->		X	X	X	X	X	X				X	X	X	->	->
lane 1	->		X	X	X	X	X	X				X	X	X	->	->
Ramp		O	O	O	O	X	O	O	X	X	X		O		O	O
RampName		E:I-35E SB	X:T.H.61	E:T.H.61	X:White Bear	E:White Bear	X:Century Ave	E:Century Ave	X:T.H.3	E:T.H.3	X:T.H.36 EB	E:T.H.36 EB		X:T.H.5	E:T.H.5	

EB-Phase 9

RampName			E:T.H.61	X:T.H.61	E:White Bear	X:White Bear	E:Century Ave	X:Century Ave	E:T.H.3	X:T.H.3	E:T.H.36 EB	X:T.H.36 EB		E:T.H.5	X:T.H.5	
Ramp			O	O	X	O	O	O	O	O	X	X		O	O	
lane 1		X	X	<-	<-	<-	X	<-				<-	X	<-	<-	<-
lane 2		X	X	->	->	->	X	X				X	<-	X	X	<-
lane 3		X														
WB <--		S1445	S1456	S1424	S1423	S1422	S1421	S1420				S1419	S1418	S1417	S1416	S1415
Div																
EB -->	S1454		S1455	S1393	S1394	S1395	S1396	S1397				S1398	S1399	S1400	S1401	S1402
lane 3	X		X													
lane 2	->		X	X	X	X	X	X				X	X	X	->	->
lane 1	->		X	X	X	X	X	->				->	->	->	->	->
Ramp		O	O	O	O	O	X	O	X	O	O	O	O		O	O
RampName		E:I-35E SB	X:T.H.61	E:T.H.61	X:White Bear	E:White Bear	X:Century Ave	E:Century Ave	X:T.H.3	E:T.H.3	X:T.H.36 EB	E:T.H.36 EB		X:T.H.5	E:T.H.5	

EB-Phase 10

RampName			E:T.H.61	X:T.H.61	E:White Bear	X:White Bear	E:Century Ave	X:Century Ave	E:T.H.3	X:T.H.3	E:T.H.36 EB	X:T.H.36 EB		E:T.H.5	X:T.H.5	
Ramp			X	O	O	O	O	O	O	O	O	O		O	O	
lane 1		X	X	X	<-	<-	X	<-				<-	<-	X	<-	<-
lane 2		X	X	<-	X	X	X	X				X	X	<-	X	<-
lane 3		X														
WB <--		S1445	S1456	S1424	S1423	S1422	S1421	S1420				S1419	S1418	S1417	S1416	S1415
Div																
EB -->	S1454		S1455	S1393	S1394	S1395	S1396	S1397				S1398	S1399	S1400	S1401	S1402
lane 3	X		X													
lane 2	->		->	X	X	X	X	X				->	->	->	->	->
lane 1	->		->	->	->	->	->	->				->	->	->	->	->
Ramp		O	X	O	O	O	O	O	X	O	O	O	O		O	O
RampName		E:I-35E SB	X:T.H.61	E:T.H.61	X:White Bear	E:White Bear	X:Century Ave	E:Century Ave	X:T.H.3	E:T.H.3	X:T.H.36 EB	E:T.H.36 EB		X:T.H.5	E:T.H.5	

WB-Phase 1

RampName			E:T.H.61		X:T.H.61		E:White Bear	X:White Bear	E:Century Ave	X:Century Ave	E:T.H.3	X:T.H.3	E:T.H.36 EB	X:T.H.36 EB		E:T.H.5	X:T.H.5		
Ramp			O		O		O	O	O	O	O	O	O	O		O	O		
lane 1		X		<-		<-		<-		<-		<-		<-	<-	<-		<-	<-	<-
lane 2		X		<-		<-		<-		X		<-		<-	<-	<-		<-	<-	<-
lane 3		X																		
WB <--		S1445		S1456		S1424		S1423		S1422		S1421		S1420		S1419		S1418	S1417	
Div																				
EB -->	S1454			S1455		S1393		S1394		S1395		S1396		S1397		S1398		S1399	S1400	
lane 3	X			X																
lane 2	->			->		X		X		X		X		X		X		X	X	
lane 1	->			->		->		->		->		->		->		->		->	->	
Ramp		O		O		O		O		O		O		O	O	O		O		
RampName		E:I-35E SB		X:T.H.61		E:T.H.61		X:White Bear		E:White Bear		X:Century Ave		E:Century Ave		X:T.H.3		E:T.H.3		

RampName			E:T.H.61		X:T.H.61		E:White Bear	X:White Bear	E:Century Ave	X:Century Ave	E:T.H.3	X:T.H.3	E:T.H.36 EB	X:T.H.36 EB		E:T.H.5	X:T.H.5		
Ramp			O		O		X	X	O	O	X	X	X	X		O	O		
lane 1		X		X		X		X		X				X	X			<-	<-	<-
lane 2		X		X		X		X		X				X	X	X		X	<-	<-
lane 3		X																		
WB <--		S1445		S1456		S1424		S1423		S1422		S1421		S1420		S1419		S1418	S1417	
Div																				
EB -->	S1454			S1455		S1393		S1394		S1395		S1396		S1397		S1398		S1399	S1400	
lane 3	X			<-																
lane 2	->			->		<-		<-		<-		X				<-		<-	<-	
lane 1	->			->		->		->		->		->				->		->	->	
Ramp		O		O		O		O		O		O	O	O		O		O		
RampName		E:I-35E SB		X:T.H.61		E:T.H.61		X:White Bear		E:White Bear		X:Century Ave		E:Century Ave		X:T.H.3		E:T.H.3		

RampName			E:T.H.61		X:T.H.61		E:White Bear	X:White Bear	E:Century Ave	X:Century Ave	E:T.H.3	X:T.H.3	E:T.H.36 EB	X:T.H.36 EB		E:T.H.5	X:T.H.5		
Ramp			O		O		O	X	O	O	X	X	X	X		O	O		
lane 1		X		X		X		X		X				X	X			<-	<-	<-
lane 2		X		X		X		X		X				X	X	X		X	<-	<-
lane 3		X																		
WB <--		S1445		S1456		S1424		S1423		S1422		S1421		S1420		S1419		S1418	S1417	
Div																				
EB -->	S1454			S1455		S1393		S1394		S1395		S1396		S1397		S1398		S1399	S1400	
lane 3	X			<-																
lane 2	->			->		<-		<-		<-		X				<-		<-	<-	
lane 1	->			->		->		X		->		X				->		->	->	
Ramp		O		O		O		O		O		O	O	O		O		O		
RampName		E:I-35E SB		X:T.H.61		E:T.H.61		X:White Bear		E:White Bear		X:Century Ave		E:Century Ave		X:T.H.3		E:T.H.3		

WB-Phase 4

RampName			E:T.H.61		X:T.H.61		E:White Bear	X:White Bear	E:Century Ave	X:Century Ave	E:T.H.3	X:T.H.3	E:T.H.36 EB	X:T.H.36 EB		E:T.H.5	X:T.H.5		
Ramp			O		X		X	X	X	X	O	X	X	X		O	O		
lane 1		X		X		X		X		X				X	X	<-		<-	<-	<-
lane 2		X		X		X		X		X				X	<-	X		X	<-	<-
lane 3		X																		
WB <--		S1445		S1456		S1424		S1423		S1422		S1421		S1420		S1419		S1418	S1417	
Div																				
EB -->	S1454			S1455		S1393		S1394		S1395		S1396		S1397		S1398		S1399	S1400	
lane 3	X			<-																
lane 2	->			->		<-		<-		<-		X				X		X	X	
lane 1	->			->		->		->		->		X				->		->	->	
Ramp		O		O		O		O		O		O	X	O		O		O		
RampName		E:I-35E SB		X:T.H.61		E:T.H.61		X:White Bear		E:White Bear		X:Century Ave		E:Century Ave		X:T.H.3		E:T.H.3		

WB-Phase 5

RampName			E:T.H.61		X:T.H.61		E:White Bear	X:White Bear	E:Century Ave	X:Century Ave	E:T.H.3	X:T.H.3	E:T.H.36 EB	X:T.H.36 EB		E:T.H.5	X:T.H.5		
Ramp			O		X		X	X	X	X	O	O	O	O		O	O		
lane 1		X		X		X		X		X				<-	<-	<-		<-	<-	<-
lane 2		X		X		X		X		->				->	->	->		X	<-	<-
lane 3		X																		
WB <--		S1445		S1456		S1424		S1423		S1422		S1421		S1420		S1419		S1418	S1417	
Div																				
EB -->	S1454			S1455		S1393		S1394		S1395		S1396		S1397		S1398		S1399	S1400	
lane 3	X			<-																
lane 2	->			->		X		<-		<-		X				X		X	X	
lane 1	->			->		->		->		->		X				X		X	X	
Ramp		O		O		O		O		O		O	X	X		X		O	O	
RampName		E:I-35E SB		X:T.H.61		E:T.H.61		X:White Bear		E:White Bear		X:Century Ave		E:Century Ave		X:T.H.3		E:T.H.3		

WB-Phase 6

RampName			E:T.H.61		X:T.H.61		E:White Bear		X:White Bear		E:Century Ave		X:Century Ave		E:T.H.3	X:T.H.3	E:T.H.36 EB		X:T.H.36 EB			E:T.H.5		X:T.H.5		
Ramp			O		O		O		O		O		O		O	O	X		O			O		O		
lane 1		X		<-		<-		<-		<-		X		<-				<-		<-	<-		<-		<-	<-
lane 2		X		->		->		->		->		X		->				->		->	->		X		<-	<-
lane 3		X																								
WB <--		S1445		S1456		S1424		S1423		S1422		S1421		S1420				S1419		S1418	S1417		S1416		S1415	S1414
Div																										
EB -->	S1454			S1455		S1393		S1394		S1395		S1396		S1397				S1398		S1399	S1400		S1401		S1402	S1403
lane 3	X			X																						
lane 2	->			X		X		X		X		X		X				X		X	X		->		->	->
lane 1	->			X		X		X		X		X		X				X		X	X		->		->	->
Ramp		O		O		O		O		X		O		O		X	X		O			O		O		
RampName		E:I-35E SB		X:T.H.61		E:T.H.61		X:White Bear		E:White Bear		X:Century Ave		E:Century Ave		X:T.H.3	E:T.H.3	X:T.H.36 EB		E:T.H.36 EB			X:T.H.5		E:T.H.5	

WB-Phase 7

RampName			E:T.H.61		X:T.H.61		E:White Bear		X:White Bear		E:Century Ave		X:Century Ave		E:T.H.3	X:T.H.3	E:T.H.36 EB		X:T.H.36 EB			E:T.H.5		X:T.H.5		
Ramp			O		O		X		O		O		O		X	O	X		X			O		O		
lane 1		X		X		<-		<-		<-		X		<-				<-		<-	<-		<-		<-	<-
lane 2		X		X		->		->		->		X		->				->		->	->		X		<-	<-
lane 3		X																								
WB <--		S1445		S1456		S1424		S1423		S1422		S1421		S1420				S1419		S1418	S1417		S1416		S1415	S1414
Div																										
EB -->	S1454			S1455		S1393		S1394		S1395		S1396		S1397				S1398		S1399	S1400		S1401		S1402	S1403
lane 3	X			X																						
lane 2	->			X		X		X		X		X		X				X		X	X		->		->	->
lane 1	->			X		X		X		X		X		X				X		X	X		->		->	->
Ramp		O		O		O		O		X		O		O		X	X		O			O		O		
RampName		E:I-35E SB		X:T.H.61		E:T.H.61		X:White Bear		E:White Bear		X:Century Ave		E:Century Ave		X:T.H.3	E:T.H.3	X:T.H.36 EB		E:T.H.36 EB			X:T.H.5		E:T.H.5	

WB-Phase 9

RampName			E:T.H.61		X:T.H.61		E:White Bear		X:White Bear		E:Century Ave		X:Century Ave		E:T.H.3	X:T.H.3	E:T.H.36 EB		X:T.H.36 EB			E:T.H.5		X:T.H.5		
Ramp			X		O		O		O		O		O		O	O	O		X			O		O		
lane 1		X		X		X		<-		<-		X		<-				<-		<-	X		<-		<-	<-
lane 2		X		X		<-		X		X		X		X				X		X	<-		X		<-	<-
lane 3		X																								
WB <--		S1445		S1456		S1424		S1423		S1422		S1421		S1420				S1419		S1418	S1417		S1416		S1415	S1414
Div																										
EB -->	S1454			S1455		S1393		S1394		S1395		S1396		S1397				S1398		S1399	S1400		S1401		S1402	S1403
lane 3	X			X																						
lane 2	->			->		X		X		X		X		X				->		->	->		->		->	->
lane 1	->			->		->		->		->		->		->				->		->	->		->		->	->
Ramp		O		X		O		O		O		O		O		X	O	O		O			O		O	
RampName		E:I-35E SB		X:T.H.61		E:T.H.61		X:White Bear		E:White Bear		X:Century Ave		E:Century Ave		X:T.H.3	E:T.H.3	X:T.H.36 EB		E:T.H.36 EB			X:T.H.5		E:T.H.5	

Site 4: U.S.169, Jun-Aug 2013 (2 to 1)

NB-Phase 1

RampName		X:T.H.101	X:T.H.101 NB			X:Old Shal	E:Pioneer Trail		X:Pioneer	E:Anderson Lakes Pkwy	
Ramp		O	O			O	O		O	O	
lane 1	<-				<-			<-			<-
lane 2	<-				<-			<-			<-
SB <--	S1610				S1141			S1140			S1147
Div											
NB -->	S1611				S1142			S1143			S1144
lane 2	->				->			->			->
lane 1	->				X			->			->
Ramp		O		O		O	O		O	O	
RampName		E:T.H.101 NB		X:Old Shakopee Rd		E:Old Shal	X:Pioneer Trail		E:Pioneer	X:Anderson Lakes Pkwy	

NB-Phase 2

RampName		X:T.H.101	X:T.H.101 NB			X:Old Shal	E:Pioneer Trail		X:Pioneer	E:Anderson Lakes Pkwy	
Ramp		X	X			O	X		O	O	
lane 1	X				<-			<-			<-
lane 2	X				X			<-			<-
SB <--	S1610				S1141			S1140			S1147
Div											
NB -->	S1611				S1142			S1143			S1144
lane 2	->				->			->			->
lane 1	->				X			->			->
Ramp		X		O		O	O		O	O	
RampName		E:T.H.101 NB		X:Old Shakopee Rd		E:Old Shal	X:Pioneer Trail		E:Pioneer	X:Anderson Lakes Pkwy	

NB-Phase 3

RampName		X:T.H.101	X:T.H.101 NB			X:Old Shal	E:Pioneer Trail		X:Pioneer	E:Anderson Lakes Pkwy	
Ramp		O	O			O	O		O	O	
lane 1	<-				<-			<-			<-
lane 2	<-				X			<-			<-
SB <--	S1610				S1141			S1140			S1147
Div											
NB -->	S1611				S1142			S1143			S1144
lane 2	X				X			->			->
lane 1	X				X			->			->
Ramp		X		X		X	O		O	O	
RampName		E:T.H.101 NB		X:Old Shakopee Rd		E:Old Shal	X:Pioneer Trail		E:Pioneer	X:Anderson Lakes Pkwy	

NB-Phase 4

RampName		X:T.H.101	X:T.H.101 NB			X:Old Shal	E:Pioneer Trail		X:Pioneer	E:Anderson Lakes Pkwy	
Ramp		O	O			O	O		O	O	
lane 1	<-				<-			<-			<-
lane 2	X				X			<-			<-
SB <--	S1610				S1141			S1140			S1147
Div											
NB -->	S1611				S1142			S1143			S1144
lane 2	->				->			->			->
lane 1	->				->			->			->
Ramp		O		O		O	O		O	O	
RampName		E:T.H.101 NB		X:Old Shakopee Rd		E:Old Shal	X:Pioneer Trail		E:Pioneer	X:Anderson Lakes Pkwy	

SB-Phase 1

RampName		X:T.H.101	X:T.H.101 NB			X:Old Shal	E:Pioneer Trail		X:Pioneer	E:Anderson Lakes Pkwy	
Ramp		O	O			O	O		O	O	
lane 1	<-				<-			<-			<-
lane 2	<-				<-			<-			<-
SB <--	S1610				S1141			S1140			S1147
Div											
NB -->	S1611				S1142			S1143			S1144
lane 2	->				->			->			->
lane 1	->				X			->			->
Ramp		O		O		O	O		O	O	
RampName		E:T.H.101 NB		X:Old Shakopee Rd		E:Old Shal	X:Pioneer Trail		E:Pioneer	X:Anderson Lakes Pkwy	

SB-Phase 2

RampName		X:Andersc	E:Pioneer Trail		X:Pioneer	E:Old Shakopee Rd		X:Old Shal	E:T.H.101 NB		
Ramp		O	O		O	O		O	O		
lane 1	<-			<-			X				<-
lane 2	<-			<-			<-				<-
NB <--	S1144			S1143			S1142				S1611
Div											
SB -->	S1147			S1140			S1141				S1610
lane 2	->			->			X				X
lane 1	->			->			->				X
Ramp		O	O		X	O			X	X	
RampName		E:Andersc	X:Pioneer Trail		E:Pioneer	X:Old Shakopee Rd			X:T.H.101	X:T.H.101 SB	

SB-Phase 3

RampName		X:Andersc	E:Pioneer Trail		X:Pioneer	E:Old Shakopee Rd		X:Old Shal	E:T.H.101 NB		
Ramp		O	O		O	O		O	X		
lane 1	<-			<-			X				<-
lane 2	<-			<-			<-				<-
NB <--	S1144			S1143			S1142				S1611
Div											
SB -->	S1147			S1140			S1141				S1610
lane 2	->			->			X				X
lane 1	->			->			->				X
Ramp		O	O		X	X			X	X	
RampName		E:Andersc	X:Pioneer Trail		E:Pioneer	X:Old Shakopee Rd			X:T.H.101	X:T.H.101 SB	

SB-Phase 4

RampName		X:T.H.101	X:T.H.101 NB			X:Old Shal	E:Pioneer Trail		X:Pioneer	E:Anderson Lakes Pkwy	
Ramp		O	O			O	O		O	O	
lane 1	<-				<-			<-			<-
lane 2	<-				X			<-			<-
SB <--	S1610				S1141			S1140			S1147
Div											
NB -->	S1611				S1142			S1143			S1144
lane 2	X				X			->			->
lane 1	X				X			->			->
Ramp		X		X		X	O		O	O	
RampName		E:T.H.101 NB		X:Old Shakopee Rd		E:Old Shal	X:Pioneer Trail		E:Pioneer	X:Anderson Lakes Pkwy	

SB-Phase 5

RampName		X:T.H.101	X:T.H.101 NB			X:Old Shal	E:Pioneer Trail		X:Pioneer	E:Anderson Lakes Pkwy		
Ramp		O	O			O	O		O	O		
lane 1	<-				<-			<-			<-	
lane 2	<-				X			<-			<-	
SB <--	S1610				S1141			S1140			S1147	
Div												
NB -->	S1611				S1142			S1143			S1144	
lane 2	X				X			->			->	
lane 1	X				X			->			->	
Ramp		X		X		X	O		O	O		
RampName		E:T.H.101 NB		X:Old Shakopee Rd		E:Old Shal	X:Pioneer Trail		E:Pioneer	X:Anderson Lakes Pkwy		

Site 5: I-35E, Apr-Oct 2013 (3 to 3, no-lane-close)

NB-Phase 1

RampName		X:I-94 CD \	X:I-35E CD SB			X:Universi	X:Pennsylvania Ave			E:Maryland Ave		X:Marylan	E:Wheelock Pkwy		
Ramp		X	O			O	O			O		O	O		
lane 1	<-				<-			<-	X		<-			<-	<-
lane 2	<-				<-			<-	X		<-			<-	<-
lane 3					<-			<-	X		<-			<-	<-
lane 4					<-										
SB <--	S643				S642			S641	S640		S639			S638	S637
Div															
NB -->	S620				S621			S622	S623		S624			S625	S626
lane 4					->										
lane 3					->			->	X		->			->	->
lane 2	->				->			->	X		->			->	->
lane 1	->				->			->	X		->			->	->
Ramp		O	O	O		O				O		O	O		
RampName		E:Jackson	E:I-35E CD	X:Pennsylvania Ave		E:Pennsylvania Ave				X:Maryland Ave		E:Marylan	X:Wheelock Pkwy		

NB-Phase 2

RampName		X:I-94 CD \	X:I-35E CD SB			X:Universi	X:Pennsylvania Ave			E:Maryland Ave		X:Marylan	E:Wheelock Pkwy		
Ramp		X	O			O	O			O		O	O		
lane 1	<-				<-			X	X		<-			<-	<-
lane 2	<-				<-			X	X		<-			<-	<-
lane 3					<-			X	X		<-			<-	<-
lane 4					<-										
SB <--	S643				S642			S641	S640		S639			S638	S637
Div															
NB -->	S620				S621			S622	S623		S624			S625	S626
lane 4					->										
lane 3					->			X	X		->			->	->
lane 2	->				->			X	X		->			->	->
lane 1	->				->			X	X		->			->	->
Ramp		O	O	O		O				O		O	O		
RampName		E:Jackson	E:I-35E CD	X:Pennsylvania Ave		E:Pennsylvania Ave				X:Maryland Ave		E:Marylan	X:Wheelock Pkwy		

NB-Phase 3

RampName		X:I-94 CD \	X:I-35E CD SB			X:Universi	X:Pennsylvania Ave			E:Maryland Ave		X:Marylan	E:Wheelock Pkwy		
Ramp		X	O			O	O			O		O	O		
lane 1	<-				<-			X	X		<-			<-	<-
lane 2	<-				<-			X	X		<-			<-	<-
lane 3					<-			X	X		<-			<-	<-
lane 4					<-										
SB <--	S643				S642			S641	S640		S639			S638	S637
Div															
NB -->	S620				S621			S622	S623		S624			S625	S626
lane 4					->										
lane 3					->			X	X		->			->	->
lane 2	X				->			X	X		->			->	->
lane 1	->				->			X	X		->			->	->
Ramp		O	O	O		O				O		O	O		
RampName		E:Jackson	E:I-35E CD	X:Pennsylvania Ave		E:Pennsylvania Ave				X:Maryland Ave		E:Marylan	X:Wheelock Pkwy		

NB-Phase 4

RampName		X:I-94 CD \	X:I-35E CD SB			X:Universi	X:Pennsylvania Ave			E:Maryland Ave		X:Marylan	E:Wheelock Pkwy		
Ramp		X	O			O	O			X		X	O		
lane 1	<-				<-			X	X		X			<-	<-
lane 2	<-				<-			X	X		X			<-	<-
lane 3					<-			X	X		X			<-	<-
lane 4					<-										
SB <--	S643				S642			S641	S640		S639			S638	S637
Div															
NB -->	S620				S621			S622	S623		S624			S625	S626
lane 4					->										
lane 3					->			X	X		X			->	->
lane 2	->				->			X	X		X			->	->
lane 1	->				->			X	X		X			->	->
Ramp		O	O	O		O				X		X	O		
RampName		E:Jackson	E:I-35E CD	X:Pennsylvania Ave		E:Pennsylvania Ave				X:Maryland Ave		E:Marylan	X:Wheelock Pkwy		

NB-Phase 5

RampName		X:I-94 CD \	X:I-35E CD SB			X:Universi	X:Pennsylvania Ave			E:Maryland Ave		X:Marylan	E:Wheelock Pkwy		
Ramp		X	O			O	O			O		O	O		
lane 1	<-				<-			X	X		<-			<-	<-
lane 2	<-				<-			X	X		<-			<-	<-
lane 3					<-			X	X		<-			<-	<-
lane 4					<-										
SB <--	S643				S642			S641	S640		S639			S638	S637
Div															
NB -->	S620				S621			S622	S623		S624			S625	S626
lane 4					->										
lane 3					->			X	X		->			->	->
lane 2	->				->			X	X		->			->	->
lane 1	->				->			X	X		->			->	->
Ramp		O	O	O		O				O		O	O		
RampName		E:Jackson	E:I-35E CD	X:Pennsylvania Ave		E:Pennsylvania Ave				X:Maryland Ave		E:Marylan	X:Wheelock Pkwy		

NB-Phase 6

RampName		X:I-94 CD \	X:I-35E CD SB			X:Universi	X:Pennsylvania Ave			E:Maryland Ave		X:Marylan	E:Wheelock Pkwy		
Ramp		X	O			O	O			X		O	O		
lane 1	<-				<-			X	X		<-			<-	<-
lane 2	<-				<-			X	X		<-			<-	<-
lane 3					<-			X	X		<-			<-	<-
lane 4					<-										
SB <--	S643				S642			S641	S640		S639			S638	S637
Div															
NB -->	S620				S621			S622	S623		S624			S625	S626
lane 4					->										
lane 3					->			X	X		->			->	->
lane 2	->				->			X	X		->			->	->
lane 1	->				->			X	X		->			->	->
Ramp		O	O	O		O				X		O	O		
RampName		E:Jackson	E:I-35E CD	X:Pennsylvania Ave		E:Pennsylvania Ave				X:Maryland Ave		E:Marylan	X:Wheelock Pkwy		

NB-Phase 7

RampName		X:I-94 CD \	X:I-35E CD SB			X:Universi	X:Pennsylvania Ave			E:Maryland Ave		X:Marylan	E:Wheelock Pkwy		
Ramp		X	O			O	O			X		O	O		
lane 1	<-				<-			X	X		X			<-	<-
lane 2	<-				<-			X	X		X			<-	<-
lane 3					<-			X	X		X			<-	<-
lane 4					<-										
SB <--	S643				S642			S641	S640		S639			S638	S637
Div															
NB -->	S620				S621			S622	S623		S624			S625	S626
lane 4					->										
lane 3					->			X	X		->			->	->
lane 2	->				->			X	X		->			->	->
lane 1	->				->			X	X		->			->	->
Ramp		O	O	O		O				O		O	O		
RampName		E:Jackson	E:I-35E CD	X:Pennsylvania Ave		E:Pennsylvania Ave				X:Maryland Ave		E:Marylan	X:Wheelock Pkwy		

SB-Phase 1

RampName		X:I-94 CD \	X:I-35E CD SB			X:Univers	X:Pennsylvania Ave			E:Maryland Ave		X:Marylan	E:Wheelock Pkwy		
Ramp		O	O			O	O			O		O	O		
lane 1	<-				<-			<-	X		<-			<-	<-
lane 2	<-				<-			<-	X		<-			<-	<-
lane 3					<-			<-	X		<-			<-	<-
lane 4					<-										
SB <--	S643				S642			S641	S640		S639			S638	S637
Div															
NB -->	S620				S621			S622	S623		S624			S625	S626
lane 4					->										
lane 3					->			->	X		->			->	->
lane 2	->				->			->	X		->			->	->
lane 1	->				->			->	X		->			->	->
Ramp		O	O	O		O				O		O	O		
RampName		E:Jackson	E:I-35E CD	X:Pennsylvania Ave		E:Pennsylvania Ave				X:Maryland Ave		E:Marylan	X:Wheelock Pkwy		

SB-Phase 2

RampName		X:I-94 CD \	X:I-35E CD SB			X:Univers	X:Pennsylvania Ave			E:Maryland Ave		X:Marylan	E:Wheelock Pkwy		
Ramp		O	O			O	O			O		O	O		
lane 1	<-				<-			X	X		<-			<-	<-
lane 2	<-				<-			X	X		<-			<-	<-
lane 3					<-			X	X		<-			<-	<-
lane 4					<-										
SB <--	S643				S642			S641	S640		S639			S638	S637
Div															
NB -->	S620				S621			S622	S623		S624			S625	S626
lane 4					->										
lane 3					->			X	X		->			->	->
lane 2	->				->			X	X		->			->	->
lane 1	->				->			X	X		->			->	->
Ramp		O	O	O		O				O		O	O		
RampName		E:Jackson	E:I-35E CD	X:Pennsylvania Ave		E:Pennsylvania Ave				X:Maryland Ave		E:Marylan	X:Wheelock Pkwy		

SB-Phase 3

RampName		X:I-94 CD \	X:I-35E CD SB			X:Univers	X:Pennsylvania Ave			E:Maryland Ave		X:Marylan	E:Wheelock Pkwy		
Ramp		O	O			O	O			O		O	O		
lane 1	<-				<-			X	X		<-			<-	<-
lane 2	<-				<-			X	X		<-			<-	<-
lane 3					<-			X	X		<-			<-	<-
lane 4					<-										
SB <--	S643				S642			S641	S640		S639			S638	S637
Div															
NB -->	S620				S621			S622	S623		S624			S625	S626
lane 4					->										
lane 3					->			X	X		->			->	->
lane 2	X				->			X	X		->			->	->
lane 1	->				->			X	X		->			->	->
Ramp		O	O	O		O				O		O	O		
RampName		E:Jackson	E:I-35E CD	X:Pennsylvania Ave		E:Pennsylvania Ave				X:Maryland Ave		E:Marylan	X:Wheelock Pkwy		

SB-Phase 4

RampName		X:I-94 CD \	X:I-35E CD SB			X:Univers	X:Pennsylvania Ave			E:Maryland Ave		X:Marylan	E:Wheelock Pkwy		
Ramp		O	O			O	O			X		X	O		
lane 1	<-				<-			X	X		X			<-	<-
lane 2	<-				<-			X	X		X			<-	<-
lane 3					<-			X	X		X			<-	<-
lane 4					<-										
SB <--	S643				S642			S641	S640		S639			S638	S637
Div															
NB -->	S620				S621			S622	S623		S624			S625	S626
lane 4					->										
lane 3					->			X	X		X			->	->
lane 2	->				->			X	X		X			->	->
lane 1	->				->			X	X		X			->	->
Ramp		O	O	O		O				X		X	O		
RampName		E:Jackson	E:I-35E CD	X:Pennsylvania Ave		E:Pennsylvania Ave				X:Maryland Ave		E:Marylan	X:Wheelock Pkwy		

SB-Phase 5

RampName		X:I-94 CD \	X:I-35E CD SB			X:Univers	X:Pennsylvania Ave			E:Maryland Ave		X:Marylan	E:Wheelock Pkwy		
Ramp		O	O			O	O			O		O	O		
lane 1	<-				<-			X	X		<-			<-	<-
lane 2	<-				<-			X	X		<-			<-	<-
lane 3					<-			X	X		<-			<-	<-
lane 4					<-										
SB <--	S643				S642			S641	S640		S639			S638	S637
Div															
NB -->	S620				S621			S622	S623		S624			S625	S626
lane 4					->										
lane 3					->			X	X		->			->	->
lane 2	->				->			X	X		->			->	->
lane 1	->				->			X	X		->			->	->
Ramp		O	O	O		O				O		O	O		
RampName		E:Jackson	E:I-35E CD	X:Pennsylvania Ave		E:Pennsylvania Ave				X:Maryland Ave		E:Marylan	X:Wheelock Pkwy		

SB-Phase 6

RampName		X:I-94 CD \	X:I-35E CD SB			X:Univers	X:Pennsylvania Ave			E:Maryland Ave		X:Marylan	E:Wheelock Pkwy		
Ramp		O	O			O	O			X		O	O		
lane 1	<-				<-			X	X		<-			<-	<-
lane 2	<-				<-			X	X		<-			<-	<-
lane 3					<-			X	X		<-			<-	<-
lane 4					<-										
SB <--	S643				S642			S641	S640		S639			S638	S637
Div															
NB -->	S620				S621			S622	S623		S624			S625	S626
lane 4					->										
lane 3					->			X	X		->			->	->
lane 2	->				->			X	X		->			->	->
lane 1	->				->			X	X		->			->	->
Ramp		O	O	O		O				X		O	O		
RampName		E:Jackson	E:I-35E CD	X:Pennsylvania Ave		E:Pennsylvania Ave				X:Maryland Ave		E:Marylan	X:Wheelock Pkwy		

Site 6: I-694, Nov 2011 – Jul 2013 (2 to 2, no-lane-close)

EB-Phase 1

RampName	E:I-35W SB			X:I-35V	E:I-35W NB		X:I-35W NB		E:T.H.10		E:T.H.51 NB			X:T.H.10		X:Lexington Ave			E:Victoria St		X:Victoria St	
Ramp	O			X	O		X		X		X			X		O			O		O	
lane 1	<-		X	<-			<-		<-		X			X		X		<-			<-	
lane 2	<-		X	<-			<-		<-		X			X		X		<-			<-	
lane 3	<-		X	<-							X					X						
lane 4			X																			
WB <--	S180		ST3003	S199			S204		S1089		S1088			ST30032		S1086		ST3003	S1085		S1084		S1083
Div																							
EB -->	S179		ST3001	S184			S203		S1074		S1075		S1076	ST30016		S1077		ST3001	S1078		S1079		S1080
lane 3	->		X	->							X												
lane 2	->		X	->			->		X		X		X	X		->		X	->		->		->
lane 1	->		X	->			->		X		X		X	X		->		X	->		->		->
Ramp		O			O	O		O		X		X			O		X			O		O	
RampName		X:I-35W SB			E:I-35V	X:I-35W NB		E:I-35W NB		X:T.H.51 SB		E:T.H.10			X:Lexington A		E:Lexington Ave			X:Victoria St		E:Victoria St	

EB-Phase 2-6

RampName	E:I-35W SB			X:I-35V	E:I-35W NB		X:I-35W NB		E:T.H.10		E:T.H.51 NB			X:T.H.10		X:Lexington Ave			E:Victoria St		X:Victoria St	
Ramp	O			X	O		X		X		X			X		O			O		O	
lane 1	<-		X	<-			<-		<-		X			X		X		<-			<-	
lane 2	<-		X	<-			<-		<-		X			X		X		<-			<-	
lane 3	<-		X	<-							X					X						
lane 4			X																			
WB <--	S180		ST3003	S199			S204		S1089		S1088			ST30032		S1086		ST3003	S1085		S1084		S1083
Div																							
EB -->	S179		ST3001	S184			S203		S1074		S1075		S1076	ST30016		S1077		ST3001	S1078		S1079		S1080
lane 3	->		X	->							X												
lane 2	->		X	->			->		X		X		X	X		->		X	->		->		->
lane 1	->		X	->			->		X		X		X	X		->		X	->		->		->
Ramp		O			O	O		O		X		X			O		O			O		O	
RampName		X:I-35W SB			E:I-35V	X:I-35W NB		E:I-35W NB		X:T.H.51 SB		E:T.H.10			X:Lexington A		E:Lexington Ave			X:Victoria St		E:Victoria St	

EB-Phase 7-8

RampName	E:I-35W SB			X:I-35V	E:I-35W NB		X:I-35W NB		E:T.H.10		E:T.H.51 NB			X:T.H.10		X:Lexington Ave			E:Victoria St		X:Victoria St	
Ramp	O			X	O		X		X		X			X		O			O		O	
lane 1	<-		X	<-			<-		<-		X			X		X		<-			<-	
lane 2	<-		X	<-			<-		<-		X			X		X		<-			<-	
lane 3	<-		X	<-							X					X						
lane 4			X																			
WB <--	S180		ST3003	S199			S204		S1089		S1088			ST30032		S1086		ST3003	S1085		S1084		S1083
Div																							
EB -->	S179		ST3001	S184			S203		S1074		S1075		S1076	ST30016		S1077		ST3001	S1078		S1079		S1080
lane 3	->		X	->							X												
lane 2	->		X	->			->		X		X		X	X		->		X	->		->		->
lane 1	->		X	->			->		X		X		X	X		->		X	->		->		->
Ramp		O			O	O		O		X		X			O		X			O		O	
RampName		X:I-35W SB			E:I-35V	X:I-35W NB		E:I-35W NB		X:T.H.51 SB		E:T.H.10			X:Lexington A		E:Lexington Ave			X:Victoria St		E:Victoria St	

EB-Phase 9

RampName	E:I-35W SB			X:I-35V	E:I-35W NB		X:I-35W NB		E:T.H.10		E:T.H.51 NB			X:T.H.10		X:Lexington Ave			E:Victoria St		X:Victoria St	
Ramp	O			X	O		X		X		X			X		O			X		O	
lane 1	<-		X	<-			<-		<-		X			X		X		<-			<-	
lane 2	<-		X	<-			<-		<-		X			X		X		<-			<-	
lane 3	<-		X	<-							X					X						
lane 4			X																			
WB <--	S180		ST3003	S199			S204		S1089		S1088			ST30032		S1086		ST3003	S1085		S1084		S1083
Div																							
EB -->	S179		ST3001	S184			S203		S1074		S1075		S1076	ST30016		S1077		ST3001	S1078		S1079		S1080
lane 3	->		X	->							X												
lane 2	->		X	->			->		X		X		X	X		X		X	->		->		->
lane 1	->		X	->			->		X		X		X	X		X		X	->		->		->
Ramp		O			O	O		X		X		X			X		O			O		O	
RampName		X:I-35W SB			E:I-35V	X:I-35W NB		E:I-35W NB		X:T.H.51 SB		E:T.H.10			X:Lexington A		E:Lexington Ave			X:Victoria St		E:Victoria St	

EB-Phase 10

RampName	E:I-35W SB			X:I-35V	E:I-35W NB		X:I-35W NB		E:T.H.10		E:T.H.51 NB			X:T.H.10		X:Lexington Ave			E:Victoria St		X:Victoria St	
Ramp	O			X	O		X		X		X			X		X			X		X	
lane 1	<-		X	<-			<-		X		X			X		X		X			X	
lane 2	<-		X	<-			<-		X		X			X		X		X			X	
lane 3	<-		X	<-							X					X						
lane 4			X																			
WB <--	S180		ST3003	S199			S204		S1089		S1088			ST30032		S1086		ST3003	S1085		S1084		S1083
Div																							
EB -->	S179		ST3001	S184			S203		S1074		S1075		S1076	ST30016		S1077		ST3001	S1078		S1079		S1080
lane 3	->		X	->							X												
lane 2	->		X	->			->		X		X		X	X		X		X	X		X		X
lane 1	->		X	->			->		X		X		X	X		X		X	X		X		X
Ramp		O			O	O		X		X		X			X		X			X		X	
RampName		X:I-35W SB			E:I-35V	X:I-35W NB		E:I-35W NB		X:T.H.51 SB		E:T.H.10			X:Lexington A		E:Lexington Ave			X:Victoria St		E:Victoria St	

EB-Phase 11

RampName	E:I-35W SB			X:I-35V	E:I-35W NB		X:I-35W NB		E:T.H.10		E:T.H.51 NB			X:T.H.10		X:Lexington Ave			E:Victoria St		X:Victoria St	
Ramp	O			X	O		X		X		X			X		O			X		O	
lane 1	<-	X	<-			<-		X		X			X		X		X	<-		<-		<-
lane 2	<-	X	<-			<-		X		X			X		X		X	<-		<-		<-
lane 3	<-	X	<-							X					X							
lane 4		X																				
WB <--	S180		ST3003	S199			S204		S1089		S1088			ST30032		S1086		ST3003	S1085		S1084		S1083
Div																							
EB -->	S179		ST3001	S184			S203		S1074		S1075		S1076	ST30016		S1077		ST3001	S1078		S1079		S1080
lane 3	->	X	->								X												
lane 2	->	X	->				->		X		X		X		X		X	->		->		->	
lane 1	->	X	->				->		X		X		X		X		X	->		->		->	
Ramp	O			O	O		X		X		X			O		O			O		O	
RampName	X:I-35W SB			E:I-35V	X:I-35W NB		E:I-35W NB		X:T.H.51 SB		E:T.H.10			X:Lexington A		E:Lexington Ave			X:Victoria St		E:Victoria St	

EB-Phase 12-13

RampName	E:I-35W SB			X:I-35V	E:I-35W NB		X:I-35W NB		E:T.H.10		E:T.H.51 NB			X:T.H.10		X:Lexington Ave			E:Victoria St		X:Victoria St	
Ramp	O			X	O		X		X		X			X		O			O		O	
lane 1	<-	X	<-			<-		X		X			X		X		X	X		<-		<-
lane 2	<-	X	<-			<-		X		X			X		X		X	X		<-		<-
lane 3	<-	X	<-							X					X							
lane 4		X																				
WB <--	S180		ST3003	S199			S204		S1089		S1088			ST30032		S1086		ST3003	S1085		S1084		S1083
Div																							
EB -->	S179		ST3001	S184			S203		S1074		S1075		S1076	ST30016		S1077		ST3001	S1078		S1079		S1080
lane 3	->	X	->								X												
lane 2	->	X	->				->		X		X		X		X		X	X		->		->	
lane 1	->	X	->				->		X		X		X		X		X	X		->		->	
Ramp	O			O	O		X		X		X			O		O			X		O	
RampName	X:I-35W SB			E:I-35V	X:I-35W NB		E:I-35W NB		X:T.H.51 SB		E:T.H.10			X:Lexington A		E:Lexington Ave			X:Victoria St		E:Victoria St	

EB-Phase 14

RampName	E:I-35W SB			X:I-35V	E:I-35W NB		X:I-35W NB		E:T.H.10		E:T.H.51 NB			X:T.H.10		X:Lexington Ave			E:Victoria St		X:Victoria St	
Ramp	O			X	O		X		X		X			X		O			O		O	
lane 1	<-	X	<-			<-		X		X			X		X		X	X		<-		<-
lane 2	<-	X	<-			<-		X		X			X		X		X	X		<-		<-
lane 3	<-	X	<-							X					X							
lane 4		X																				
WB <--	S180		ST3003	S199			S204		S1089		S1088			ST30032		S1086		ST3003	S1085		S1084		S1083
Div																							
EB -->	S179		ST3001	S184			S203		S1074		S1075		S1076	ST30016		S1077		ST3001	S1078		S1079		S1080
lane 3	->	X	->								X												
lane 2	->	X	->				->		X		X		X		X		X	X		->		->	
lane 1	->	X	->				->		X		X		X		X		X	X		->		->	
Ramp	O			O	O		X		X		X			O		O			O		O	
RampName	X:I-35W SB			E:I-35V	X:I-35W NB		E:I-35W NB		X:T.H.51 SB		E:T.H.10			X:Lexington A		E:Lexington Ave			X:Victoria St		E:Victoria St	

EB-Phase 15-20

RampName	E:I-35W SB			X:I-35V	E:I-35W NB		X:I-35W NB		E:T.H.10		E:T.H.51 NB			X:T.H.10		X:Lexington Ave			E:Victoria St		X:Victoria St	
Ramp	O			X	O		X		X		X			X		O			O		O	
lane 1	<-	X	<-			<-		X		X			X		<-		X	X		<-		<-
lane 2	<-	X	<-			<-		X		X			X		X		X	X		<-		<-
lane 3	<-	X	<-							X					X							
lane 4		X																				
WB <--	S180		ST3003	S199			S204		S1089		S1088			ST30032		S1086		ST3003	S1085		S1084		S1083
Div																							
EB -->	S179		ST3001	S184			S203		S1074		S1075		S1076	ST30016		S1077		ST3001	S1078		S1079		S1080
lane 3	->	X	->								X												
lane 2	->	X	->				->		X		X		X		X		X	X		->		->	
lane 1	->	X	->				->		X		X		X		X		X	X		->		->	
Ramp	O			O	O		O		X		X			O		O			O		O	
RampName	X:I-35W SB			E:I-35V	X:I-35W NB		E:I-35W NB		X:T.H.51 SB		E:T.H.10			X:Lexington A		E:Lexington Ave			X:Victoria St		E:Victoria St	

EB-Phase 21

RampName	E:I-35W SB			X:I-35V	E:I-35W NB		X:I-35W NB		E:T.H.10		E:T.H.51 NB			X:T.H.10		X:Lexington Ave			E:Victoria St		X:Victoria St	
Ramp	O			X	O		X		X		X			X		O			O		O	
lane 1	<-	<-	<-			<-		X		X			<-		X		<-	X		<-		<-
lane 2	<-	<-	<-			<-		X		X			<-		X		<-	X		<-		<-
lane 3	<-	<-	<-							X					X							
lane 4		X																				
WB <--	S180		ST3003	S199			S204		S1089		S1088			ST30032		S1086		ST3003	S1085		S1084		S1083
Div																							
EB -->	S179		ST3001	S184			S203		S1074		S1075		S1076	ST30016		S1077		ST3001	S1078		S1079		S1080
lane 3	->	->	->								X												
lane 2	->	->	->			->		X		X		X	->		X		->	X		->		->	
lane 1	->	->	->			->		X		X		X	->		X		->	X		->		->	
Ramp	O			O	O		O		X		X			O		O			X		O	
RampName	X:I-35W SB			E:I-35V	X:I-35W NB		E:I-35W NB		X:T.H.51 SB		E:T.H.10			X:Lexington A		E:Lexington Ave			X:Victoria St		E:Victoria St	

EB-Phase 22

RampName	E:I-35W SB			X:I-35V	E:I-35W NB		X:I-35W NB		E:T.H.10		E:T.H.51 NB		X:T.H.10		X:Lexington Ave		E:Victoria St		X:Victoria St	
Ramp	O			X	O		X		X		X		X		O		O		O	
lane 1	<-		<-	<-		<-		X		X		<-		X		<-	<-		<-	<-
lane 2	<-		<-	<-		<-		X		X		<-		X		<-	<-		<-	<-
lane 3	<-		<-	<-						X				X						
lane 4			X																	
WB <--	S180		ST3003	S199			S204		S1089		S1088		ST30032		S1086		ST3003	S1085		S1084		S1083
Div																						
EB -->	S179		ST3001	S184			S203		S1074		S1075		S1076	S30016		S1077		ST3001	S1078		S1079		S1080
lane 3	->		->	->							X											
lane 2	->		->	->			->		X		X		X	->		X		->	->		->		->
lane 1	->		->	->			->		X		X		X	->		X		->	->		->		->
Ramp		O			O	O		O		X		X			O		O			O		O	
RampName		X:I-35W SB			E:I-35V	X:I-35W NB		E:I-35W NB		X:T.H.51 SB		E:T.H.10			X:Lexington A		E:Lexington Ave			X:Victoria St		E:Victoria St	

WB-Phase 1

RampName	E:I-35W SB			X:I-35V	E:I-35W NB		X:I-35W NB		E:T.H.10		E:T.H.51 NB		X:T.H.10		X:Lexington Ave		E:Victoria St		X:Victoria St	
Ramp	O			O	O		O		X		X		X		O		O		O	
lane 1	<-		X	<-		<-		<-		X		X		X		X	<-		<-	<-
lane 2	<-		X	<-		<-		<-		X		X		X		X	<-		<-	<-
lane 3	<-		X	<-						X				X						
lane 4			X																	
WB <--	S180		ST3003	S199			S204		S1089		S1088		ST30032		S1086		ST3003	S1085		S1084		S1083
Div																						
EB -->	S179		ST3001	S184			S203		S1074		S1075		S1076	S30016		S1077		ST3001	S1078		S1079		S1080
lane 3	->		X	->							X											
lane 2	->		X	->			->		X		X		X	X	->		X	->		->		->
lane 1	->		X	->			->		X		X		X	X	->		X	->		->		->
Ramp		O			O	O		O		X		X			O	X				O		O	
RampName		X:I-35W SB			E:I-35V	X:I-35W NB		E:I-35W NB		X:T.H.51 SB		E:T.H.10			X:Lexington A		E:Lexington Ave			X:Victoria St		E:Victoria St	

WB-Phase 2-8

RampName	E:I-35W SB			X:I-35V	E:I-35W NB		X:I-35W NB		E:T.H.10		E:T.H.51 NB		X:T.H.10		X:Lexington Ave		E:Victoria St		X:Victoria St	
Ramp	O			O	O		O		X		X		X		O		O		O	
lane 1	<-		X	<-		<-		<-		X		X		X		X	<-		<-	<-
lane 2	<-		X	<-		<-		<-		X		X		X		X	<-		<-	<-
lane 3	<-		X	<-						X				X						
lane 4			X																	
WB <--	S180		ST3003	S199			S204		S1089		S1088		ST30032		S1086		ST3003	S1085		S1084		S1083
Div																						
EB -->	S179		ST3001	S184			S203		S1074		S1075		S1076	S30016		S1077		ST3001	S1078		S1079		S1080
lane 3	->		X	->							X											
lane 2	->		X	->			->		X		X		X	X	->		X	->		->		->
lane 1	->		X	->			->		X		X		X	X	->		X	->		->		->
Ramp		O			O	O		O		X		X			O		O			O		O	
RampName		X:I-35W SB			E:I-35V	X:I-35W NB		E:I-35W NB		X:T.H.51 SB		E:T.H.10			X:Lexington A		E:Lexington Ave			X:Victoria St		E:Victoria St	

WB-Phase 9

RampName	E:I-35W SB			X:I-35V	E:I-35W NB		X:I-35W NB		E:T.H.10		E:T.H.51 NB		X:T.H.10		X:Lexington Ave		E:Victoria St		X:Victoria St	
Ramp	O			O	O		O		X		X		X		O		O		O	
lane 1	<-		X	<-		<-		X		X		X		X		X	<-		<-	<-
lane 2	<-		X	<-		<-		X		X		X		X		X	<-		<-	<-
lane 3	<-		X	<-						X				X						
lane 4			X																	
WB <--	S180		ST3003	S199			S204		S1089		S1088		ST30032		S1086		ST3003	S1085		S1084		S1083
Div																						
EB -->	S179		ST3001	S184			S203		S1074		S1075		S1076	S30016		S1077		ST3001	S1078		S1079		S1080
lane 3	->		X	->							X											
lane 2	->		X	->			->		X		X		X	X	->		X	->		->		->
lane 1	->		X	->			->		X		X		X	X	->		X	->		->		->
Ramp		O			O	O		X		X		X			O		O			O		O	
RampName		X:I-35W SB			E:I-35V	X:I-35W NB		E:I-35W NB		X:T.H.51 SB		E:T.H.10			X:Lexington A		E:Lexington Ave			X:Victoria St		E:Victoria St	

WB-Phase 10

RampName	E:I-35W SB			X:I-35V	E:I-35W NB		X:I-35W NB		E:T.H.10		E:T.H.51 NB		X:T.H.10		X:Lexington Ave		E:Victoria St		X:Victoria St	
Ramp	O			O	O		O		X		X		X		X		X		X	
lane 1	<-		X	<-		<-		X		X		X		X		X	X		X	X
lane 2	<-		X	<-		<-		X		X		X		X		X	X		X	X
lane 3	<-		X	<-						X				X						
lane 4			X																	
WB <--	S180		ST3003	S199			S204		S1089		S1088		ST30032		S1086		ST3003	S1085		S1084		S1083
Div																						
EB -->	S179		ST3001	S184			S203		S1074		S1075		S1076	S30016		S1077		ST3001	S1078		S1079		S1080
lane 3	->		X	->							X											
lane 2	->		X	->			->		X		X		X	X	->		X	X		X		X
lane 1	->		X	->			->		X		X		X	X	->		X	X		X		X
Ramp		O			O	O		X		X		X		X		X			X		X	
RampName		X:I-35W SB			E:I-35V	X:I-35W NB		E:I-35W NB		X:T.H.51 SB		E:T.H.10			X:Lexington A		E:Lexington Ave			X:Victoria St		E:Victoria St	

WB-Phase 11

RampName	E:I-35W SB			X:I-35V	E:I-35W NB		X:I-35W NB		E:T.H.10		E:T.H.51 NB		X:T.H.10		X:Lexington Ave		E:Victoria St		X:Victoria St
Ramp	O			O	O		O		X		X		X		O		X		O
lane 1	<-	X	<-			<-		X		X		X		X		X	<-	<-		<-
lane 2	<-	X	<-			<-		X		X		X		X		X	<-	<-		<-
lane 3	<-	X	<-							X				X						
lane 4		X																		
WB <--	S180	ST3003	S199			S204		S1089		S1088			ST30032	S1086		ST3003	S1085		S1084		S1083
Div																				
EB -->	S179	ST3001	S184			S203		S1074		S1075		S1076	ST30016	S1077		ST3001	S1078		S1079		S1080
lane 3	->	X	->							X										
lane 2	->	X	->			->		X		X		X	X	X		X	->	->		->
lane 1	->	X	->			->		X		X		X	X	X		X	->	->		->
Ramp	O			O	O		X		X		X		O		O		O		O	
RampName	X:I-35W SB			E:I-35V	X:I-35W NB		E:I-35W NB		X:T.H.51 SB		E:T.H.10		X:Lexington A		E:Lexington Ave		X:Victoria St		E:Victoria St	

WB-Phase 12-20

RampName	E:I-35W SB			X:I-35V	E:I-35W NB		X:I-35W NB		E:T.H.10		E:T.H.51 NB		X:T.H.10		X:Lexington Ave		E:Victoria St		X:Victoria St
Ramp	O			O	O		O		X		X		X		O		O		O	
lane 1	<-	X	<-			<-		X		X		X		X		X	X	<-		<-
lane 2	<-	X	<-			<-		X		X		X		X		X	X	<-		<-
lane 3	<-	X	<-							X				X						
lane 4		X																		
WB <--	S180	ST3003	S199			S204		S1089		S1088			ST30032	S1086		ST3003	S1085		S1084		S1083
Div																				
EB -->	S179	ST3001	S184			S203		S1074		S1075		S1076	ST30016	S1077		ST3001	S1078		S1079		S1080
lane 3	->	X	->							X										
lane 2	->	X	->			->		X		X		X	X	X		X	X	->		->
lane 1	->	X	->			->		X		X		X	X	X		X	X	->		->
Ramp	O			O	O		X		X		X		O		O		X		O	
RampName	X:I-35W SB			E:I-35V	X:I-35W NB		E:I-35W NB		X:T.H.51 SB		E:T.H.10		X:Lexington A		E:Lexington Ave		X:Victoria St		E:Victoria St	

WB-Phase 21-22

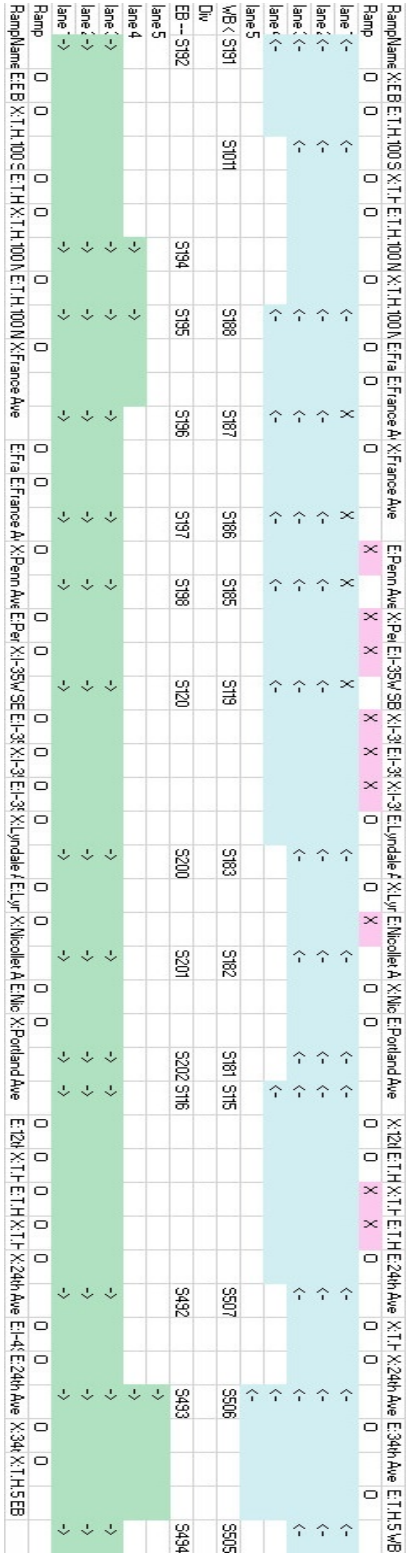
RampName	E:I-35W SB			X:I-35V	E:I-35W NB		X:I-35W NB		E:T.H.10		E:T.H.51 NB		X:T.H.10		X:Lexington Ave		E:Victoria St		X:Victoria St
Ramp	O			O	O		O		X		X		X		O		O		O	
lane 1	<-	<-	<-			<-		X		X		<-		X		<-	X	<-		<-
lane 2	<-	<-	<-			<-		X		X		<-		X		<-	X	<-		<-
lane 3	<-	<-	<-							X				X						
lane 4		X																		
WB <--	S180	ST3003	S199			S204		S1089		S1088			ST30032	S1086		ST3003	S1085		S1084		S1083
Div																				
EB -->	S179	ST3001	S184			S203		S1074		S1075		S1076	ST30016	S1077		ST3001	S1078		S1079		S1080
lane 3	->	->	->							X										
lane 2	->	->	->			->		X		X		X	->	X		->	X	->		->
lane 1	->	->	->			->		X		X		X	->	X		->	X	->		->
Ramp	O			O	O		O		X		X		O		O		O		O	
RampName	X:I-35W SB			E:I-35V	X:I-35W NB		E:I-35W NB		X:T.H.51 SB		E:T.H.10		X:Lexington A		E:Lexington Ave		X:Victoria St		E:Victoria St	

WB-Phase 23

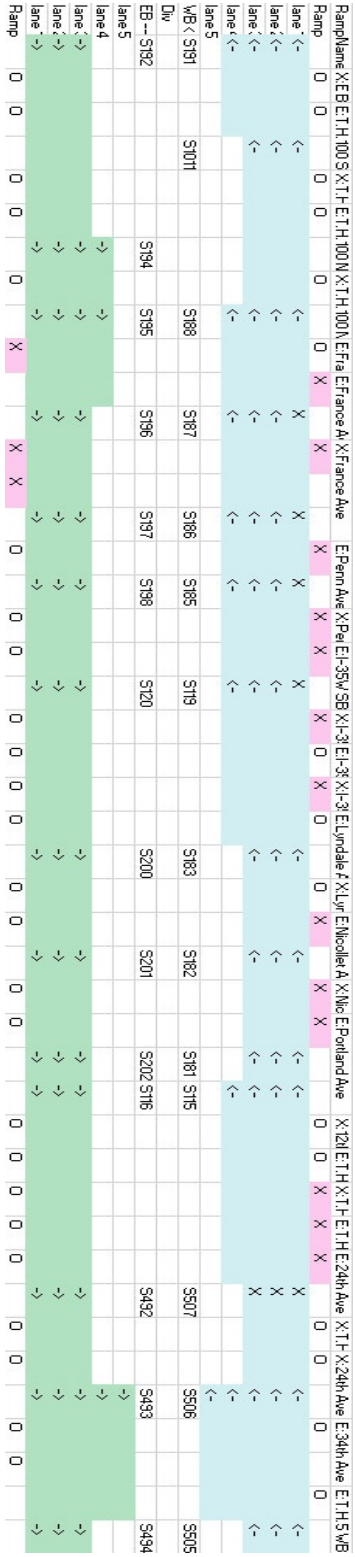
RampName	E:I-35W SB			X:I-35V	E:I-35W NB		X:I-35W NB		E:T.H.10		E:T.H.51 NB		X:T.H.10		X:Lexington Ave		E:Victoria St		X:Victoria St
Ramp	O			O	O		O		X		X		X		O		O		O	
lane 1	<-	<-	<-			<-		X		X		<-		X		<-	<-	<-		<-
lane 2	<-	<-	<-			<-		X		X		<-		X		<-	<-	<-		<-
lane 3	<-	<-	<-							X				X						
lane 4		X																		
WB <--	S180	ST3003	S199			S204		S1089		S1088			ST30032	S1086		ST3003	S1085		S1084		S1083
Div																				
EB -->	S179	ST3001	S184			S203		S1074		S1075		S1076	ST30016	S1077		ST3001	S1078		S1079		S1080
lane 3	->	->	->							X										
lane 2	->	->	->			->		X		X		X	->	X		->	->	->		->
lane 1	->	->	->			->		X		X		X	->	X		->	->	->		->
Ramp	O			O	O		O		X		X		O		O		O		O	
RampName	X:I-35W SB			E:I-35V	X:I-35W NB		E:I-35W NB		X:T.H.51 SB		E:T.H.10		X:Lexington A		E:Lexington Ave		X:Victoria St		E:Victoria St	

Site 7: I-494, Aug 2012 – Apr 2013 (3 to 3, no-lane-close)

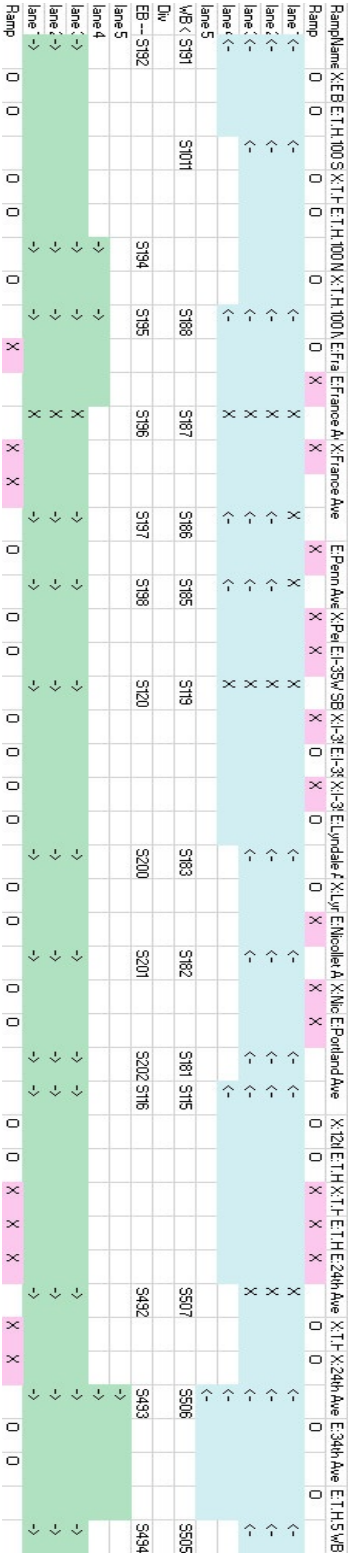
EB-Phase 1



EB-Phase 2



EB-Phase 3



EB-Phase 6-8

RampName	X:EB E.T.H. 100 S	X:T.H. 100 N	E.T.H. 100 N	X:T.H. 100 N	E:Fra	E:France Ave	X:France Ave	E:Penn Ave	X:Pen	E:I-35W SB	X:I-35W SB	E:I-35W SB	X:I-35W SB	E:Lyndale Ave	X:Lyndale Ave	E:Nicollet Ave	X:Nic	E:Portland Ave	X:12th	E:T.H.	X:T.H.	E:T.H.	E:24th Ave	X:T.H.	X:24th Ave	E:34th Ave	E:T.H.5 WB
Ramp	0	0	0	0	X	X	X	0	0	X	X	0	X	0	X	0	0	0	0	X	0	0	0	0	0	0	0
lane 1	<-			<-		X	X	X		X				<-		<-		<-					X		X		<-
lane 2	<-			<-		<-	<-	<-		<-				<-		<-		<-					X		X		<-
lane 3	<-			<-		<-	<-	<-		<-				<-		<-		<-					X		X		<-
lane 4	<-			<-		<-	<-	<-		<-				<-		<-		<-					X		X		<-
lane 5																									<-		
wB <	S191		S188			S187		S186		S185		S119		S183		S182		S181	S115				S507		S506		S505
Div																											
EB ---	S192																		S202	S116					S492		
lane 5																									S493		
lane 4			S194		S195		S196		S197		S198		S120		S200		S201										S494
lane 5																											
lane 4																											
lane 3			->		->		->		->		->		->		->		->		->								->
lane 2			->		->		->		->		->		->		->		->		->								->
lane 1			->		->		->		->		->		->		->		->		->								->
Ramp	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

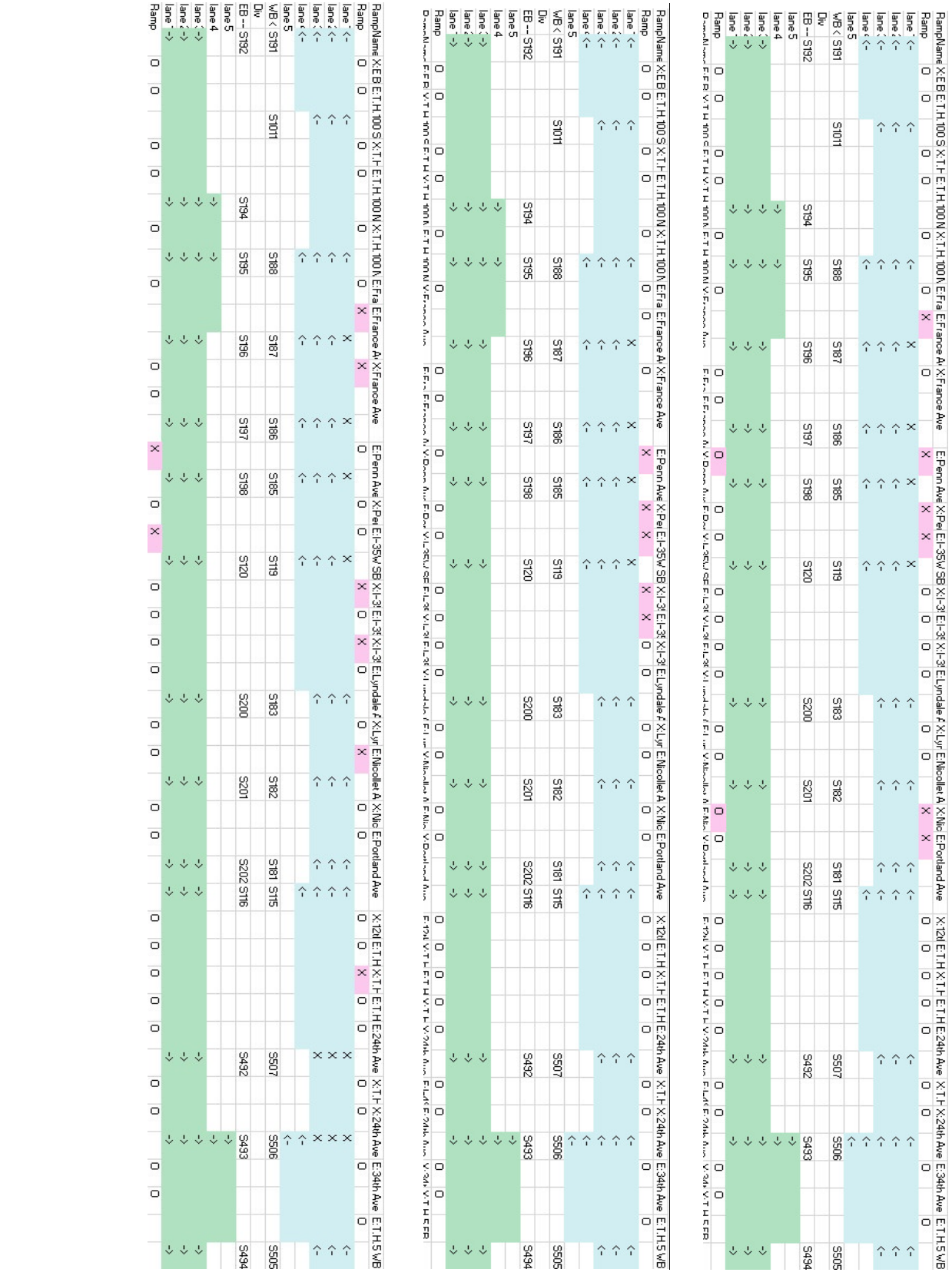
EB-Phase 5

RampName	X:EB E.T.H. 100 S	X:T.H. 100 N	E.T.H. 100 N	X:T.H. 100 N	E:Fra	E:France Ave	X:France Ave	E:Penn Ave	X:Pen	E:I-35W SB	X:I-35W SB	E:I-35W SB	X:I-35W SB	E:Lyndale Ave	X:Lyndale Ave	E:Nicollet Ave	X:Nic	E:Portland Ave	X:12th	E:T.H.	X:T.H.	E:T.H.	E:24th Ave	X:T.H.	X:24th Ave	E:34th Ave	E:T.H.5 WB
Ramp	0	0	0	0	X	X	X	0	0	X	X	0	X	0	X	0	0	0	0	X	0	0	0	0	0	0	0
lane 1	<-			<-		X	X	X		X				<-		<-		<-					X		X		<-
lane 2	<-			<-		<-	<-	<-		<-				<-		<-		<-					X		X		<-
lane 3	<-			<-		<-	<-	<-		<-				<-		<-		<-					X		X		<-
lane 4	<-			<-		<-	<-	<-		<-				<-		<-		<-					X		X		<-
lane 5																									<-		
wB <	S191		S188			S187		S186		S185		S119		S183		S182		S181	S115				S507		S506		S505
Div																											
EB ---	S192																		S202	S116					S492		
lane 5																									S493		
lane 4			S194		S195		S196		S197		S198		S120		S200		S201										S494
lane 3			->		->		->		->		->		->		->		->		->								->
lane 2			->		->		->		->		->		->		->		->		->								->
lane 1			->		->		->		->		->		->		->		->		->								->
Ramp	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

EB-Phase 4

RampName	X:EB E.T.H. 100 S	X:T.H. 100 N	E.T.H. 100 N	X:T.H. 100 N	E:Fra	E:France Ave	X:France Ave	E:Penn Ave	X:Pen	E:I-35W SB	X:I-35W SB	E:I-35W SB	X:I-35W SB	E:Lyndale Ave	X:Lyndale Ave	E:Nicollet Ave	X:Nic	E:Portland Ave	X:12th	E:T.H.	X:T.H.	E:T.H.	E:24th Ave	X:T.H.	X:24th Ave	E:34th Ave	E:T.H.5 WB
Ramp	0	0	0	0	X	X	X	0	0	X	X	0	X	0	X	0	0	0	0	X	0	0	0	0	0	0	0
lane 1	<-			<-		X	X	X		X				<-		<-		<-					X		X		<-
lane 2	<-			<-		<-	<-	<-		<-				<-		<-		<-					X		X		<-
lane 3	<-			<-		<-	<-	<-		<-				<-		<-		<-					X		X		<-
lane 4	<-			<-		<-	<-	<-		<-				<-		<-		<-					X		X		<-
lane 5																									<-		
wB <	S191		S188			S187		S186		S185		S119		S183		S182		S181	S115				S507		S506		S505
Div																											
EB ---	S192																		S202	S116					S492		
lane 5																									S493		
lane 4			S194		S195		S196		S197		S198		S120		S200		S201										S494
lane 3			->		->		->		->		->		->		->		->		->								->
lane 2			->		->		->		->		->		->		->		->		->								->
lane 1			->		->		->		->		->		->		->		->		->								->
Ramp	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

WB-Phase 2



WB-Phase 1

EB-Phase 9

WB-Phase 5

RampName	X:EB E.T.H. 100 S	X:I-5 E.T.H. 100 N	X:I-5 E.T.H. 100 N	E:Fra	E:France Ave	X:France Ave	E:Penn Ave	X:Pei	E:I-35W SB	X:I-35	E:I-35	X:I-35	E:Lyndale Ave	X:Lyn	E:Nicollet Ave	X:Nic	E:Portland Ave	X:12th	E:T.H. 100	X:T.H. 100	E:T.H. 24th Ave	X:T.H. 24th Ave	E:34th Ave	E:T.H.5 WB
Ramp	0	0	0	X	X	X	0	X	0	0	0	0	0	0	X	X	0	0	0	X	X	X	0	0
lane 1	<-	<-	<-	X	X	X	X	X	X	<-	<-	<-	<-	<-	<-	X	<-	<-	<-	X	X	X	<-	<-
lane 2	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	X	X	X	<-	<-
lane 3	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	X	<-	<-	<-	<-
lane 4	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-
lane 5																							<-	<-
wB < S191		S1011		S188		S187		S186		S185		S119		S183		S182		S181 S115			S507		S506	S505
Div																								
EB --- S192				S194		S195		S196		S197		S198		S120		S200		S201		S202 S116		S492		S493		S494
lane 5																								
lane 4				->		->		->		->		->		->		->		->		->		->		->		->
lane 3				->		->		->		->		->		->		->		->		->		->		->		->
lane 2				->		->		->		->		->		->		->		->		->		->		->		->
lane 1				->		->		->		->		->		->		->		->		->		->		->		->
Ramp	0	0	0	0	X	X	0	X	0	0	0	0	0	0	X	X	0	0	0	X	X	X	0	0

WB-Phase 4

RampName	X:EB E.T.H. 100 S	X:I-5 E.T.H. 100 N	X:T.H. 100 N	E:Fra	E:France Ave	X:France Ave	E:Penn Ave	X:Pei	E:I-35W SB	X:I-35	E:I-35	X:I-35	E:Lyndale Ave	X:Lyn	E:Nicollet Ave	X:Nic	E:Portland Ave	X:12th	E:T.H. 100	X:T.H. 100	E:T.H. 24th Ave	X:T.H. 24th Ave	E:34th Ave	E:T.H.5 WB
Ramp	0	0	0	X	X	X	X	X	X	0	0	0	0	0	X	X	0	0	0	X	X	X	0	0
lane 1	<-	<-	<-	X	X	X	X	X	X	<-	<-	<-	<-	<-	<-	X	<-	<-	<-	X	X	X	<-	<-
lane 2	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	X	X	X	<-	<-
lane 3	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	X	<-	<-	<-	<-
lane 4	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-
lane 5																							<-	<-
wB < S191		S1011		S188		S187		S186		S185		S119		S183		S182		S181 S115			S507		S506	S505
Div																								
EB --- S192				S194		S195		S196		S197		S198		S120		S200		S201		S202 S116		S492		S493		S494
lane 5																								
lane 4				->		->		->		->		->		->		->		->		->		->		->		->
lane 3				->		->		->		->		->		->		->		->		->		->		->		->
lane 2				->		->		->		->		->		->		->		->		->		->		->		->
lane 1				->		->		->		->		->		->		->		->		->		->		->		->
Ramp	0	0	0	0	X	X	0	X	0	0	0	0	0	0	X	X	0	0	0	X	X	X	0	0

WB-Phase 3

RampName	X:EB E.T.H. 100 S	X:T.H. E.T.H. 100 N	X:T.H. 100 N	E:Fra	E:France Ave	X:France Ave	E:Penn Ave	X:Pei	E:I-35W SB	X:I-35	E:I-35	X:I-35	E:Lyndale Ave	X:Lyn	E:Nicollet Ave	X:Nic	E:Portland Ave	X:12th	E:T.H. 100	X:T.H. 100	E:T.H. 24th Ave	X:T.H. 24th Ave	E:34th Ave	E:T.H.5 WB
Ramp	0	0	0	X	X	X	X	X	X	0	0	0	0	0	X	X	0	0	0	X	X	X	0	0
lane 1	<-	<-	<-	X	X	X	X	X	X	<-	<-	<-	<-	<-	<-	X	<-	<-	<-	X	X	X	<-	<-
lane 2	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	X	X	X	<-	<-
lane 3	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	X	<-	<-	<-	<-
lane 4	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-
lane 5																							<-	<-
wB < S191		S1011		S188		S187		S186		S185		S119		S183		S182		S181 S115			S507		S506	S505
Div																								
EB --- S192				S194		S195		S196		S197		S198		S120		S200		S201		S202 S116		S492		S493		S494
lane 5																								
lane 4				->		->		->		->		->		->		->		->		->		->		->		->
lane 3				->		->		->		->		->		->		->		->		->		->		->		->
lane 2				->		->		->		->		->		->		->		->		->		->		->		->
lane 1				->		->		->		->		->		->		->		->		->		->		->		->
Ramp	0	0	0	0	X	X	0	X	0	0	0	0	0	0	X	X	0	0	0	X	X	X	0	0

WB-Phase 8-11

RampName	X:E B E.T.H 100 S	X:T.H E.T.H 100 N	X:T.H E.Fra	E.France Ave	X:France Ave	E.Penn Ave	X:Pel E.I-35W SB	X:I-35 E.I-35	X:I-35 E.Lyndale A	X:Lyr E.Nicollet A	X:Nic E.Portland Ave	X:12t E.T.H	X:T.H E.T.H E.24th Ave	X:T.H X:24th Ave	E.34th Ave	E.T.H 5 WB
Ramp	0	0	0	X	X	0	0	0	0	X	0	0	0	0	0	0
lane 1	<-	<-	<-	X	X	X	X	<-	<-	<-	<-	0	X	X	0	<-
lane 2	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	0	X	X	0	<-
lane 3	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	0	X	X	0	<-
lane 4	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	0	X	X	0	<-
lane 5			<-											<-		
WB < S191	S1011	S188		S187	S186	S185	S119	S183	S182	S181 S115		0	S507	S506		S505
Div																
EB -- S192		S194	S195	S196	S197	S198	S120	S200	S201	S202 S116		0	S492	S493		S494
lane 5														<-		
lane 4	->	->	->	->	->	->	->	->	->	->	->	0	->	->	0	->
lane 3	->	->	->	->	->	->	->	->	->	->	->	0	->	->	0	->
lane 2	->	->	->	->	->	->	->	->	->	->	->	0	->	->	0	->
lane 1	->	->	->	->	->	->	->	->	->	->	->	0	->	->	0	->
Ramp	0	0	0	0	X	0	0	0	0	0	0	0	0	0	0	0

WB-Phase 7

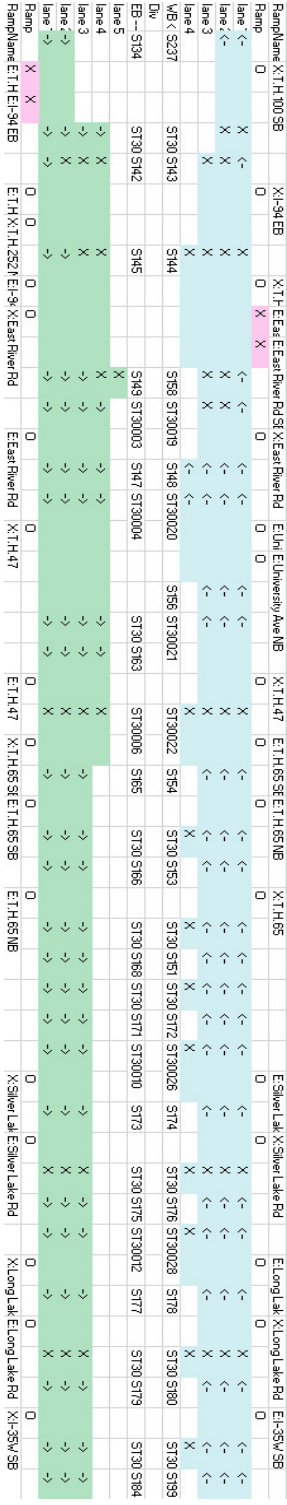
RampName	X:E B E.T.H 100 S	X:T.H E.T.H 100 N	X:T.H E.Fra	E.France Ave	X:France Ave	E.Penn Ave	X:Pel E.I-35W SB	X:I-35 E.I-35	X:I-35 E.Lyndale A	X:Lyr E.Nicollet A	X:Nic E.Portland Ave	X:12t E.T.H	X:T.H E.T.H E.24th Ave	X:T.H X:24th Ave	E.34th Ave	E.T.H 5 WB
Ramp	0	0	0	X	X	0	0	0	0	X	0	0	0	0	0	0
lane 1	<-	<-	<-	X	X	X	X	<-	<-	<-	<-	0	X	X	0	<-
lane 2	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	0	X	X	0	<-
lane 3	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	0	X	X	0	<-
lane 4	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	0	X	X	0	<-
lane 5			<-											<-		
WB < S191	S1011	S188		S187	S186	S185	S119	S183	S182	S181 S115		0	S507	S506		S505
Div																
EB -- S192		S194	S195	S196	S197	S198	S120	S200	S201	S202 S116		0	S492	S493		S494
lane 5														<-		
lane 4	->	->	->	->	->	->	->	->	->	->	->	0	->	->	0	->
lane 3	->	->	->	->	->	->	->	->	->	->	->	0	->	->	0	->
lane 2	->	->	->	->	->	->	->	->	->	->	->	0	->	->	0	->
lane 1	->	->	->	->	->	->	->	->	->	->	->	0	->	->	0	->
Ramp	0	0	0	0	X	0	0	0	0	0	0	0	0	0	0	0

WB-Phase 6

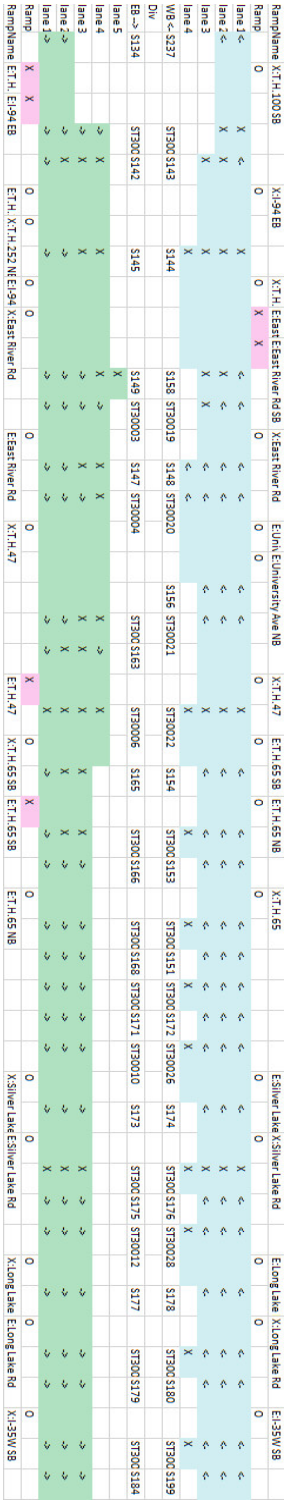
RampName	X:E B E.T.H 100 S	X:T.H E.T.H 100 N	X:T.H E.Fra	E.France Ave	X:France Ave	E.Penn Ave	X:Pel E.I-35W SB	X:I-35 E.I-35	X:I-35 E.Lyndale A	X:Lyr E.Nicollet A	X:Nic E.Portland Ave	X:12t E.T.H	X:T.H E.T.H E.24th Ave	X:T.H X:24th Ave	E.34th Ave	E.T.H 5 WB
Ramp	0	0	0	X	X	0	0	0	0	X	0	0	0	0	0	0
lane 1	<-	<-	<-	X	X	X	X	<-	<-	<-	<-	0	X	X	0	<-
lane 2	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	0	X	X	0	<-
lane 3	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	0	X	X	0	<-
lane 4	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	0	X	X	0	<-
lane 5			<-											<-		
WB < S191	S1011	S188		S187	S186	S185	S119	S183	S182	S181 S115		0	S507	S506		S505
Div																
EB -- S192		S194	S195	S196	S197	S198	S120	S200	S201	S202 S116		0	S492	S493		S494
lane 5														<-		
lane 4	->	->	->	->	->	->	->	->	->	->	->	0	->	->	0	->
lane 3	->	->	->	->	->	->	->	->	->	->	->	0	->	->	0	->
lane 2	->	->	->	->	->	->	->	->	->	->	->	0	->	->	0	->
lane 1	->	->	->	->	->	->	->	->	->	->	->	0	->	->	0	->
Ramp	0	0	0	0	X	0	0	0	0	0	0	0	0	0	0	0

Site 8: I-694, Jun-Sep 2013 (3 to 2)

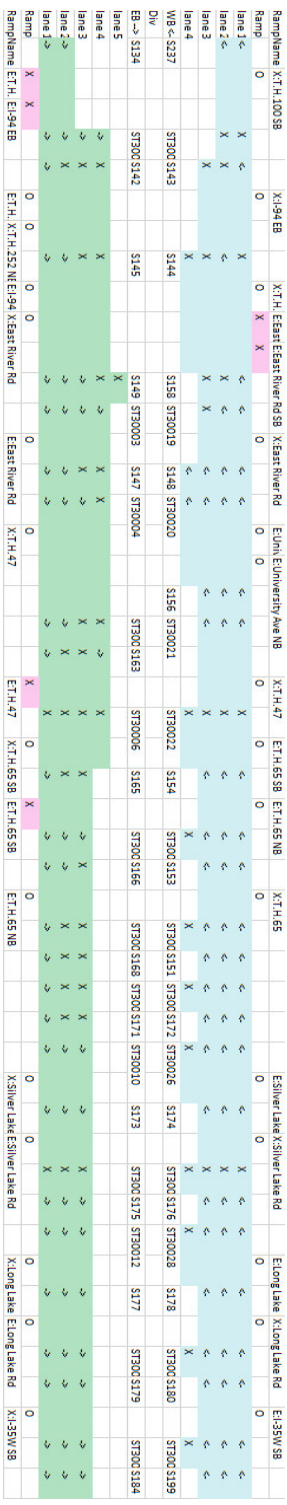
EB-Phase 1



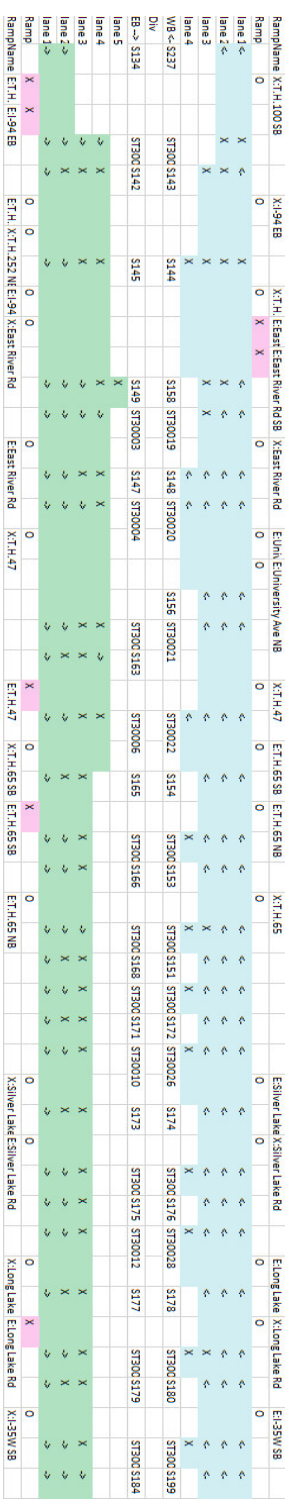
EB-Phase 2



EB-Phase 3



EB-Phase 4



EB-Phase 5

RampName	X:T.H.100 SB		X:I-94 EB	X:T.H. E.East E.East River Rd SB	X:East River Rd	E:Univ E:University Ave NB	X:T.H.47	E.T.H.65 SB	E.T.H.65 NB	X:T.H.65	E:Silver Lak	X:Silver Lake Rd	E:Long Lak	X:Long Lake Rd	E:I-35W SB
Ramp	O		X	X	O	O	O	O	O	O	O	O	O	O	O
lane 1															
lane 2															
lane 3															
lane 4															
WB < S237		ST30 S143		S158	ST30019	S148	ST30020	S156	ST30021	S154	ST30022	S164	ST30023	S168	ST30024
Div															
EB --> S134		ST30 S142		S145		S147	ST30004		ST30005	S165	ST30006	S166	ST30007	S168	ST30008
lane 5															
lane 4															
lane 3															
lane 2															
lane 1															
Ramp															
RampName	ET.H.	EI-94 EB		ET.H.	XT.H.252 NE	EI-94	X:East River Rd		X:T.H.47		ET.H.65 SB	ET.H.65 NB		X:Silver Lake	E:Silver Lake Rd

RampName	X:T.H.100 SB		X:I-94 EB	X:T.H. E.East E.East River Rd SB	X:East River Rd	E:Univ E:University Ave NB	X:T.H.47	E.T.H.65 SB	E.T.H.65 NB	X:T.H.65	E:Silver Lake	X:Silver Lake Rd	E:Long Lake	X:Long Lake Rd	E:I-35W SB
Ramp	O		X	X	O	O	O	O	O	O	O	O	O	O	O
lane 1															
lane 2															
lane 3															
lane 4															
WB < S237		ST30 S143		S158	ST30019	S148	ST30020	S156	ST30021	S154	ST30022	S164	ST30023	S168	ST30024
Div															
EB --> S134		ST30 S142		S145		S147	ST30004		ST30005	S165	ST30006	S166	ST30007	S168	ST30008
lane 5															
lane 4															
lane 3															
lane 2															
lane 1															
Ramp															
RampName	ET.H.	EI-94 EB		ET.H.	XT.H.252 NE	EI-94	X:East River Rd		X:T.H.47		ET.H.65 SB	ET.H.65 NB		X:Silver Lake	E:Silver Lake Rd

EB-Phase 6

RampName	X:T.H.100 SB		X:I-94 EB	X:T.H. E.East E.East River Rd SB	X:East River Rd	E:Univ E:University Ave NB	X:T.H.47	E.T.H.65 SB	E.T.H.65 NB	X:T.H.65	E:Silver Lake	X:Silver Lake Rd	E:Long Lake	X:Long Lake Rd	E:I-35W SB
Ramp	O		X	X	O	O	O	O	O	O	O	O	O	O	O
lane 1															
lane 2															
lane 3															
lane 4															
WB < S237		ST30 S143		S158	ST30019	S148	ST30020	S156	ST30021	S154	ST30022	S164	ST30023	S168	ST30024
Div															
EB --> S134		ST30 S142		S145		S147	ST30004		ST30005	S165	ST30006	S166	ST30007	S168	ST30008
lane 5															
lane 4															
lane 3															
lane 2															
lane 1															
Ramp															
RampName	ET.H.	EI-94 EB		ET.H.	XT.H.252 NE	EI-94	X:East River Rd		X:T.H.47		ET.H.65 SB	ET.H.65 NB		X:Silver Lake	E:Silver Lake Rd

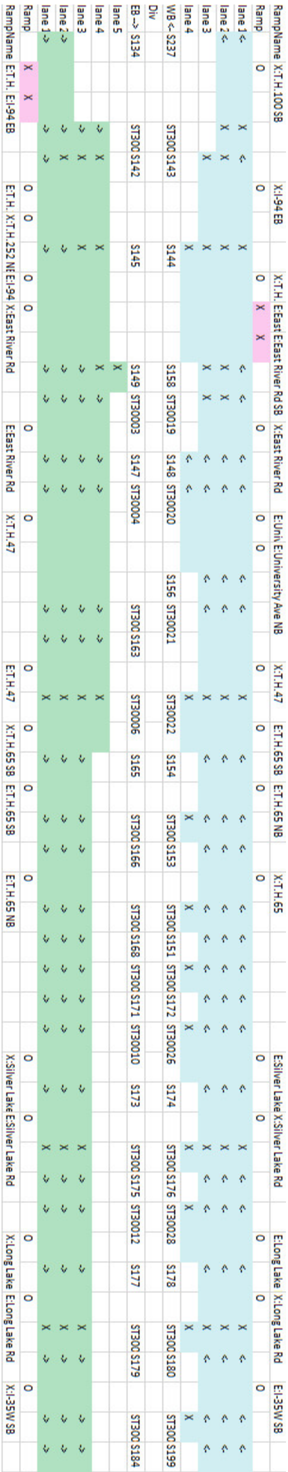
EB-Phase 7

RampName	X:T.H.100 SB		X:I-94 EB	X:T.H. E.East E.East River Rd SB	X:East River Rd	E:Univ E:University Ave NB	X:T.H.47	E.T.H.65 SB	E.T.H.65 NB	X:T.H.65	E:Silver Lake	X:Silver Lake Rd	E:Long Lake	X:Long Lake Rd	E:I-35W SB
Ramp	O		X	X	O	O	O	O	O	O	O	O	O	O	O
lane 1															
lane 2															
lane 3															
lane 4															
WB < S237		ST30 S143		S158	ST30019	S148	ST30020	S156	ST30021	S154	ST30022	S164	ST30023	S168	ST30024
Div															
EB --> S134		ST30 S142		S145		S147	ST30004		ST30005	S165	ST30006	S166	ST30007	S168	ST30008
lane 5															
lane 4															
lane 3															
lane 2															
lane 1															
Ramp															
RampName	ET.H.	EI-94 EB		ET.H.	XT.H.252 NE	EI-94	X:East River Rd		X:T.H.47		ET.H.65 SB	ET.H.65 NB		X:Silver Lake	E:Silver Lake Rd

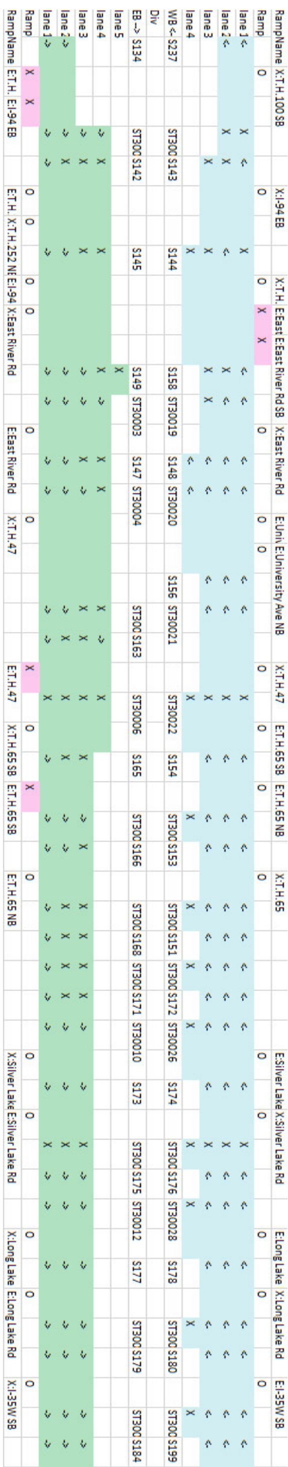
EB-Phase 8

RampName	X:T.H.100 SB		X:I-94 EB	X:T.H. E.East E.East River Rd SB	X:East River Rd	E:Univ E:University Ave NB	X:T.H.47	E.T.H.65 SB	E.T.H.65 NB	X:T.H.65	E:Silver Lak	X:Silver Lake Rd	E:Long Lak	X:Long Lake Rd	E:I-35W SB
Ramp	O		X	X	O	O	O	O	O	O	O	O	O	O	O
lane 1															
lane 2															
lane 3															
lane 4															
WB < S237		ST30 S143		S158	ST30019	S148	ST30020	S156	ST30021	S154	ST30022	S164	ST30023	S168	ST30024
Div															
EB --> S134		ST30 S142		S145		S147	ST30004		ST30005	S165	ST30006	S166	ST30007	S168	ST30008
lane 5															
lane 4															
lane 3															
lane 2															
lane 1															
Ramp															
RampName	ET.H.	EI-94 EB		ET.H.	XT.H.252 NE	EI-94	X:East River Rd		X:T.H.47		ET.H.65 SB	ET.H.65 NB		X:Silver Lake	E:Silver Lake Rd

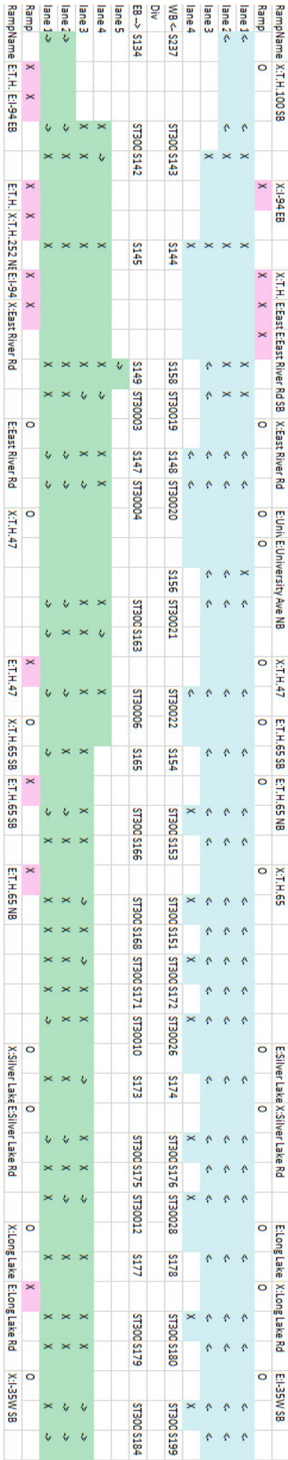
WB-Phase 1



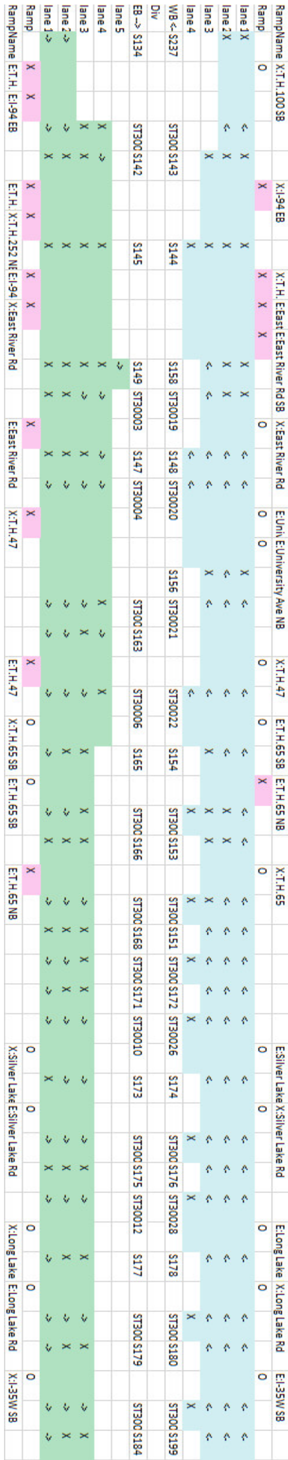
WB-Phase 2



WB-Phase 3



WB-Phase 4



Site 9: U.S.169 Jun 2013 (2 to 1)

NB-Phase 1

RampName	E:T.H.62 EB		X:T.H.6	E:T.H.6	X:T.H.6	E:Bren Rd		X:Bren	E:Lincoln Dr		X:Linco	E:Excelsior Bl	X:Excelsior Blvd			E:T.H.7 EB		E:T.H.7 WB		X:T.H.7	X:36th St			E:Minnetonka Blvd	
Ramp	O		X	O	X	O		O	O		O	X	O			O		O		O	O			O	
lane 1	<-	<-				<-			<-			<-					<-	<-							<-
lane 2	<-	<-				<-			X			X					X	X							<-
SB <--	S461	S460				S459			S458			S457					S456	S455							S453
Div																									
NB -->	S428	S429				S430				S431				S432			S433	S434			S435			S437
lane 2	->	->				X				X				X			->	->			->			->
lane 1	->	->				->				->				->			->	->			->			->
Ramp		O	O	O	O	O		O	O		O	O			O	O				O		O	O	
RampName		X:T.H.62 EB	E:T.H.6	X:T.H.6	E:T.H.6	X:Bren Rd		E:Bren	X:Lincoln Dr		E:Linco	X:Excelsior Blvd			E:Excel	X:T.H.7				E:T.H.7		E:36th	X:Minnetonka Blvd	

NB-Phase 2

RampName	E:T.H.62 EB		X:T.H.6	E:T.H.6	X:T.H.6	E:Bren Rd		X:Bren	E:Lincoln Dr		X:Linco	E:Excelsior Bl	X:Excelsior Blvd			E:T.H.7 EB		E:T.H.7 WB		X:T.H.7	X:36th St			E:Minnetonka Blvd	
Ramp	O		X	O	X	O		O	X		O	X	O			O		O		O	O			O	
lane 1	<-	<-				<-			X			X					<-	<-							<-
lane 2	<-	<-				<-			<-			<-					X	X							<-
SB <--	S461	S460				S459			S458			S457					S456	S455							S453
Div																									
NB -->	S428	S429				S430				S431				S432			S433	S434			S435			S437
lane 2	->	->				->				->				->			->	->			->			->
lane 1	->	->				->				X				X			->	->			->			->
Ramp		O	O	O	O	O		X	X		O	X			X	O				O		O	O	
RampName		X:T.H.62 EB	E:T.H.6	X:T.H.6	E:T.H.6	X:Bren Rd		E:Bren	X:Lincoln Dr		E:Linco	X:Excelsior Blvd			E:Excel	X:T.H.7				E:T.H.7		E:36th	X:Minnetonka Blvd	

SB-Phase 1

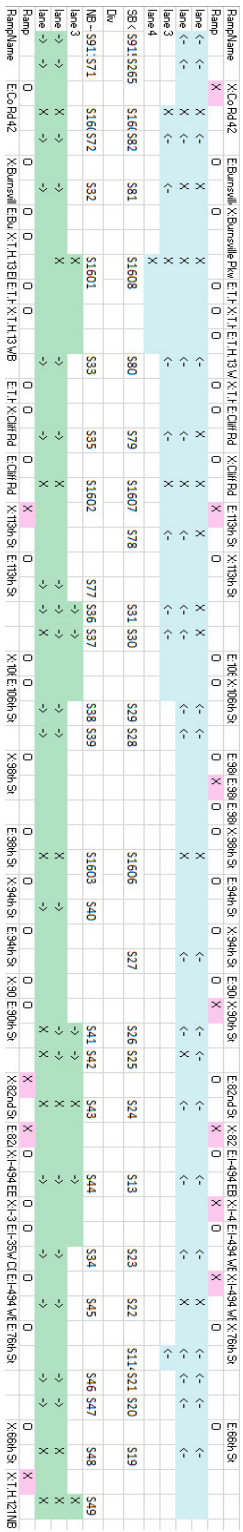
RampName	E:T.H.62 EB		X:T.H.6	E:T.H.6	X:T.H.6	E:Bren Rd		X:Bren	E:Lincoln Dr		X:Linco	E:Excelsior Bl	X:Excelsior Blvd			E:T.H.7 EB		E:T.H.7 WB		X:T.H.7	X:36th St			E:Minnetonka Blvd	
Ramp	O		O	O	O	O		O	O		O	X	O			O		O		O	O			O	
lane 1	<-	<-				<-			<-			<-					<-	<-							<-
lane 2	<-	<-				<-			X			X					X	X							<-
SB <--	S461	S460				S459			S458			S457					S456	S455							S453
Div																									
NB -->	S428	S429				S430				S431				S432			S433	S434			S435			S437
lane 2	->	->				X				X				X			->	->			->			->
lane 1	->	->				->				->				->			->	->			->			->
Ramp		O	O	O	O	O		O	O		O	O			O	O				O		O	O	
RampName		X:T.H.62 EB	E:T.H.6	X:T.H.6	E:T.H.6	X:Bren Rd		E:Bren	X:Lincoln Dr		E:Linco	X:Excelsior Blvd			E:Excel	X:T.H.7				E:T.H.7		E:36th	X:Minnetonka Blvd	

SB-Phase 2

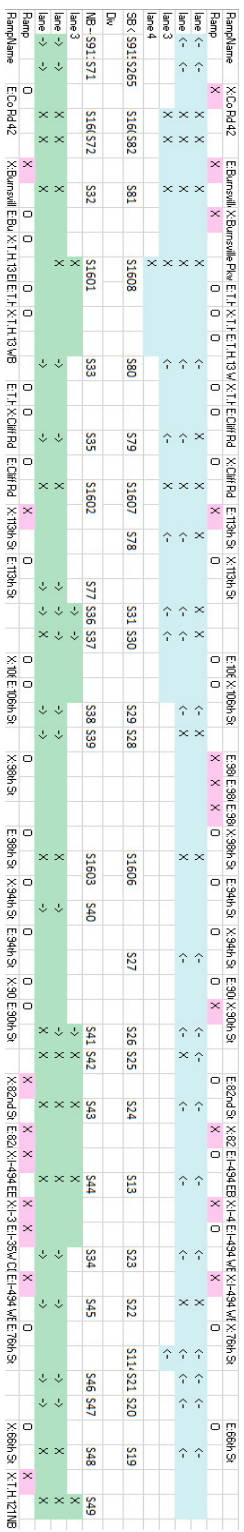
RampName	E:T.H.62 EB		X:T.H.6	E:T.H.6	X:T.H.6	E:Bren Rd		X:Bren	E:Lincoln Dr		X:Linco	E:Excelsior Bl	X:Excelsior Blvd			E:T.H.7 EB		E:T.H.7 WB		X:T.H.7	X:36th St			E:Minnetonka Blvd	
Ramp	O		O	O	O	O		O	X		O	X	O			O		O		O	O			O	
lane 1	<-	<-				<-			X			X					<-	<-							<-
lane 2	<-	<-				<-			<-			<-					X	X							<-
SB <--	S461	S460				S459			S458			S457					S456	S455							S453
Div																									
NB -->	S428	S429				S430				S431				S432			S433	S434			S435			S437
lane 2	->	->				->				->				->			->	->			->			->
lane 1	->	->				->				X				X			->	->			->			->
Ramp		O	O	O	O	O		X	X		O	X			X	O				O		O	O	
RampName		X:T.H.62 EB	E:T.H.6	X:T.H.6	E:T.H.6	X:Bren Rd		E:Bren	X:Lincoln Dr		E:Linco	X:Excelsior Blvd			E:Excel	X:T.H.7				E:T.H.7		E:36th	X:Minnetonka Blvd	

Site 11: I-35W, Apr-Oct 2009 (2 to 2)

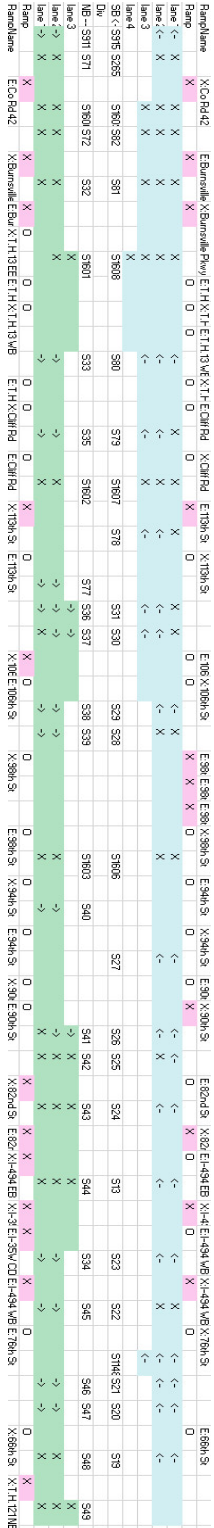
NB-Phase 1



NB-Phase 2



NB-Phase3



NB-Phase4

RampName			X:Co Rd 42			E:Burnsville		X:Burnsville Pkwy			E:T.H	X:T.H	E:T.H.13 WE		X:T.H	E:Cliff Rd		X:Cliff Rd		E:113th St		X:113th St				E:106	X:106th St			E:98t
Ramp			X			X		X			O	O	O		O	O		O		X		O				X	X			X
lane 1	<-	X		X	X		X			X				<-			X		X		X			X	X			<-	X	
lane 2	<-	X		X	X		X			X				<-			<-		X		<-			<-	X			<-	X	
lane 3				X	X		X			X				<-			<-		X		<-			<-	X					
lane 4										X																				
SB <-	S915	S265		S160	S82		S81			S1608				S80			S79		S1607		S78			S31	S30			S29	S28	
Div																														
NB --	S911	S71		S160	S72		S32			S1601				S33			S35		S1602				S77	S36	S37			S38	S39	
lane 3										X														X	X					
lane 2	->	X		X	X		X			X				->			->		X				->	X	X			X	X	
lane 1	->	X		X	X		X							->			->		X				->	X	X			X	X	
Ramp			X			X		X	O		O	O			O	O		O		X		O				X	X			X
RampName			E:Co Rd 42			X:Burnsville		E:Bur	X:T.H.13 EE		E:T.H	X:T.H.13 WB			E:T.H	X:Cliff Rd		E:Cliff Rd		X:113th St		E:113th St				X:106	E:106th St			X:98th St

RampName	E:98t	E:98t	X:98th St		E:94th St		X:94th St		E:90t	X:90th St			E:82nd St		X:82r	E:I-494 EB		X:I-4!	E:I-494 WB		X:I-494 WB		X:76th St				E:66th St			
Ramp	X	X	X		X		X		X	X			O		X	O		X	O		X		O				O			
lane 1				X				X			X	<-		<-			<-			<-		X		<-	<-	<-		<-		
lane 2				X				X			X	X		<-			<-			<-		X		<-	<-	<-		<-		
lane 3																								<-						
lane 4																														
SB <-				S1606				S27			S26	S25		S24			S13			S23		S22		S114	S21	S20		S19		
Div																														
NB --				S1603		S40					S41	S42		S43			S44			S34		S45			S46	S47		S48		S49
lane 3											X	X		X			X													X
lane 2				X		X					X	X		X			X			->		->			->	->		X		X
lane 1				X		X					X	X		X			X			->		->			->	->		X		X
Ramp			X		X		X		X	X			X		X	O		X	X		X		O				O		X	
RampName			E:98th St		X:94th St		E:94th St		X:90t	E:90th St			X:82nd St		E:82r	X:I-494 EB		X:I-3!	E:I-35W CD		E:I-494 WB		E:76th St				X:66th St		X:T.H.121NB	

NB-Phase 5

RampName			X:Co Rd 42			E:Burnsville		X:Burnsville Pkwy			E:T.H	X:T.H	E:T.H.13 WE		X:T.H	E:Cliff Rd		X:Cliff Rd		E:113th St		X:113th St				E:106	X:106th St			E:98t
Ramp			X			X		X			O	O	O		O	X		X		X		X				X	X			X
lane 1	X	X		X	X		X			X				<-			X		X		X			X	X			X	X	
lane 2	X	X		X	X		X			X				<-			X		X		X			X	X			X	X	
lane 3				X	X		X			X				X			X		X		X			X	X					
lane 4										X																				
SB <-	S915	S265		S160	S82		S81			S1608				S80			S79		S1607		S78			S31	S30			S29	S28	
Div																														
NB --	S911	S71		S160	S72		S32			S1601				S33			S35		S1602				S77	S36	S37			S38	S39	
lane 3										X														X	X					
lane 2	X	X		X	X		X			X				X			X		X				X	X	X			X	X	
lane 1	X	X		X	X		X							X			X		X				X	X	X			X	X	
Ramp			X			X		X	O		O	O			O	X		X		X		X				X	X			X
RampName			E:Co Rd 42			X:Burnsville		E:Bur	X:T.H.13 EE		E:T.H	X:T.H.13 WB			E:T.H	X:Cliff Rd		E:Cliff Rd		X:113th St		E:113th St				X:106	E:106th St			X:98th St

RampName	E:98t	E:98t	X:98th St		E:94th St		X:94th St		E:90t	X:90th St			E:82nd St		X:82r	E:I-494 EB		X:I-4!	E:I-494 WB		X:I-494 WB		X:76th St				E:66th St			
Ramp	X	X	X		X		X		X	X			X		X	O		X	O		X		O				O			
lane 1				X				X			X	<-		X			<-			<-		X		<-	<-	X		<-		
lane 2				X				X			X	X		X			<-			<-		X		<-	<-	X		<-		
lane 3																								<-						
lane 4																														
SB <-				S1606				S27			S26	S25		S24			S13			S23		S22		S114	S21	S20		S19		
Div																														
NB --				S1603		S40					S41	S42		S43			S44			S34		S45			S46	S47		S48		S49
lane 3											X	X		X			X													X
lane 2				X		X					X	X		X			X			->		->			->	X		X		X
lane 1				X		X					X	X		X			X			->		->			->	X		X		X
Ramp			X		X		X		X	X			X		X	X		X	X		X		O				O		X	
RampName			E:98th St		X:94th St		E:94th St		X:90t	E:90th St			X:82nd St		E:82r	X:I-494 EB		X:I-3!	E:I-35W CD		E:I-494 WB		E:76th St				X:66th St		X:T.H.121NB	

NB-Phase 6

RampName			X:Co Rd 42			E:Burnsville		X:Burnsville Pkwy			E:T.H	X:T.H	E:T.H.13 WE		X:T.H	E:Cliff Rd		X:Cliff Rd		E:113th St		X:113th St				E:106	X:106th St			E:98t
Ramp			X			X		X			O	O	O		O	X		X		X		X				X	X			X
lane 1	<-	X		X	X		X			X				X			X		X		X			X	X			X	X	
lane 2	<-	X		X	X		X			X				X			X		X		X			X	X			X	X	
lane 3				X	X		X			X				X			X		X		X			X	X					
lane 4										X																				
SB <-	S915	S265		S160	S82		S81			S1608				S80			S79		S1607		S78			S31	S30			S29	S28	
Div																														
NB --	S911	S71		S160	S72		S32			S1601				S33			S35		S1602				S77	S36	S37			S38	S39	
lane 3										X														X	X					
lane 2	->	X		X	X		X			X				X			X		X				X	X	X			X	X	
lane 1	->	X		X	X		X							X			X		X				X	X	X			X	X	
Ramp			X			X		X	O		O	O			O	X		X		X		X				X	X			X
RampName			E:Co Rd 42			X:Burnsville		E:Bur	X:T.H.13 EE		E:T.H	X:T.H.13 WB			E:T.H	X:Cliff Rd		E:Cliff Rd		X:113th St		E:113th St				X:106	E:106th St			X:98th St

RampName	E:98t	E:98t	X:98th St		E:94th St		X:94th St		E:90t	X:90th St			E:82nd St		X:82r	E:I-494 EB		X:I-4!	E:I-494 WB		X:I-494 WB		X:76th St				E:66th St			
Ramp	X	X	X		X		X		X	X			X		X	O		X	X		X		O				O			
lane 1				X				X			X	X		X			<-			<-		X		<-	<-	X		<-		
lane 2				X				X			X	X		X			X			X		X		<-	<-	X		<-		
lane 3																								<-						
lane 4																														
SB <-				S1606				S27			S26	S25		S24			S13			S23		S22		S114	S21	S20		S19		
Div																														
NB --				S1603		S40					S41	S42		S43			S44			S34		S45			S46	S47		S48		S49
lane 3											X	X		X			X													X
lane 2				X		X					X	X		X			X			->		->			->	X		X		X
lane 1				X		X					X	X		X			X			->		->			->	X		X		X
Ramp			X		X		X		X	X			X		X	X		X	X		X		O				O		X	
RampName			E:98th St		X:94th St		E:94th St		X:90t	E:90th St			X:82nd St		E:82r	X:I-494 EB		X:I-3!	E:I-35W CD		E:I-494 WB		E:76th St				X:66th St		X:T.H.121NB	

NB-Phase7

RampName	X:Co Rd 42	E:Burnsville Pkw	X:Burnsville Pkw	E:T.H. 13	X:T.H. 13	E:Cliff Rd	X:Cliff Rd	E:110th St	X:110th St	E:106th St	X:106th St	E:98th St	X:98th St	E:94th St	X:94th St	E:90th St	X:90th St	E:82nd St	X:82nd St	E:I-494 EB	X:I-494 EB	E:I-494 WB	X:I-494 WB	X:76th St	E:66th St
Ramp	X							X																	
lane 1																									
lane 2																									
lane 3																									
lane 4																									
SB < S91 S265	S16	S82	S81	S1608		S79	S1607	S78		S31	S30			S1606		S27		S26	S25	S24		S13		S23		S22		S11	S21	S20		S19	
Div																									
NB - S91 S71	S16	S72	S32		S1601		S33		S77	S36	S37			S1603		S40		S41	S42	S43		S44		S34		S45		S46	S47		S48		S49	
lane 3																									
lane 2																									
lane 1																									
Ramp																									
RampName	X:Co Rd 42	E:Burnsville	X:Burnsville Pkw	E:T.H. 13	X:T.H. 13	E:Cliff Rd	X:Cliff Rd	E:110th St	X:110th St	E:106th St	X:106th St	E:98th St	X:98th St	E:94th St	X:94th St	E:90th St	X:90th St	E:82nd St	X:82nd St	E:I-494 EB	X:I-494 EB	E:I-494 WB	X:I-494 WB	X:76th St	E:66th St

RampName	E:Co Rd 42	X:Burnsville	E:Burnsville Pkw	X:T.H. 13	E:T.H. 13	X:Cliff Rd	E:Cliff Rd	X:110th St	E:110th St	X:106th St	E:106th St	X:98th St	E:98th St	X:94th St	E:94th St	X:90th St	E:90th St	X:82nd St	E:82nd St	X:I-494 EB	E:I-494 EB	X:I-494 WB	E:I-494 WB	E:76th St	X:66th St	X:T.H. 121 NB
Ramp																										
lane 1																										
lane 2																										
lane 3																										
lane 4																										
SB < S91 S265	S16	S82	S81		S1608		S80		S79		S78			S1606		S27		S26	S25	S24		S13		S23		S22		S11	S21	S20		S19	
Div																										
NB - S91 S71	S16	S72	S32		S1601		S33		S35		S1602			S1603		S40		S41	S42	S43		S44		S34		S45		S46	S47		S48		S49	
lane 3																										
lane 2																										
lane 1																										
Ramp																										
RampName	E:Co Rd 42	X:Burnsville	E:Burnsville Pkw	X:T.H. 13	E:T.H. 13	X:Cliff Rd	E:Cliff Rd	X:110th St	E:110th St	X:106th St	E:106th St	X:98th St	E:98th St	X:94th St	E:94th St	X:90th St	E:90th St	X:82nd St	E:82nd St	X:I-494 EB	E:I-494 EB	X:I-494 WB	E:I-494 WB	E:76th St	X:66th St	X:T.H. 121 NB

NB-Phase 8

RampName	X:Co Rd 42	E:Burnsville	X:Burnsville Pkw	E:T.H. 13	X:T.H. 13	E:Cliff Rd	X:Cliff Rd	E:110th St	X:110th St	E:106th St	X:106th St	E:98th St	X:98th St	E:94th St	X:94th St	E:90th St	X:90th St	E:82nd St	X:82nd St	E:I-494 EB	X:I-494 EB	E:I-494 WB	X:I-494 WB	X:76th St	E:66th St
Ramp	X																								
lane 1																									
lane 2																									
lane 3																									
lane 4																									
SB < S91 S265	S16	S82	S81		S1608		S80		S79		S78			S1606		S27		S26	S25	S24		S13		S23		S22		S11	S21	S20		S19	
Div																										
NB - S91 S71	S16	S72	S32		S1601		S33		S35		S1602			S1603		S40		S41	S42	S43		S44		S34		S45		S46	S47		S48		S49	
lane 3																										
lane 2																										
lane 1																										
Ramp																										
RampName	E:Co Rd 42	X:Burnsville	E:Burnsville Pkw	X:T.H. 13	E:T.H. 13	X:Cliff Rd	E:Cliff Rd	X:110th St	E:110th St	X:106th St	E:106th St	X:98th St	E:98th St	X:94th St	E:94th St	X:90th St	E:90th St	X:82nd St	E:82nd St	X:I-494 EB	E:I-494 EB	X:I-494 WB	E:I-494 WB	E:76th St	X:66th St	X:T.H. 121 NB

NB-Phase 9

RampName	E:Co Rd 42	X:Burnsville	E:Burnsville Pkw	X:T.H. 13	E:T.H. 13	X:Cliff Rd	E:Cliff Rd	X:110th St	E:110th St	X:106th St	E:106th St	X:98th St	E:98th St	X:94th St	E:94th St	X:90th St	E:90th St	X:82nd St	E:82nd St	X:I-494 EB	E:I-494 EB	X:I-494 WB	E:I-494 WB	E:76th St	X:66th St	X:T.H. 121 NB
Ramp																										
lane 1																										
lane 2																										
lane 3																										
lane 4																										
SB < S91 S265	S16	S82	S81		S1608		S79		S78			S31	S30			S1606		S27		S26	S25	S24		S13		S23		S22		S11	S21	S20		S19	
Div																										
NB - S91 S71	S16	S72	S32		S1601		S33		S35		S1602			S29	S28			S41	S42	S43		S44		S34		S45		S46	S47		S48		S49	
lane 3																										
lane 2																										
lane 1																										
Ramp																										
RampName	E:Co Rd 42	X:Burnsville	E:Burnsville Pkw	X:T.H. 13	E:T.H. 13	X:Cliff Rd	E:Cliff Rd	X:110th St	E:110th St	X:106th St	E:106th St	X:98th St	E:98th St	X:94th St	E:94th St	X:90th St	E:90th St	X:82nd St	E:82nd St	X:I-494 EB	E:I-494 EB	X:I-494 WB	E:I-494 WB	E:76th St	X:66th St	X:T.H. 121 NB

SB-Phase 1

RampName	X:Co Rd 42	E:Burnsville Pkw	E:T.H. 13 W	X:T.H. 13 E	X:Cliff Rd	E:Cliff Rd	X:T.H. 13 WB	E:T.H. 13 WB	X:Burnsville Pkw	E:Burnsville Pkwy	X:T.H. 13 EB	E:T.H. 13 EB	X:Burnsville Dr	E:Burnsville Dr	X:Co Rd 42	E:Co Rd 42	RampName
Ramp	X	X	0	0	0	0	0	0	0	0	0	0	0	0	X	0	Ramp
lane 1 <-	X	X	<-	<-	X	X	<-	<-	X	0	0	0	0	0	0	0	lane 1 <-
lane 2 <-	X	X	<-	<-	X	X	<-	<-	X	0	0	0	0	0	0	0	lane 2 <-
lane 3	X	X	<-	<-	X	X	<-	<-	X	0	0	0	0	0	0	0	lane 3
lane 4	X	X	<-	<-	X	X	<-	<-	X	0	0	0	0	0	0	0	lane 4
SB (-591\S265	S16\S82	S81	S1608	S80	S79	S1607	S78	S31	S30	S1606	S27	S26	S25	S24	S13	S23	S22	S11\S21	S20	S19	
Div																	Div
NB - S91\S71	S16\S72	S32	S1601	S33	S35	S1602	S77	S36	S37	S1603	S40	S41	S42	S43	S44	S34	S45	S46	S47	S48	S49
lane 1 ->	X	X	X	->	->	X	->	->	->	->	->	->	->	->	->	->	lane 1 ->
lane 2 ->	X	X	X	->	->	X	->	->	->	->	->	->	->	->	->	->	lane 2 ->
Ramp	X	X	X	->	->	X	->	->	->	->	->	->	->	->	->	->	Ramp
RampName	E:Co Rd 42	X:Burnsville Dr	E:Burnsville Dr	X:Burnsville Pkwy	E:Burnsville Pkwy	X:T.H. 13 EB	E:T.H. 13 EB	X:T.H. 13 WB	E:T.H. 13 WB	X:Cliff Rd	E:Cliff Rd	X:T.H. 13 Rd	E:T.H. 13 Rd	X:T.H. 13 Rd	E:T.H. 13 Rd	X:Co Rd 42	RampName

SB-Phase 2

RampName	X:Co Rd 42	E:Burnsville Dr	X:Burnsville Pkwy	E:T.H. 13 EB	X:T.H. 13 EB	E:T.H. 13 WB	X:T.H. 13 WB	E:Cliff Rd	X:Cliff Rd	E:T.H. 13 Rd	X:T.H. 13 Rd	E:T.H. 13 Rd	X:T.H. 13 Rd	E:Co Rd 42	RampName
Ramp	X	0	0	0	0	0	0	0	0	X	0	0	0	0	Ramp
lane 1 <-	X	X	X	X	X	<-	<-	X	X	X	<-	<-	<-	0	lane 1 <-
lane 2 <-	X	X	X	X	X	<-	<-	X	X	X	<-	<-	<-	0	lane 2 <-
lane 3	X	X	X	X	X	<-	<-	X	X	X	<-	<-	<-	0	lane 3
lane 4	X	X	X	X	X	<-	<-	X	X	X	<-	<-	<-	0	lane 4
SB (-591\S265	S16\S82	S81	S1608	S80	S79	S1607	S78	S31	S30	S1606	S27	S26	S25	S24	S13	S23	S22	S11\S21	S20	S19	
Div																	Div
NB - S91\S71	S16\S72	S32	S1601	S33	S35	S1602	S77	S36	S37	S1603	S40	S41	S42	S43	S44	S34	S45	S46	S47	S48	S49
lane 1 ->	X	X	X	->	->	X	->	->	->	->	->	->	->	->	->	->	lane 1 ->
lane 2 ->	X	X	X	->	->	X	->	->	->	->	->	->	->	->	->	->	lane 2 ->
Ramp	X	X	X	->	->	X	->	->	->	->	->	->	->	->	->	->	Ramp
RampName	E:Co Rd 42	X:Burnsville Dr	E:Burnsville Dr	X:Burnsville Pkwy	E:Burnsville Pkwy	X:T.H. 13 EB	E:T.H. 13 EB	X:T.H. 13 WB	E:T.H. 13 WB	X:Cliff Rd	E:Cliff Rd	X:T.H. 13 Rd	E:T.H. 13 Rd	X:T.H. 13 Rd	E:T.H. 13 Rd	X:Co Rd 42	RampName

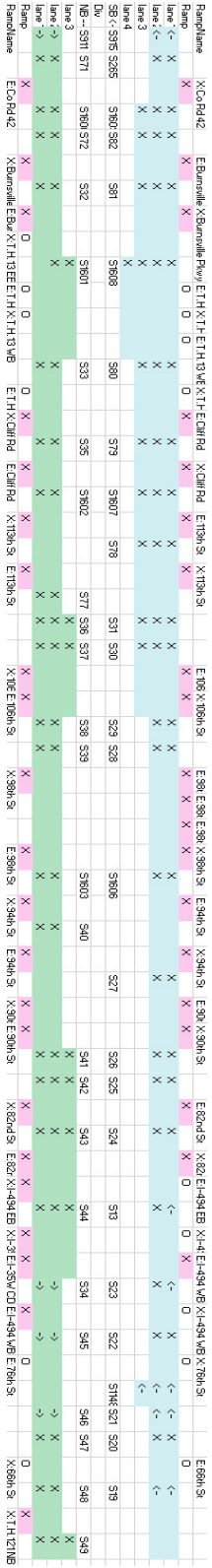
SB-Phase 3

RampName	X:Co Rd 42	E:Burnsville Dr	X:Burnsville Pkwy	E:T.H. 13 EB	X:T.H. 13 EB	E:T.H. 13 WB	X:T.H. 13 WB	E:Cliff Rd	X:Cliff Rd	E:T.H. 13 Rd	X:T.H. 13 Rd	E:T.H. 13 Rd	X:T.H. 13 Rd	E:Co Rd 42	RampName
Ramp	X	0	0	0	0	0	0	0	0	X	0	0	0	0	Ramp
lane 1 <-	X	X	X	X	X	<-	<-	X	X	X	<-	<-	<-	0	lane 1 <-
lane 2 <-	X	X	X	X	X	<-	<-	X	X	X	<-	<-	<-	0	lane 2 <-
lane 3	X	X	X	X	X	<-	<-	X	X	X	<-	<-	<-	0	lane 3
lane 4	X	X	X	X	X	<-	<-	X	X	X	<-	<-	<-	0	lane 4
SB (-591\S265	S16\S82	S81	S1608	S80	S79	S1607	S78	S31	S30	S1606	S27	S26	S25	S24	S13	S23	S22	S11\S21	S20	S19	
Div																	Div
NB - S91\S71	S16\S72	S32	S1601	S33	S35	S1602	S77	S36	S37	S1603	S40	S41	S42	S43	S44	S34	S45	S46	S47	S48	S49
lane 1 ->	X	X	X	->	->	X	->	->	->	->	->	->	->	->	->	->	lane 1 ->
lane 2 ->	X	X	X	->	->	X	->	->	->	->	->	->	->	->	->	->	lane 2 ->
Ramp	X	X	X	->	->	X	->	->	->	->	->	->	->	->	->	->	Ramp
RampName	E:Co Rd 42	X:Burnsville Dr	E:Burnsville Dr	X:Burnsville Pkwy	E:Burnsville Pkwy	X:T.H. 13 EB	E:T.H. 13 EB	X:T.H. 13 WB	E:T.H. 13 WB	X:Cliff Rd	E:Cliff Rd	X:T.H. 13 Rd	E:T.H. 13 Rd	X:T.H. 13 Rd	E:T.H. 13 Rd	X:Co Rd 42	RampName

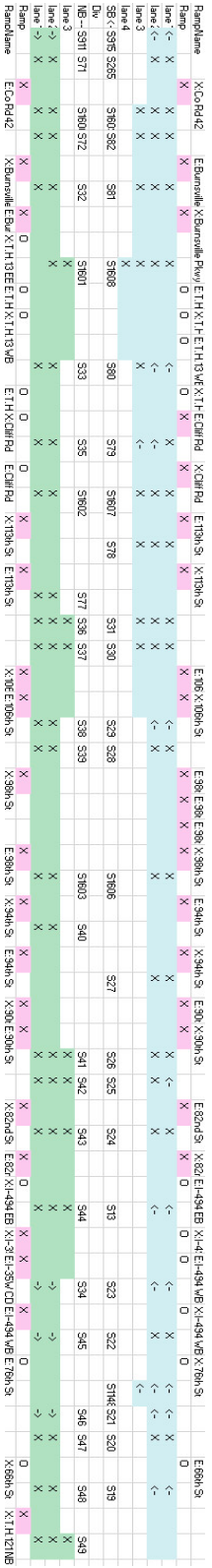
SB-Phase 4

RampName	X:Co Rd 42	E:Burnsville Dr	X:Burnsville Pkwy	E:T.H. 13 EB	X:T.H. 13 EB	E:T.H. 13 WB	X:T.H. 13 WB	E:Cliff Rd	X:Cliff Rd	E:T.H. 13 Rd	X:T.H. 13 Rd	E:T.H. 13 Rd	X:T.H. 13 Rd	E:Co Rd 42	RampName
Ramp	X	0	0	0	0	0	0	0	0	X	0	0	0	0	Ramp
lane 1 <-	X	X	X	X	X	<-	<-	X	X	X	<-	<-	<-	0	lane 1 <-
lane 2 <-	X	X	X	X	X	<-	<-	X	X	X	<-	<-	<-	0	lane 2 <-
lane 3	X	X	X	X	X	<-	<-	X	X	X	<-	<-	<-	0	lane 3
lane 4	X	X	X	X	X	<-	<-	X	X	X	<-	<-	<-	0	lane 4
SB (-591\S265	S16\S82	S81	S1608	S80	S79	S1607	S78	S31	S30	S1606	S27	S26	S25	S24	S13	S23	S22	S11\S21	S20	S19	
Div																	Div
NB - S91\S71	S16\S72	S32	S1601	S33	S35	S1602	S77	S36	S37	S1603	S40	S41	S42	S43	S44	S34	S45	S46	S47	S48	S49
lane 1 ->	X	X	X	->	->	X	->	->	->	->	->	->	->	->	->	->	lane 1 ->
lane 2 ->	X	X	X	->	->	X	->	->	->	->	->	->	->	->	->	->	lane 2 ->
Ramp	X	X	X	->	->	X	->	->	->	->	->	->	->	->	->	->	Ramp
RampName	E:Co Rd 42	X:Burnsville Dr	E:Burnsville Dr	X:Burnsville Pkwy	E:Burnsville Pkwy	X:T.H. 13 EB	E:T.H. 13 EB	X:T.H. 13 WB	E:T.H. 13 WB	X:Cliff Rd	E:Cliff Rd	X:T.H. 13 Rd	E:T.H. 13 Rd	X:T.H. 13 Rd	E:T.H. 13 Rd	X:Co Rd 42	RampName

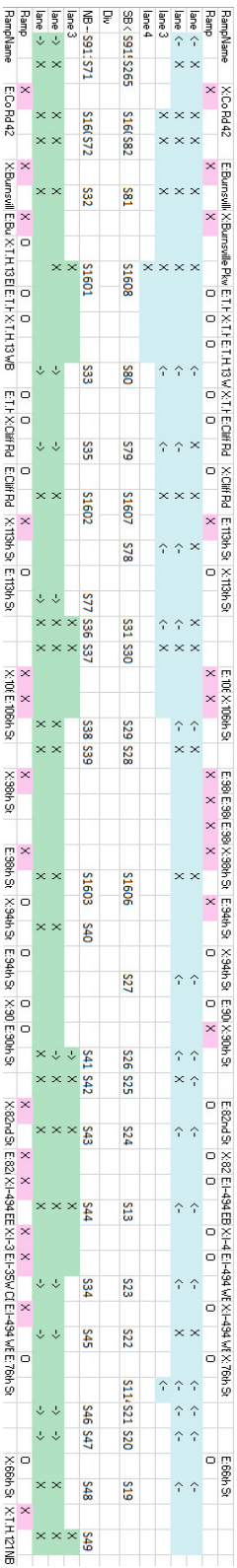
SB-Phase 7



SB-Phase 6



SB-Phase 5



SB-Phase8

RampName	X:Co Rd 42	E:Burnsville Pkwy	X:Burnsville Pkwy	E:T.H. 13	X:T.H. 13	E:Cliff Rd	X:Cliff Rd	E:I-35W	X:I-35W	E:I-494	X:I-494	E:82nd St	X:82nd St	E:I-494 EB	X:I-494 EB	E:66th St	X:66th St
Ramp	X																
lane <-		<-															
lane <-		<-															
lane 3		<-		<-													
lane 4				<-													
SB <- S91	S265	S81		S80		S79		S23		S22		S24		S13		S19	
Div.																	
NB -- S91	S71	S32		S33		S35		S34		S45		S43		S44		S48	
lane 3			->														
lane ->		->		->		->											
lane ->		->		->		->											
Ramp																	
RampName	X:Co Rd 42	E:Burnsville Pkwy	X:Burnsville Pkwy	E:T.H. 13	X:T.H. 13	E:Cliff Rd	X:Cliff Rd	E:I-35W	X:I-35W	E:I-494	X:I-494	E:82nd St	X:82nd St	E:I-494 EB	X:I-494 EB	E:66th St	X:66th St

RampName	X:Co Rd 42	E:Burnsville Pkwy	X:Burnsville Pkwy	E:T.H. 13	X:T.H. 13	E:Cliff Rd	X:Cliff Rd	E:T.H. 13	X:T.H. 13	E:106th St	X:106th St	E:98th St	X:98th St	E:94th St	X:94th St	E:90th St	X:90th St	E:82nd St	X:82nd St	E:I-494 EB	X:I-494 EB	E:I-35W	X:I-35W	E:I-494 WB	X:I-494 WB	E:76th St	X:76th St	E:66th St	X:66th St	X:T.H. 121 NB
Ramp	X																													
lane <-		<-																												
lane <-		<-																												
lane 3		<-		<-																										
lane 4				<-																										
SB <- S91	S265	S81		S80		S79		S78		S29	S28			S23		S22		S24		S13		S23		S22		S11	S21	S20		S19	
Div.																														
NB -- S91	S71	S32		S33		S35		S34		S45		S46	S47			S48		S49												
lane 3			->																											
lane ->		->		->		->																								
lane ->		->		->		->																								
Ramp																														
RampName	X:Co Rd 42	E:Burnsville Pkwy	X:Burnsville Pkwy	E:T.H. 13	X:T.H. 13	E:Cliff Rd	X:Cliff Rd	E:T.H. 13	X:T.H. 13	E:106th St	X:106th St	E:98th St	X:98th St	E:94th St	X:94th St	E:90th St	X:90th St	E:82nd St	X:82nd St	E:I-494 EB	X:I-494 EB	E:I-35W	X:I-35W	E:I-494 WB	X:I-494 WB	E:76th St	X:76th St	E:66th St	X:66th St	X:T.H. 121 NB

RampName	X:Co Rd 42	E:Burnsville Pkwy	X:Burnsville Pkwy	E:T.H. 13	X:T.H. 13	E:Cliff Rd	X:Cliff Rd	E:T.H. 13	X:T.H. 13	E:106th St	X:106th St	E:98th St	X:98th St	E:94th St	X:94th St	E:90th St	X:90th St	E:82nd St	X:82nd St	E:I-494 EB	X:I-494 EB	E:I-35W	X:I-35W	E:I-494 WB	X:I-494 WB	E:76th St	X:76th St	E:66th St	X:66th St	X:T.H. 121 NB
Ramp	X																													
lane <-		<-																												
lane <-		<-																												
lane 3		<-		<-																										
lane 4				<-																										
SB <- S91	S265	S81		S80		S79		S78		S29	S28			S23		S22		S24		S13		S23		S22		S11	S21	S20		S19	
Div.																														
NB -- S91	S71	S32		S33		S35		S34		S45		S46	S47			S48		S49												
lane 3			->																											
lane ->		->		->		->																								
lane ->		->		->		->																								
Ramp																														
RampName	X:Co Rd 42	E:Burnsville Pkwy	X:Burnsville Pkwy	E:T.H. 13	X:T.H. 13	E:Cliff Rd	X:Cliff Rd	E:T.H. 13	X:T.H. 13	E:106th St	X:106th St	E:98th St	X:98th St	E:94th St	X:94th St	E:90th St	X:90th St	E:82nd St	X:82nd St	E:I-494 EB	X:I-494 EB	E:I-35W	X:I-35W	E:I-494 WB	X:I-494 WB	E:76th St	X:76th St	E:66th St	X:66th St	X:T.H. 121 NB

SB-Phase 9

RampName	X:Co Rd 42	E:Burnsville Pkwy	X:Burnsville Pkwy	E:T.H. 13	X:T.H. 13	E:Cliff Rd	X:Cliff Rd	E:T.H. 13	X:T.H. 13	E:106th St	X:106th St	E:98th St	X:98th St	E:94th St	X:94th St	E:90th St	X:90th St	E:82nd St	X:82nd St	E:I-494 EB	X:I-494 EB	E:I-35W	X:I-35W	E:I-494 WB	X:I-494 WB	E:76th St	X:76th St	E:66th St	X:66th St	X:T.H. 121 NB
Ramp	X																													
lane <-		<-																												
lane <-		<-																												
lane 3		<-		<-																										
lane 4				<-																										
SB <- S91	S265	S81		S80		S79		S78		S31	S30			S26		S25		S24		S13		S23		S22		S14	S21	S20		S19	
Div.																														
NB -- S91	S71	S32		S33		S35		S34		S45		S46	S47			S48		S49												
lane 3			->																											
lane ->		->		->		->																								
lane ->		->		->		->																								
Ramp																														
RampName	X:Co Rd 42	E:Burnsville Pkwy	X:Burnsville Pkwy	E:T.H. 13	X:T.H. 13	E:Cliff Rd	X:Cliff Rd	E:T.H. 13	X:T.H. 13	E:106th St	X:106th St	E:98th St	X:98th St	E:94th St	X:94th St	E:90th St	X:90th St	E:82nd St	X:82nd St	E:I-494 EB	X:I-494 EB	E:I-35W	X:I-35W	E:I-494 WB	X:I-494 WB	E:76th St	X:76th St	E:66th St	X:66th St	X:T.H. 121 NB

SB-Phase 10

RampName	X:Co Rd 42	E:Burnsville Pkwy	X:Burnsville Pkwy	E:T.H. 13	X:T.H. 13	E:Cliff Rd	X:Cliff Rd	E:T.H. 13	X:T.H. 13	E:106th St	X:106th St	E:98th St	X:98th St	E:94th St	X:94th St	E:90th St	X:90th St	E:82nd St	X:82nd St	E:I-494 EB	X:I-494 EB	E:I-35W	X:I-35W	E:I-494 WB	X:I-494 WB	E:76th St	X:76th St	E:66th St	X:66th St	X:T.H. 121 NB
Ramp	X																													
lane <-		<-																												
lane <-		<-																												
lane 3		<-		<-																										
lane 4				<-																										
SB <- S91	S265	S81		S80		S79		S78		S29	S28			S23		S22		S24		S13		S23		S22		S11	S21	S20		S19	
Div.																														
NB -- S91	S71	S32		S33		S35		S34		S45		S46	S47			S48		S49												
lane 3			->																											
lane ->		->		->		->																								
lane ->		->		->		->																								
Ramp																														
RampName	X:Co Rd 42	E:Burnsville Pkwy	X:Burnsville Pkwy	E:T.H. 13	X:T.H. 13	E:Cliff Rd	X:Cliff Rd	E:T.H. 13	X:T.H. 13	E:106th St	X:106th St	E:98th St	X:98th St	E:94th St	X:94th St	E:90th St	X:90th St	E:82nd St	X:82nd St	E:I-494 EB	X:I-494 EB	E:I-35W	X:I-35W	E:I-494 WB	X:I-494 WB	E:76th St	X:76th St	E:66th St	X:66th St	X:T.H. 121 NB

Site 12: I-694, Apr-Sep 2010 (2 to 1)

EB-Phase 1

RampName	E:T.H.3	X:T.H.3	E:T.H.36 EB		X:T.H.36 EB			E:T.H.5		X:T.H.5							E:10th St		X:10th	E:E Jct I-94 CD	WB
Ramp		O	O	O		O			O		O							O		O	O	
lane 1	<-				<-		<-	<-		<-		<-		<-	<-	<-	<-		<-			<-
lane 2	<-				<-		<-	<-		<-		<-		<-	<-	<-	<-		<-			<-
WB <--	S1420				S1419		S1418	S1417		S1416		S1415		S1414	S1413	S1412	S1411			S1410			S1027
Div																						
EB -->	S1397				S1398		S1399	S1400		S1401		S1402	S1403	S1404		S1405	S1406			S1407			S1028
lane 2	->				->		->	X		X		X	X	X		->	X			->			->
lane 1	->				->		->	->		->		->	->	->		->	X			->			->
Ramp		O	O	O		O			O		O							O		O	O	
RampName	X:T.H.3	E:T.H.3	X:T.H.36 EB		E:T.H.36 EB			X:T.H.5		E:T.H.5								X:10th St		E:10th	X:E Jct I-94	WB

EB-Phase 2

RampName	E:T.H.3	X:T.H.3	E:T.H.36 EB		X:T.H.36 EB			E:T.H.5		X:T.H.5							E:10th St		X:10th	E:E Jct I-94 CD	WB
Ramp		O	O	O		O			O		O							O		O	O	
lane 1	<-				<-		<-	X		X		X		X	X	<-	<-		<-			<-
lane 2	<-				<-		<-	X		X		X		X	X	X	<-		<-			<-
WB <--	S1420				S1419		S1418	S1417		S1416		S1415		S1414	S1413	S1412	S1411			S1410			S1027
Div																						
EB -->	S1397				S1398		S1399	S1400		S1401		S1402	S1403	S1404		S1405	S1406			S1407			S1028
lane 2	->				->		->	<-		<-		<-	<-	<-		->	X			->			->
lane 1	->				->		->	->		->		->	->	->		->	X			->			->
Ramp		O	O	O		O			O		O							O		O	O	
RampName	X:T.H.3	E:T.H.3	X:T.H.36 EB		E:T.H.36 EB			X:T.H.5		E:T.H.5								X:10th St		E:10th	X:E Jct I-94	WB

EB-Phase 3

RampName	E:T.H.3	X:T.H.3	E:T.H.36 EB		X:T.H.36 EB			E:T.H.5		X:T.H.5							E:10th St		X:10th	E:E Jct I-94 CD	WB
Ramp		O	O	O		O		X		O							X		X	O	
lane 1	<-				<-		<-	X		X		X		X	X	<-	<-		X			<-
lane 2	<-				<-		<-	X		X		X		X	X	X	<-		X			<-
WB <--	S1420				S1419		S1418	S1417		S1416		S1415		S1414	S1413	S1412	S1411			S1410			S1027
Div																						
EB -->	S1397				S1398		S1399	S1400		S1401		S1402	S1403	S1404		S1405	S1406			S1407			S1028
lane 2	->				->		->	<-		X		<-	<-	<-		X	X			X			->
lane 1	->				->		->	->		X		->	->	X		->	X			X			->
Ramp		O	O	O		O			O		O							X		X	O	
RampName	X:T.H.3	E:T.H.3	X:T.H.36 EB		E:T.H.36 EB			X:T.H.5		E:T.H.5								X:10th St		E:10th	X:E Jct I-94	WB

EB-Phase 4

RampName	E:T.H.3	X:T.H.3	E:T.H.36 EB		X:T.H.36 EB			E:T.H.5		X:T.H.5							E:10th St		X:10th	E:E Jct I-94 CD	WB
Ramp		O	O	O		O		X		O							X		O	O	
lane 1	<-				<-		<-	X		X		X		X	X	X	X		X			<-
lane 2	<-				<-		<-	X		X		X		X	X	X	X		X			X
WB <--	S1420				S1419		S1418	S1417		S1416		S1415		S1414	S1413	S1412	S1411			S1410			S1027
Div																						
EB -->	S1397				S1398		S1399	S1400		S1401		S1402	S1403	S1404		S1405	S1406			S1407			S1028
lane 2	->				->		->	<-		X		<-	<-	X		<-	X			X			->
lane 1	->				->		->	->		->		->	->	X		->	X			X			->
Ramp		O	O	O		O			O		O							X		X	O	
RampName	X:T.H.3	E:T.H.3	X:T.H.36 EB		E:T.H.36 EB			X:T.H.5		E:T.H.5								X:10th St		E:10th	X:E Jct I-94	WB

EB-Phase 5

RampName	E:T.H.3	X:T.H.3	E:T.H.36 EB		X:T.H.36 EB			E:T.H.5		X:T.H.5							E:10th St		X:10th	E:E Jct I-94 CD	WB
Ramp		O	O	O		O		X		X							X		O	X	
lane 1	<-				<-		<-	X		X		X		X	X	X	X		X			X
lane 2	<-				<-		<-	X		X		X		X	X	X	X		X			X
WB <--	S1420				S1419		S1418	S1417		S1416		S1415		S1414	S1413	S1412	S1411			S1410			S1027
Div																						
EB -->	S1397				S1398		S1399	S1400		S1401		S1402	S1403	S1404		S1405	S1406			S1407			S1028
lane 2	->				->		->	<-		X		<-	<-	X		<-	X			X			<-
lane 1	->				->		->	->		X		->	X	X		->	X			X			->
Ramp		O	O	O		O			O		O							X		X	O	
RampName	X:T.H.3	E:T.H.3	X:T.H.36 EB		E:T.H.36 EB			X:T.H.5		E:T.H.5								X:10th St		E:10th	X:E Jct I-94	WB

EB-Phase 6

RampName	E:T.H.3	X:T.H.3	E:T.H.36 EB		X:T.H.36 EB			E:T.H.5		X:T.H.5							E:10th St		X:10th	E:E Jct I-94 CD	WB
Ramp		O	O	O		O		X		X							X		O	O	
lane 1	<-				<-		<-	X		X		X		X	X	X	X		X			<-
lane 2	<-				<-		<-	X		X		X		X	X	X	X		X			X
WB <--	S1420				S1419		S1418	S1417		S1416		S1415		S1414	S1413	S1412	S1411			S1410			S1027
Div																						
EB -->	S1397				S1398		S1399	S1400		S1401		S1402	S1403	S1404		S1405	S1406			S1407			S1028
lane 2	->				->		->	<-		X		<-	<-	X		<-	X			X			X
lane 1	->				->		->	->		X		->	X	X		->	X			X			->
Ramp		O	O	O		O			O		O							O		O	O	
RampName	X:T.H.3	E:T.H.3	X:T.H.36 EB		E:T.H.36 EB			X:T.H.5		E:T.H.5								X:10th St		E:10th	X:E Jct I-94	WB

EB-Phase 7

RampName	E:T.H.3	X:T.H.3	E:T.H.36 EB		X:T.H.36 EB			E:T.H.5		X:T.H.5							E:10th St		X:10th	E:E Jct	I-94 CD WB
Ramp	O	O	O		O			O		O							O		O	O	
lane 1	<-			<-		<-	<-		X		<-		<-	<-	<-	<-		<-			<-
lane 2	<-			<-		<-	X		X		X		X	X	X	X		X			X
WB <--	S1420			S1419		S1418	S1417		S1416		S1415		S1414	S1413	S1412	S1411		S1410			S1027
Div																					
EB -->	S1397			S1398		S1399	S1400		S1401		S1402	S1403	S1404		S1405	S1406		S1407			S1028
lane 2	->			->		->	X		X		X	X	X		X	X		X			->
lane 1	->			->		->	->		X		->	X	X		->	X		X			->
Ramp	O	O	O		O			O		O							O		O	O	
RampName	X:T.H.3	E:T.H.3	X:T.H.36 EB		E:T.H.36 EB			X:T.H.5		E:T.H.5							X:10th St		E:10th	X:E Jct	I-94 WB

EB-Phase 8

RampName	E:T.H.3	X:T.H.3	E:T.H.36 EB		X:T.H.36 EB			E:T.H.5		X:T.H.5							E:10th St		X:10th	E:E Jct	I-94 CD WB
Ramp	O	O	O		O			X		O							O		O	O	
lane 1	<-			<-		<-	<-		X		<-		<-	<-	<-	<-		<-			<-
lane 2	<-			<-		<-	->		->		X		->	->	->	->		->			X
WB <--	S1420			S1419		S1418	S1417		S1416		S1415		S1414	S1413	S1412	S1411		S1410			S1027
Div																					
EB -->	S1397			S1398		S1399	S1400		S1401		S1402	S1403	S1404		S1405	S1406		S1407			S1028
lane 2	->			->		->	X		X		X	X	X		X	X		X			->
lane 1	->			->		->	X		X		X	X	X		X	X		X			->
Ramp	O	O	O		O			X		X							O		O	O	
RampName	X:T.H.3	E:T.H.3	X:T.H.36 EB		E:T.H.36 EB			X:T.H.5		E:T.H.5							X:10th St		E:10th	X:E Jct	I-94 WB

EB-Phase 9

RampName	E:T.H.3	X:T.H.3	E:T.H.36 EB		X:T.H.36 EB			E:T.H.5		X:T.H.5							E:10th St		X:10th	E:E Jct	I-94 CD WB
Ramp	O	O	O		O			O		O							O		O	O	
lane 1	<-			<-		<-	<-		<-		<-		<-	<-	<-	<-		<-			<-
lane 2	<-			<-		<-	->		->		X		->	->	->	->		->			X
WB <--	S1420			S1419		S1418	S1417		S1416		S1415		S1414	S1413	S1412	S1411		S1410			S1027
Div																					
EB -->	S1397			S1398		S1399	S1400		S1401		S1402	S1403	S1404		S1405	S1406		S1407			S1028
lane 2	->			->		->	X		X		X	X	X		X	X		X			->
lane 1	->			->		->	X		X		X	X	X		X	X		X			->
Ramp	O	O	O		O			X		X							O		O	O	
RampName	X:T.H.3	E:T.H.3	X:T.H.36 EB		E:T.H.36 EB			X:T.H.5		E:T.H.5							X:10th St		E:10th	X:E Jct	I-94 WB

EB-Phase 10

RampName	E:T.H.3	X:T.H.3	E:T.H.36 EB		X:T.H.36 EB			E:T.H.5		X:T.H.5							E:10th St		X:10th	E:E Jct	I-94 CD WB
Ramp	O	O	O		O			O		O							O		O	O	
lane 1	<-			<-		<-	<-		<-		<-		<-	<-	<-	<-		<-			<-
lane 2	<-			<-		<-	X		X		X		X	X	X	X		X			X
WB <--	S1420			S1419		S1418	S1417		S1416		S1415		S1414	S1413	S1412	S1411		S1410			S1027
Div																					
EB -->	S1397			S1398		S1399	S1400		S1401		S1402	S1403	S1404		S1405	S1406		S1407			S1028
lane 2	->			->		->	X		X		->	X	X		X	X		X			->
lane 1	->			->		->	->		->		X	->	->		->	->		->			->
Ramp	O	O	O		O			O		X							O		O	O	
RampName	X:T.H.3	E:T.H.3	X:T.H.36 EB		E:T.H.36 EB			X:T.H.5		E:T.H.5							X:10th St		E:10th	X:E Jct	I-94 WB

WB-Phase 1

RampName	E:T.H.3	X:T.H.3	E:T.H.36 EB		X:T.H.36 EB			E:T.H.5		X:T.H.5							E:10th St		X:10th	E:E Jct	I-94 CD WB
Ramp	O	O	O		O			O		O							O		O	O	
lane 1	<-			<-		<-	<-		<-		<-		<-	<-	<-	<-		<-			<-
lane 2	<-			<-		<-	<-		<-		<-		<-	<-	<-	<-		<-			<-
WB <--	S1420			S1419		S1418	S1417		S1416		S1415		S1414	S1413	S1412	S1411		S1410			S1027
Div																					
EB -->	S1397			S1398		S1399	S1400		S1401		S1402	S1403	S1404		S1405	S1406		S1407			S1028
lane 2	->			->		->	X		X		X	X	X		->	X		->			->
lane 1	->			->		->	->		->		->	->	->		->	X		->			->
Ramp	O	O	O		O			O		O							O		O	O	
RampName	X:T.H.3	E:T.H.3	X:T.H.36 EB		E:T.H.36 EB			X:T.H.5		E:T.H.5							X:10th St		E:10th	X:E Jct	I-94 WB

WB-Phase 2

RampName	E:T.H.3	X:T.H.3	E:T.H.36 EB		X:T.H.36 EB			E:T.H.5		X:T.H.5							E:10th St		X:10th	E:E Jct	I-94 CD WB
Ramp	O	O	O		O			O		O							O		O	O	
lane 1	<-			<-		<-	X		X		X		X	X	<-	<-		<-			<-
lane 2	<-			<-		<-	X		X		X		X	X	<-	<-		<-			<-
WB <--	S1420			S1419		S1418	S1417		S1416		S1415		S1414	S1413	S1412	S1411		S1410			S1027
Div																					
EB -->	S1397			S1398		S1399	S1400		S1401		S1402	S1403	S1404		S1405	S1406		S1407			S1028
lane 2	->			->		->	<-		<-		<-	<-	<-		->	X		->			->
lane 1	->			->		->	->		->		->	->	->		->	X		->			->
Ramp	O	O	O		O			O		O							O		O	O	
RampName	X:T.H.3	E:T.H.3	X:T.H.36 EB		E:T.H.36 EB			X:T.H.5		E:T.H.5							X:10th St		E:10th	X:E Jct	I-94 WB

WB-Phase 3

RampName	E:T.H.3	X:T.H.3	E:T.H.36 EB		X:T.H.36 EB			E:T.H.5		X:T.H.5							E:10th St		X:10th	E:E Jct I-94 CD WB
Ramp	O	O	O		O			X		O							X		X	O
lane 1	<-			<-		<-	X		X		X		X	X	<-	<-		X		<-
lane 2	<-			<-		<-	X		X		X		X	X	X	<-		X		<-
WB <--	S1420			S1419		S1418	S1417		S1416		S1415		S1414	S1413	S1412	S1411		S1410		S1027
Div																				
EB -->	S1397			S1398		S1399	S1400		S1401		S1402	S1403	S1404		S1405	S1406		S1407		S1028
lane 2	->			->		->	<-		X		<-	<-	<-		X	X		X		->
lane 1	->			->		->	->		X		->	->	X		->	X		X		->
Ramp	O	O	O		O			O		O							X		X	O
RampName	X:T.H.3	E:T.H.3	X:T.H.36 EB		E:T.H.36 EB			X:T.H.5		E:T.H.5							X:10th St		E:10th	X:E Jct I-94 WB

WB-Phase 4

RampName	E:T.H.3	X:T.H.3	E:T.H.36 EB		X:T.H.36 EB			E:T.H.5		X:T.H.5							E:10th St		X:10th	E:E Jct I-94 CD WB
Ramp	O	O	O		O			X		O							X		O	O
lane 1	<-			<-		<-	X		X		X		X	X	X	X		X		<-
lane 2	<-			<-		<-	X		X		X		X	X	X	X		X		X
WB <--	S1420			S1419		S1418	S1417		S1416		S1415		S1414	S1413	S1412	S1411		S1410		S1027
Div																				
EB -->	S1397			S1398		S1399	S1400		S1401		S1402	S1403	S1404		S1405	S1406		S1407		S1028
lane 2	->			->		->	<-		X		<-	<-	<-		<-	X		X		->
lane 1	->			->		->	->		X		->	->	X		->	X		X		->
Ramp	O	O	O		O			O		O							X		X	O
RampName	X:T.H.3	E:T.H.3	X:T.H.36 EB		E:T.H.36 EB			X:T.H.5		E:T.H.5							X:10th St		E:10th	X:E Jct I-94 WB

WB-Phase 5

RampName	E:T.H.3	X:T.H.3	E:T.H.36 EB		X:T.H.36 EB			E:T.H.5		X:T.H.5							E:10th St		X:10th	E:E Jct I-94 CD WB
Ramp	O	O	O		O			X		X							X		O	X
lane 1	<-			<-		<-	X		X		X		X	X	X	X		X		X
lane 2	<-			<-		<-	X		X		X		X	X	X	X		X		X
WB <--	S1420			S1419		S1418	S1417		S1416		S1415		S1414	S1413	S1412	S1411		S1410		S1027
Div																				
EB -->	S1397			S1398		S1399	S1400		S1401		S1402	S1403	S1404		S1405	S1406		S1407		S1028
lane 2	->			->		->	<-		X		<-	<-	X		<-	X		X		<-
lane 1	->			->		->	->		X		->	X	X		->	X		X		->
Ramp	O	O	O		O			O		O							X		X	O
RampName	X:T.H.3	E:T.H.3	X:T.H.36 EB		E:T.H.36 EB			X:T.H.5		E:T.H.5							X:10th St		E:10th	X:E Jct I-94 WB

WB-Phase 6

RampName	E:T.H.3	X:T.H.3	E:T.H.36 EB		X:T.H.36 EB			E:T.H.5		X:T.H.5							E:10th St		X:10th	E:E Jct I-94 CD WB
Ramp	O	O	O		O			X		X							X		O	O
lane 1	<-			<-		<-	X		X		X		X	X	X	X		X		<-
lane 2	<-			<-		<-	X		X		X		X	X	X	X		X		X
WB <--	S1420			S1419		S1418	S1417		S1416		S1415		S1414	S1413	S1412	S1411		S1410		S1027
Div																				
EB -->	S1397			S1398		S1399	S1400		S1401		S1402	S1403	S1404		S1405	S1406		S1407		S1028
lane 2	->			->		->	<-		X		<-	<-	X		<-	X		X		X
lane 1	->			->		->	->		X		->	X	X		->	X		X		->
Ramp	O	O	O		O			O		O							O		O	O
RampName	X:T.H.3	E:T.H.3	X:T.H.36 EB		E:T.H.36 EB			X:T.H.5		E:T.H.5							X:10th St		E:10th	X:E Jct I-94 WB

WB-Phase 7

RampName	E:T.H.3	X:T.H.3	E:T.H.36 EB		X:T.H.36 EB			E:T.H.5		X:T.H.5							E:10th St		X:10th	E:E Jct I-94 CD WB
Ramp	O	O	O		O			O		O							O		O	O
lane 1	<-			<-		<-	<-		X		<-		<-	<-	<-	<-		<-		<-
lane 2	<-			<-		<-	X		X		X		X	X	X	X		X		X
WB <--	S1420			S1419		S1418	S1417		S1416		S1415		S1414	S1413	S1412	S1411		S1410		S1027
Div																				
EB -->	S1397			S1398		S1399	S1400		S1401		S1402	S1403	S1404		S1405	S1406		S1407		S1028
lane 2	->			->		->	X		X		X	X	X		X	X		X		->
lane 1	->			->		->	->		X		->	X	X		->	X		X		->
Ramp	O	O	O		O			O		O							O		O	O
RampName	X:T.H.3	E:T.H.3	X:T.H.36 EB		E:T.H.36 EB			X:T.H.5		E:T.H.5							X:10th St		E:10th	X:E Jct I-94 WB

WB-Phase 8

RampName	E:T.H.3	X:T.H.3	E:T.H.36 EB		X:T.H.36 EB			E:T.H.5		X:T.H.5							E:10th St		X:10th	E:E Jct I-94 CD WB
Ramp	O	O	O		O			O		O							O		O	O
lane 1	<-			<-		<-	<-		X		<-		<-	<-	<-	<-		<-		<-
lane 2	<-			<-		<-	->		->		X		->	->	->	->		->		X
WB <--	S1420			S1419		S1418	S1417		S1416		S1415		S1414	S1413	S1412	S1411		S1410		S1027
Div																				
EB -->	S1397			S1398		S1399	S1400		S1401		S1402	S1403	S1404		S1405	S1406		S1407		S1028
lane 2	->			->		->	X		X		X	X	X		X	X		X		->
lane 1	->			->		->	X		X		X	X	X		X	X		X		->
Ramp	O	O	O		O			X		X							O		O	O
RampName	X:T.H.3	E:T.H.3	X:T.H.36 EB		E:T.H.36 EB			X:T.H.5		E:T.H.5							X:10th St		E:10th	X:E Jct I-94 WB

WB-Phase 9

RampName		E:T.H.3	X:T.H.3	E:T.H.36 EB		X:T.H.36 EB			E:T.H.5		X:T.H.5							E:10th St		X:10th	E:E Jct I-94 CD WB	
Ramp		O	O	O		O			O		O							O		O	O	
lane 1	<-				<-		<-	<-		<-		<-		<-	<-	<-	<-		<-			<-
lane 2	<-				<-		<-	->		->		X		->	->	->	->		->			X
WB <--	S1420				S1419		S1418	S1417		S1416		S1415		S1414	S1413	S1412	S1411			S1410		S1027
Div																						
EB -->	S1397				S1398		S1399	S1400		S1401		S1402	S1403	S1404		S1405	S1406			S1407		S1028
lane 2	->				->		->	X		X		X	X	X		X	X			X		->
lane 1	->				->		->	X		X		X	X	X		X	X			X		->
Ramp		O	O	O		O			X		X							O		O	O	
RampName		X:T.H.3	E:T.H.3	X:T.H.36 EB		E:T.H.36 EB			X:T.H.5		E:T.H.5							X:10th St		E:10th	X:E Jct I-94 WB	

WB-Phase 10

RampName		E:T.H.3	X:T.H.3	E:T.H.36 EB		X:T.H.36 EB			E:T.H.5		X:T.H.5							E:10th St		X:10th	E:E Jct I-94 CD WB	
Ramp		O	O	O		O			O		O							O		O	O	
lane 1	<-				<-		<-	<-		<-		<-		<-	<-	<-	<-		<-			<-
lane 2	<-				<-		<-	X		X		X		X	X	X	X		X			X
WB <--	S1420				S1419		S1418	S1417		S1416		S1415		S1414	S1413	S1412	S1411			S1410		S1027
Div																						
EB -->	S1397				S1398		S1399	S1400		S1401		S1402	S1403	S1404		S1405	S1406			S1407		S1028
lane 2	->				->		->	X		X		->	X	X		X	X			X		->
lane 1	->				->		->	->		->		X	->	->		->	->			->		->
Ramp		O	O	O		O			O		X							O		O	O	
RampName		X:T.H.3	E:T.H.3	X:T.H.36 EB		E:T.H.36 EB			X:T.H.5		E:T.H.5							X:10th St		E:10th	X:E Jct I-94 WB	

Site 13: I-35, Jul 2013 – Mar 2014 (2 to 1)

NB-Phase 1

RampName	X:210th St						E:Co Rd 60					X:Co Rd 60		E:Co Rd 50		X:Co Ri	E:Co Rd 46		X:Co Ri	E:Crystal Lake Rd	
Ramp		O					O					O		X		O	O		O	O	
lane 1	<-			X	X	<-	X			<-	<-			X		X			<-		<-
lane 2	<-			X	X	<-	X			<-	<-			X		X			<-		<-
lane 3																			<-		<-
SB <--	S1584			S1583	S1582	S1581	ST30000			S1580	S1579			ST762		S1578			S1097		S916
Div																					
NB -->	S1585		S1586	S1587		S1588					S1589	S1094				S1095			S1096		S910
lane 3																			->		X
lane 2	->		X	X		->					->	->				->			->		->
lane 1	->		X	X		->					->	->				->			->		X
Ramp		O					O	O				O		O		O	O		O	O	
RampName	E:210th St WB						X:Co Ri	E:Co Rd 60 EB				E:Co Rd 60		X:Co Rd 50		E:Co Ri	X:Co Rd 46		E:Co Ri	X:Crystal Lake Rd	

NB-Phase 2

RampName	X:210th St						E:Co Rd 60					X:Co Rd 60		E:Co Rd 50		X:Co Ri	E:Co Rd 46		X:Co Ri	E:Crystal Lake Rd	
Ramp		O					O					O		X		O	O		O	O	
lane 1	<-			X	<-	<-	<-			<-	<-			<-		<-			<-		<-
lane 2	<-			X	<-	<-	<-			<-	<-			<-		<-			<-		<-
lane 3																			<-		<-
SB <--	S1584			S1583	S1582	S1581	ST30000			S1580	S1579			ST762		S1578			S1097		S916
Div																					
NB -->	S1585		S1586	S1587		S1588					S1589	S1094				S1095			S1096		S910
lane 3																			->		X
lane 2	->		->	X		->					->	->				->			->		->
lane 1	->		->	X		->					->	->				->			->		->
Ramp		O					O	O				O		O		O	O		O	O	
RampName	E:210th St WB						X:Co Ri	E:Co Rd 60 EB				E:Co Rd 60		X:Co Rd 50		E:Co Ri	X:Co Rd 46		E:Co Ri	X:Crystal Lake Rd	

NB-Phase 3

RampName	X:210th St						E:Co Rd 60					X:Co Rd 60		E:Co Rd 50		X:Co Ri	E:Co Rd 46		X:Co Ri	E:Crystal Lake Rd	
Ramp		O					O					O		X		O	O		O	O	
lane 1	<-			<-	<-	<-	<-			<-	<-			<-		<-			<-		<-
lane 2	->			->	->	->	->			->	->			->		->			<-		<-
lane 3																			X		<-
SB <--	S1584			S1583	S1582	S1581	ST30000			S1580	S1579			ST762		S1578			S1097		S916
Div																					
NB -->	S1585		S1586	S1587		S1588					S1589	S1094				S1095			S1096		S910
lane 3																			->		X
lane 2	X		X	X		X					X	X				X			->		->
lane 1	X		X	X		X					X	X				X			->		->
Ramp		O					O	X				X		X		O	O		O	O	
RampName	E:210th St WB						X:Co Ri	E:Co Rd 60 EB				E:Co Rd 60		X:Co Rd 50		E:Co Ri	X:Co Rd 46		E:Co Ri	X:Crystal Lake Rd	

NB-Phase 4-8

RampName	X:210th St						E:Co Rd 60					X:Co Rd 60		E:Co Rd 50		X:Co Ri	E:Co Rd 46		X:Co Ri	E:Crystal Lake Rd	
Ramp		O					O					O		X		O	O		O	O	
lane 1	<-			<-	<-	<-	<-			<-	<-			<-		<-			X		<-
lane 2	X			X	X	<-	<-			<-	<-			<-		<-			X		<-
lane 3																			X		X
SB <--	S1584			S1583	S1582	S1581	ST30000			S1580	S1579			ST762		S1578			S1097		S916
Div																					
NB -->	S1585		S1586	S1587		S1588					S1589	S1094				S1095			S1096		S910
lane 3																			->		X
lane 2	->		->	->		X					X	X				->			->		->
lane 1	->		->	->		X					X	X				->			->		->
Ramp		O					O	O				O		O		O	O		O	O	
RampName	E:210th St WB						X:Co Ri	E:Co Rd 60 EB				E:Co Rd 60		X:Co Rd 50		E:Co Ri	X:Co Rd 46		E:Co Ri	X:Crystal Lake Rd	

SB-Phase 1

RampName	X:210th St						E:Co Rd 60					X:Co Rd 60		E:Co Rd 50		X:Co Ri	E:Co Rd 46		X:Co Ri	E:Crystal Lake Rd	
Ramp		O					O					O		O		O	O		O	O	
lane 1	<-			X	X	<-	X			<-	<-			X		X			<-		<-
lane 2	<-			X	X	<-	X			<-	<-			X		X			<-		<-
lane 3																			<-		<-
SB <--	S1584			S1583	S1582	S1581	ST30000			S1580	S1579			ST762		S1578			S1097		S916
Div																					
NB -->	S1585		S1586	S1587		S1588					S1589	S1094				S1095			S1096		S910
lane 3																			->		X
lane 2	->		X	X		->					->	->				->			->		->
lane 1	->		X	X		->					->	->				->			->		X
Ramp		O					O	O				O		O		O	O		O	O	
RampName	E:210th St WB						X:Co Ri	E:Co Rd 60 EB				E:Co Rd 60		X:Co Rd 50		E:Co Ri	X:Co Rd 46		E:Co Ri	X:Crystal Lake Rd	

SB-Phase 2

RampName	X:210th St						E:Co Rd 60					X:Co Rd 60		E:Co Rd 50		X:Co R	E:Co Rd 46		X:Co R	E:Crystal Lake Rd	
Ramp		O					O					O		O		O	O		O	O	
lane 1	<-			X	<-	<-	<-			<-	<-			<-		<-					<-
lane 2	<-			X	<-	<-	<-			<-	<-			<-		<-					<-
lane 3																		<-			<-
SB <--	S1584			S1583	S1582	S1581	ST30000			S1580	S1579			ST762		S1578			S1097			S916
Div																					
NB -->	S1585		S1586	S1587		S1588					S1589	S1094				S1095			S1096			S910
lane 3																		->			X
lane 2	->		X	X		X					->	->				->			->			->
lane 1	->		X	X		->					->	->				->			->			->
Ramp		O					O	O				O		O		O	O		O	O	
RampName	E:210th St WB						X:Co R	E:Co Rd 60 EB				E:Co Rd 60		X:Co Rd 50		E:Co R	X:Co Rd 46		E:Co R	X:Crystal Lake Rd	

SB-Phase 3

RampName	X:210th St						E:Co Rd 60					X:Co Rd 60		E:Co Rd 50		X:Co R	E:Co Rd 46		X:Co R	E:Crystal Lake Rd	
Ramp		O					O					O		X		O	O		O	O	
lane 1	<-			<-	<-	<-	<-			<-	<-			<-		<-					<-
lane 2	->			->	->	->	->			->	->			->		->			<-		<-
lane 3																		X			<-
SB <--	S1584			S1583	S1582	S1581	ST30000			S1580	S1579			ST762		S1578			S1097			S916
Div																					
NB -->	S1585		S1586	S1587		S1588					S1589	S1094				S1095			S1096			S910
lane 3																		->			X
lane 2	X		X	X		X					X	X				X			->			->
lane 1	X		X	X		X					X	X				X			->			->
Ramp		O					O	X				X		X		O	O		O	O	
RampName	E:210th St WB						X:Co R	E:Co Rd 60 EB				E:Co Rd 60		X:Co Rd 50		E:Co R	X:Co Rd 46		E:Co R	X:Crystal Lake Rd	

SB-Phase 4

RampName	X:210th St						E:Co Rd 60					X:Co Rd 60		E:Co Rd 50		X:Co R	E:Co Rd 46		X:Co R	E:Crystal Lake Rd	
Ramp		O					O					O		O		O	O		O	O	
lane 1	<-			<-	<-	<-	<-			<-	<-			<-		<-					<-
lane 2	<-			X	<-	<-	<-			<-	<-			<-		<-					<-
lane 3																		<-			X
SB <--	S1584			S1583	S1582	S1581	ST30000			S1580	S1579			ST762		S1578			S1097			S916
Div																					
NB -->	S1585		S1586	S1587		S1588					S1589	S1094				S1095			S1096			S910
lane 3																		->			X
lane 2	->		->	->		X					X	X				->			->			->
lane 1	->		->	->		X					X	X				->			->			->
Ramp		O					O	O				O		O		O	O		O	O	
RampName	E:210th St WB						X:Co R	E:Co Rd 60 EB				E:Co Rd 60		X:Co Rd 50		E:Co R	X:Co Rd 46		E:Co R	X:Crystal Lake Rd	

SB-Phase 5

RampName	X:210th St						E:Co Rd 60					X:Co Rd 60		E:Co Rd 50		X:Co R	E:Co Rd 46		X:Co R	E:Crystal Lake Rd	
Ramp		O					O					O		O		O	O		O	O	
lane 1	<-			<-	<-	<-	<-			<-	<-			<-		<-					<-
lane 2	X			X	X	<-	<-			<-	<-			<-		<-					<-
lane 3																		<-			X
SB <--	S1584			S1583	S1582	S1581	ST30000			S1580	S1579			ST762		S1578			S1097			S916
Div																					
NB -->	S1585		S1586	S1587		S1588					S1589	S1094				S1095			S1096			S910
lane 3																		->			X
lane 2	->		->	->		X					X	X				->			->			->
lane 1	->		->	->		X					X	X				->			->			->
Ramp		O					O	O				O		O		O	O		O	O	
RampName	E:210th St WB						X:Co R	E:Co Rd 60 EB				E:Co Rd 60		X:Co Rd 50		E:Co R	X:Co Rd 46		E:Co R	X:Crystal Lake Rd	

SB-Phase 6

RampName	X:210th St						E:Co Rd 60					X:Co Rd 60		E:Co Rd 50		X:Co R	E:Co Rd 46		X:Co R	E:Crystal Lake Rd	
Ramp		O					O					O		O		O	O		O	O	
lane 1	<-			<-	<-	<-	<-			<-	<-			<-		<-					<-
lane 2	<-			<-	<-	<-	<-			<-	<-			<-		<-					<-
lane 3																		<-			<-
SB <--	S1584			S1583	S1582	S1581	ST30000			S1580	S1579			ST762		S1578			S1097			S916
Div																					
NB -->	S1585		S1586	S1587		S1588					S1589	S1094				S1095			S1096			S910
lane 3																		->			X
lane 2	->		->	->		->					X	X				->			->			->
lane 1	->		->	->		->					X	X				->			->			->
Ramp		O					O	O				O		O		O	O		O	O	
RampName	E:210th St WB						X:Co R	E:Co Rd 60 EB				E:Co Rd 60		X:Co Rd 50		E:Co R	X:Co Rd 46		E:Co R	X:Crystal Lake Rd	

SB-Phase 7

RampName	X:210th St						E:Co Rd 60					X:Co Rd 60		E:Co Rd 50		X:Co R	E:Co Rd 46		X:Co R	E:Crystal Lake Rd	
Ramp		O					O					O		O		O	O		O	O	
lane 1	<-			<-	<-	<-	X			<-	<-			X		X			<-			<-	
lane 2	<-			<-	<-	<-	X			<-	<-			X		X			<-			<-	
lane 3																			<-			<-	
SB <--	S1584			S1583	S1582	S1581	ST30000			S1580	S1579			ST762		S1578			S1097			S916	
Div																							
NB -->	S1585		S1586	S1587		S1588					S1589	S1094				S1095			S1096			S910	
lane 3																			->			X	
lane 2	->		->	->		->					X	X				->			->			->	
lane 1	->		->	->		->					X	X				->			->			->	
Ramp		O					O	O				O		O		O	O		O	O			
RampName	E:210th St WB						X:Co R	E:Co Rd 60 EB				E:Co Rd 60		X:Co Rd 50		E:Co R	X:Co Rd 46		E:Co R	X:Crystal Lake Rd	

SB-Phase 8-11

RampName	X:210th St						E:Co Rd 60					X:Co Rd 60		E:Co Rd 50		X:Co R	E:Co Rd 46		X:Co R	E:Crystal Lake Rd	
Ramp		O					O					O		O		O	O		O	O	
lane 1	<-			<-	<-	<-	X			<-	<-			X		X			<-			<-	
lane 2	<-			<-	<-	<-	X			<-	<-			X		X			<-			<-	
lane 3																			<-			<-	
SB <--	S1584			S1583	S1582	S1581	ST30000			S1580	S1579			ST762		S1578			S1097			S916	
Div																							
NB -->	S1585		S1586	S1587		S1588					S1589	S1094				S1095			S1096			S910	
lane 3																			->			X	
lane 2	->		->	->		->					X	X				->			->			->	
lane 1	->		->	->		->					X	X				->			->			->	
Ramp		O					O	O				O		O		O	O		O	O			
RampName	E:210th St WB						X:Co R	E:Co Rd 60 EB				E:Co Rd 60		X:Co Rd 50		E:Co R	X:Co Rd 46		E:Co R	X:Crystal Lake Rd	

Phases for Capacity Estimation

Site 1: I-35E, Jun-Jul 2013 (2 to 1)

NB-Phase 1

RampName	E:Co Rd 42		X:Co Rd 42					E:Co Rd 11				X:Co Rd 11						E:I-35E CD SB					X:I-35E CD SB	E:Cliff Rd			X:Cliff Rd		E:Diffley Rd	X:Diffley Rd
Ramp	O		O					O				O						O					X	O			O		O	O
lane 1	<-		<-		<-	<-	<-	<-		<-	<-	<-		X	<-	X		<-		<-	<-	<-	<-	<-		<-	<-		<-		<-	<-
lane 2	<-		<-		X	->	->	->		->	->	->		X	->	X		X		X	X	X	->	<-		<-	<-		<-		<-	<-
lane 3																								<-		<-	<-		<-		<-	<-
SB <--	S905		S904		ST3005	ST3005	S903	ST30037		S902	ST3005	S901		ST3005	S900	ST30040		ST30041		S899	ST3004	S898	ST30043	S897		ST3004	S896		S895		S894		S893
Div																																
NB -->	S870		S871		ST3004	ST3004	S872			S873		S874		ST3005	S875			ST30053		S876	ST3005	S877	ST30055	S878		ST3005	S879		S880		S881		S882
lane 3																								->		->	->		->		->	->
lane 2	->		X		X	X	X			X		X		X	X			->		->	->	->	X	->		->	->		->		->	->
lane 1	X		->		->	X	X			X		X		X	X			->		->	->	->	X	->		->	->		->		->	->
Ramp	O		O					X				X				O							O	O			O		O	O
RampName	X:Co Rd 42		E:Co Rd 42					X:Co Rd 11				E:Co Rd 11				X:I-35E CD NB							E:I-35E CD NB	X:Cliff Rd			E:Cliff Rd		X:Diffley Rd	E:Diffley Rd

NB-Phase 3

RampName	E:Co Rd 42		X:Co Rd 42					E:Co Rd 11				X:Co Rd 11						E:I-35E CD SB					X:I-35E CD SB	E:Cliff Rd			X:Cliff Rd		E:Diffley Rd	X:Diffley Rd
Ramp	X		O					X				O						O					X	O			O		O	O
lane 1	X		<-		X	X	X	X		X	X	X		X	X	X		<-		<-	<-	<-	<-	X		<-	<-		<-		<-	<-
lane 2	X		<-		X	X	X	X		X	X	X		X	X	X		<-		X	X	X	->	<-		<-	X		<-		<-	<-
lane 3																								X		X	X		X		<-	<-
SB <--	S905		S904		ST3005	ST3005	S903	ST30037		S902	ST3005	S901		ST3005	S900	ST30040		ST30041		S899	ST3004	S898	ST30043	S897		ST3004	S896		S895		S894		S893
Div																																
NB -->	S870		S871		ST3004	ST3004	S872			S873		S874		ST3005	S875			ST30053		S876	ST3005	S877	ST30055	S878		ST3005	S879		S880		S881		S882
lane 3																								X		->	->		->		->	->
lane 2	X		X		X	X	<-			<-		<-		X	<-			X		X	X	X	X	->		->	->		->		->	->
lane 1	X		->		X	X	->			->		->		X	->			->		->	->	->	X	->		->	->		->		->	->
Ramp	O		O					O				O				O							O	O			O		O	O
RampName	X:Co Rd 42		E:Co Rd 42					X:Co Rd 11				E:Co Rd 11				X:I-35E CD NB							E:I-35E CD NB	X:Cliff Rd			E:Cliff Rd		X:Diffley Rd	E:Diffley Rd

NB-Phase 4

RampName	E:Co Rd 42		X:Co Rd 42					E:Co Rd 11				X:Co Rd 11						E:I-35E CD SB					X:I-35E CD SB	E:Cliff Rd			X:Cliff Rd		E:Diffley Rd	X:Diffley Rd
Ramp	O		O					X				X						O					X	O			O		O	O
lane 1	<-		<-		X	X	X	X		X	X	X		X	X	X		<-		<-	<-	<-	<-	<-		<-	<-		<-		<-	<-
lane 2	<-		<-		X	X	X	X		X	X	X		X	X	X		<-		X	X	X	<-	<-		<-	<-		<-		<-	<-
lane 3																								<-		<-	<-		<-		<-	<-
SB <--	S905		S904		ST3005	ST3005	S903	ST30037		S902	ST3005	S901		ST3005	S900	ST30040		ST30041		S899	ST3004	S898	ST30043	S897		ST3004	S896		S895		S894		S893
Div																																
NB -->	S870		S871		ST3004	ST3004	S872			S873		S874		ST3005	S875			ST30053		S876	ST3005	S877	ST30055	S878		ST3005	S879		S880		S881		S882
lane 3																								->		->	->		->		->	->
lane 2	->		X		X	X	<-			<-		<-		X	<-			->		->	->	->	->	->		->	->		->		->	->
lane 1	X		->		X	X	->			->		->		X	->			->		->	->	->	->	->		->	->		->		->	->
Ramp	O		O					O				O				O							O	O			O		O	O
RampName	X:Co Rd 42		E:Co Rd 42					X:Co Rd 11				E:Co Rd 11				X:I-35E CD NB							E:I-35E CD NB	X:Cliff Rd			E:Cliff Rd		X:Diffley Rd	E:Diffley Rd

NB-Phase 5

RampName	E:Co Rd 42		X:Co Rd 42					E:Co Rd 11				X:Co Rd 11						E:I-35E CD SB					X:I-35E CD SB	E:Cliff Rd			X:Cliff Rd		E:Diffley Rd	X:Diffley Rd
Ramp	O		O					X				X						O					X	O			O		O	O
lane 1	<-		<-		X	X	X	X		X	X	X		X	X	X		X		<-	<-	<-	X	<-		<-	<-		<-		<-	<-
lane 2	->		->		X	X	X	X		X	X	X		X	X	X		X		->	X	->	X	<-		<-	<-		<-		<-	<-
lane 3																								->		X	X		<-		<-	<-
SB <--	S905		S904		ST3005	ST3005	S903	ST30037		S902	ST3005	S901		ST3005	S900	ST30040		ST30041		S899	ST3004	S898	ST30043	S897		ST3004	S896		S895		S894		S893
Div																																
NB -->	S870		S871		ST3004	ST3004	S872			S873		S874		ST3005	S875			ST30053		S876	ST3005	S877	ST30055	S878		ST3005	S879		S880		S881		S882
lane 3																								X		->	->		->		->	->
lane 2	X		X		X	X	<-			<-		<-		X	<-			X		X	X	X	X	X		X	->		->		->	->
lane 1	X		X		X	X	->			->		->		X	->			X		X	X	X	X	X		X	->		->		->	->
Ramp	O		O					O				O				X							O	X			O		O	O
RampName	X:Co Rd 42		E:Co Rd 42					X:Co Rd 11				E:Co Rd 11				X:I-35E CD NB							E:I-35E CD NB	X:Cliff Rd			E:Cliff Rd		X:Diffley Rd	E:Diffley Rd

SB-Phase 1

RampName	E:Co Rd 42		X:Co Rd 42					E:Co Rd 11				X:Co Rd 11						E:I-35E CD SB					X:I-35E CD SB	E:Cliff Rd			X:Cliff Rd		E:Diffley Rd	X:Diffley Rd
Ramp	O		O					O				O						O					O	O			O		O	O
lane 1	<-		<-		<-	<-	<-	<-		<-	<-	<-		X	<-	X		<-		<-	<-	<-	<-	<-		<-	<-		<-		<-	<-
lane 2	<-		<-		X	->	->	->		->	->	->		X	->	X		X		X	X	X	->	<-		<-	<-		<-		<-	<-
lane 3																								<-		<-	<-		<-		<-	<-
SB <--	S905		S904		ST3005	ST3005	S903	ST30037		S902	ST3005	S901		ST3005	S900	ST30040		ST30041		S899	ST3004	S898	ST30043	S897		ST3004	S896		S895		S894		S893
Div																																
NB -->	S870		S871		ST3004	ST3004	S872			S873		S874		ST3005	S875			ST30053		S876	ST3005	S877	ST30055	S878		ST3005	S879		S880		S881		S882
lane 3																								->		->	->		->		->	->
lane 2	->		X		X	X	X			X		X		X	X			->		->	->	->	X	->		->	->		->		->	->
lane 1	X		->		->	X	X			X		X		X	X			->		->	->	->	X	->		->	->		->		->	->
Ramp	O		O					X				X				O							O	O			O		O	O
RampName	X:Co Rd 42		E:Co Rd 42					X:Co Rd 11				E:Co Rd 11				X:I-35E CD NB							E:I-35E CD NB	X:Cliff Rd			E:Cliff Rd		X:Diffley Rd	E:Diffley Rd

SB-Phase 2

RampName	E:Co Rd 42		X:Co Rd 42					E:Co Rd 11				X:Co Rd 11						E:I-35E CD SB					X:I-35E CD SB	E:Cliff Rd			X:Cliff Rd		E:Diffley Rd	X:Diffley Rd
Ramp	O		O					O				O						X					X	X			O		O	O
lane 1	<-		<-		<-	<-	<-	<-		<-	<-	<-		<-	<-	<-		X		X	X	X	X	X		X	<-		<-		<-	<-
lane 2	<-		X		->	->	->	->		->	->	->		->	->	->		X		X	X	X	X	X		X	<-		<-		<-	<-
lane 3																								X		<-	<-		X		X	<-
SB <--	S905		S904		ST3005	ST3005	S903	ST30037		S902	ST3005	S901		ST3005	S900	ST30040		ST30041		S899	ST3004	S898	ST30043	S897		ST3004	S896		S895		S894		S893
Div																																
NB -->	S870		S871		ST3004	ST3004	S872			S873		S874		ST3005	S875			ST30053		S876	ST3005	S877	ST30055	S878		ST3005	S879		S880		S881		S882
lane 3																								<-		->	->		->		->	->
lane 2	->		X		X	X	X			X		X		X	X			X	<-	X	<-	X	->	->		->	->		->		->	->
lane 1	X		->		X	X	X			X		X		X	X			->	->	->	->	X	->	->		->	->		->		->	->
Ramp	O		O					X				X				O							O	O			O		O	O
RampName	X:Co Rd 42		E:Co Rd 42					X:Co Rd 11				E:Co Rd 11				X:I-35E CD NB							E:I-35E CD NB	X:Cliff Rd			E:Cliff Rd		X:Diffley Rd	E:Diffley Rd

SB-Phase 3

RampName	E:Co Rd 42		X:Co Rd 42					E:Co Rd 11				X:Co Rd 11					E:I-35E CD SB					X:I-35E CD SB	E:Cliff Rd			X:Cliff Rd		E:Diffley Rd		X:Diffley Rd	
Ramp	X		O					X				O					O					O	O			O		O		O	
lane 1	X		<-		X	X	X	X		X	X	X		X	X	X	<-		<-	<-	<-	<-		X		<-	<-		<-		<-	
lane 2	X		<-		X	X	X	X		X	X	X		X	X	X	<-		X	X	X	->		<-		<-	X		<-		<-	
lane 3																								X		X	X		X		<-	
SB <--	S905		S904		ST3005	ST3005	S903	ST30037		S902	ST3005	S901		ST3005	S900	ST30040	ST30041		S899	ST3004	S898	ST30043		S897		ST3004	S896		S895		S894		S893
Div																																
NB -->	S870		S871		ST3004	ST3004	S872			S873		S874		ST3005	S875		ST30053		S876	ST3005	S877	ST30055		S878		ST3005	S879		S880		S881		S882
lane 3																								X		->	->		->		->	
lane 2	X		X		X	X	<-			<-		<-		X	<-		X		X	X	X	X		->		->	->		->		->	
lane 1	X		->		X	X	->			->		->		X	->		->		->	->	->	X		->		->	->		->		->	
Ramp		O		O				O				O				O							O		O			O		O	
RampName	X:Co Rd 42		E:Co Rd 42					X:Co Rd 11				E:Co Rd 11				X:I-35E CD NB						E:I-35E CD NB	X:Cliff Rd			E:Cliff Rd		X:Diffley Rd		E:Diffley Rd	

SB-Phase 4

RampName	E:Co Rd 42		X:Co Rd 42					E:Co Rd 11				X:Co Rd 11					E:I-35E CD SB					X:I-35E CD SB	E:Cliff Rd			X:Cliff Rd		E:Diffley Rd		X:Diffley Rd	
Ramp		O		O				X				X					O					O	O			O		O		O	
lane 1	<-		<-		X	X	X	X		X	X	X		X	X	X	<-		<-	<-	<-	<-		<-		<-	<-		<-		<-	
lane 2	<-		<-		X	X	X	X		X	X	X		X	X	X	<-		X	X	X	<-		<-		<-	<-		<-		<-	
lane 3																								<-		<-	<-		<-		<-	
SB <--	S905		S904		ST3005	ST3005	S903	ST30037		S902	ST3005	S901		ST3005	S900	ST30040	ST30041		S899	ST3004	S898	ST30043		S897		ST3004	S896		S895		S894		S893
Div																																
NB -->	S870		S871		ST3004	ST3004	S872			S873		S874		ST3005	S875		ST30053		S876	ST3005	S877	ST30055		S878		ST3005	S879		S880		S881		S882
lane 3																								->		->	->		->		->	
lane 2	->		X		X	X	<-			<-		<-		X	<-		->		->	->	->	->		->		->	->		->		->	
lane 1	X		->		X	X	->			->		->		X	->		->		->	->	->	->		->		->	->		->		->	
Ramp		O		O				O				O				O							O		O			O		O	
RampName	X:Co Rd 42		E:Co Rd 42					X:Co Rd 11				E:Co Rd 11				X:I-35E CD NB						E:I-35E CD NB	X:Cliff Rd			E:Cliff Rd		X:Diffley Rd		E:Diffley Rd	

SB-Phase 5

RampName	E:Co Rd 42		X:Co Rd 42					E:Co Rd 11				X:Co Rd 11					E:I-35E CD SB					X:I-35E CD SB	E:Cliff Rd			X:Cliff Rd		E:Diffley Rd		X:Diffley Rd	
Ramp		O		O				X				X					O					O	O			O		O		O	
lane 1	<-		<-		X	X	X	X		X	X	X		X	X	X	X		<-	<-	<-	X		<-		<-	<-		<-		<-	
lane 2	->		->		X	X	X	X		X	X	X		X	X	X	X		->	X	->	X		<-		<-	<-		<-		<-	
lane 3																								->		X	X		<-		<-	
SB <--	S905		S904		ST3005	ST3005	S903	ST30037		S902	ST3005	S901		ST3005	S900	ST30040	ST30041		S899	ST3004	S898	ST30043		S897		ST3004	S896		S895		S894		S893
Div																																
NB -->	S870		S871		ST3004	ST3004	S872			S873		S874		ST3005	S875		ST30053		S876	ST3005	S877	ST30055		S878		ST3005	S879		S880		S881		S882
lane 3																								X		->	->		->		->	
lane 2	X		X		X	X	<-			<-		<-		X	<-		X		X	X	X	X		X		X	->		->		->	
lane 1	X		X		X	X	->			->		->		X	->		X		X	X	X	X		X		X	->		->		->	
Ramp		O		O				O				O				X							X		X			O		O	
RampName	X:Co Rd 42		E:Co Rd 42					X:Co Rd 11				E:Co Rd 11				X:I-35E CD NB						E:I-35E CD NB	X:Cliff Rd			E:Cliff Rd		X:Diffley Rd		E:Diffley Rd	

Site 2: I-35E, Aug-Oct 2011 (2 to 1)

NB-Phase 1

RampName	X:Co Rd E				E:Co Rd 96		X:Co Rd 96						E:Co Rd J						E:Co Rd 14		X:Co Rd 14			
Ramp	O				O		O						O						X		O			
lane 1	<-		<-	<-	<-	X		X	X	X	X	X		X	X	X	X	X		X		X	X	<-
lane 2	<-		<-	<-	<-	<-		X	X	X	X	X		X	X	X	X	X		X		X	X	X
lane 3	<-																							
SB <--	S1462		S1549	S1548	S1547		S1546		S1545	S1544	S1543	S1542	S1541		S1540	S1539	S1538	S1537	S1536		S1535		S1534	S1532	S1531
Div																								
NB -->	S1449		S1485	S1486	S1487		S1488		S1489	S1490	S1491	S1492	S1493		S1494	S1495	S1496	S1497	S1498		S1499		S1500	S1502	S1503
lane 3	->																							
lane 2	->		->	->	->		->		X	<-	<-	<-	<-		<-	<-	<-	<-	<-		<-		X	<-	->
lane 1	->		->	->	->		->		->	->	->	->	->		->	->	->	->	->		->		X	->	->
Ramp	O				O		O						O						O		O			
RampName	E:Co Rd E				X:Co Rd 96		E:Co Rd 96						X:Co Rd J						X:Co Rd 14		E:Co Rd 14			

NB-Phase 2

RampName	X:Co Rd E				E:Co Rd 96		X:Co Rd 96						E:Co Rd J						E:Co Rd 14		X:Co Rd 14			
Ramp	O				X		X						O						X		O			
lane 1	<-		<-	<-	X	X		X	X	X	X	X		X	X	X	X	X		X		X	X	<-
lane 2	<-		<-	<-	X	X		X	X	X	X	X		X	X	X	X	X		X		X	X	X
lane 3	<-																							
SB <--	S1462		S1549	S1548	S1547		S1546		S1545	S1544	S1543	S1542	S1541		S1540	S1539	S1538	S1537	S1536		S1535		S1534	S1532	S1531
Div																								
NB -->	S1449		S1485	S1486	S1487		S1488		S1489	S1490	S1491	S1492	S1493		S1494	S1495	S1496	S1497	S1498		S1499		S1500	S1502	S1503
lane 3	->																							
lane 2	->		->	->	X		<-		<-	<-	<-	<-	<-		<-	<-	<-	<-	<-		<-		X	<-	->
lane 1	X		->	->	->		->		->	->	->	->	->		->	->	->	->	->		->		X	->	->
Ramp	O				O		O						O						O		O			
RampName	E:Co Rd E				X:Co Rd 96		E:Co Rd 96						X:Co Rd J						X:Co Rd 14		E:Co Rd 14			

NB-Phase 3

RampName	X:Co Rd E				E:Co Rd 96		X:Co Rd 96						E:Co Rd J						E:Co Rd 14		X:Co Rd 14			
Ramp	O				O		O						X						O		X			
lane 1	<-		<-	<-	<-	X		X	X	X	X	X		X	X	X	X	X		X		X	X	<-
lane 2	<-		<-	<-	<-	X		X	X	X	X	X		X	X	X	X	X		X		X	X	X
lane 3	<-																							
SB <--	S1462		S1549	S1548	S1547		S1546		S1545	S1544	S1543	S1542	S1541		S1540	S1539	S1538	S1537	S1536		S1535		S1534	S1532	S1531
Div																								
NB -->	S1449		S1485	S1486	S1487		S1488		S1489	S1490	S1491	S1492	S1493		S1494	S1495	S1496	S1497	S1498		S1499		S1500	S1502	S1503
lane 3	->																							
lane 2	->		->	->	->		<-		X	<-	<-	<-	<-		<-	<-	<-	<-	<-		<-		X	<-	->
lane 1	->		->	->	->		->		->	->	->	->	->		->	->	->	->	->		->		X	->	->
Ramp	O				O		O						O						O		O			
RampName	E:Co Rd E				X:Co Rd 96		E:Co Rd 96						X:Co Rd J						X:Co Rd 14		E:Co Rd 14			

NB-Phase 4

RampName	X:Co Rd E				E:Co Rd 96		X:Co Rd 96						E:Co Rd J						E:Co Rd 14		X:Co Rd 14			
Ramp	O				O		O						O						O		O			
lane 1	<-		<-	<-	<-	X		<-	<-	<-	<-	<-		<-	<-	<-	X	<-		<-		X	X	<-
lane 2	<-		<-	<-	<-	X		<-	<-	X	<-	<-		<-	X	<-	<-	<-		X		X	X	<-
lane 3	<-																							
SB <--	S1462		S1549	S1548	S1547		S1546		S1545	S1544	S1543	S1542	S1541		S1540	S1539	S1538	S1537	S1536		S1535		S1534	S1532	S1531
Div																								
NB -->	S1449		S1485	S1486	S1487		S1488		S1489	S1490	S1491	S1492	S1493		S1494	S1495	S1496	S1497	S1498		S1499		S1500	S1502	S1503
lane 3	->																							
lane 2	->		->	->	->		->		X	X	X	X	X		->	X	X	X	->		X		X	->	->
lane 1	->		->	->	->		->		->	X	X	->	->		X	->	->	->	X		->		X	->	->
Ramp	O				O		O						O						O		O			
RampName	E:Co Rd E				X:Co Rd 96		E:Co Rd 96						X:Co Rd J						X:Co Rd 14		E:Co Rd 14			

NB-Phase 5

RampName	X:Co Rd E				E:Co Rd 96		X:Co Rd 96						E:Co Rd J						E:Co Rd 14		X:Co Rd 14			
Ramp	O				O		O						O						O		O			
lane 1	<-		<-	<-	<-	X		<-	<-	<-	<-	<-		<-	<-	<-	X	<-		<-		X	X	<-
lane 2	<-		<-	<-	<-	X		<-	<-	X	<-	<-		<-	X	<-	<-	<-		X		X	X	<-
lane 3	<-																							
SB <--	S1462		S1549	S1548	S1547		S1546		S1545	S1544	S1543	S1542	S1541		S1540	S1539	S1538	S1537	S1536		S1535		S1534	S1532	S1531
Div																								
NB -->	S1449		S1485	S1486	S1487		S1488		S1489	S1490	S1491	S1492	S1493		S1494	S1495	S1496	S1497	S1498		S1499		S1500	S1502	S1503
lane 3	->																							
lane 2	->		->	->	->		->		->	->	->	->	->		->	->	->	X	->		->		X	->	->
lane 1	->		->	->	->		->		->	->	->	->	->		->	->	->	->	X		->		X	->	->
Ramp	O				O		O						O						O		O			
RampName	E:Co Rd E				X:Co Rd 96		E:Co Rd 96						X:Co Rd J						X:Co Rd 14		E:Co Rd 14			

SB-Phase 1

RampName	X:Co Rd E				E:Co Rd 96		X:Co Rd 96						E:Co Rd J						E:Co Rd 14		X:Co Rd 14			
Ramp	O				O		O						O						X		O			
lane 1	<-		<-	<-	<-		X		X	X	X	X	X		X	X	X	X	X		X		X	X	<-
lane 2	<-		<-	<-	<-		<-		X	X	X	X	X		X	X	X	X	X		X		X	X	X
lane 3	<-																								
SB <--	S1462		S1549	S1548	S1547		S1546		S1545	S1544	S1543	S1542	S1541		S1540	S1539	S1538	S1537	S1536		S1535		S1534	S1532	S1531
Div																									
NB -->	S1449		S1485	S1486	S1487		S1488		S1489	S1490	S1491	S1492	S1493		S1494	S1495	S1496	S1497	S1498		S1499		S1500	S1502	S1503
lane 3	->																								
lane 2	->		->	->	->		->		X	<-	<-	<-	<-		<-	<-	<-	<-	<-		<-		X	<-	->
lane 1	->		->	->	->		->		->	->	->	->	->		->	->	->	->	->		->		X	->	->
Ramp		O				O		O						O						O		O			
RampName		E:Co Rd E				X:Co Rd 96		E:Co Rd 96						X:Co Rd J						X:Co Rd 14		E:Co Rd 14			

SB-Phase 2

RampName	X:Co Rd E				E:Co Rd 96		X:Co Rd 96						E:Co Rd J						E:Co Rd 14		X:Co Rd 14			
Ramp		O				X		X						O						O		O			
lane 1	<-		<-	<-	X		X		X	X	X	X	X		X	X	X	X	X		X		X	X	<-
lane 2	<-		<-	<-	X		X		X	X	X	X	X		X	X	X	X	X		X		X	X	X
lane 3	<-																								
SB <--	S1462		S1549	S1548	S1547		S1546		S1545	S1544	S1543	S1542	S1541		S1540	S1539	S1538	S1537	S1536		S1535		S1534	S1532	S1531
Div																									
NB -->	S1449		S1485	S1486	S1487		S1488		S1489	S1490	S1491	S1492	S1493		S1494	S1495	S1496	S1497	S1498		S1499		S1500	S1502	S1503
lane 3	->																								
lane 2	->		->	->	X		<-		<-	<-	<-	<-	<-		<-	<-	<-	<-	<-		<-		X	<-	->
lane 1	X		->	->	->		->		->	->	->	->	->		->	->	->	->	->		->		X	->	->
Ramp		O				O		O						O						O		O			
RampName		E:Co Rd E				X:Co Rd 96		E:Co Rd 96						X:Co Rd J						X:Co Rd 14		E:Co Rd 14			

SB-Phase 3

RampName	X:Co Rd E				E:Co Rd 96		X:Co Rd 96						E:Co Rd J						E:Co Rd 14		X:Co Rd 14			
Ramp		O				O		O						X						O		O			
lane 1	<-		<-	<-	<-		X		X	X	X	X	X		X	X	X	X	X		X		X	X	<-
lane 2	<-		<-	<-	<-		X		X	X	X	X	X		X	X	X	X	X		X		X	X	X
lane 3	<-																								
SB <--	S1462		S1549	S1548	S1547		S1546		S1545	S1544	S1543	S1542	S1541		S1540	S1539	S1538	S1537	S1536		S1535		S1534	S1532	S1531
Div																									
NB -->	S1449		S1485	S1486	S1487		S1488		S1489	S1490	S1491	S1492	S1493		S1494	S1495	S1496	S1497	S1498		S1499		S1500	S1502	S1503
lane 3	->																								
lane 2	->		->	->	->		<-		X	<-	<-	<-	<-		<-	<-	<-	<-	<-		<-		X	<-	->
lane 1	->		->	->	->		->		->	->	->	->	->		->	->	->	->	->		->		X	->	->
Ramp		O				O		O						O						O		O			
RampName		E:Co Rd E				X:Co Rd 96		E:Co Rd 96						X:Co Rd J						X:Co Rd 14		E:Co Rd 14			

SB-Phase 4

RampName	X:Co Rd E				E:Co Rd 96		X:Co Rd 96						E:Co Rd J						E:Co Rd 14		X:Co Rd 14			
Ramp		O				O		O						O						O		O			
lane 1	<-		<-	<-	<-		X		X	X	X	X	X		X	X	X	X	X		X		X	X	<-
lane 2	<-		<-	<-	<-		X		X	X	X	X	X		X	X	X	X	X		X		X	X	X
lane 3	<-																								
SB <--	S1462		S1549	S1548	S1547		S1546		S1545	S1544	S1543	S1542	S1541		S1540	S1539	S1538	S1537	S1536		S1535		S1534	S1532	S1531
Div																									
NB -->	S1449		S1485	S1486	S1487		S1488		S1489	S1490	S1491	S1492	S1493		S1494	S1495	S1496	S1497	S1498		S1499		S1500	S1502	S1503
lane 3	->																								
lane 2	->		->	->	->		<-		X	<-	<-	<-	<-		<-	<-	<-	<-	<-		<-		X	<-	->
lane 1	->		->	->	->		->		->	->	->	->	->		->	->	->	->	->		->		X	->	->
Ramp		O				O		O						O						O		O			
RampName		E:Co Rd E				X:Co Rd 96		E:Co Rd 96						X:Co Rd J						X:Co Rd 14		E:Co Rd 14			

SB-Phase 5

RampName	X:Co Rd E				E:Co Rd 96		X:Co Rd 96						E:Co Rd J						E:Co Rd 14		X:Co Rd 14			
Ramp		O				O		O						O						O		O			
lane 1	<-		<-	<-	<-		X		<-	<-	<-	<-	<-		<-	<-	<-	X	<-		<-		X	X	<-
lane 2	<-		<-	<-	<-		X		<-	<-	X	<-	<-		<-	X	<-	<-	<-		X		X	X	<-
lane 3	<-																								
SB <--	S1462		S1549	S1548	S1547		S1546		S1545	S1544	S1543	S1542	S1541		S1540	S1539	S1538	S1537	S1536		S1535		S1534	S1532	S1531
Div																									
NB -->	S1449		S1485	S1486	S1487		S1488		S1489	S1490	S1491	S1492	S1493		S1494	S1495	S1496	S1497	S1498		S1499		S1500	S1502	S1503
lane 3	->																								
lane 2	->		->	->	->		->		X	X	X	X	X		->	X	X	X	->		X		X	->	->
lane 1	->		->	->	->		->		->	X	X	->	->		X	->	->	->	X		->		X	->	->
Ramp		O				O		O						O						O		O			
RampName		E:Co Rd E				X:Co Rd 96		E:Co Rd 96						X:Co Rd J						X:Co Rd 14		E:Co Rd 14			

Site 3: I-694, Jun-Nov 2012 (2 to 1)

EB-Phase 1

RampName			E:T.H.61		X:T.H.61		E:White Bear		X:White Bear		E:Century Ave		X:Century Ave		E:T.H.3	X:T.H.3	E:T.H.36 EB		X:T.H.36 EB			E:T.H.5		X:T.H.5		
Ramp			O		O		O		O		O		O		O	O	O		O			O		O		
lane 1		X		<-		<-		<-		<-		<-		<-				<-		<-	<-		<-		<-	<-
lane 2		X		<-		<-		<-		<-		X		<-				<-		<-	<-		<-		<-	<-
lane 3		X																								
WB <--		S1445		S1456		S1424		S1423		S1422		S1421		S1420				S1419		S1418	S1417		S1416		S1415	S1414
Div																										
EB -->	S1454			S1455		S1393		S1394		S1395		S1396		S1397				S1398		S1399	S1400		S1401		S1402	S1403
lane 3	X			X																						
lane 2	->			->		X		X		X		X		X				X		X	X		->		->	->
lane 1	->			->		->		->		->		->		->				->		->	->		->		->	->
Ramp		O		O		O		O		O		O		O	O	O	O		O			O		O		
RampName		E:I-35E SB		X:T.H.61		E:T.H.61		X:White Bear		E:White Bear		X:Century Ave		E:Century Ave		X:T.H.3	E:T.H.3	X:T.H.36 EB		E:T.H.36 EB			X:T.H.5		E:T.H.5	

EB-Phase 2

RampName			E:T.H.61		X:T.H.61		E:White Bear		X:White Bear		E:Century Ave		X:Century Ave		E:T.H.3	X:T.H.3	E:T.H.36 EB		X:T.H.36 EB			E:T.H.5		X:T.H.5		
Ramp			O		O		X		X		O		O		X	X	X		X			O		O		
lane 1		X		X		X		X		X		X		X				X		X	X		<-		<-	<-
lane 2		X		X		X		X		X		X		X				X		X	X		X		<-	<-
lane 3		X																								
WB <--		S1445		S1456		S1424		S1423		S1422		S1421		S1420				S1419		S1418	S1417		S1416		S1415	S1414
Div																										
EB -->	S1454			S1455		S1393		S1394		S1395		S1396		S1397				S1398		S1399	S1400		S1401		S1402	S1403
lane 3	X			<-																						
lane 2	->			->		<-		<-		<-		<-		X				<-		<-	<-		->		->	->
lane 1	->			->		->		->		->		->		->				->		->	->		->		->	->
Ramp		O		O		O		O		O		O		O	O	O	O		O			O		O		
RampName		E:I-35E SB		X:T.H.61		E:T.H.61		X:White Bear		E:White Bear		X:Century Ave		E:Century Ave		X:T.H.3	E:T.H.3	X:T.H.36 EB		E:T.H.36 EB			X:T.H.5		E:T.H.5	

EB-Phase 3

RampName			E:T.H.61		X:T.H.61		E:White Bear		X:White Bear		E:Century Ave		X:Century Ave		E:T.H.3	X:T.H.3	E:T.H.36 EB		X:T.H.36 EB			E:T.H.5		X:T.H.5		
Ramp			O		O		X		X		X		X		X	X	X		X			O		O		
lane 1		X		X		X		X		X		X		X				X		X	X		<-		<-	<-
lane 2		X		X		X		X		X		X		X				X		X	X		X		<-	<-
lane 3		X																								
WB <--		S1445		S1456		S1424		S1423		S1422		S1421		S1420				S1419		S1418	S1417		S1416		S1415	S1414
Div																										
EB -->	S1454			S1455		S1393		S1394		S1395		S1396		S1397				S1398		S1399	S1400		S1401		S1402	S1403
lane 3	X			<-																						
lane 2	->			->		<-		<-		X		X		X				<-		<-	<-		->		->	->
lane 1	->			->		->		->		X		X		X				->		X	->		->		->	->
Ramp		O		O		O		O		O		X		X		O	O		O			O		O		
RampName		E:I-35E SB		X:T.H.61		E:T.H.61		X:White Bear		E:White Bear		X:Century Ave		E:Century Ave		X:T.H.3	E:T.H.3	X:T.H.36 EB		E:T.H.36 EB			X:T.H.5		E:T.H.5	

EB-Phase 4

RampName			E:T.H.61		X:T.H.61		E:White Bear		X:White Bear		E:Century Ave		X:Century Ave		E:T.H.3	X:T.H.3	E:T.H.36 EB		X:T.H.36 EB			E:T.H.5		X:T.H.5		
Ramp			O		O		X		X		O		O		X	X	X		X			O		O		
lane 1		X		X		X		X		X		X		X				X		X	X		<-		<-	<-
lane 2		X		X		X		X		X		X		X				X		X	X		X		<-	<-
lane 3		X																								
WB <--		S1445		S1456		S1424		S1423		S1422		S1421		S1420				S1419		S1418	S1417		S1416		S1415	S1414
Div																										
EB -->	S1454			S1455		S1393		S1394		S1395		S1396		S1397				S1398		S1399	S1400		S1401		S1402	S1403
lane 3	X			<-																						
lane 2	->			->		X		<-		<-		<-		X				<-		<-	<-		->		->	->
lane 1	->			->		->		->		->		->		X				->		X	->		->		->	->
Ramp		O		O		O		O		O		O		O	X	O	X		O			O		O		
RampName		E:I-35E SB		X:T.H.61		E:T.H.61		X:White Bear		E:White Bear		X:Century Ave		E:Century Ave		X:T.H.3	E:T.H.3	X:T.H.36 EB		E:T.H.36 EB			X:T.H.5		E:T.H.5	

EB-Phase 5

RampName			E:T.H.61		X:T.H.61		E:White Bear		X:White Bear		E:Century Ave		X:Century Ave		E:T.H.3	X:T.H.3	E:T.H.36 EB		X:T.H.36 EB			E:T.H.5		X:T.H.5		
Ramp			O		X		X		X		X		X		O	X	X		O			O		O		
lane 1		X		X		X		X		X		X		X				X		X	<-		<-		<-	<-
lane 2		X		X		X		X		X		X		X				X		<-	X		X		<-	<-
lane 3		X																								
WB <--		S1445		S1456		S1424		S1423		S1422		S1421		S1420				S1419		S1418	S1417		S1416		S1415	S1414
Div																										
EB -->	S1454			S1455		S1393		S1394		S1395		S1396		S1397				S1398		S1399	S1400		S1401		S1402	S1403
lane 3	X			<-																						
lane 2	->			->		<-		<-		<-		<-		X				X		X	X		->		->	->
lane 1	->			->		->		->		->		->		X				->		->	->		->		->	->
Ramp		O		O		O		O		O		O		O	X	O	O		O			O		O		
RampName		E:I-35E SB		X:T.H.61		E:T.H.61		X:White Bear		E:White Bear		X:Century Ave		E:Century Ave		X:T.H.3	E:T.H.3	X:T.H.36 EB		E:T.H.36 EB			X:T.H.5		E:T.H.5	

EB-Phase 6

RampName			E:T.H.61	X:T.H.61	E:White Bear	X:White Bear	E:Century Ave	X:Century Ave	E:T.H.3	X:T.H.3	E:T.H.36 EB	X:T.H.36 EB		E:T.H.5	X:T.H.5	
Ramp			O	X	X	X	X	X	O	O	O	O		O	O	
lane 1		X	X	X	X	X	X	<-				<-	<-	<-	<-	<-
lane 2		X	X	X	X	X	X	->				->	->	->	X	<-
lane 3		X														
WB <--		S1445	S1456	S1424	S1423	S1422	S1421	S1420				S1419	S1418	S1417	S1416	S1415
Div																
EB -->	S1454		S1455	S1393	S1394	S1395	S1396	S1397				S1398	S1399	S1400	S1401	S1402
lane 3	X		<-													
lane 2	->		->	X	<-	<-	<-	X				X	X	X	->	->
lane 1	->		->	->	->	->	->	X				X	X	X	->	->
Ramp		O	O	O	O	O	O	O	X	X	X		X		O	O
RampName		E:I-35E SB	X:T.H.61	E:T.H.61	X:White Bear	E:White Bear	X:Century Ave	E:Century Ave	X:T.H.3	E:T.H.3	X:T.H.36 EB	E:T.H.36 EB		X:T.H.5	E:T.H.5	

EB-Phase 7

RampName			E:T.H.61	X:T.H.61	E:White Bear	X:White Bear	E:Century Ave	X:Century Ave	E:T.H.3	X:T.H.3	E:T.H.36 EB	X:T.H.36 EB		E:T.H.5	X:T.H.5	
Ramp			O	O	O	O	O	O	O	O	X	O		O	O	
lane 1		X	<-	<-	<-	<-	X	<-				<-	<-	<-	<-	<-
lane 2		X	->	->	->	->	X	->				->	->	->	X	<-
lane 3		X														
WB <--		S1445	S1456	S1424	S1423	S1422	S1421	S1420				S1419	S1418	S1417	S1416	S1415
Div																
EB -->	S1454		S1455	S1393	S1394	S1395	S1396	S1397				S1398	S1399	S1400	S1401	S1402
lane 3	X		X													
lane 2	->		X	X	X	X	X	X				X	X	X	->	->
lane 1	->		X	X	X	X	X	X				X	X	X	->	->
Ramp		O	O	O	O	X	O	O	X	X	X		O		O	O
RampName		E:I-35E SB	X:T.H.61	E:T.H.61	X:White Bear	E:White Bear	X:Century Ave	E:Century Ave	X:T.H.3	E:T.H.3	X:T.H.36 EB	E:T.H.36 EB		X:T.H.5	E:T.H.5	

EB-Phase 8

RampName			E:T.H.61	X:T.H.61	E:White Bear	X:White Bear	E:Century Ave	X:Century Ave	E:T.H.3	X:T.H.3	E:T.H.36 EB	X:T.H.36 EB		E:T.H.5	X:T.H.5	
Ramp			O	O	X	O	O	O	X	O	X	X		O	O	
lane 1		X	X	<-	<-	<-	X	<-				<-	<-	<-	<-	<-
lane 2		X	X	->	->	->	X	->				->	->	->	X	<-
lane 3		X														
WB <--		S1445	S1456	S1424	S1423	S1422	S1421	S1420				S1419	S1418	S1417	S1416	S1415
Div																
EB -->	S1454		S1455	S1393	S1394	S1395	S1396	S1397				S1398	S1399	S1400	S1401	S1402
lane 3	X		X													
lane 2	->		X	X	X	X	X	X				X	X	X	->	->
lane 1	->		X	X	X	X	X	X				X	X	X	->	->
Ramp		O	O	O	O	X	O	O	X	X	X		O		O	O
RampName		E:I-35E SB	X:T.H.61	E:T.H.61	X:White Bear	E:White Bear	X:Century Ave	E:Century Ave	X:T.H.3	E:T.H.3	X:T.H.36 EB	E:T.H.36 EB		X:T.H.5	E:T.H.5	

EB-Phase 9

RampName			E:T.H.61	X:T.H.61	E:White Bear	X:White Bear	E:Century Ave	X:Century Ave	E:T.H.3	X:T.H.3	E:T.H.36 EB	X:T.H.36 EB		E:T.H.5	X:T.H.5	
Ramp			O	O	X	O	O	O	O	O	X	X		O	O	
lane 1		X	X	<-	<-	<-	X	<-				<-	X	<-	<-	<-
lane 2		X	X	->	->	->	X	X				X	<-	X	X	<-
lane 3		X														
WB <--		S1445	S1456	S1424	S1423	S1422	S1421	S1420				S1419	S1418	S1417	S1416	S1415
Div																
EB -->	S1454		S1455	S1393	S1394	S1395	S1396	S1397				S1398	S1399	S1400	S1401	S1402
lane 3	X		X													
lane 2	->		X	X	X	X	X	X				X	X	X	->	->
lane 1	->		X	X	X	X	X	->				->	->	->	->	->
Ramp		O	O	O	O	O	X	O	X	O	O	O	O		O	O
RampName		E:I-35E SB	X:T.H.61	E:T.H.61	X:White Bear	E:White Bear	X:Century Ave	E:Century Ave	X:T.H.3	E:T.H.3	X:T.H.36 EB	E:T.H.36 EB		X:T.H.5	E:T.H.5	

EB-Phase 10

RampName			E:T.H.61	X:T.H.61	E:White Bear	X:White Bear	E:Century Ave	X:Century Ave	E:T.H.3	X:T.H.3	E:T.H.36 EB	X:T.H.36 EB		E:T.H.5	X:T.H.5	
Ramp			X	O	O	O	O	O	O	O	O	O		O	O	
lane 1		X	X	X	<-	<-	X	<-				<-	<-	X	<-	<-
lane 2		X	X	<-	X	X	X	X				X	X	<-	X	<-
lane 3		X														
WB <--		S1445	S1456	S1424	S1423	S1422	S1421	S1420				S1419	S1418	S1417	S1416	S1415
Div																
EB -->	S1454		S1455	S1393	S1394	S1395	S1396	S1397				S1398	S1399	S1400	S1401	S1402
lane 3	X		X													
lane 2	->		->	X	X	X	X	X				->	->	->	->	->
lane 1	->		->	->	->	->	->	->				->	->	->	->	->
Ramp		O	X	O	O	O	O	O	X	O	O	O	O		O	O
RampName		E:I-35E SB	X:T.H.61	E:T.H.61	X:White Bear	E:White Bear	X:Century Ave	E:Century Ave	X:T.H.3	E:T.H.3	X:T.H.36 EB	E:T.H.36 EB		X:T.H.5	E:T.H.5	

WB-Phase 1

RampName			E:T.H.61	X:T.H.61	E:White Bear	X:White Bear	E:Century Ave	X:Century Ave	E:T.H.3	X:T.H.3	E:T.H.36 EB	X:T.H.36 EB		E:T.H.5	X:T.H.5	
Ramp			O	O	O	O	O	O	O	O	O	O		O	O	
lane 1		X	<-	<-	<-	<-	<-	<-			<-	<-	<-	<-	<-	<-
lane 2		X	<-	<-	<-	<-	X	<-			<-	<-	<-	<-	<-	<-
lane 3		X														
WB <--		S1445	S1456	S1424	S1423	S1422	S1421	S1420			S1419	S1418	S1417	S1416	S1415	S1414
Div																
EB -->	S1454		S1455	S1393	S1394	S1395	S1396	S1397			S1398	S1399	S1400	S1401	S1402	S1403
lane 3	X		X													
lane 2	->		->	X	X	X	X	X			X	X	X	->	->	->
lane 1	->		->	->	->	->	->	->			->	->	->	->	->	->
Ramp		O	O	O	O	O	O	O	O	O	O	O		O	O	
RampName		E:I-35E SB	X:T.H.61	E:T.H.61	X:White Bear	E:White Bear	X:Century Ave	E:Century Ave	X:T.H.3	E:T.H.3	X:T.H.36 EB	E:T.H.36 EB		X:T.H.5	E:T.H.5	

WB-Phase 2

RampName			E:T.H.61	X:T.H.61	E:White Bear	X:White Bear	E:Century Ave	X:Century Ave	E:T.H.3	X:T.H.3	E:T.H.36 EB	X:T.H.36 EB		E:T.H.5	X:T.H.5	
Ramp			O	O	X	X	O	O	X	X	X	X		O	O	
lane 1		X	X	X	X	X	X	X			X	X	X	<-	<-	<-
lane 2		X	X	X	X	X	X	X			X	X	X	X	<-	<-
lane 3		X														
WB <--		S1445	S1456	S1424	S1423	S1422	S1421	S1420			S1419	S1418	S1417	S1416	S1415	S1414
Div																
EB -->	S1454		S1455	S1393	S1394	S1395	S1396	S1397			S1398	S1399	S1400	S1401	S1402	S1403
lane 3	X		<-													
lane 2	->		->	<-	<-	<-	<-	X			<-	<-	<-	->	->	->
lane 1	->		->	->	->	->	->	->			->	->	->	->	->	->
Ramp		O	O	O	O	O	O	O	O	O	O	O		O	O	
RampName		E:I-35E SB	X:T.H.61	E:T.H.61	X:White Bear	E:White Bear	X:Century Ave	E:Century Ave	X:T.H.3	E:T.H.3	X:T.H.36 EB	E:T.H.36 EB		X:T.H.5	E:T.H.5	

WB-Phase 3

RampName			E:T.H.61	X:T.H.61	E:White Bear	X:White Bear	E:Century Ave	X:Century Ave	E:T.H.3	X:T.H.3	E:T.H.36 EB	X:T.H.36 EB		E:T.H.5	X:T.H.5	
Ramp			O	O	O	X	O	O	X	X	X	X		O	O	
lane 1		X	X	X	X	X	X	X			X	X	X	<-	<-	<-
lane 2		X	X	X	X	X	X	X			X	X	X	X	<-	<-
lane 3		X														
WB <--		S1445	S1456	S1424	S1423	S1422	S1421	S1420			S1419	S1418	S1417	S1416	S1415	S1414
Div																
EB -->	S1454		S1455	S1393	S1394	S1395	S1396	S1397			S1398	S1399	S1400	S1401	S1402	S1403
lane 3	X		<-													
lane 2	->		->	<-	<-	<-	<-	X			<-	<-	<-	->	->	->
lane 1	->		->	->	X	->	->	X			->	->	->	->	->	->
Ramp		O	O	O	O	O	O	O	O	O	O	O		O	O	
RampName		E:I-35E SB	X:T.H.61	E:T.H.61	X:White Bear	E:White Bear	X:Century Ave	E:Century Ave	X:T.H.3	E:T.H.3	X:T.H.36 EB	E:T.H.36 EB		X:T.H.5	E:T.H.5	

WB-Phase 4

RampName			E:T.H.61	X:T.H.61	E:White Bear	X:White Bear	E:Century Ave	X:Century Ave	E:T.H.3	X:T.H.3	E:T.H.36 EB	X:T.H.36 EB		E:T.H.5	X:T.H.5	
Ramp			O	X	X	X	X	X	O	X	X	X		O	O	
lane 1		X	X	X	X	X	X	X			X	X	<-	<-	<-	<-
lane 2		X	X	X	X	X	X	X			X	<-	X	X	<-	<-
lane 3		X														
WB <--		S1445	S1456	S1424	S1423	S1422	S1421	S1420			S1419	S1418	S1417	S1416	S1415	S1414
Div																
EB -->	S1454		S1455	S1393	S1394	S1395	S1396	S1397			S1398	S1399	S1400	S1401	S1402	S1403
lane 3	X		<-													
lane 2	->		->	<-	<-	<-	<-	X			X	X	X	->	->	->
lane 1	->		->	->	->	->	->	X			->	->	->	->	->	->
Ramp		O	O	O	O	O	O	O	X	O	O	O		O	O	
RampName		E:I-35E SB	X:T.H.61	E:T.H.61	X:White Bear	E:White Bear	X:Century Ave	E:Century Ave	X:T.H.3	E:T.H.3	X:T.H.36 EB	E:T.H.36 EB		X:T.H.5	E:T.H.5	

WB-Phase 5

RampName			E:T.H.61	X:T.H.61	E:White Bear	X:White Bear	E:Century Ave	X:Century Ave	E:T.H.3	X:T.H.3	E:T.H.36 EB	X:T.H.36 EB		E:T.H.5	X:T.H.5	
Ramp			O	X	X	X	X	X	O	O	O	O		O	O	
lane 1		X	X	X	X	X	X	<-			<-	<-	<-	<-	<-	<-
lane 2		X	X	X	X	X	X	->			->	->	->	X	<-	<-
lane 3		X														
WB <--		S1445	S1456	S1424	S1423	S1422	S1421	S1420			S1419	S1418	S1417	S1416	S1415	S1414
Div																
EB -->	S1454		S1455	S1393	S1394	S1395	S1396	S1397			S1398	S1399	S1400	S1401	S1402	S1403
lane 3	X		<-													
lane 2	->		->	X	<-	<-	<-	X			X	X	X	->	->	->
lane 1	->		->	->	->	->	->	X			X	X	X	->	->	->
Ramp		O	O	O	O	O	O	O	X	X	X	X		O	O	
RampName		E:I-35E SB	X:T.H.61	E:T.H.61	X:White Bear	E:White Bear	X:Century Ave	E:Century Ave	X:T.H.3	E:T.H.3	X:T.H.36 EB	E:T.H.36 EB		X:T.H.5	E:T.H.5	

WB-Phase 6

RampName			E:T.H.61		X:T.H.61		E:White Bear	X:White Bear	E:Century Ave	X:Century Ave	E:T.H.3	X:T.H.3	E:T.H.36 EB	X:T.H.36 EB		E:T.H.5	X:T.H.5		
Ramp			O		O		O	O	O	O	O	O	X	O			O	O	
lane 1		X		<-		<-		<-		X		<-			<-	<-	<-	<-	<-
lane 2		X		->		->		->		X		->			->	->	->	X	<-
lane 3		X																	
WB <--		S1445		S1456		S1424		S1423		S1421		S1420			S1419		S1418	S1417	
Div																			
EB -->	S1454			S1455		S1393		S1394		S1396		S1397			S1398		S1399	S1400	
lane 3	X			X															
lane 2	->			X		X		X		X		X			X		X	X	
lane 1	->			X		X		X		X		X			X		X	X	
Ramp		O		O		O		O	X		O		X	X	X		O		O
RampName		E:I-35E SB		X:T.H.61		E:T.H.61		X:White Bear	E:White Bear		X:Century Ave	E:Century Ave	X:T.H.3	E:T.H.3	X:T.H.36 EB		E:T.H.36 EB		X:T.H.5

RampName			E:T.H.61		X:T.H.61		E:White Bear	X:White Bear	E:Century Ave	X:Century Ave	E:T.H.3	X:T.H.3	E:T.H.36 EB	X:T.H.36 EB		E:T.H.5	X:T.H.5		
Ramp			O		O		X	O	O	O	X	O	X	X			O	O	
lane 1		X		X		<-		<-		X		<-			<-	<-	<-	<-	<-
lane 2		X		X		->		->		X		->			->	->	->	X	<-
lane 3		X																	
WB <--		S1445		S1456		S1424		S1423		S1421		S1420			S1419		S1418	S1417	
Div																			
EB -->	S1454			S1455		S1393		S1394		S1396		S1397			S1398		S1399	S1400	
lane 3	X			X															
lane 2	->			X		X		X		X		X			X		X	X	
lane 1	->			X		X		X		X		X			X		X	X	
Ramp		O		O		O		O	X		O		X	X	X		O		O
RampName		E:I-35E SB		X:T.H.61		E:T.H.61		X:White Bear	E:White Bear		X:Century Ave	E:Century Ave	X:T.H.3	E:T.H.3	X:T.H.36 EB		E:T.H.36 EB		X:T.H.5

WB-Phase 9

RampName			E:T.H.61		X:T.H.61		E:White Bear	X:White Bear	E:Century Ave	X:Century Ave	E:T.H.3	X:T.H.3	E:T.H.36 EB	X:T.H.36 EB		E:T.H.5	X:T.H.5		
Ramp			X		O		O	O	O	O	O	O	O	X			O	O	
lane 1		X		X		X		<-		X		<-			<-	<-	X	<-	<-
lane 2		X		X		<-		X		X		X			X	X	<-	X	<-
lane 3		X																	
WB <--		S1445		S1456		S1424		S1423		S1421		S1420			S1419		S1418	S1417	
Div																			
EB -->	S1454			S1455		S1393		S1394		S1396		S1397			S1398		S1399	S1400	
lane 3	X			X															
lane 2	->			->		X		X		X		X			->		->	->	->
lane 1	->			->		->		->		->		->			->		->	->	->
Ramp		O		X		O		O	O		O		O	O	O		O		O
RampName		E:I-35E SB		X:T.H.61		E:T.H.61		X:White Bear	E:White Bear		X:Century Ave	E:Century Ave	X:T.H.3	E:T.H.3	X:T.H.36 EB		E:T.H.36 EB		X:T.H.5

Site 4: U.S.169, Jun-Aug 2013 (2 to 1)

NB-Phase 1

RampName		X:T.H.101	X:T.H.101 NB			X:Old Shal	E:Pioneer Trail		X:Pioneer	E:Anderson Lakes Pkwy	
Ramp		O	O			O	O		O	O	
lane 1	<-				<-			<-			<-
lane 2	<-				<-			<-			<-
SB <--	S1610				S1141			S1140			S1147
Div											
NB -->	S1611				S1142			S1143			S1144
lane 2	->				->			->			->
lane 1	->				X			->			->
Ramp		O		O		O	O		O	O	
RampName		E:T.H.101 NB		X:Old Shakopee Rd		E:Old Shal	X:Pioneer Trail		E:Pioneer	X:Anderson Lakes Pkwy	

NB-Phase 2

RampName		X:T.H.101	X:T.H.101 NB			X:Old Shal	E:Pioneer Trail		X:Pioneer	E:Anderson Lakes Pkwy	
Ramp		X	X			O	X		O	O	
lane 1	X				<-			<-			<-
lane 2	X				X			<-			<-
SB <--	S1610				S1141			S1140			S1147
Div											
NB -->	S1611				S1142			S1143			S1144
lane 2	->				->			->			->
lane 1	->				X			->			->
Ramp		X		O		O	O		O	O	
RampName		E:T.H.101 NB		X:Old Shakopee Rd		E:Old Shal	X:Pioneer Trail		E:Pioneer	X:Anderson Lakes Pkwy	

NB-Phase 3

RampName		X:T.H.101	X:T.H.101 NB			X:Old Shal	E:Pioneer Trail		X:Pioneer	E:Anderson Lakes Pkwy	
Ramp		O	O			O	O		O	O	
lane 1	<-				<-			<-			<-
lane 2	<-				X			<-			<-
SB <--	S1610				S1141			S1140			S1147
Div											
NB -->	S1611				S1142			S1143			S1144
lane 2	X				X			->			->
lane 1	X				X			->			->
Ramp		X		X		X	O		O	O	
RampName		E:T.H.101 NB		X:Old Shakopee Rd		E:Old Shal	X:Pioneer Trail		E:Pioneer	X:Anderson Lakes Pkwy	

NB-Phase 4

RampName		X:T.H.101	X:T.H.101 NB			X:Old Shal	E:Pioneer Trail		X:Pioneer	E:Anderson Lakes Pkwy	
Ramp		O	O			O	O		O	O	
lane 1	<-				<-			<-			<-
lane 2	X				X			<-			<-
SB <--	S1610				S1141			S1140			S1147
Div											
NB -->	S1611				S1142			S1143			S1144
lane 2	->				->			->			->
lane 1	->				->			->			->
Ramp		O		O		O	O		O	O	
RampName		E:T.H.101 NB		X:Old Shakopee Rd		E:Old Shal	X:Pioneer Trail		E:Pioneer	X:Anderson Lakes Pkwy	

SB-Phase 1

RampName		X:T.H.101	X:T.H.101 NB			X:Old Shal	E:Pioneer Trail		X:Pioneer	E:Anderson Lakes Pkwy	
Ramp		O	O			O	O		O	O	
lane 1	<-				<-			<-			<-
lane 2	<-				<-			<-			<-
SB <--	S1610				S1141			S1140			S1147
Div											
NB -->	S1611				S1142			S1143			S1144
lane 2	->				->			->			->
lane 1	->				X			->			->
Ramp		O		O		O	O		O	O	
RampName		E:T.H.101 NB		X:Old Shakopee Rd		E:Old Shal	X:Pioneer Trail		E:Pioneer	X:Anderson Lakes Pkwy	

SB-Phase 2

RampName		X:Andersc	E:Pioneer Trail		X:Pioneer	E:Old Shakopee Rd		X:Old Shal	E:T.H.101 NB		
Ramp		O	O		O	O		O	O		
lane 1	<-			<-			X				<-
lane 2	<-			<-			<-				<-
NB <--	S1144			S1143			S1142				S1611
Div											
SB -->	S1147			S1140			S1141				S1610
lane 2	->			->			X				X
lane 1	->			->			->				X
Ramp		O	O		X	O			X	X	
RampName		E:Andersc	X:Pioneer Trail		E:Pioneer	X:Old Shakopee Rd			X:T.H.101	X:T.H.101 SB	

SB-Phase 3

RampName		X:Andersc	E:Pioneer Trail		X:Pioneer	E:Old Shakopee Rd		X:Old Shal	E:T.H.101 NB		
Ramp		O	O		O	O		O	X		
lane 1	<-			<-			X				<-
lane 2	<-			<-			<-				<-
NB <--	S1144			S1143			S1142				S1611
Div											
SB -->	S1147			S1140			S1141				S1610
lane 2	->			->			X				X
lane 1	->			->			->				X
Ramp		O	O		X	X			X	X	
RampName		E:Andersc	X:Pioneer Trail		E:Pioneer	X:Old Shakopee Rd			X:T.H.101	X:T.H.101 SB	

SB-Phase 4

RampName		X:T.H.101	X:T.H.101 NB			X:Old Shal	E:Pioneer Trail		X:Pioneer	E:Anderson Lakes Pkwy	
Ramp		O	O			O	O		O	O	
lane 1	<-				<-			<-			<-
lane 2	<-				X			<-			<-
SB <--	S1610				S1141			S1140			S1147
Div											
NB -->	S1611				S1142			S1143			S1144
lane 2	X				X			->			->
lane 1	X				X			->			->
Ramp		X		X		X	O		O	O	
RampName		E:T.H.101 NB		X:Old Shakopee Rd		E:Old Shal	X:Pioneer Trail		E:Pioneer	X:Anderson Lakes Pkwy	

SB-Phase 5

RampName		X:T.H.101	X:T.H.101 NB			X:Old Shal	E:Pioneer Trail		X:Pioneer	E:Anderson Lakes Pkwy		
Ramp		O	O			O	O		O	O		
lane 1	<-				<-			<-			<-	
lane 2	<-				X			<-			<-	
SB <--	S1610				S1141			S1140			S1147	
Div												
NB -->	S1611				S1142			S1143			S1144	
lane 2	X				X			->			->	
lane 1	X				X			->			->	
Ramp		X		X		X	O		O	O		
RampName		E:T.H.101 NB		X:Old Shakopee Rd		E:Old Shal	X:Pioneer Trail		E:Pioneer	X:Anderson Lakes Pkwy		

Site 5: I-35E, Apr-Oct 2013 (3 to 3, no-lane-close)

NB-Phase 1

RampName		X:I-94 CD \	X:I-35E CD SB			X:Univers	X:Pennsylvania Ave			E:Maryland Ave		X:Marylan	E:Wheelock Pkwy		
Ramp		X	O			O	O			O		O	O		
lane 1	<-				<-			<-	X		<-			<-	<-
lane 2	<-				<-			<-	X		<-			<-	<-
lane 3					<-			<-	X		<-			<-	<-
lane 4					<-										
SB <--	S643				S642			S641	S640		S639			S638	S637
Div															
NB -->	S620				S621			S622	S623		S624			S625	S626
lane 4					->										
lane 3					->			->	X		->			->	->
lane 2	->				->			->	X		->			->	->
lane 1	->				->			->	X		->			->	->
Ramp		O	O	O		O				O		O	O		
RampName		E:Jackson	E:I-35E CD	X:Pennsylvania Ave		E:Pennsylvania Ave				X:Maryland Ave		E:Marylan	X:Wheelock Pkwy		

NB-Phase 2

RampName		X:I-94 CD \	X:I-35E CD SB			X:Univers	X:Pennsylvania Ave			E:Maryland Ave		X:Marylan	E:Wheelock Pkwy		
Ramp		X	O			O	O			O		O	O		
lane 1	<-				<-			X	X		<-			<-	<-
lane 2	<-				<-			X	X		<-			<-	<-
lane 3					<-			X	X		<-			<-	<-
lane 4					<-										
SB <--	S643				S642			S641	S640		S639			S638	S637
Div															
NB -->	S620				S621			S622	S623		S624			S625	S626
lane 4					->										
lane 3					->			X	X		->			->	->
lane 2	->				->			X	X		->			->	->
lane 1	->				->			X	X		->			->	->
Ramp		O	O	O		O				O		O	O		
RampName		E:Jackson	E:I-35E CD	X:Pennsylvania Ave		E:Pennsylvania Ave				X:Maryland Ave		E:Marylan	X:Wheelock Pkwy		

NB-Phase 3

RampName		X:I-94 CD \	X:I-35E CD SB			X:Univers	X:Pennsylvania Ave			E:Maryland Ave		X:Marylan	E:Wheelock Pkwy		
Ramp		X	O			O	O			O		O	O		
lane 1	<-				<-			X	X		<-			<-	<-
lane 2	<-				<-			X	X		<-			<-	<-
lane 3					<-			X	X		<-			<-	<-
lane 4					<-										
SB <--	S643				S642			S641	S640		S639			S638	S637
Div															
NB -->	S620				S621			S622	S623		S624			S625	S626
lane 4					->										
lane 3					->			X	X		->			->	->
lane 2	X				->			X	X		->			->	->
lane 1	->				->			X	X		->			->	->
Ramp		O	O	O		O				O		O	O		
RampName		E:Jackson	E:I-35E CD	X:Pennsylvania Ave		E:Pennsylvania Ave				X:Maryland Ave		E:Marylan	X:Wheelock Pkwy		

NB-Phase 4

RampName		X:I-94 CD \	X:I-35E CD SB			X:Univers	X:Pennsylvania Ave			E:Maryland Ave		X:Marylan	E:Wheelock Pkwy		
Ramp		X	O			O	O			X		X	O		
lane 1	<-				<-			X	X		X			<-	<-
lane 2	<-				<-			X	X		X			<-	<-
lane 3					<-			X	X		X			<-	<-
lane 4					<-										
SB <--	S643				S642			S641	S640		S639			S638	S637
Div															
NB -->	S620				S621			S622	S623		S624			S625	S626
lane 4					->										
lane 3					->			X	X		X			->	->
lane 2	->				->			X	X		X			->	->
lane 1	->				->			X	X		X			->	->
Ramp		O	O	O		O				X		X	O		
RampName		E:Jackson	E:I-35E CD	X:Pennsylvania Ave		E:Pennsylvania Ave				X:Maryland Ave		E:Marylan	X:Wheelock Pkwy		

NB-Phase 5

RampName		X:I-94 CD \	X:I-35E CD SB			X:Universi	X:Pennsylvania Ave			E:Maryland Ave		X:Marylan	E:Wheelock Pkwy		
Ramp		X	O			O	O			O		O	O		
lane 1	<-				<-			X	X		<-			<-	<-
lane 2	<-				<-			X	X		<-			<-	<-
lane 3					<-			X	X		<-			<-	<-
lane 4					<-										
SB <--	S643				S642			S641	S640		S639			S638	S637
Div															
NB -->	S620				S621			S622	S623		S624			S625	S626
lane 4					->										
lane 3					->			X	X		->			->	->
lane 2	->				->			X	X		->			->	->
lane 1	->				->			X	X		->			->	->
Ramp		O	O	O		O				O		O	O		
RampName		E:Jackson	E:I-35E CD	X:Pennsylvania Ave		E:Pennsylvania Ave				X:Maryland Ave		E:Marylan	X:Wheelock Pkwy		

NB-Phase 6

RampName		X:I-94 CD \	X:I-35E CD SB			X:Universi	X:Pennsylvania Ave			E:Maryland Ave		X:Marylan	E:Wheelock Pkwy		
Ramp		X	O			O	O			X		O	O		
lane 1	<-				<-			X	X		<-			<-	<-
lane 2	<-				<-			X	X		<-			<-	<-
lane 3					<-			X	X		<-			<-	<-
lane 4					<-										
SB <--	S643				S642			S641	S640		S639			S638	S637
Div															
NB -->	S620				S621			S622	S623		S624			S625	S626
lane 4					->										
lane 3					->			X	X		->			->	->
lane 2	->				->			X	X		->			->	->
lane 1	->				->			X	X		->			->	->
Ramp		O	O	O		O				X		O	O		
RampName		E:Jackson	E:I-35E CD	X:Pennsylvania Ave		E:Pennsylvania Ave				X:Maryland Ave		E:Marylan	X:Wheelock Pkwy		

NB-Phase 7

RampName		X:I-94 CD \	X:I-35E CD SB			X:Universi	X:Pennsylvania Ave			E:Maryland Ave		X:Marylan	E:Wheelock Pkwy		
Ramp		X	O			O	O			X		O	O		
lane 1	<-				<-			X	X		X			<-	<-
lane 2	<-				<-			X	X		X			<-	<-
lane 3					<-			X	X		X			<-	<-
lane 4					<-										
SB <--	S643				S642			S641	S640		S639			S638	S637
Div															
NB -->	S620				S621			S622	S623		S624			S625	S626
lane 4					->										
lane 3					->			X	X		->			->	->
lane 2	->				->			X	X		->			->	->
lane 1	->				->			X	X		->			->	->
Ramp		O	O	O		O				O		O	O		
RampName		E:Jackson	E:I-35E CD	X:Pennsylvania Ave		E:Pennsylvania Ave				X:Maryland Ave		E:Marylan	X:Wheelock Pkwy		

SB-Phase 1

RampName		X:I-94 CD \	X:I-35E CD SB			X:Univers	X:Pennsylvania Ave			E:Maryland Ave		X:Marylan	E:Wheelock Pkwy		
Ramp		O	O			O	O			O		O	O		
lane 1	<-				<-			<-	X		<-			<-	<-
lane 2	<-				<-			<-	X		<-			<-	<-
lane 3					<-			<-	X		<-			<-	<-
lane 4					<-										
SB <--	S643				S642			S641	S640		S639			S638	S637
Div															
NB -->	S620				S621			S622	S623		S624			S625	S626
lane 4					->										
lane 3					->			->	X		->			->	->
lane 2	->				->			->	X		->			->	->
lane 1	->				->			->	X		->			->	->
Ramp		O	O	O		O				O		O	O		
RampName		E:Jackson	E:I-35E CD	X:Pennsylvania Ave		E:Pennsylvania Ave				X:Maryland Ave		E:Marylan	X:Wheelock Pkwy		

SB-Phase 2

RampName		X:I-94 CD \	X:I-35E CD SB			X:Univers	X:Pennsylvania Ave			E:Maryland Ave		X:Marylan	E:Wheelock Pkwy		
Ramp		O	O			O	O			O		O	O		
lane 1	<-				<-			X	X		<-			<-	<-
lane 2	<-				<-			X	X		<-			<-	<-
lane 3					<-			X	X		<-			<-	<-
lane 4					<-										
SB <--	S643				S642			S641	S640		S639			S638	S637
Div															
NB -->	S620				S621			S622	S623		S624			S625	S626
lane 4					->										
lane 3					->			X	X		->			->	->
lane 2	->				->			X	X		->			->	->
lane 1	->				->			X	X		->			->	->
Ramp		O	O	O		O				O		O	O		
RampName		E:Jackson	E:I-35E CD	X:Pennsylvania Ave		E:Pennsylvania Ave				X:Maryland Ave		E:Marylan	X:Wheelock Pkwy		

SB-Phase 3

RampName		X:I-94 CD \	X:I-35E CD SB			X:Univers	X:Pennsylvania Ave			E:Maryland Ave		X:Marylan	E:Wheelock Pkwy		
Ramp		O	O			O	O			O		O	O		
lane 1	<-				<-			X	X		<-			<-	<-
lane 2	<-				<-			X	X		<-			<-	<-
lane 3					<-			X	X		<-			<-	<-
lane 4					<-										
SB <--	S643				S642			S641	S640		S639			S638	S637
Div															
NB -->	S620				S621			S622	S623		S624			S625	S626
lane 4					->										
lane 3					->			X	X		->			->	->
lane 2	X				->			X	X		->			->	->
lane 1	->				->			X	X		->			->	->
Ramp		O	O	O		O				O		O	O		
RampName		E:Jackson	E:I-35E CD	X:Pennsylvania Ave		E:Pennsylvania Ave				X:Maryland Ave		E:Marylan	X:Wheelock Pkwy		

SB-Phase 4

RampName		X:I-94 CD \	X:I-35E CD SB			X:Univers	X:Pennsylvania Ave			E:Maryland Ave		X:Marylan	E:Wheelock Pkwy		
Ramp		O	O			O	O			X		X	O		
lane 1	<-				<-			X	X		X			<-	<-
lane 2	<-				<-			X	X		X			<-	<-
lane 3					<-			X	X		X			<-	<-
lane 4					<-										
SB <--	S643				S642			S641	S640		S639			S638	S637
Div															
NB -->	S620				S621			S622	S623		S624			S625	S626
lane 4					->										
lane 3					->			X	X		X			->	->
lane 2	->				->			X	X		X			->	->
lane 1	->				->			X	X		X			->	->
Ramp		O	O	O		O				X		X	O		
RampName		E:Jackson	E:I-35E CD	X:Pennsylvania Ave		E:Pennsylvania Ave				X:Maryland Ave		E:Marylan	X:Wheelock Pkwy		

SB-Phase 5

RampName		X:I-94 CD \	X:I-35E CD SB			X:Univers	X:Pennsylvania Ave			E:Maryland Ave		X:Marylan	E:Wheelock Pkwy		
Ramp		O	O			O	O			O		O	O		
lane 1	<-				<-			X	X		<-			<-	<-
lane 2	<-				<-			X	X		<-			<-	<-
lane 3					<-			X	X		<-			<-	<-
lane 4					<-										
SB <--	S643				S642			S641	S640		S639			S638	S637
Div															
NB -->	S620				S621			S622	S623		S624			S625	S626
lane 4					->										
lane 3					->			X	X		->			->	->
lane 2	->				->			X	X		->			->	->
lane 1	->				->			X	X		->			->	->
Ramp		O	O	O		O				O		O	O		
RampName		E:Jackson	E:I-35E CD	X:Pennsylvania Ave		E:Pennsylvania Ave				X:Maryland Ave		E:Marylan	X:Wheelock Pkwy		

SB-Phase 6

RampName		X:I-94 CD \	X:I-35E CD SB			X:Univers	X:Pennsylvania Ave			E:Maryland Ave		X:Marylan	E:Wheelock Pkwy		
Ramp		O	O			O	O			X		O	O		
lane 1	<-				<-			X	X		<-			<-	<-
lane 2	<-				<-			X	X		<-			<-	<-
lane 3					<-			X	X		<-			<-	<-
lane 4					<-										
SB <--	S643				S642			S641	S640		S639			S638	S637
Div															
NB -->	S620				S621			S622	S623		S624			S625	S626
lane 4					->										
lane 3					->			X	X		->			->	->
lane 2	->				->			X	X		->			->	->
lane 1	->				->			X	X		->			->	->
Ramp		O	O	O		O				X		O	O		
RampName		E:Jackson	E:I-35E CD	X:Pennsylvania Ave		E:Pennsylvania Ave				X:Maryland Ave		E:Marylan	X:Wheelock Pkwy		

Site 6: I-694, Nov 2011 – Jul 2013 (2 to 2, no-lane-close)

EB-Phase 1

RampName	E:I-35W SB			X:I-35V	E:I-35W NB		X:I-35W NB		E:T.H.10		E:T.H.51 NB			X:T.H.10		X:Lexington Ave			E:Victoria St		X:Victoria St	
Ramp	O			X	O		X		X		X			X		O			O		O	
lane 1	<-		X	<-			<-		<-		X			X		X		<-			<-	
lane 2	<-		X	<-			<-		<-		X			X		X		<-			<-	
lane 3	<-		X	<-							X					X						
lane 4			X																			
WB <--	S180		ST3003	S199			S204		S1089		S1088			ST30032		S1086		ST3003	S1085		S1084		S1083
Div																							
EB -->	S179		ST3001	S184			S203		S1074		S1075		S1076	ST30016		S1077		ST3001	S1078		S1079		S1080
lane 3	->		X	->							X												
lane 2	->		X	->			->		X		X		X	X		->		X	->		->		->
lane 1	->		X	->			->		X		X		X	X		->		X	->		->		->
Ramp		O			O	O		O		X		X			O		X			O		O	
RampName		X:I-35W SB			E:I-35V	X:I-35W NB		E:I-35W NB		X:T.H.51 SB		E:T.H.10			X:Lexington A		E:Lexington Ave			X:Victoria St		E:Victoria St	

EB-Phase 2-6

RampName	E:I-35W SB			X:I-35V	E:I-35W NB		X:I-35W NB		E:T.H.10		E:T.H.51 NB			X:T.H.10		X:Lexington Ave			E:Victoria St		X:Victoria St	
Ramp	O			X	O		X		X		X			X		O			O		O	
lane 1	<-		X	<-			<-		<-		X			X		X		<-			<-	
lane 2	<-		X	<-			<-		<-		X			X		X		<-			<-	
lane 3	<-		X	<-							X					X						
lane 4			X																			
WB <--	S180		ST3003	S199			S204		S1089		S1088			ST30032		S1086		ST3003	S1085		S1084		S1083
Div																							
EB -->	S179		ST3001	S184			S203		S1074		S1075		S1076	ST30016		S1077		ST3001	S1078		S1079		S1080
lane 3	->		X	->							X												
lane 2	->		X	->			->		X		X		X	X		->		X	->		->		->
lane 1	->		X	->			->		X		X		X	X		->		X	->		->		->
Ramp		O			O	O		O		X		X			O		O			O		O	
RampName		X:I-35W SB			E:I-35V	X:I-35W NB		E:I-35W NB		X:T.H.51 SB		E:T.H.10			X:Lexington A		E:Lexington Ave			X:Victoria St		E:Victoria St	

EB-Phase 7-8

RampName	E:I-35W SB			X:I-35V	E:I-35W NB		X:I-35W NB		E:T.H.10		E:T.H.51 NB			X:T.H.10		X:Lexington Ave			E:Victoria St		X:Victoria St	
Ramp	O			X	O		X		X		X			X		O			O		O	
lane 1	<-		X	<-			<-		<-		X			X		X		<-			<-	
lane 2	<-		X	<-			<-		<-		X			X		X		<-			<-	
lane 3	<-		X	<-							X					X						
lane 4			X																			
WB <--	S180		ST3003	S199			S204		S1089		S1088			ST30032		S1086		ST3003	S1085		S1084		S1083
Div																							
EB -->	S179		ST3001	S184			S203		S1074		S1075		S1076	ST30016		S1077		ST3001	S1078		S1079		S1080
lane 3	->		X	->							X												
lane 2	->		X	->			->		X		X		X	X		->		X	->		->		->
lane 1	->		X	->			->		X		X		X	X		->		X	->		->		->
Ramp		O			O	O		O		X		X			O		X			O		O	
RampName		X:I-35W SB			E:I-35V	X:I-35W NB		E:I-35W NB		X:T.H.51 SB		E:T.H.10			X:Lexington A		E:Lexington Ave			X:Victoria St		E:Victoria St	

EB-Phase 9

RampName	E:I-35W SB			X:I-35V	E:I-35W NB		X:I-35W NB		E:T.H.10		E:T.H.51 NB			X:T.H.10		X:Lexington Ave			E:Victoria St		X:Victoria St	
Ramp	O			X	O		X		X		X			X		O			X		O	
lane 1	<-		X	<-			<-		<-		X			X		X		<-			<-	
lane 2	<-		X	<-			<-		<-		X			X		X		<-			<-	
lane 3	<-		X	<-							X					X						
lane 4			X																			
WB <--	S180		ST3003	S199			S204		S1089		S1088			ST30032		S1086		ST3003	S1085		S1084		S1083
Div																							
EB -->	S179		ST3001	S184			S203		S1074		S1075		S1076	ST30016		S1077		ST3001	S1078		S1079		S1080
lane 3	->		X	->							X												
lane 2	->		X	->			->		X		X		X	X		X		X	->		->		->
lane 1	->		X	->			->		X		X		X	X		X		X	->		->		->
Ramp		O			O	O		X		X		X			X		O			O		O	
RampName		X:I-35W SB			E:I-35V	X:I-35W NB		E:I-35W NB		X:T.H.51 SB		E:T.H.10			X:Lexington A		E:Lexington Ave			X:Victoria St		E:Victoria St	

EB-Phase 10

RampName	E:I-35W SB			X:I-35V	E:I-35W NB		X:I-35W NB		E:T.H.10		E:T.H.51 NB			X:T.H.10		X:Lexington Ave			E:Victoria St		X:Victoria St	
Ramp	O			X	O		X		X		X			X		X			X		X	
lane 1	<-		X	<-			<-		X		X			X		X		X			X	
lane 2	<-		X	<-			<-		X		X			X		X		X			X	
lane 3	<-		X	<-							X					X						
lane 4			X																			
WB <--	S180		ST3003	S199			S204		S1089		S1088			ST30032		S1086		ST3003	S1085		S1084		S1083
Div																							
EB -->	S179		ST3001	S184			S203		S1074		S1075		S1076	ST30016		S1077		ST3001	S1078		S1079		S1080
lane 3	->		X	->							X												
lane 2	->		X	->			->		X		X		X	X		X		X	X		X		X
lane 1	->		X	->			->		X		X		X	X		X		X	X		X		X
Ramp		O			O	O		X		X		X			X		X			X		X	
RampName		X:I-35W SB			E:I-35V	X:I-35W NB		E:I-35W NB		X:T.H.51 SB		E:T.H.10			X:Lexington A		E:Lexington Ave			X:Victoria St		E:Victoria St	

EB-Phase 11

RampName	E:I-35W SB			X:I-35V	E:I-35W NB		X:I-35W NB		E:T.H.10		E:T.H.51 NB			X:T.H.10		X:Lexington Ave			E:Victoria St		X:Victoria St	
Ramp	O			X	O		X		X		X			X		O			X		O	
lane 1	<-	X	<-			<-		X		X			X		X		X	<-		<-		<-
lane 2	<-	X	<-			<-		X		X			X		X		X	<-		<-		<-
lane 3	<-	X	<-							X					X							
lane 4		X																				
WB <--	S180	ST3003	S199			S204		S1089		S1088			ST30032		S1086		ST3003	S1085		S1084		S1083
Div																						
EB -->	S179	ST3001	S184			S203		S1074		S1075		S1076	ST30016		S1077		ST3001	S1078		S1079		S1080
lane 3	->	X	->							X												
lane 2	->	X	->			->		X		X		X	X		X		X	->		->		->
lane 1	->	X	->			->		X		X		X	X		X		X	->		->		->
Ramp	O			O	O		X		X		X			O		O			O		O	
RampName	X:I-35W SB			E:I-35V	X:I-35W NB		E:I-35W NB		X:T.H.51 SB		E:T.H.10			X:Lexington A		E:Lexington Ave			X:Victoria St		E:Victoria St	

EB-Phase 12-13

RampName	E:I-35W SB			X:I-35V	E:I-35W NB		X:I-35W NB		E:T.H.10		E:T.H.51 NB			X:T.H.10		X:Lexington Ave			E:Victoria St		X:Victoria St	
Ramp	O			X	O		X		X		X			X		O			O		O	
lane 1	<-	X	<-			<-		X		X			X		X		X	X		<-		<-
lane 2	<-	X	<-			<-		X		X			X		X		X	X		<-		<-
lane 3	<-	X	<-							X					X							
lane 4		X																				
WB <--	S180	ST3003	S199			S204		S1089		S1088			ST30032		S1086		ST3003	S1085		S1084		S1083
Div																						
EB -->	S179	ST3001	S184			S203		S1074		S1075		S1076	ST30016		S1077		ST3001	S1078		S1079		S1080
lane 3	->	X	->							X												
lane 2	->	X	->			->		X		X		X	X		X		X	X		->		->
lane 1	->	X	->			->		X		X		X	X		X		X	X		->		->
Ramp	O			O	O		X		X		X			O		O			X		O	
RampName	X:I-35W SB			E:I-35V	X:I-35W NB		E:I-35W NB		X:T.H.51 SB		E:T.H.10			X:Lexington A		E:Lexington Ave			X:Victoria St		E:Victoria St	

EB-Phase 14

RampName	E:I-35W SB			X:I-35V	E:I-35W NB		X:I-35W NB		E:T.H.10		E:T.H.51 NB			X:T.H.10		X:Lexington Ave			E:Victoria St		X:Victoria St	
Ramp	O			X	O		X		X		X			X		O			O		O	
lane 1	<-	X	<-			<-		X		X			X		X		X	X		<-		<-
lane 2	<-	X	<-			<-		X		X			X		X		X	X		<-		<-
lane 3	<-	X	<-							X					X							
lane 4		X																				
WB <--	S180	ST3003	S199			S204		S1089		S1088			ST30032		S1086		ST3003	S1085		S1084		S1083
Div																						
EB -->	S179	ST3001	S184			S203		S1074		S1075		S1076	ST30016		S1077		ST3001	S1078		S1079		S1080
lane 3	->	X	->							X												
lane 2	->	X	->			->		X		X		X	X		X		X	X		->		->
lane 1	->	X	->			->		X		X		X	X		X		X	X		->		->
Ramp	O			O	O		X		X		X			O		O			O		O	
RampName	X:I-35W SB			E:I-35V	X:I-35W NB		E:I-35W NB		X:T.H.51 SB		E:T.H.10			X:Lexington A		E:Lexington Ave			X:Victoria St		E:Victoria St	

EB-Phase 15-20

RampName	E:I-35W SB			X:I-35V	E:I-35W NB		X:I-35W NB		E:T.H.10		E:T.H.51 NB			X:T.H.10		X:Lexington Ave			E:Victoria St		X:Victoria St	
Ramp	O			X	O		X		X		X			X		O			O		O	
lane 1	<-	X	<-			<-		X		X			X		<-		X	X		<-		<-
lane 2	<-	X	<-			<-		X		X			X		X		X	X		<-		<-
lane 3	<-	X	<-							X					X							
lane 4		X																				
WB <--	S180	ST3003	S199			S204		S1089		S1088			ST30032		S1086		ST3003	S1085		S1084		S1083
Div																						
EB -->	S179	ST3001	S184			S203		S1074		S1075		S1076	ST30016		S1077		ST3001	S1078		S1079		S1080
lane 3	->	X	->							X												
lane 2	->	X	->			->		X		X		X	X		X		X	X		->		->
lane 1	->	X	->			->		X		X		X	X		X		X	X		->		->
Ramp	O			O	O		O		X		X			O		O			O		O	
RampName	X:I-35W SB			E:I-35V	X:I-35W NB		E:I-35W NB		X:T.H.51 SB		E:T.H.10			X:Lexington A		E:Lexington Ave			X:Victoria St		E:Victoria St	

EB-Phase 21

RampName	E:I-35W SB			X:I-35V	E:I-35W NB		X:I-35W NB		E:T.H.10		E:T.H.51 NB			X:T.H.10		X:Lexington Ave			E:Victoria St		X:Victoria St	
Ramp	O			X	O		X		X		X			X		O			O		O	
lane 1	<-	<-	<-			<-		X		X			<-		X		<-	X		<-		<-
lane 2	<-	<-	<-			<-		X		X			<-		X		<-	X		<-		<-
lane 3	<-	<-	<-							X					X							
lane 4		X																				
WB <--	S180	ST3003	S199			S204		S1089		S1088			ST30032		S1086		ST3003	S1085		S1084		S1083
Div																						
EB -->	S179	ST3001	S184			S203		S1074		S1075		S1076	ST30016		S1077		ST3001	S1078		S1079		S1080
lane 3	->	->	->							X												
lane 2	->	->	->			->		X		X		X	->		X		->	X		->		->
lane 1	->	->	->			->		X		X		X	->		X		->	X		->		->
Ramp	O			O	O		O		X		X			O		O			X		O	
RampName	X:I-35W SB			E:I-35V	X:I-35W NB		E:I-35W NB		X:T.H.51 SB		E:T.H.10			X:Lexington A		E:Lexington Ave			X:Victoria St		E:Victoria St	

EB-Phase 22

RampName	E:I-35W SB			X:I-35V	E:I-35W NB		X:I-35W NB		E:T.H.10		E:T.H.51 NB		X:T.H.10		X:Lexington Ave		E:Victoria St		X:Victoria St	
Ramp	O			X	O		X		X		X		X		O		O		O	
lane 1	<-	<-	<-			<-		X		X		<-		X		<-	<-		<-	<-
lane 2	<-	<-	<-			<-		X		X		<-		X		<-	<-		<-	<-
lane 3	<-	<-	<-							X				X						
lane 4		X																		
WB <--	S180	ST3003	S199			S204		S1089		S1088			ST30032	S1086		ST3003	S1085		S1084	S1083
Div																				
EB -->	S179	ST3001	S184			S203		S1074		S1075		S1076	ST30016	S1077		ST3001	S1078		S1079	S1080
lane 3	->	->	->							X										
lane 2	->	->	->			->		X		X		X	->	X		->	->		->	->
lane 1	->	->	->			->		X		X		X	->	X		->	->		->	->
Ramp	O			O	O		O		X		X		O		O		O		O	
RampName	X:I-35W SB			E:I-35V	X:I-35W NB		E:I-35W NB		X:T.H.51 SB		E:T.H.10		X:Lexington A		E:Lexington Ave		X:Victoria St		E:Victoria St	

WB-Phase 1

RampName	E:I-35W SB			X:I-35V	E:I-35W NB		X:I-35W NB		E:T.H.10		E:T.H.51 NB		X:T.H.10		X:Lexington Ave		E:Victoria St		X:Victoria St	
Ramp	O			O	O		O		X		X		X		O		O		O	
lane 1	<-	X	<-			<-		<-		X		X		X		X	<-		<-	<-
lane 2	<-	X	<-			<-		<-		X		X		X		X	<-		<-	<-
lane 3	<-	X	<-							X				X						
lane 4		X																		
WB <--	S180	ST3003	S199			S204		S1089		S1088			ST30032	S1086		ST3003	S1085		S1084	S1083
Div																				
EB -->	S179	ST3001	S184			S203		S1074		S1075		S1076	ST30016	S1077		ST3001	S1078		S1079	S1080
lane 3	->	X	->							X										
lane 2	->	X	->			->		X		X		X	X	->		X	->		->	->
lane 1	->	X	->			->		X		X		X	X	->		X	->		->	->
Ramp	O			O	O		O		X		X		O		X		O		O	
RampName	X:I-35W SB			E:I-35V	X:I-35W NB		E:I-35W NB		X:T.H.51 SB		E:T.H.10		X:Lexington A		E:Lexington Ave		X:Victoria St		E:Victoria St	

WB-Phase 2-8

RampName	E:I-35W SB			X:I-35V	E:I-35W NB		X:I-35W NB		E:T.H.10		E:T.H.51 NB		X:T.H.10		X:Lexington Ave		E:Victoria St		X:Victoria St	
Ramp	O			O	O		O		X		X		X		O		O		O	
lane 1	<-	X	<-			<-		<-		X		X		X		X	<-		<-	<-
lane 2	<-	X	<-			<-		<-		X		X		X		X	<-		<-	<-
lane 3	<-	X	<-							X				X						
lane 4		X																		
WB <--	S180	ST3003	S199			S204		S1089		S1088			ST30032	S1086		ST3003	S1085		S1084	S1083
Div																				
EB -->	S179	ST3001	S184			S203		S1074		S1075		S1076	ST30016	S1077		ST3001	S1078		S1079	S1080
lane 3	->	X	->							X										
lane 2	->	X	->			->		X		X		X	X	->		X	->		->	->
lane 1	->	X	->			->		X		X		X	X	->		X	->		->	->
Ramp	O			O	O		O		X		X		O		O		O		O	
RampName	X:I-35W SB			E:I-35V	X:I-35W NB		E:I-35W NB		X:T.H.51 SB		E:T.H.10		X:Lexington A		E:Lexington Ave		X:Victoria St		E:Victoria St	

WB-Phase 9

RampName	E:I-35W SB			X:I-35V	E:I-35W NB		X:I-35W NB		E:T.H.10		E:T.H.51 NB		X:T.H.10		X:Lexington Ave		E:Victoria St		X:Victoria St	
Ramp	O			O	O		O		X		X		X		O		O		O	
lane 1	<-	X	<-			<-		X		X		X		X		X	<-		<-	<-
lane 2	<-	X	<-			<-		X		X		X		X		X	<-		<-	<-
lane 3	<-	X	<-							X				X						
lane 4		X																		
WB <--	S180	ST3003	S199			S204		S1089		S1088			ST30032	S1086		ST3003	S1085		S1084	S1083
Div																				
EB -->	S179	ST3001	S184			S203		S1074		S1075		S1076	ST30016	S1077		ST3001	S1078		S1079	S1080
lane 3	->	X	->							X										
lane 2	->	X	->			->		X		X		X	X	X		X	->		->	->
lane 1	->	X	->			->		X		X		X	X	X		X	->		->	->
Ramp	O			O	O		X		X		X		O		O		O		O	
RampName	X:I-35W SB			E:I-35V	X:I-35W NB		E:I-35W NB		X:T.H.51 SB		E:T.H.10		X:Lexington A		E:Lexington Ave		X:Victoria St		E:Victoria St	

WB-Phase 10

RampName	E:I-35W SB			X:I-35V	E:I-35W NB		X:I-35W NB		E:T.H.10		E:T.H.51 NB		X:T.H.10		X:Lexington Ave		E:Victoria St		X:Victoria St	
Ramp	O			O	O		O		X		X		X		X		X		X	
lane 1	<-	X	<-			<-		X		X		X		X		X	X		X	X
lane 2	<-	X	<-			<-		X		X		X		X		X	X		X	X
lane 3	<-	X	<-							X				X						
lane 4		X																		
WB <--	S180	ST3003	S199			S204		S1089		S1088			ST30032	S1086		ST3003	S1085		S1084	S1083
Div																				
EB -->	S179	ST3001	S184			S203		S1074		S1075		S1076	ST30016	S1077		ST3001	S1078		S1079	S1080
lane 3	->	X	->							X										
lane 2	->	X	->			->		X		X		X	X	X		X	X		X	X
lane 1	->	X	->			->		X		X		X	X	X		X	X		X	X
Ramp	O			O	O		X		X		X		X		X		X		X	
RampName	X:I-35W SB			E:I-35V	X:I-35W NB		E:I-35W NB		X:T.H.51 SB		E:T.H.10		X:Lexington A		E:Lexington Ave		X:Victoria St		E:Victoria St	

WB-Phase 11

RampName	E:I-35W SB			X:I-35V	E:I-35W NB		X:I-35W NB		E:T.H.10		E:T.H.51 NB		X:T.H.10		X:Lexington Ave		E:Victoria St		X:Victoria St	
Ramp	O			O	O		O		X		X		X		O		X		O	
lane 1	<-	X	<-			<-		X		X		X		X		X	<-		<-	<-
lane 2	<-	X	<-			<-		X		X		X		X		X	<-		<-	<-
lane 3	<-	X	<-							X				X						
lane 4		X																		
WB <--	S180	ST3003	S199			S204		S1089		S1088			ST30032		S1086		ST3003	S1085		S1084		S1083
Div																				
EB -->	S179	ST3001	S184			S203		S1074		S1075		S1076	ST30016		S1077		ST3001	S1078		S1079		S1080
lane 3	->	X	->							X										
lane 2	->	X	->			->		X		X		X	X		X		X	->		->		->
lane 1	->	X	->			->		X		X		X	X		X		X	->		->		->
Ramp	O			O	O		X		X		X			O		O			O	
RampName	X:I-35W SB			E:I-35V	X:I-35W NB		E:I-35W NB		X:T.H.51 SB		E:T.H.10			X:Lexington A	E:Lexington Ave			X:Victoria St		E:Victoria St

WB-Phase 12-20

RampName	E:I-35W SB			X:I-35V	E:I-35W NB		X:I-35W NB		E:T.H.10		E:T.H.51 NB		X:T.H.10		X:Lexington Ave		E:Victoria St		X:Victoria St	
Ramp	O			O	O		O		X		X		X		O		O		O	
lane 1	<-	X	<-			<-		X		X		X		X		X	X		<-	<-
lane 2	<-	X	<-			<-		X		X		X		X		X	X		<-	<-
lane 3	<-	X	<-							X				X						
lane 4		X																		
WB <--	S180	ST3003	S199			S204		S1089		S1088			ST30032		S1086		ST3003	S1085		S1084		S1083
Div																				
EB -->	S179	ST3001	S184			S203		S1074		S1075		S1076	ST30016		S1077		ST3001	S1078		S1079		S1080
lane 3	->	X	->							X										
lane 2	->	X	->			->		X		X		X	X		X		X	X		->		->
lane 1	->	X	->			->		X		X		X	X		X		X	X		->		->
Ramp	O			O	O		X		X		X			O		O			X	
RampName	X:I-35W SB			E:I-35V	X:I-35W NB		E:I-35W NB		X:T.H.51 SB		E:T.H.10			X:Lexington A	E:Lexington Ave			X:Victoria St		E:Victoria St

WB-Phase 21-22

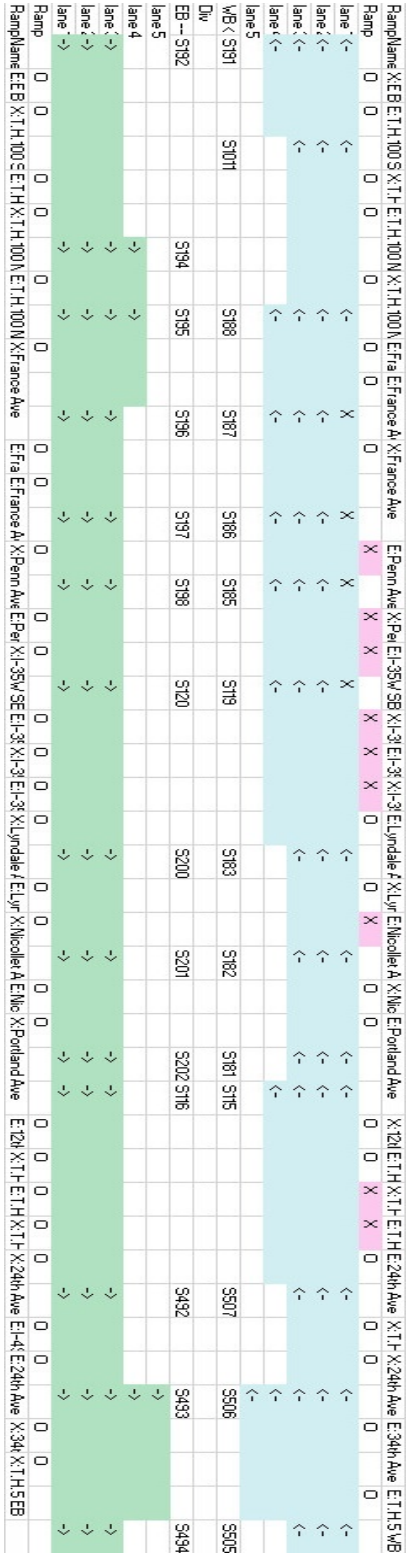
RampName	E:I-35W SB			X:I-35V	E:I-35W NB		X:I-35W NB		E:T.H.10		E:T.H.51 NB		X:T.H.10		X:Lexington Ave		E:Victoria St		X:Victoria St	
Ramp	O			O	O		O		X		X		X		O		O		O	
lane 1	<-	<-	<-			<-		X		X		<-		X		<-	X		<-	<-
lane 2	<-	<-	<-			<-		X		X		<-		X		<-	X		<-	<-
lane 3	<-	<-	<-							X				X						
lane 4		X																		
WB <--	S180	ST3003	S199			S204		S1089		S1088			ST30032		S1086		ST3003	S1085		S1084		S1083
Div																				
EB -->	S179	ST3001	S184			S203		S1074		S1075		S1076	ST30016		S1077		ST3001	S1078		S1079		S1080
lane 3	->	->	->							X										
lane 2	->	->	->			->		X		X		X	->		X		->	X		->		->
lane 1	->	->	->			->		X		X		X	->		X		->	X		->		->
Ramp	O			O	O		O		X		X			O		O			O	
RampName	X:I-35W SB			E:I-35V	X:I-35W NB		E:I-35W NB		X:T.H.51 SB		E:T.H.10			X:Lexington A	E:Lexington Ave			X:Victoria St		E:Victoria St

WB-Phase 23

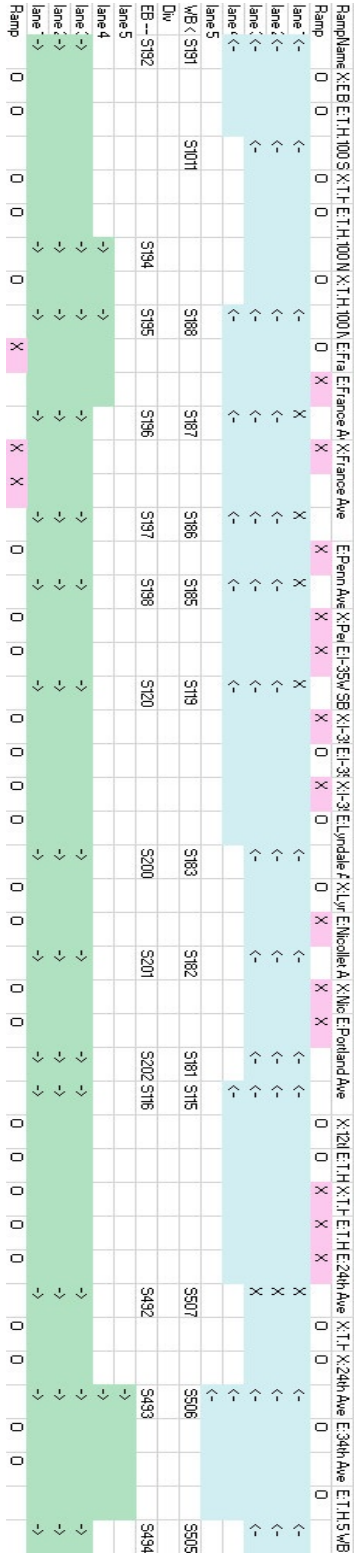
RampName	E:I-35W SB			X:I-35V	E:I-35W NB		X:I-35W NB		E:T.H.10		E:T.H.51 NB		X:T.H.10		X:Lexington Ave		E:Victoria St		X:Victoria St	
Ramp	O			O	O		O		X		X		X		O		O		O	
lane 1	<-	<-	<-			<-		X		X		<-		X	<-	<-			<-	<-
lane 2	<-	<-	<-			<-		X		X		<-		X	<-	<-			<-	<-
lane 3	<-	<-	<-							X				X						
lane 4		X																		
WB <--	S180	ST3003	S199			S204		S1089		S1088			ST30032		S1086		ST3003	S1085		S1084		S1083
Div																				
EB -->	S179	ST3001	S184			S203		S1074		S1075		S1076	ST30016		S1077		ST3001	S1078		S1079		S1080
lane 3	->	->	->							X										
lane 2	->	->	->			->		X		X		X	->		X		->	->		->		->
lane 1	->	->	->			->		X		X		X	->		X		->	->		->		->
Ramp	O			O	O		O		X		X			O		O			O	
RampName	X:I-35W SB			E:I-35V	X:I-35W NB		E:I-35W NB		X:T.H.51 SB		E:T.H.10			X:Lexington A	E:Lexington Ave			X:Victoria St		E:Victoria St

Site 7: I-494, Aug 2012 – Apr 2013 (3 to 3, no-lane-close)

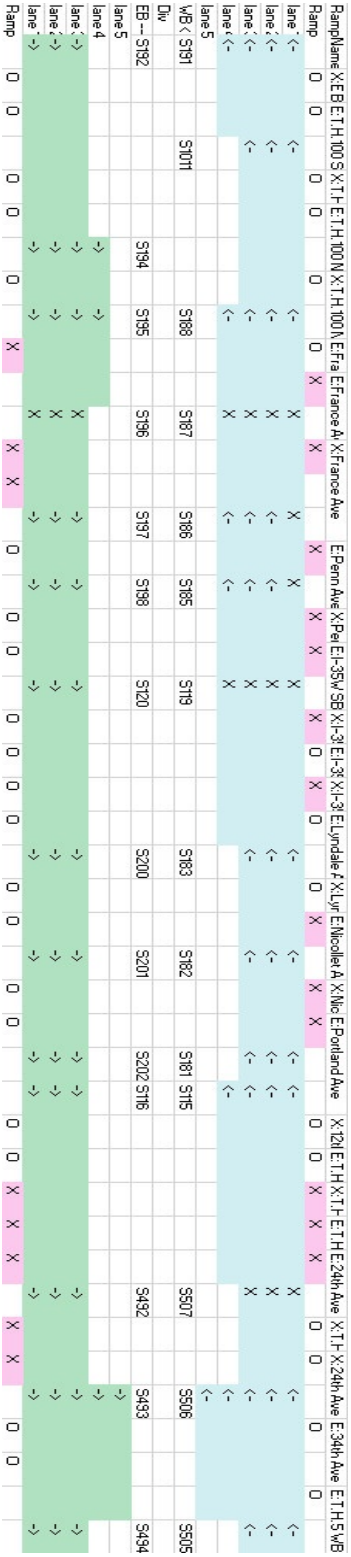
EB-Phase 1



EB-Phase 2



EB-Phase 3



EB-Phase 6-8

RampName	X:EB E.T.H. 100 S	X:T.H. 100 N	E.T.H. 100 N	X:T.H. 100 N	E:Fra	E:France Ave	X:France Ave	E:Penn Ave	X:Pen	E:I-35W SB	X:I-35	E:I-35	X:I-35	E:Lyndale A	X:Lyr	E:Nicollet A	X:Nic	E:Portland Ave	X:12th	E.T.H.	X:T.H.	E.T.H.	E.24th Ave	X:T.H.	X:24th Ave	E:34th Ave	E.T.H.5 WB
Ramp	0	0	0	0	X	X	X	0	0	X	0	X	0	0	X	0	0	0	0	X	0	0	X	0	0	0	0
lane 1	<-	<-	<-	<-	<-	X	X	X	X	X	X	<-	X	<-	<-	<-	<-	<-	<-	<-	<-	<-	X	X	X	<-	<-
lane 2	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	X	X	X	<-	<-
lane 3	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	X	X	X	<-	<-
lane 4	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	X	<-	<-	<-	
lane 5																											
wB < S191		S1011			S188		S187		S186		S119			S183		S182		S181 S115					S507		S506		S505
Div																											
EB --- S192																		S202 S116					S492		S493		S494
lane 5																											
lane 4																											
lane 3	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->
lane 2	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->
lane 1	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->
Ramp	0	0	0	0	0	0	0	X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

EB-Phase 5

RampName	X:EB E.T.H. 100 S	X:T.H. 100 N	E.T.H. 100 N	X:T.H. 100 N	E:Fra	E:France Av	X:France Ave	E:Penn Ave	X:Pen	E:I-35W SB	X:I-35	E:I-35	X:I-35	E:Lyndale A	X:Lyr	E:Nicollet A	X:Nic	E:Portland Ave	X:12th	E.T.H.	X:T.H.	E.T.H.	E.24th Ave	X:T.H.	X:24th Ave	E:34th Ave	E.T.H.5 WB
Ramp	0	0	0	0	X	X	X	0	0	X	0	X	0	0	X	0	0	0	0	X	0	0	X	0	0	0	0
lane 1	<-	<-	<-	<-	<-	X	X	X	X	X	X	<-	X	<-	<-	<-	<-	<-	<-	<-	<-	<-	X	X	X	<-	<-
lane 2	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	X	X	X	<-	<-
lane 3	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	X	X	X	<-	<-
lane 4	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	X	<-	<-	<-	
lane 5																											
wB < S191		S1011			S188		S187		S186		S119			S183		S182		S181 S115					S507		S506		S505
Div																											
EB --- S192					S194		S196		S197		S120			S200		S201		S202 S116					S492		S493		S494
lane 5																											
lane 4																											
lane 3	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->
lane 2	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->
lane 1	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->
Ramp	0	0	0	0	0	0	0	X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

EB-Phase 4

RampName	X:EB E.T.H. 100 S	X:T.H.	E.T.H. 100 N	X:T.H. 100 N	E:Fra	E:France Av	X:France Ave	E:Penn Ave	X:Pen	E:I-35W SB	X:I-35	E:I-35	X:I-35	E:Lyndale A	X:Lyr	E:Nicollet A	X:Nic	E.Portland Ave	X:12th	E.T.H.	X:T.H.	E.T.H.	E.24th Ave	X:T.H.	X:24th Ave	E:34th Ave	E.T.H.5 WB
Ramp	0	0	0	0	X	X	X	0	0	X	0	X	0	0	X	0	0	0	0	X	0	0	X	0	0	0	0
lane 1	<-	<-	<-	<-	<-	X	X	X	X	X	X	<-	X	<-	<-	<-	<-	<-	<-	<-	<-	<-	X	X	X	<-	<-
lane 2	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	X	X	X	<-	<-
lane 3	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	X	X	X	<-	<-
lane 4	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	X	<-	<-	<-	
lane 5																											
wB < S191		S1011			S188		S187		S186		S119			S183		S182		S181 S115					S507		S506		S505
Div																											
EB --- S192					S194		S196		S197		S120			S200		S201		S202 S116					S492		S493		S494
lane 5																											
lane 4																											
lane 3	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->
lane 2	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->
lane 1	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->	->
Ramp	0	0	0	0	0	0	0	X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

EB-Phase 9

RampName		X:E B	E:T.H.100 S		X:T.H	E:T.H.100 N		X:T.H.100 N		E:Fra	E:France A		X:France Ave			E:Penn Ave		X:Pe	E:I-35W SB		X:I-3	E:I-3	X:I-3	E:Lyndale A		X:Ly	E:Nicollet A		X:Nic	E:Portland Ave			X:12t	E:T.H	X:T.H	E:T.H	E:24th Ave		X:T.H	X:24th Ave		E:34th Ave		E:T.H.5 WB	
Ramp		O	O		O	O		O		O	X		X			O		O	O		X	O	X	O		O	X		O	O			O	O	X	O	O		O	O		O		O	
lane 1	<-			<-					<-			X			X		X			X					<-			<-			<-	<-						X			X				<-
lane 2	<-			<-					<-			<-			<-		<-			<-					<-			<-			<-	<-						X			X				<-
lane 3	<-			<-					<-			<-			<-		<-			<-					<-			<-			<-	<-						X			X				<-
lane 4	<-								<-			<-			<-		<-			<-												<-									<-				
lane 5																																									<-				
WB <	S191			S1011					S188			S187			S186		S185			S119					S183			S182			S181	S115						S507			S506				S505
Div																																													
EB --	S192						S194		S195			S196			S197		S198			S120					S200			S201			S202	S116						S492			S493				S494
lane 5																																									->				
lane 4							->		->																																->				
lane 3	->						->		->			->			->		->			->					->			->			->	->						->			->				->
lane 2	->						->		->			->			->		->			->					->			->			->	->						->			->				->
lane 1	->						->		->			->			->		->			->					->			->			->	->						->			->				->
Ramp		O	O		O	O		O		O			O	O		X		O	X		O	O	O	O		O	O		O	O			O	O	O	O	O		O	O		O	O		

WB-Phase 1

RampName		X:E B	E:T.H.100 S		X:T.H	E:T.H.100 N		X:T.H.100 N		E:Fra	E:France A		X:France Ave			E:Penn Ave		X:Pe	E:I-35W SB		X:I-3	E:I-3	X:I-3	E:Lyndale A		X:Ly	E:Nicollet A		X:Nic	E:Portland Ave			X:12t	E:T.H	X:T.H	E:T.H	E:24th Ave		X:T.H	X:24th Ave		E:34th Ave		E:T.H.5 WB	
Ramp		O	O		O	O		O		O	O		O			X		X	X		X	X	O	O		O	O		O	O			O	O	O	O	O		O	O		O		O	
lane 1	<-			<-					<-			X			X		X			X					<-			<-			<-	<-						<-			<-				<-
lane 2	<-			<-					<-			<-			<-		<-			<-					<-			<-			<-	<-						<-			<-				<-
lane 3	<-			<-					<-			<-			<-		<-			<-					<-			<-			<-	<-						<-			<-				<-
lane 4	<-								<-			<-			<-		<-			<-												<-									<-				
lane 5																																									<-				
WB <	S191			S1011					S188			S187			S186		S185			S119					S183			S182			S181	S115						S507			S506				S505
Div																																													
EB --	S192						S194		S195			S196			S197		S198			S120					S200			S201			S202	S116						S492			S493				S494
lane 5																																									->				
lane 4							->		->																																->				
lane 3	->						->		->			->			->		->			->					->			->			->	->						->			->				->
lane 2	->						->		->			->			->		->			->					->			->			->	->						->			->				->
lane 1	->						->		->			->			->		->			->					->			->			->	->						->			->				->
Ramp		O	O		O	O		O		O			O	O		O		O	O		O	O	O	O		O	O		O	O			O	O	O	O	O		O	O		O	O		
RampName		E:E B	X:T.H.100 S		E:T.H	X:T.H.100 N		E:T.H.100 N		X:France Ave			E:Fra	E:France A		X:Penn Ave		E:Pe	X:I-35W SB		E:I-3	X:I-3	E:I-3	X:Lyndale A		E:Ly	X:Nicollet A		E:Nic	X:Portland Ave			E:12t	X:T.H	E:T.H	X:T.H	X:24th Ave		E:I-4	E:24th Ave		X:34t	X:T.H.5 EB		

WB-Phase 2

RampName		X:E B	E:T.H.100 S		X:T.H	E:T.H.100 N		X:T.H.100 N		E:Fra	E:France A		X:France Ave			E:Penn Ave		X:Pe	E:I-35W SB		X:I-3	E:I-3	X:I-3	E:Lyndale A		X:Ly	E:Nicollet A		X:Nic	E:Portland Ave			X:12t	E:T.H	X:T.H	E:T.H	E:24th Ave		X:T.H	X:24th Ave		E:34th Ave		E:T.H.5 WB	
Ramp		O	O		O	O		O		O	X		O			X		X	X		O	O	O	O		O	O		X	X			O	O	O	O	O		O	O		O		O	
lane 1	<-			<-					<-			X			X		X			X					<-			<-			<-	<-						<-			<-				<-
lane 2	<-			<-					<-			<-			<-		<-			<-					<-			<-			<-	<-						<-			<-				<-
lane 3	<-			<-					<-			<-			<-		<-			<-					<-			<-			<-	<-						<-			<-				<-
lane 4	<-								<-			<-			<-		<-			<-												<-									<-				
lane 5																																									<-				
WB <	S191			S1011					S188			S187			S186		S185			S119					S183			S182			S181	S115						S507			S506				S505
Div																																													
EB --	S192						S194		S195			S196			S197		S198			S120					S200			S201			S202	S116						S492			S493				S494
lane 5																																									->				
lane 4							->		->																																->				
lane 3	->						->		->			->			->		->			->					->			->			->	->						->			->				->
lane 2	->						->		->			->			->		->			->					->			->			->	->						->			->				->
lane 1	->						->		->			->			->		->			->					->			->			->	->						->			->				->
Ramp		O	O		O	O		O		O			O	O		O		O	O		O	O	O	O		O	O		O	O			O	O	O	O	O		O	O		O	O		
RampName		E:E B	X:T.H.100 S		E:T.H	X:T.H.100 N		E:T.H.100 N		X:France Ave			E:Fra	E:France A		X:Penn Ave		E:Pe	X:I-35W SB		E:I-3	X:I-3	E:I-3	X:Lyndale A		E:Ly	X:Nicollet A		E:Nic	X:Portland Ave			E:12t	X:T.H	E:T.H	X:T.H	X:24th Ave		E:I-4	E:24th Ave		X:34t	X:T.H.5 EB		

WB-Phase 5

RampName	X:EB E:T:H:100 S	X:T:H:100 N	X:T:H:100 A	E:Fra	E:France Ave	X:France Ave	E:Penn Ave	X:Pen E:I-35W SB	X:I-35 E:I-35	X:I-35 E:Lyndale F	X:Lyn E:Nicollet A	X:Nic E:Portland Ave	X:12t E:T:H:100	X:T:H:E:24th Ave	X:T:H:X:24th Ave	E:34th Ave	E:T:H:5 WB
Ramp	0	0	0	X	X	X	0	X	0	0	0	X	0	0	0	0	0
lane 1 <-	<-	<-	<-	X	X	X	X	X	X	<-	<-	<-	<-	X	X	X	<-
lane 2 <-	<-	<-	<-	X	X	X	X	X	X	<-	<-	<-	<-	X	X	X	<-
lane 3 <-	<-	<-	<-	X	X	X	X	X	X	<-	<-	<-	<-	X	X	X	<-
lane 4 <-	<-	<-	<-	X	X	X	X	X	X	<-	<-	<-	<-	X	X	X	<-
lane 5																	
WB < S191	S1011	S188	S187	S186	S185	S119	S183	S182	S181	S115	S507	S506	S505				
Div																	
EB --- S192	S194	S195	S196	S197	S198	S120	S200	S201	S202	S116	S492	S493	S494				
lane 5																	
lane 4	->	->	->		->		->		->							->	
lane 3 ->	->	->	->		->		->		->							->	->
lane 2 ->	->	->	->		->		->		->							->	->
lane 1 ->	->	->	->	X	->	X	->	X	->	->	X	->	X	X	X	->	->
Ramp	0	0	0		X		0		0	0		0	0	0	0	0	0

WB-Phase 4

RampName	X:EB E:T:H:100 S	X:T:H:100 N	X:T:H:100 A	E:Fra	E:France Ave	X:France Ave	E:Penn Ave	X:Pen E:I-35W SB	X:I-35 E:I-35	X:I-35 E:Lyndale F	X:Lyn E:Nicollet A	X:Nic E:Portland Ave	X:12t E:T:H:100	X:T:H:E:24th Ave	X:T:H:X:24th Ave	E:34th Ave	E:T:H:5 WB
Ramp	0	0	0	X	X	X	X	X	0	0	0	X	0	0	0	0	0
lane 1 <-	<-	<-	<-	X	X	X	X	X	X	<-	<-	<-	<-	X	X	X	<-
lane 2 <-	<-	<-	<-	X	X	X	X	X	X	<-	<-	<-	<-	X	X	X	<-
lane 3 <-	<-	<-	<-	X	X	X	X	X	X	<-	<-	<-	<-	X	X	X	<-
lane 4 <-	<-	<-	<-	X	X	X	X	X	X	<-	<-	<-	<-	X	X	X	<-
lane 5																	
WB < S191	S1011	S188	S187	S186	S185	S119	S183	S182	S181	S115	S507	S506	S505				
Div																	
EB --- S192	S194	S195	S196	S197	S198	S120	S200	S201	S202	S116	S492	S493	S494				
lane 5																	
lane 4	->	->	->		->		->		->							->	
lane 3 ->	->	->	->		->		->		->							->	->
lane 2 ->	->	->	->		->		->		->							->	->
lane 1 ->	->	->	->	X	->	X	->	X	->	->	X	->	X	X	X	->	->
Ramp	0	0	0		X		0		0	0		0	0	0	0	0	0

WB-Phase 3

RampName	X:EB E:T:H:100 S	X:T:H:100 N	X:T:H:100 A	E:Fra	E:France Ave	X:France Ave	E:Penn Ave	X:Pen E:I-35W SB	X:I-35 E:I-35	X:I-35 E:Lyndale F	X:Lyn E:Nicollet A	X:Nic E:Portland Ave	X:12t E:T:H:100	X:T:H:E:24th Ave	X:T:H:X:24th Ave	E:34th Ave	E:T:H:5 WB
Ramp	0	0	0	X	X	X	X	X	0	0	0	X	0	0	0	0	0
lane 1 <-	<-	<-	<-	X	X	X	X	X	X	<-	<-	<-	<-	X	X	X	<-
lane 2 <-	<-	<-	<-	X	X	X	X	X	X	<-	<-	<-	<-	X	X	X	<-
lane 3 <-	<-	<-	<-	X	X	X	X	X	X	<-	<-	<-	<-	X	X	X	<-
lane 4 <-	<-	<-	<-	X	X	X	X	X	X	<-	<-	<-	<-	X	X	X	<-
lane 5																	
WB < S191	S1011	S188	S187	S186	S185	S119	S183	S182	S181	S115	S507	S506	S505				
Div																	
EB --- S192	S194	S195	S196	S197	S198	S120	S200	S201	S202	S116	S492	S493	S494				
lane 5																	
lane 4	->	->	->		->		->		->							->	
lane 3 ->	->	->	->		->		->		->							->	->
lane 2 ->	->	->	->		->		->		->							->	->
lane 1 ->	->	->	->	X	->	X	->	X	->	->	X	->	X	X	X	->	->
Ramp	0	0	0		X		0		0	0		0	0	0	0	0	0

WB-Phase 8-11

RampName	X:E B E.T.H 100 S	X:T.H E.T.H 100 N	X:T.H E.Fra	E.France Ave	X:France Ave	E.Penn Ave	X:Penn Ave	E:I-35W SB	X:I-35W SB	E:I-35W SB	X:I-35W SB	E:Lyndale A	X:Lyndale A	E:Nicollet A	X:Nic E	E:Portland Ave	X:12th E.T.H	X:T.H E.T.H	E.24th Ave	X:T.H	X:24th Ave	E:34th Ave	E.T.H 5 WB
Ramp	0	0	0	X	X	0	0	0	0	0	0	0	X	0	0	0	0	0	0	0	0	0	0
lane 1	<-	<-	<-	<-	X	X	X	X	X	<-	<-	<-	<-	<-	<-	<-	0	0	0	0	X	X	<-
lane 2	<-	<-	<-	<-	X	X	X	X	X	<-	<-	<-	<-	<-	<-	<-	0	0	0	0	X	X	<-
lane 3	<-	<-	<-	<-	X	X	X	X	X	<-	<-	<-	<-	<-	<-	<-	0	0	0	0	X	X	<-
lane 4	<-	<-	<-	<-	X	X	X	X	X	<-	<-	<-	<-	<-	<-	<-	0	0	0	0	X	X	<-
lane 5																							
WB < S191	S1011	S188	S187	S186	S185	S119	S183	S182	S181 S115	S507	S506	S505											
Div																							
EB -- S192	S194	S195	S196	S197	S198	S120	S200	S201	S202 S116	S492	S493	S494											
lane 5																							
lane 4	->	->	->	->	->	->	->	->	->	->	->	->											
lane 3	->	->	->	->	->	->	->	->	->	->	->	->											
lane 2	->	->	->	->	->	->	->	->	->	->	->	->											
lane 1	->	->	->	->	->	->	->	->	->	->	->	->											
Ramp	0	0	0	0	0	0	0	0	0	0	0	0											
RampName	X:E B E.T.H 100 S	X:T.H E.T.H 100 N	X:T.H E.Fra	E.France Ave	X:France Ave	E.Penn Ave	X:Penn Ave	E:I-35W SB	X:I-35W SB	E:I-35W SB	X:I-35W SB	E:Lyndale A	X:Lyndale A	E:Nicollet A	X:Nic E	E:Portland Ave	X:12th E.T.H	X:T.H E.T.H	E.24th Ave	X:T.H	X:24th Ave	E:34th Ave	E.T.H 5 WB

WB-Phase 7

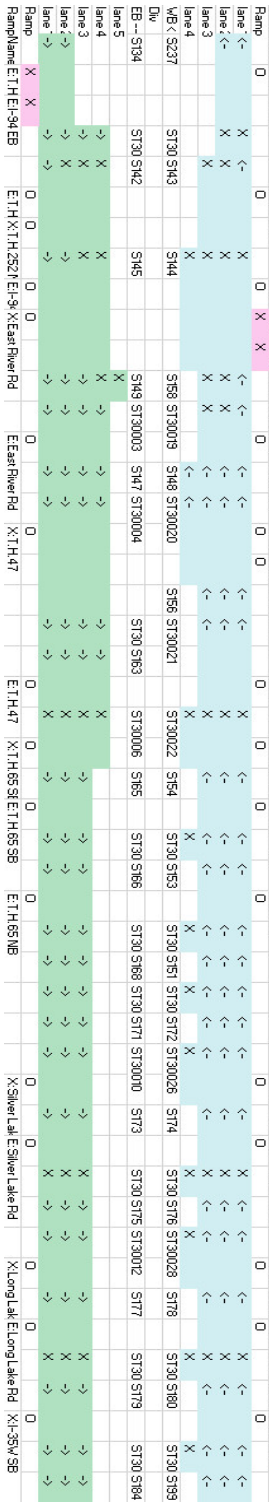
RampName	X:E B E.T.H 100 S	X:T.H E.T.H 100 N	X:T.H E.Fra	E.France Ave	X:France Ave	E.Penn Ave	X:Penn Ave	E:I-35W SB	X:I-35W SB	E:I-35W SB	X:I-35W SB	E:Lyndale A	X:Lyndale A	E:Nicollet A	X:Nic E	E:Portland Ave	X:12th E.T.H	X:T.H E.T.H	E.24th Ave	X:T.H	X:24th Ave	E:34th Ave	E.T.H 5 WB
Ramp	0	0	0	X	X	0	0	0	0	0	0	0	X	0	0	0	0	0	0	0	0	0	0
lane 1	<-	<-	<-	<-	X	X	X	X	X	<-	<-	<-	<-	<-	<-	<-	0	0	0	0	X	X	<-
lane 2	<-	<-	<-	<-	X	X	X	X	X	<-	<-	<-	<-	<-	<-	<-	0	0	0	0	X	X	<-
lane 3	<-	<-	<-	<-	X	X	X	X	X	<-	<-	<-	<-	<-	<-	<-	0	0	0	0	X	X	<-
lane 4	->	->	->	->	->	->	->	->	->	->	->	->											
lane 5																							
WB < S191	S1011	S188	S187	S186	S185	S119	S183	S182	S181 S115	S507	S506	S505											
Div																							
EB -- S192	S194	S195	S196	S197	S198	S120	S200	S201	S202 S116	S492	S493	S494											
lane 5																							
lane 4	->	->	->	->	->	->	->	->	->	->	->	->											
lane 3	->	->	->	->	->	->	->	->	->	->	->	->											
lane 2	->	->	->	->	->	->	->	->	->	->	->	->											
lane 1	->	->	->	->	->	->	->	->	->	->	->	->											
Ramp	0	0	0	0	0	0	0	0	0	0	0	0											
RampName	X:E B E.T.H 100 S	X:T.H E.T.H 100 N	X:T.H E.Fra	E.France Ave	X:France Ave	E.Penn Ave	X:Penn Ave	E:I-35W SB	X:I-35W SB	E:I-35W SB	X:I-35W SB	E:Lyndale A	X:Lyndale A	E:Nicollet A	X:Nic E	E:Portland Ave	X:12th E.T.H	X:T.H E.T.H	E.24th Ave	X:T.H	X:24th Ave	E:34th Ave	E.T.H 5 WB

WB-Phase 6

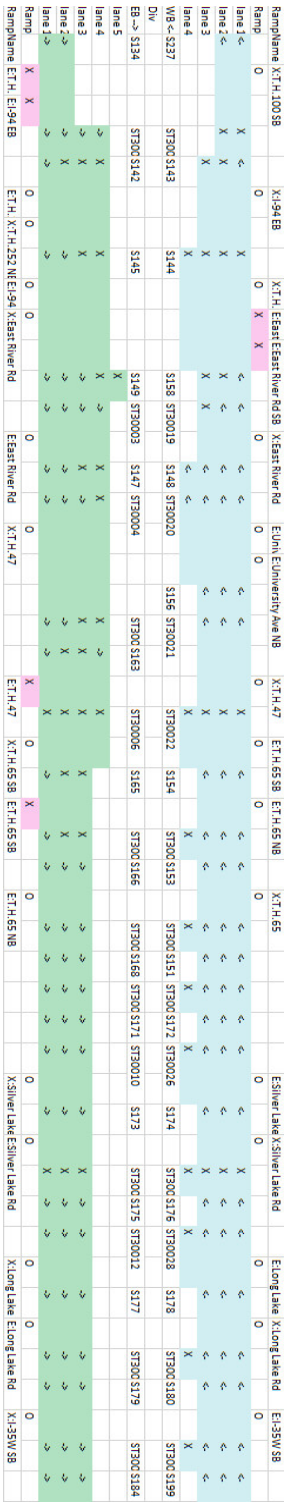
RampName	X:E B E.T.H 100 S	X:T.H E.T.H 100 N	X:T.H E.Fra	E.France Ave	X:France Ave	E.Penn Ave	X:Penn Ave	E:I-35W SB	X:I-35W SB	E:I-35W SB	X:I-35W SB	E:Lyndale A	X:Lyndale A	E:Nicollet A	X:Nic E	E:Portland Ave	X:12th E.T.H	X:T.H E.T.H	E.24th Ave	X:T.H	X:24th Ave	E:34th Ave	E.T.H 5 WB
Ramp	0	0	0	X	X	0	0	0	0	0	0	0	X	0	0	0	0	0	0	0	0	0	0
lane 1	<-	<-	<-	<-	X	X	X	X	X	<-	<-	<-	<-	<-	<-	<-	0	0	0	0	X	X	<-
lane 2	<-	<-	<-	<-	X	X	X	X	X	<-	<-	<-	<-	<-	<-	<-	0	0	0	0	X	X	<-
lane 3	<-	<-	<-	<-	X	X	X	X	X	<-	<-	<-	<-	<-	<-	<-	0	0	0	0	X	X	<-
lane 4	->	->	->	->	->	->	->	->	->	->	->	->											
lane 5																							
WB < S191	S1011	S188	S187	S186	S185	S119	S183	S182	S181 S115	S507	S506	S505											
Div																							
EB -- S192	S194	S195	S196	S197	S198	S120	S200	S201	S202 S116	S492	S493	S494											
lane 5																							
lane 4	->	->	->	->	->	->	->	->	->	->	->	->											
lane 3	->	->	->	->	->	->	->	->	->	->	->	->											
lane 2	->	->	->	->	->	->	->	->	->	->	->	->											
lane 1	->	->	->	->	->	->	->	->	->	->	->	->											
Ramp	0	0	0	X	X	0	0	0	0	0	0	0											
RampName	X:E B E.T.H 100 S	X:T.H E.T.H 100 N	X:T.H E.Fra	E.France Ave	X:France Ave	E.Penn Ave	X:Penn Ave	E:I-35W SB	X:I-35W SB	E:I-35W SB	X:I-35W SB	E:Lyndale A	X:Lyndale A	E:Nicollet A	X:Nic E	E:Portland Ave	X:12th E.T.H	X:T.H E.T.H	E.24th Ave	X:T.H	X:24th Ave	E:34th Ave	E.T.H 5 WB

Site 8: I-694, Jun-Sep 2013 (3 to 2)

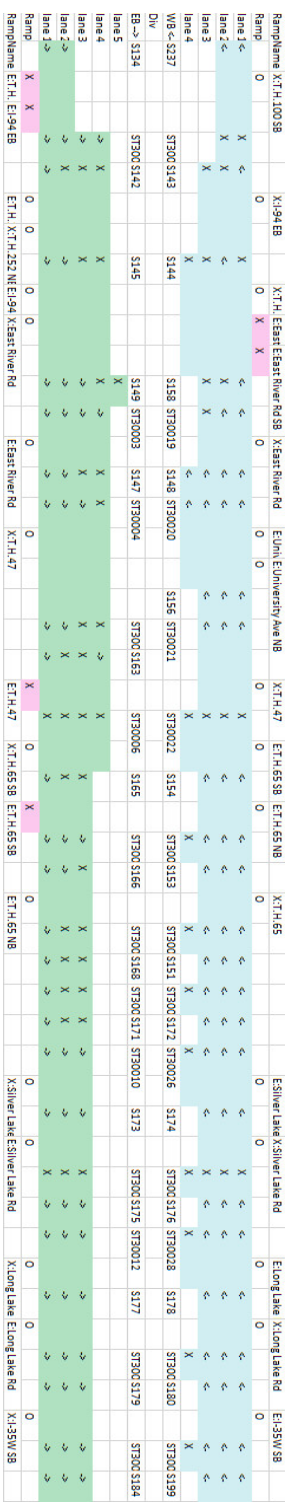
EB-Phase 1



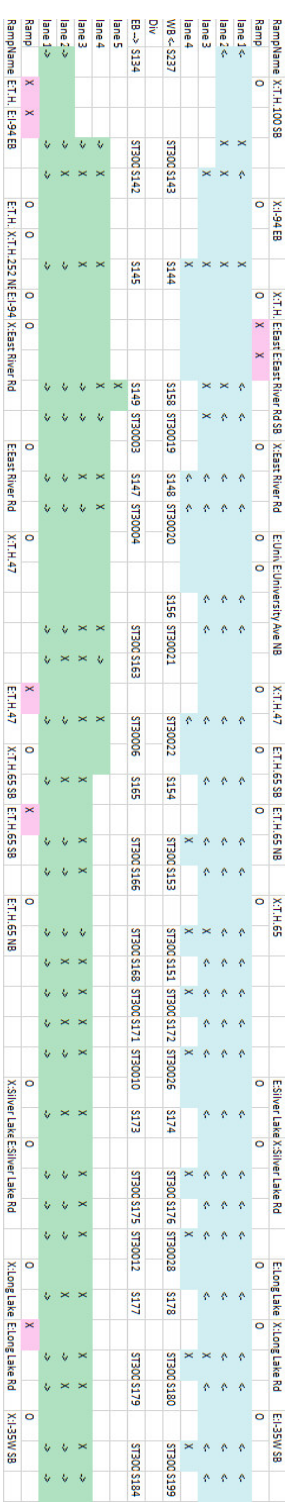
EB-Phase 2



EB-Phase 3



EB-Phase 4



EB-Phase 5

RampName		X:T.H.100 SB				X:I-94 EB			X:T.H.	E:East	E:East River Rd SB			X:East River Rd			E:Univ	E:University Ave NB				X:T.H.47		E:T.H.65 SB		E:T.H.65 NB			X:T.H.65						E:Silver Lake		X:Silver Lake Rd				E:Long Lake		X:Long Lake Rd			E:I-35W SB		
Ramp		O				X			X	X	X			O			O	O				O		O		O			O						O		O				O		O			O		
lane 1	<-			<-	X			X				X	X		<-	<-			X	<-			<-		<-		<-	<-		<-	<-	<-	<-	<-		<-		<-	<-	<-		<-		<-	<-		<-	<-
lane 2	<-			<-	X			X				X	X		<-	<-			<-	<-			<-		<-		<-	<-		<-	<-	<-	<-	<-		<-		<-	<-	<-		<-		<-	<-		<-	<-
lane 3					X			X				<-	<-		<-	<-			<-	<-			<-		<-		<-	<-		<-	<-	<-	<-	<-		<-		<-	<-	<-		<-		<-	<-		<-	<-
lane 4								X							<-	<-							<-				X			X		X		X				X		X				X			X	
WB <-	S237			ST300	S143			S144				S158	ST30019		S148	ST30020			S156	ST30021			ST30022		S154		ST300	S153		ST300	S151	ST300	S172	ST30026		S174		ST300	S176	ST30028		S178		ST300	S180		ST300	S199
Div																																																
EB -->	S134			ST300	S142			S145				S149	ST30003		S147	ST30004				ST300	S163		ST30006		S165		ST300	S166		ST300	S168	ST300	S171	ST30010		S173		ST300	S175	ST30012		S177		ST300	S179		ST300	S184
lane 5												->																																				
lane 4				X	->			X				X	->		X	X				X	->		X																									
lane 3				X	X			X				X	->		X	->				X	X		X		X		X	X		->	X	->	X	X		->		X	X	->		X		X	X		->	->
lane 2	->			->	X			X				X	X		->	->				->	X		->		X		->	X		X	X	X	X	X		X		->	X	->		X		X	X		->	->
lane 1	->			->	X			X				X	X		->	->				->	->		->		->		->	X		X	X	X	X	->		X		->	X	X		X		X	X		X	->
Ramp		X	X			X	X		X	X				O			O					X		O		X			X						O		O				O		X			O		
RampName		E:T.H.	E:I-94 EB			E:T.H.	X:T.H.252 NE		E:I-94	X:East River Rd				E:East River Rd			X:T.H.47					E:T.H.47		X:T.H.65 SB		E:T.H.65 SB			E:T.H.65 NB						X:Silver Lake		E:Silver Lake Rd				X:Long Lake		E:Long Lake Rd			X:I-35W SB		

EB-Phase 6

RampName		X:T.H.100 SB				X:I-94 EB			X:T.H.	E:East	E:East River Rd SB			X:East River Rd			E:Univ	E:University Ave NB				X:T.H.47		E:T.H.65 SB		E:T.H.65 NB			X:T.H.65						E:Silver Lake		X:Silver Lake Rd				E:Long Lake		X:Long Lake Rd			E:I-35W SB		
Ramp		O				X			X	X	X			O			O	O				O		O		O			O						O		O				O		O			O		
lane 1	X			<-	X			<-				X	X		<-	<-			X	<-			<-		<-		<-	<-		<-	<-	<-	<-	<-		<-		<-	<-	<-		<-		<-	<-		<-	<-
lane 2	X			<-	X			<-				X	X		<-	<-			<-	<-			<-		<-		<-	<-		<-	<-	<-	<-	<-		<-		<-	<-	<-		<-		<-	<-		<-	<-
lane 3					X			X				<-	<-		<-	<-			<-	<-			<-		<-		<-	<-		<-	<-	<-	<-	<-		<-		<-	<-	<-		<-		<-	<-		<-	<-
lane 4								X							<-	<-							<-				X			X		X		X				X		X				X			X	
WB <-	S237			ST300	S143			S144				S158	ST30019		S148	ST30020			S156	ST30021			ST30022		S154		ST300	S153		ST300	S151	ST300	S172	ST30026		S174		ST300	S176	ST30028		S178		ST300	S180		ST300	S199
Div																																																
EB -->	S134			ST300	S142			S145				S149	ST30003		S147	ST30004				ST300	S163		ST30006		S165		ST300	S166		ST300	S168	ST300	S171	ST30010		S173		ST300	S175	ST30012		S177		ST300	S179		ST300	S184
lane 5												->																																				
lane 4				X	->			X				X	->		->	->				->	X		->																									
lane 3				X	X			X				X	->		X	->				->	X		->		X		->	X		->	X	->	->	->		->		->	X	->		X		->	X		->	->
lane 2	->			->	X			X				X	X		X	->				X	X		X		X		->	X		->	X	->	->	->		X		->	X	->		X		->	X		->	->
lane 1	->			->	X			X				X	X		X	X				X	X		X		X		X	X		X	X	X	->	X		X		X	X	X		X		X	X		X	->
Ramp		X	X			X	X		X	X				O			O					X		X		X			X						O		O				X		X			O		
RampName		E:T.H.	E:I-94 EB			E:T.H.	X:T.H.252 NE		E:I-94	X:East River Rd				E:East River Rd			X:T.H.47					E:T.H.47		X:T.H.65 SB		E:T.H.65 SB			E:T.H.65 NB						X:Silver Lake		E:Silver Lake Rd				X:Long Lake		E:Long Lake Rd			X:I-35W SB		

EB-Phase 7

RampName		X:T.H.100 SB				X:I-94 EB			X:T.H.	E:East	E:East River Rd SB			X:East River Rd			E:Univ	E:University Ave NB				X:T.H.47		E:T.H.65 SB		E:T.H.65 NB			X:T.H.65						E:Silver Lake		X:Silver Lake Rd				E:Long Lake		X:Long Lake Rd			E:I-35W SB		
Ramp		O				X			X	X	X			O			O	O				O		O		O			O						O		O				O		O			O		
lane 1	X			<-	X			X				X	X		<-	<-			X	<-			<-		<-		<-	<-		<-	<-	<-	<-	<-		<-		<-	<-	<-		<-		<-	<-		<-	<-
lane 2	X			<-	X			X				X	X		<-	<-			<-	<-			<-		<-		<-	<-		<-	<-	<-	<-	<-		<-		<-	<-	<-		<-		<-	<-		<-	<-
lane 3					X			X				<-	<-		<-	<-			X	<-			<-		<-		<-	<-		<-	<-	<-	<-	<-		<-		<-	<-	<-		<-		<-	<-		<-	<-
lane 4								X							<-	<-							<-				X			X		X		X				X		X				X			X	
WB <-	S237			ST300	S143			S144				S158	ST30019		S148	ST30020			S156	ST30021			ST30022		S154		ST300	S153		ST300	S151	ST300	S172	ST30026		S174		ST300	S176	ST30028		S178		ST300	S180		ST300	S199
Div																																																
EB -->	S134			ST300	S142			S145				S149	ST30003		S147	ST30004				ST300	S163		ST30006		S165		ST300	S166		ST300	S168	ST300	S171	ST30010		S173		ST300	S175	ST30012		S177		ST300	S179		ST300	S184
lane 5												->																																				
lane 4				X	->			X				X	->		->	->				->	X		->																									
lane 3				X	X			X				X	->		X	->				->	X		->		X		->	X		X	X	X	X	X		X		X	X	->		X		X	X		X	X
lane 2	->			->	X			X				X	X		X	->				X	X		X		X		->	X		X	X	->	X	X		->		X	X	->		X		->	X		->	->
lane 1	->			->	X			X				X	X		X	X				X	X		X		X		X	X		->	X	->	->	->		X		->	X	->		->		->	->		->	->
Ramp		X	X			X	X		X	X				X			X					X		O		X			X						O		O				O		O			O		
RampName		E:T.H.	E:I-94 EB			E:T.H.	X:T.H.252 NE		E:I-94	X:East River Rd				E:East River Rd			X:T.H.47					E:T.H.47		X:T.H.65 SB		E:T.H.65 SB			E:T.H.65 NB						X:Silver Lake		E:Silver Lake Rd				X:Long Lake		E:Long Lake Rd			X:I-35W SB		

EB-Phase 8

RampName		X:T.H.100 SB				X:I-94 EB			X:T.H	E:Eas	E:East River Rd S			X:East River Rd			E:Uni	E:University Ave NB				X:T.H.47		E:T.H.65 S		E:T.H.65 NB			X:T.H.65						E:Silver Lak		X:Silver Lake Rd				E:Long Lak		X:Long Lake Rd			E:I-35W SB		
Ramp		O				X			X	X	X			O			O	O				O		O		O			O						O		O				O		O			O		
lane 1	X			<-	X			X				X	X		<-	<-			X	<-			<-		<-		<-	<-		X	<-	<-	<-	<-		<-		<-	<-	<-		<-		<-	<-		<-	<-
lane 2	X			<-	X			X				X	X		<-	<-			<-	<-			<-		<-		<-	<-		X	<-	<-	<-	<-		<-		<-	<-	<-		<-		<-	<-		<-	<-
lane 3					X			X				<-	<-		<-	<-			X	<-			<-		<-		<-	<-		X	<-	<-	<-	<-		<-		<-	<-	<-		<-		<-	<-		<-	<-
lane 4								X							<-	<-							<-				X			X		X		X				X		X				X			X	
WB <	S237			ST30	S143			S144				S158	ST30019		S148	ST30020			S156	ST30021			ST30022		S154		ST30	S153		ST30	S151	ST30	S172	ST30026		S174		ST30	S176	ST30028		S178		ST30	S180		ST30	S199
Div																																																
EB --	S134			ST30	S142			S145				S149	ST30003		S147	ST30004				ST30	S163		ST30006		S165		ST30	S166		ST30	S168	ST30	S171	ST30010		S173		ST30	S175	ST30012		S177		ST30	S179		ST30	S184
lane 5												->																																				
lane 4				X	->			X				X	->		->	->				X	->		X																									
lane 3				X	X			X				X	->		X	->				->	X		->		X		X	X		X	X	->	X	->		->		->	X	->		X		->	X		->	X
lane 2	->			->	X			X				X	X		X	->				->	->		->		X		->	X		X	X	->	X	->		->		->	X	->		X		->	X		->	X
lane 1	->			->	X			X				X	X		X	->				->	->		->		->		->	X		X	X	->	->	->		X		->	X	->		->		->	->		->	->
Ramp		X	X			X	X		O	X				X			X					O		O		O			X						O		O				O		O			O		
RampName		E:T.H	E:I-94 EB			E:T.H	X:T.H.252 N		E:I-9	X:East River Rd				E:East River Rd			X:T.H.47					E:T.H.47		X:T.H.65 S		E:T.H.65 SB			E:T.H.65 NB						X:Silver Lak		E:Silver Lake Rd				X:Long Lak		E:Long Lake Rd			X:I-35W SB		

WB-Phase 1

RampName	X:T.H.100SB	X:I-94 EB	X:T.H. E:East E:East River Rd SB	X:East River Rd	E:Uni E:University Ave NB	X:T.H.47	E:T.H.65 SB	E:T.H.65 NB	X:T.H.65	E:Silver Lake X:Silver Lake Rd	E:Long Lake	X:Long Lake Rd	E:I-35W SB
Ramp	0	X	X X X	0	0	0	X	0	0	0	0	0	0
lane 1 X			X	<- <- <-	X <-	<-	<-			<-	<-	<-	<-
lane 2 X			X	<- <- <-	<- <-	<-	<-			<-	<-	<-	<-
lane 3			X	<- <- <-	X <-	<-	<-			<-	<-	<-	<-
lane 4			X	<- <- <-	<- <-	<-	<-	X	X <-	<-	X	X	<-
WB <- S237	ST30S S143	S144	S158 ST30019	S148 ST30020	S156 ST30021	ST30022	S154	ST30S S153	ST30S S151 ST30S S172	ST30026	S174	ST30S S176 ST30028	S178	ST30S S180	ST30S S199
Div													
EB -> S134	ST30S S142	S145	S149 ST30003	S147 ST30004	ST30S S163	ST30006	S165	ST30S S166	ST30S S168 ST30S S171	ST30010	S173	ST30S S175 ST30012	S177	ST30S S179	ST30S S184
lane 5													
lane 4			X	-> -> ->	-> ->	->	->			->	->	->	->
lane 3			->	-> -> ->	-> ->	->	->			->	->	->	->
lane 2 ->			->	-> -> ->	-> ->	->	->			->	->	->	->
lane 1 ->			->	-> -> ->	-> ->	->	->			->	->	->	->
Ramp			->	-> -> ->	-> ->	->	->			->	->	->	->
RampName	ET.H. E:I-94 EB		ET.H. X:T.H.252 NE E:I-94 X:East River Rd										

WB-Phase 2

RampName	X:T.H.100SB	X:I-94 EB	X:T.H. E:East E:East River Rd SB	X:East River Rd	E:Uni E:University Ave NB	X:T.H.47	E:T.H.65 SB	E:T.H.65 NB	X:T.H.65	E:Silver Lake X:Silver Lake Rd	E:Long Lake	X:Long Lake Rd	E:I-35W SB
Ramp	0	0	0 X X	0	0 0	0	0	0	0	0 0	0	0	0
lane 1 <-	X	X <-	<- <- <-	<-	<- <-	X <-	<-	<-		<- <-	<-	<-	<-
lane 2 <-	X	X <-	<- <- <-	<-	<- <-	X <-	<-	<-		<- <-	<-	<-	<-
lane 3	X	<-	<- <- <-	<-	<- <-	X <-	<-	<-		<- <-	<-	<-	<-
lane 4		X <-	<- <- <-	<-	<- <-	X <-	<-	<-		X <-	<-	X	<-
lane 5													
lane 4		X	X -> ->	X ->	X ->	X	X	X		X ->	->	->	->
lane 3		->	X -> ->	X ->	X ->	X	X	X		X ->	->	->	->
lane 2 ->		->	-> -> ->	-> ->	X ->	X	X	X		X ->	->	->	->
lane 1 ->		->	-> -> ->	-> ->	-> ->	X	X	X		X ->	->	->	->
Ramp		->	-> -> ->	-> ->	-> ->	X	X	X		X ->	->	->	->
RampName	ET.H. E:I-94 EB		ET.H. X:T.H.252 NE E:I-94 X:East River Rd										

WB-Phase 3

RampName	X:T.H.100SB	X:I-94 EB	X:T.H. E:East E:East River Rd SB	X:East River Rd	E:Uni E:University Ave NB	X:T.H.47	E:T.H.65 SB	E:T.H.65 NB	X:T.H.65	E:Silver Lake X:Silver Lake Rd	E:Long Lake	X:Long Lake Rd	E:I-35W SB
Ramp	0	X	X X X	0	0 0	0	0	0	0	0 0	0	0	0
lane 1 <-		X <-	<- <- <-	<-	X <-	<-	<-			<- <-	<-	<-	<-
lane 2 <-		X <-	<- <- <-	<-	<- <-	<-	<-			<- <-	<-	<-	<-
lane 3		X <-	<- <- <-	<-	<- <-	<-	<-			<- <-	<-	<-	<-
lane 4		X <-	<- <- <-	<-	<- <-	<-	<-			X <-	<-	X	<-
lane 4		X	X -> ->	X ->	X ->	X	X	X		X ->	->	->	->
lane 3		X	X -> ->	X ->	X ->	X	X	X		X ->	->	->	->
lane 2 ->		X	X -> ->	X ->	X ->	X	X	X		X ->	->	->	->
lane 1 ->		->	X -> ->	X ->	-> ->	X	X	X		X ->	->	->	->
Ramp		X	X -> ->	X ->	-> ->	X	X	X		X ->	->	->	->
RampName	ET.H. E:I-94 EB		ET.H. X:T.H.252 NE E:I-94 X:East River Rd										

WB-Phase 4

RampName	X:T.H.100SB	X:I-94 EB	X:T.H. E:East E:East River Rd SB	X:East River Rd	E:Uni E:University Ave NB	X:T.H.47	E:T.H.65 SB	E:T.H.65 NB	X:T.H.65	E:Silver Lake X:Silver Lake Rd	E:Long Lake	X:Long Lake Rd	E:I-35W SB
Ramp	0	X	X X X	0	0 0	0	0	0	0	0 0	0	0	0
lane 1 <-		X <-	<- <- <-	<-	X <-	<-	<-			<- <-	<-	<-	<-
lane 2 <-		X <-	<- <- <-	<-	<- <-	<-	<-			<- <-	<-	<-	<-
lane 3		X <-	<- <- <-	<-	<- <-	<-	<-			<- <-	<-	<-	<-
lane 4		X <-	<- <- <-	<-	<- <-	<-	<-			X <-	<-	X	<-
lane 4		X	X -> ->	X ->	X ->	X	X	X		X ->	->	->	->
lane 3		X	X -> ->	X ->	X ->	X	X	X		X ->	->	->	->
lane 2 ->		X	X -> ->	X ->	X ->	X	X	X		X ->	->	->	->
lane 1 ->		->	X -> ->	X ->	-> ->	X	X	X		X ->	->	->	->
Ramp		X	X -> ->	X ->	-> ->	X	X	X		X ->	->	->	->
RampName	ET.H. E:I-94 EB		ET.H. X:T.H.252 NE E:I-94 X:East River Rd										

Site 9: U.S.169 Jun 2013 (2 to 1)

NB-Phase 1

RampName	E:T.H.62 EB		X:T.H.6	E:T.H.6	X:T.H.6	E:Bren Rd		X:Bren	E:Lincoln Dr		X:Linco	E:Excelsior Bl	X:Excelsior Blvd			E:T.H.7 EB		E:T.H.7 WB		X:T.H.7	X:36th St			E:Minnetonka Blvd	
Ramp	O		X	O	X	O		O	O		O	X	O			O		O		O	O			O	
lane 1	<-		<-				<-			<-			<-				<-		<-							<-
lane 2	<-		<-				<-			X			X				X		X							<-
SB <--	S461		S460				S459			S458			S457				S456		S455							S453
Div																										
NB -->	S428		S429				S430				S431				S432		S433		S434			S435				S437
lane 2	->		->				X				X				X		->		->			->				->
lane 1	->		->				->				->				->		->		->			->				->
Ramp		O		O	O	O	O		O	O			O	O		O	O				O			O	O	
RampName		X:T.H.62 EB		E:T.H.6	X:T.H.6	E:T.H.6	X:Bren Rd		E:Bren	X:Lincoln Dr			E:Linco	X:Excelsior Blvd		E:Excel	X:T.H.7				E:T.H.7			E:36th	X:Minnetonka Blvd	

NB-Phase 2

RampName	E:T.H.62 EB		X:T.H.6	E:T.H.6	X:T.H.6	E:Bren Rd		X:Bren	E:Lincoln Dr		X:Linco	E:Excelsior Bl	X:Excelsior Blvd			E:T.H.7 EB		E:T.H.7 WB		X:T.H.7	X:36th St			E:Minnetonka Blvd	
Ramp	O		X	O	X	O		O	X		O	X	O			O		O		O	O			O	
lane 1	<-		<-				<-			X			X				<-		<-							<-
lane 2	<-		<-				<-			<-			<-				X		X							<-
SB <--	S461		S460				S459			S458			S457				S456		S455							S453
Div																										
NB -->	S428		S429				S430				S431				S432		S433		S434			S435				S437
lane 2	->		->				->				->				->		->		->			->				->
lane 1	->		->				->				X				X		->		->			->				->
Ramp		O		O	O	O	O		X	X			O	X			X	O			O			O	O	
RampName		X:T.H.62 EB		E:T.H.6	X:T.H.6	E:T.H.6	X:Bren Rd		E:Bren	X:Lincoln Dr			E:Linco	X:Excelsior Blvd		E:Excel	X:T.H.7				E:T.H.7			E:36th	X:Minnetonka Blvd	

SB-Phase 1

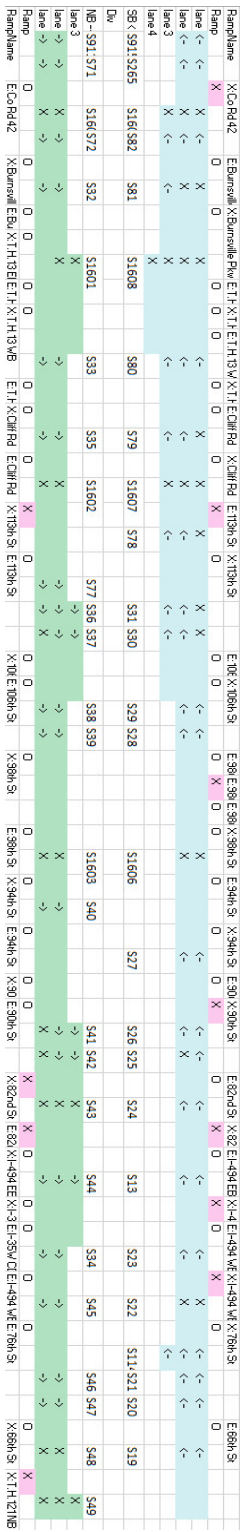
RampName	E:T.H.62 EB		X:T.H.6	E:T.H.6	X:T.H.6	E:Bren Rd		X:Bren	E:Lincoln Dr		X:Linco	E:Excelsior Bl	X:Excelsior Blvd			E:T.H.7 EB		E:T.H.7 WB		X:T.H.7	X:36th St			E:Minnetonka Blvd	
Ramp	O		O	O	O	O		O	O		O	X	O			O		O		O	O			O	
lane 1	<-		<-				<-			<-			<-				<-		<-							<-
lane 2	<-		<-				<-			X			X				X		X							<-
SB <--	S461		S460				S459			S458			S457				S456		S455							S453
Div																										
NB -->	S428		S429				S430				S431				S432		S433		S434			S435				S437
lane 2	->		->				X				X				X		->		->			->				->
lane 1	->		->				->				->				->		->		->			->				->
Ramp		O		O	O	O	O		O	O			O	X		O	O				O			O	O	
RampName		X:T.H.62 EB		E:T.H.6	X:T.H.6	E:T.H.6	X:Bren Rd		E:Bren	X:Lincoln Dr			E:Linco	X:Excelsior Blvd		E:Excel	X:T.H.7				E:T.H.7			E:36th	X:Minnetonka Blvd	

SB-Phase 2

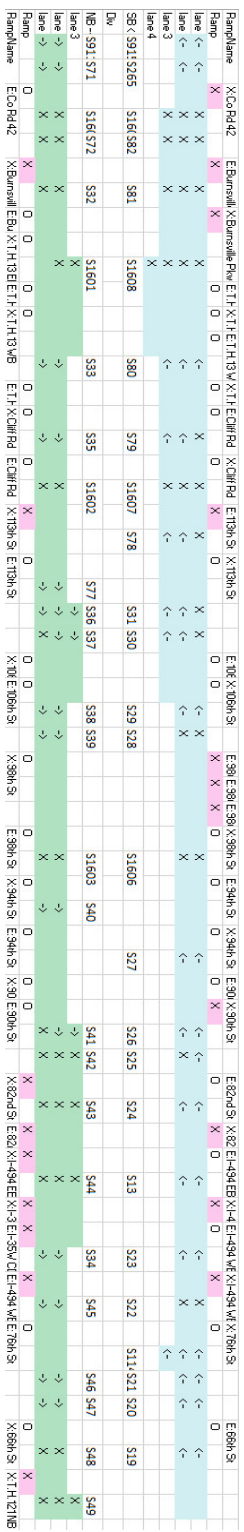
RampName	E:T.H.62 EB		X:T.H.6	E:T.H.6	X:T.H.6	E:Bren Rd		X:Bren	E:Lincoln Dr		X:Linco	E:Excelsior Bl	X:Excelsior Blvd			E:T.H.7 EB		E:T.H.7 WB		X:T.H.7	X:36th St			E:Minnetonka Blvd	
Ramp	O		O	O	O	O		O	X		O	X	O			O		O		O	O			O	
lane 1	<-		<-				<-			X			X				<-		<-							<-
lane 2	<-		<-				<-			<-			<-				X		X							<-
SB <--	S461		S460				S459			S458			S457				S456		S455							S453
Div																										
NB -->	S428		S429				S430				S431				S432		S433		S434			S435				S437
lane 2	->		->				->				->				->		->		->			->				->
lane 1	->		->				->				X				X		->		->			->				->
Ramp		O		O	O	O	O		X	X			O	X		X	O				O			O	O	
RampName		X:T.H.62 EB		E:T.H.6	X:T.H.6	E:T.H.6	X:Bren Rd		E:Bren	X:Lincoln Dr			E:Linco	X:Excelsior Blvd		E:Excel	X:T.H.7				E:T.H.7			E:36th	X:Minnetonka Blvd	

Site 11: I-35W, Apr-Oct 2009 (2 to 2)

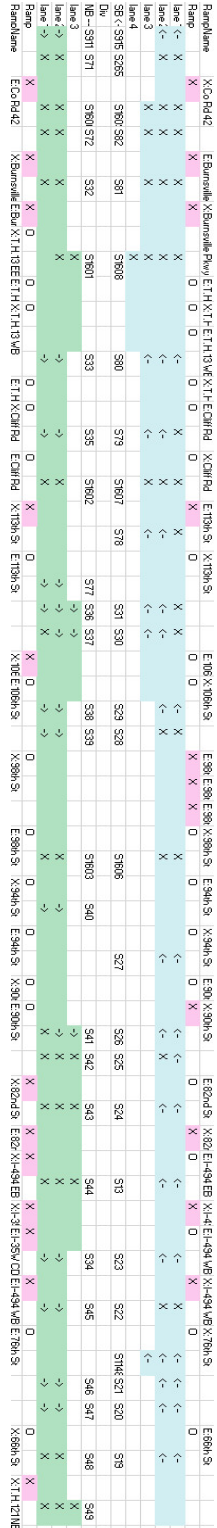
NB-Phase 1



NB-Phase 2



NB-Phase3



NB-Phase4

RampName			X:Co Rd 42			E:Burnsville		X:Burnsville Pkwy			E:T.H	X:T.H	E:T.H.13 WB		X:T.H	E:Cliff Rd		X:Cliff Rd		E:113th St		X:113th St				E:106	X:106th St			E:98t	E:98t	E:98t	X:98th St		E:94th St		X:94th St		E:90t	X:90th St			E:82nd St		X:82r	E:I-494 EB		X:I-4	E:I-494 WB		X:I-494 WB		X:76th St				E:66th St			
Ramp			X			X		X			O	O	O		O	O		O		X		O				X	X			X	X	X	X		X		X		X	X			O		X	O		X	O		X		O				O			
lane 1	<-	X		X	X		X			X				<-			X		X		X			X	X			<-	X					X				X			X	<-		<-			<-			<-		X		<-	<-	<-		<-		
lane 2	<-	X		X	X		X			X				<-			<-		X		<-			<-	X			<-	X					X				X			X	X		<-			<-			<-		X		<-	<-	<-		<-		
lane 3				X	X		X			X				<-			<-		X		<-			<-	X																													<-						
lane 4										X																																																		
SB <-	S915	S265		S160	S82		S81			S1608				S80			S79		S1607		S78			S31	S30			S29	S28					S1606				S27			S26	S25		S24			S13			S23		S22		S1148	S21	S20		S19		
Div																																																												
NB --	S911	S71		S160	S72		S32			S1601				S33			S35		S1602				S77	S36	S37			S38	S39					S1603		S40					S41	S42		S43			S44			S34		S45			S46	S47		S48		S49
lane 3										X														X	X																X	X		X			X													X
lane 2	->	X		X	X		X			X				->			->		X				->	X	X			X	X					X		X					X	X		X			X			->		->			->	->		X		X
lane 1	->	X		X	X		X							->			->		X				->	X	X			X	X					X		X					X	X		X			X			->		->			->	->		X		X
Ramp			X			X		X	O		O	O			O	O		O		X		O				X	X			X			X		X		X		X	X			X		X	O		X	X		X		O				O		X	
RampName			E:Co Rd 42			X:Burnsville		E:Bur	X:T.H.13 EB		E:T.H	X:T.H.13 WB			E:T.H	X:Cliff Rd		E:Cliff Rd		X:113th St		E:113th St				X:106	E:106th St			X:98th St			E:98th St		X:94th St		E:94th St		X:90t	E:90th St			X:82nd St		E:82r	X:I-494 EB		X:I-3	E:I-35W CD		E:I-494 WB		E:76th St				X:66th St		X:T.H.121 NB	

NB-Phase 5

RampName			X:Co Rd 42			E:Burnsville		X:Burnsville Pkwy			E:T.H	X:T.H	E:T.H.13 WB		X:T.H	E:Cliff Rd		X:Cliff Rd		E:113th St		X:113th St				E:106	X:106th St			E:98t	E:98t	E:98t	X:98th St		E:94th St		X:94th St		E:90t	X:90th St			E:82nd St		X:82r	E:I-494 EB		X:I-4	E:I-494 WB		X:I-494 WB		X:76th St				E:66th St			
Ramp			X			X		X			O	O	O		O	X		X		X		X				X	X			X	X	X	X		X		X		X	X			X		X	O		X	O		X		O				O			
lane 1	X	X		X	X		X			X				<-			X		X		X			X	X			X	X					X				X			X	<-		X			<-			<-		X		<-	<-	X		<-		
lane 2	X	X		X	X		X			X				<-			X		X		X			X	X			X	X					X				X			X	X		X			<-			<-		X		<-	<-	X		<-		
lane 3				X	X		X			X				X			X		X		X			X	X																													<-						
lane 4										X																																																		
SB <-	S915	S265		S160	S82		S81			S1608				S80			S79		S1607		S78			S31	S30			S29	S28					S1606				S27			S26	S25		S24			S13			S23		S22		S1148	S21	S20		S19		
Div																																																												
NB --	S911	S71		S160	S72		S32			S1601				S33			S35		S1602				S77	S36	S37			S38	S39					S1603		S40					S41	S42		S43			S44			S34		S45			S46	S47		S48		S49
lane 3										X														X	X																X	X		X			X													X
lane 2	X	X		X	X		X			X				X			X		X				X	X	X			X	X					X		X					X	X		X			X			->		->			->	X		X		X
lane 1	X	X		X	X		X							X			X		X				X	X	X			X	X					X		X					X	X		X			X			->		->			->	X		X		X
Ramp			X			X		X	O		O	O			O	X		X		X		X				X	X			X			X		X		X		X	X			X		X	X		X	X		X		O				O		X	
RampName			E:Co Rd 42			X:Burnsville		E:Bur	X:T.H.13 EB		E:T.H	X:T.H.13 WB			E:T.H	X:Cliff Rd		E:Cliff Rd		X:113th St		E:113th St				X:106	E:106th St			X:98th St			E:98th St		X:94th St		E:94th St		X:90t	E:90th St			X:82nd St		E:82r	X:I-494 EB		X:I-3	E:I-35W CD		E:I-494 WB		E:76th St				X:66th St		X:T.H.121 NB	

NB-Phase 6

RampName			X:Co Rd 42			E:Burnsville		X:Burnsville Pkwy			E:T.H	X:T.H	E:T.H.13 WB		X:T.H	E:Cliff Rd		X:Cliff Rd		E:113th St		X:113th St				E:106	X:106th St			E:98t	E:98t	E:98t	X:98th St		E:94th St		X:94th St		E:90t	X:90th St			E:82nd St		X:82r	E:I-494 EB		X:I-4	E:I-494 WB		X:I-494 WB		X:76th St				E:66th St			
Ramp			X			X		X			O	O	O		O	X		X		X		X				X	X			X	X	X	X		X		X		X	X			X		X	O		X	X		X		O				O			
lane 1	<-	X		X	X		X			X				X			X		X		X			X	X			X	X					X				X			X	X		X			<-			<-		X		<-	<-	X		<-		
lane 2	<-	X		X	X		X			X				X			X		X		X			X	X			X	X					X				X			X	X		X			X			X		X		<-	<-	X		<-		
lane 3				X	X		X			X				X			X		X		X			X	X																													<-						
lane 4										X																																																		
SB <-	S915	S265		S160	S82		S81			S1608				S80			S79		S1607		S78			S31	S30			S29	S28					S1606				S27			S26	S25		S24			S13			S23		S22		S1148	S21	S20		S19		
Div																																																												
NB --	S911	S71		S160	S72		S32			S1601				S33			S35		S1602				S77	S36	S37			S38	S39					S1603		S40					S41	S42		S43			S44			S34		S45			S46	S47		S48		S49
lane 3										X														X	X																X	X		X			X													X
lane 2	->	X		X	X		X			X				X			X		X				X	X	X			X	X					X		X					X	X		X			X			->		->			->	X		X		X
lane 1	->	X		X	X		X							X			X		X				X	X	X			X	X					X		X					X	X		X			X			->		->			->	X		X		X
Ramp			X			X		X	O		O	O			O	X		X		X		X				X	X			X			X		X		X		X	X			X		X	X		X	X		X		O				O		X	
RampName			E:Co Rd 42			X:Burnsville		E:Bur	X:T.H.13 EB		E:T.H	X:T.H.13 WB			E:T.H	X:Cliff Rd		E:Cliff Rd		X:113th St		E:113th St				X:106	E:106th St			X:98th St			E:98th St		X:94th St		E:94th St		X:90t	E:90th St			X:82nd St		E:82r	X:I-494 EB		X:I-3	E:I-35W CD		E:I-494 WB		E:76th St				X:66th St		X:T.H.121 NB	

NB-Phase7

RampName	Ramp	lane	lane	lane 3	NB -	Div	SB <	lane 4	lane 3	lane	lane	Ramp	RampName
		->	->		S91		S91			<-	<-		
		->	->		S71		S265			<-	<-		
E:Co Rd 42	O											X	X:Co Rd 42
		->	->		S16		S16		<-	<-	<-		
		->	->		S72		S82		<-	<-	<-		
X:Burnsvill	O											X	E:Burnsvill
		X	X		S32		S81		<-	<-	<-		
E:Bu	O											O	X:Burnsville Pkw
X:T.H.13 El	O												
			X	X	S1601		S1608	<-	<-	<-	X		
E:T.H	O											O	E:T.H
X:T.H.13 WB	O											O	X:T.H
												O	E:T.H.13 W
		->	X		S33		S80		<-	<-	<-		
E:T.H	O											O	X:T.H
X:Cliff Rd	O											O	E:Cliff Rd
		->	X		S35		S79		<-	<-	<-		
E:Cliff Rd	O											O	X:Cliff Rd
		->	X		S1602		S1607		<-	<-	<-		
X:113th St	X											X	E:113th St
							S78		X	X	X		
E:113th St	X											X	X:113th St
		X	X		S77								
		X	->	X	S36		S31		<-	<-	<-		
		X	X	X	S37		S30		<-	<-	<-		
X:10	O											X	E:10
E:106th St	X											O	X:106th St
		X	X		S38		S29			X	X		
		X	X		S39		S28			X	X		
X:98th St	O											O	E:98
												X	E:98
												O	E:98
E:98th St	O											O	X:98th St
		X	X		S1603		S1606			X	X		
X:94th St	X											O	E:94th St
		X	X		S40								
E:94th St	X											O	X:94th St
							S27			X	X		
X:90	X											X	E:90
E:90th St	X											X	X:90th St
		X	X	X	S41		S26			X	X		
		X	X	X	S42		S25			X	X		
X:82nd St	O											X	E:82nd St
		X	X	X	S43		S24			X	X		
E:82	O											X	X:82
X:I-494 EE	X											O	E:I-494 EB
		X	X	X	S44		S13			X	X		
X:I-3	O											X	X:I-4
E:I-35W C	O											X	E:I-494 WE
		->	->		S34		S23			X	X		
E:I-494 WE	O											X	X:I-494 WE
		->	->		S45		S22			X	X		
E:76th St	O											O	X:76th St
							S11		<-	<-	<-		
		->	->		S46		S21			<-	<-		
		->	->		S47		S20			<-	<-		
X:66th St	O											O	E:66th St
		X	X		S48		S19			<-	<-		
X:T.H.121NB	X												
		X	X	X	S49								

NB-Phase 8

RampName	Ramp	lane	lane	lane 3	NB -	Div	SB <	lane 4	lane 3	lane	lane	Ramp	RampName
		->	->		S91		S91			<-	<-		
		->	->		S71		S265			<-	<-		
E:Co Rd 42	O											X	X:Co Rd 42
		->	->		S16		S16		<-	<-	<-		
		->	->		S72		S82		<-	<-	<-		
X:Burnsvill	O											X	E:Burnsvill
		->	->		S32		S81		<-	<-	<-		
E:Bu	O											O	X:Burnsville Pkw
X:T.H.13 El	O												
			->	->	S1601		S1608	<-	<-	<-	X		
E:T.H	O											O	E:T.H
X:T.H.13 WB	O											O	X:T.H
												O	E:T.H.13 W
		->	->		S33		S80		<-	<-	<-		
E:T.H	O											O	X:T.H
X:Cliff Rd	O											O	E:Cliff Rd
		->	->		S35		S79		<-	<-	<-		
E:Cliff Rd	O											O	X:Cliff Rd
		->	->		S1602		S1607		<-	<-	<-		
X:113th St	X											X	E:113th St
							S78		X	X	X		
E:113th St	X											X	X:113th St
		X	X		S77								
		X	->	->	S36		S31		<-	<-	<-		
		->	->	->	S37		S30		<-	<-	<-		
X:10	O											O	E:10
E:106th St	X											O	X:106th St
		->	->		S38		S29			<-	<-		
		->	->		S39		S28			<-	<-		
X:98th St	O											O	E:98
												X	E:98
												O	E:98
E:98th St	O											O	X:98th St
		->	->		S1603		S1606			<-	<-		
X:94th St	O											O	E:94th St
		->	->		S40								
E:94th St	O											O	X:94th St
							S27			<-	<-		
X:90	X											X	E:90
E:90th St	X											X	X:90th St
		->	->	->	S41		S26			<-	<-		
		->	->	->	S42		S25			<-	<-		
X:82nd St	O											X	E:82nd St
		->	->	->	S43		S24			<-	<-		
E:82	O											X	X:82
X:I-494 EE	O											O	E:I-494 EB
		X	X	X	S44		S13			<-	<-		
X:I-3	O											X	X:I-4
E:I-35W C	O											O	E:I-494 WE
		->	->		S34		S23			<-	<-		
E:I-494 WE	O											X	X:I-494 WE
		->	->		S45		S22			<-	<-		
E:76th St	O											O	X:76th St
							S11		<-	<-	<-		
		->	->		S46		S21			<-	<-		
		->	->		S47		S20			<-	<-		
X:66th St	O											O	E:66th St
		X	X		S48		S19			<-	<-		
X:T.H.121NB	X												
		X	X	X	S49								

NB-Phase 9

RampName	Ramp	lane	lane	lane 3	NB -	Div	SB <	lane 4	lane 3	lane	lane	Ramp	RampName
		->	->		S91		S91			<-	<-		
		->	->		S71		S265			<-	<-		
E:Co Rd 42	O											X	X:Co Rd 42
		->	->		S16		S16		<-	<-	<-		
		->	->		S72		S82		<-	<-	<-		
X:Burnsvill	O											X	E:Burnsvill
		->	->		S32		S81		<-	<-	<-		
E:Bu	O											O	X:Burnsville Pkw
X:T.H.13 El	O												
			->	->	S1601		S1608	<-	<-	<-	X		
E:T.H	O											O	E:T.H
X:T.H.13 WB	O											O	X:T.H
												O	E:T.H.13 W
		->	->		S33		S80		<-	<-	<-		
E:T.H	O											O	X:T.H
X:Cliff Rd	O											O	E:Cliff Rd
		->	->		S35		S79		<-	<-	<-		
E:Cliff Rd	O											O	X:Cliff Rd
		->	->		S1602		S1607		<-	<-	<-		
X:113th St	X											X	E:113th St
							S78		<-	<-	<-		
E:113th St	O											O	X:113th St
		->	->		S77								
		X	->	->	S36		S31		<-	<-	<-		
		->	->	->	S37		S30		<-	<-	<-		
X:10	O											O	E:10
E:106th St	X											O	X:106th St
		->	->		S38		S29			<-	<-		
		->	->		S39		S28			<-	<-		
X:98th St	O											O	E:98
												X	E:98
												O	E:98
E:98th St	O											O	X:98th St
		->	->		S1603		S1606			<-	<-		
X:94th St	O											O	E:94th St
		->	->		S40								
E:94th St	O											O	X:94th St
							S27			<-	<-		
X:90	O											X	E:90
E:90th St	O											X	X:90th St
		->	->	->	S41		S26			<-	<-		
		->	->	->	S42		S25			<-	<-		
X:82nd St	O											O	E:82nd St
		->	->	->	S43		S24			<-	<-		
E:82	O											O	X:82
X:I-494 EE	O											O	E:I-494 EB
		X	X	X	S44		S13			<-	<-		
X:I-3	O											X	X:I-4
E:I-35W C	O											O	E:I-494 WE
		->	->		S34		S23			<-	<-		
E:I-494 WE	O											X	X:I-494 WE
		->	->		S45		S22			<-	<-		
E:76th St	O											O	X:76th St
							S11		<-	<-	<-		
		->	->		S46		S21			<-	<-		
		->	->		S47		S20			<-	<-		
X:66th St	O											O	E:66th St
		X	X		S48		S19			<-	<-		
X:T.H.121NB	X												
		X	X	X	S49								

SB-Phase 1

RampName	X:Co Rd 42	E:Burnsville Pkw	E:T.H. 13 W	X:T.H. 13 E	X:Cliff Rd	E:Cliff Rd	X:T.H. 13	E:T.H. 13	X:T.H. 13 WB	E:T.H. 13 WB	X:Cliff Rd	E:Cliff Rd	X:T13th St	E:T13th St	X:T10th St	E:T10th St	X:10E	X:106th St	E:98	E:98	E:98	X:98th St	E:94th St	X:94th St	E:90	X:90th St	E:82nd St	X:82 EI-494 EB	X:I-494 EB	E:I-494 WB	X:I-494 WB	X:76th St	E:66th St
Ramp	X	X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	X	X	X	X	X	0	0	0	0	0	0	0	0	0	0	0	0
lane 1 <-	X	X	X	<-	<-	X	<-	<-	<-	<-	<-	X	<-	<-	<-	<-	X	X	X	X	X	0	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-
lane 2	X	X	X	<-	<-	X	<-	<-	<-	<-	<-	X	<-	<-	<-	<-	X	X	X	X	X	0	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-	<-
lane 3	X	X	X	<-	<-	X	<-	<-	<-	<-	<-	X	<-	<-	<-	<-	X	X	X	X	X	0	<-	<-	<-	<-	<-	<-	X	<-	<-	<-	<-	<-
lane 4	X																																	
SB (-S91 S265	S16 S82	S81	S1608																															
Div																																		
NB - S91 S71	S16 S72	S32		S1601																														
lane 1 ->	X	X		X																														
lane 2 ->	X	X		X																														
lane 3 ->	X	X		X																														
Ramp	X	X		X	0	0	0	0	0	0	0	0	X	0	0	0	X	X	X	X	X	0	0	0	0	0	0	0	0	0	0	0	0	0
RampName	E.Co Rd 42	X:Burnsville	E:Burnsville Pkw	X:T.H. 13 E	E:T.H. 13	X:T.H. 13	E:Cliff Rd	X:Cliff Rd	E:T.H. 13 WB	X:T.H. 13 WB	E:Cliff Rd	X:Cliff Rd	E:T13th St	X:T13th St	E:T10th St	X:T10th St	X:10E	E:106th St	X:98	E:98	E:98	X:98th St	E:94th St	X:94th St	E:90	X:90th St	E:82nd St	X:82 EI-494 EB	X:I-494 EB	E:I-494 WB	X:I-494 WB	X:76th St	E:66th St

SB-Phase 2

RampName	X:Co Rd 42	E:Burnsville	X:Burnsville Pkw	E:T.H. 13	X:T.H. 13	E:Cliff Rd	X:Cliff Rd	E:T13th St	X:T13th St	E:T10th St	X:10E	X:106th St	E:98	E:98	E:98	X:98th St	E:94th St	X:94th St	E:90	X:90th St	E:82nd St	X:82 EI-494 EB	X:I-494 EB	E:I-494 WB	X:I-494 WB	X:76th St	E:66th St
Ramp		0	0	0	0	0	0	X	0	0			X	X	X	X	0	0	0	0	0	0	0	0	0	0	0
lane 1 <-	X	X																									
lane 2 <-	X	X																									
lane 3 <-	X	X																									
lane 4	X	X																									
SB (-S91 S265	S16 S82	S81	S1608																								
Div																											
NB - S91 S71	S16 S72	S32		S1601																							
lane 1 ->	X	X			X																						
lane 2 ->	X	X			X																						
lane 3 ->	X	X			X																						
Ramp	0	X	0	0	X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RampName	E.Co Rd 42	X:Burnsville	E:Burnsville Pkw	E:T.H. 13	X:T.H. 13	E:Cliff Rd	X:Cliff Rd	E:T13th St	X:T13th St	E:T10th St	X:10E	X:106th St	E:98	E:98	E:98	X:98th St	E:94th St	X:94th St	E:90	X:90th St	E:82nd St	X:82 EI-494 EB	X:I-494 EB	E:I-494 WB	X:I-494 WB	X:76th St	E:66th St

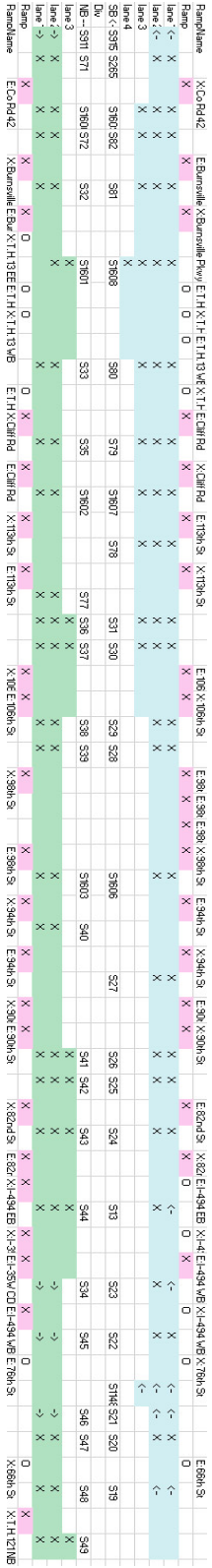
SB-Phase 3

RampName	X:Co Rd 42	E:Burnsville	X:Burnsville Pkw	E:T.H. 13	X:T.H. 13	E:Cliff Rd	X:Cliff Rd	E:T13th St	X:T13th St	E:T10th St	X:10E	X:106th St	E:98	E:98	E:98	X:98th St	E:94th St	X:94th St	E:90	X:90th St	E:82nd St	X:82 EI-494 EB	X:I-494 EB	E:I-494 WB	X:I-494 WB	X:76th St	E:66th St
Ramp		0	0	0	0	0	0	X	0	0			X	X	X	X	0	0	0	0	0	0	0	0	0	0	0
lane 1 <-	X	X																									
lane 2 <-	X	X																									
lane 3 <-	X	X																									
lane 4	X	X																									
SB (-S91 S265	S16 S82	S81	S1608																								
Div																											
NB - S91 S71	S16 S72	S32		S1601																							
lane 1 ->	X	X			X																						
lane 2 ->	X	X			X																						
lane 3 ->	X	X			X																						
Ramp	0	X	0	0	X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RampName	E.Co Rd 42	X:Burnsville	E:Burnsville Pkw	E:T.H. 13	X:T.H. 13	E:Cliff Rd	X:Cliff Rd	E:T13th St	X:T13th St	E:T10th St	X:10E	X:106th St	E:98	E:98	E:98	X:98th St	E:94th St	X:94th St	E:90	X:90th St	E:82nd St	X:82 EI-494 EB	X:I-494 EB	E:I-494 WB	X:I-494 WB	X:76th St	E:66th St

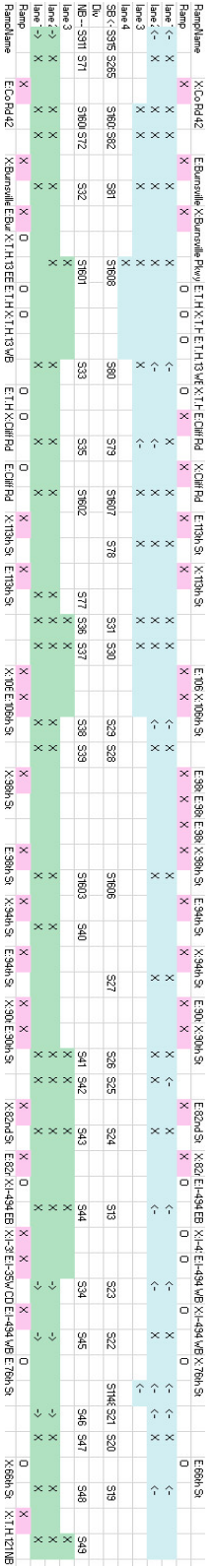
SB-Phase 4

RampName	X:Co Rd 42	E:Burnsville	X:Burnsville Pkw	E:T.H. 13	X:T.H. 13	E:Cliff Rd	X:Cliff Rd	E:T13th St	X:T13th St	E:T10th St	X:10E	X:106th St	E:98	E:98	E:98	X:98th St	E:94th St	X:94th St	E:90	X:90th St	E:82nd St	X:82 EI-494 EB	X:I-494 EB	E:I-494 WB	X:I-494 WB	X:76th St	E:66th St
Ramp		0	0	0	0	0	0	X	0	0			X	X	X	X	0	0	0	0	0	0	0	0	0	0	0
lane 1 <-	X	X																									
lane 2 <-	X	X																									
lane 3 <-	X	X																									
lane 4	X	X																									
SB (-S91 S265	S16 S82	S81	S1608																								
Div																											
NB - S91 S71	S16 S72	S32		S1601																							
lane 1 ->	X	X			X																						
lane 2 ->	X	X			X																						
lane 3 ->	X	X			X																						
Ramp	0	X	0	0	X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RampName	E.Co Rd 42	X:Burnsville	E:Burnsville Pkw	E:T.H. 13	X:T.H. 13	E:Cliff Rd	X:Cliff Rd	E:T13th St	X:T13th St	E:T10th St	X:10E	X:106th St	E:98	E:98	E:98	X:98th St	E:94th St	X:94th St	E:90	X:90th St	E:82nd St	X:82 EI-494 EB	X:I-494 EB	E:I-494 WB	X:I-494 WB	X:76th St	E:66th St

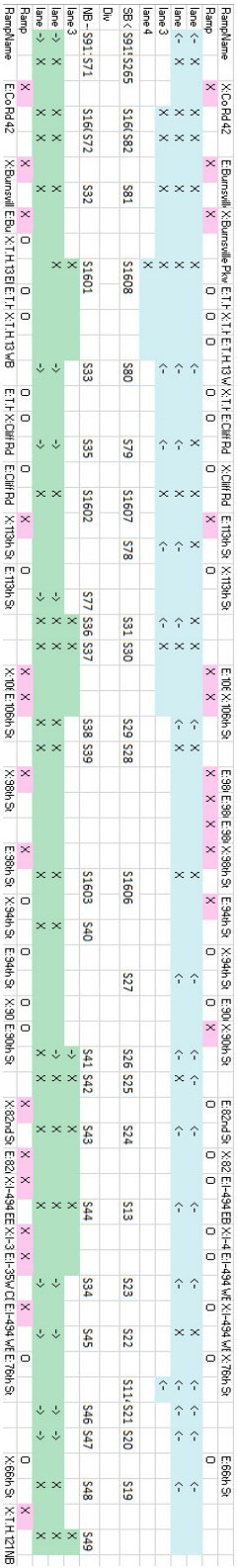
SB-Phase 7



SB-Phase 6



SB-Phase 5



SB-Phase8

RampName			X:Co Rd 42			E:Burnsville		X:Burnsville Pkwy			E:T.H	X:T.H	E:T.H.13 WE		X:T.H	E:Cliff Rd		X:Cliff Rd		E:113th St		X:113th St				E:106	X:106th St			E:98t	E:98t	E:98t	X:98th St		E:94th St		X:94th St		E:90t	X:90th St			E:82nd St		X:82r	E:I-494 EB		X:I-4:	E:I-494 WB		X:I-494 WB		X:76th St				E:66th St			
Ramp			X			X		O			O	O	O		O	O		O		X		X				X	O			O	X	O	O		O		O		X	X			X		X	O		X	X		O		O				O			
lane 1	<-	<-		<-	<-		<-			X				<-			<-		<-		X			<-	<-			X	X					X				X			X	X		X			X			X		X		<-	<-	<-		<-		
lane 2	<-	<-		<-	<-		<-			<-				<-			<-		<-		X			<-	<-			X	X					X				X			X	X		X			X			X		X		<-	<-	<-		<-		
lane 3				<-	<-		<-			<-				<-			<-		<-		X			<-	<-																													<-						
lane 4										<-																																																		
SB <-	S915	S265		S160:	S82		S81			S1608				S80			S79		S1607		S78			S31	S30			S29	S28					S1606				S27			S26	S25		S24			S13			S23		S22		S1148	S21	S20		S19		
Div																																																												
NB --	S911	S71		S160(	S72		S32			S1601				S33			S35		S1602				S77	S36	S37			S38	S39					S1603		S40					S41	S42		S43			S44			S34		S45			S46	S47		S48		S49
lane 3										X														X	X																X	X		X			X													X
lane 2	->	->		->	->		X			X				X			X		X				X	->	X			X	X					X		X					X	X		X			X			->		->			->	->		X		X
lane 1	->	->		->	->		X							->			->		->				X	X	X			X	X					X		X					X	X		X			X			->		->			->	->		X		X
Ramp			O			O		O	O		O	O			O	O		O		X		X				O	X			O			O		X		X		X	X			O		O	X		O	O		O		O				O		X	
RampName			E:Co Rd 42			X:Burnsville		E:Bur	X:T.H.13 EE		E:T.H	X:T.H.13 WB			E:T.H	X:Cliff Rd		E:Cliff Rd		X:113th St		E:113th St				X:106	E:106th St			X:98th St			E:98th St		X:94th St		E:94th St		X:90t	E:90th St			X:82nd St		E:82r	X:I-494 EB		X:I-3!	E:I-35W CD		E:I-494 WB		E:76th St				X:66th St		X:T.H.121NB	

SB-Phase 9

RampName			X:Co Rd 42			E:Burnsvill		X:Burnsville Pkw			E:T.H	X:T.H	E:T.H.13 W		X:T.H	E:Cliff Rd		X:Cliff Rd		E:113th St		X:113th St				E:106	X:106th St			E:98t	E:98t	E:98t	X:98th St		E:94th St		X:94th St		E:90t	X:90th St			E:82nd St		X:82	E:I-494 EB		X:I-4	E:I-494 WE		X:I-494 WE		X:76th St				E:66th St			
Ramp			X			X		O			O	O	O		O	O		O		X		O				O	O			O	X	O	O		O		O		X	X			X		X	O		O	O		O		O				O			
lane	<-	<-		<-	<-		<-			X				<-			<-		<-		X			<-	<-			<-	<-					<-				<-			<-	<-		<-			<-			<-		<-		<-	<-	<-		<-		
lane	<-	<-		<-	<-		<-			<-				<-			<-		<-		X			<-	<-			<-	<-					<-				<-			<-	<-		<-			<-			<-		<-		<-	<-	<-		<-		
lane 3				<-	<-		<-			<-				<-			<-		<-		X			<-	<-																													<-						
lane 4										<-																																																		
SB <	S91!	S265		S16(	S82		S81			S1608				S80			S79		S1607		S78			S31	S30			S29	S28					S1606				S27			S26	S25		S24			S13			S23		S22		S114	S21	S20		S19		
Div																																																												
NB -	S91:	S71		S16(	S72		S32			S1601				S33			S35		S1602				S77	S36	S37			S38	S39					S1603		S40					S41	S42		S43			S44			S34		S45			S46	S47		S48		S49
lane 3										->														->	->																->	->		->			X													X
lane	->	->		->	->		->			->				->			->		->				X	->	->			->	->					->		->					->	->		->			X			->		->			->	->		X		X
lane	->	->		->	->		->							->			->		->				X	X	->			->	->					->		->					->	->		->			X			->		->			->	->		X		X
Ramp			O			O		O	O		O	O			O	O		O		X		X				O	X			O			O		O		O		X	X			O		O	O		O	O		O		O				O		X	
RampName			E:Co Rd 42			X:Burnsvill		E:Bu	X:T.H.13 EI		E:T.H	X:T.H.13 WB			E:T.H	X:Cliff Rd		E:Cliff Rd		X:113th St		E:113th St				X:106	E:106th St			X:98th St			E:98th St		X:94th St		E:94th St		X:90	E:90th St			X:82nd St		E:82	X:I-494 EE		X:I-3	E:I-35W CI		E:I-494 WE		E:76th St				X:66th St		X:T.H.121NB	

SB-Phase 10

RampName			X:Co Rd 42			E:Burnsvill		X:Burnsville Pkw			E:T.H	X:T.H	E:T.H.13 W		X:T.H	E:Cliff Rd		X:Cliff Rd		E:113th St		X:113th St				E:106	X:106th St			E:98t	E:98t	E:98t	X:98th St		E:94th St		X:94th St		E:90t	X:90th St			E:82nd St		X:82	E:I-494 EB		X:I-4	E:I-494 WE		X:I-494 WE		X:76th St				E:66th St			
Ramp			X			X		O			O	O	O		O	O		O		X		O				O	O			O	X	O	O		O		O		O	O			O		O	O		O	O		O		O				O			
lane	<-	<-		<-	<-		<-			X				<-			<-		<-		<-			<-	<-			<-	<-					<-				<-			<-	<-		<-			<-			<-		<-		<-	<-	<-		<-		
lane	<-	<-		<-	<-		<-			<-				<-			<-		<-		<-			<-	<-			<-	<-					<-				<-			<-	<-		<-			<-			<-		<-		<-	<-	<-		<-		
lane 3				<-	<-		<-			<-				<-			<-		<-		<-			<-	<-																													<-						
lane 4										<-																																																		
SB <	S91!	S265		S16(	S82		S81			S1608				S80			S79		S1607		S78			S31	S30			S29	S28					S1606				S27			S26	S25		S24			S13			S23		S22		S114	S21	S20		S19		
Div																																																												
NB -	S91:	S71		S16(	S72		S32			S1601				S33			S35		S1602				S77	S36	S37			S38	S39					S1603		S40					S41	S42		S43			S44			S34		S45			S46	S47		S48		S49
lane 3										->														->	->																->	->		->			X													X
lane	->	->		->	->		->			->				->			->		->				->	->	->			->	->					->		->					->	->		->			X			->		->			->	->		->		X
lane	->	->		->	->		->							->			->		->				->	X	->			->	->					->		->					->	->		->			X			->		->			->	->		->		X
Ramp			O			O		O	O		O	O			O	O		O		X		O				O	O			O			O		O		O		O	O			O		O	O		O	O		O		O				O		X	
RampName			E:Co Rd 42			X:Burnsvill		E:Bu	X:T.H.13 EI		E:T.H	X:T.H.13 WB			E:T.H	X:Cliff Rd		E:Cliff Rd		X:113th St		E:113th St				X:106	E:106th St			X:98th St			E:98th St		X:94th St		E:94th St		X:90	E:90th St			X:82nd St		E:82	X:I-494 EE		X:I-3	E:I-35W CI		E:I-494 WE		E:76th St				X:66th St		X:T.H.121NB	

Site 12: I-694, Apr-Sep 2010 (2 to 1)

EB-Phase 1

RampName	E:T.H.3	X:T.H.3	E:T.H.36 EB		X:T.H.36 EB			E:T.H.5		X:T.H.5							E:10th St		X:10th	E:E Jct I-94 CD WB
Ramp	O	O	O		O			O		O							O		O	O
lane 1	<-			<-		<-	<-		<-		<-		<-	<-	<-	<-		<-			<-
lane 2	<-			<-		<-	<-		<-		<-		<-	<-	<-	<-		<-			<-
WB <--	S1420			S1419		S1418	S1417		S1416		S1415		S1414	S1413	S1412	S1411			S1410			S1027
Div																						
EB -->	S1397			S1398		S1399	S1400		S1401		S1402	S1403	S1404		S1405	S1406			S1407			S1028
lane 2	->			->		->	X		X		X	X	X		->	X			->			->
lane 1	->			->		->	->		->		->	->	->		->	X			->			->
Ramp	O	O	O		O			O		O							O		O	O		
RampName	X:T.H.3	E:T.H.3	X:T.H.36 EB		E:T.H.36 EB			X:T.H.5		E:T.H.5							X:10th St		E:10th	X:E Jct I-94 WB		

EB-Phase 2

RampName	E:T.H.3	X:T.H.3	E:T.H.36 EB		X:T.H.36 EB			E:T.H.5		X:T.H.5							E:10th St		X:10th	E:E Jct I-94 CD WB
Ramp	O	O	O		O			O		O							O		O	O
lane 1	<-			<-		<-	X		X		X		X	X	<-	<-		<-			<-
lane 2	<-			<-		<-	X		X		X		X	X	X	<-		<-			<-
WB <--	S1420			S1419		S1418	S1417		S1416		S1415		S1414	S1413	S1412	S1411			S1410			S1027
Div																						
EB -->	S1397			S1398		S1399	S1400		S1401		S1402	S1403	S1404		S1405	S1406			S1407			S1028
lane 2	->			->		->	<-		<-		<-	<-	<-		->	X			->			->
lane 1	->			->		->	->		->		->	->	->		->	X			->			->
Ramp	O	O	O		O			O		O							O		O	O		
RampName	X:T.H.3	E:T.H.3	X:T.H.36 EB		E:T.H.36 EB			X:T.H.5		E:T.H.5							X:10th St		E:10th	X:E Jct I-94 WB		

EB-Phase 3

RampName	E:T.H.3	X:T.H.3	E:T.H.36 EB		X:T.H.36 EB			E:T.H.5		X:T.H.5							E:10th St		X:10th	E:E Jct I-94 CD WB
Ramp	O	O	O		O			X		O							X		X	O
lane 1	<-			<-		<-	X		X		X		X	X	<-	<-		X			<-
lane 2	<-			<-		<-	X		X		X		X	X	X	<-		X			<-
WB <--	S1420			S1419		S1418	S1417		S1416		S1415		S1414	S1413	S1412	S1411			S1410			S1027
Div																						
EB -->	S1397			S1398		S1399	S1400		S1401		S1402	S1403	S1404		S1405	S1406			S1407			S1028
lane 2	->			->		->	<-		X		<-	<-	<-		X	X			X			->
lane 1	->			->		->	->		X		->	->	X		->	X			X			->
Ramp	O	O	O		O			O		O							X		X	O		
RampName	X:T.H.3	E:T.H.3	X:T.H.36 EB		E:T.H.36 EB			X:T.H.5		E:T.H.5							X:10th St		E:10th	X:E Jct I-94 WB		

EB-Phase 4

RampName	E:T.H.3	X:T.H.3	E:T.H.36 EB		X:T.H.36 EB			E:T.H.5		X:T.H.5							E:10th St		X:10th	E:E Jct I-94 CD WB
Ramp	O	O	O		O			X		O							X		O	O
lane 1	<-			<-		<-	X		X		X		X	X	X	X		X			<-
lane 2	<-			<-		<-	X		X		X		X	X	X	X		X			X
WB <--	S1420			S1419		S1418	S1417		S1416		S1415		S1414	S1413	S1412	S1411			S1410			S1027
Div																						
EB -->	S1397			S1398		S1399	S1400		S1401		S1402	S1403	S1404		S1405	S1406			S1407			S1028
lane 2	->			->		->	<-		X		<-	<-	X		<-	X			X			->
lane 1	->			->		->	->		->		->	->	X		->	X			X			->
Ramp	O	O	O		O			O		O							X		X	O		
RampName	X:T.H.3	E:T.H.3	X:T.H.36 EB		E:T.H.36 EB			X:T.H.5		E:T.H.5							X:10th St		E:10th	X:E Jct I-94 WB		

EB-Phase 5

RampName	E:T.H.3	X:T.H.3	E:T.H.36 EB		X:T.H.36 EB			E:T.H.5		X:T.H.5							E:10th St		X:10th	E:E Jct I-94 CD WB
Ramp	O	O	O		O			X		X							X		O	X
lane 1	<-			<-		<-	X		X		X		X	X	X	X		X			X
lane 2	<-			<-		<-	X		X		X		X	X	X	X		X			X
WB <--	S1420			S1419		S1418	S1417		S1416		S1415		S1414	S1413	S1412	S1411			S1410			S1027
Div																						
EB -->	S1397			S1398		S1399	S1400		S1401		S1402	S1403	S1404		S1405	S1406			S1407			S1028
lane 2	->			->		->	<-		X		<-	<-	X		<-	X			X			<-
lane 1	->			->		->	->		X		->	X	X		->	X			X			->
Ramp	O	O	O		O			O		O							X		X	O		
RampName	X:T.H.3	E:T.H.3	X:T.H.36 EB		E:T.H.36 EB			X:T.H.5		E:T.H.5							X:10th St		E:10th	X:E Jct I-94 WB		

EB-Phase 6

RampName	E:T.H.3	X:T.H.3	E:T.H.36 EB		X:T.H.36 EB			E:T.H.5		X:T.H.5							E:10th St		X:10th	E:E Jct I-94 CD WB
Ramp	O	O	O		O			X		X							X		O	O
lane 1	<-			<-		<-	X		X		X		X	X	X	X		X			<-
lane 2	<-			<-		<-	X		X		X		X	X	X	X		X			X
WB <--	S1420			S1419		S1418	S1417		S1416		S1415		S1414	S1413	S1412	S1411			S1410			S1027
Div																						
EB -->	S1397			S1398		S1399	S1400		S1401		S1402	S1403	S1404		S1405	S1406			S1407			S1028
lane 2	->			->		->	<-		X		<-	<-	X		<-	X			X			X
lane 1	->			->		->	->		X		->	X	X		->	X			X			->
Ramp	O	O	O		O			O		O							O		O	O		
RampName	X:T.H.3	E:T.H.3	X:T.H.36 EB		E:T.H.36 EB			X:T.H.5		E:T.H.5							X:10th St		E:10th	X:E Jct I-94 WB		

EB-Phase 7

RampName	E:T.H.3	X:T.H.3	E:T.H.36 EB		X:T.H.36 EB			E:T.H.5		X:T.H.5							E:10th St		X:10th	E:E Jct	I-94 CD WB
Ramp	O	O	O		O			O		O							O		O	O	
lane 1	<-			<-		<-	<-		X		<-		<-	<-	<-	<-		<-			<-
lane 2	<-			<-		<-	X		X		X		X	X	X	X		X			X
WB <--	S1420			S1419		S1418	S1417		S1416		S1415		S1414	S1413	S1412	S1411		S1410			S1027
Div																					
EB -->	S1397			S1398		S1399	S1400		S1401		S1402	S1403	S1404		S1405	S1406		S1407			S1028
lane 2	->			->		->	X		X		X	X	X		X	X		X			->
lane 1	->			->		->	->		X		->	X	X		->	X		X			->
Ramp	O	O	O		O			O		O							O		O	O	
RampName	X:T.H.3	E:T.H.3	X:T.H.36 EB		E:T.H.36 EB			X:T.H.5		E:T.H.5							X:10th St		E:10th	X:E Jct	I-94 WB

EB-Phase 8

RampName	E:T.H.3	X:T.H.3	E:T.H.36 EB		X:T.H.36 EB			E:T.H.5		X:T.H.5							E:10th St		X:10th	E:E Jct	I-94 CD WB
Ramp	O	O	O		O			X		O							O		O	O	
lane 1	<-			<-		<-	<-		X		<-		<-	<-	<-	<-		<-			<-
lane 2	<-			<-		<-	->		->		X		->	->	->	->		->			X
WB <--	S1420			S1419		S1418	S1417		S1416		S1415		S1414	S1413	S1412	S1411		S1410			S1027
Div																					
EB -->	S1397			S1398		S1399	S1400		S1401		S1402	S1403	S1404		S1405	S1406		S1407			S1028
lane 2	->			->		->	X		X		X	X	X		X	X		X			->
lane 1	->			->		->	X		X		X	X	X		X	X		X			->
Ramp	O	O	O		O			X		X							O		O	O	
RampName	X:T.H.3	E:T.H.3	X:T.H.36 EB		E:T.H.36 EB			X:T.H.5		E:T.H.5							X:10th St		E:10th	X:E Jct	I-94 WB

EB-Phase 9

RampName	E:T.H.3	X:T.H.3	E:T.H.36 EB		X:T.H.36 EB			E:T.H.5		X:T.H.5							E:10th St		X:10th	E:E Jct	I-94 CD WB
Ramp	O	O	O		O			O		O							O		O	O	
lane 1	<-			<-		<-	<-		<-		<-		<-	<-	<-	<-		<-			<-
lane 2	<-			<-		<-	->		->		X		->	->	->	->		->			X
WB <--	S1420			S1419		S1418	S1417		S1416		S1415		S1414	S1413	S1412	S1411		S1410			S1027
Div																					
EB -->	S1397			S1398		S1399	S1400		S1401		S1402	S1403	S1404		S1405	S1406		S1407			S1028
lane 2	->			->		->	X		X		X	X	X		X	X		X			->
lane 1	->			->		->	X		X		X	X	X		X	X		X			->
Ramp	O	O	O		O			X		X							O		O	O	
RampName	X:T.H.3	E:T.H.3	X:T.H.36 EB		E:T.H.36 EB			X:T.H.5		E:T.H.5							X:10th St		E:10th	X:E Jct	I-94 WB

EB-Phase 10

RampName	E:T.H.3	X:T.H.3	E:T.H.36 EB		X:T.H.36 EB			E:T.H.5		X:T.H.5							E:10th St		X:10th	E:E Jct	I-94 CD WB
Ramp	O	O	O		O			O		O							O		O	O	
lane 1	<-			<-		<-	<-		<-		<-		<-	<-	<-	<-		<-			<-
lane 2	<-			<-		<-	X		X		X		X	X	X	X		X			X
WB <--	S1420			S1419		S1418	S1417		S1416		S1415		S1414	S1413	S1412	S1411		S1410			S1027
Div																					
EB -->	S1397			S1398		S1399	S1400		S1401		S1402	S1403	S1404		S1405	S1406		S1407			S1028
lane 2	->			->		->	X		X		->	X	X		X	X		X			->
lane 1	->			->		->	->		->		X	->	->		->	->		->			->
Ramp	O	O	O		O			O		X							O		O	O	
RampName	X:T.H.3	E:T.H.3	X:T.H.36 EB		E:T.H.36 EB			X:T.H.5		E:T.H.5							X:10th St		E:10th	X:E Jct	I-94 WB

WB-Phase 1

RampName	E:T.H.3	X:T.H.3	E:T.H.36 EB		X:T.H.36 EB			E:T.H.5		X:T.H.5							E:10th St		X:10th	E:E Jct	I-94 CD WB
Ramp	O	O	O		O			O		O							O		O	O	
lane 1	<-			<-		<-	<-		<-		<-		<-	<-	<-	<-		<-			<-
lane 2	<-			<-		<-	<-		<-		<-		<-	<-	<-	<-		<-			<-
WB <--	S1420			S1419		S1418	S1417		S1416		S1415		S1414	S1413	S1412	S1411		S1410			S1027
Div																					
EB -->	S1397			S1398		S1399	S1400		S1401		S1402	S1403	S1404		S1405	S1406		S1407			S1028
lane 2	->			->		->	X		X		X	X	X		->	X		->			->
lane 1	->			->		->	->		->		->	->	->		->	X		->			->
Ramp	O	O	O		O			O		O							O		O	O	
RampName	X:T.H.3	E:T.H.3	X:T.H.36 EB		E:T.H.36 EB			X:T.H.5		E:T.H.5							X:10th St		E:10th	X:E Jct	I-94 WB

WB-Phase 2

RampName	E:T.H.3	X:T.H.3	E:T.H.36 EB		X:T.H.36 EB			E:T.H.5		X:T.H.5							E:10th St		X:10th	E:E Jct	I-94 CD WB
Ramp	O	O	O		O			O		O							O		O	O	
lane 1	<-			<-		<-	X		X		X		X	X	<-	<-		<-			<-
lane 2	<-			<-		<-	X		X		X		X	X	<-	<-		<-			<-
WB <--	S1420			S1419		S1418	S1417		S1416		S1415		S1414	S1413	S1412	S1411		S1410			S1027
Div																					
EB -->	S1397			S1398		S1399	S1400		S1401		S1402	S1403	S1404		S1405	S1406		S1407			S1028
lane 2	->			->		->	<-		<-		<-	<-	<-		->	X		->			->
lane 1	->			->		->	->		->		->	->	->		->	X		->			->
Ramp	O	O	O		O			O		O							O		O	O	
RampName	X:T.H.3	E:T.H.3	X:T.H.36 EB		E:T.H.36 EB			X:T.H.5		E:T.H.5							X:10th St		E:10th	X:E Jct	I-94 WB

WB-Phase 3

RampName	E:T.H.3	X:T.H.3	E:T.H.36 EB		X:T.H.36 EB			E:T.H.5		X:T.H.5							E:10th St		X:10th	E:E Jct I-94 CD WB	
Ramp	O	O	O		O			X		O							X		X	O	
lane 1	<-			<-		<-	X		X		X		X	X	<-	<-		X			<-
lane 2	<-			<-		<-	X		X		X		X	X	X	<-		X			<-
WB <--	S1420			S1419		S1418	S1417		S1416		S1415		S1414	S1413	S1412	S1411		S1410			S1027
Div																					
EB -->	S1397			S1398		S1399	S1400		S1401		S1402	S1403	S1404		S1405	S1406		S1407			S1028
lane 2	->			->		->	<-		X		<-	<-	<-		X	X		X			->
lane 1	->			->		->	->		X		->	->	X		->	X		X			->
Ramp	O	O	O		O			O		O							X		X	O	
RampName	X:T.H.3	E:T.H.3	X:T.H.36 EB		E:T.H.36 EB			X:T.H.5		E:T.H.5							X:10th St		E:10th	X:E Jct I-94 WB	

WB-Phase 4

RampName	E:T.H.3	X:T.H.3	E:T.H.36 EB		X:T.H.36 EB			E:T.H.5		X:T.H.5							E:10th St		X:10th	E:E Jct I-94 CD WB	
Ramp	O	O	O		O			X		O							X		O	O	
lane 1	<-			<-		<-	X		X		X		X	X	X	X		X			<-
lane 2	<-			<-		<-	X		X		X		X	X	X	X		X			X
WB <--	S1420			S1419		S1418	S1417		S1416		S1415		S1414	S1413	S1412	S1411		S1410			S1027
Div																					
EB -->	S1397			S1398		S1399	S1400		S1401		S1402	S1403	S1404		S1405	S1406		S1407			S1028
lane 2	->			->		->	<-		X		<-	<-	<-		<-	X		X			->
lane 1	->			->		->	->		X		->	->	X		->	X		X			->
Ramp	O	O	O		O			O		O							X		X	O	
RampName	X:T.H.3	E:T.H.3	X:T.H.36 EB		E:T.H.36 EB			X:T.H.5		E:T.H.5							X:10th St		E:10th	X:E Jct I-94 WB	

WB-Phase 5

RampName	E:T.H.3	X:T.H.3	E:T.H.36 EB		X:T.H.36 EB			E:T.H.5		X:T.H.5							E:10th St		X:10th	E:E Jct I-94 CD WB	
Ramp	O	O	O		O			X		X							X		O	X	
lane 1	<-			<-		<-	X		X		X		X	X	X	X		X			X
lane 2	<-			<-		<-	X		X		X		X	X	X	X		X			X
WB <--	S1420			S1419		S1418	S1417		S1416		S1415		S1414	S1413	S1412	S1411		S1410			S1027
Div																					
EB -->	S1397			S1398		S1399	S1400		S1401		S1402	S1403	S1404		S1405	S1406		S1407			S1028
lane 2	->			->		->	<-		X		<-	<-	X		<-	X		X			<-
lane 1	->			->		->	->		X		->	X	X		->	X		X			->
Ramp	O	O	O		O			O		O							X		X	O	
RampName	X:T.H.3	E:T.H.3	X:T.H.36 EB		E:T.H.36 EB			X:T.H.5		E:T.H.5							X:10th St		E:10th	X:E Jct I-94 WB	

WB-Phase 6

RampName	E:T.H.3	X:T.H.3	E:T.H.36 EB		X:T.H.36 EB			E:T.H.5		X:T.H.5							E:10th St		X:10th	E:E Jct I-94 CD WB	
Ramp	O	O	O		O			X		X							X		O	O	
lane 1	<-			<-		<-	X		X		X		X	X	X	X		X			<-
lane 2	<-			<-		<-	X		X		X		X	X	X	X		X			X
WB <--	S1420			S1419		S1418	S1417		S1416		S1415		S1414	S1413	S1412	S1411		S1410			S1027
Div																					
EB -->	S1397			S1398		S1399	S1400		S1401		S1402	S1403	S1404		S1405	S1406		S1407			S1028
lane 2	->			->		->	<-		X		<-	<-	X		<-	X		X			X
lane 1	->			->		->	->		X		->	X	X		->	X		X			->
Ramp	O	O	O		O			O		O							O		O	O	
RampName	X:T.H.3	E:T.H.3	X:T.H.36 EB		E:T.H.36 EB			X:T.H.5		E:T.H.5							X:10th St		E:10th	X:E Jct I-94 WB	

WB-Phase 7

RampName	E:T.H.3	X:T.H.3	E:T.H.36 EB		X:T.H.36 EB			E:T.H.5		X:T.H.5							E:10th St		X:10th	E:E Jct I-94 CD WB	
Ramp	O	O	O		O			O		O							O		O	O	
lane 1	<-			<-		<-	<-		X		<-		<-	<-	<-	<-		<-			<-
lane 2	<-			<-		<-	X		X		X		X	X	X	X		X			X
WB <--	S1420			S1419		S1418	S1417		S1416		S1415		S1414	S1413	S1412	S1411		S1410			S1027
Div																					
EB -->	S1397			S1398		S1399	S1400		S1401		S1402	S1403	S1404		S1405	S1406		S1407			S1028
lane 2	->			->		->	X		X		X	X	X		X	X		X			->
lane 1	->			->		->	->		X		->	X	X		->	X		X			->
Ramp	O	O	O		O			O		O							O		O	O	
RampName	X:T.H.3	E:T.H.3	X:T.H.36 EB		E:T.H.36 EB			X:T.H.5		E:T.H.5							X:10th St		E:10th	X:E Jct I-94 WB	

WB-Phase 8

RampName	E:T.H.3	X:T.H.3	E:T.H.36 EB		X:T.H.36 EB			E:T.H.5		X:T.H.5							E:10th St		X:10th	E:E Jct I-94 CD WB	
Ramp	O	O	O		O			O		O							O		O	O	
lane 1	<-			<-		<-	<-		X		<-		<-	<-	<-	<-		<-			<-
lane 2	<-			<-		<-	->		->		X		->	->	->	->		->			X
WB <--	S1420			S1419		S1418	S1417		S1416		S1415		S1414	S1413	S1412	S1411		S1410			S1027
Div																					
EB -->	S1397			S1398		S1399	S1400		S1401		S1402	S1403	S1404		S1405	S1406		S1407			S1028
lane 2	->			->		->	X		X		X	X	X		X	X		X			->
lane 1	->			->		->	X		X		X	X	X		X	X		X			->
Ramp	O	O	O		O			X		X							O		O	O	
RampName	X:T.H.3	E:T.H.3	X:T.H.36 EB		E:T.H.36 EB			X:T.H.5		E:T.H.5							X:10th St		E:10th	X:E Jct I-94 WB	

WB-Phase 9

RampName	E:T.H.3	X:T.H.3	E:T.H.36 EB		X:T.H.36 EB			E:T.H.5		X:T.H.5							E:10th St		X:10th	E:E Jct I-94 CD WB		
Ramp		O	O	O		O			O		O								O		O	O		
lane 1	<-				<-		<-	<-		<-		<-		<-	<-	<-	<-			<-			<-	
lane 2	<-				<-		<-	->		->		X		->	->	->	->			->			X	
WB <--	S1420				S1419		S1418	S1417		S1416		S1415		S1414	S1413	S1412	S1411			S1410			S1027	
Div																								
EB -->	S1397				S1398		S1399	S1400		S1401		S1402	S1403	S1404		S1405	S1406			S1407			S1028	
lane 2	->				->		->	X		X		X	X	X		X	X			X			->	
lane 1	->				->		->	X		X		X	X	X		X	X			X			->	
Ramp		O	O	O		O			X		X							O			O	O		
RampName		X:T.H.3	E:T.H.3	X:T.H.36 EB		E:T.H.36 EB			X:T.H.5		E:T.H.5							X:10th St			E:10th	X:E Jct I-94 WB	

WB-Phase 10

RampName	E:T.H.3	X:T.H.3	E:T.H.36 EB		X:T.H.36 EB			E:T.H.5		X:T.H.5							E:10th St		X:10th	E:E Jct I-94 CD WB		
Ramp		O	O	O		O			O		O								O		O	O		
lane 1	<-				<-		<-	<-		<-		<-		<-	<-	<-	<-			<-			<-	
lane 2	<-				<-		<-	X		X		X		X	X	X	X			X			X	
WB <--	S1420				S1419		S1418	S1417		S1416		S1415		S1414	S1413	S1412	S1411			S1410			S1027	
Div																								
EB -->	S1397				S1398		S1399	S1400		S1401		S1402	S1403	S1404		S1405	S1406			S1407			S1028	
lane 2	->				->		->	X		X		->	X	X		X	X			X			->	
lane 1	->				->		->	->		->		X	->	->		->	->			->			->	
Ramp		O	O	O		O			O		X							O			O	O		
RampName		X:T.H.3	E:T.H.3	X:T.H.36 EB		E:T.H.36 EB			X:T.H.5		E:T.H.5							X:10th St			E:10th	X:E Jct I-94 WB	

Site 13: I-35, Jul 2013 – Mar 2014 (2 to 1)

NB-Phase 1

RampName	X:210th St						E:Co Rd 60					X:Co Rd 60		E:Co Rd 50		X:Co Ri	E:Co Rd 46		X:Co Ri	E:Crystal Lake Rd	
Ramp		O					O					O		X		O	O		O	O	
lane 1	<-			X	X	<-	X			<-	<-			X		X			<-		<-
lane 2	<-			X	X	<-	X			<-	<-			X		X			<-		<-
lane 3																			<-		<-
SB <--	S1584			S1583	S1582	S1581	ST30000			S1580	S1579			ST762		S1578			S1097		S916
Div																					
NB -->	S1585		S1586	S1587		S1588					S1589	S1094				S1095			S1096		S910
lane 3																			->		X
lane 2	->		X	X		->					->	->				->			->		->
lane 1	->		X	X		->					->	->				->			->		X
Ramp		O					O	O				O		O		O	O		O	O	
RampName	E:210th St WB						X:Co Ri	E:Co Rd 60 EB				E:Co Rd 60		X:Co Rd 50		E:Co Ri	X:Co Rd 46		E:Co Ri	X:Crystal Lake Rd	

NB-Phase 2

RampName	X:210th St						E:Co Rd 60					X:Co Rd 60		E:Co Rd 50		X:Co Ri	E:Co Rd 46		X:Co Ri	E:Crystal Lake Rd	
Ramp		O					O					O		X		O	O		O	O	
lane 1	<-			X	<-	<-	<-			<-	<-			<-		<-			<-		<-
lane 2	<-			X	<-	<-	<-			<-	<-			<-		<-			<-		<-
lane 3																			<-		<-
SB <--	S1584			S1583	S1582	S1581	ST30000			S1580	S1579			ST762		S1578			S1097		S916
Div																					
NB -->	S1585		S1586	S1587		S1588					S1589	S1094				S1095			S1096		S910
lane 3																			->		X
lane 2	->		->	X		->					->	->				->			->		->
lane 1	->		->	X		->					->	->				->			->		->
Ramp		O					O	O				O		O		O	O		O	O	
RampName	E:210th St WB						X:Co Ri	E:Co Rd 60 EB				E:Co Rd 60		X:Co Rd 50		E:Co Ri	X:Co Rd 46		E:Co Ri	X:Crystal Lake Rd	

NB-Phase 3

RampName	X:210th St						E:Co Rd 60					X:Co Rd 60		E:Co Rd 50		X:Co Ri	E:Co Rd 46		X:Co Ri	E:Crystal Lake Rd	
Ramp		O					O					O		X		O	O		O	O	
lane 1	<-			<-	<-	<-	<-			<-	<-			<-		<-			<-		<-
lane 2	->			->	->	->	->			->	->			->		->			<-		<-
lane 3																			X		<-
SB <--	S1584			S1583	S1582	S1581	ST30000			S1580	S1579			ST762		S1578			S1097		S916
Div																					
NB -->	S1585		S1586	S1587		S1588					S1589	S1094				S1095			S1096		S910
lane 3																			->		X
lane 2	X		X	X		X					X	X				X			->		->
lane 1	X		X	X		X					X	X				X			->		->
Ramp		O					O	X				X		X		O	O		O	O	
RampName	E:210th St WB						X:Co Ri	E:Co Rd 60 EB				E:Co Rd 60		X:Co Rd 50		E:Co Ri	X:Co Rd 46		E:Co Ri	X:Crystal Lake Rd	

NB-Phase 4-8

RampName	X:210th St						E:Co Rd 60					X:Co Rd 60		E:Co Rd 50		X:Co Ri	E:Co Rd 46		X:Co Ri	E:Crystal Lake Rd	
Ramp		O					O					O		X		O	O		O	O	
lane 1	<-			<-	<-	<-	<-			<-	<-			<-		<-			X		<-
lane 2	X			X	X	<-	<-			<-	<-			<-		<-			X		<-
lane 3																			X		X
SB <--	S1584			S1583	S1582	S1581	ST30000			S1580	S1579			ST762		S1578			S1097		S916
Div																					
NB -->	S1585		S1586	S1587		S1588					S1589	S1094				S1095			S1096		S910
lane 3																			->		X
lane 2	->		->	->		X					X	X				->			->		->
lane 1	->		->	->		X					X	X				->			->		->
Ramp		O					O	O				O		O		O	O		O	O	
RampName	E:210th St WB						X:Co Ri	E:Co Rd 60 EB				E:Co Rd 60		X:Co Rd 50		E:Co Ri	X:Co Rd 46		E:Co Ri	X:Crystal Lake Rd	

SB-Phase 1

RampName	X:210th St						E:Co Rd 60					X:Co Rd 60		E:Co Rd 50		X:Co Ri	E:Co Rd 46		X:Co Ri	E:Crystal Lake Rd	
Ramp		O					O					O		O		O	O		O	O	
lane 1	<-			X	X	<-	X			<-	<-			X		X			<-		<-
lane 2	<-			X	X	<-	X			<-	<-			X		X			<-		<-
lane 3																			<-		<-
SB <--	S1584			S1583	S1582	S1581	ST30000			S1580	S1579			ST762		S1578			S1097		S916
Div																					
NB -->	S1585		S1586	S1587		S1588					S1589	S1094				S1095			S1096		S910
lane 3																			->		X
lane 2	->		X	X		->					->	->				->			->		->
lane 1	->		X	X		->					->	->				->			->		X
Ramp		O					O	O				O		O		O	O		O	O	
RampName	E:210th St WB						X:Co Ri	E:Co Rd 60 EB				E:Co Rd 60		X:Co Rd 50		E:Co Ri	X:Co Rd 46		E:Co Ri	X:Crystal Lake Rd	

SB-Phase 2

RampName	X:210th St						E:Co Rd 60					X:Co Rd 60		E:Co Rd 50		X:Co Rd	E:Co Rd 46		X:Co Rd	E:Crystal Lake Rd	
Ramp	O						O					O		O		O	O		O	O	
lane 1	<-			X	<-	<-	<-			<-	<-			<-		<-					<-
lane 2	<-			X	<-	<-	<-			<-	<-			<-		<-					<-
lane 3																		<-			<-
SB <--	S1584			S1583	S1582	S1581	ST30000			S1580	S1579			ST762		S1578			S1097			S916
Div																					
NB -->	S1585		S1586	S1587		S1588					S1589	S1094				S1095			S1096			S910
lane 3																		->			X
lane 2	->		X	X		X					->	->				->			->			->
lane 1	->		X	X		->					->	->				->			->			->
Ramp		O					O	O				O		O		O	O		O	O	
RampName	E:210th St WB						X:Co Rd	E:Co Rd 60 EB				E:Co Rd 60		X:Co Rd 50		E:Co Rd	X:Co Rd 46		E:Co Rd	X:Crystal Lake Rd	

SB-Phase 3

RampName	X:210th St						E:Co Rd 60					X:Co Rd 60		E:Co Rd 50		X:Co Rd	E:Co Rd 46		X:Co Rd	E:Crystal Lake Rd	
Ramp	O						O					O		X		O	O		O	O	
lane 1	<-			<-	<-	<-	<-			<-	<-			<-		<-					<-
lane 2	->			->	->	->	->			->	->			->		->			<-		<-
lane 3																		X			<-
SB <--	S1584			S1583	S1582	S1581	ST30000			S1580	S1579			ST762		S1578			S1097			S916
Div																					
NB -->	S1585		S1586	S1587		S1588					S1589	S1094				S1095			S1096			S910
lane 3																		->			X
lane 2	X		X	X		X					X	X				X			->			->
lane 1	X		X	X		X					X	X				X			->			->
Ramp		O					O	X				X		X		O	O		O	O	
RampName	E:210th St WB						X:Co Rd	E:Co Rd 60 EB				E:Co Rd 60		X:Co Rd 50		E:Co Rd	X:Co Rd 46		E:Co Rd	X:Crystal Lake Rd	

SB-Phase 4

RampName	X:210th St						E:Co Rd 60					X:Co Rd 60		E:Co Rd 50		X:Co Rd	E:Co Rd 46		X:Co Rd	E:Crystal Lake Rd	
Ramp	O						O					O		O		O	O		O	O	
lane 1	<-			<-	<-	<-	<-			<-	<-			<-		<-					<-
lane 2	<-			X	<-	<-	<-			<-	<-			<-		<-					<-
lane 3																		<-			X
SB <--	S1584			S1583	S1582	S1581	ST30000			S1580	S1579			ST762		S1578			S1097			S916
Div																					
NB -->	S1585		S1586	S1587		S1588					S1589	S1094				S1095			S1096			S910
lane 3																		->			X
lane 2	->		->	->		X					X	X				->			->			->
lane 1	->		->	->		X					X	X				->			->			->
Ramp		O					O	O				O		O		O	O		O	O	
RampName	E:210th St WB						X:Co Rd	E:Co Rd 60 EB				E:Co Rd 60		X:Co Rd 50		E:Co Rd	X:Co Rd 46		E:Co Rd	X:Crystal Lake Rd	

SB-Phase 5

RampName	X:210th St						E:Co Rd 60					X:Co Rd 60		E:Co Rd 50		X:Co Rd	E:Co Rd 46		X:Co Rd	E:Crystal Lake Rd	
Ramp	O						O					O		O		O	O		O	O	
lane 1	<-			<-	<-	<-	<-			<-	<-			<-		<-					<-
lane 2	X			X	X	<-	<-			<-	<-			<-		<-					<-
lane 3																		<-			X
SB <--	S1584			S1583	S1582	S1581	ST30000			S1580	S1579			ST762		S1578			S1097			S916
Div																					
NB -->	S1585		S1586	S1587		S1588					S1589	S1094				S1095			S1096			S910
lane 3																		->			X
lane 2	->		->	->		X					X	X				->			->			->
lane 1	->		->	->		X					X	X				->			->			->
Ramp		O					O	O				O		O		O	O		O	O	
RampName	E:210th St WB						X:Co Rd	E:Co Rd 60 EB				E:Co Rd 60		X:Co Rd 50		E:Co Rd	X:Co Rd 46		E:Co Rd	X:Crystal Lake Rd	

SB-Phase 6

RampName	X:210th St						E:Co Rd 60					X:Co Rd 60		E:Co Rd 50		X:Co Rd	E:Co Rd 46		X:Co Rd	E:Crystal Lake Rd	
Ramp	O						O					O		O		O	O		O	O	
lane 1	<-			<-	<-	<-	<-			<-	<-			<-		<-					<-
lane 2	<-			<-	<-	<-	<-			<-	<-			<-		<-					<-
lane 3																		<-			<-
SB <--	S1584			S1583	S1582	S1581	ST30000			S1580	S1579			ST762		S1578			S1097			S916
Div																					
NB -->	S1585		S1586	S1587		S1588					S1589	S1094				S1095			S1096			S910
lane 3																		->			X
lane 2	->		->	->		->					X	X				->			->			->
lane 1	->		->	->		->					X	X				->			->			->
Ramp		O					O	O				O		O		O	O		O	O	
RampName	E:210th St WB						X:Co Rd	E:Co Rd 60 EB				E:Co Rd 60		X:Co Rd 50		E:Co Rd	X:Co Rd 46		E:Co Rd	X:Crystal Lake Rd	

SB-Phase 7

RampName	X:210th St						E:Co Rd 60					X:Co Rd 60		E:Co Rd 50		X:Co R	E:Co Rd 46		X:Co R	E:Crystal Lake Rd	
Ramp		O					O					O		O		O	O		O	O	
lane 1	<-			<-	<-	<-	X			<-	<-			X		X			<-			<-	
lane 2	<-			<-	<-	<-	X			<-	<-			X		X			<-			<-	
lane 3																			<-			<-	
SB <--	S1584			S1583	S1582	S1581	ST30000			S1580	S1579			ST762		S1578			S1097			S916	
Div																							
NB -->	S1585		S1586	S1587		S1588					S1589	S1094				S1095			S1096			S910	
lane 3																			->			X	
lane 2	->		->	->		->					X	X				->			->			->	
lane 1	->		->	->		->					X	X				->			->			->	
Ramp		O					O	O				O		O		O	O		O	O			
RampName	E:210th St WB						X:Co R	E:Co Rd 60 EB				E:Co Rd 60		X:Co Rd 50		E:Co R	X:Co Rd 46		E:Co R	X:Crystal Lake Rd	

SB-Phase 8-11

RampName	X:210th St						E:Co Rd 60					X:Co Rd 60		E:Co Rd 50		X:Co R	E:Co Rd 46		X:Co R	E:Crystal Lake Rd	
Ramp		O					O					O		O		O	O		O	O	
lane 1	<-			<-	<-	<-	X			<-	<-			X		X			<-			<-	
lane 2	<-			<-	<-	<-	X			<-	<-			X		X			<-			<-	
lane 3																			<-			<-	
SB <--	S1584			S1583	S1582	S1581	ST30000			S1580	S1579			ST762		S1578			S1097			S916	
Div																							
NB -->	S1585		S1586	S1587		S1588					S1589	S1094				S1095			S1096			S910	
lane 3																			->			X	
lane 2	->		->	->		->					X	X				->			->			->	
lane 1	->		->	->		->					X	X				->			->			->	
Ramp		O					O	O				O		O		O	O		O	O			
RampName	E:210th St WB						X:Co R	E:Co Rd 60 EB				E:Co Rd 60		X:Co Rd 50		E:Co R	X:Co Rd 46		E:Co R	X:Crystal Lake Rd	

Appendix F: Sample Traffic Data for Capacity Estimation

WZ 01 NB (I-35E NB)

Site 1: I-35E, Jun-Jul 2013 (2 to 1)

2013-06-18

Time	S870		S871		ST30047		ST30048	
	K	Q	K	Q	K	Q	K	Q
05:15:00	6.37	412.00	5.02	376.00	14.69	532.00	12.93	540.00
05:30:00	9.99	628.00	8.64	596.00	24.17	792.00	21.01	812.00
05:45:00	14.39	948.00	11.81	860.00	36.25	1148.00	29.60	1088.00
06:00:00	15.17	956.00	12.85	884.00	37.97	1184.00	33.33	1236.00
06:15:00	21.81	1276.00	19.86	1200.00	70.10	1624.00	53.60	1560.00
06:30:00	18.63	1096.00	78.15	972.00	105.85	1420.00	73.76	1476.00
06:45:00	16.26	984.00	44.79	1048.00	95.93	1804.00	57.54	1836.00
07:00:00	18.36	936.00	16.47	820.00	74.18	1616.00	87.96	1644.00
07:15:00	18.52	924.00	12.99	840.00	62.70	1612.00	43.67	1612.00
07:30:00	23.20	1040.00	20.65	940.00	81.42	1780.00	60.08	1792.00
07:45:00	25.18	1152.00	74.09	872.00	97.50	1576.00	68.15	1636.00
08:00:00	42.60	1336.00	79.50	1004.00	88.44	1652.00	57.20	1696.00
08:15:00	38.17	1316.00	77.18	908.00	99.45	1524.00	62.55	1588.00
08:30:00	54.26	1152.00	82.70	784.00	100.40	1408.00	59.95	1464.00
08:45:00	39.05	1228.00	61.19	1072.00	92.03	1660.00	56.36	1676.00
09:00:00	24.19	1096.00	14.92	892.00	57.61	1424.00	46.91	1464.00
09:15:00	23.95	1108.00	17.21	908.00	60.15	1400.00	47.70	1380.00
09:30:00	22.85	1196.00	15.13	932.00	50.96	1360.00	43.34	1440.00
09:45:00	26.06	1196.00	17.26	924.00	59.73	1488.00	45.48	1376.00
10:00:00	23.40	1116.00	14.41	844.00	48.91	1236.00	41.92	1328.00

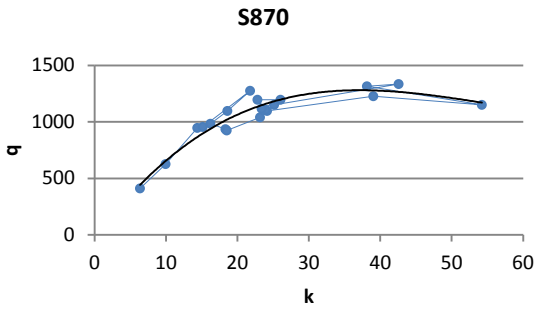
Time	S872		S873		S874		S875	
	K	Q	K	Q	K	Q	K	Q
05:15:00	7.22	520.00	9.65	548.00	9.03	540.00	7.38	516.00
05:30:00	10.74	776.00	13.60	744.00	12.82	732.00	10.94	748.00
05:45:00	15.14	1096.00	21.43	1076.00	17.76	1028.00	13.71	996.00
06:00:00	16.71	1208.00	36.20	1244.00	26.06	1284.00	19.74	1304.00
06:15:00	20.82	1508.00	33.75	1380.00	25.71	1352.00	20.38	1332.00
06:30:00	21.11	1520.00	36.86	1568.00	31.14	1580.00	23.93	1576.00
06:45:00	24.79	1796.00	53.37	1732.00	35.50	1696.00	25.28	1696.00
07:00:00	22.94	1656.00	45.47	1704.00	36.65	1700.00	25.89	1676.00
07:15:00	22.39	1616.00	31.87	1636.00	35.30	1704.00	27.46	1724.00
07:30:00	24.46	1772.00	39.49	1756.00	33.76	1700.00	26.14	1684.00
07:45:00	22.29	1612.00	32.00	1644.00	31.78	1664.00	25.60	1684.00
08:00:00	23.13	1668.00	32.81	1652.00	29.86	1640.00	23.90	1616.00
08:15:00	21.13	1528.00	30.60	1544.00	30.01	1576.00	24.52	1600.00
08:30:00	20.27	1464.00	29.45	1476.00	27.55	1448.00	22.04	1452.00
08:45:00	22.84	1652.00	32.39	1616.00	31.38	1628.00	25.38	1616.00

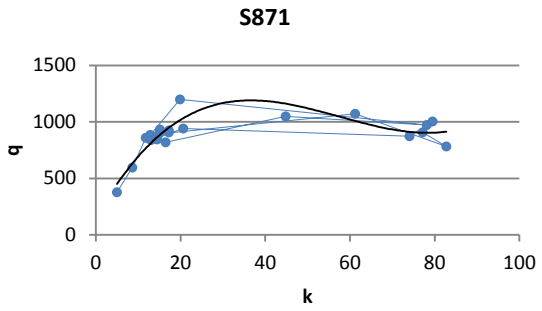
09:00:00	20.21	1464.00	30.38	1528.00	29.78	1532.00	24.66	1532.00
09:15:00	18.76	1364.00	27.80	1316.00	26.14	1316.00	21.81	1340.00
09:30:00	19.61	1420.00	28.00	1420.00	26.26	1420.00	21.76	1404.00
09:45:00	19.72	1424.00	28.28	1428.00	26.94	1424.00	22.94	1436.00
10:00:00	17.85	1296.00	26.26	1296.00	25.64	1312.00	21.62	1304.00

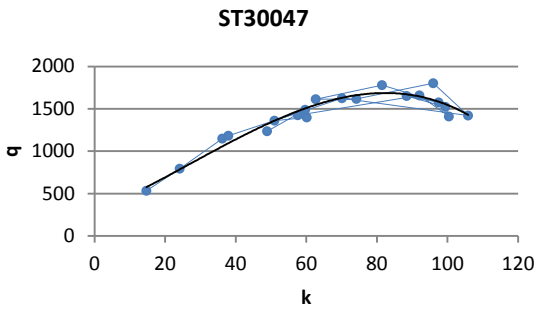
Time	ST30053		S876		ST30054		S877	
	K	Q	K	Q	K	Q	K	Q
05:15:00	6.44	264.00	2.41	166.00	2.93	158.00	2.11	160.00
05:30:00	10.13	412.00	3.92	268.00	4.66	248.00	3.48	242.00
05:45:00	10.44	472.00	4.46	332.00	5.72	328.00	4.53	346.00
06:00:00	15.62	652.00	6.67	466.00	7.90	442.00	6.04	434.00
06:15:00	18.48	780.00	7.83	556.00	9.33	532.00	7.47	548.00
06:30:00	19.57	832.00	9.15	640.00	11.37	632.00	8.56	636.00
06:45:00	22.92	1012.00	10.15	726.00	12.32	708.00	9.73	720.00
07:00:00	21.03	952.00	9.42	698.00	11.69	700.00	9.14	700.00
07:15:00	22.37	924.00	10.66	702.00	12.51	688.00	9.65	692.00
07:30:00	19.42	848.00	11.99	748.00	12.26	678.00	9.40	684.00
07:45:00	18.66	788.00	11.93	724.00	12.80	688.00	9.49	678.00
08:00:00	21.47	856.00	9.47	642.00	11.80	638.00	9.10	634.00
08:15:00	22.47	912.00	9.65	662.00	11.68	638.00	9.05	642.00
08:30:00	19.50	796.00	8.44	570.00	10.34	576.00	7.95	576.00
08:45:00	21.47	888.00	9.80	668.00	11.81	662.00	9.35	666.00
09:00:00	23.05	872.00	9.39	598.00	11.60	592.00	8.88	594.00
09:15:00	20.56	784.00	9.04	568.00	10.53	544.00	8.32	548.00
09:30:00	23.00	872.00	8.94	576.00	10.92	564.00	8.19	568.00
09:45:00	21.62	820.00	8.35	532.00	10.15	512.00	7.82	526.00
10:00:00	19.62	652.00	7.80	492.00	9.79	484.00	7.45	484.00

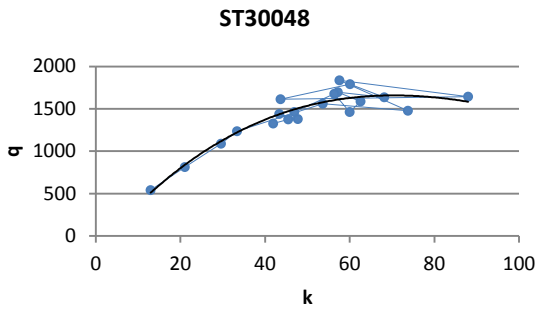
Time	S878		ST30056		S879		S880	
	K	Q	K	Q	K	Q	K	Q
05:15:00	2.83	198.00	3.45	190.00	2.52	184.00	3.78	254.00
05:30:00	4.48	334.00	5.18	290.00	4.16	292.00	5.52	384.00
05:45:00	5.35	412.00	6.92	428.00	5.59	436.00	6.81	494.00
06:00:00	6.75	502.00	8.91	522.00	6.93	516.00	8.61	620.00
06:15:00	8.04	610.00	10.84	642.00	8.61	652.00	10.21	750.00
06:30:00	10.98	850.00	14.42	874.00	11.86	906.00	13.20	966.00
06:45:00	13.35	1024.00	18.15	1078.00	14.53	1090.00	16.35	1182.00
07:00:00	14.41	1130.00	18.95	1198.00	15.24	1208.00	17.17	1252.00
07:15:00	13.16	998.00	17.05	1034.00	13.45	1030.00	17.41	1232.00
07:30:00	15.65	1218.00	20.46	1044.00	16.26	1248.00	19.58	1426.00
07:45:00	16.61	1258.00	20.94	1044.00	16.11	1230.00	19.99	1466.00
08:00:00	17.11	1264.00	19.76	1188.00	15.81	1194.00	20.91	1484.00
08:15:00	14.37	1038.00	17.58	1028.00	13.91	1028.00	19.11	1316.00

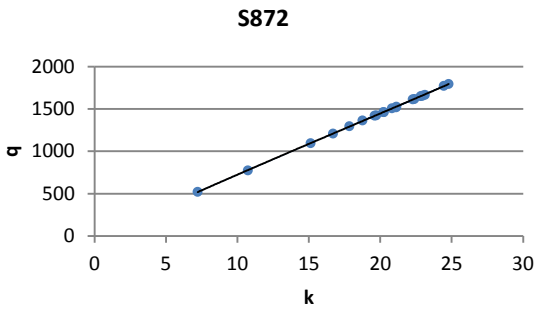
08:30:00	12.89	930.00	14.49	864.00	11.42	850.00	16.16	1084.00
08:45:00	12.96	952.00	16.76	984.00	13.39	994.00	17.11	1200.00
09:00:00	12.87	862.00	14.93	784.00	12.09	846.00	17.09	1094.00
09:15:00	10.78	740.00	13.06	660.00	10.18	706.00	14.07	914.00
09:30:00	11.12	788.00	13.51	720.00	10.23	710.00	13.28	908.00
09:45:00	10.27	728.00	11.97	642.00	9.38	664.00	13.42	896.00
10:00:00	10.36	694.00	12.10	562.00	9.10	624.00	12.57	816.00

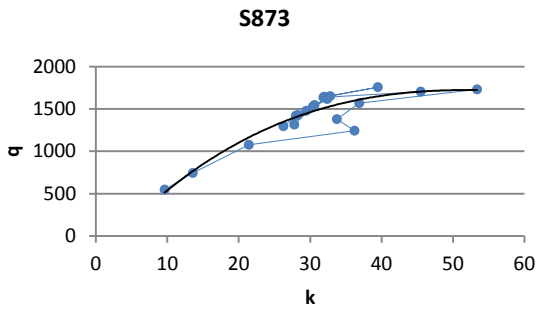


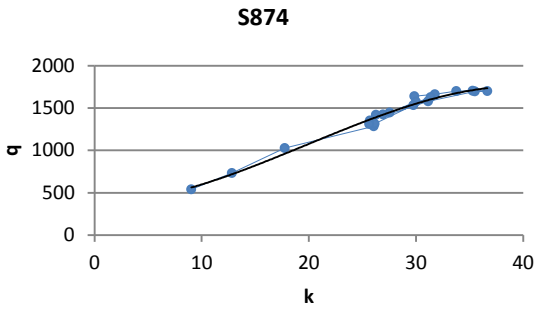


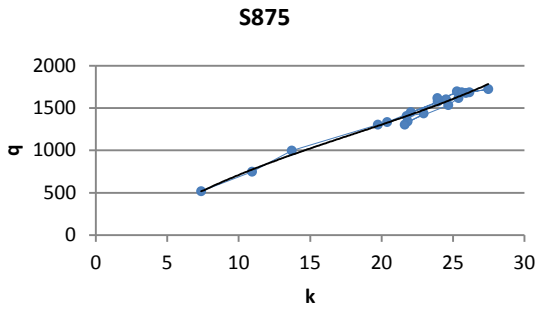


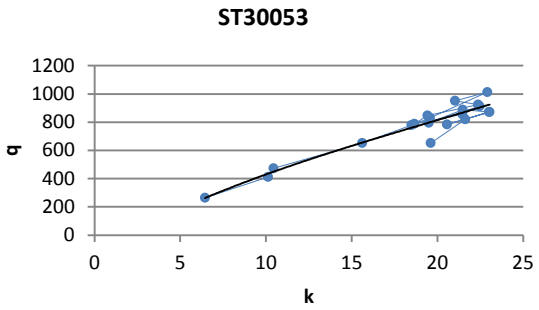








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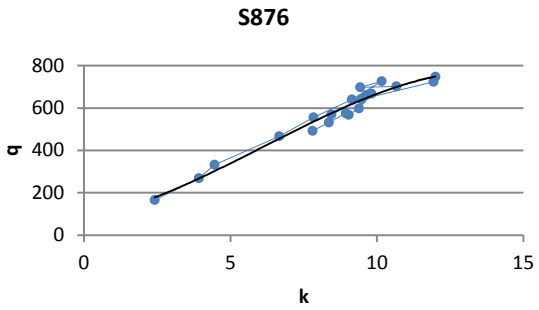
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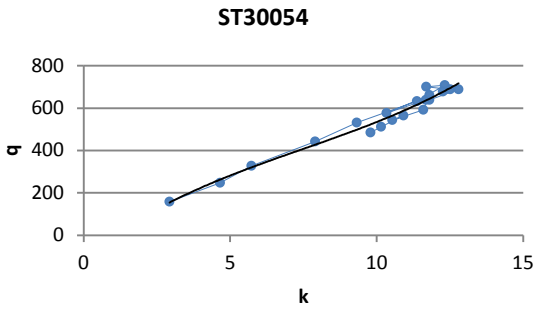
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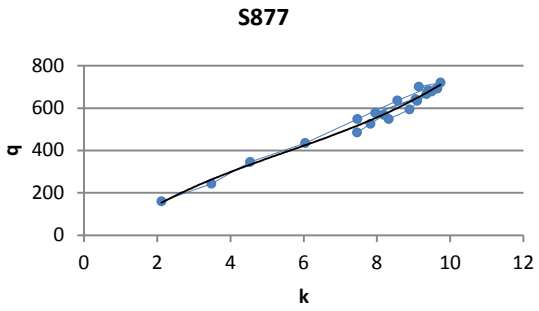
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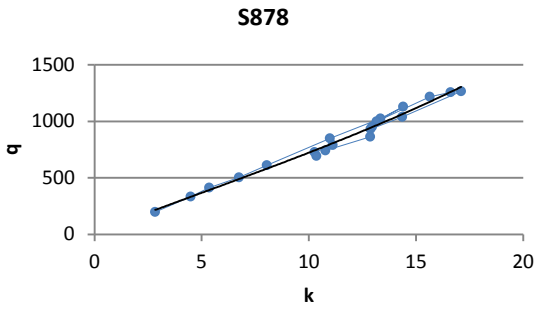
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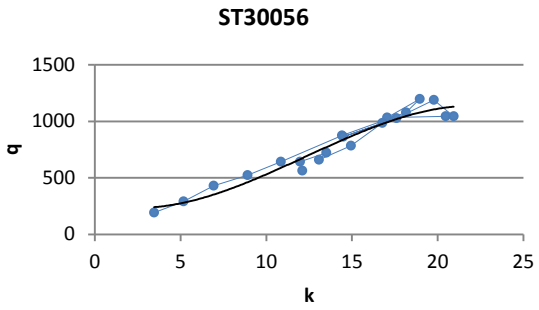
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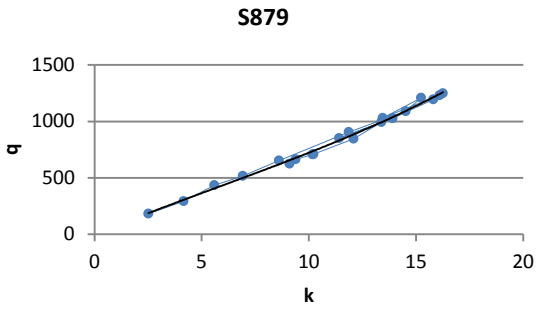
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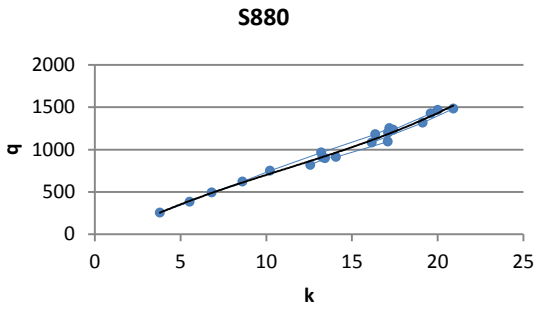
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2013-06-19

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05:30:00	10.06657	616	7.483056	568	21.18356	732	18.49467	768
05:45:00	17.79391	984	13.95167	880	44.74311	1212	34.98978	1164
06:00:00	17.64126	1056	14.41	976	43.956	1328	38.52933	1340
06:15:00	21.77928	1316	28.02556	1172	74.404	1496	57.47867	1464
06:30:00	20.12489	1060	68.81006	940	104.5098	1392	80.14356	1444
06:45:00	18.09508	968	82.82694	896	95.67556	1652	62.26489	1724
07:00:00	18.8707	936	85.00861	980	97.47467	1608	60.28	1672
07:15:00	18.67267	996	83.11417	748	96.052	1548	80.99422	1580
07:30:00	47.41191	904	94.96972	780	94.98133	1564	77.71867	1564
07:45:00	94.39475	892	98.51417	792	95.29422	1644	63.008	1708
08:00:00	84.35706	1044	88.26278	820	86.66044	1576	61.36044	1636
08:15:00	62.29311	1148	83.35556	988	91.36844	1680	62.14756	1692
08:30:00	29.2632	1152	86.23389	948	87.51111	1612	71.23111	1648
08:45:00	40.58809	1180	85.12167	928	103.5418	1488	81.96222	1524
09:00:00	26.13183	1176	53.55472	1020	91.85733	1564	69.57378	1600
09:15:00	22.24548	1060	15.50694	904	55.47911	1392	50.01333	1472
09:30:00	20.42194	1108	12.75389	840	50.53425	1316	41.97195	1308
09:45:00	20.81388	1052	16.24028	916	59.11678	1416	50.72571	1352
10:00:00	18.19822	952	10.66083	636	32.37422	928	30.55067	1008

Time	S872		S873		S874		S875	
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05:30:00	10.25455	740	12.98272	756	12.24795	744	10.7381	772
05:45:00	16.28283	1180	21.90807	1096	20.14539	1076	15.56063	1012
06:00:00	17.68889	1276	26.0699	1344	24.85218	1364	19.86635	1376
06:15:00	19.8303	1436	31.13846	1364	26.99775	1356	21.40984	1352
06:30:00	20.2101	1468	35.21671	1480	31.12263	1476	23.26762	1492
06:45:00	23.48283	1696	39.8925	1688	35.55628	1664	25.10095	1652
07:00:00	22.0202	1592	37.13466	1580	33.85803	1596	25.24413	1596
07:15:00	19.96768	1432	35.23343	1564	32.25479	1576	24.36063	1564
07:30:00	20.33131	1468	36.8547	1596	31.83914	1592	23.86476	1600
07:45:00	23.20808	1684	33.69991	1656	31.55016	1644	23.99397	1644
08:00:00	21.93131	1588	32.64691	1568	31.20972	1600	24.54571	1628
08:15:00	22.57778	1632	43.36904	1640	36.51426	1612	24.49333	1576
08:30:00	21.93939	1592	37.39373	1640	37.86811	1656	26.46635	1668
08:45:00	20.76768	1500	32.91852	1556	30.65551	1536	23.91714	1536
09:00:00	21.70505	1572	34.27236	1560	32.19937	1584	25.55841	1568
09:15:00	19.76566	1432	29.96847	1460	28.32785	1436	23.9381	1448
09:30:00	18.85253	1360	25.91529	1364	26.66919	1428	21.28413	1412

09:45:00	19.96768	1444	30.15651	1452	28.61682	1408	22.86952	1408
10:00:00	13.57576	980	19.73523	992	19.75349	1028	17.35206	1056

Time	ST30053		S876		ST30054		S877	
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05:30:00	9.015111	392	3.519086	246	4.255778	240	3.294523	238
05:45:00	12.62311	492	5.217844	350	6.294444	336	4.884129	340
06:00:00	18.41156	768	7.367984	506	9.320667	504	6.961504	502
06:15:00	18.50444	784	7.292192	516	8.929556	500	6.849224	494
06:30:00	19.91733	820	8.549007	612	10.73111	610	8.342346	620
06:45:00	21.08578	928	9.352332	702	11.64533	688	8.958132	682
07:00:00	21.74089	820	10.07935	664	11.83111	638	9.363629	656
07:15:00	22.31289	884	9.532162	648	11.79689	648	9.047751	646
07:30:00	20.17156	872	8.65113	628	10.74578	602	8.23694	600
07:45:00	20.76311	908	9.709764	696	11.86044	682	9.134252	684
08:00:00	21.53556	868	10.39667	702	12.69889	670	9.869869	698
08:15:00	19.25244	832	8.950634	650	11.24933	640	8.578414	646
08:30:00	21.34489	820	10.46843	692	12.452	668	9.703974	688
08:45:00	20.64578	812	9.199735	612	11.12222	590	8.563449	594
09:00:00	24.39556	916	9.820719	644	12.37133	626	9.334867	642
09:15:00	21.34489	744	9.479954	592	11.53289	566	8.705186	580
09:30:00	20.02	776	8.360563	562	9.904889	528	7.737556	536
09:45:00	18.99822	724	8.108804	518	10.04667	496	7.42973	510
10:00:00	16.04533	576	6.811214	408	8.765778	408	6.56039	422

Time	S878		ST30056		S879		S880	
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05:30:00	5.877333	456	5.341111	310	4.256794	306	5.814403	408
05:45:00	7.541333	568	7.223333	424	5.79741	436	7.075684	518
06:00:00	8.586667	616	9.738667	536	7.757042	546	9.141636	622
06:15:00	9.870222	760	10.64311	614	8.284707	614	10.3041	744
06:30:00	11.43467	908	14.52489	874	11.28368	856	12.86124	906
06:45:00	13.79556	1088	17.09644	1056	13.64572	1054	15.70976	1160
07:00:00	15.98933	1204	19.92467	1170	16.18731	1198	17.69073	1242
07:15:00	16.28089	1232	18.31133	1088	14.43101	1094	18.10591	1312
07:30:00	16.49067	1348	19.17911	1188	15.41215	1194	19.42909	1394
07:45:00	17.89867	1412	21.15667	1296	17.1593	1304	21.03659	1512
08:00:00	17.02756	1312	20.88044	1246	16.79728	1252	22.44152	1530
08:15:00	16.064	1272	17.92022	1088	14.19846	1094	18.18174	1302
08:30:00	16.00711	1144	17.14289	994	13.66394	1018	18.38889	1250
08:45:00	14.89422	1076	16.35578	930	12.62847	928	16.34001	1114
09:00:00	14.112	1004	16.50978	912	12.77637	910	17.12299	1134

09:15:00	12.89244	928	13.44444	750	10.56302	748	14.30714	988
09:30:00	12.20267	860	13.66933	752	10.26117	744	14.53471	954
09:45:00	11.89689	848	12.92378	700	9.92021	700	13.52759	898
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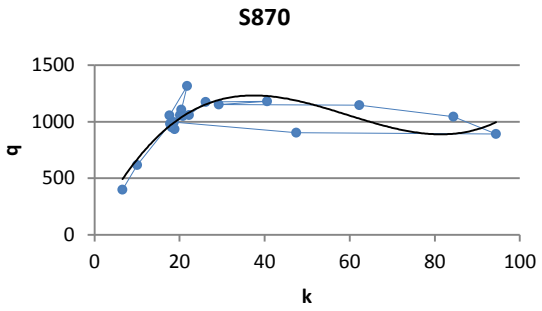

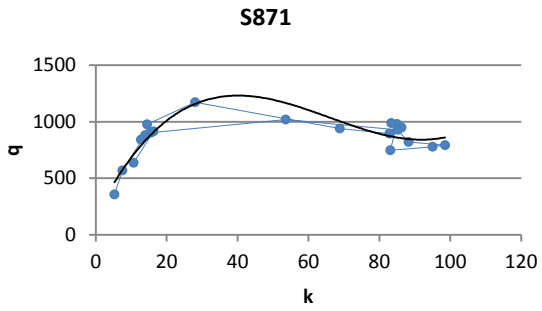

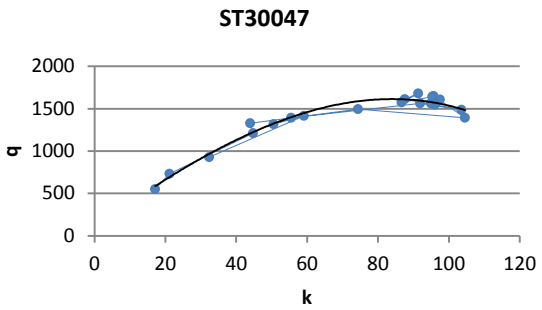

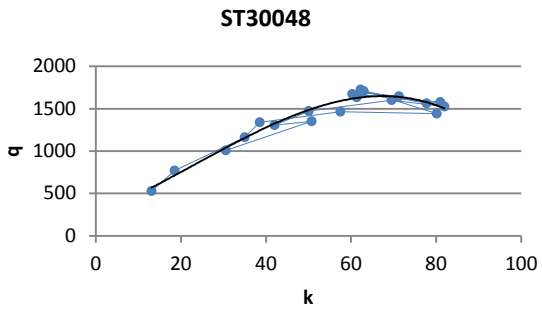

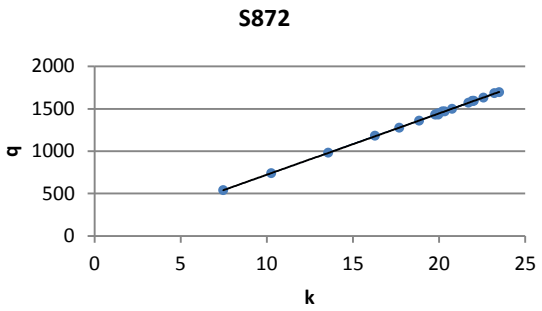

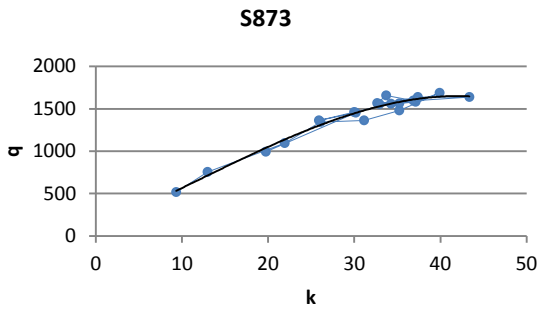

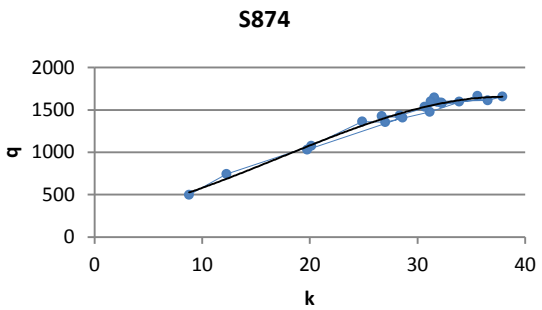

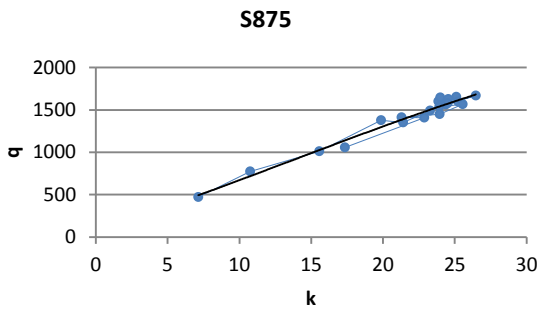

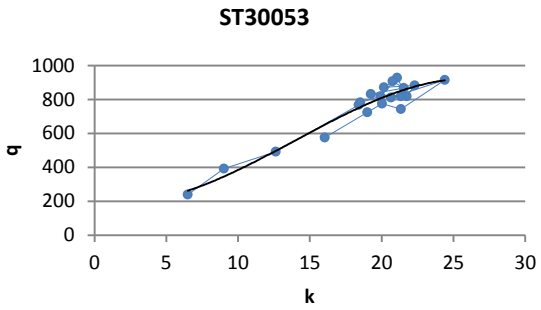
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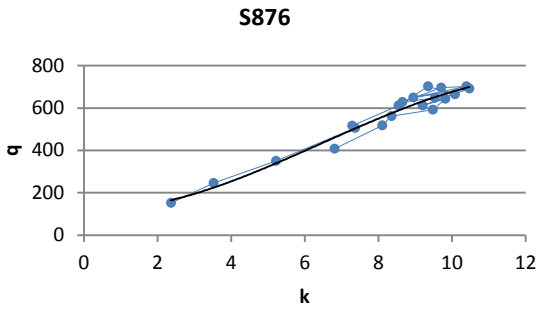
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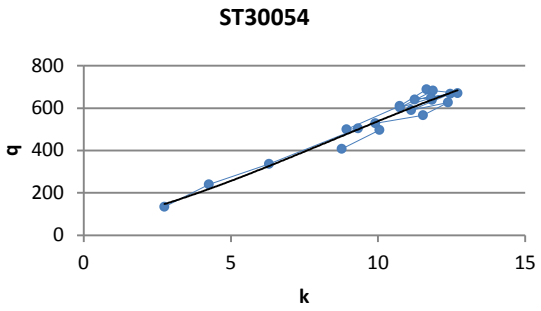
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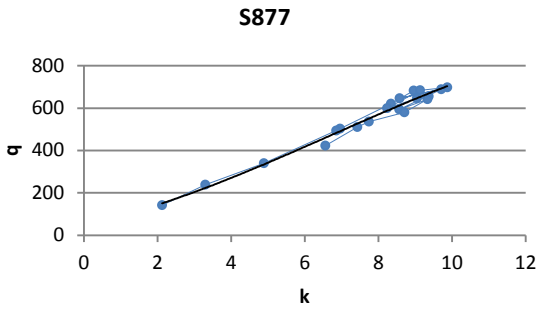
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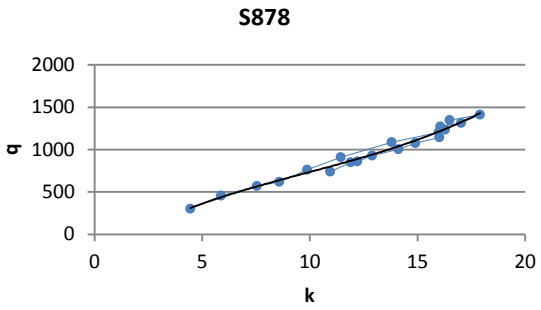
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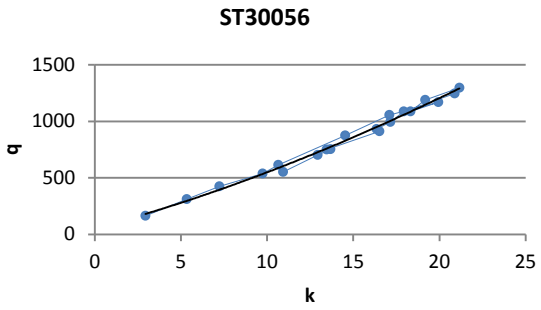
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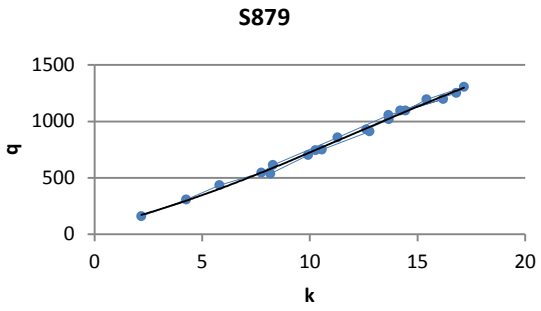
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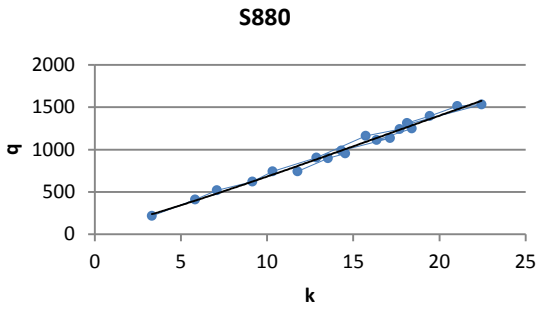
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