

2017

Annual Regional Congestion Report



EAST-WEST GATEWAY
Council of Governments

Creating Solutions Across Jurisdictional Boundaries

St. Louis Metropolitan Area

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2017

Annual Regional Congestion Report

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1 Introduction

The regional Congestion Management Process (CMP) is a systematic and regionally accepted approach for managing congestion that provides accurate and up-to-date information on transportation system performance. As an MPO for the St. Louis region with a population over 200,000, East-West Gateway is required to maintain a CMP as part of its ongoing transportation planning process.

The CMP is intended to be a systematic way of monitoring, measuring and diagnosing the causes of current and future congestion on a region's multi-modal transportation systems; evaluating and recommending alternative strategies to manage current and future regional congestion; and monitoring and evaluating the performance of strategies implemented to manage congestion.

The purpose of the MPO transportation planning process is to comprehensively consider possible strategies, evaluate projects from diverse viewpoints, and meaningfully involve key stakeholders to support strategic regional choices in congestion management, such as improving roadways, expanding transit capacity, encouraging bicycling, and ensuring safe walking environments. These congestion management strategies provide a connecting tissue between the Long-Range Transportation Plan (LRTP), the Transportation Improvement Plan (TIP), and the regional Intelligent Transportation Systems (ITS). The CMP is strongly connected to the LRTP by providing a set of congestion management objectives, performance measures, and strategies that make the plan comprehensive.

The CMP provides system performance information in evaluating projects nominated for inclusion in the TIP and the CMP objectives are integrated with the application scoring and prioritization process. Transportation systems management and operation for congestion management are implemented through Intelligent Transportation Systems (ITS) such as traffic signal improvements; traveler information projects; electronic fare systems, Automatic Vehicle Identification (AVI), and Automatic Vehicle Location (AVL) technologies. Also, proposed ITS projects are required to be consistent with the regional CMP strategies.

The 2017 Regional Congestion Report is comprised of six parts. The first three parts of the report deal with the extent of the monitored CMP network, performance measures employed, and data sources used, respectively. The fourth part explores roadways that pose significant mobility challenges. The fifth section summarizes the findings of the region's congested locations. The sixth section evaluates the impact of mobility-enhancing projects embarked upon by our partners. Finally, the report concludes with broader changes in congestion between 2016 and 2017.

2 Identify Congested CMP Network

For the purposes of this analysis, the morning peak-period is from 6 am to 9 am and the evening peak-period is from 3 pm to 6 pm. The source of data is explained in detail in part 4. All performance measures are calculated and compared based on data from these time periods. The process of identifying the congested network for this analysis involved a detailed visual inspection of Speed Index congestion on all National Highway System (NHS) roadways in the region depicted on the NHS map. This index is the ratio of average speeds to 85th-percentile speed, which represents free-flow speeds. Four thresholds are applied to the Speed Index to reveal the various categories of congestion from the system for both arterials and freeways.

The following two maps (Figures 1 and 2) aim to show the spatial extent of the CMP network considered for measuring congestion in the region rather than as an assessment of congestion. Of the 2,533 congested CMP network miles, arterials accounted for 1,641 miles while freeways represented 892 miles.

This inspection resulted in selection of congested roadways by direction and peak time (see Tables 1 and 2). These tables list the locations on both freeways and arterials that meet these criteria for the 3 hour AM or PM peak period. Arterials accounted for 81 miles of the congested roadways while freeways represented 285 miles. Some of these congested location are construction related. Appendix 2 outlines the work zones that may have congestion effects.

Figure 1: Arterial CMP Network

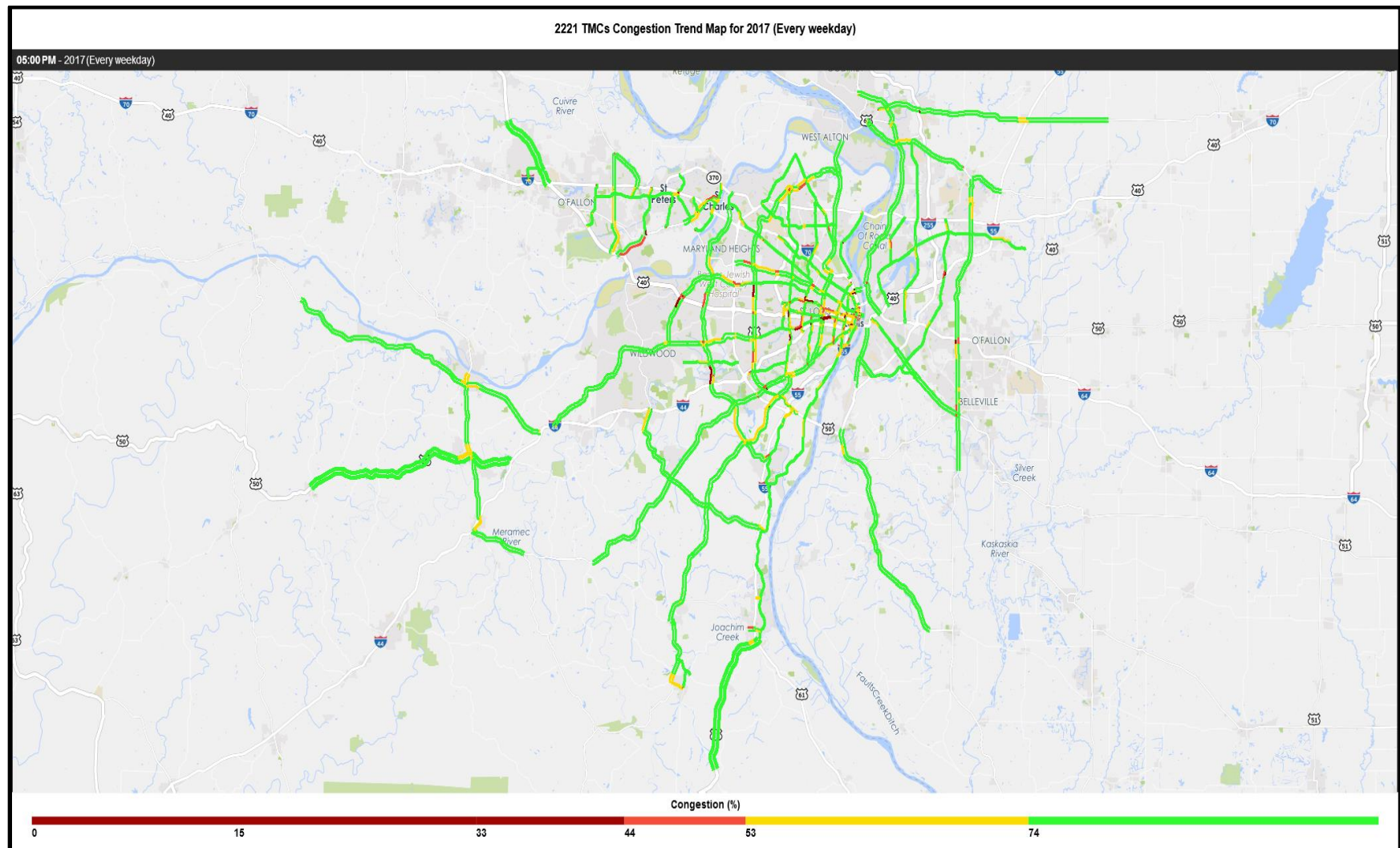


Figure 2: Freeway CMP Network

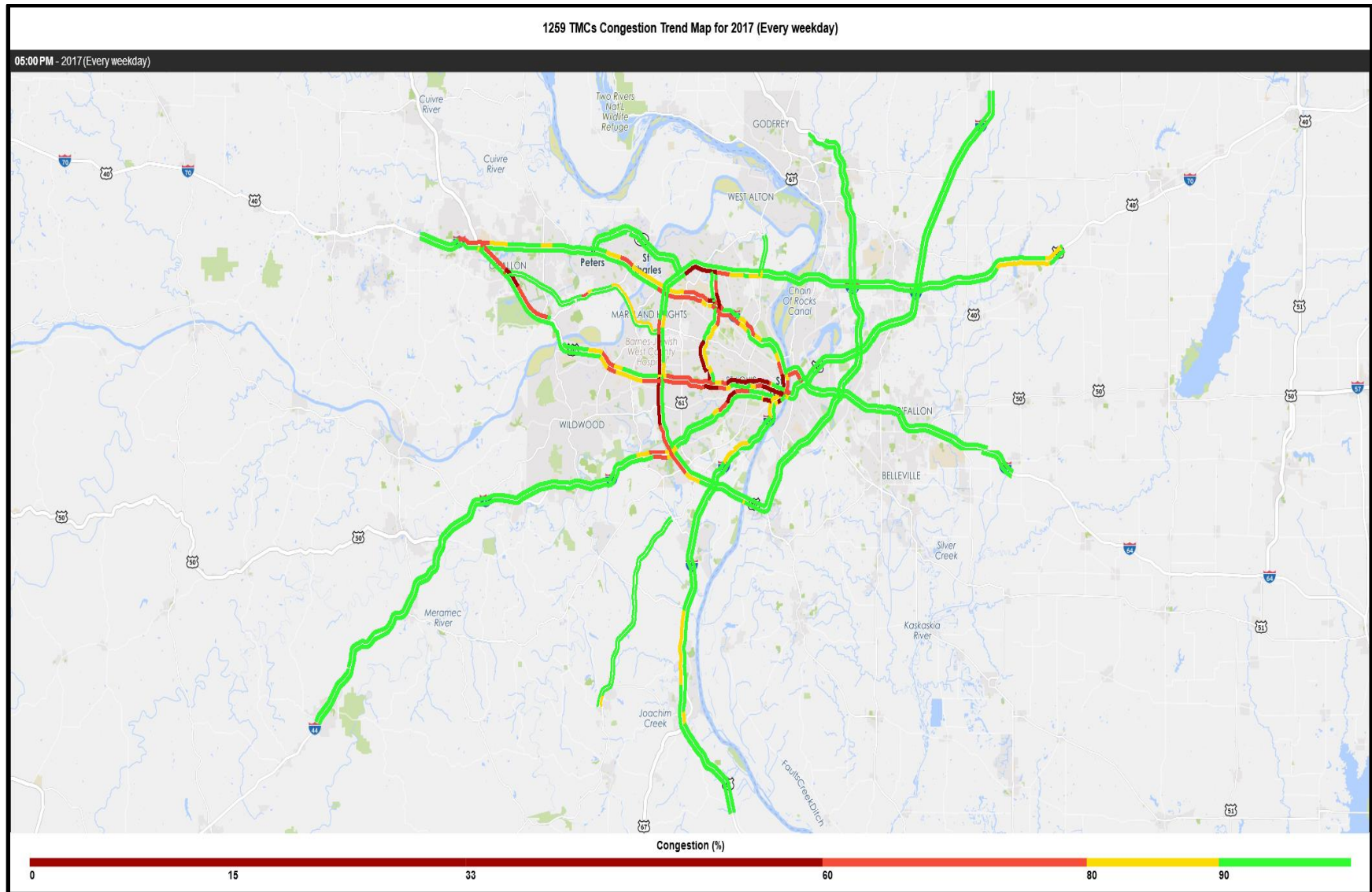


Table 1: Selected Congested Arterials

No.	Route	Limits	Direction	Peak	State	Queue Length
1	US-67	I-270 to Old Halls Ferry Rd	NB	PM	MO	5.59
2	MO-D	I-170 to Schuetz Rd	WB	PM	MO	4.28
3	MO-94	I-64/US-40/US-61 to Mid Rivers Mall Dr	NB	PM	MO	4.19
4	MO-K	I-70 to MO-364	SB	PM	MO	3.50
5	MO-94	N 5th Street to I-70	SB	PM	MO	3.49
6	IL-111	Forest Blvd to I-55/I-70/US-40	NB	AM	IL	3.01
7	IL-111	Forest Blvd to I-55/I-70/US-40	NB	PM	IL	3.01
8	KINGSHIGHWAY	Shaw to Delmar	NB	AM	MO	2.73
9	KINGSHIGHWAY	I-44 to Delmar	NB	PM	MO	2.38
10	MO-94	I-70/Veterans Memorial Pky/Bogey Rd to MO-364	SB	PM	MO	2.33
11	FOREST PARK AVE	I-64 to Kingshighway	WB	AM	MO	2.14
12	FOREST PARK AVE	I-64 to Kingshighway	WB	PM	MO	2.14
13	FOREST PARK AVE	Kingshighway to I-64	EB	AM	MO	2.05
14	FOREST PARK AVE	Kingshighway to I-64	EB	PM	MO	2.05
15	IL-143	IL-111 to IL-3	WB	AM	IL	2.05
16	IL-143	IL-111 to IL-3	WB	PM	IL	2.05
17	IL-157	Horseshoe Lake Rd to I-55/I-70/US-40	SB	PM	IL	1.92
18	IL-157	Horseshoe Lake Rd to I-55/I-70/US-40	SB	AM	IL	1.92
19	MO-141	Hawkins to Vance	NB	AM	MO	1.89
20	MO-141	Big Bend to I-44	SB	PM	MO	1.88
21	IL-157	I-55/I-70/US-40 to Horseshoe Lake Rd	NB	PM	IL	1.87
22	MO-141	MO-AB/Ladue Rd to I-64/US-40/US-61	SB	PM	MO	1.63
23	HANLEY/LACLEDE ST RD	Murdoch to MO-100/Manchester Rd	NB	AM	MO	1.55
24	MCCAUSLAND AVE	Arsenal to I-64	NB	AM	MO	1.44
25	MCCAUSLAND AVE	Arsenal to I-64	NB	PM	MO	1.44
26	MO-340	Chesterfield Pky North to Baxter Rd	SB	PM	MO	1.38
27	JEFFERSON	Arsenal to Park	NB	PM	MO	1.35
28	HANLEY	Shaw Park Dr to I-64/US-40/Eager Rd	SB	PM	MO	1.30
29	MCCAUSLAND AVE	I-64 to Arsenal	SB	PM	MO	1.30
30	JEFFERSON	Washington Blvd to Park Ave	SB	PM	MO	1.23
31	JEFFERSON	Washington Blvd to Park Ave	SB	AM	MO	1.23
32	IL-159	Main to IL-15	SB	PM	IL	1.21
33	IL-140	Washington Ave to IL-3	EB	AM	IL	1.15
34	IL-140	Washington Ave to IL-3	EB	PM	IL	1.15
35	LACLEDE ST RD	Union Pacific to Murdoch	SB	PM	MO	1.10
36	KINGSHIGHWAY	Laclede Ave to Manchester	SB	PM	MO	1.07
37	HAMPTON AVE	I-64/US-40 to I-44	SB	PM	MO	1.02
38	MO-100	Vandeventer to Kingshighway	WB	PM	MO	0.96
39	MO-100	Vandeventer to Kingshighway	WB	AM	MO	0.96
40	MO-100	Kingshighway to Vandeventer	EB	AM	MO	0.96
41	MO-100	Kingshighway to Vandeventer	EB	PM	MO	0.96
42	IL-140	CR-51 to I-55	WB	AM	IL	0.90
43	IL-140	CR-51 to I-55	WB	PM	IL	0.90
44	MO-100	McCausland to Big Bend	WB	AM	MO	0.83
45	MO-100	Big Bend to McCausland	EB	PM	MO	0.83
46	MO-100	McCausland to Big Bend	WB	PM	MO	0.83
47	SALISBURY ST	I-70 to Natural Bridge	WB	AM	MO	0.75
48	SALISBURY ST	I-70 to Natural Bridge	WB	PM	MO	0.75
49	MO-141	Marshall to I-44	SB	AM	MO	0.73
50	MO-D	Concourse to Schuetz	EB	AM	MO	0.50
51	LACLEDE ST RD	Big Bend to Murdoch	SB	AM	MO	0.49
52	SALISBURY ST	N FLORISSANT AVE to I-70	EB	PM	MO	0.49
53	SALISBURY ST	N FLORISSANT AVE to I-70	EB	AM	MO	0.49
54	SKINKER	Forest Park Pky to Delmar	SB	PM	MO	0.43
55	SKINKER	Forest Park Pky to Delmar	SB	AM	MO	0.43
56	SKINKER	Forest Park Pky to Delmar	NB	AM	MO	0.43
57	SKINKER	Forest Park Pky to Delmar	NB	PM	MO	0.43
58	MCCAUSLAND AVE	I-64 to Oakland	NB	AM	MO	0.29
59	MCCAUSLAND AVE	I-64 to Oakland	NB	PM	MO	0.29
TOTAL						91.65

Table 2: Selected Congested Freeways

No.	Route	Limits	Direction	State	Peak	Queue Length
1	I-270	I-70 to I-55/I-255/Exit 1	SB	MO	PM	21.00
2	I-64	Chesterfield Pky/Exit 20 to McCausland Ave/Exit 33	EB	MO	PM	14.00
3	I-270	I-55/I-255/Exit 1 to MO-100/Manchester Rd./Exit 9	NB	MO	AM	10.00
4	I-64	MO-K to I-70	WB	MO	PM	10.00
5	I-70	Zumbehl/Exit 227 to Natural Bridge Rd/Exit 237/Exit 238	EB	MO	AM	9.22
6	I-70	Lake St Louis Blvd/Exit 214 to MO-79/Exit 220	EB	MO	AM	8.50
7	I-64	I-270/Exit 25 to McCausland to Ave/Exit 33	EB	MO	AM	7.80
8	I-70	I-270/Exit 231 to Cave Springs/Exit 225	WB	MO	PM	7.34
9	I-270	Lilac/Exit 33 to Elizabeth/Washington St/Exit 28	WB	MO	AM	6.76
10	I-70	MO-A/Exit 212 to Pearce Blvd/Exit 208	WB	MO	PM	5.70
11	I-64	Kingshighway/Exit 36 to I-170/Brentwood Blvd/Exit 31	WB	MO	AM	5.52
12	I-70	I-170/Exit 238 to MO-180/St Charles Rock/Exit 234	WB	MO	PM	5.44
13	I-270	McDonnell Blvd/Exit 23 to Elizabeth-Washington St/Exit 28	EB	MO	PM	5.40
14	I-70/I-44/I-55	Stan Musial Brg. to Park	EB-WB-NB	MO	PM	3.45
15	I-64	I-170/Brentwood Blvd/Exit 31 to I-270/Exit 25	WB	MO	PM	5.15
16	I-170	I-64 to MO-D	SB	MO	AM	4.49
17	I-64	Kingshighway/Exit 36 to I-55/I-70/US-40	EB	MO	PM	4.46
18	I-64	Chesterfield Pky/Exit 20 to Boones Crossing/Exit 17	WB	MO	PM	4.35
19	I-170	MO-180/St Charles Rock/Exit 5 to Hanley Rd/Exit 9	NB	MO	PM	4.33
20	I-170	I-64 to MO-D	SB	MO	PM	4.18
21	I-270	Dorsett Rd/Exit 17 to MO-AB/Ladue Rd/Exit 13	SB	MO	AM	4.13
22	I-64, I-55/I-64	Baugh Ave. to Poplar St Brg.	WB	IL	AM	4.12
23	I-44/I-55	Grand Ave/Exit 247 to I-44/I-55/Gravois/Exit 207	EB-SB	MO	PM	3.84
24	I-44	I-270/Exit 276 to MO-141/Exit 272	WB	MO	PM	3.77
25	I-44	Bowles Ave/Exit 274 to US-50/US-61/US-67/ Exit 277	EB	MO	PM	3.70
26	I-70	Shreve/Exit 245 to Lucas & Hunt Rd/Exit 241	WB	MO	PM	3.61
27	I-64	Baxter to Timberlake Manor Pky/Exit 21	EB	MO	AM	3.56
28	I-70	Kingshighway/Exit 244 to Lucas & Hunt Rd/Exit 241	WB	MO	AM	3.07
29	I-44	Bowles Ave/Exit 274 to Highway Dr/Exit 275	EB	MO	AM	3.00
30	I-44	Hampton/Exit 286 to Shrewsbury/Exit 283	WB	MO	PM	2.92
31	I-55	Potomac to Park Ave/7Th St/Exit 208	NB	MO	AM	2.89
32	I-44	Tenth St/Exit 249 to I-55/I-64/US-40/Exit 251	WB	MO	AM	2.02
TOTAL						187.72

2.1 Selected Congested Locations on Arterials

Figures 7 to 18 show the spatial distribution of Speed Index in the region by peak time. The figures depict the hourly progression of congestion in contrast to the performance measures which are calculated based on the 3 hour peak periods. They depict how the congestion increases and decreases during the peak hours at the various locations. Please note that some locations on these maps show as congested for short periods that are not included in the list of congested locations because they do not meet the thresholds for the 3 hour peak.

Arterial Congestion Thresholds (Speed Index)

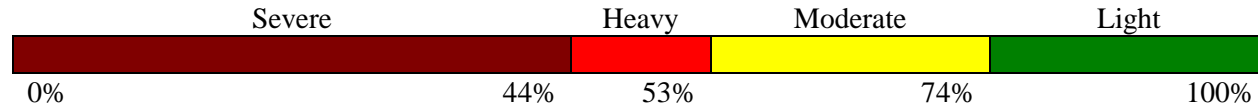


Figure 7: Spatial Distribution of Congested Arterial Locations (6-7 AM)

2221 TMCs Congestion Trend Map for 2017 (Every weekday)

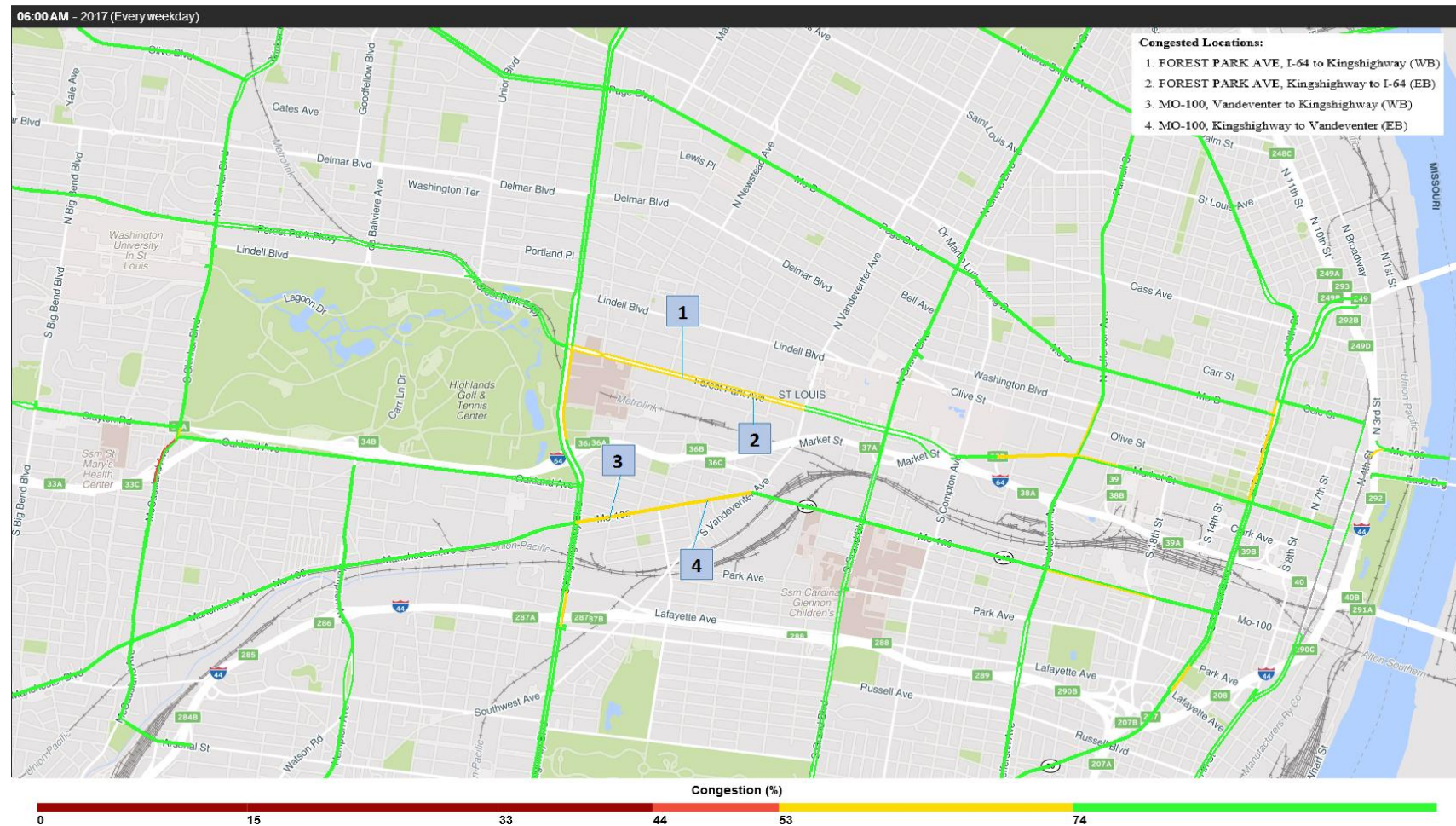


Figure 8: Spatial Distribution of Congested Arterial Locations (7-8 AM)

2221 TMCs Congestion Trend Map for 2017 (Every weekday)

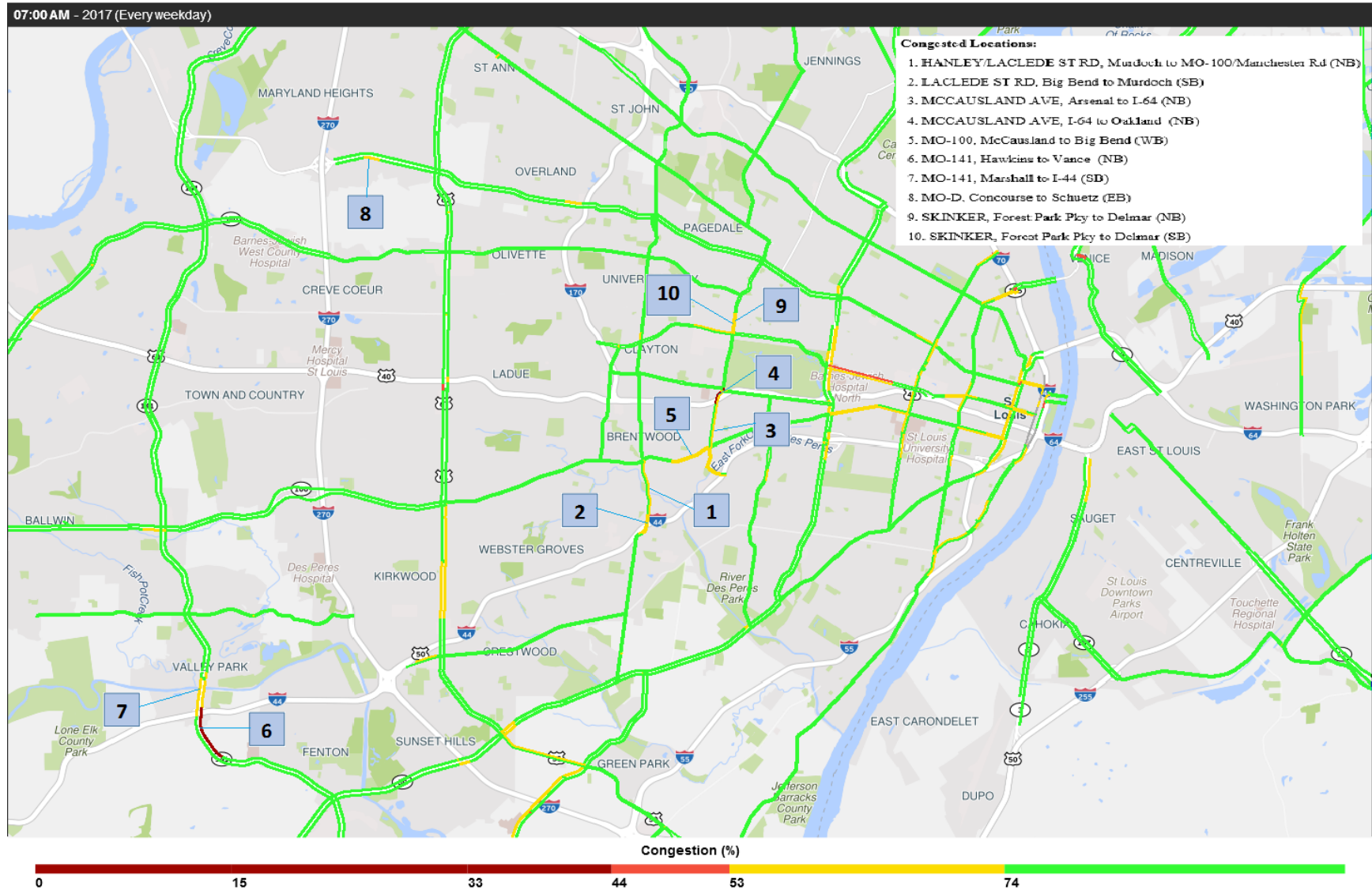


Figure 9: Spatial Distribution of Congested Arterial Locations (8-9 AM)

2221 TMCs Congestion Trend Map for 2017 (Every weekday)

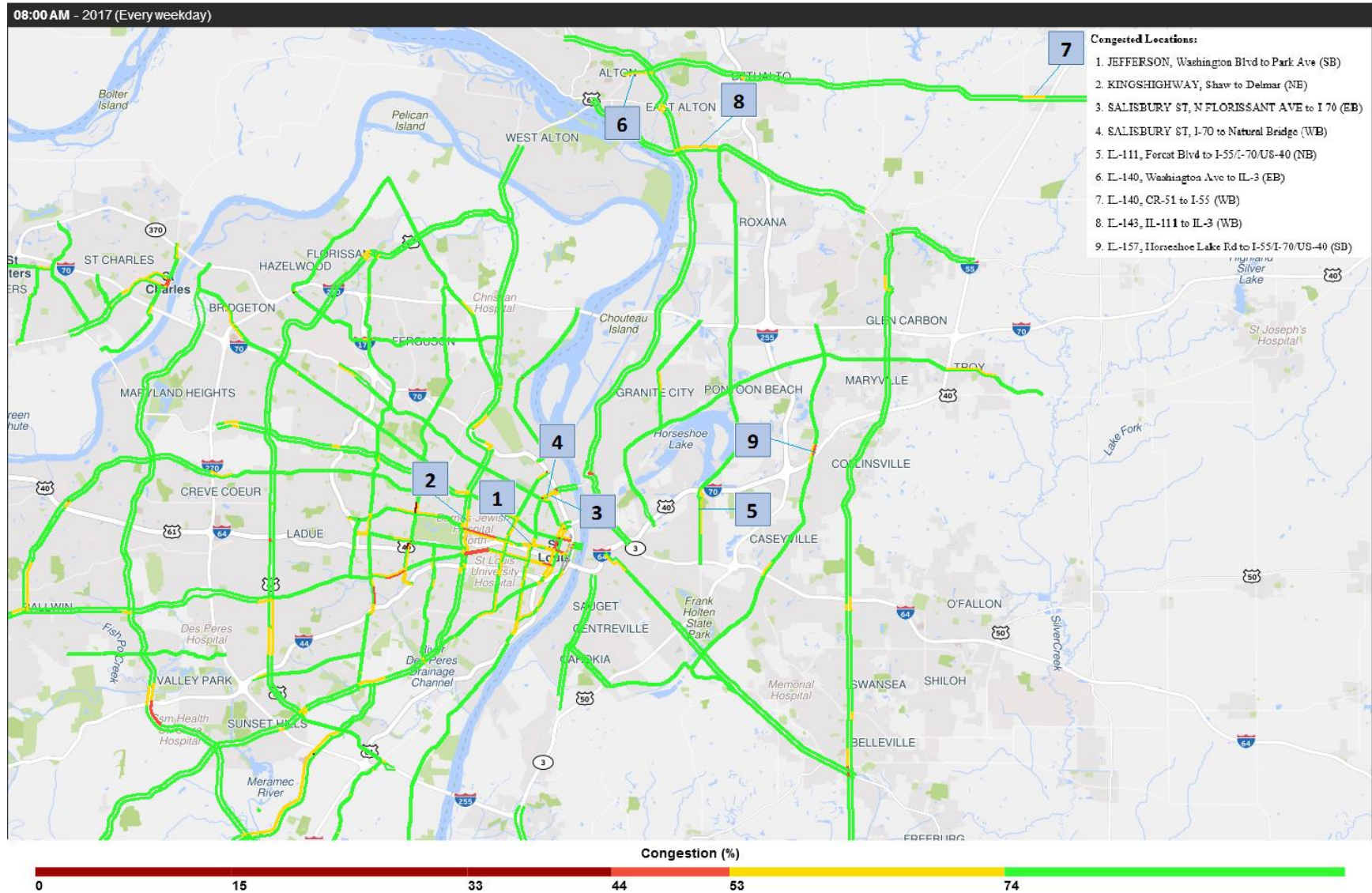


Figure 10: Spatial Distribution of Congested Arterial Locations (3-4 PM)

2221 TMCs Congestion Trend Map for 2017 (Every weekday)

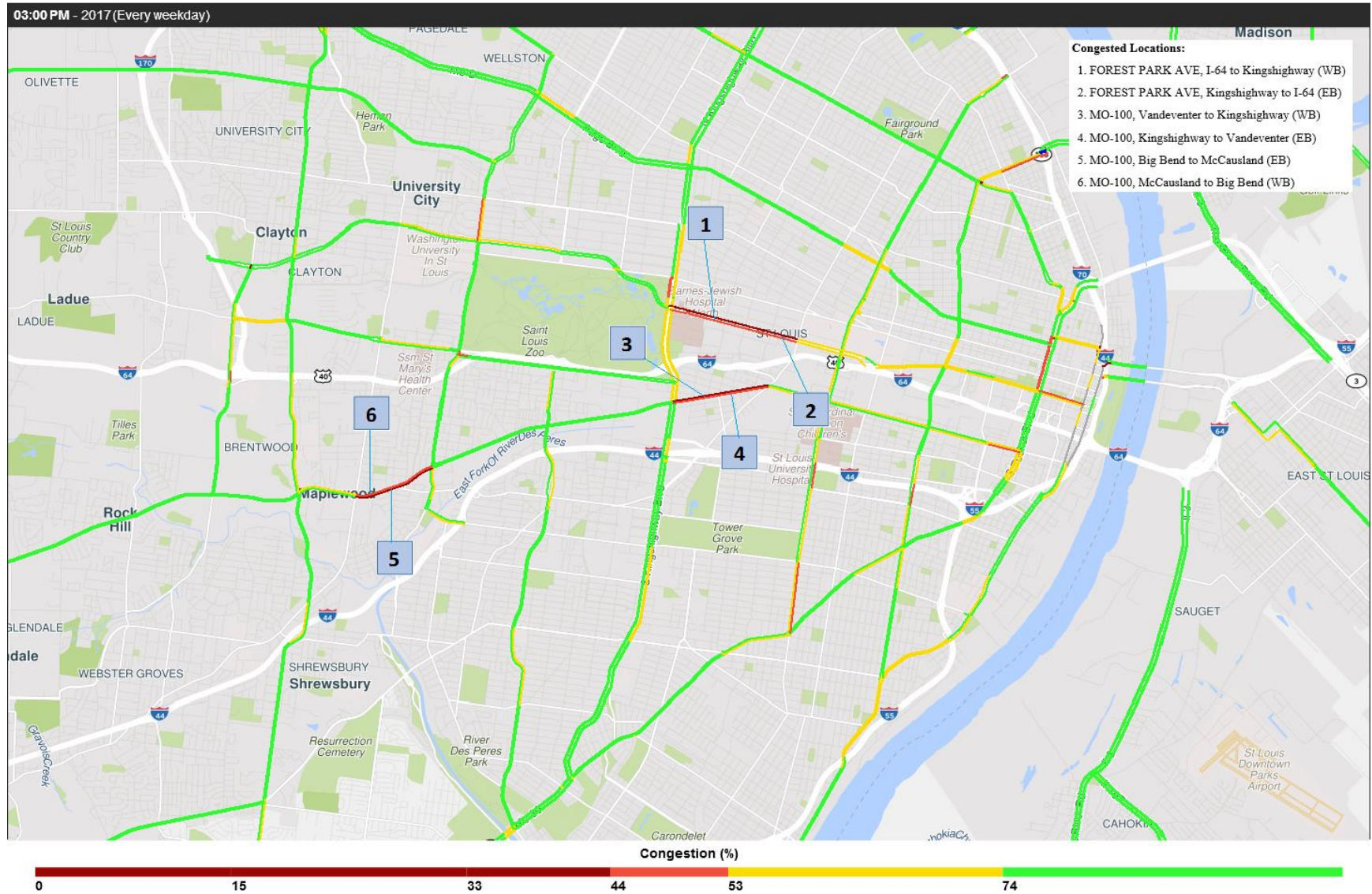


Figure 11: Spatial Distribution of Congested Arterial Locations (4-5 PM)

2221 TMCs Congestion Trend Map for 2017 (Every weekday)

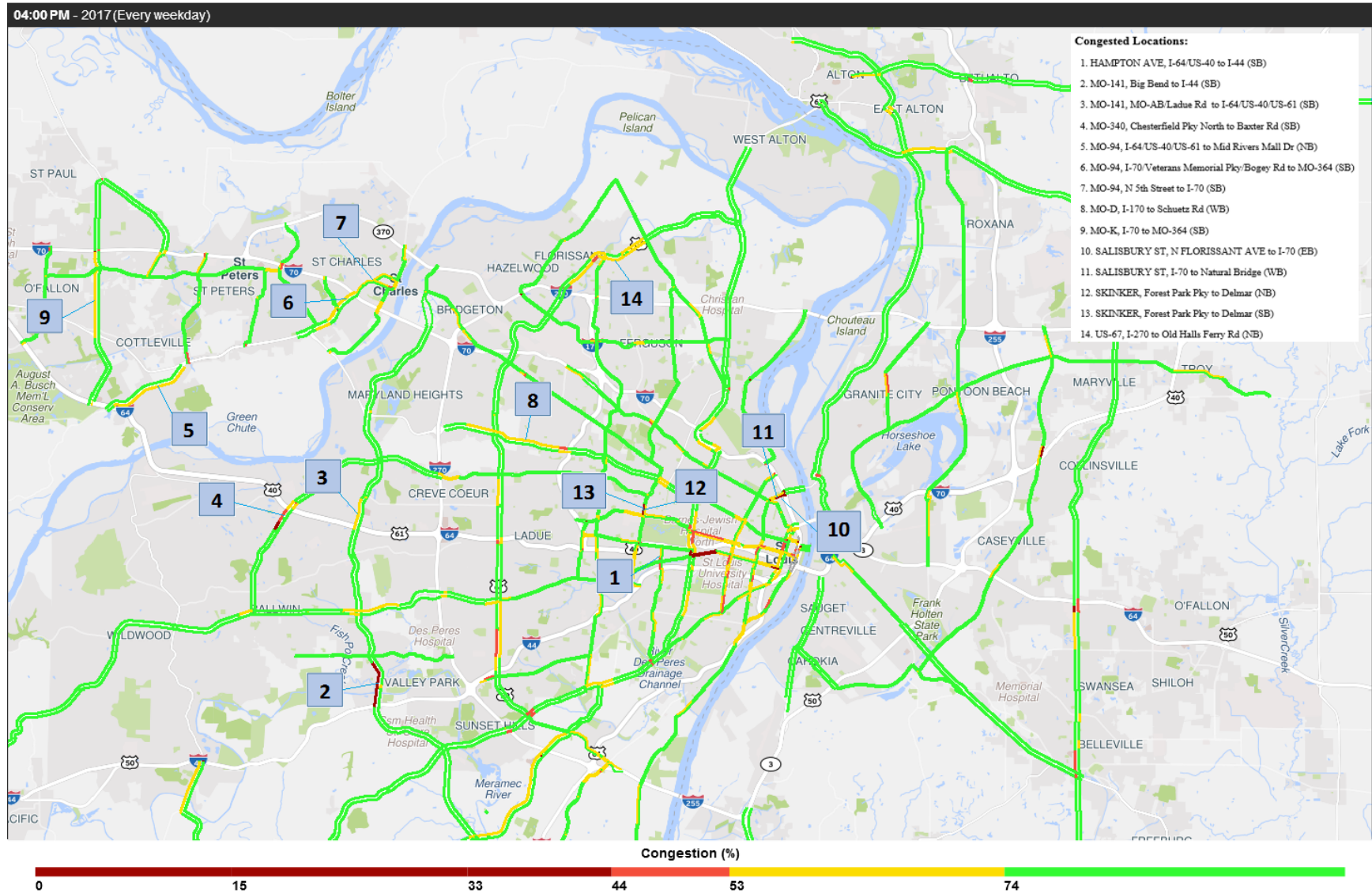
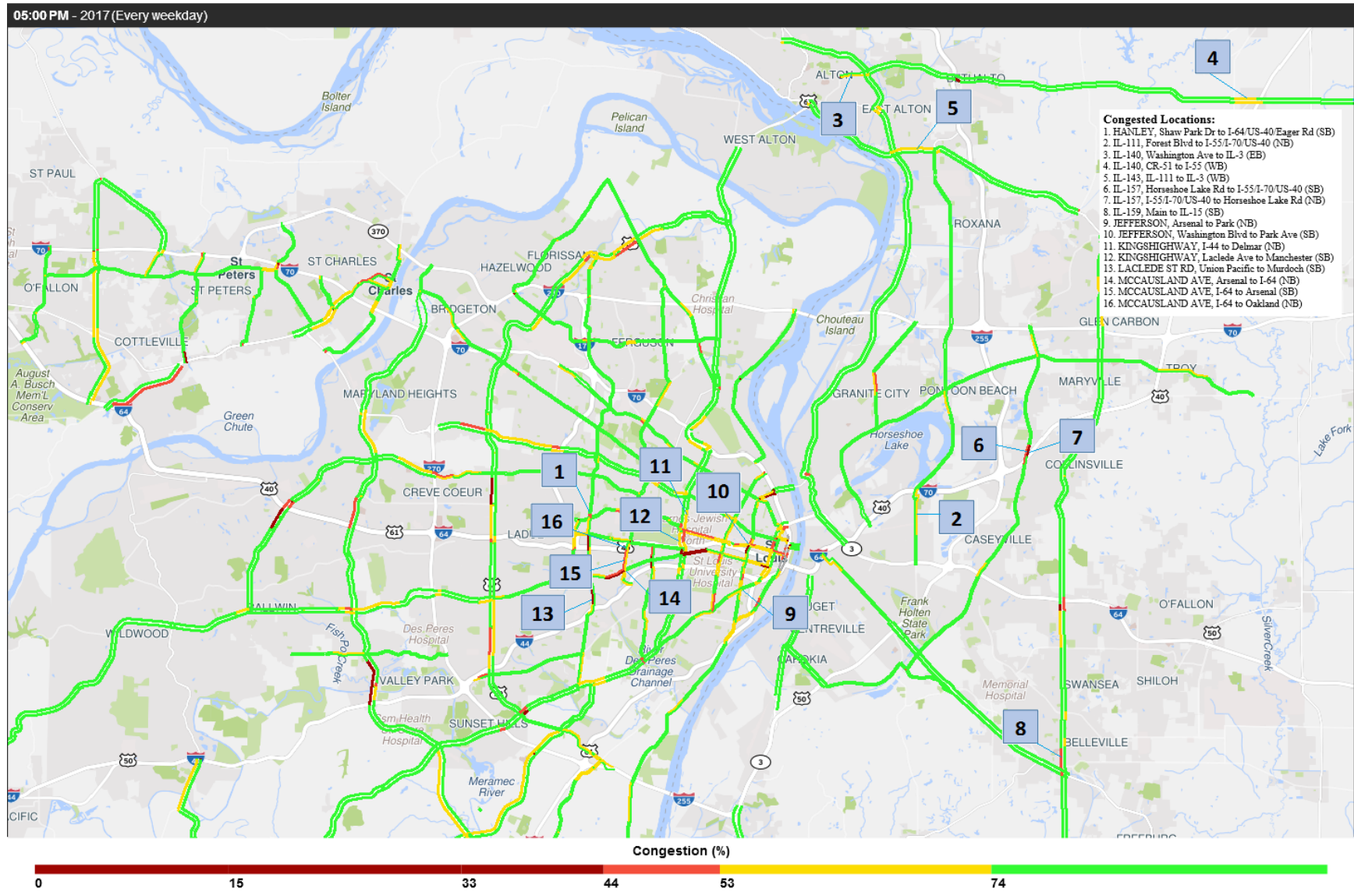


Figure 12: Spatial Distribution of Congested Arterial Locations (5-6 PM)

2221 TMCs Congestion Trend Map for 2017 (Every weekday)



2.2 Selected Congested Locations on Freeways

Freeway Congestion Thresholds (Speed Index)

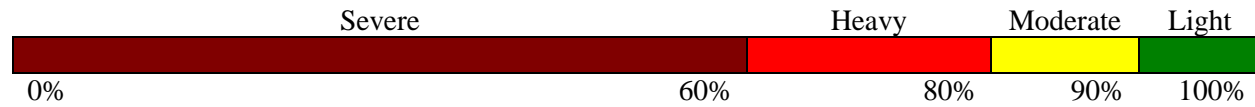


Figure 13: Spatial Distribution of Congested Freeway Locations (6-7 AM)

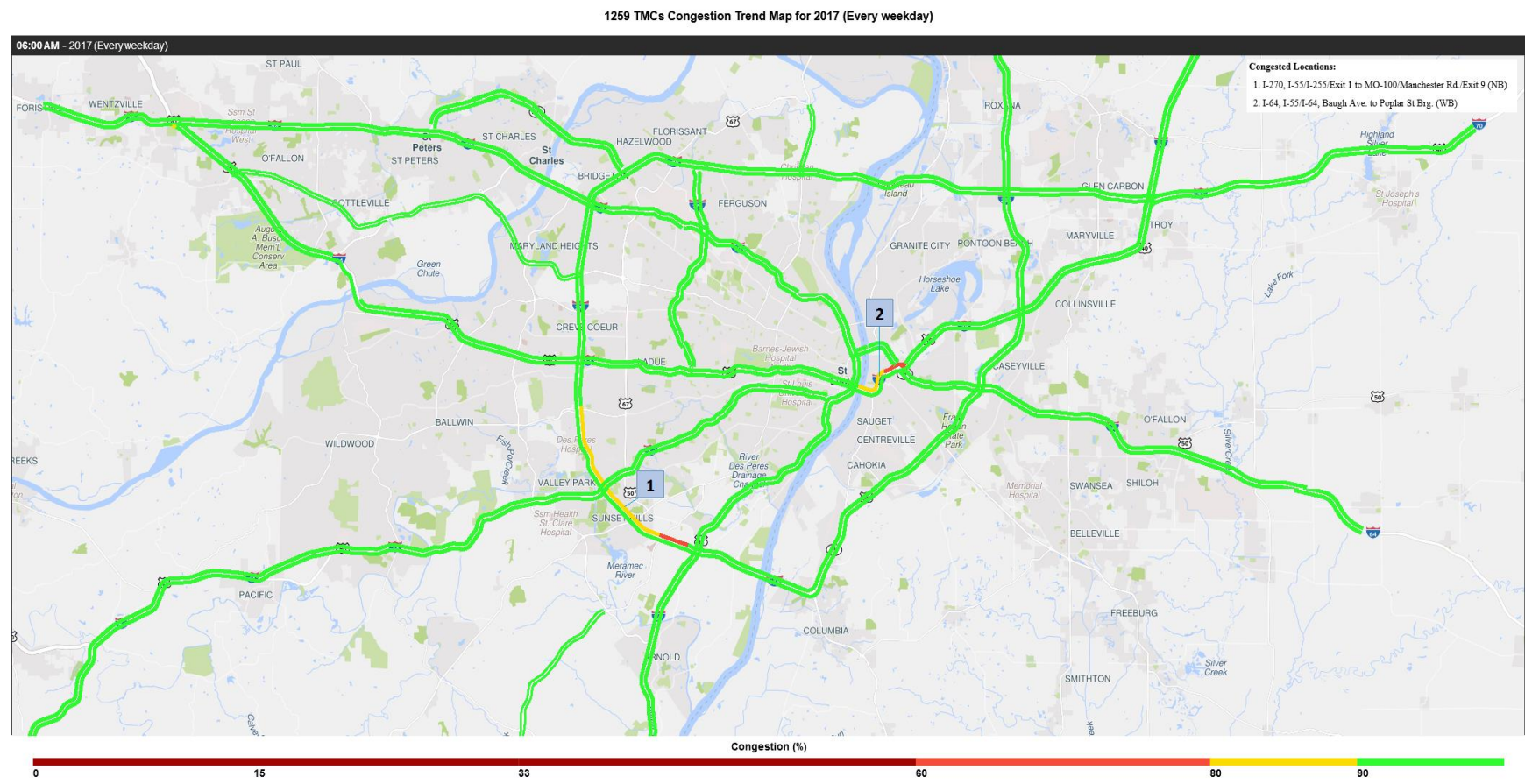


Figure 14: Spatial Distribution of Congested Freeway Locations (7-8 AM)

1259 TMCs Congestion Trend Map for 2017 (Every weekday)

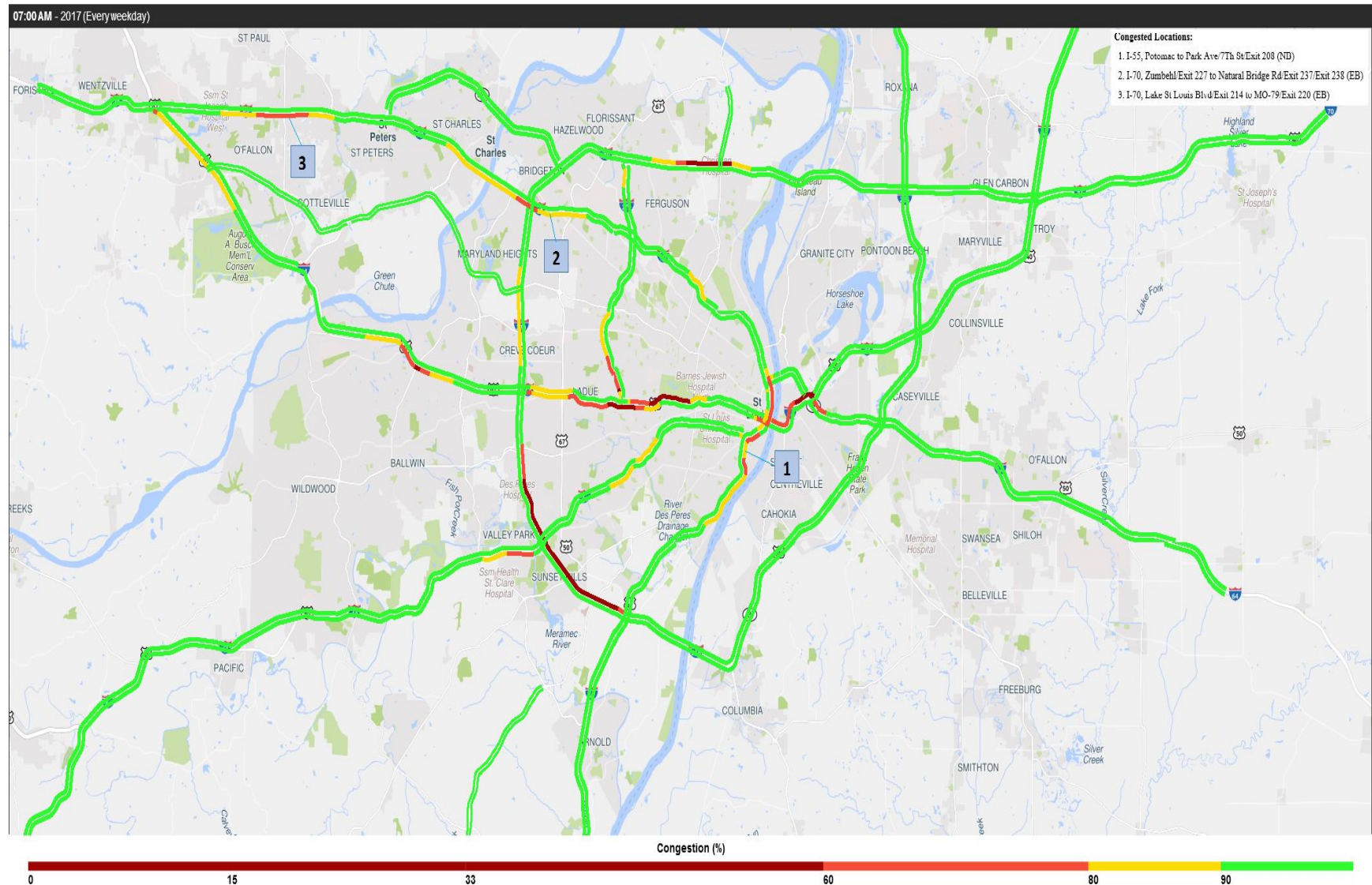


Figure 15: Spatial Distribution of Congested Freeway Locations (8-9 AM)

1259 TMCs Congestion Trend Map for 2017 (Every weekday)

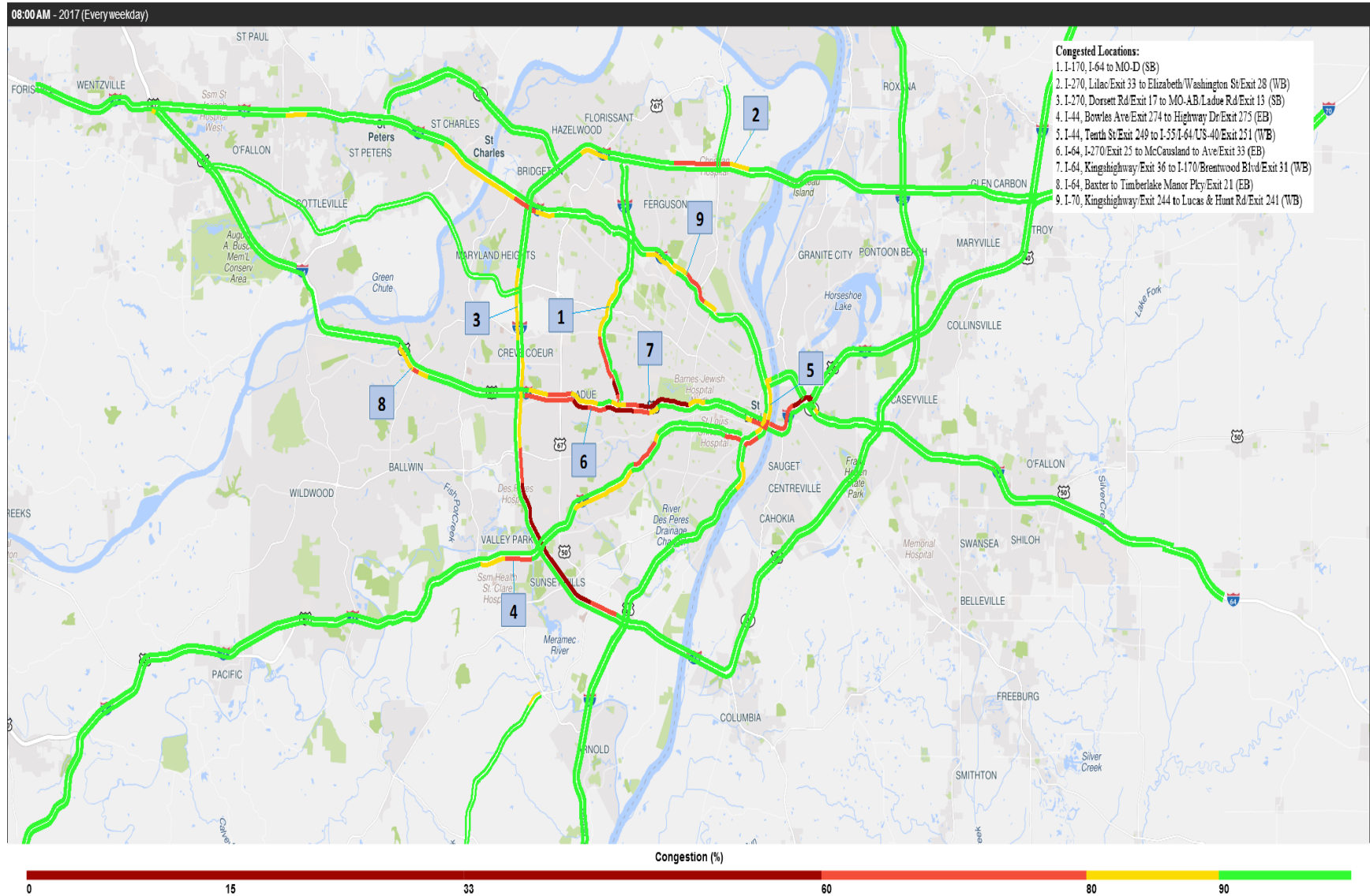


Figure 16: Spatial Distribution of Congested Freeway Locations (3-4 PM)

1259 TMCs Congestion Trend Map for 2017 (Every weekday)

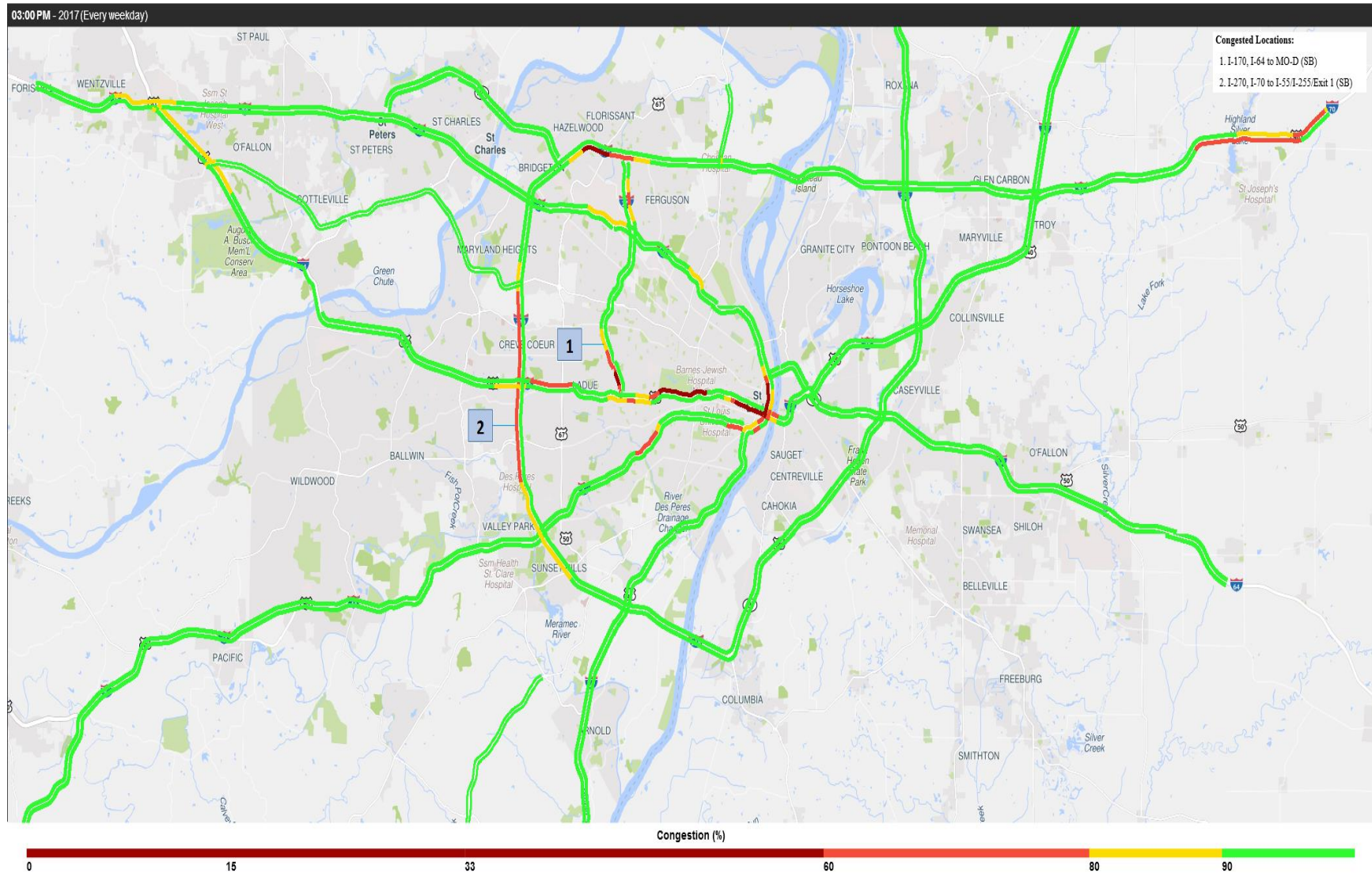


Figure 17: Spatial Distribution of Congested Freeway Locations (4-5 PM)

1259 TMCs Congestion Trend Map for 2017 (Every weekday)

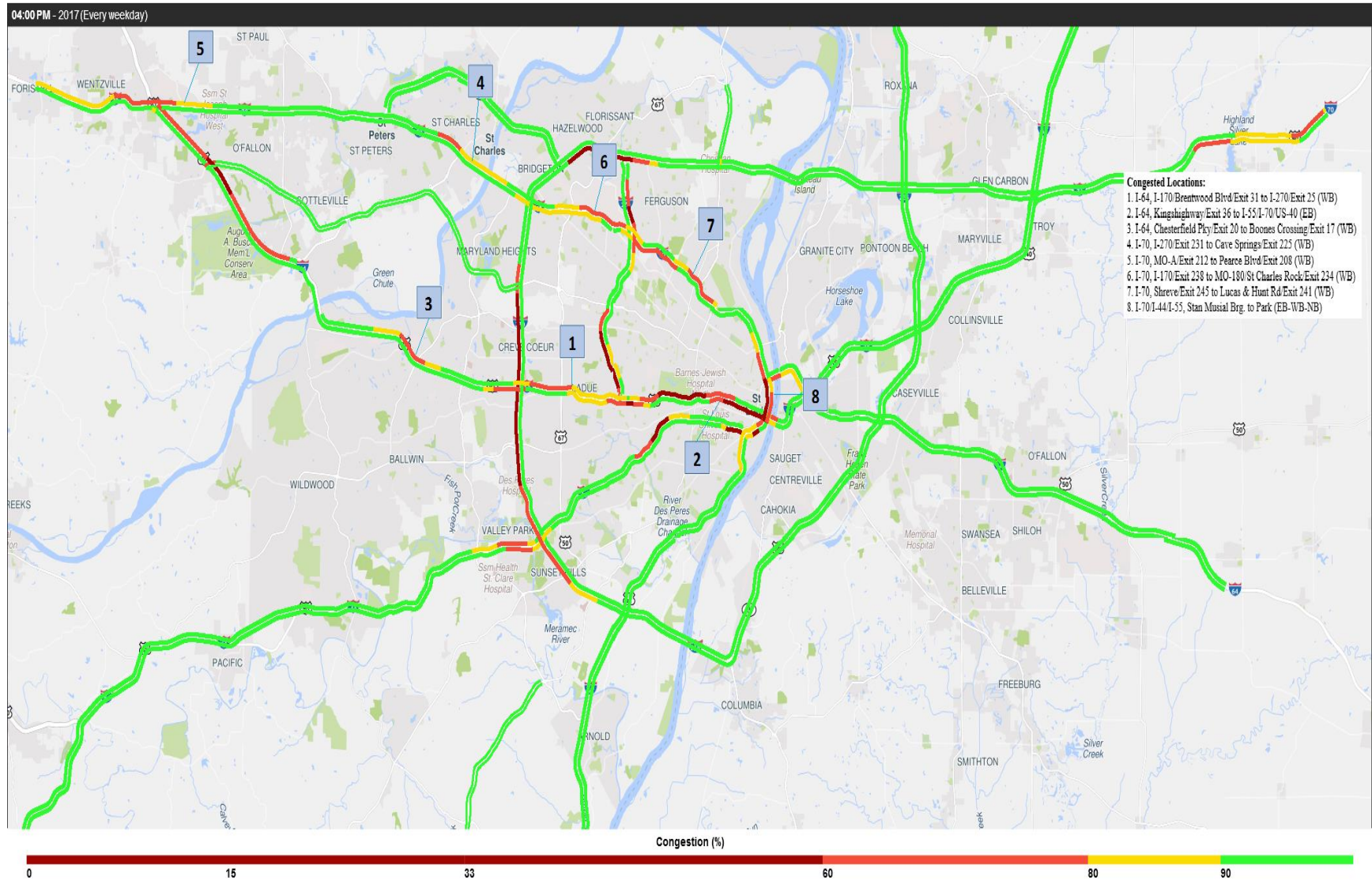
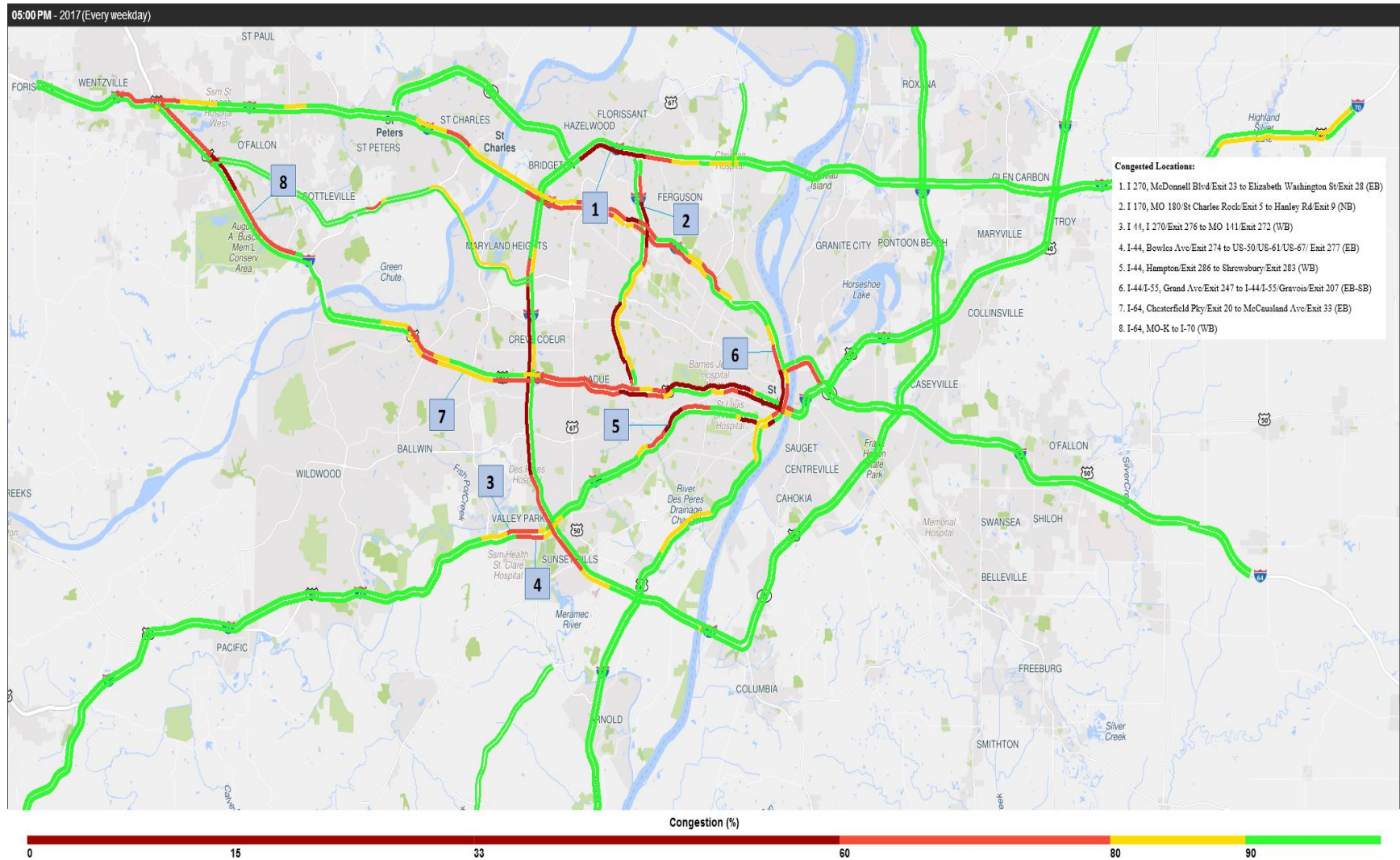


Figure 18: Spatial Distribution of Congested Freeway Locations (5-6 PM)

1259 TMCs Congestion Trend Map for 2017 (Every weekday)



2.3 Percent of Miles Congested

Figures 19 to 22 depict the extent of congestion for each hour of the AM and PM peak periods. The extent of congestion is measured by Speed Index thresholds (see sections 2.1 and 2.2). The percentages are calculated based on the compilation of all the congested locations that occur during each hour of the peak periods.

Arterials

No significant change in congestion patterns for each hour of peak period was observed between 2016 and 2017. Regional congestion can conveniently be classified as being moderate. The shares of heavy congestion saw increases across all periods. Severe congestion shares declined during morning peak periods but saw a slight increase in the evening peak period (see Figures 19 and 20).

Figure 19: Percent of Miles of Congested Arterials (2017)

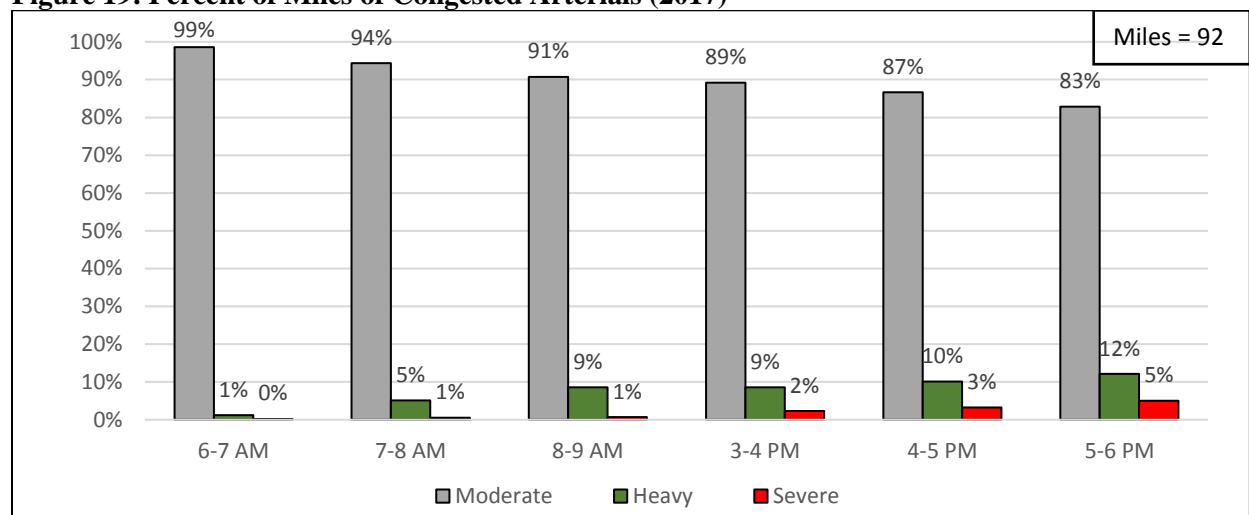
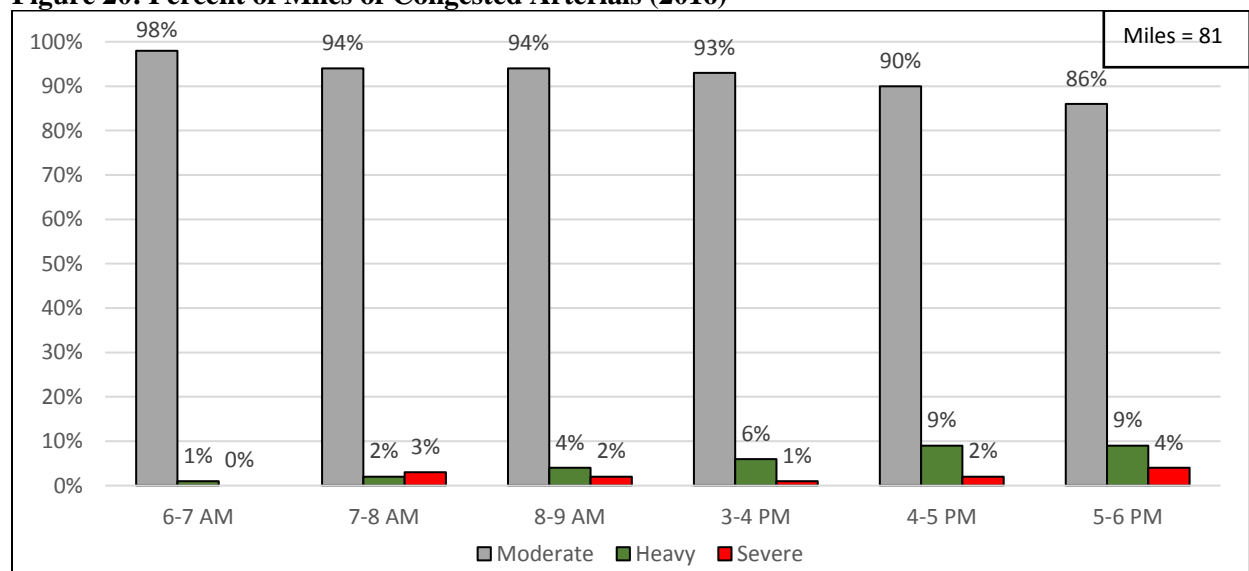


Figure 20: Percent of Miles of Congested Arterials (2016)



Freeways

Regional freeways are mostly moderately congested. Evening peak hour moderate congestion levels have increased since 2016. The share of queue lengths considered heavy during PM peak hours saw declines since 2016. It appears that morning peak hours are becoming heavily congested (see Figures 21 and 22).

Figure 21: Percent of Miles of Congested Freeways (2017)

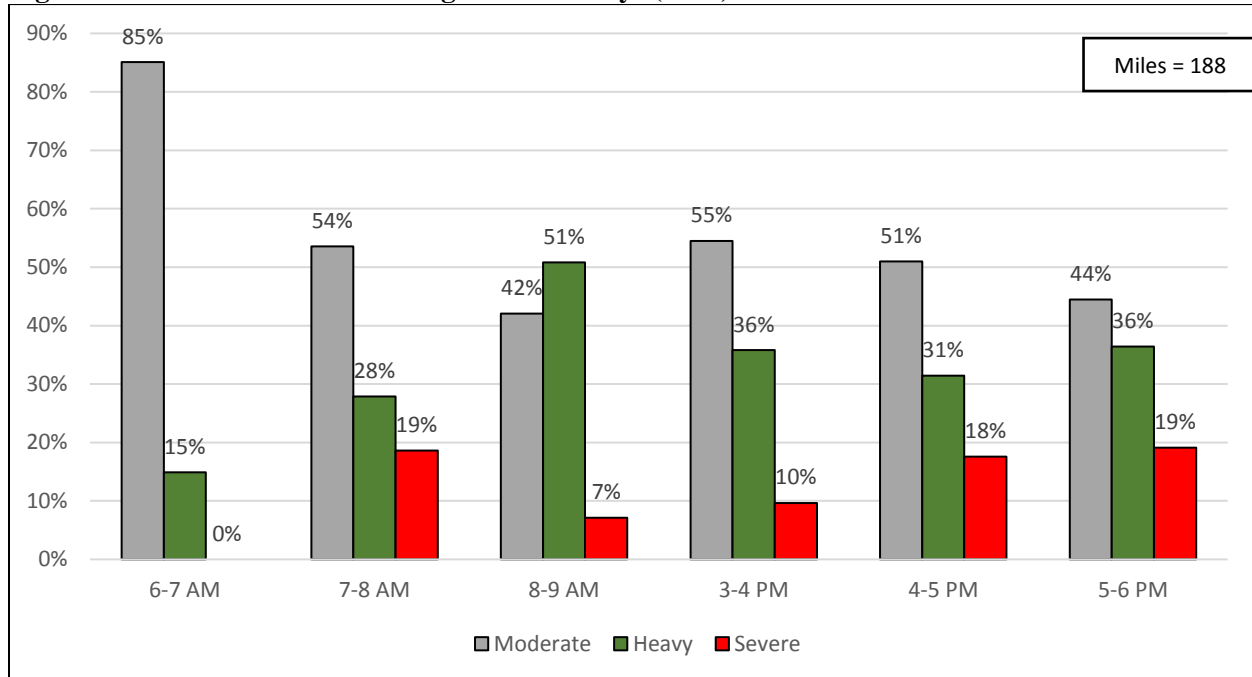
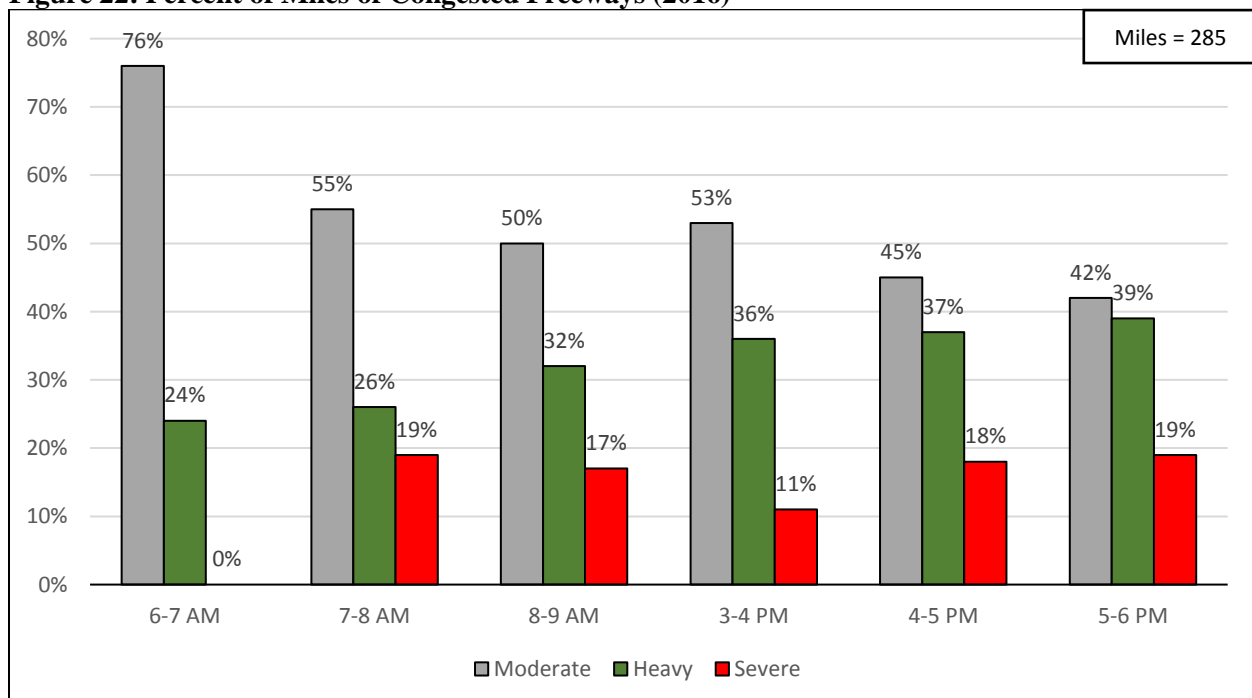


Figure 22: Percent of Miles of Congested Freeways (2016)



2.4 Freeway Congestion Intensity and Duration

A congestion scan is a graphic representation of how congestion on a corridor varies by location and time of day. Time of day is shown on the horizontal axis by hour for the entire day. Location along the corridor is shown in miles on the vertical axis and is referenced to intersecting roadways. Congestion is represented using the same color coding that is used for the congestion maps contained in this report. The resulting visual shows where congestion occurs along the corridor, the intensity of the congestion and the time of day it occurs. The solid yellow and red bands represent continuous congestion along a corridor with the width of a band showing the length of time that the congestion occurs and the length of a band showing the distance in miles of the congestion. Figures 23 to 30 show the space-time representation of freeway congestion.

Figure 23: I-44, between Louisiana Ave. and Lewis Rd. (2017).

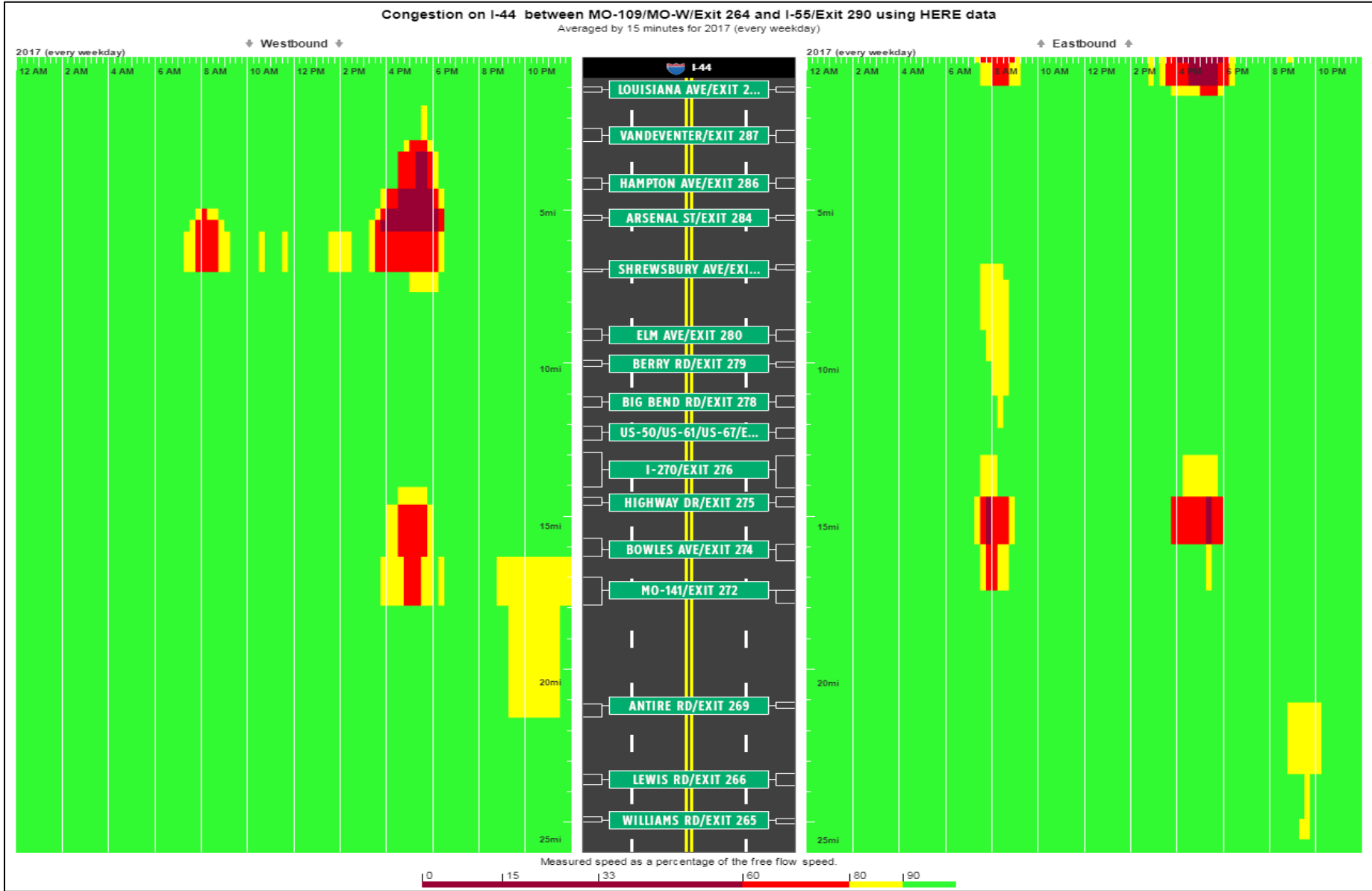


Figure 24: I-44 and I-55, between Richardson Rd. and I-64/I-70 (2017).

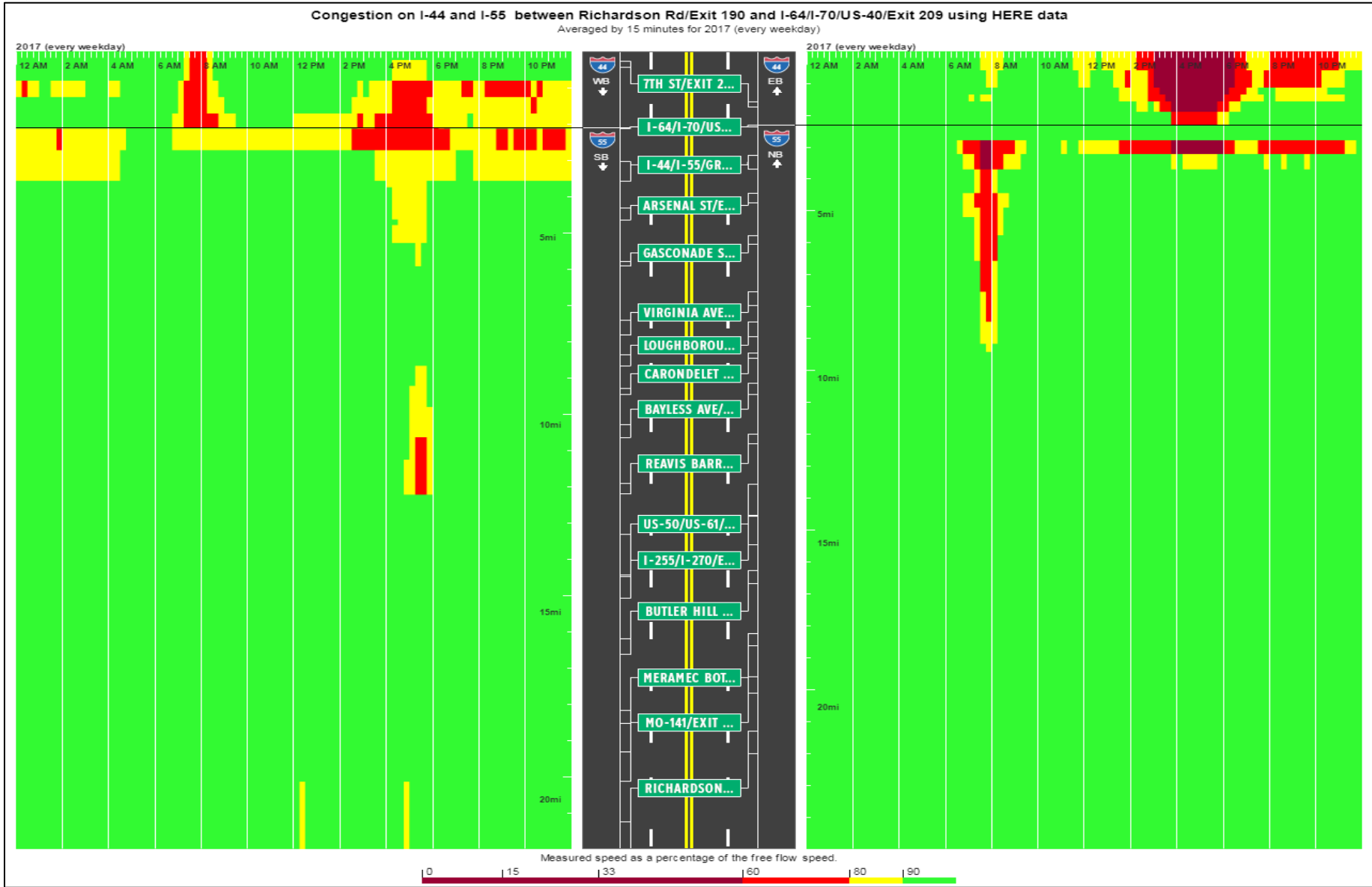


Figure 25: I-64, between Ninth St. and MO-N (2017).

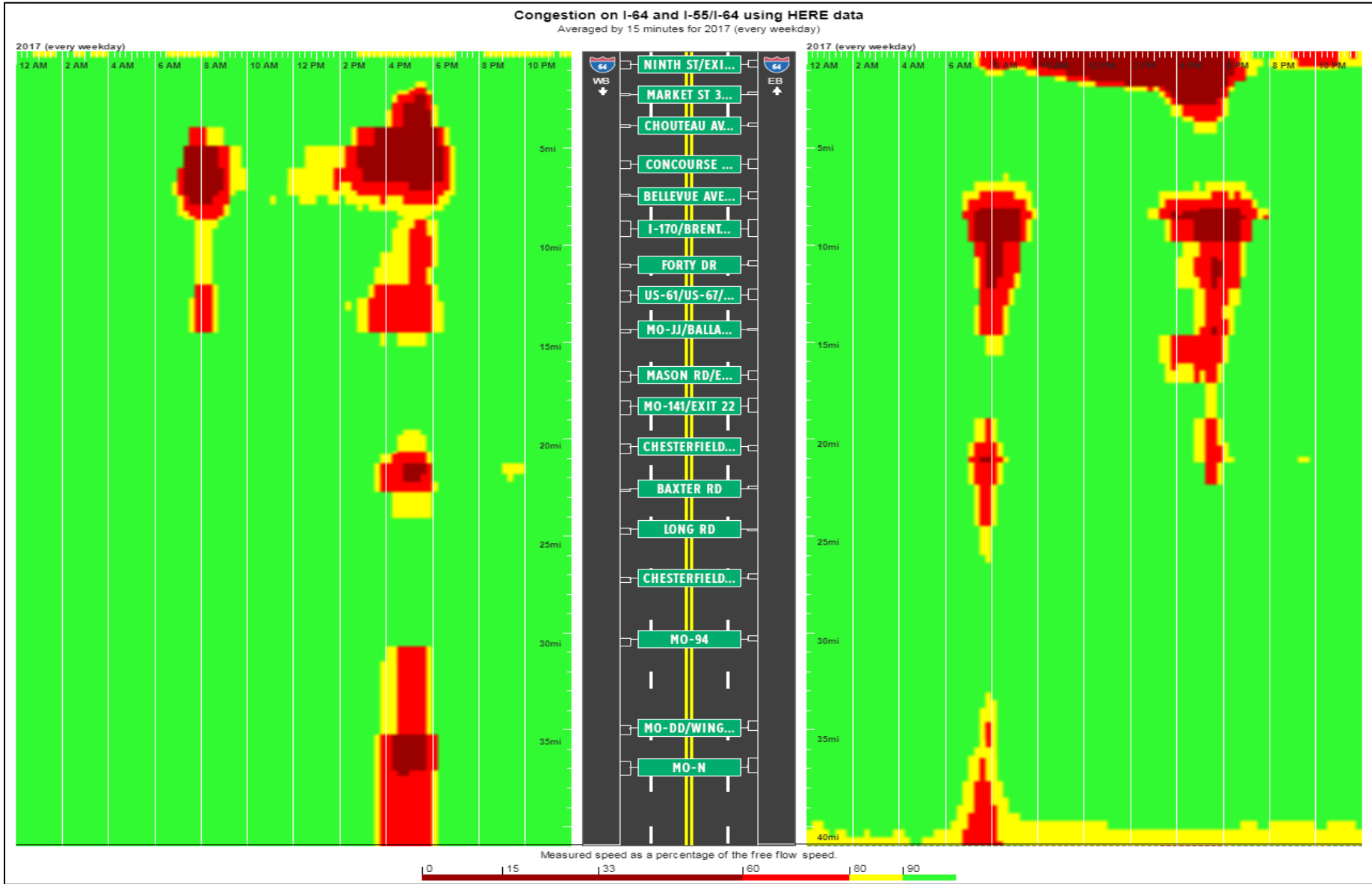


Figure 26: I-70, between Salisbury St. and Pearce Blvd (2017).

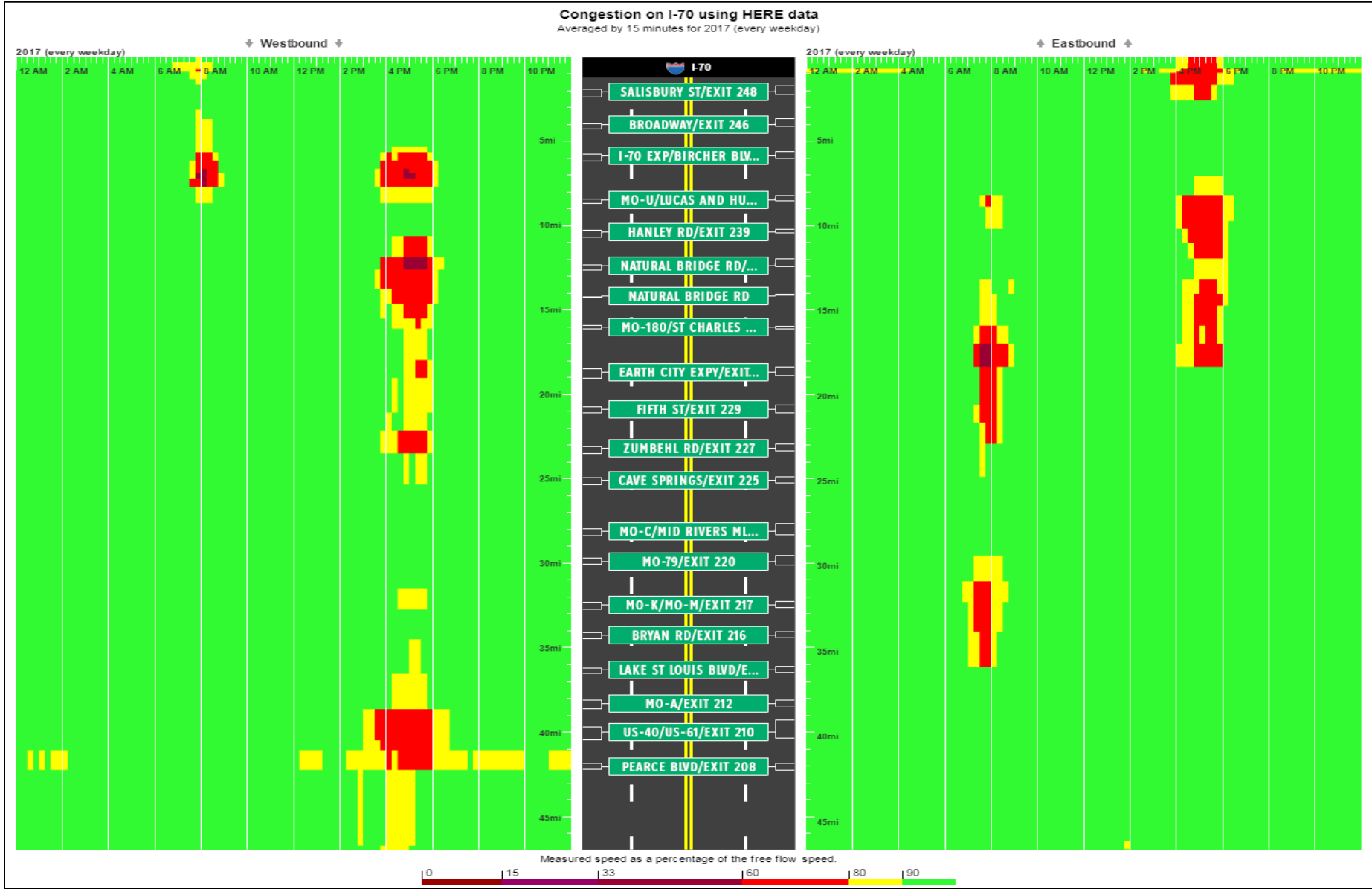


Figure 27: I-170, between Hanley Rd. to I-64 (2017).

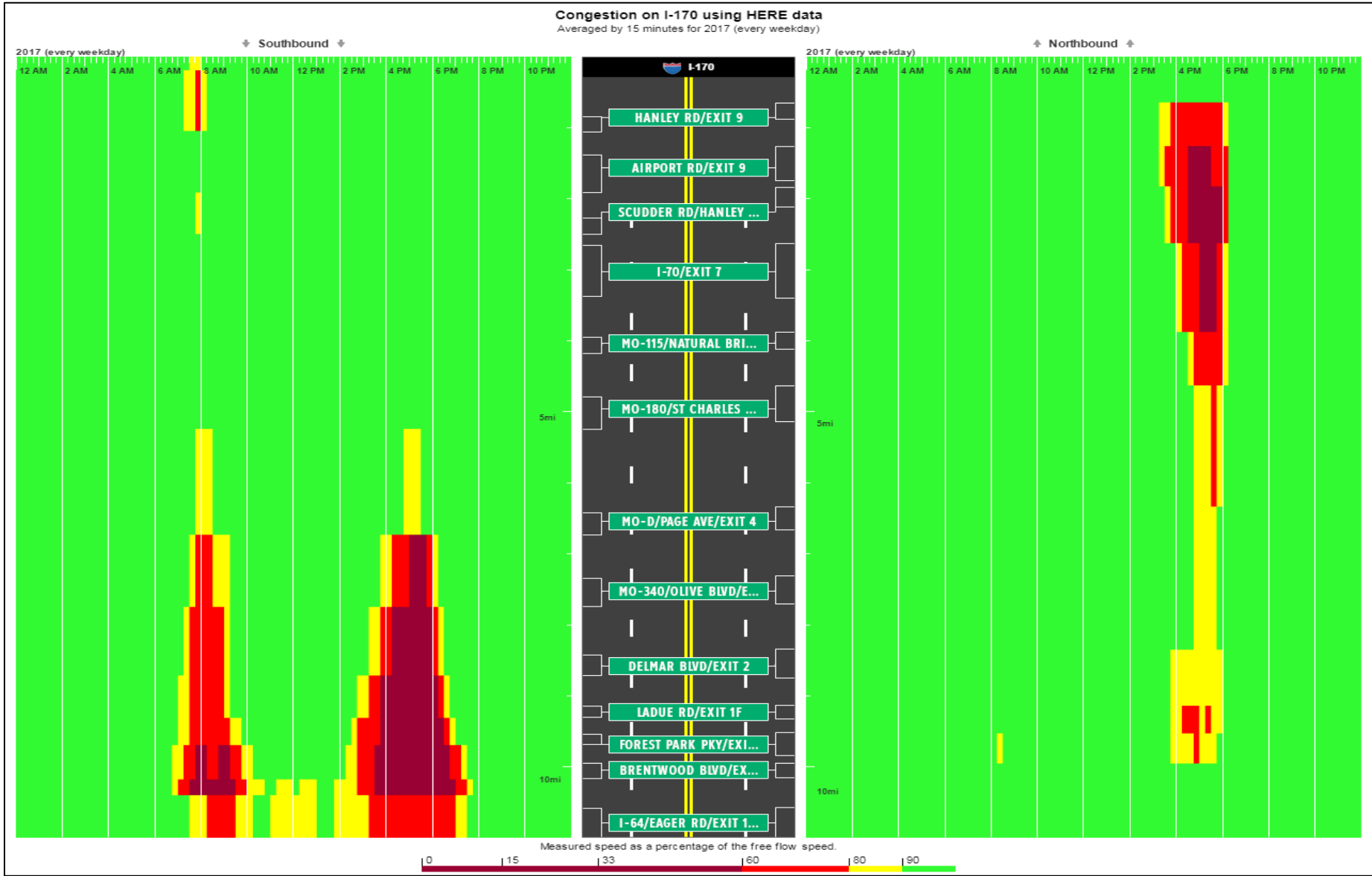


Figure 28: I-270, between Lilac Ave. and MO-180 (2017).

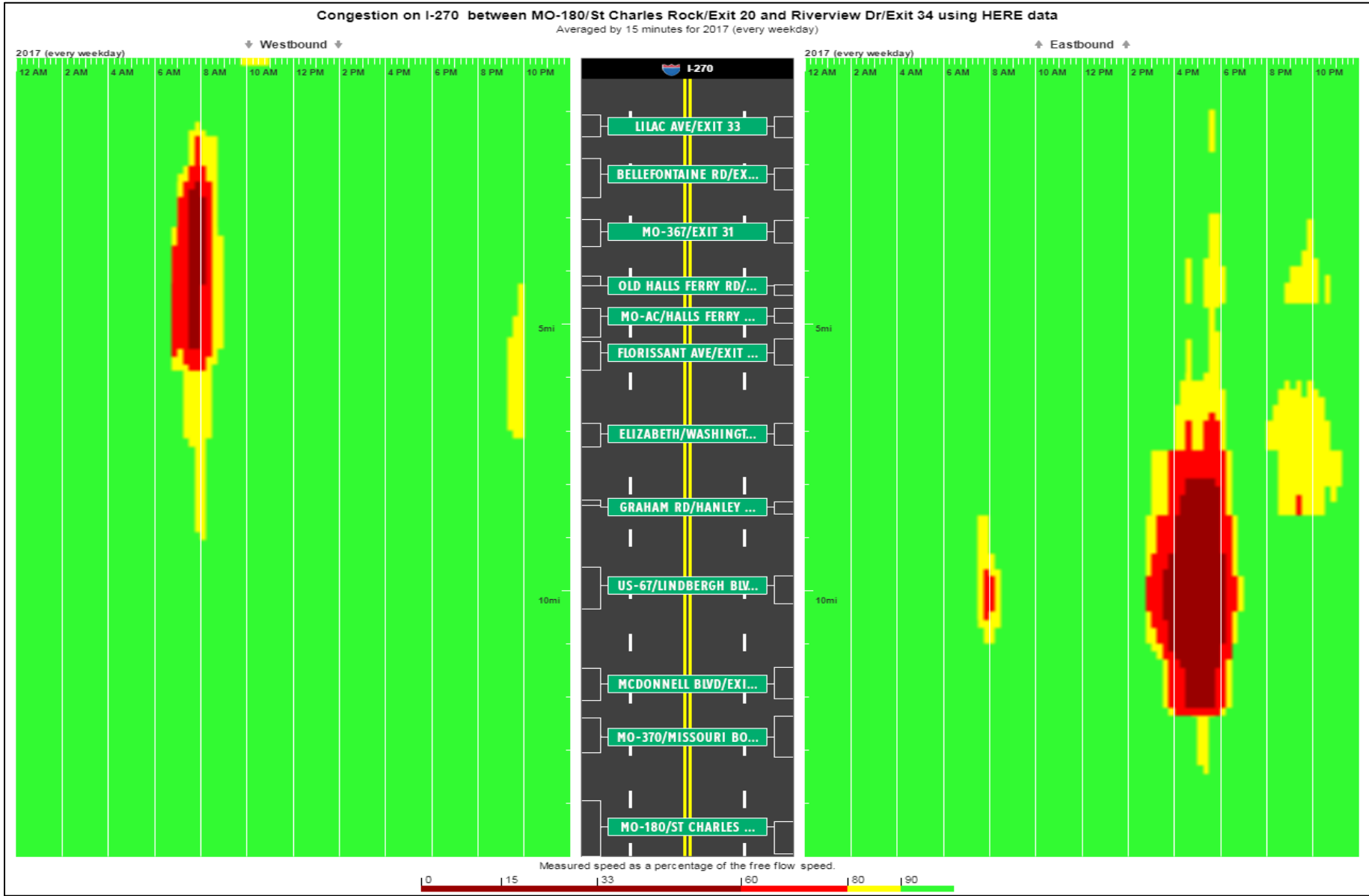


Figure 29: I-270, between I-70 and I-55 (2017).

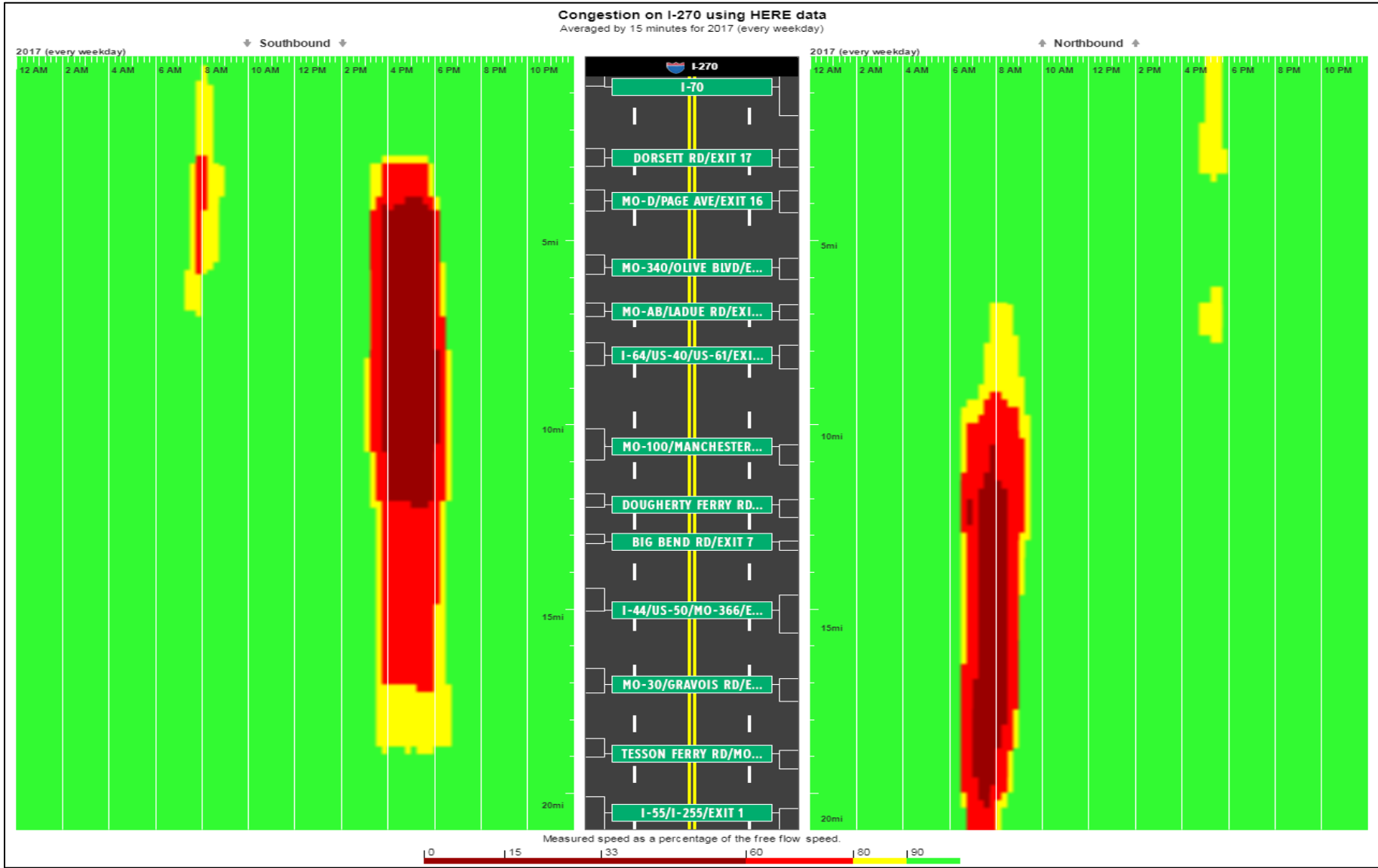
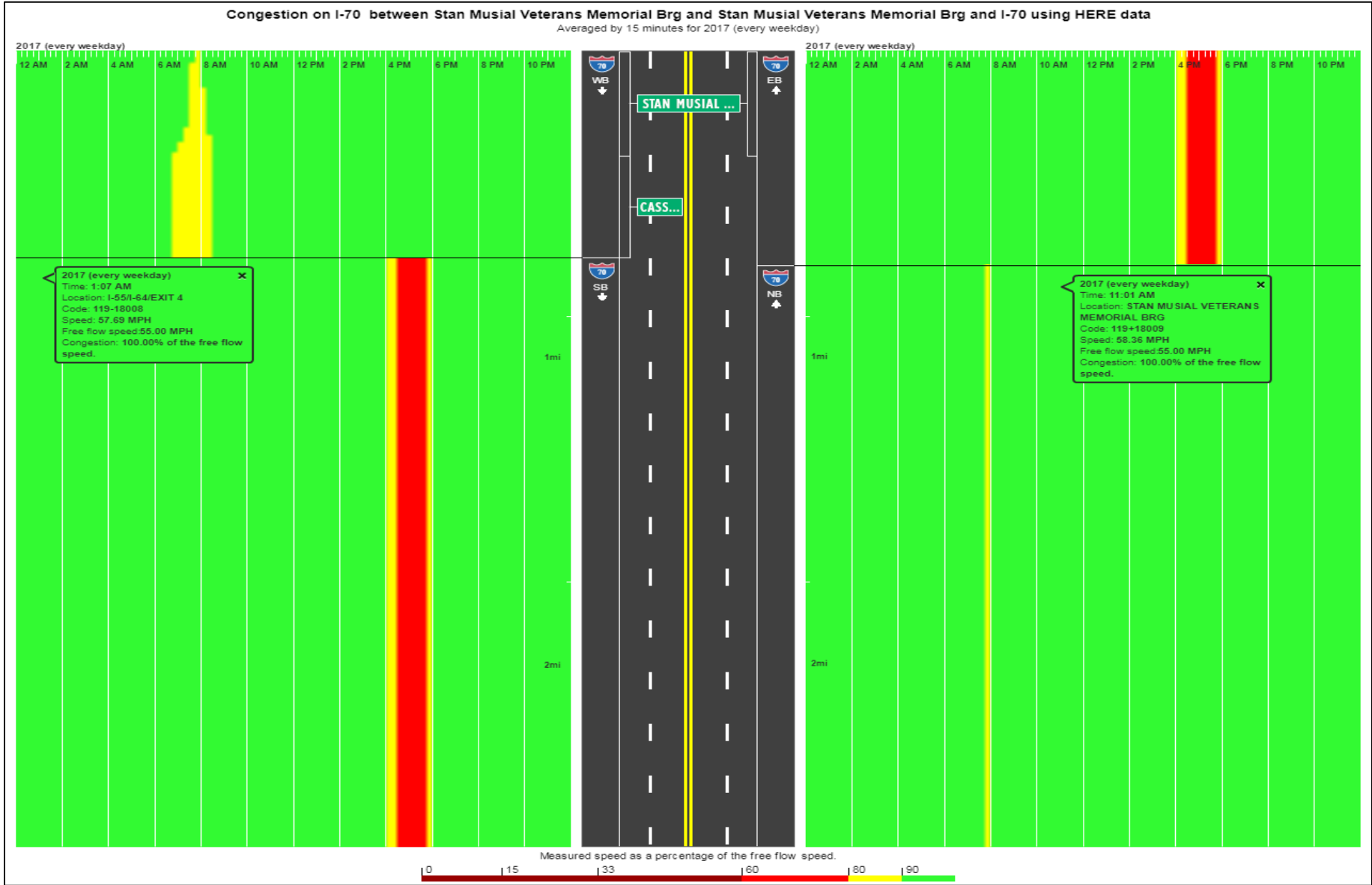


Figure 30: I-70, Stan Musial Brg. and I-70 (2016).



3 Performance Measures

Performance measures are key components of the CMP process as they:

- characterize existing and anticipated conditions on the regional transportation system;
- track progress toward meeting regional objectives;
- identify specific locations with congestion to address; and
- assess congestion mitigation strategies, programs, and projects.

Six performance measures were analyzed in this study. These are Average Speed, Speed Index (SI), Planning Time Index (PTI), and Travel Time Index (TTI). These performance measures are defined below.

- Average Speed is the number of miles a vehicle is driven in an hour.
- Speed Index is the ratio of average speeds to 85th-percentile speeds of a segment.
- Travel Time Index is Travel Time represented as a percentage of the ideal travel time. For example, a TTI value of 1.2 means travel time during peak period is 20% longer than the free-flow travel time between the same origin and destination.
- Planning Time Index is the total travel time that should be planned when extra time (buffer time) is included in the trip. For example, a Planning Time Index of 1.60 means that, for a 15-minute trip, the total time that should be planned for the trip is 24 minutes (15 minutes x 1.60 = 24 minutes). In this scenario, the buffer time alone is 9 minutes (15 minutes x 0.6 percent). The higher the Planning Time Index, the more unreliable travel time is.
- Percent of Person-Miles Traveled (PMT) on the Interstate that are reliable. PMT is the product of Annual Traffic Volumes, Segment Length, and Vehicle Occupancy for segments that have Level Of Travel Time Reliability (LOTTR) that is less than 1.5. The result is expressed as a percent of Total PMT.
- Percent of Person-Miles Traveled on the Non-Interstate that are reliable.

4 Collect Data / Monitor System Performance

Following the establishment of indicators for measuring system performance, the next important task is to collect data on these performance measures. The HERE data set was used to analyze the identified performance measures. HERE is a private vendor that provides mapping data and related services to individuals and companies. MoDOT has contracted with HERE for access to their data and the use of the Regional Integrated Transportation Information System (RITIS). RITIS is an automated data sharing, dissemination, and archiving system that includes many performance measures, dashboard, and visual analytics tools housed at the University of Maryland. MoDOT's contract provides the same access to Missouri MPOs, which gives EWG the ability to analyze the HERE data set for the entire eight-county region.

5 Analyze Congestion Problems and Needs

In order to better understand regional congestion problems and needs we undertook three major tasks. These included developing a regional system performance report, ranking all the congested locations, and analyzing regional system performance trends.

a) Regional Performance Measures

Performance measures analyzed here represent average annual weekday data. Tables 3 and 4 provide peak period system performance information. They list all locations in our region that exceed the performance measure thresholds established for congestion during the 3-hour AM and PM peak periods. Detailed hourly variations for each congested location within each peak period are appended to this report (Appendix 1). These tables are included to show how congestion varies throughout the peak period for each location.

Table 3: Arterial Performance Measures (Annual Weekday)

No.	Route	Limits	Direction	State	Peak	Queue Length	BT	BTI	PT	PTI	Speed	TT	TTI
1	FOREST PARK AVE	I-64 to Kingshighway	WB	MO	AM	2.14	5.81	1.23	10.56	2.18	16.47	7.79	1.61
2	FOREST PARK AVE	I-64 to Kingshighway	WB	MO	PM	2.14	4.20	0.53	12.09	2.49	13.94	9.20	1.90
3	FOREST PARK AVE	Kingshighway to I-64	EB	MO	PM	2.05	2.62	0.37	9.75	2.21	15.98	7.71	1.75
4	FOREST PARK AVE	Kingshighway to I-64	EB	MO	AM	2.05	4.35	0.96	8.88	2.01	18.85	6.53	1.48
5	HAMPTON AVE	I-64/US-40 to I-44	SB	MO	PM	1.02	5.84	1.59	9.53	3.62	11.89	5.13	1.95
6	HANLEY	Shaw Park Dr to I-64/US-40/Eager Rd	SB	MO	PM	1.30	7.49	2.09	11.08	3.56	15.26	5.10	1.64
7	HANLEY/LACLEDE ST RD	Murdoch to MO-100/Manchester Rd	NB	MO	AM	1.55	7.20	2.58	9.99	2.90	19.45	4.78	1.39
8	IL-111	Forest Blvd to I-55/I-70/US-40	NB	IL	AM	3.01	0.57	0.17	4.03	1.53	32.86	3.68	1.40
9	IL-111	Forest Blvd to I-55/I-70/US-40	NB	IL	PM	3.01	0.53	0.14	4.32	1.64	30.14	4.01	1.53
10	IL-140	Washington Ave to IL-3	EB	IL	AM	1.15	1.10	0.49	3.33	1.81	26.94	2.56	1.39
11	IL-140	Washington Ave to IL-3	EB	IL	PM	1.15	1.45	0.52	4.25	2.32	20.71	3.32	1.81
12	IL-140	CR-51 to I-55	WB	IL	AM	0.90	0.22	0.13	1.86	1.66	33.27	1.62	1.44
13	IL-140	CR-51 to I-55	WB	IL	PM	0.90	0.08	0.04	1.93	1.71	31.79	1.70	1.51
14	IL-143	IL-111 to IL-3	WB	IL	AM	2.05	0.81	0.26	3.95	1.70	31.50	3.38	1.46
15	IL-143	IL-111 to IL-3	WB	IL	PM	2.05	0.64	0.18	4.10	1.77	30.00	3.55	1.53
16	IL-157	Horseshoe Lake Rd to I-55/I-70/US-40	SB	IL	AM	1.92	1.17	0.67	2.92	1.84	22.18	2.24	1.41
17	IL-157	Horseshoe Lake Rd to I-55/I-70/US-40	SB	IL	PM	1.92	1.71	0.72	4.08	2.57	17.00	2.92	1.84
18	IL-157	I-55/I-70/US-40 to Horseshoe Lake Rd	NB	IL	PM	1.87	1.01	0.54	2.86	1.96	21.04	2.23	1.52
19	IL-159	Main to IL-15	SB	IL	PM	1.21	2.48	0.68	6.15	2.38	15.43	4.69	1.81
20	JEFFERSON	Arsenal to Park	NB	MO	PM	1.35	3.38	0.82	7.47	2.24	15.62	5.20	1.56
21	JEFFERSON	Washington Blvd to Park Ave	SB	MO	PM	1.23	4.21	1.01	8.38	2.89	15.03	4.92	1.70
22	JEFFERSON	Washington Blvd to Park Ave	SB	MO	AM	1.23	3.09	1.10	5.90	2.03	18.25	4.05	1.40
23	KINGSHIGHWAY	Shaw to Delmar	NB	MO	AM	2.73	7.89	1.34	13.78	2.04	17.65	9.28	1.38
24	KINGSHIGHWAY	I-44 to Delmar	NB	MO	PM	2.38	4.84	0.60	12.97	2.23	16.20	8.80	1.51
25	KINGSHIGHWAY	Laclede Ave to Manchester	SB	MO	PM	1.07	4.55	1.16	8.49	2.86	14.33	5.36	1.80
26	LACLEDE ST RD	Big Bend to Murdoch	SB	MO	AM	0.49	0.94	1.05	1.83	1.94	21.81	1.34	1.42
27	LACLEDE ST RD	Union Pacific to Murdoch	SB	MO	PM	1.10	5.14	2.06	7.65	3.26	16.61	3.96	1.69
28	MCCAUSLAND AVE	Arsenal to I-64	NB	MO	AM	1.44	4.61	1.51	7.65	2.43	20.37	4.24	1.35
29	MCCAUSLAND AVE	Arsenal to I-64	NB	MO	PM	1.44	2.58	0.65	6.53	2.07	19.01	4.55	1.44
30	MCCAUSLAND AVE	I-64 to Arsenal	SB	MO	PM	1.30	5.47	1.31	9.64	2.85	17.79	5.27	1.56
31	MCCAUSLAND AVE	I-64 to Oakland	NB	MO	AM	0.29	1.23	1.88	1.88	2.68	17.01	1.02	1.46
32	MCCAUSLAND AVE	I-64 to Oakland	NB	MO	PM	0.29	0.56	0.59	1.49	2.12	16.70	1.04	1.48
33	MO-100	Vandeventer to Kingshighway	WB	MO	PM	0.96	5.94	1.64	9.56	4.50	8.96	6.40	3.01
34	MO-100	Big Bend to McCausland	EB	MO	PM	0.83	2.71	0.77	6.24	3.25	9.98	5.00	2.61
35	MO-100	Kingshighway to Vandeventer	EB	MO	PM	0.96	4.04	0.56	11.23	1.84	14.93	9.05	1.49
36	MO-100	Vandeventer to Kingshighway	WB	MO	AM	0.96	2.17	0.83	4.78	2.25	15.76	3.64	1.71
37	MO-100	McCausland to Big Bend	WB	MO	AM	0.83	2.52	1.25	4.54	2.00	15.78	3.16	1.39
38	MO-100	McCausland to Big Bend	WB	MO	PM	0.83	2.20	0.66	5.54	2.44	11.00	4.53	2.00
39	MO-100	Kingshighway to Vandeventer	EB	MO	AM	0.96	2.16	0.82	4.78	2.17	15.80	3.63	1.65
40	MO-141	Hawkins to Vance	NB	MO	AM	1.89	14.41	2.62	19.92	2.68	24.71	10.03	1.35
41	MO-141	Big Bend to I-44	SB	MO	PM	1.88	15.57	2.47	21.87	3.23	20.59	11.35	1.68
42	MO-141	MO-AB/Ladue Rd to I-64/US-40/US-61	SB	MO	PM	1.63	4.32	1.55	7.11	2.68	25.59	3.82	1.44
43	MO-141	Marshall to I-44	SB	MO	AM	0.73	2.44	1.88	3.73	2.43	22.06	2.32	1.51
44	MO-340	Chesterfield Pky North to Baxter Rd	SB	MO	PM	1.38	9.68	1.86	14.90	2.55	20.90	7.86	1.35
45	MO-94	I-64/US-40/US-61 to Mid Rivers Mall Dr	NB	MO	PM	4.19	3.84	0.65	9.77	2.26	34.90	7.21	1.67
46	MO-94	I-70/Veterans Memorial Pky/Bogey Rd to MO-364	SB	MO	PM	2.33	4.74	0.82	10.50	2.06	29.18	6.96	1.36
47	MO-94	N 5th Street to I-70	SB	MO	PM	3.49	3.66	0.37	13.58	1.68	19.10	10.96	1.36
48	MO-D	I-170 to Schuetz Rd	WB	MO	PM	4.28	6.52	0.75	15.23	2.26	24.86	10.33	1.53
49	MO-D	Concourse to Schuetz	EB	MO	AM	0.50	0.91	1.43	1.54	2.07	29.59	1.02	1.37
50	MO-K	I-70 to MO-364	SB	MO	PM	3.50	3.72	0.55	10.48	1.84	24.83	8.46	1.48
51	SALISBURY ST	N FLORISSANT AVE to I-70	EB	MO	AM	0.49	1.95	1.52	3.23	2.45	13.73	2.12	1.61
52	SALISBURY ST	N FLORISSANT AVE to I-70	EB	MO	PM	0.49	4.44	1.79	6.92	3.66	9.98	4.35	2.30
53	SALISBURY ST	I-70 to Natural Bridge	WB	MO	AM	0.75	2.30	1.20	4.22	2.11	15.78	2.85	1.42
54	SALISBURY ST	I-70 to Natural Bridge	WB	MO	PM	0.75	2.18	0.85	4.74	2.36	13.62	3.30	1.65
55	SKINKER	Forest Park Pky to Delmar	NB	MO	AM	0.43	1.04	1.11	1.97	2.00	18.12	1.41	1.44
56	SKINKER	Forest Park Pky to Delmar	NB	MO	PM	0.43	0.80	0.60	2.13	2.17	16.30	1.57	1.60
57	SKINKER	Forest Park Pky to Delmar	SB	MO	AM	0.43	1.85	1.87	2.84	2.78	14.17	1.81	1.76
58	SKINKER	Forest Park Pky to Delmar	SB	MO	PM	0.43	3.54	2.24	5.12	5.00	10.98	2.33	2.28
59	US-67	I-270 to Old Halls Ferry Rd	NB	MO	PM	5.59	12.22	1.02	24.16	2.16	19.96	16.80	1.50

Table 4: Freeway Performance Measures (Annual Weekday)

No.	Route	Limits	Direction	State	Peak	Queue Length	BT	BTI	Speed	PT	PTI	TT	TTI
1	I-270	I-70 to I-55/I-255/Exit 1	SB	MO	PM	21.00	35.74	1.77	39.86	55.89	2.71	31.01	1.51
2	I-64	Chesterfield Pky/Exit 20 to McCausland Ave/Exit 33	EB	MO	PM	14.00	14.55	0.96	48.29	29.68	2.13	17.33	1.24
3	I-270	I-55/I-255/Exit 1 to MO-100/Manchester Rd/Exit 9	NB	MO	AM	10.00	21.07	2.15	38.00	30.88	3.06	15.92	1.58
4	I-64	MO-K to I-70	WB	MO	PM	10.00	15.49	1.65	47.45	24.90	2.59	12.77	1.33
5	I-70	Zumbehl/Exit 227 to Natural Bridge Rd/Exit 237/Exit 238	EB	MO	AM	9.22	7.71	0.84	54.07	16.90	1.83	10.23	1.11
6	I-70	Lake St Louis Blvd/Exit 214 to MO-79/Exit 220	EB	MO	AM	8.50	6.84	0.84	55.53	14.97	1.76	9.19	1.08
7	I-64	I-270/Exit 25 to McCausland to Ave/Exit 33	EB	MO	AM	7.80	12.20	1.57	44.89	19.97	2.56	10.43	1.34
8	I-70	I-270/Exit 231 to Cave Springs/Exit 225	WB	MO	PM	7.34	5.19	0.72	53.05	12.38	1.67	8.30	1.12
9	I-270	Lilac/Exit 33 to Elizabeth Washington St/Exit 28	WB	MO	AM	6.76	6.93	1.02	49.71	13.72	2.03	8.16	1.21
10	I-70	MO-A/Exit 212 to Pearce Blvd/Exit 208	WB	MO	PM	5.70	5.51	1.02	53.40	10.90	2.10	6.41	1.24
11	I-64	Kingshighway/Exit 36 to I-170/Brentwood Blvd/Exit 31	WB	MO	AM	5.52	9.62	1.72	41.15	15.22	2.76	8.05	1.46
12	I-70	I-170/Exit 238 to MO-180/St Charles Rock/Exit 234	WB	MO	PM	5.44	6.49	1.18	46.74	12.00	2.18	6.98	1.27
13	I-270	McDonnell Blvd/Exit 23 to Elizabeth Washington St/Exit 28	EB	MO	PM	5.40	17.20	1.92	37.52	26.18	2.86	14.63	1.60
14	I-70/I-44/I-55	Stan Musial Brg. to Park	EB-WB-NB	MO	PM	3.45	1.70	1.24	41.13	3.25	2.01	1.94	1.19
15	I-64	I-170/Brentwood Blvd/Exit 31 to I-270/Exit 25	WB	MO	PM	5.15	6.61	1.27	46.53	11.82	2.29	6.65	1.29
16	I-170	I-64 to MO-D	SB	MO	AM	4.49	5.19	1.19	45.14	9.53	2.07	5.56	1.21
17	I-64	Kingshighway/Exit 36 to I-55/I-70/US-40	EB	MO	PM	4.46	19.93	4.18	22.63	24.69	5.10	11.83	2.44
18	I-64	Chesterfield Pky/Exit 20 to Boones Crossing/Exit 17	WB	MO	PM	4.35	4.85	1.13	48.84	9.14	2.10	5.34	1.23
19	I-170	MO-180/St Charles Rock/Exit 5 to Hanley Rd/Exit 9	NB	MO	PM	4.33	5.87	1.37	44.00	10.17	2.35	5.91	1.36
20	I-170	I-64 to MO-D	SB	MO	PM	4.18	11.85	2.41	29.96	16.77	3.64	8.38	1.82
21	I-270	Dorsett Rd/Exit 17 to MO-AB/Ladue Rd/Exit 13	SB	MO	AM	4.13	2.49	0.61	54.81	6.55	1.59	4.52	1.09
22	I-64, I-55/I-64	Baugh Ave. to Poplar St Brg.	WB	IL	AM	4.12	10.37	2.14	35.37	15.20	3.11	6.99	1.43
23	I-44/I-55	Grand Ave/Exit 247 to I-44/I-55/Gravois/Exit 207	EB-SB	MO	PM	3.84	7.24	2.87	30.90	9.50	4.19	4.65	2.11
24	I-44	I-270/Exit 276 to MO-141/Exit 272	WB	MO	PM	3.77	3.06	0.83	52.47	6.75	1.82	4.32	1.17
25	I-44	Bowles Ave/Exit 274 to US-50/US-61/US-67/Exit 277	EB	MO	PM	3.70	2.84	0.93	50.10	5.88	1.96	3.59	1.20
26	I-70	Shreve/Exit 245 to Lucas & Hunt Rd/Exit 241	WB	MO	PM	3.61	4.10	1.04	44.01	8.06	2.05	4.92	1.25
27	I-64	Baxter to Timberlake Manor Pky/Exit 21	EB	MO	AM	3.56	3.50	0.98	52.91	7.08	1.99	4.04	1.13
28	I-70	Kingshighway/Exit 244 to Lucas & Hunt Rd/Exit 241	WB	MO	AM	3.07	3.50	1.09	49.37	6.71	2.01	3.73	1.11
29	I-44	Bowles Ave/Exit 274 to Highway Dr/Exit 275	EB	MO	AM	3.00	3.40	0.91	53.49	7.11	1.92	4.15	1.12
30	I-44	Hampton/Exit 286 to Shrewsbury/Exit 283	WB	MO	PM	2.92	6.88	2.29	36.37	9.89	3.39	4.82	1.65
31	I-55	Potomac to Park Ave/7Th St/Exit 208	NB	MO	AM	2.89	3.37	1.14	47.71	6.31	2.08	3.63	1.20
32	I-44	Tenth St/Exit 249 to I-55/I-64/US-40/Exit 251	WB	MO	AM	2.02	2.30	0.99	46.50	4.61	2.09	2.61	1.18

b) Rank Congested Locations

We ranked all congested locations identified in Tables 1 and 2 based on severity, total impact and variability. These are defined as follows:

- The Severity number is the average of the TTI and PTI. It takes into account two aspects of congestion; the average delay of a congested location and how reliable that average is from day to day. Higher Severity numbers reflect more severe congestion.
- The Total Impact number is obtained by multiplying the congested miles of a location by the TTI. Its purpose is to compare the impact to the driver by factoring in the comparative lengths of the queues in each congested location.
- The Congestion Variability number is the ratio of PTI to TTI. Higher variability values indicate more variation in travel times and lower values show less variation in travel times from day to day.

Locations were ranked with 1 being the worst condition and the highest numbered location in the list being the least severe of the congested locations. This ranking exercise helps in determining which segments rank the highest in terms of congestion relief needs. Tables 5 to 8 below show congested location ranking analysis for arterials and freeways.

The average length of regional arterial congestion in 2017 was 1.55 miles. The top 10 severely congested locations had 1.03 miles of average congestion, 34% lower than the average for the region. The top 10 most impactful locations had a combined length of congestion of 3.43 miles, more than doubled the regional average length of congestion. The most unreliable arterial locations had an average length of congestion of 1.25 miles, accounting for about 20% less than the average length of regional arterial congestion. Finally, the most impactful arterial congestion accounted for more than one-half of length of congestion (see Table 5).

Table 5: Length of Congestion on Top 10 Locations (Arterials)

Ranking	Avg. QL	Total QL	% QL
Severity	1.03	10.31	18%
Total Impact	3.43	34.32	60%
Variability	1.25	12.47	22%
Avg QL (ALL)	1.55	-	-
Total		57.1	100%

The average length of freeway congestion was higher in the top 10 severely congested locations than for all congested freeway locations. The top 10 most impactful locations had an average length of congestion that was 4 miles more than the regional average length of congestion. Less dependable locations had a length of congestion that was slightly lower than the regional freeway average. Thus, most severe and less dependable freeways accounted for about 75% of length of congestion (see Table 6).

Table 6: Length of Congestion on Top 10 Locations (Freeways)

Ranking	Avg. QL	Total QL	% QL
Severity	7.14	71.44	32%
Total Impact	9.77	97.72	43%
Variability	5.59	55.91	25%
Avg QL (ALL)	5.87	-	-
Total		225.07	100%

Table 7: Ranking of Congested Arterial Locations by Severity, Total Impact and Variability

No.	Route	Limits	Direction	State	Peak	Queue Length	PTI	TTI	Severity	Total Impact	Variability	Severity Rank	Total Impact Rank	Variability Rank
1	MO-100	Vandeventer to Kingshighway	WB	MO	PM	0.96	4.50	3.01	3.76	2.89	1.50	1	19	21
2	SKINKER	Forest Park Pky to Delmar	SB	MO	PM	0.43	5.00	2.28	3.64	0.98	2.19	2	51	1
3	SALISBURY ST	N FLORISSANT AVE to I-70	EB	MO	PM	0.49	3.66	2.30	2.98	1.13	1.59	3	48	15
4	MO-100	Big Bend to McCausland	EB	MO	PM	0.83	3.25	2.61	2.93	2.17	1.25	4	25	49
5	HAMPTON AVE	I-64/US-40 to I-44	SB	MO	PM	1.02	3.62	1.95	2.79	1.99	1.86	5	33	9
6	HANLEY	Shaw Park Dr to I-64/US-40/Eager Rd	SB	MO	PM	1.30	3.56	1.64	2.60	2.13	2.17	6	27	2
7	LACLEDE ST RD	Union Pacific to Murdoch	SB	MO	PM	1.10	3.26	1.69	2.48	1.86	1.93	7	37	5
8	MO-141	Big Bend to I-44	SB	MO	PM	1.88	3.23	1.68	2.46	3.16	1.92	8	15	6
9	KINGSHIGHWAY	Laclede Ave to Manchester	SB	MO	PM	1.07	2.86	1.80	2.33	1.93	1.59	9	35	16
10	JEFFERSON	Washington Blvd to Park Ave	SB	MO	PM	1.23	2.89	1.70	2.30	2.09	1.70	10	29	13
11	SKINKER	Forest Park Pky to Delmar	SB	MO	AM	0.43	2.78	1.76	2.27	0.76	1.58	11	53	17
12	MO-100	McCausland to Big Bend	WB	MO	PM	0.83	2.44	2.00	2.22	1.66	1.22	12	39	53
14	MCCAUSLAND AVE	I-64 to Arsenal	SB	MO	PM	1.30	2.85	1.56	2.21	2.03	1.83	14	32	11
13	IL-157	Horseshoe Lake Rd to I-55/I-70/US-40	SB	IL	PM	1.92	2.57	1.84	2.21	3.53	1.40	13	12	33
15	FOREST PARK AVE	I-64 to Kingshighway	WB	MO	PM	2.14	2.49	1.90	2.20	4.07	1.31	15	8	43
16	HANLEY/LACLEDE ST RD	Murdoch to MO-100/Manchester Rd	NB	MO	AM	1.55	2.90	1.39	2.15	2.15	2.09	16	26	3
17	IL-159	Main to IL-15	SB	IL	PM	1.21	2.38	1.81	2.10	2.19	1.31	17	24	42
18	MCCAUSLAND AVE	I-64 to Oakland	NB	MO	AM	0.29	2.68	1.46	2.07	0.42	1.84	18	59	10
19	IL-140	Washington Ave to IL-3	EB	IL	PM	1.15	2.32	1.81	2.07	2.08	1.28	19	30	47
20	MO-141	MO-AB/Ladue Rd to I-64/US-40/US-61	SB	MO	PM	1.63	2.68	1.44	2.06	2.35	1.86	20	23	8
21	SALISBURY ST	N FLORISSANT AVE to I-70	EB	MO	AM	0.49	2.45	1.61	2.03	0.79	1.52	21	52	18
22	MO-141	Hawkins to Vance	NB	MO	AM	1.89	2.68	1.35	2.02	2.55	1.99	22	22	4
23	SALISBURY ST	I-70 to Natural Bridge	WB	MO	PM	0.75	2.36	1.65	2.01	1.24	1.43	23	46	32
25	MO-100	Vandeventer to Kingshighway	WB	MO	AM	0.96	2.25	1.71	1.98	1.64	1.32	25	40	40
24	FOREST PARK AVE	Kingshighway to I-64	EB	MO	PM	2.05	2.21	1.75	1.98	3.59	1.26	24	11	48
26	MO-141	Marshall to I-44	SB	MO	AM	0.73	2.43	1.51	1.97	1.10	1.61	26	49	14
27	MO-94	I-64/US-40/US-61 to Mid Rivers Mall Dr	NB	MO	PM	4.19	2.26	1.67	1.97	7.00	1.35	27	2	39
28	MO-340	Chesterfield Pky North to Baxter Rd	SB	MO	PM	1.38	2.55	1.35	1.95	1.86	1.89	28	36	7
29	MO-100	Kingshighway to Vandeventer	EB	MO	AM	0.96	2.17	1.65	1.91	1.58	1.32	29	42	41
30	JEFFERSON	Arsenal to Park	NB	MO	PM	1.35	2.24	1.56	1.90	2.11	1.44	30	28	30
32	MO-D	I-170 to Schuetz Rd	WB	MO	PM	4.28	2.26	1.53	1.90	6.55	1.48	32	3	24
31	FOREST PARK AVE	I-64 to Kingshighway	WB	MO	AM	2.14	2.18	1.61	1.90	3.45	1.35	31	13	38
33	MCCAUSLAND AVE	Arsenal to I-64	NB	MO	AM	1.44	2.43	1.35	1.89	1.94	1.80	33	34	12
34	SKINKER	Forest Park Pky to Delmar	NB	MO	PM	0.43	2.17	1.60	1.89	0.69	1.36	34	55	37
35	KINGSHIGHWAY	I-44 to Delmar	NB	MO	PM	2.38	2.23	1.51	1.87	3.59	1.48	35	10	25
36	US-67	I-270 to Old Halls Ferry Rd	NB	MO	PM	5.59	2.16	1.50	1.83	8.39	1.44	36	1	27
37	MCCAUSLAND AVE	I-64 to Oakland	NB	MO	PM	0.29	2.12	1.48	1.80	0.43	1.43	37	58	31
38	SALISBURY ST	I-70 to Natural Bridge	WB	MO	AM	0.75	2.11	1.42	1.77	1.07	1.49	38	50	22
39	MCCAUSLAND AVE	Arsenal to I-64	NB	MO	PM	1.44	2.07	1.44	1.76	2.07	1.44	39	31	29
40	FOREST PARK AVE	Kingshighway to I-64	EB	MO	AM	2.05	2.01	1.48	1.75	3.03	1.36	40	17	36
41	IL-157	I-55/I-70/US-40 to Horseshoe Lake Rd	NB	IL	PM	1.87	1.96	1.52	1.74	2.84	1.29	41	20	46
42	MO-D	Concourse to Schuetz	EB	MO	AM	0.50	2.07	1.37	1.72	0.69	1.51	42	56	20
43	SKINKER	Forest Park Pky to Delmar	NB	MO	AM	0.43	2.00	1.44	1.72	0.62	1.39	43	57	34
44	JEFFERSON	Washington Blvd to Park Ave	SB	MO	AM	1.23	2.03	1.40	1.72	1.72	1.45	44	38	26
46	MO-94	I-70/Vet. Mem. Pky/Bogey Rd to MO-364	SB	MO	PM	2.33	2.06	1.36	1.71	3.17	1.51	46	14	19
45	KINGSHIGHWAY	Shaw to Delmar	NB	MO	AM	2.73	2.04	1.38	1.71	3.77	1.48	45	9	23
47	MO-100	McCausland to Big Bend	WB	MO	AM	0.83	2.00	1.39	1.70	1.15	1.44	47	47	28
48	LACLEDE ST RD	Big Bend to Murdoch	SB	MO	AM	0.49	1.94	1.42	1.68	0.70	1.37	48	54	35
49	MO-100	Kingshighway to Vandeventer	EB	MO	PM	0.96	1.84	1.49	1.67	1.43	1.23	49	43	52
50	MO-K	I-70 to MO-364	SB	MO	PM	3.50	1.84	1.48	1.66	5.18	1.24	50	4	50
51	IL-143	IL-111 to IL-3	WB	IL	PM	2.05	1.77	1.53	1.65	3.14	1.16	51	16	55
52	IL-157	Horseshoe Lake Rd to I-55/I-70/US-40	SB	IL	AM	1.92	1.84	1.41	1.63	2.71	1.30	52	21	44
53	IL-140	CR-51 to I-55	WB	IL	PM	0.90	1.71	1.51	1.61	1.36	1.13	53	44	57
54	IL-140	Washington Ave to IL-3	EB	IL	AM	1.15	1.81	1.39	1.60	1.60	1.30	54	41	45
55	IL-111	Forest Blvd to I-55/I-70/US-40	NB	IL	PM	3.01	1.64	1.53	1.59	4.61	1.07	55	6	59
56	IL-143	IL-111 to IL-3	WB	IL	AM	2.05	1.70	1.46	1.58	2.99	1.16	56	18	54
57	IL-140	CR-51 to I-55	WB	IL	AM	0.90	1.66	1.44	1.55	1.30	1.15	57	45	56
58	MO-94	N 5th Street to I-70	SB	MO	PM	3.49	1.68	1.36	1.52	4.75	1.24	58	5	51
59	IL-111	Forest Blvd to I-55/I-70/US-40	NB	IL	AM	3.01	1.53	1.40	1.47	4.21	1.09	59	7	58

Table 8: Ranking of Congested Freeway Locations by Severity, Total Impact and Variability

No.	Route	Limits	Direction	State	Peak	Queue Length	PTI	TTI	Severity	Total Impact	Variability	Severity Rank	Total Impact Rank	Variability Rank
1	I-64	Kingshighway/Exit 36 to I-55/I-70/US-40	EB	MO	PM	4.46	5.10	2.44	3.77	10.88	2.09	1	5	2
2	I-44/I-55	Grand Ave/Exit 247 to I-44/I-55/Gravois/Exit 207	EB-SB	MO	PM	3.84	4.19	2.11	3.15	8.10	1.99	2	12	5
3	I-170	I-64 to MO-D	SB	MO	PM	4.18	3.64	1.82	2.73	7.61	2.00	3	14	4
4	I-44	Hampton/Exit 286 to Shrewsbury/Exit 283	WB	MO	PM	2.92	3.39	1.65	2.52	4.82	2.05	4	23	3
5	I-270	I-55/I-255/Exit 1 to MO-100/Manchester Rd./Exit 9	NB	MO	AM	10.00	3.06	1.58	2.32	15.80	1.94	5	3	7
6	I-64, I-55/I-64	Baugh Ave. to Poplar St Brg.	WB	IL	AM	4.12	3.11	1.43	2.27	5.89	2.17	6	19	1
7	I-270	McDonnell Blvd/Exit 23 to Elizabeth-Washington St/Exit 28	EB	MO	PM	5.40	2.86	1.60	2.23	8.64	1.79	7	9	12
8	I-64	Kingshighway/Exit 36 to I-170/Brentwood Blvd/Exit 31	WB	MO	AM	5.52	2.76	1.46	2.11	8.06	1.89	8	13	9
9	I-270	I-70 to I-55/I-255/Exit 1	SB	MO	PM	21.00	2.71	1.51	2.11	31.71	1.79	9	1	11
10	I-64	MO-K to I-70	WB	MO	PM	10.00	2.59	1.33	1.96	13.30	1.95	10	4	6
11	I-64	I-270/Exit 25 to McCausland to Ave/Exit 33	EB	MO	AM	7.80	2.56	1.34	1.95	10.45	1.91	11	6	8
12	I-170	MO-180/St Charles Rock/Exit 5 to Hanley Rd/Exit 9	NB	MO	PM	4.33	2.35	1.36	1.86	5.89	1.73	12	20	17
13	I-64	I-170/Brentwood Blvd/Exit 31 to I-270/Exit 25	WB	MO	PM	5.15	2.29	1.29	1.79	6.64	1.78	13	17	13
14	I-70	I-170/Exit 238 to MO-180/St Charles Rock/Exit 234	WB	MO	PM	5.44	2.18	1.27	1.73	6.91	1.72	14	16	19
15	I-64	Chesterfield Pky/Exit 20 to McCausland Ave/Exit 33	EB	MO	PM	14.00	2.13	1.24	1.69	17.36	1.72	15	2	18
16	I-70	MO-A/Exit 212 to Pearce Blvd/Exit 208	WB	MO	PM	5.70	2.10	1.24	1.67	7.07	1.69	16	15	23
17	I-64	Chesterfield Pky/Exit 20 to Boones Crossing/Exit 17	WB	MO	PM	4.35	2.10	1.23	1.67	5.35	1.71	17	22	22
18	I-70	Shreve/Exit 245 to Lucas & Hunt Rd/Exit 241	WB	MO	PM	3.61	2.05	1.25	1.65	4.51	1.64	18	24	27
19	I-55	Potomac to Park Ave/7Th St/Exit 208	NB	MO	AM	2.89	2.08	1.20	1.64	3.47	1.73	19	29	16
20	I-170	I-64 to MO-D	SB	MO	AM	4.49	2.07	1.21	1.64	5.43	1.71	20	21	21
21	I-44	Tenth St/Exit 249 to I-55/I-64/US-40/Exit 251	WB	MO	AM	2.02	2.09	1.18	1.64	2.38	1.77	21	32	14
22	I-270	Lilac/Exit 33 to Elizabeth/Washington St/Exit 28	WB	MO	AM	6.76	2.03	1.21	1.62	8.18	1.68	22	11	25
23	I-70/I-44/I-55	Stan Musial Brg. to Park	EB-WB-NB	MO	PM	3.45	2.01	1.19	1.60	6.35	1.69	23	18	24
24	I-44	Bowles Ave/Exit 274 to US-50/US-61/US-67/Exit 277	EB	MO	PM	3.70	1.96	1.20	1.58	4.44	1.63	24	26	28
25	I-70	Kingshighway/Exit 244 to Lucas & Hunt Rd/Exit 241	WB	MO	AM	3.07	2.01	1.11	1.56	3.41	1.81	26	30	10
26	I-64	Baxter to Timberlake Manor Pky/Exit 21	EB	MO	AM	3.56	1.99	1.13	1.56	4.02	1.76	25	28	15
27	I-44	Bowles Ave/Exit 274 to Highway Dr/Exit 275	EB	MO	AM	3.00	1.92	1.12	1.52	3.36	1.71	27	31	20
28	I-44	I-270/Exit 276 to MO-141/Exit 272	WB	MO	PM	3.77	1.82	1.17	1.50	4.41	1.56	28	27	30
29	I-70	Zumbehl/Exit 227 to Natural Bridge Rd/Exit 237/Exit 238	EB	MO	AM	9.22	1.83	1.11	1.47	10.23	1.65	29	7	26
30	I-70	Lake St Louis Blvd/Exit 214 to MO-79/Exit 220	EB	MO	AM	8.50	1.76	1.08	1.42	9.18	1.63	30	8	29
31	I-70	I-270/Exit 231 to Cave Springs/Exit 225	WB	MO	PM	7.34	1.67	1.12	1.40	8.22	1.49	31	10	31
32	I-270	Dorsett Rd/Exit 17 to MO-AB/Ladue Rd/Exit 13	SB	MO	AM	4.13	1.59	1.09	1.34	4.50	1.46	32	25	32

c) Performance Trend Analysis and Forecast

Trend analysis is an important analytical technique to gauge the performance of regional congestion indices. This analysis was undertaken for five congestion indices. These are average Speeds, Travel Time Index, Planning Time Index, and Person-Miles Traveled (PMT, Interstate and Non-Interstate). The forecast was undertaken using Statistical Analysis System's (SAS) AutoRegressive Integrated Moving Average (ARIMA) model. The ARIMA procedure is used for analyzing and forecasting equally spaced univariate time series data. The trend analysis was undertaken for the entire monitored system.

Detailed examination of regional congestion trends, between 2012 and 2017, indicate that while arterial congestion appears to be increasing, freeway mobility is improving. The general deterioration in arterial mobility had a negative effect on TTI and PTI. Between 2012 and 2017, arterial TTI increased between 5% (morning peak) and 15% (evening peak). At the same time, morning peak PTI registered an increase of 9% in the morning peaks and 23% during evening peaks.

The reduction in regional freeway congestion is reflected in the rise in speeds and decline in TTI & PTI. Between 2012 and 2017, freeway speeds increased from 58.6 to 64.1 (morning peak) and from 57.3 to 63.8 (evening peak); TTI declined from 1.05 to 0.97 (morning peak) and from 1.08 to 0.97 (evening peak); and PTI dropped from 1.16 to 1.08 (morning peak) and from 1.27 to 1.12 (evening peak).

The ARIMA forecasts reveal a consistent pattern of future performance trajectories for regional speeds and PTI. Both morning and evening peak speeds on arterials and freeways were forecasted to increase between 2018 and 2019. Similarly, PTI forecasts portray a downward trend by 2019. However, the future TTI and PMT values are mixed. All TTI forecasts indicate a downward trend, except for evening peak prediction which showed an upward movement. While the percent of Person-Miles Traveled on the interstate that are reliable showed signs of decline, PMT on non-interstates increased marginally. These findings are shown from figures 31-43.

i. Average Speed

Figure 31: AM Arterial Speeds

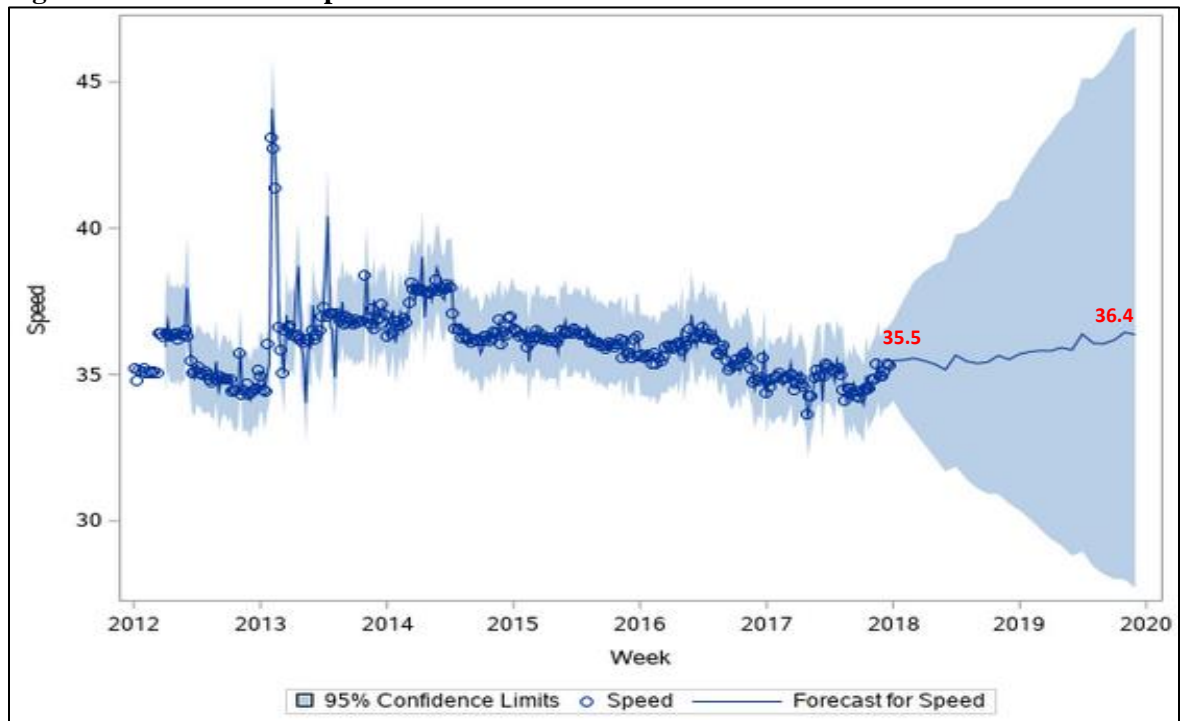


Figure 32: PM Arterial Speeds

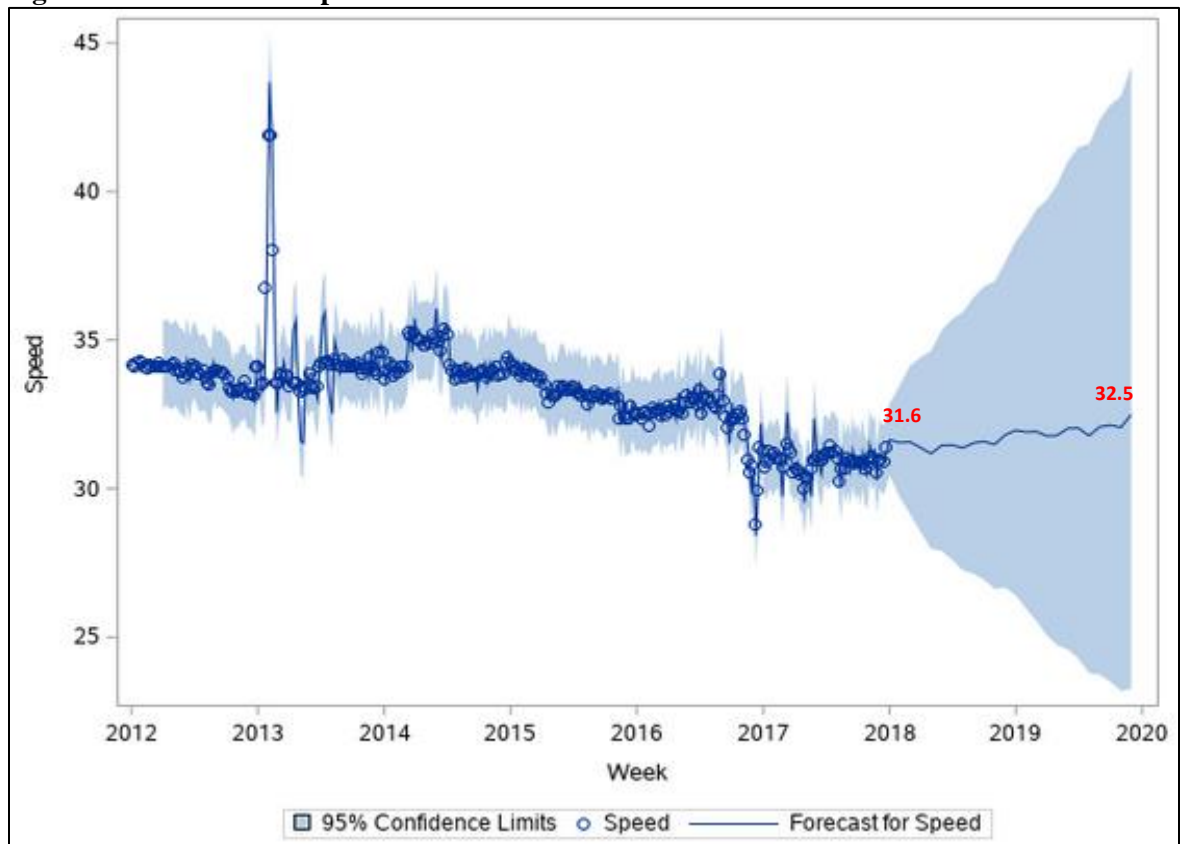


Figure 33: AM Freeway Speeds

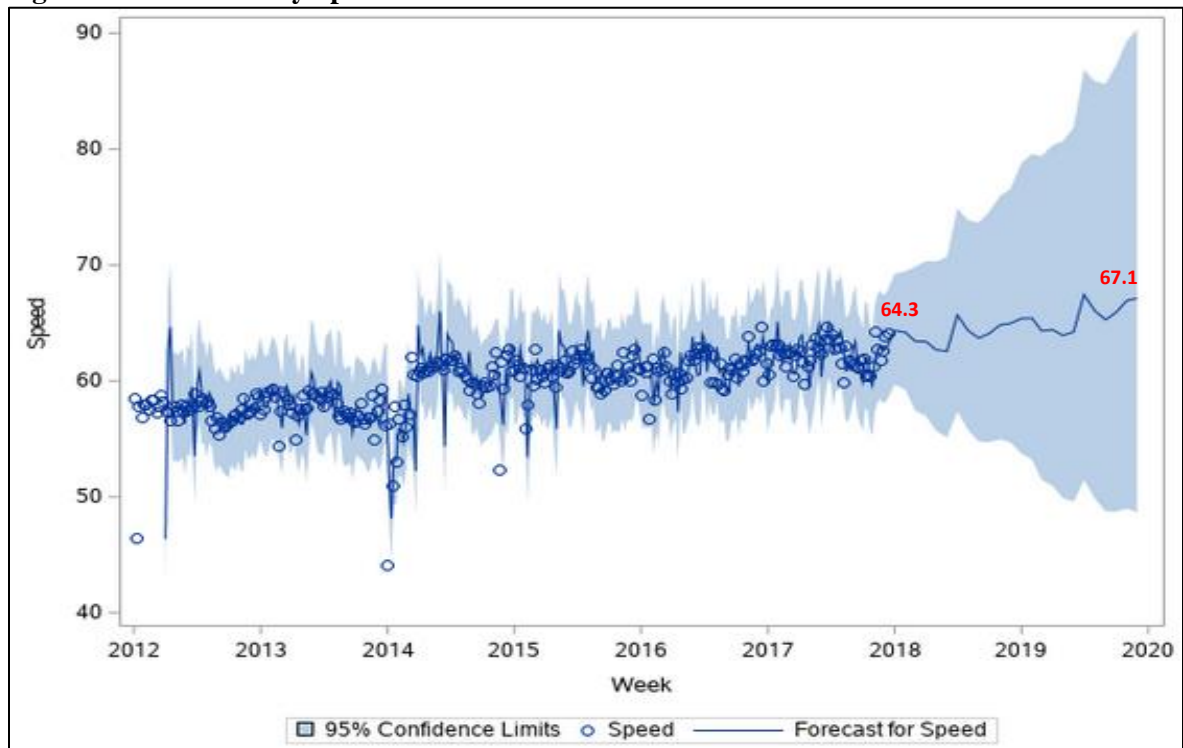
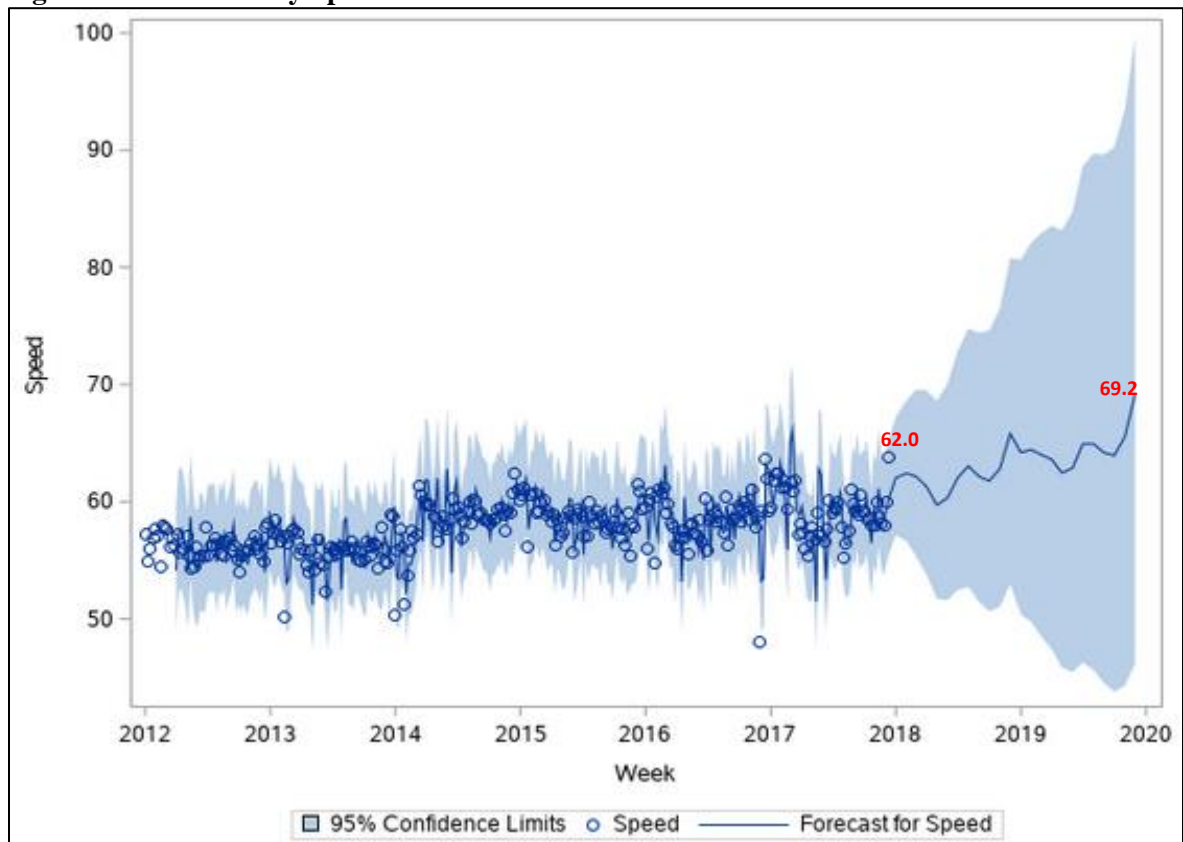


Figure 34: PM Freeway Speeds



ii. Travel Time Index (TTI)

Travel Time Index is often confused with Travel Times. While Travel Time measures the overall time spent traveling from one location to the other, Travel Time Index measures Travel Time as a percentage of free-flow time. This way, the Travel Time Index can be used as a proxy to measure congestion. The peak period TTI (observed and forecast) for arterials and freeways are shown from figures 35-38.

Figure 35: AM Arterials Travel Time Index

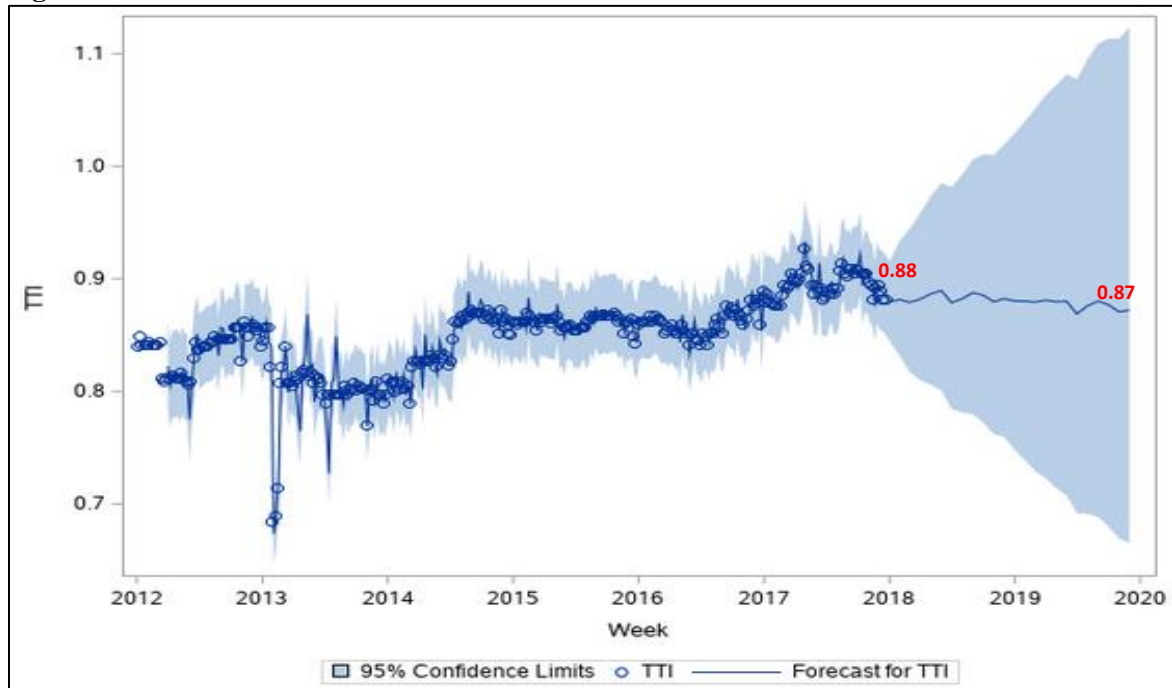


Figure 36: PM Arterials Travel Time Index

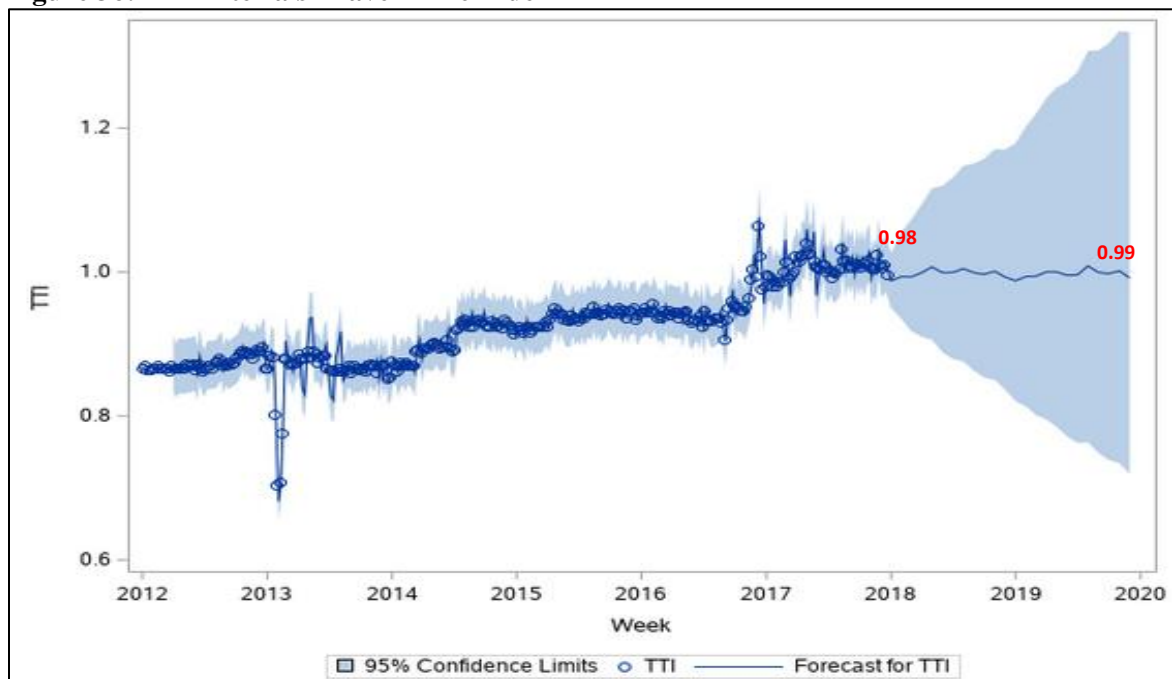


Figure 37: AM Freeways Travel Time Index

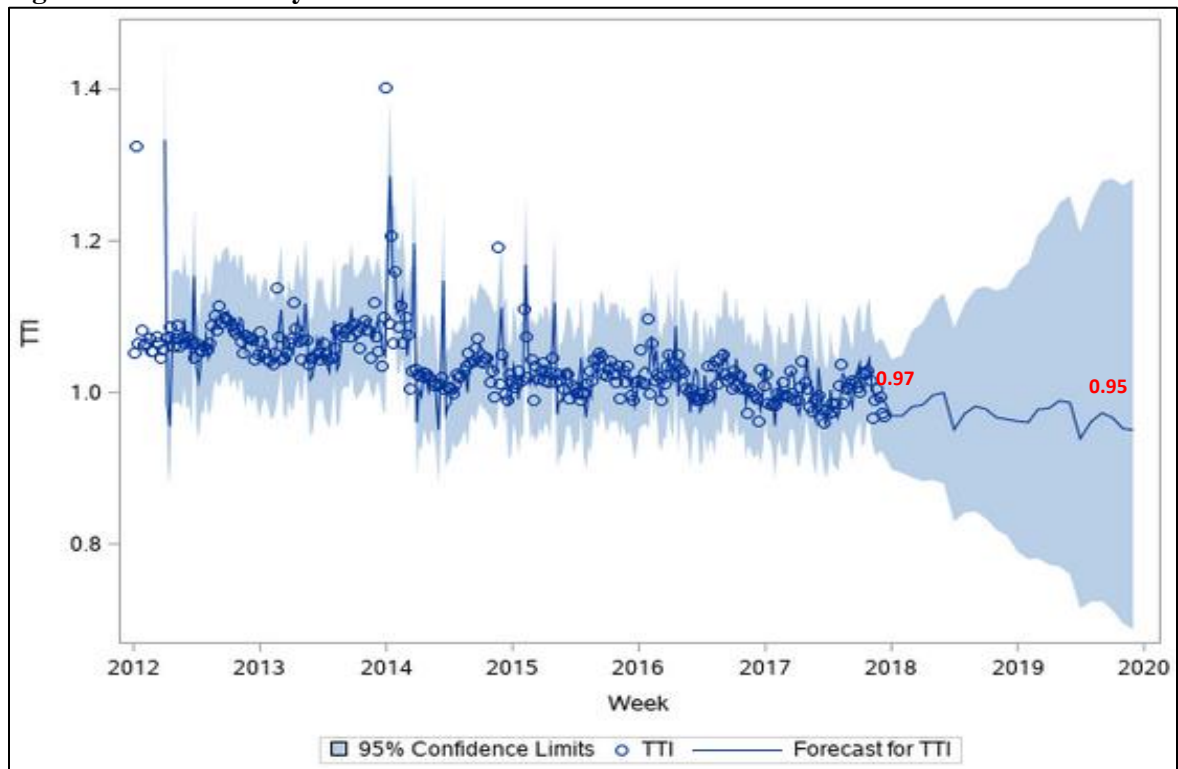
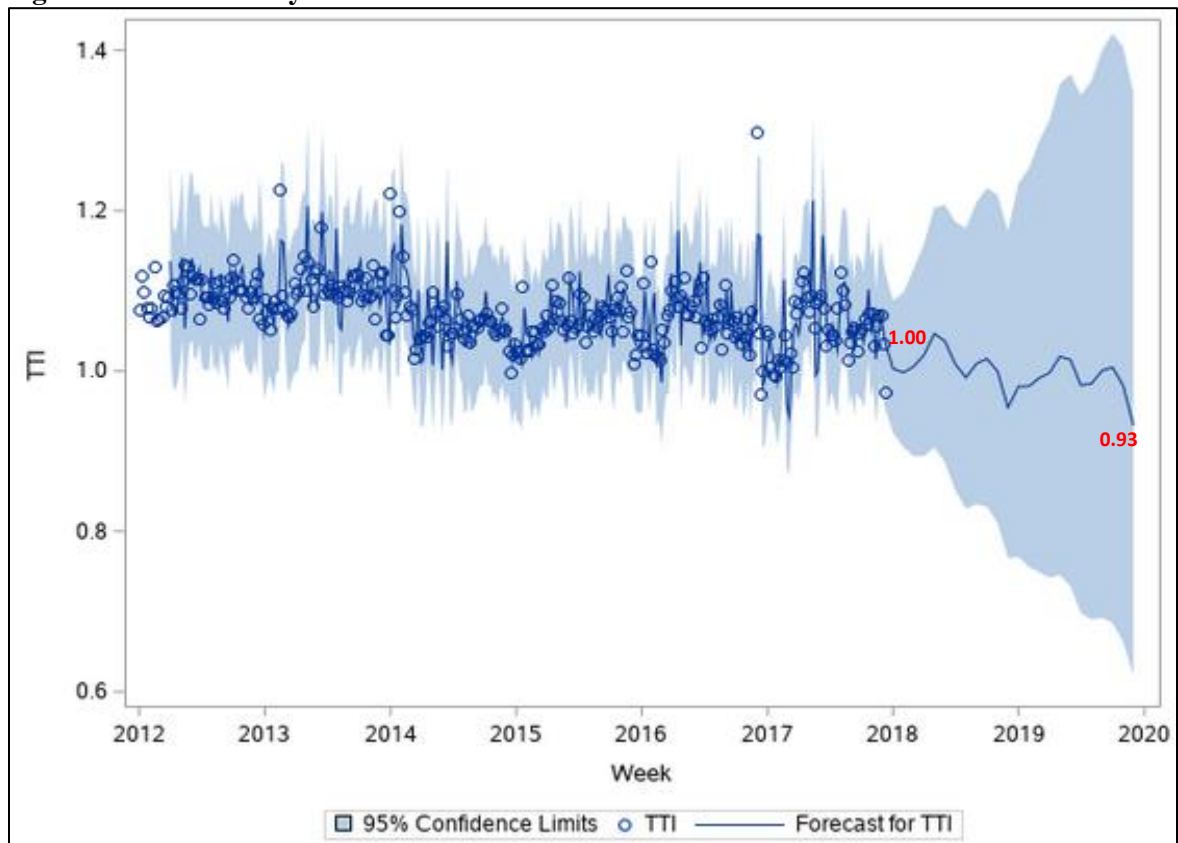


Figure 38: PM Freeways Travel Time Index



iii. Planning Time Index (PTI)

Planning Time Index is the most widely used measure of travel time reliability. Planning Time Index (PTI) is the total travel time that should be planned when an adequate buffer time is included in a trip's travel time. It is measured as the ratio of 95th percentile Travel Time to Free-flow Travel Time, and it captures both typical and unexpected delay. This way, the PTI compares near-worst case travel time to a travel time in free-flow traffic. The observed trend and forecast of PTI are shown from figures 39-42.

Figure 39: AM Arterial Planning Time Index

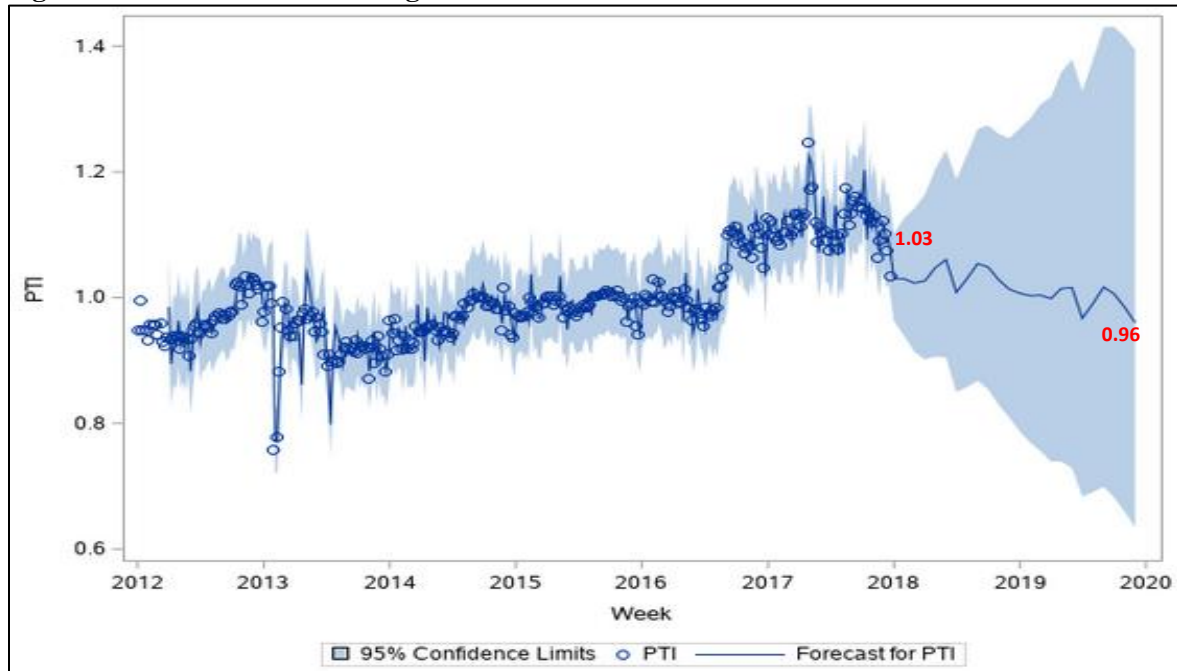


Figure 40: PM Arterial Planning Time Index

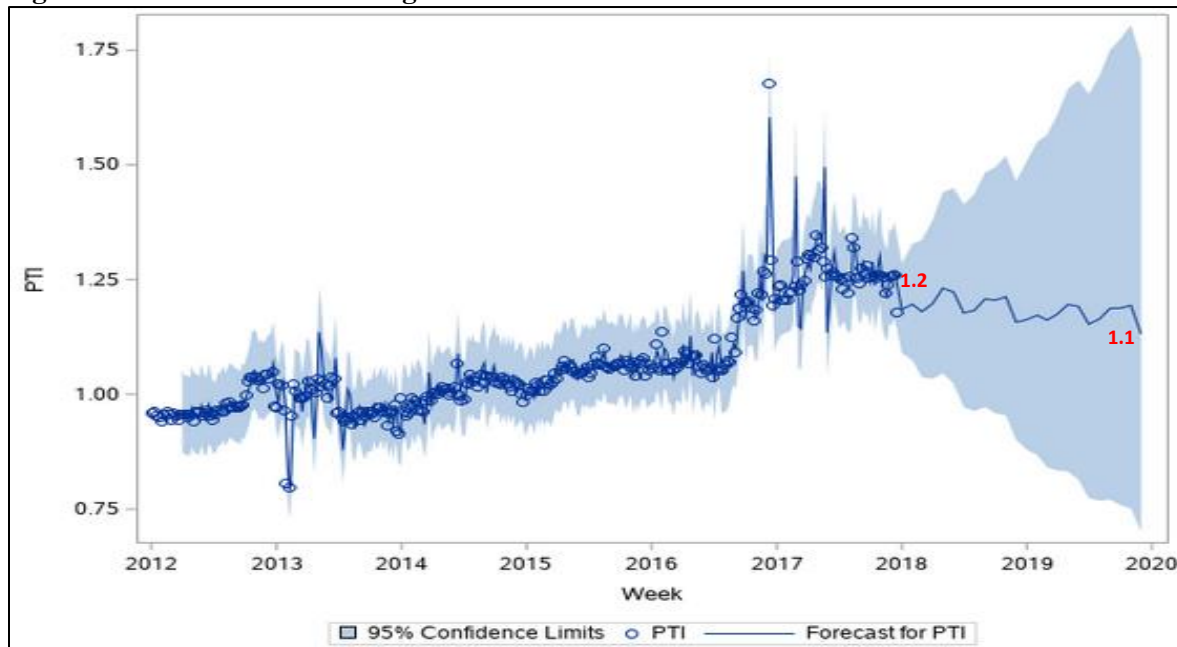


Figure 41: AM Freeway Planning Time Index

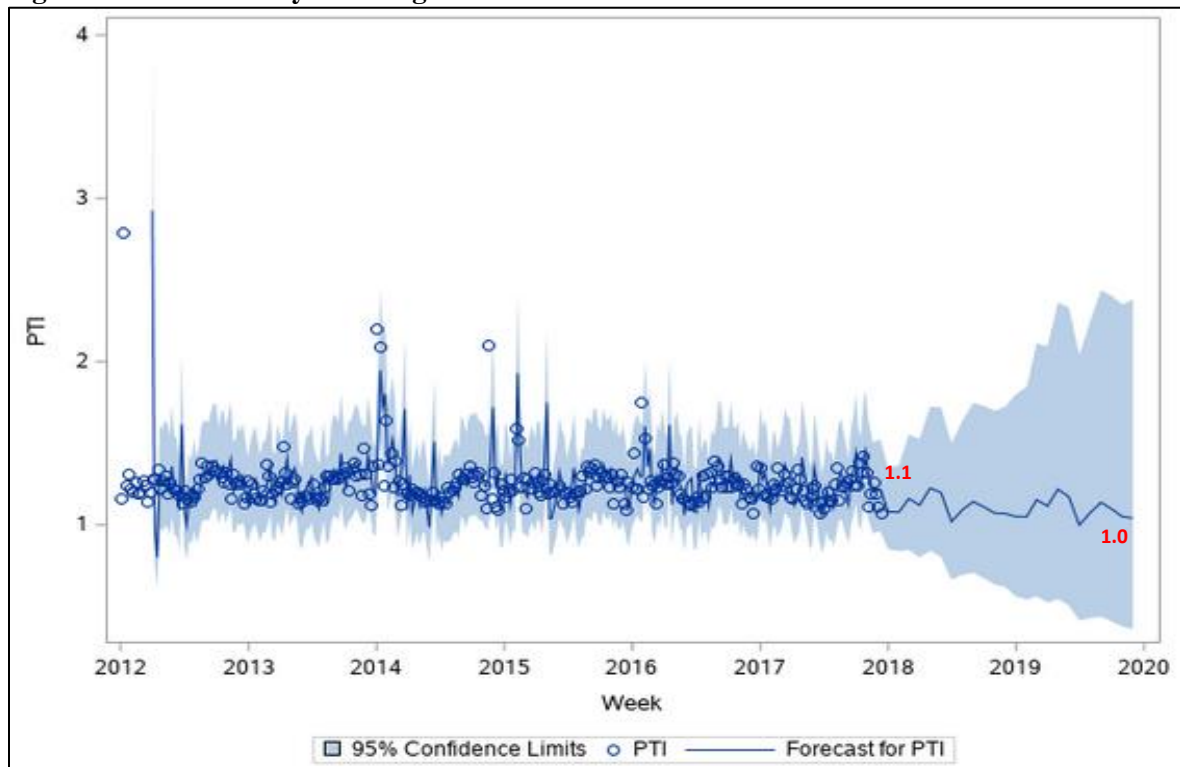
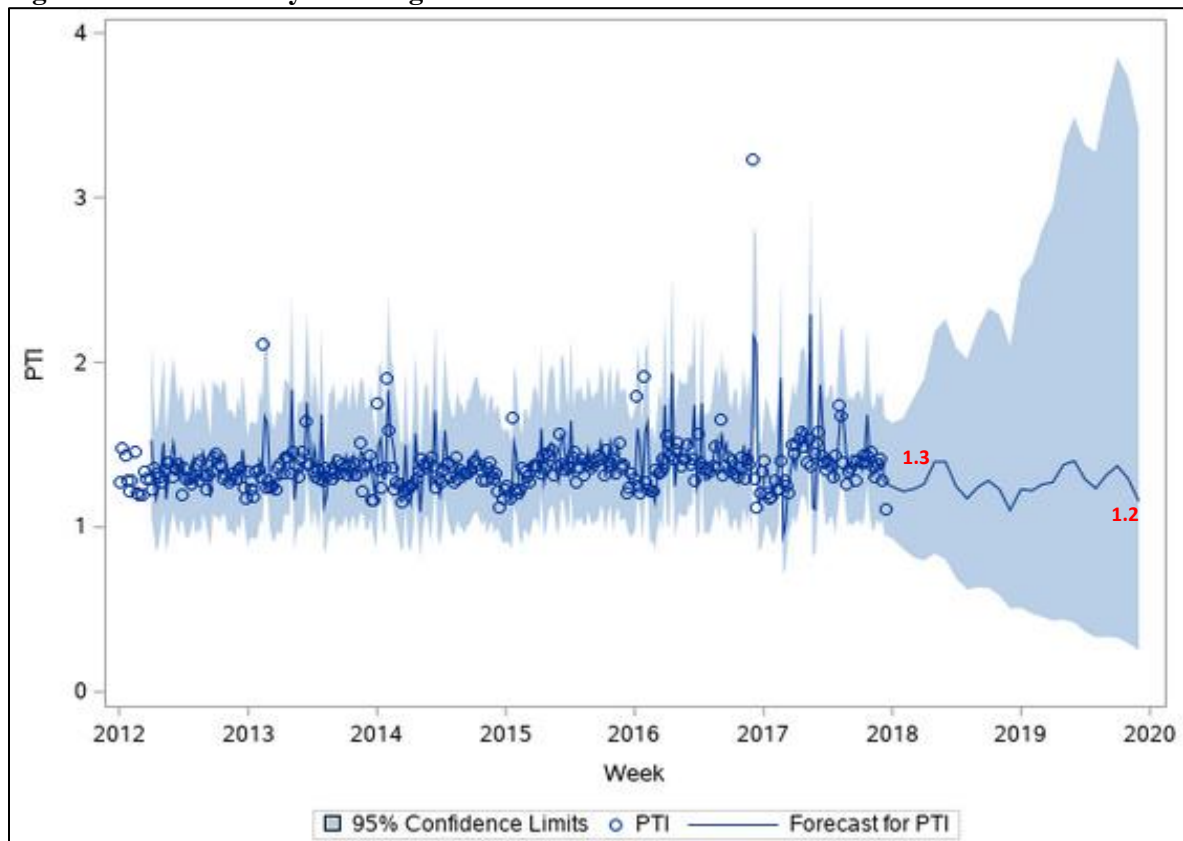


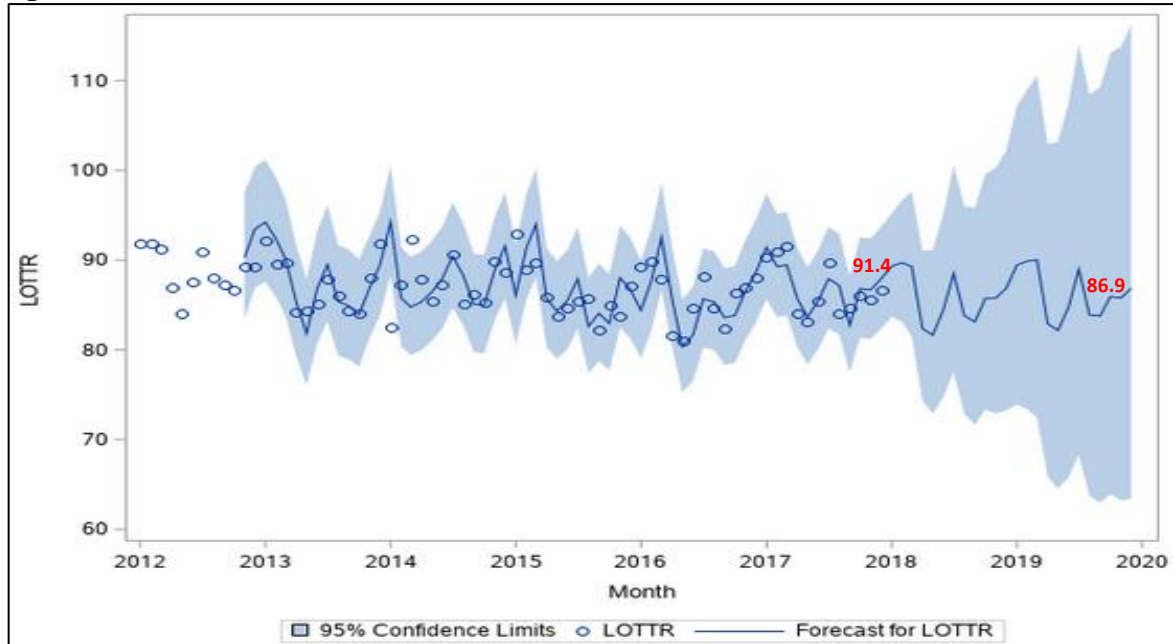
Figure 42: PM Freeway Planning Time Index



iv. **Person-Miles Traveled (PMT)**

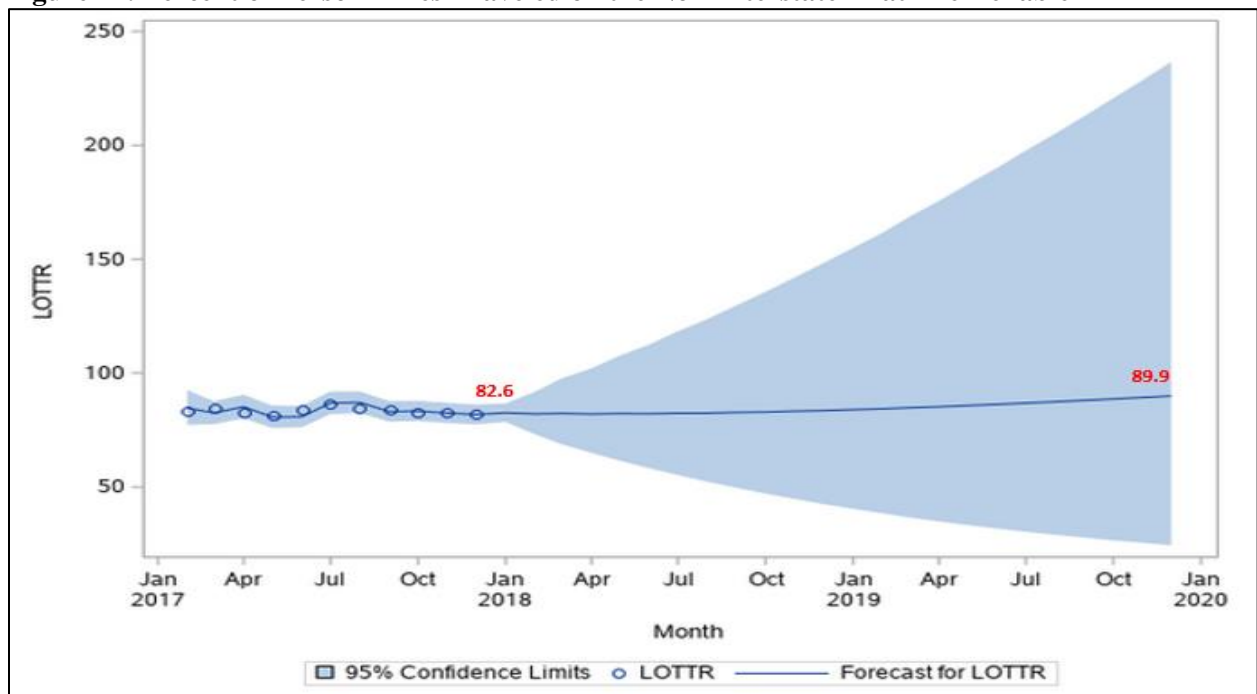
- **Person-Miles Traveled (PMT) on the Interstate**

Figure 43: Percent of Person-Miles Traveled on the Interstate That Are Reliable



- **Person-Miles Traveled on the Non-Interstate**

Figure 44: Percent of Person-Miles Traveled on the Non-Interstate That Are Reliable



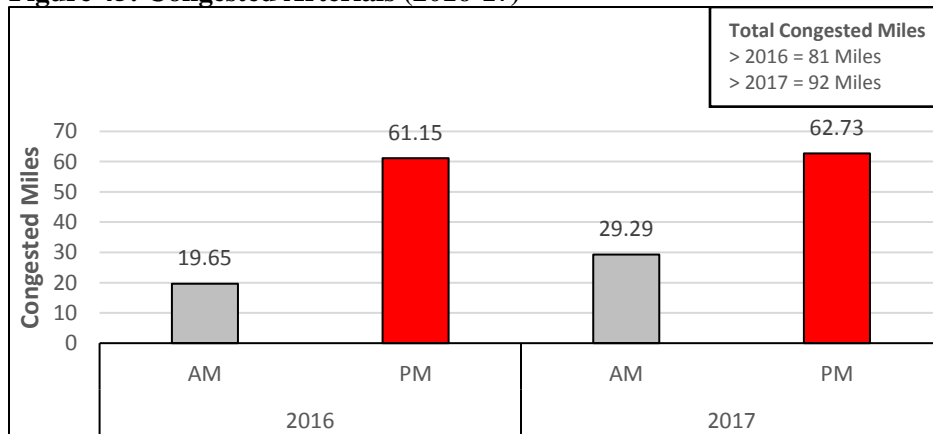
6 Findings

a) Regional Congested Locations Summary

Congested locations identified in Tables 1 and 2 are summarized in the following graphs in terms of peak hour and miles of congestion. A comparison of between 2017 and 2016 data was undertaken to gauge broader congestion changes. The total congestion in 2016 for arterials and freeways was 81 miles and 285 miles, respectively. In 2017, the total congestion for arterials (92 miles) was about one-half of the queue length on freeways (188 miles).

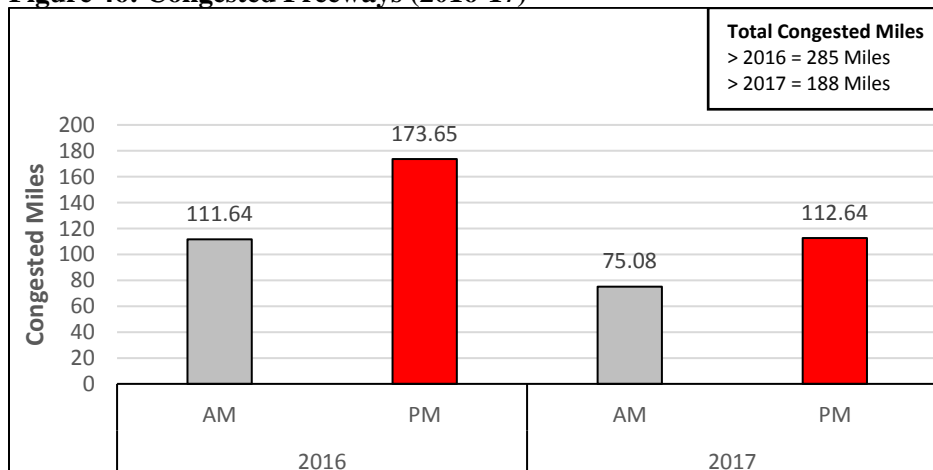
For arterials, as shown in Figures 45, congestion continues to be a problematic phenomenon during evening peak hours. Although regional arterial congestion increased by 11 miles between 2016 and 2017, evening peak congestion's share of the increase was marginal. Morning peak periods registered significant increase in congestion between 2016 and 2017.

Figure 45: Congested Arterials (2016-17)



Generally, regional freeway queue length trend observed in 2017 is consistent with what was found in 2016 (see Figure 46). The distribution of freeway peak-hour congestion is the same between 2016 and 2017, despite the significant reduction in congestion from 285 miles in 2016 to 188 miles in 2017. Evening peak hours continue to dominate the share of total congestion (60%).

Figure 46: Congested Freeways (2016-17)



b) Congested Location Performance Comparisons

Comparative analysis of ranked congested location is a very fruitful exercise to identify changes in congestion (queue length) over time. Between 2016 and 2017, the number of congested arterial locations increased from 38 to 59, resulting in a concomitant increase in total congestion miles from 81 miles to 99 miles. For freeways, the situation was a little different. The number of congested freeway locations declined from 37 to 32 along with a huge decline in total congested miles (from 285 to 188).

The previous section ranked congested locations in terms of Severity, Total Impact, and Variability. In this section, the ranking analysis was summarized on a scale of low (up to 33rd percentile), medium (34th to 66th percentile) and high (greater than 67th percentile) ranges. This way it was possible to compare rankings in different years. The following section summarizes the findings from the ranking exercise. Summary graphs for congested location rankings are shown in figures 5-6 for arterials and 7-8 for freeways. The graphs depict the percent of total congested miles that fall in each of the low, medium and high ranges for each ranking category. The list of locations falling under each category can be found in Appendix 3 (Tables 44 to 55).

Arterial Findings

The increase in arterial severity of congestion led to expected increase on road user impact and variability (reliability) of the system (see Figures 47 and 48).

Severity

- Low level of severity increased by 7% (35% to 42%).
- Moderate and high severity of congestion reduced from 65% to 58%.

Total Impact

- All categories remained constant, except the moderate group with a slight increase of 1%.

Variability

- Low and moderate categories had a total increase of 14% in 2017.
- Locations with very high degrees of unreliability declined from 37% (2016) to 23% (2017).

Figure 47: Arterial Congested Location Comparisons (2017)

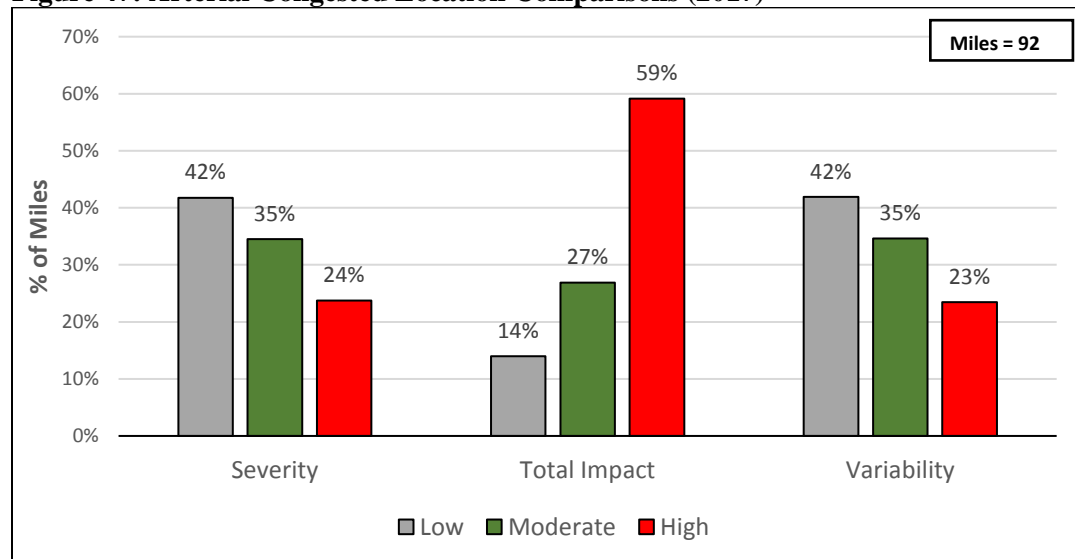
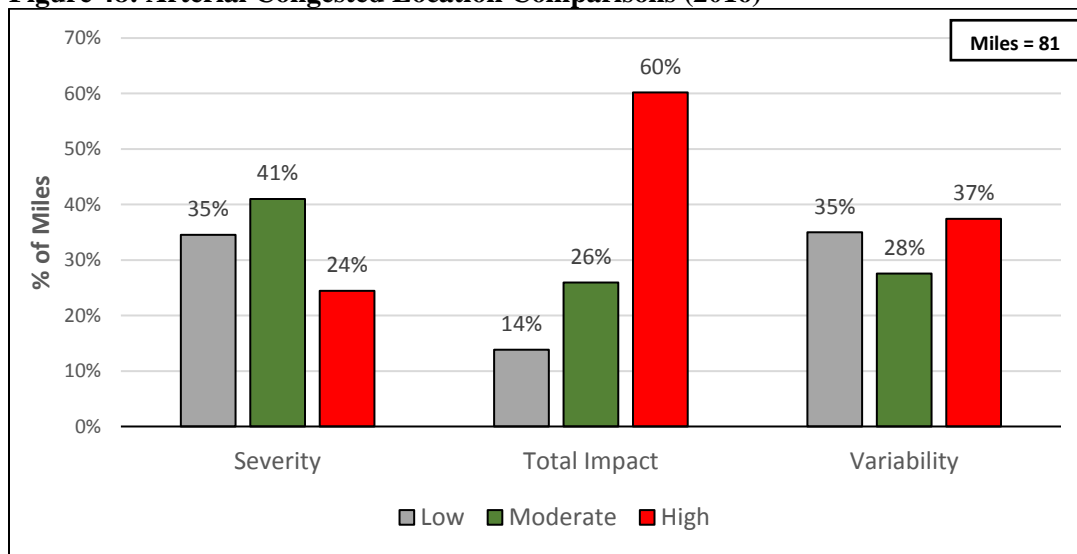


Figure 48: Arterial Congested Location Comparisons (2016)



Freeway Findings

All ranking categories in 2017 experienced decline or stayed the same. The freeway data revealed fewer congested locations and shorter queue lengths but less than proportionate decline in driver impact and reliability (see Figures 49 and 50).

Severity

- Congestion severity remained the same for moderate and high locations.

Total Impact

- Congestion had less impact on drivers (moderate and high congestion declined from 83% in 2016 to 80% in 2017).

Variability

- The freeway System was a little more reliable (moderate and high congestion declined from 69% in 2016 to 68% in 2017).

Figure 49: Freeway Congested Location (2017)

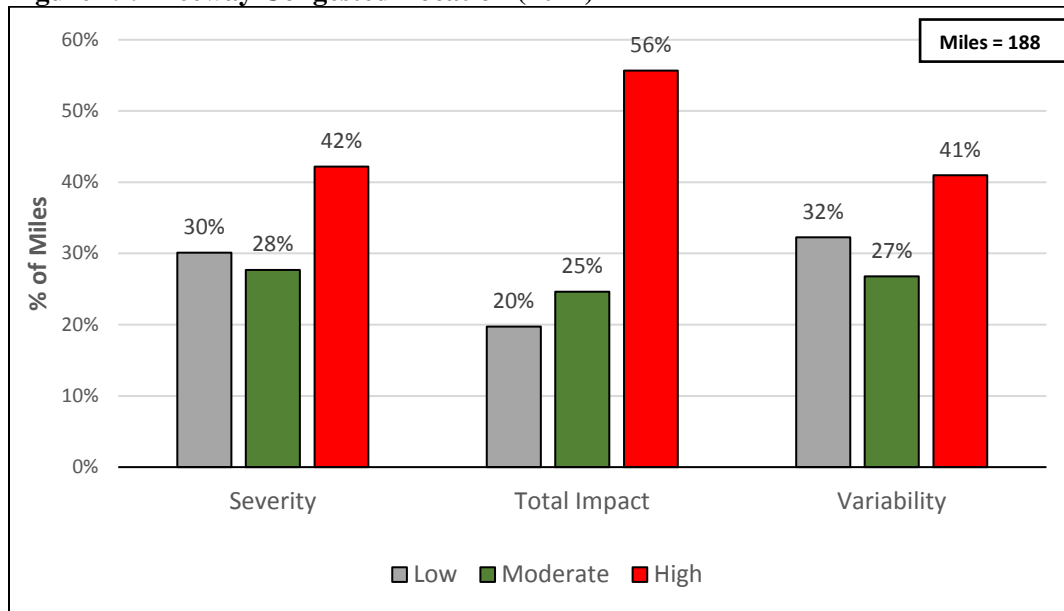
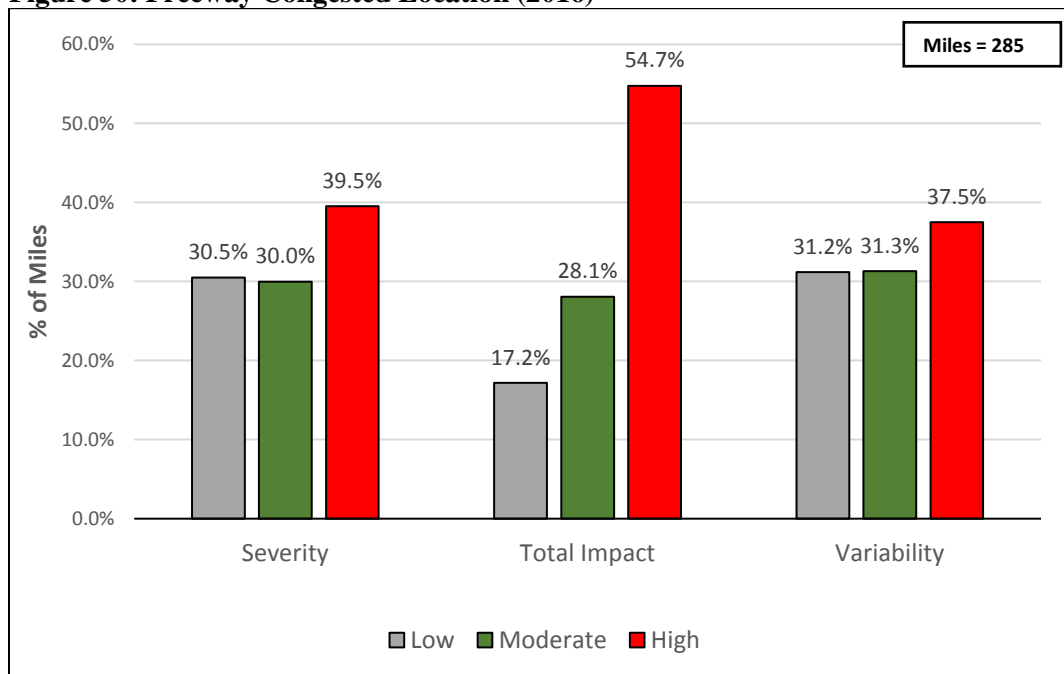


Figure 50: Freeway Congested Location (2016)



c) Congested Location Performance Distributions

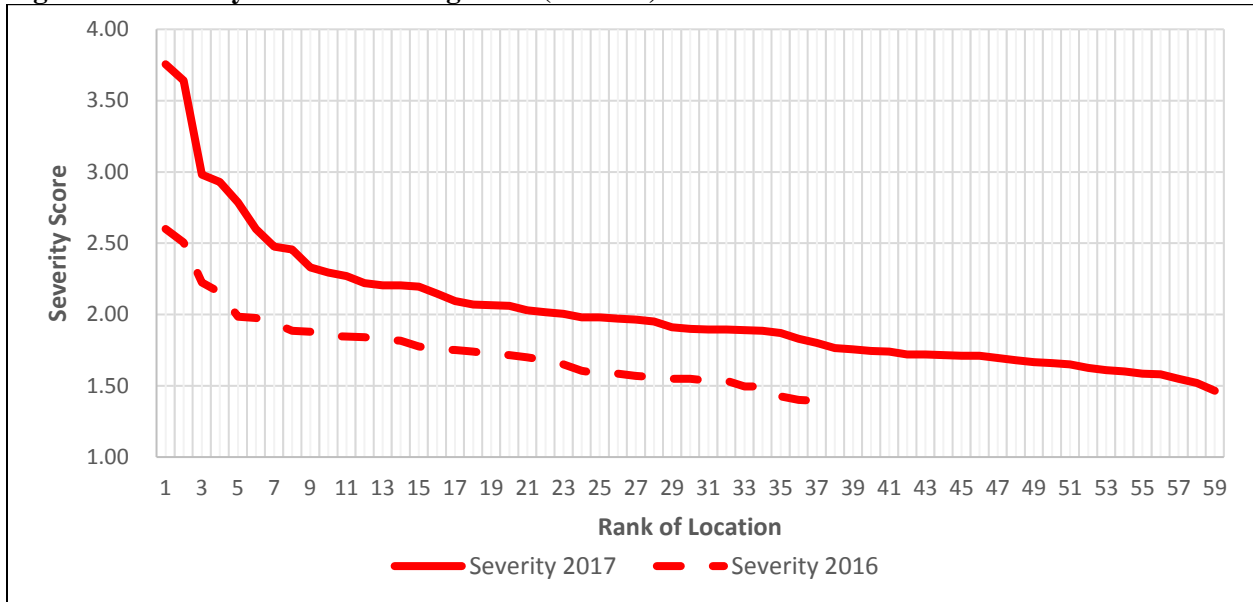
This section looks at changes in ranked locations between 2016 and 2017. Locations were ranked for Severity, Total Impact, and Variability. The x-axis represent the position of congested locations in that category. The y-axis measures the score of a particular congested location on that category.

a) Arterials

i. Severity

- The level of severity of congestion increased across all ranked locations between 2016 and 2017.

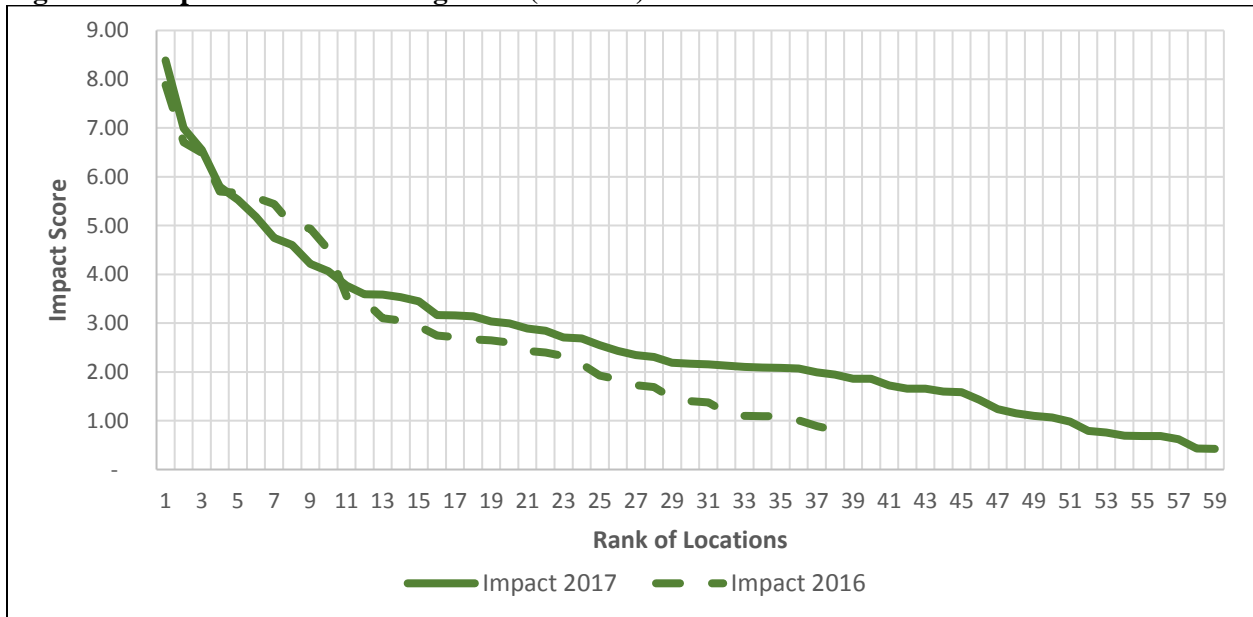
Figure 51: Severity of Arterial Congestion (2016-17)



ii. Total Impact

- The level of congestion impact on drivers increased for the majority of ranked locations between 2016 and 2017.

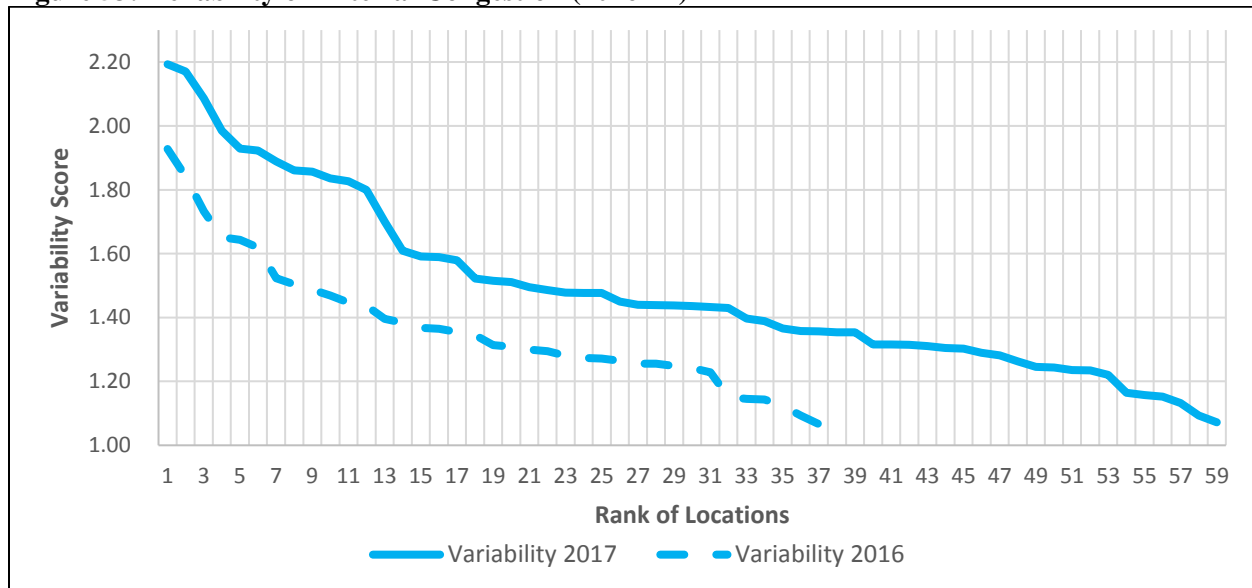
Figure 52: Impact of Arterial Congestion (2016-17)



Variability

- The level of unreliability of congested locations worsened between 2016 and 2017.

Figure 53: Reliability of Arterial Congestion (2016-17)



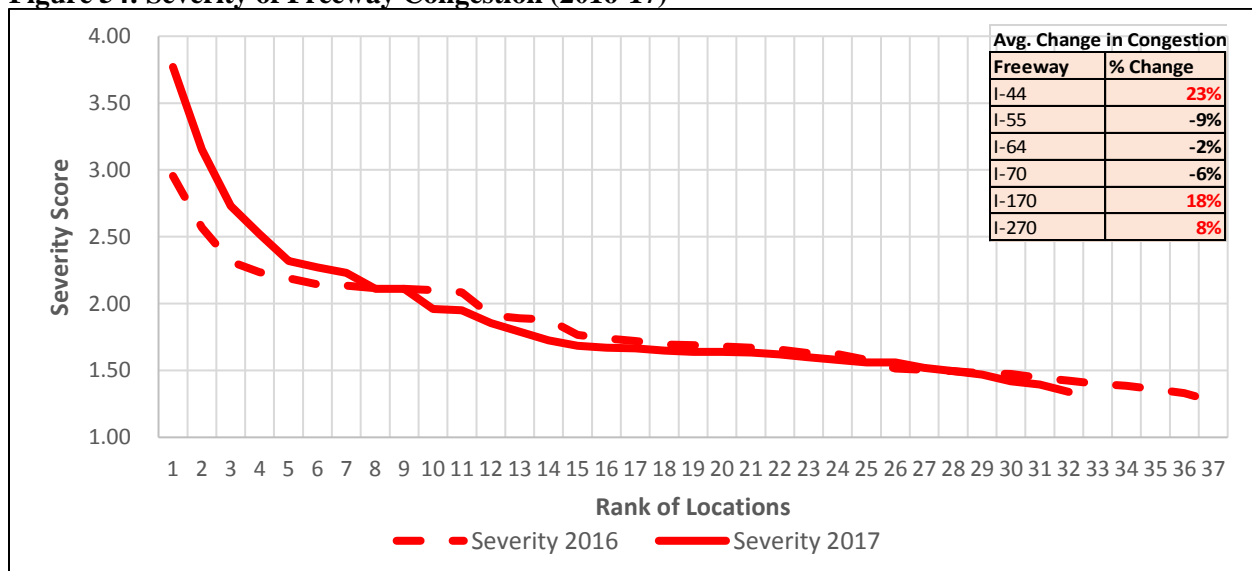
b) Freeways

The insert tables in the following graphs show the percent change of average score for major freeways between 2016 and 2017.

i. Severity

- The level of severity of congestion increased for the most severely congested locations.

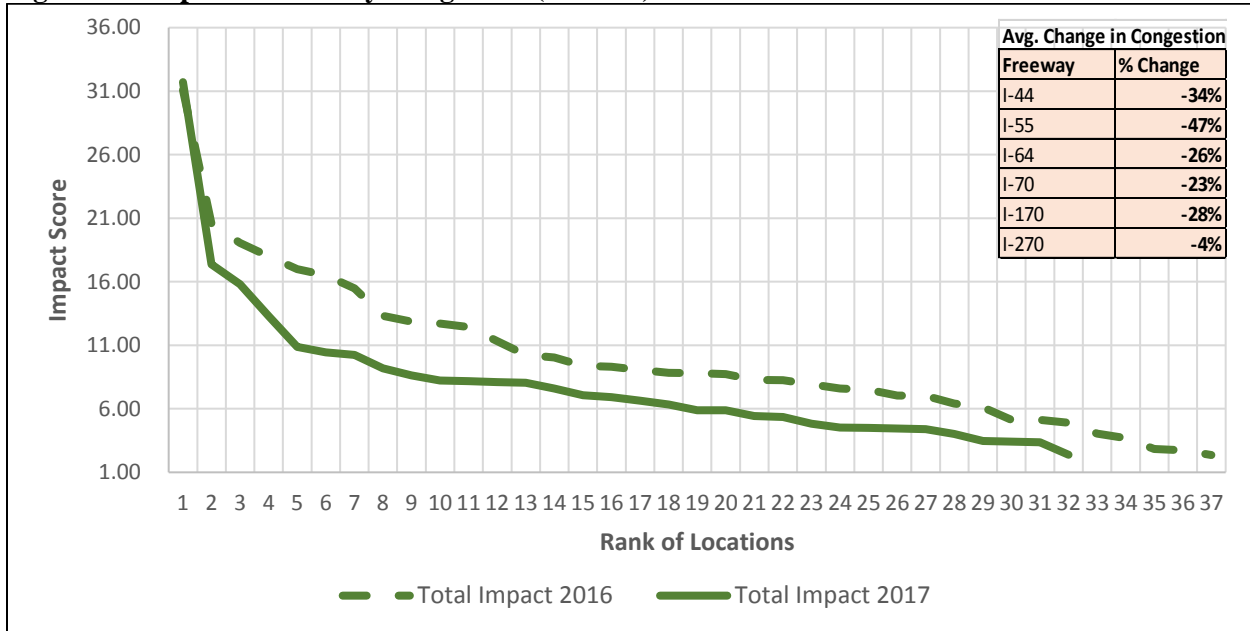
Figure 54: Severity of Freeway Congestion (2016-17)



ii. Total Impact

- The degree of impact of congestion on drivers declined between 2016 and 2017.

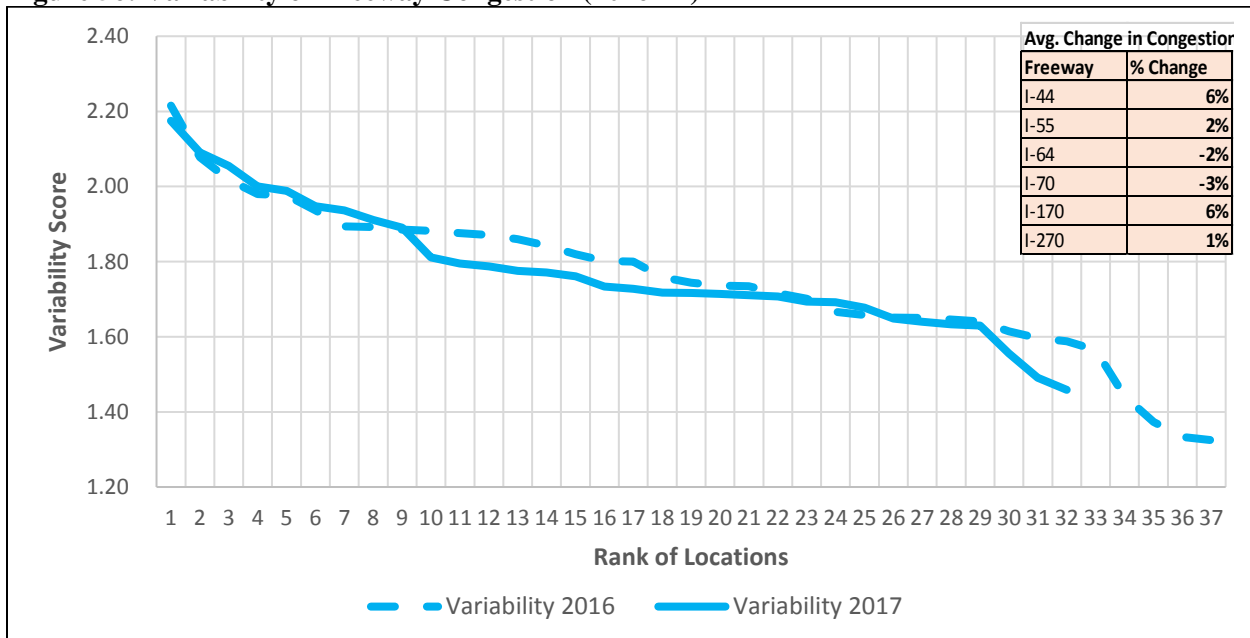
Figure 55: Impact of Freeway Congestion (2016-17)



iii. Variability

- There was no significant degree of change between 2016 and 2017 in freeway reliability of travel times.

Figure 56: Variability of Freeway Congestion (2016-17)



7 Identify Mobility-Enhancing Strategies

Following the implementation of mobility-enhancing projects, partners are often required to evaluate strategies to ensure that implemented strategies are effective at addressing congestion as intended, and to make changes based on the findings as necessary. Strategies that significantly improve congestion are encouraged in future project sponsorship.

These mobility project evaluations are undertaken with a before-and-after study design. The following sub-section reports mobility project evaluations from the Missouri Department of Transportation (MoDOT), Illinois Department of Transportation (IDOT), and St. Charles.

a) Missouri Department of Transportation (MoDOT)

MoDOT implemented six key projects with significant impacts on delay, number of stops, average speed, and travel times. These projects were on the following roadways: Route K, MO-100, MO-115, I-64, US-50, and MO-267. The detailed before-and-after congestion and emission impacts are summarized in the following sections. Also, the results of I-64 lane addition impact analysis was reported.

1. Route K

Congestion Impacts of Route-K Signal Timing Projects

Following the completion of the implementation phase, the field studies were repeated in order to evaluate the effectiveness of the new coordination plans. These travel time delay studies were again repeated numerous times over the course of two weeks. The data for each set of travel runs is provided in Table 9.

Table 9: Congestion Impacts of Route-K Signal Timing Projects

Time Period	Scenario	Total Delay		Stops		Average Speed (mph)		Travel Time (sec)	
		NB	SB	NB	SB	NB	SB	NB	SB
AM	Before	243	205	5.5	3.7	31	32	774	739
	After	158	196	4	4.8	36	34	662	697
	Improvement	-35%	-4%	-27%	30%	17%	6%	-14%	-6%
Midday	Before	274	351	6.8	6	29	27	806	886
	After	106	143	1.8	3.6	39	37	611	648
	Improvement	-61%	-59%	-74%	-40%	34%	36%	-24%	-27%
PM	Before	389	416	7.8	7.9	26	25	922	953
	After	302	327	6.4	6.2	29	28	819	840
	Improvement	-22%	-21%	-18%	-22%	12%	13%	-11%	-12%
Saturday	Before	412	390	8.2	8.5	25	26	936	927
	After	237	233	5.4	4.8	31	32	756	750
	Improvement	-43%	-40%	-34%	-44%	24%	24%	-19%	-19%

Source: Missouri Dept. of Transp. (St. Louis), Signal Timing and Optimization (Route K), Final Report, September 2017, p. 15.

As seen in Table 11, the final timings resulted in significant improvements in total delay, stops, average speed, and travel times on the corridor due to improved progression. The study corridor experienced noteworthy improvements: decreases in delay, stops and travel time and increases in average speed for both directions during all time periods. The only exception was the southbound stops during the AM Peak. Specifically, delay reductions ranged between 4% and 61%, Travel Times reductions ranged between 6% and 27%, and average speeds increased between 6% and 36%.

Fuel and Emission Benefits of the Improved Signal Timings

As a final step in this analysis, net savings in annual operating costs and pollutant emissions were estimated using FHWA guidelines (“A Method for Estimating Fuel Consumption and Vehicle Emissions on Urban Arterials and Networks,” Report Number FHWA-TS-81-210; April 1981). These computations were based upon average travel times, speed measurements and daily traffic volumes. The results are summarized in Table 10.

Table 10: Fuel and Emission Benefits

Emission Measure	Pre-Study	Post-Study	Difference
Est. Annual Fuel Consumption (gal/yr)	6,652,835	6,066,805	586,030
Est. Annual Operating Costs (\$/yr)	15,434,577	14,074,988	1,359,589
Est. Annual VOC Emissions (lbs/yr)	243,900	218,201	25,699
Est. Annual CO Emissions (lbs/yr)	1,052,121	941,180	110,941
Est. Annual NO Emissions (lbs/yr)	204,614	183,118	21,496
TOTAL VOC/CO/NO Emissions (lbs/yr)	1,500,635	1,342,499	158,136

Source: Missouri Dept. of Transp., St. Louis, Signal Timing and Optimization (Route K), Final Report, September 2017, p. 16.

Calculations of existing conditions indicated that approximately 6,652,835 gallons of fuel were consumed annually and that approximately 1,500,635 pounds of pollutants were emitted each year within the corridor. Measurements of the net increase in travel speeds were used to determine that approximately 586,030 gallons of fuel could be saved each year by the improved coordination. This reduced fuel consumption would result in an annual cost savings of approximately \$1,359,590 (assuming an average fuel price of \$2.32 per gallon). In addition, pollutant emissions would be decreased by 158,136 pounds per year.

I-64 land Addition Impact Analysis

Eastbound Westbound I-64 Lane Addition Impact Analysis

What was the problem?

During the morning and evening commutes, much of I-64 was congested between I-270 and Route 340 (Olive Boulevard/Clarkson Road). Nearly 150,000 vehicles travel this section of roadway, and in 20 years, that number is expected to increase to more than 175,000 vehicles. The levels of eastbound congestion in the morning and westbound congestion in the evening were cause for improvements along this corridor.



BEFORE



AFTER

With the addition of the new 5th lane on Eastbound I-64 between Route 141 and I-270, the off-ramp to Maryville Center and the on-ramp before Mason Road moved further to the east:

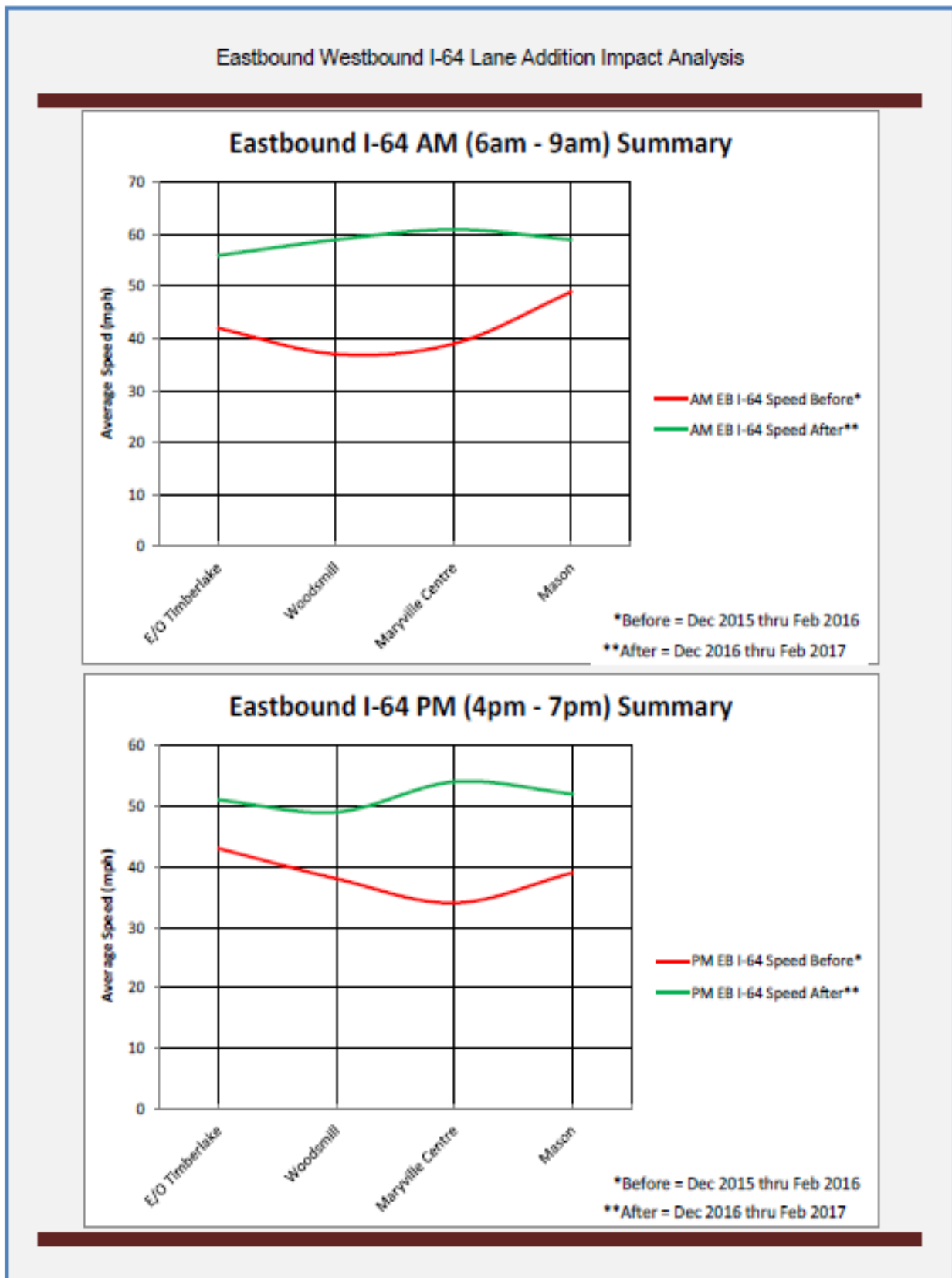
- *Eastbound I-64 average speeds have increased in both AM and PM Peaks*
- *Average speeds have become more stable during AM and PM peaks*
- *Drivers should expect to see smoother traffic conditions*

With the Westbound I-64 lane addition from I-270 to Route 340:

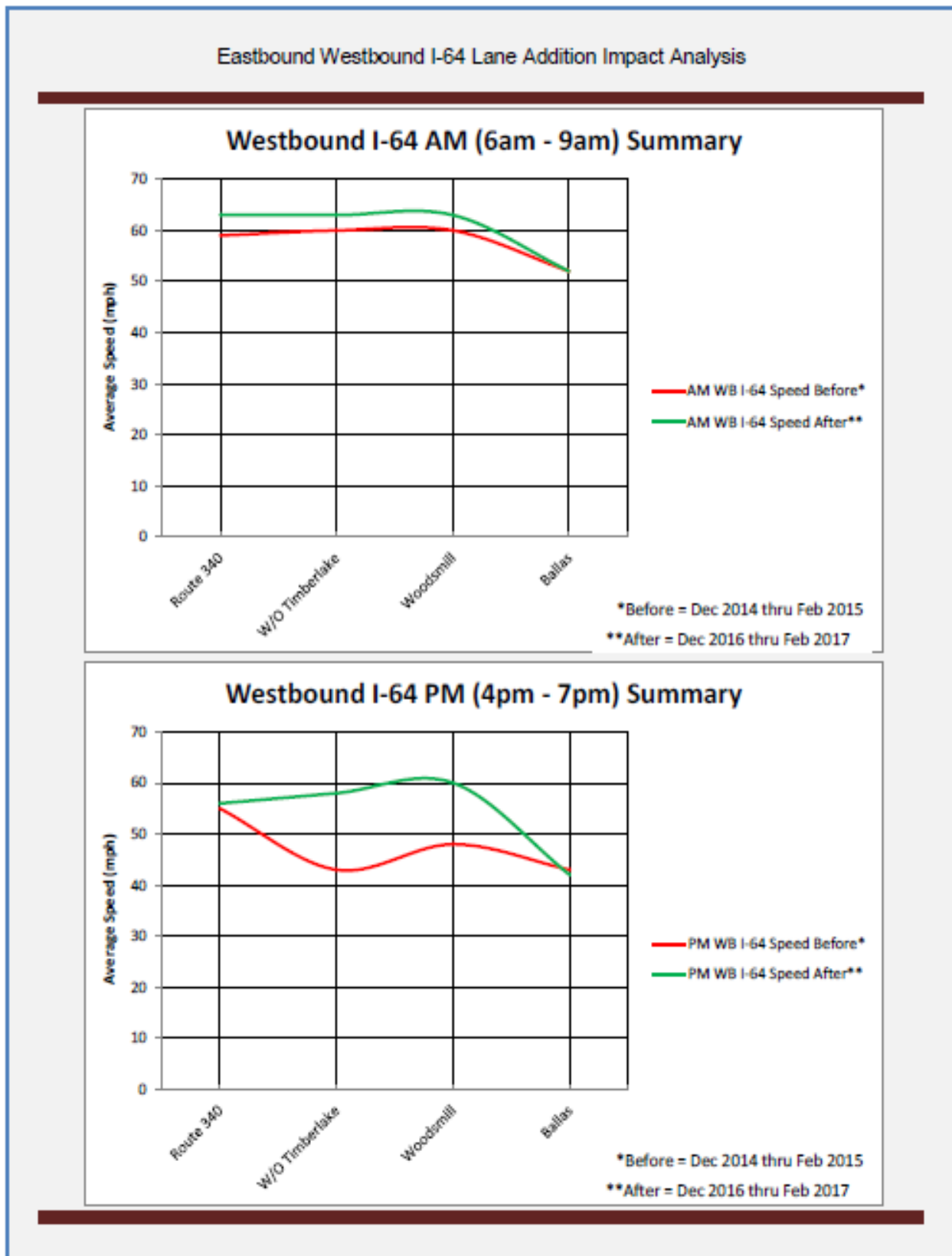
- *Westbound I-64 average speeds have increased in both AM and PM Peaks*
- *Traffic has metered closer to I-270*

See the following two pages for AM/PM Peak speed data charts. Future reports will contain analysis of traffic volume data.

Figures 57 and 58: I-64 Eastbound Speed Impact Analysis



Figures 59 and 60: I-64 Westbound Speed Impact Analysis



2. MO-100

Congestion Impacts of MO-100 Signal Timing Projects

The travel time delay studies indicated that the flow of end-to-end traffic through the corridor improved throughout the day. The travel delays were performed during the month of February 2017 with the PC-Travel software package and GPS units. Multiple runs were performed in each direction on a typical weekday during the morning, midday, and afternoon peak periods. The results of the timing changes are shown in Table 11.

Table 11: Congestion Impacts of MO-100 Signal Timing Projects

Time Period	Scenario	Stops		Average Speed (mph)		Travel Time (sec)	
		EB	WB	EB	WB	EB	WB
AM	Before	15.4	8.6	-	-	-	-
	After	5.8	6.2	-	-	-	-
	Improvement	-62%	-28%	+1.2%	+0.7%	-4.0%	-1.9%
Midday	Before	13.6	12	-	-	-	-
	After	7.8	7.6	-	-	-	-
	Improvement	-43%	-37%	+2.5%	+0.3%	-1.2%	-1.1%
PM	Before	13.4	14.4	-	-	-	-
	After	8.2	8.6	-	-	-	-
	Improvement	-39%	-40%	+0.4%	+1.8%	-1.2%	-6.6%

Source: Missouri Depart. of Transp., Route 100 Timing Improvement Project, Final Report, CBB# 39-16, April 2017, p. 39.

Fuel and Emission Benefits of the Improved Signal Timings

As a final step in this analysis, net savings in annual operating costs and pollutant emissions were estimated using FHWA guidelines (“A Method for Estimating Fuel Consumption and Vehicle Emissions on Urban Arterials and Networks,” Report Number FHWA-TS-81-210; April 1981). The formulas used in these computations were based upon average travel times, speed measurements and daily traffic volumes. The results are summarized in Table 12.

Calculations of the existing conditions indicated that approximately 15,008,535 gallons of fuel were consumed annually and that over 5,104,230 pounds of pollutants were emitted each year within the corridor. Measurements of the net increase in travel speeds were used to determine that 280,270 gallons of fuel could be saved each year by the improved coordination. This improved fuel consumption would result in an annual operating cost savings of approximately \$639,016 (assuming an average fuel price of \$2.28 per gallon). In addition, pollutant emissions would be decreased by 206,586 pounds per year.

Table 12: Fuel and Emission Benefits

Emission Measure	Pre-Study	Post-Study	Difference
Est. Annual Fuel Consumption (gal/yr)	15,008,535	14,728,265	-280,270
Est. Annual Operating Costs (\$/yr)	34,219,460	33,580,444	-639,016
Est. Annual VOC Emissions (lbs/yr)	495,471	473,504	-21,967
Est. Annual CO Emissions (lbs/yr)	3,689,145	3,505,196	-183,949
Est. Annual NO Emissions (lbs/yr)	919,614	918,944	-670
TOTAL VOC/CO/NO Emissions (lbs/yr)	5,104,230	4,897,644	-206,586

Source: Missouri Depart. of Transp., Route 100 Timing Improvement Project, Final Report, CBB# 39-16, April 2017, p. 40.

3. MO-115

Congestion Impacts of MO-115 Signal Timing Projects

As seen in Table 13, the final timings resulted in significant improvements in total delay, stops, average speed, and travel times on the corridor due to improved progression. Travel times were reduced between 7% and 30%, delay between 51% and 83%, and average speeds increased by 7% to 42%.

Table 13: Congestion Impacts of MO-115 Signal Timing Projects

Time Period	Scenario	Total Delay		Stops		Average Speed (mph)		Travel Time (sec)	
		EB	WB	EB	WB	EB	WB	EB	WB
AM	Before	91.3	179.3	3.3	4.7	30.4	25.7	469.7	555.7
	After	44.3	38	0.7	0.3	32.6	33.2	437.7	430
	Improvement	-51%	-79%	-79%	-94%	7%	29%	-7%	-23%
Midday	Before	203.7	235.8	6	5.5	23.9	23.1	595.3	617.3
	After	48.3	40.7	0.3	0.7	32.6	32.8	437.3	434
	Improvement	-76%	-83%	-95%	-87%	36%	42%	-27%	-30%
PM	Before	115.7	212.7	5.3	5.7	28	23.6	508.3	604
	After	41	63	0	0.3	31.6	30.7	450.7	464
	Improvement	-65%	-70%	-100%	-95%	13%	30%	-11%	-23%

Source: Missouri Depart. of Transportation, MO 115 Signal Optimization Project (J6S3120), Final Report, October, 2017, p. 16.

Fuel and Emission Benefits of the Improved Signal Timings

Calculations of existing conditions indicated that approximately 1,604,285 gallons of fuel were consumed annually and that approximately 3,324,899 pounds of pollutants were emitted each year within the corridor. Measurements of the net increase in travel speeds were used to determine that approximately 182,415 gallons of fuel could be saved each year by the improved coordination (see Table 14).

Table 14: Fuel and Emission Benefits

Emission Measure	Pre-Study	Post-Study	Difference
Est. Annual Fuel Consumption (gal/yr)	1,604,285	1,421,870	182,415
Est. Annual Operating Costs (\$/yr)	4,251,355	3,767,956	483,400
Est. Annual VOC Emissions (lbs/yr)	296,973	242,589	54,384
Est. Annual CO Emissions (lbs/yr)	2,848,932	2,687,845	161,088
Est. Annual NO Emissions (lbs/yr)	178,994	148,741	30,253
TOTAL VOC/CO/NO Emissions (lbs/yr)	3,324,899	3,079,175	245,725

Source: Missouri Depart. of Transportation, MO 115 Signal Optimization Project (J6S3120), Final Report, October, 2017, p. 16.

4. I-64

Congestion Impacts of I-64 Signal Timing Projects

The “floating car” technique was used to conduct the “before” and “after” travel time and delay studies. Travel time and delay studies along the study corridors were collected using a GPS device and the GPS software Tru-Traffic. Travel time studies were conducted during the following peak hour periods:

- AM Peak: 7:00 AM – 9:00 AM
- Mid-Day Peak: 11:00 AM – 1:00 PM
- PM Peak: 4:00 PM – 6:00 PM
- Weekend: 11:00 AM – 1:00 PM

The delay output by Tru-Traffic is based on a specified “normal speed”. The “normal speed” is defined by the software as the speed at which a non-delayed vehicle would be considered to be traveling. The normal speed was input as the posted speed limit. The number of stops output by Tru-Traffic is based on a specified “stop speed value”. When the vehicle falls below the stop speed value, the vehicle is considered stopped. The stop speed value was kept at the default value of 5 mph.

Travel time studies were conducted for 23 different movements during each of the four peak periods, which resulted in 92 different travel time runs. The results of the “before” and “after” travel time and delay studies conducted with the Tru-Traffic software show that 52 of the 92 directional travel times were reduced when comparing the “before” and “after” travel time data. Of those 52, 38 (73% of the reduced runs) were greater than 20%. Of the 92 travel time runs, nearly 65% showed a reduction or no change in the travel time from the “before” condition. Table 15 summarizes the results of the travel time studies conducted during each of the peak periods.

Table 15: Congestion Impacts of I-64 Signal Timing Projects

Time Period	Reduced Delay	Reduced Delay (> 20%)	Increased Delay	Increased Delay (< 10%)	No Change	Total
AM Peak	14	9	6	3	3	23
Midday Peak	13	11	9	0	1	23
PM Peak	15	12	8	4	0	23
Weekend	10	6	10	1	3	23
Total	52	38	33	8	7	92

Source: Missouri Depart. of Trans., I-64 Interchanges Signal Optimization (Final Version 2.0), Final Report, March, 2017, p. 25.

Fuel and Emission Benefits of the Improved Signal Timings

Utilizing the differences in “before” and “after” travel time runs and peak hour traffic volumes, annual fuel cost savings and emissions reductions were calculated for the peak hours. The general methodology, fuel consumption factors, and health costs of motor vehicle emissions are based on Caltrans’ California Life-Cycle Benefit/Cost Analysis Model Version 5.0 (Cal-B/C). Emission values used in the calculations were obtained from the California Air Resource Board.

Assumptions were also made as to the cost of a gallon of gas and the value of an hour of an individual’s time for the travel time and fuel consumption benefit calculations. For the week of implementation of the new timings, Iteris staff paid \$2.09 per gallon, which was used to calculate the average fuel savings. The value of an hour of time was assumed to be the average hourly wage for the Saint Louis metropolitan area based on statistics provided by the Bureau of Labor Statistics for May 2015, in which the average hourly wage was \$22.69. The fuel and emission reduction effects are shown in Table 16.

Table 16: Fuel and Emission Benefits

Benefit	1-Year (\$)	5-Years (\$)
Travel Time Savings	238,131.55	595,328.88
Fuel Savings	27,419.06	68,547.64
ROG Emissions Reduction	78.64	196.61
Nox Emissions Reduction	1,193.71	2,984.29
PM10 Emissions Reduction	886.02	2,215.06
CO Emissions Reduction	42.91	107.26
Total Benefits	267,751.89	669,379.73

Source: Missouri Depart. of Trans., I-64 Interchanges Signal Optimization (Final Version 2.0), Final Report, March, 2017, p. 32.

5. US-50

Congestion Impacts of US-50 Signal Timing Projects

The table below shows the average before and after travel times for the US 50 corridor through Union. Decreases in travel times were achieved in both directions during the AM Peak, while only one direction saw an improvement in the MD and PM Peaks. In both of those peaks, simultaneous green bands were difficult to achieve between the two MO-47 intersections and one direction was chosen as the primary direction to provide arterial priority. In the PM Peak, the westbound direction has a higher traffic volume and was selected for priority. In both cases, the direction with the improved travel time saw greater increase than the decline of the opposite direction (see Table 17).

Table 17: Congestion Impacts of US-50 Signal Timing Projects

Direction	Time Period	Before	After	Difference (%)
EB	AM Peak	5:55	5:38	-6%
	Midday Peak	5:44	4:58	-13%
	PM Peak	5:30	6:30	18%
WB	AM Peak	5:51	5:39	-3%
	Midday Peak	5:39	5:58	6%
	PM Peak	6:48	5:21	-21%

Source: Missouri Depart. of Trans., US Highway 50, Franklin County (Union, MO), Signal Optimization, Final Report, April, 2017, p. 28.

Fuel and Emission Benefits of the Improved Signal Timings

Fuel consumption and vehicle emissions data were obtained from Synchro, and are summarized in the tables below for the existing and proposed conditions. A reduction in fuel consumption was achieved for each peak period, as well a reduction in vehicle pollutant emissions (see Table 18).

Table 18: Fuel and Emission Benefits

Emission Measure	Pre-Study	Post-Study	Difference
Est. Annual Fuel Consumption (gal/yr)	342,940	318,864	-24,076
Est. Annual Operating Costs (\$/yr)	713,315	663,237	-50,078
Est. Annual VOC Emissions (kg/yr)	5,554	5,165	-389
Est. Annual CO Emissions (kg/yr)	23,965	22,287	-1,678
Est. Annual NO Emissions (kg/yr)	4,663	4,338	-326
TOTAL VOC/CO/NO Emissions (kg/yr)	34,182	31,790	-2,392

Source: Missouri Depart. of Trans., US Highway 50, Franklin County (Union, MO), Signal Optimization, Final Report, April, 2017, p. 29.

6. MO-267

Congestion Impacts of MO-267 Signal Timing Projects

The table below shows the average before and after travel times for the MO-267 corridor. Decreases in travel time were achieved in one direction for each travel time period. The traffic volumes are higher in the northbound direction in the AM Peak and higher in the southbound direction in the PM Peak (see Table 19).

Table 19: Congestion Impacts of MO-267 Signal Timing Projects

Direction	Time Period	Before	After	Difference (%)
NB	AM Peak	6:11	6:08	-1%
	Midday Peak	6:14	5:54	-5%
	PM Peak	6:29	6:34	1%
SB	AM Peak	6:34	6:52	5%
	Midday Peak	6:44	7:03	5%
	PM Peak	6:54	6:50	-1%

Source: Missouri Depart. of Trans., MO 267, Lemay Ferry Road, S. Louis County South, Traffic Signal Optimization, Final Report, May, 2017, p. 21.

Fuel and Emission Benefits of the Improved Signal Timings

Fuel consumption and vehicle emissions data were obtained from Synchro, and are summarized in the table below for existing and proposed conditions. A reduction in fuel consumption was achieved for each peak period, as well a reduction in vehicle pollutant emissions (see Table 20).

Table 20: Fuel and Emission Benefits

Emission Measure	Pre-Study	Post-Study	Difference
Est. Annual Fuel Consumption (gal/yr)	246,168	240,500	-5,668
Est. Annual Operating Costs (\$/yr)	512,029	500,240	-11,789
Est. Annual VOC Emissions (kg/yr)	4,498	4,390	-108
Est. Annual CO Emissions (kg/yr)	19,410	18,947	-463
Est. Annual NO Emissions (kg/yr)	3,775	3,686	-88
TOTAL VOC/CO/NO Emissions (kg/yr)	27,682	27,023	-659

Source: Missouri Depart. of Trans., MO 267, Lemay Ferry Road, S. Louis County South, Traffic Signal Optimization, Final Report, May, 2017, p. 22.

7. MoDOT Incident Management

Incident management is essential in congestion management owing to the positive relationship between incidence and recurring congestion, especially during peak periods. In 2017, the mean number of incidents and standard deviation stood at 883 and 84, respectively. At the same time, the Time to Clear Incidents (TTCI) was 26 minutes, with a standard deviation of 1.7 (see Figure 61). Further exploration of the data shows TTC to be stable even when the number of incidents grow sharply.

Figure 61: Number of Incidents and Time to Clear (2017)



Source: MoDOT Quarterly Regional Mobility Report

b) Illinois Department of Transportation (IDOT) (District 8)

The Illinois Department of Transportation (IDOT) has been very effective in making sure their ITS infrastructure is up-to-date. In pursuance of this, a number of importance changes were undertaken in 2017. These include:

- New IP Cameras were installed under maintenance at fifteen locations. Fourteen of these were replacing broken analog cameras, and one was at a new location on the Stan Bridge DMS. With the new cameras, a new image delivery process was established for the cameras to create and send an image file directly to the ftp server that stores images for the various websites.
- 76H30 was completed. New DMS and two new cameras on 255.
- In January, we unplugged the speed map that had been displaying inaccurate information in our TMC. We used a decommissioned pc to display Google's traffic layer and refresh regularly. This provides a real time visual for our dispatchers to notice any severe congestion in the area. We also display this map in the main lobby.

- AVL was added to EPV radios as part of a pilot project with Motorola and D1.
- An interagency agreement was signed between IDOT and SIUE to allow SIUE to host the D8 traveler information website, stl-traffic.com. Development of the new site began late in 2017. This work will be completed in 2018.
- New pump station SCADA connected into our ITS network with a monitoring system in the TMC.
- Re-established connectivity to the ISP D11 dispatch center here in our shared building. This had been down for several years.
- Coordinated fiber disconnect and planned reconnect for the PSB slide.
- Outside of the metro, in Calhoun County, we upgraded the outdated traffic monitoring system on the Joe Page Bridge with new cameras. The cameras there were over twenty years old and did not provide clear or color images. We installed a new NVR system that allows monitoring for the drawbridge operations and added the ability to record and store video. (Shortly after the system was installed, a truck crashed into a traffic signal and kept going. The truck along with the company was identified by these recordings.)

c) **St. Charles County**

The majority of Gateway Green Light Phase 3 construction was completed in 2017. This contract included approximately 8 miles of fiber optic backbone communication links on three corridors including New Town Blvd/Elm Pointe Industrial Drive in St. Charles, Lake St. Louis Blvd/Technology Drive in Lake St. Louis, Veterans Memorial Pkwy/Wilmer Road/Interstate Drive in Wentzville, and Main Street/Tom Ginnever Road in O'Fallon. Additionally, 30 wireless vehicle travel time detectors, 34 CCTV cameras, 9 count stations and 2 dynamic message signs were installed throughout the county. As a whole these network connections and devices have significantly improved the ability to monitor, manage, and change traffic signal timings along regional arterials in real time to provide optimum traffic signal operations and promote efficient flows. The Gateway Green Light operator has continued to provide peak hour, event, and incident monitoring in order to move traffic efficiently during the most congested periods.

8 Summary of Findings

The tables in this section provide a high level comparison of regional congestion from 2016 to 2017 based on the data developed in the Annual Regional Congestion reports. Tables 21 thru 23 list the top ten freeway congested locations for each ranking category. The red highlighted entries are reoccurring locations with the exact same limits in both years. The green highlighted entries are locations that also reoccur, but their limits vary somewhat from 2016 to 2017. Tables 24 through 26 make the same comparisons for the arterial congested locations.

Table 27 shows the percent change in the average ranking scores of the congested locations for each interstate corridor from 2016 to 2017. Table 28 shows the percent change in the number of congested miles from 2016 to 2017 on each Interstate corridor. This analysis shows a reduction from a total of 265 congested miles on the interstate corridors in 2016 to a total of 176 in 2017, a reduction of 33% which is a significant change.

A review of Interstate highway work zones in these two years indicates that the reduction of work zone impacts from 2016 to 2017 likely played a significant role in the reduced congestion impacts. In 2016 there were 11 projects that significantly affected peak hour traffic on the interstates. These work zones affected parts of the I-44, I-55, I-64, I-70, I-170, and I-270 corridors contributing significantly to regional congestion. Comparatively, in 2017 there were only 3 projects that significantly affected congestion on the I-44 and I-64 corridors. In addition, completion of two of the projects in 2016 further reduced congestion due to improvements made. These are added lanes on I-64 west of I-270 both eastbound and westbound and added lane southbound on I-55 north of Route Z.

a. Top 10 Severe, Impactful, and Less Dependable Locations

i. Freeways

Table 21: Severity of Congestion

2016						2017					
No.	Route	Limits	Dir.	State	Peak	Route	Limits	Dir.	State	Peak	
1	I-64	Kingshighway/Exit 36 to I-55/I-70/US-40	EB	MO	PM	I-64	Kingshighway/Exit 36 to I-55/I-70/US-40	EB	MO	PM	
2	I-55	Grand Ave/Exit 247 to I-44/I-55/Gravois/Exit 207	EB-SB	MO	PM	I-44/I-55	Grand Ave/Exit 247 to I-44/I-55/Gravois/Exit 207	EB-SB	MO	PM	
3	I-44	I-55/Exit 290 to Arsenal St/Exit 284	WB	MO	PM	I-170	I-64 to MO-D	SB	MO	PM	
4	I-64	Kingshighway/Exit 36 to I-170/Brentwood Blvd/Exit 31	WB	MO	AM	I-44	Hampton/Exit 286 to Shrewsbury/Exit 283	WB	MO	PM	
5	I-70	I-270/Exit 232 to Cave Springs/Exit 225	WB	MO	PM	I-270	I-55/I-255/Exit 1 to MO-100/Manchester Rd./Exit 9	NB	MO	AM	
6	I-270	I-55/I-255/Exit 1 to I-64/US-40/US-61/Exit 12	NB	MO	AM	I-64, I-55/I-64	Baugh Ave. to Poplar St Brg.	WB	IL	AM	
7	I-270	I-70 to I-55/I-255/Exit 1	SB	MO	PM	I-270	McDonnell Blvd/Exit 23 to Elizabeth-Washington St/Exit 28	EB	MO	PM	
8	I-270	McDonnell Blvd/Exit 23 to MO-367/Exit 31	EB	MO	PM	I-270	I-70 to I-55/I-255/Exit 1	SB	MO	PM	
9	I-64	Chesterfield Pky/Exit 20 to McCausland Ave/Exit 33	EB	MO	PM	I-64	Kingshighway/Exit 36 to I-170/Brentwood Blvd/Exit 31	WB	MO	AM	
10	I-170	MO-180/St Charles Rock/Exit 5 to I-64/Eager Rd/Exit 1B/1A	SB	MO	PM	I-64	MO-K to I-70	WB	MO	PM	

- 6 locations in the top 10 most severely congested locations in 2016 were found in 2017.

Table 22: Total Impact of Congestion

2016						2017					
No.	Route	Limits	Dir.	State	Peak	Route	Limits	Dir.	State	Peak	
1	I-270	I-70 to I-55/I-255/Exit 1	SB	MO	PM	I-270	I-70 to I-55/I-255/Exit 1	SB	MO	PM	
2	I-64	Chesterfield Pky/Exit 20 to McCausland Ave/Exit 33	EB	MO	PM	I-64	Chesterfield Pky/Exit 20 to McCausland Ave/Exit 33	EB	MO	PM	
3	I-270	I-55/I-255/Exit 1 to I-64/US-40/US-61/Exit 12	NB	MO	AM	I-270	I-55/I-255/Exit 1 to MO-100/Manchester Rd./Exit 9	NB	MO	AM	
4	I-270	McDonnell Blvd/Exit 23 to MO-367/Exit 31	EB	MO	PM	I-64	MO-K to I-70	WB	MO	PM	
5	I-70	Cave Springs/Exit 225 to Natural Bridge Rd/Exit 237/Exit 238	EB	MO	AM	I-64	Kingshighway/Exit 36 to I-55/I-70/US-40	EB	MO	PM	
6	I-70	Bryan Rd/Exit 216 to MO-W/Exit 203	WB	MO	PM	I-64	I-270/Exit 25 to McCausland to Ave/Exit 33	EB	MO	AM	
7	I-64	I-170/Brentwood Blvd/Exit 31 to Chesterfield Pky/Exit 20	WB	MO	PM	I-70	Zumbehl/Exit 227 to Natural Bridge Rd/Exit 237/Exit 238	EB	MO	AM	
8	I-70	I-270/Exit 232 to Jennings Sta Rd/Exit 242	EB	MO	PM	I-70	Lake St Louis Blvd/Exit 214 to MO-79/Exit 220	EB	MO	AM	
9	I-44	Big Bend Rd/Exit 278 to Antire Rd/Exit 269	WB	MO	PM	I-270	McDonnell Blvd/Exit 23 to Elizabeth-Washington St/Exit 28	EB	MO	PM	
10	I-64	MO-K to I-70	WB	MO	PM	I-70	I-270/Exit 231 to Cave Springs/Exit 225	WB	MO	PM	

- 6 most impactful locations in 2016 re-appeared in 2017.

Table 23: Variability of Congestion

2016						2017					
No.	Route	Limits	Dir.	State	Peak	Route	Limits	Dir.	State	Peak	
1	I-44	I-55/Exit 290 to Arsenal St/Exit 284	WB	MO	PM	I-64, I-55/I-64	Baugh Ave. to Poplar St Brg.	WB	IL	AM	
2	I-64	Kingshighway/Exit 36 to I-55/I-70/US-40	EB	MO	PM	I-64	Kingshighway/Exit 36 to I-55/I-70/US-40	EB	MO	PM	
3	I-70	Shreve/Exit 245 to MO-N/Florissant Rd/Exit 240	WB	MO	PM	I-44	Hampton/Exit 286 to Shrewsbury/Exit 283	WB	MO	PM	
4	I-64	Kingshighway/Exit 36 to I-170/Brentwood Blvd/Exit 31	WB	MO	AM	I-170	I-64 to MO-D	SB	MO	PM	
5	I-64	MO-K to I-70	WB	MO	PM	I-44/I-55	Grand Ave/Exit 247 to I-44/I-55/Gravois/Exit 207	EB-SB	MO	PM	
6	I-64	Baxter to I-270/Exit 25	EB	MO	AM	I-64	MO-K to I-70	WB	MO	PM	
7	I-55	Grand Ave/Exit 247 to I-44/I-55/Gravois/Exit 207	EB-SB	MO	PM	I-270	I-55/I-255/Exit 1 to MO-100/Manchester Rd./Exit 9	NB	MO	AM	
8	I-64	I-270/Exit 25 to McCausland to Ave/Exit 33	EB	MO	AM	I-64	I-270/Exit 25 to McCausland to Ave/Exit 33	EB	MO	AM	
9	I-270	I-70 to I-55/I-255/Exit 1	SB	MO	PM	I-64	Kingshighway/Exit 36 to I-170/Brentwood Blvd/Exit 31	WB	MO	AM	
10	I-70	I-270/Exit 232 to Cave Springs/Exit 225	WB	MO	PM	I-70	Kingshighway/Exit 244 to Lucas & Hunt Rd/Exit 241	WB	MO	AM	

- 5 less dependable locations in 2016 re-appeared in 2017.

ii. Arterials

Table 24: Severity of Congestion

2016						2017					
No.	Route	Limits	Dir.	State	Peak	Route	Limits	Dir.	State	Peak	
1	IL-157	I-55/I-70/US-40 to Horseshoe Lake Rd	NB	IL	PM	MO-100	Vandeventer to Kingshighway	WB	MO	PM	
2	HAMPTON AVE	I-64/US-40 to I-44	SB	MO	PM	SKINKER	Forest Park Pky to Delmar	SB	MO	PM	
3	MO-D	I-270 to Schuetz Rd	EB	MO	AM	SALISBURY ST	N FLORISSANT AVE to I-70	EB	MO	PM	
4	IL-157	I-55/I-70/US-40 to Horseshoe Lake Rd	NB	IL	AM	MO-100	Big Bend to McCausland	EB	MO	PM	
5	IL-157	Horseshoe Lake Rd to I-55/I-70/US-40	SB	IL	PM	HAMPTON AVE	I-64/US-40 to I-44	SB	MO	PM	
6	MO-141	Hawkins to Vance	NB	MO	AM	HANLEY	Shaw Park Dr to I-64/US-40/Eager Rd	SB	MO	PM	
7	HANLEY	Shaw Park Dr to I-64/US-40/Eager Rd	SB	MO	PM	LACLEDE ST RD	Union Pacific to Murdoch	SB	MO	PM	
8	FOREST PARK AVE	I-64 to Kingshighway	WB	MO	PM	MO-141	Big Bend to I-44	SB	MO	PM	
9	MO-141	MO-AB/Ladue Rd to I-64/US-40/US-61	SB	MO	PM	KINGSHIGHWAY	Laclede Ave to Manchester	SB	MO	PM	
10	JEFFERSON	I-64/US-40 to I-44	SB	MO	PM	JEFFERSON	Washington Blvd to Park Ave	SB	MO	PM	

- Only 3 severely congested locations in 2016 re-appeared in 2017.

Table 25: Total Impact of Congestion

2016						2017				
No.	Route	Limits	Dir.	State	Peak	Route	Limits	Dir.	State	Peak
1	US-67	I-270 to Old Halls Ferry Rd	NB	MO	PM	US-67	I-270 to Old Halls Ferry Rd	NB	MO	PM
2	MO-141	Big Bend to I-44	SB	MO	PM	MO-94	I-64/US-40/US-61 to Mid Rivers Mall Dr	NB	MO	PM
3	MO-94	I-64/US-40/US-61 to Mid Rivers Mall Dr	NB	MO	PM	MO-D	I-170 to Schuetz Rd	WB	MO	PM
4	MO-141	Hawkins to Vance	NB	MO	AM	MO-K	I-70 to MO-364	SB	MO	PM
5	MO-141	MO-30 to MO-21	SB	MO	PM	MO-94	N 5th Street to I-70	SB	MO	PM
6	MO-94	I-64/US-40/US-61 to Mid Rivers Mall Dr	NB	MO	AM	IL-111	Forest Blvd to I-55/I-70/US-40	NB	IL	PM
7	MO-340	I-170 to US-67/N Lindbergh Blvd	SB	MO	PM	IL-111	Forest Blvd to I-55/I-70/US-40	NB	IL	AM
8	MO-D	I-170 to Schuetz Rd	WB	MO	PM	FOREST PARK AVE	I-64 to Kingshighway	WB	MO	PM
9	MO-K	I-70 to MO-364	SB	MO	PM	KINGSHIGHWAY	Shaw to Delmar	NB	MO	AM
10	MO-94	I-70/Vet. Mem. Pky/Bogey Rd to MO-364	WB	MO	PM	KINGSHIGHWAY	I-44 to Delmar	NB	MO	PM

- Only 4 most impactful locations in 2016 re-appeared in 2017.

Table 26: Variability of Congestion

2016						2017				
No.	Route	Limits	Dir.	State	Peak	Route	Limits	Dir.	State	Peak
1	MO-D	I-270 to Schuetz Rd	EB	MO	AM	SKINKER	Forest Park Pky to Delmar	SB	MO	PM
2	MO-141	Hawkins to Vance	NB	MO	AM	HANLEY	Shaw Park Dr to I-64/US-40/Eager Rd	SB	MO	PM
3	HANLEY	Shaw Park Dr to I-64/US-40/Eager Rd	SB	MO	PM	HANLEY/LACLEDE ST RD	Murdoch to MO-100/Manchester Rd	NB	MO	AM
4	HAMPTON AVE	I-64/US-40 to I-44	SB	MO	PM	MO-141	Hawkins to Vance	NB	MO	AM
5	JEFFERSON	I-64/US-40 to I-44	SB	MO	PM	LACLEDE ST RD	Union Pacific to Murdoch	SB	MO	PM
6	MO-340	Chesterfield Pky North to Baxter Rd	SB	MO	PM	MO-141	Big Bend to I-44	SB	MO	PM
7	MO-141	MO-AB/Ladue Rd to I-64/US-40/US-61	SB	MO	PM	MO-340	Chesterfield Pky North to Baxter Rd	SB	MO	PM
8	MO-141	MO-30 to MO-21	SB	MO	PM	MO-141	MO-AB/Ladue Rd to I-64/US-40/US-61	SB	MO	PM
9	KINGSHIGHWAY	US-40 to Delmar	NB	MO	PM	HAMPTON AVE	I-64/US-40 to I-44	SB	MO	PM
10	KINGSHIGHWAY	I-64/US-40 to I-44	SB	MO	PM	MCCAUSLAND AVE	I-64 to Oakland	NB	MO	AM

- 5 most variable locations in 2016 re-appeared in 2017.

b. Change in Congestion Ranking Score

Table 27: Change in Congestion Ranking Score on Each Interstate Corridor (2016-17)

No.	Route	Severity	Total Impact	Variability
1	I-44	23%	-34%	6%
2	I-55	-9%	-47%	2%
3	I-64	-2%	-26%	-2%
4	I-70	-6%	-23%	-3%
5	I-170	18%	-28%	6%
6	I-270	8%	-4%	1%

- I-44 and I-170 are increasingly more severely congested.
- All major freeways have had significant reduction in impact on drivers.
- I-44 and I-170 have consistently been less dependable.

c. Change in Total Congested Miles

Table 28: Total Congested Miles and % Change by Interstate Freeway Corridors (2016 -17)

No.	Route	2016	2017	% Change
1	I-44	35.17	15.41	-56%
2	I-55	24.16	2.89	-88%
3	I-64	61.54	54.84	-11%
4	I-70	64.90	42.88	-34%
5	I-170	20.16	13.00	-36%
6	I-270	59.03	47.29	-20%
TOTAL		265	176	-33%

- Queue lengths for major freeways have dropped by about 33% between 2016 and 2017.
- I-44 and I-55 registered most drop in queue lengths.

APPENDICES

Appendix 1: Hourly Performance Measures

Arterial Performance Measures (Peak Hours)

Table 29: Buffer Time

No.	Route	Limits	Direction	State	Peak	Queue Length	6-7 AM/ 3-4 PM	7-8 AM/ 4-5 PM	8-9 AM/ 5-6 PM	3-HR AVG
1	FOREST PARK AVE	I-64 to Kingshighway	WB	MO	AM	2.14	3.34	5.84	6.86	5.81
2	FOREST PARK AVE	I-64 to Kingshighway	WB	MO	PM	2.14	3.58	4.21	4.22	4.20
3	FOREST PARK AVE	Kingshighway to I-64	EB	MO	PM	2.05	2.78	2.56	2.54	2.62
4	FOREST PARK AVE	Kingshighway to I-64	EB	MO	AM	2.05	2.34	4.21	5.34	4.35
5	HAMPTON AVE	I-64/US-40 to I-44	SB	MO	PM	1.02	2.83	5.51	7.12	5.84
6	HANLEY	Shaw Park Dr to I-64/US-40/Eager Rd	SB	MO	PM	1.30	2.01	7.07	7.70	7.49
7	HANLEY/LACLEDE ST RD	Murdoch to MO-100/Manchester Rd	NB	MO	AM	1.55	1.35	6.04	8.95	7.20
8	IL-111	Forest Blvd to I-55/I-70/US-40	NB	IL	AM	3.01	0.31	0.45	0.58	0.57
9	IL-111	Forest Blvd to I-55/I-70/US-40	NB	IL	PM	3.01	0.59	0.51	0.48	0.53
10	IL-140	Washington Ave to IL-3	EB	IL	AM	1.15	0.42	0.94	1.14	1.10
11	IL-140	Washington Ave to IL-3	EB	IL	PM	1.15	1.49	1.45	1.42	1.45
12	IL-140	CR-51 to I-55	WB	IL	AM	3.84	0.09	0.23	0.36	0.22
13	IL-140	CR-51 to I-55	WB	IL	PM	3.84	0.06	0.07	0.09	0.08
14	IL-143	IL-111 to IL-3	WB	IL	AM	2.05	0.54	0.81	0.96	0.81
15	IL-143	IL-111 to IL-3	WB	IL	PM	2.05	0.63	0.65	0.47	0.64
16	IL-157	Horseshoe Lake Rd to I-55/I-70/US-40	SB	IL	AM	1.92	0.70	1.36	1.37	1.17
17	IL-157	Horseshoe Lake Rd to I-55/I-70/US-40	SB	IL	PM	1.92	1.22	1.44	1.62	1.71
18	IL-157	I-55/I-70/US-40 to Horseshoe Lake Rd	NB	IL	PM	1.87	0.91	1.06	1.14	1.01
19	IL-159	Main to IL-15	SB	IL	PM	1.21	2.23	2.47	2.79	2.48
20	JEFFERSON	Arsenal to Park	NB	MO	PM	1.35	3.49	3.24	3.34	3.38
21	JEFFERSON	Washington Blvd to Park Ave	SB	MO	PM	1.23	1.40	4.76	5.59	4.21
22	JEFFERSON	Washington Blvd to Park Ave	SB	MO	AM	1.23	2.20	2.95	3.64	3.09
23	KINGSHIGHWAY	Shaw to Delmar	NB	MO	AM	2.73	5.46	8.27	9.57	7.89
24	KINGSHIGHWAY	I-44 to Delmar	NB	MO	PM	2.38	5.00	5.07	5.43	4.84
25	KINGSHIGHWAY	Laclede Ave to Manchester	SB	MO	PM	1.28	3.66	5.03	5.98	4.55
26	LACLEDE ST RD	Big Bend to Murdoch	SB	MO	AM	0.49	0.64	1.06	1.06	0.94
27	LACLEDE ST RD	Union Pacific to Murdoch	SB	MO	PM	1.10	1.77	4.34	5.71	5.14
28	MCCAUSLAND AVE	Arsenal to I-64	NB	MO	AM	1.44	0.93	4.77	6.00	4.61
29	MCCAUSLAND AVE	Arsenal to I-64	NB	MO	PM	1.44	2.09	2.72	3.02	2.58
30	MCCAUSLAND AVE	I-64 to Arsenal	SB	MO	PM	1.56	1.26	4.88	7.05	5.47
31	MCCAUSLAND AVE	I-64 to Oakland	NB	MO	AM	0.29	0.37	1.23	1.56	1.23
32	MCCAUSLAND AVE	I-64 to Oakland	NB	MO	PM	0.29	0.39	0.58	0.63	0.56
33	MO-100	Vandeventer to Kingshighway	WB	MO	PM	0.96	2.79	5.96	7.81	5.94
34	MO-100	Big Bend to McCausland	EB	MO	PM	0.83	2.88	2.74	3.41	2.71
35	MO-100	Kingshighway to Vandeventer	EB	MO	PM	0.96	4.04	4.06	3.74	4.04
36	MO-100	Vandeventer to Kingshighway	WB	MO	AM	1.57	0.92	2.19	2.20	2.17
37	MO-100	McCausland to Big Bend	WB	MO	AM	0.83	0.89	2.16	3.55	2.52
38	MO-100	McCausland to Big Bend	WB	MO	PM	0.83	2.30	2.24	2.75	2.20
39	MO-100	Kingshighway to Vandeventer	EB	MO	AM	0.96	0.88	1.82	2.65	2.16
40	MO-141	Hawkins to Vance	NB	MO	AM	1.89	4.28	17.00	17.50	14.41
41	MO-141	Big Bend to I-44	SB	MO	PM	1.88	7.95	18.85	20.20	15.57
42	MO-141	MO-AB/Ladue Rd to I-64/US-40/US-61	SB	MO	PM	1.63	0.91	3.73	5.95	4.32
43	MO-141	Marshall to I-44	SB	MO	AM	0.73	1.31	2.47	2.77	2.44
44	MO-340	Chesterfield Pky North to Baxter Rd	SB	MO	PM	1.38	2.88	7.03	10.58	9.68
45	MO-94	I-64/US-40/US-61 to Mid Rivers Mall Dr	NB	MO	PM	4.19	1.59	2.85	5.09	3.84
46	MO-94	I-70/Veterans Memorial Pky/Bogey Rd to MO-364	SB	MO	PM	2.33	2.60	4.58	5.71	4.74
47	MO-94	N 5th Street to I-70	SB	MO	PM	3.49	3.98	3.07	3.40	3.66
48	MO-D	I-170 to Schuetz Rd	WB	MO	PM	4.28	2.30	5.86	8.11	6.52
49	MO-D	Concourse to Schuetz	EB	MO	AM	0.50	0.63	1.01	0.99	0.91
50	MO-K	I-70 to MO-364	SB	MO	PM	3.50	3.29	3.87	3.95	3.72
51	SALISBURY ST	N FLORISSANT AVE to I-70	EB	MO	AM	0.49	0.94	1.96	2.37	1.95
52	SALISBURY ST	N FLORISSANT AVE to I-70	EB	MO	PM	0.72	3.43	4.56	4.45	4.44
53	SALISBURY ST	I-70 to Natural Bridge	WB	MO	AM	0.75	1.33	2.31	2.84	2.30
54	SALISBURY ST	I-70 to Natural Bridge	WB	MO	PM	0.75	2.12	2.20	1.80	2.18
55	SKINKER	Forest Park Pky to Delmar	NB	MO	AM	0.43	0.65	1.04	1.22	1.04
56	SKINKER	Forest Park Pky to Delmar	NB	MO	PM	0.43	0.79	0.82	0.80	0.80
57	SKINKER	Forest Park Pky to Delmar	SB	MO	AM	0.43	0.81	1.58	3.28	1.85
58	SKINKER	Forest Park Pky to Delmar	SB	MO	PM	0.43	1.03	4.89	4.97	3.54
59	US-67	I-270 to Old Halls Ferry Rd	NB	MO	PM	5.59	9.06	12.35	14.14	12.22

Table 30: Buffer Time Index

No.	Route	Limits	Direction	State	Peak	Queue Length	6-7 AM/ 3-4 PM	7-8 AM/ 4-5 PM	8-9 AM/ 5-6 PM	3-HR AVG
1	FOREST PARK AVE	I-64 to Kingshighway	WB	MO	AM	2.14	0.69	1.24	1.47	1.23
2	FOREST PARK AVE	I-64 to Kingshighway	WB	MO	PM	2.14	0.45	0.54	0.54	0.53
3	FOREST PARK AVE	Kingshighway to I-64	EB	MO	PM	2.05	0.40	0.36	0.35	0.37
4	FOREST PARK AVE	Kingshighway to I-64	EB	MO	AM	2.05	0.51	0.94	1.20	0.96
5	HAMPTON AVE	I-64/US-40 to I-44	SB	MO	PM	1.02	0.79	1.49	1.90	1.59
6	HANLEY	Shaw Park Dr to I-64/US-40/Eager Rd	SB	MO	PM	1.30	0.57	1.99	2.10	2.09
7	HANLEY/LACLEDE ST RD	Murdoch to MO-100/Manchester Rd	NB	MO	AM	1.55	0.48	2.17	3.22	2.58
8	IL-111	Forest Blvd to I-55/I-70/US-40	NB	IL	AM	3.01	0.09	0.13	0.17	0.17
9	IL-111	Forest Blvd to I-55/I-70/US-40	NB	IL	PM	3.01	0.16	0.13	0.13	0.14
10	IL-140	Washington Ave to IL-3	EB	IL	AM	1.15	0.19	0.42	0.51	0.49
11	IL-140	Washington Ave to IL-3	EB	IL	PM	1.15	0.54	0.52	0.50	0.52
12	IL-140	CR-51 to I-55	WB	IL	AM	3.84	0.06	0.14	0.22	0.13
13	IL-140	CR-51 to I-55	WB	IL	PM	3.84	0.03	0.04	0.05	0.04
14	IL-143	IL-111 to IL-3	WB	IL	AM	2.05	0.17	0.26	0.31	0.26
15	IL-143	IL-111 to IL-3	WB	IL	PM	2.05	0.18	0.19	0.14	0.18
16	IL-157	Horseshoe Lake Rd to I-55/I-70/US-40	SB	IL	AM	1.92	0.39	0.78	0.79	0.67
17	IL-157	Horseshoe Lake Rd to I-55/I-70/US-40	SB	IL	PM	1.92	0.53	0.61	0.66	0.72
18	IL-157	I-55/I-70/US-40 to Horseshoe Lake Rd	NB	IL	PM	1.87	0.50	0.58	0.60	0.54
19	IL-159	Main to IL-15	SB	IL	PM	1.21	0.62	0.67	0.75	0.68
20	JEFFERSON	Arsenal to Park	NB	MO	PM	1.35	0.86	0.79	0.81	0.82
21	JEFFERSON	Washington Blvd to Park Ave	SB	MO	PM	1.23	0.35	1.15	1.29	1.01
22	JEFFERSON	Washington Blvd to Park Ave	SB	MO	AM	1.23	0.77	1.05	1.31	1.10
23	KINGSHIGHWAY	Shaw to Delmar	NB	MO	AM	2.73	0.92	1.41	1.63	1.34
24	KINGSHIGHWAY	I-44 to Delmar	NB	MO	PM	2.38	0.61	0.63	0.67	0.60
25	KINGSHIGHWAY	Laclede Ave to Manchester	SB	MO	PM	1.28	0.94	1.28	1.50	1.16
26	LACLEDE ST RD	Big Bend to Murdoch	SB	MO	AM	0.49	0.72	1.19	1.19	1.05
27	LACLEDE ST RD	Union Pacific to Murdoch	SB	MO	PM	1.10	0.68	1.76	2.35	2.06
28	MCCAUSLAND AVE	Arsenal to I-64	NB	MO	AM	1.44	0.30	1.58	1.99	1.51
29	MCCAUSLAND AVE	Arsenal to I-64	NB	MO	PM	1.44	0.52	0.70	0.76	0.65
30	MCCAUSLAND AVE	I-64 to Arsenal	SB	MO	PM	1.56	0.28	1.19	1.80	1.31
31	MCCAUSLAND AVE	I-64 to Oakland	NB	MO	AM	0.29	0.56	1.90	2.41	1.88
32	MCCAUSLAND AVE	I-64 to Oakland	NB	MO	PM	0.29	0.39	0.63	0.69	0.59
33	MO-100	Vandeventer to Kingshighway	WB	MO	PM	0.96	0.78	1.65	2.13	1.64
34	MO-100	Big Bend to McCausland	EB	MO	PM	0.83	0.86	0.79	0.92	0.77
35	MO-100	Kingshighway to Vandeventer	EB	MO	PM	0.96	0.56	0.57	0.52	0.56
36	MO-100	Vandeventer to Kingshighway	WB	MO	AM	1.57	0.34	0.84	0.85	0.83
37	MO-100	McCausland to Big Bend	WB	MO	AM	0.83	0.43	1.08	1.78	1.25
38	MO-100	McCausland to Big Bend	WB	MO	PM	0.83	0.71	0.68	0.79	0.66
39	MO-100	Kingshighway to Vandeventer	EB	MO	AM	0.96	0.33	0.70	1.03	0.82
40	MO-141	Hawkins to Vance	NB	MO	AM	1.89	0.77	3.10	3.20	2.62
41	MO-141	Big Bend to I-44	SB	MO	PM	1.88	1.24	3.03	3.24	2.47
42	MO-141	MO-AB/Ladue Rd to I-64/US-40/US-61	SB	MO	PM	1.63	0.32	1.35	2.16	1.55
43	MO-141	Marshall to I-44	SB	MO	AM	0.73	1.00	1.91	2.16	1.88
44	MO-340	Chesterfield Pky North to Baxter Rd	SB	MO	PM	1.38	0.57	1.35	1.97	1.86
45	MO-94	I-64/US-40/US-61 to Mid Rivers Mall Dr	NB	MO	PM	4.19	0.27	0.48	0.85	0.65
46	MO-94	I-70/Veterans Memorial Pky/Bogey Rd to MO-364	SB	MO	PM	2.33	0.45	0.80	0.98	0.82
47	MO-94	N 5th Street to I-70	SB	MO	PM	3.49	0.41	0.31	0.34	0.37
48	MO-D	I-170 to Schuetz Rd	WB	MO	PM	4.28	0.27	0.68	0.91	0.75
49	MO-D	Concourse to Schuetz	EB	MO	AM	0.50	0.99	1.60	1.56	1.43
50	MO-K	I-70 to MO-364	SB	MO	PM	3.50	0.49	0.58	0.57	0.55
51	SALISBURY ST	N FLORISSANT AVE to I-70	EB	MO	AM	0.49	0.72	1.55	1.86	1.52
52	SALISBURY ST	N FLORISSANT AVE to I-70	EB	MO	PM	0.72	1.36	1.86	1.80	1.79
53	SALISBURY ST	I-70 to Natural Bridge	WB	MO	AM	0.75	0.68	1.21	1.49	1.20
54	SALISBURY ST	I-70 to Natural Bridge	WB	MO	PM	0.75	0.81	0.87	0.72	0.85
55	SKINKER	Forest Park Pky to Delmar	NB	MO	AM	0.43	0.68	1.11	1.33	1.11
56	SKINKER	Forest Park Pky to Delmar	NB	MO	PM	0.43	0.59	0.63	0.60	0.60
57	SKINKER	Forest Park Pky to Delmar	SB	MO	AM	0.43	0.80	1.61	3.35	1.87
58	SKINKER	Forest Park Pky to Delmar	SB	MO	PM	0.43	0.57	3.25	3.49	2.24
59	US-67	I-270 to Old Halls Ferry Rd	NB	MO	PM	5.59	0.78	1.04	1.15	1.02

Table 31: Planning Time

No.	Route	Limits	Direction	State	Peak	Queue Length	6-7 AM/ 3-4 PM	7-8 AM/ 4-5 PM	8-9 AM/ 5-6 PM	3-HR AVG
1	FOREST PARK AVE	I-64 to Kingshighway	WB	MO	AM	2.14	8.19	10.56	11.53	10.56
2	FOREST PARK AVE	I-64 to Kingshighway	WB	MO	PM	2.14	11.53	12.06	12.09	12.09
3	FOREST PARK AVE	Kingshighway to I-64	EB	MO	PM	2.05	9.77	9.75	9.75	9.75
4	FOREST PARK AVE	Kingshighway to I-64	EB	MO	AM	2.05	6.96	8.71	9.81	8.88
5	HAMPTON AVE	I-64/US-40 to I-44	SB	MO	PM	1.02	6.44	9.21	10.88	9.53
6	HANLEY	Shaw Park Dr to I-64/US-40/Eager Rd	SB	MO	PM	1.30	5.56	10.62	11.37	11.08
7	HANLEY/LACLEDE ST RD	Murdoch to MO-100/Manchester Rd	NB	MO	AM	1.55	4.15	8.82	11.72	9.99
8	IL-111	Forest Blvd to I-55/I-70/US-40	NB	IL	AM	3.01	3.78	3.90	4.03	4.03
9	IL-111	Forest Blvd to I-55/I-70/US-40	NB	IL	PM	3.01	4.32	4.32	4.32	4.32
10	IL-140	Washington Ave to IL-3	EB	IL	AM	1.15	2.68	3.17	3.35	3.33
11	IL-140	Washington Ave to IL-3	EB	IL	PM	1.15	4.25	4.25	4.25	4.25
12	IL-140	CR-51 to I-55	WB	IL	AM	3.84	1.74	1.86	2.00	1.86
13	IL-140	CR-51 to I-55	WB	IL	PM	3.84	1.93	1.93	1.93	1.93
14	IL-143	IL-111 to IL-3	WB	IL	AM	2.05	3.67	3.95	4.10	3.95
15	IL-143	IL-111 to IL-3	WB	IL	PM	2.05	4.10	4.10	3.95	4.10
16	IL-157	Horseshoe Lake Rd to I-55/I-70/US-40	SB	IL	AM	1.92	2.47	3.10	3.11	2.92
17	IL-157	Horseshoe Lake Rd to I-55/I-70/US-40	SB	IL	PM	1.92	3.53	3.78	4.08	4.08
18	IL-157	I-55/I-70/US-40 to Horseshoe Lake Rd	NB	IL	PM	1.87	2.73	2.90	3.06	2.86
19	IL-159	Main to IL-15	SB	IL	PM	1.21	5.83	6.15	6.53	6.15
20	JEFFERSON	Arsenal to Park	NB	MO	PM	1.35	7.57	7.31	7.47	7.47
21	JEFFERSON	Washington Blvd to Park Ave	SB	MO	PM	1.23	5.45	8.90	9.91	8.38
22	JEFFERSON	Washington Blvd to Park Ave	SB	MO	AM	1.23	5.06	5.75	6.42	5.90
23	KINGSHIGHWAY	Shaw to Delmar	NB	MO	AM	2.73	11.39	14.14	15.43	13.78
24	KINGSHIGHWAY	I-44 to Delmar	NB	MO	PM	2.38	13.26	13.14	13.48	12.97
25	KINGSHIGHWAY	Laclede Ave to Manchester	SB	MO	PM	1.28	7.56	8.94	9.98	8.49
26	LACLEDE ST RD	Big Bend to Murdoch	SB	MO	AM	0.49	1.54	1.95	1.95	1.83
27	LACLEDE ST RD	Union Pacific to Murdoch	SB	MO	PM	1.10	4.38	6.81	8.13	7.65
28	MCCAUSLAND AVE	Arsenal to I-64	NB	MO	AM	1.44	4.02	7.79	9.02	7.65
29	MCCAUSLAND AVE	Arsenal to I-64	NB	MO	PM	1.44	6.15	6.57	6.97	6.53
30	MCCAUSLAND AVE	I-64 to Arsenal	SB	MO	PM	1.56	5.72	9.00	10.96	9.64
31	MCCAUSLAND AVE	I-64 to Oakland	NB	MO	AM	0.29	1.03	1.88	2.21	1.88
32	MCCAUSLAND AVE	I-64 to Oakland	NB	MO	PM	0.29	1.37	1.49	1.54	1.49
33	MO-100	Vandeventer to Kingshighway	WB	MO	PM	0.96	6.37	9.56	11.47	9.56
34	MO-100	Big Bend to McCausland	EB	MO	PM	0.83	6.24	6.24	7.13	6.24
35	MO-100	Kingshighway to Vandeventer	EB	MO	PM	0.96	11.23	11.23	10.95	11.23
36	MO-100	Vandeventer to Kingshighway	WB	MO	AM	1.57	3.59	4.78	4.78	4.78
37	MO-100	McCausland to Big Bend	WB	MO	AM	0.83	2.94	4.16	5.54	4.54
38	MO-100	McCausland to Big Bend	WB	MO	PM	0.83	5.54	5.54	6.24	5.54
39	MO-100	Kingshighway to Vandeventer	EB	MO	AM	0.96	3.59	4.41	5.22	4.78
40	MO-141	Hawkins to Vance	NB	MO	AM	1.89	9.84	22.48	22.97	19.92
41	MO-141	Big Bend to I-44	SB	MO	PM	1.88	14.39	25.08	26.43	21.87
42	MO-141	MO-AB/Ladue Rd to I-64/US-40/US-61	SB	MO	PM	1.63	3.73	6.50	8.71	7.11
43	MO-141	Marshall to I-44	SB	MO	AM	0.73	2.62	3.75	4.06	3.73
44	MO-340	Chesterfield Pky North to Baxter Rd	SB	MO	PM	1.38	7.96	12.24	15.94	14.90
45	MO-94	I-64/US-40/US-61 to Mid Rivers Mall Dr	NB	MO	PM	4.19	7.52	8.77	11.04	9.77
46	MO-94	I-70/Veterans Memorial Pky/Bogey Rd to MO-364	SB	MO	PM	2.33	8.35	10.32	11.50	10.50
47	MO-94	N 5th Street to I-70	SB	MO	PM	3.49	13.72	13.00	13.49	13.58
48	MO-D	I-170 to Schuetz Rd	WB	MO	PM	4.28	10.91	14.48	16.99	15.23
49	MO-D	Concourse to Schuetz	EB	MO	AM	0.50	1.27	1.65	1.63	1.54
50	MO-K	I-70 to MO-364	SB	MO	PM	3.50	10.00	10.55	10.84	10.48
51	SALISBURY ST	N FLORISSANT AVE to I-70	EB	MO	AM	0.49	2.24	3.23	3.64	3.23
52	SALISBURY ST	N FLORISSANT AVE to I-70	EB	MO	PM	0.72	5.95	7.01	6.92	6.92
53	SALISBURY ST	I-70 to Natural Bridge	WB	MO	AM	0.75	3.27	4.22	4.74	4.22
54	SALISBURY ST	I-70 to Natural Bridge	WB	MO	PM	0.75	4.74	4.74	4.31	4.74
55	SKINKER	Forest Park Pky to Delmar	NB	MO	AM	0.43	1.60	1.97	2.13	1.97
56	SKINKER	Forest Park Pky to Delmar	NB	MO	PM	0.43	2.13	2.13	2.13	2.13
57	SKINKER	Forest Park Pky to Delmar	SB	MO	AM	0.43	1.83	2.56	4.26	2.84
58	SKINKER	Forest Park Pky to Delmar	SB	MO	PM	0.43	2.84	6.40	6.40	5.12
59	US-67	I-270 to Old Halls Ferry Rd	NB	MO	PM	5.59	20.68	24.24	26.47	24.16

Table 32: Planning Time Index

No.	Route	Limits	Direction	State	Peak	Queue Length	6-7 AM/ 3-4 PM	7-8 AM/ 4-5 PM	8-9 AM/ 5-6 PM	3-HR AVG
1	FOREST PARK AVE	I-64 to Kingshighway	WB	MO	AM	2.14	1.69	2.18	2.38	2.18
2	FOREST PARK AVE	I-64 to Kingshighway	WB	MO	PM	2.14	2.38	2.49	2.49	2.49
3	FOREST PARK AVE	Kingshighway to I-64	EB	MO	PM	2.05	2.22	2.21	2.21	2.21
4	FOREST PARK AVE	Kingshighway to I-64	EB	MO	AM	2.05	1.58	1.98	2.23	2.01
5	HAMPTON AVE	I-64/US-40 to I-44	SB	MO	PM	1.02	2.45	3.50	4.14	3.62
6	HANLEY	Shaw Park Dr to I-64/US-40/Eager Rd	SB	MO	PM	1.30	1.79	3.41	3.65	3.56
7	HANLEY/LACLEDE ST RD	Murdoch to MO-100/Manchester Rd	NB	MO	AM	1.55	1.21	2.57	3.41	2.90
8	IL-111	Forest Blvd to I-55/I-70/US-40	NB	IL	AM	3.01	1.44	1.48	1.53	1.53
9	IL-111	Forest Blvd to I-55/I-70/US-40	NB	IL	PM	3.01	1.64	1.64	1.64	1.64
10	IL-140	Washington Ave to IL-3	EB	IL	AM	1.15	1.46	1.73	1.83	1.81
11	IL-140	Washington Ave to IL-3	EB	IL	PM	1.15	2.32	2.32	2.32	2.32
12	IL-140	CR-51 to I-55	WB	IL	AM	3.84	1.55	1.66	1.78	1.66
13	IL-140	CR-51 to I-55	WB	IL	PM	3.84	1.71	1.71	1.71	1.71
14	IL-143	IL-111 to IL-3	WB	IL	AM	2.05	1.59	1.70	1.77	1.70
15	IL-143	IL-111 to IL-3	WB	IL	PM	2.05	1.77	1.77	1.70	1.77
16	IL-157	Horseshoe Lake Rd to I-55/I-70/US-40	SB	IL	AM	1.92	1.55	1.95	1.95	1.84
17	IL-157	Horseshoe Lake Rd to I-55/I-70/US-40	SB	IL	PM	1.92	2.22	2.38	2.57	2.57
18	IL-157	I-55/I-70/US-40 to Horseshoe Lake Rd	NB	IL	PM	1.87	1.87	1.99	2.09	1.96
19	IL-159	Main to IL-15	SB	IL	PM	1.21	2.25	2.38	2.53	2.38
20	JEFFERSON	Arsenal to Park	NB	MO	PM	1.35	2.27	2.19	2.24	2.24
21	JEFFERSON	Washington Blvd to Park Ave	SB	MO	PM	1.23	1.88	3.07	3.42	2.89
22	JEFFERSON	Washington Blvd to Park Ave	SB	MO	AM	1.23	1.74	1.98	2.21	2.03
23	KINGSHIGHWAY	Shaw to Delmar	NB	MO	AM	2.73	1.69	2.10	2.29	2.04
24	KINGSHIGHWAY	I-44 to Delmar	NB	MO	PM	2.38	2.28	2.26	2.32	2.23
25	KINGSHIGHWAY	Laclede Ave to Manchester	SB	MO	PM	1.28	2.54	3.01	3.35	2.86
26	LACLEDE ST RD	Big Bend to Murdoch	SB	MO	AM	0.49	1.63	2.07	2.07	1.94
27	LACLEDE ST RD	Union Pacific to Murdoch	SB	MO	PM	1.10	1.87	2.90	3.47	3.26
28	MCCAUSLAND AVE	Arsenal to I-64	NB	MO	AM	1.44	1.27	2.47	2.86	2.43
29	MCCAUSLAND AVE	Arsenal to I-64	NB	MO	PM	1.44	1.95	2.08	2.21	2.07
30	MCCAUSLAND AVE	I-64 to Arsenal	SB	MO	PM	1.56	1.69	2.66	3.24	2.85
31	MCCAUSLAND AVE	I-64 to Oakland	NB	MO	AM	0.29	1.47	2.68	3.15	2.68
32	MCCAUSLAND AVE	I-64 to Oakland	NB	MO	PM	0.29	1.95	2.12	2.19	2.12
33	MO-100	Vandeventer to Kingshighway	WB	MO	PM	0.96	3.00	4.50	5.40	4.50
34	MO-100	Big Bend to McCausland	EB	MO	PM	0.83	3.25	3.25	3.71	3.25
35	MO-100	Kingshighway to Vandeventer	EB	MO	PM	0.96	1.84	1.84	1.80	1.84
36	MO-100	Vandeventer to Kingshighway	WB	MO	AM	1.57	1.69	2.25	2.25	2.25
37	MO-100	McCausland to Big Bend	WB	MO	AM	0.83	1.29	1.83	2.44	2.00
38	MO-100	McCausland to Big Bend	WB	MO	PM	0.83	2.44	2.44	2.75	2.44
39	MO-100	Kingshighway to Vandeventer	EB	MO	AM	0.96	1.63	2.00	2.36	2.17
40	MO-141	Hawkins to Vance	NB	MO	AM	1.89	1.32	3.03	3.09	2.68
41	MO-141	Big Bend to I-44	SB	MO	PM	1.88	2.13	3.71	3.91	3.23
42	MO-141	MO-AB/Ladue Rd to I-64/US-40/US-61	SB	MO	PM	1.63	1.41	2.45	3.29	2.68
43	MO-141	Marshall to I-44	SB	MO	AM	0.73	1.71	2.44	2.64	2.43
44	MO-340	Chesterfield Pky North to Baxter Rd	SB	MO	PM	1.38	1.36	2.10	2.73	2.55
45	MO-94	I-64/US-40/US-61 to Mid Rivers Mall Dr	NB	MO	PM	4.19	1.74	2.03	2.56	2.26
46	MO-94	I-70/Veterans Memorial Pky/Bogey Rd to MO-364	SB	MO	PM	2.33	1.63	2.02	2.25	2.06
47	MO-94	N 5th Street to I-70	SB	MO	PM	3.49	1.70	1.61	1.67	1.68
48	MO-D	I-170 to Schuetz Rd	WB	MO	PM	4.28	1.62	2.15	2.52	2.26
49	MO-D	Concourse to Schuetz	EB	MO	AM	0.50	1.70	2.21	2.18	2.07
50	MO-K	I-70 to MO-364	SB	MO	PM	3.50	1.75	1.85	1.90	1.84
51	SALISBURY ST	N FLORISSANT AVE to I-70	EB	MO	AM	0.49	1.70	2.45	2.76	2.45
52	SALISBURY ST	N FLORISSANT AVE to I-70	EB	MO	PM	0.72	3.15	3.71	3.66	3.66
53	SALISBURY ST	I-70 to Natural Bridge	WB	MO	AM	0.75	1.63	2.11	2.37	2.11
54	SALISBURY ST	I-70 to Natural Bridge	WB	MO	PM	0.75	2.36	2.36	2.15	2.36
55	SKINKER	Forest Park Pky to Delmar	NB	MO	AM	0.43	1.63	2.00	2.17	2.00
56	SKINKER	Forest Park Pky to Delmar	NB	MO	PM	0.43	2.17	2.17	2.17	2.17
57	SKINKER	Forest Park Pky to Delmar	SB	MO	AM	0.43	1.79	2.50	4.17	2.78
58	SKINKER	Forest Park Pky to Delmar	SB	MO	PM	0.43	2.78	6.25	6.25	5.00
59	US-67	I-270 to Old Halls Ferry Rd	NB	MO	PM	5.59	1.84	2.16	2.36	2.16

Table 33: Average Speed

No.	Route	Limits	Direction	State	Peak	Queue Length	6-7 AM/ 3-4 PM	7-8 AM/ 4-5 PM	8-9 AM/ 5-6 PM	3-HR AVG
1	FOREST PARK AVE	I-64 to Kingshighway	WB	MO	AM	2.14	19.74	15.50	14.90	16.47
2	FOREST PARK AVE	I-64 to Kingshighway	WB	MO	PM	2.14	13.94	14.00	13.89	13.94
3	FOREST PARK AVE	Kingshighway to I-64	EB	MO	PM	2.05	15.77	16.06	16.11	15.98
4	FOREST PARK AVE	Kingshighway to I-64	EB	MO	AM	2.05	21.89	18.88	16.50	18.85
5	HAMPTON AVE	I-64/US-40 to I-44	SB	MO	PM	1.02	14.58	11.84	10.07	11.89
6	HANLEY	Shaw Park Dr to I-64/US-40/Eager Rd	SB	MO	PM	1.30	20.35	15.78	11.90	15.26
7	HANLEY/LACLEDE ST RD	Murdoch to MO-100/Manchester Rd	NB	MO	AM	1.55	29.72	18.37	14.99	19.45
8	IL-111	Forest Blvd to I-55/I-70/US-40	NB	IL	AM	3.01	33.80	33.36	31.50	32.86
9	IL-111	Forest Blvd to I-55/I-70/US-40	NB	IL	PM	3.01	30.09	30.12	30.21	30.14
10	IL-140	Washington Ave to IL-3	EB	IL	AM	1.15	28.70	27.43	24.94	26.94
11	IL-140	Washington Ave to IL-3	EB	IL	PM	1.15	20.66	20.26	21.21	20.71
12	IL-140	CR-51 to I-55	WB	IL	AM	3.84	34.73	33.46	31.75	33.27
13	IL-140	CR-51 to I-55	WB	IL	PM	3.84	31.83	32.02	31.54	31.79
14	IL-143	IL-111 to IL-3	WB	IL	AM	2.05	33.05	31.38	30.18	31.50
15	IL-143	IL-111 to IL-3	WB	IL	PM	2.05	29.69	29.96	30.35	30.00
16	IL-157	Horseshoe Lake Rd to I-55/I-70/US-40	SB	IL	AM	1.92	24.84	20.99	21.06	22.18
17	IL-157	Horseshoe Lake Rd to I-55/I-70/US-40	SB	IL	PM	1.92	18.16	17.03	15.94	17.00
18	IL-157	I-55/I-70/US-40 to Horseshoe Lake Rd	NB	IL	PM	1.87	21.91	21.06	20.21	21.04
19	IL-159	Main to IL-15	SB	IL	PM	1.21	16.35	15.28	14.74	15.43
20	JEFFERSON	Arsenal to Park	NB	MO	PM	1.35	15.73	15.50	15.62	15.62
21	JEFFERSON	Washington Blvd to Park Ave	SB	MO	PM	1.23	19.90	13.85	12.94	15.03
22	JEFFERSON	Washington Blvd to Park Ave	SB	MO	AM	1.23	20.43	18.25	16.47	18.25
23	KINGSHIGHWAY	Shaw to Delmar	NB	MO	AM	2.73	20.29	16.85	16.25	17.65
24	KINGSHIGHWAY	I-44 to Delmar	NB	MO	PM	2.38	16.51	15.98	16.10	16.20
25	KINGSHIGHWAY	Laclede Ave to Manchester	SB	MO	PM	1.28	15.76	14.03	13.37	14.33
26	LACLEDE ST RD	Big Bend to Murdoch	SB	MO	AM	0.49	25.22	20.60	20.19	21.81
27	LACLEDE ST RD	Union Pacific to Murdoch	SB	MO	PM	1.10	22.23	16.64	13.21	16.61
28	MCCAUSLAND AVE	Arsenal to I-64	NB	MO	AM	1.44	26.76	18.99	17.37	20.37
29	MCCAUSLAND AVE	Arsenal to I-64	NB	MO	PM	1.44	20.16	18.62	18.36	19.01
30	MCCAUSLAND AVE	I-64 to Arsenal	SB	MO	PM	1.56	23.42	17.85	14.29	17.79
31	MCCAUSLAND AVE	I-64 to Oakland	NB	MO	AM	0.29	23.63	16.08	13.83	17.01
32	MCCAUSLAND AVE	I-64 to Oakland	NB	MO	PM	0.29	17.42	16.39	16.32	16.70
33	MO-100	Vandeventer to Kingshighway	WB	MO	PM	0.96	11.14	8.85	7.57	8.96
34	MO-100	Big Bend to McCausland	EB	MO	PM	0.83	10.64	9.92	9.44	9.98
35	MO-100	Kingshighway to Vandeventer	EB	MO	PM	0.96	15.25	14.73	14.81	14.93
36	MO-100	Vandeventer to Kingshighway	WB	MO	AM	1.57	18.30	15.40	14.09	15.76
37	MO-100	McCausland to Big Bend	WB	MO	AM	0.83	21.58	15.28	12.70	15.78
38	MO-100	McCausland to Big Bend	WB	MO	PM	0.83	11.36	11.12	10.56	11.00
39	MO-100	Kingshighway to Vandeventer	EB	MO	AM	0.96	18.66	15.99	13.54	15.80
40	MO-141	Hawkins to Vance	NB	MO	AM	1.89	34.14	21.52	21.79	24.71
41	MO-141	Big Bend to I-44	SB	MO	PM	1.88	28.52	18.56	17.60	20.59
42	MO-141	MO-AB/Ladue Rd to I-64/US-40/US-61	SB	MO	PM	1.63	36.13	25.59	19.78	25.59
43	MO-141	Marshall to I-44	SB	MO	AM	0.73	26.91	20.76	19.66	22.06
44	MO-340	Chesterfield Pky North to Baxter Rd	SB	MO	PM	1.38	29.77	21.61	15.69	20.90
45	MO-94	I-64/US-40/US-61 to Mid Rivers Mall Dr	NB	MO	PM	4.19	39.88	35.05	30.88	34.90
46	MO-94	I-70/Veterans Memorial Pky/Bogey Rd to MO-364	SB	MO	PM	2.33	32.57	28.52	26.97	29.18
47	MO-94	N 5th Street to I-70	SB	MO	PM	3.49	18.91	19.29	19.11	19.10
48	MO-D	I-170 to Schuetz Rd	WB	MO	PM	4.28	28.68	24.54	22.18	24.86
49	MO-D	Concourse to Schuetz	EB	MO	AM	0.50	34.36	27.01	28.27	29.59
50	MO-K	I-70 to MO-364	SB	MO	PM	3.50	26.15	24.64	23.81	24.83
51	SALISBURY ST	N FLORISSANT AVE to I-70	EB	MO	AM	0.49	17.18	13.01	11.95	13.73
52	SALISBURY ST	N FLORISSANT AVE to I-70	EB	MO	PM	0.72	11.68	9.18	9.42	9.98
53	SALISBURY ST	I-70 to Natural Bridge	WB	MO	AM	0.75	19.62	14.61	14.09	15.78
54	SALISBURY ST	I-70 to Natural Bridge	WB	MO	PM	0.75	13.59	13.49	13.77	13.62
55	SKINKER	Forest Park Pky to Delmar	NB	MO	AM	0.43	20.98	17.51	16.40	18.12
56	SKINKER	Forest Park Pky to Delmar	NB	MO	PM	0.43	16.79	15.99	16.13	16.30
57	SKINKER	Forest Park Pky to Delmar	SB	MO	AM	0.43	19.90	14.20	10.92	14.17
58	SKINKER	Forest Park Pky to Delmar	SB	MO	PM	0.43	13.09	10.66	9.70	10.98
59	US-67	I-270 to Old Halls Ferry Rd	NB	MO	PM	5.59	21.97	19.69	18.52	19.96

Table 34: Table 16: Travel Time

No.	Route	Limits	Direction	State	Peak	Queue Length	6-7 AM/ 3-4 PM	7-8 AM/ 4-5 PM	8-9 AM/ 5-6 PM	3-HR AVG
1	FOREST PARK AVE	I-64 to Kingshighway	WB	MO	AM	2.14	6.50	8.28	8.61	7.79
2	FOREST PARK AVE	I-64 to Kingshighway	WB	MO	PM	2.14	9.20	9.16	9.24	9.20
3	FOREST PARK AVE	Kingshighway to I-64	EB	MO	PM	2.05	7.81	7.67	7.64	7.71
4	FOREST PARK AVE	Kingshighway to I-64	EB	MO	AM	2.05	5.63	6.53	7.46	6.53
5	HAMPTON AVE	I-64/US-40 to I-44	SB	MO	PM	1.02	4.18	5.15	6.05	5.13
6	HANLEY	Shaw Park Dr to I-64/US-40/Eager Rd	SB	MO	PM	1.30	3.82	4.93	6.54	5.10
7	HANLEY/LACLEDE ST RD	Murdoch to MO-100/Manchester Rd	NB	MO	AM	1.55	3.13	5.06	6.20	4.78
8	IL-111	Forest Blvd to I-55/I-70/US-40	NB	IL	AM	3.01	3.58	3.62	3.84	3.68
9	IL-111	Forest Blvd to I-55/I-70/US-40	NB	IL	PM	3.01	4.02	4.01	4.00	4.01
10	IL-140	Washington Ave to IL-3	EB	IL	AM	1.15	2.40	2.51	2.76	2.56
11	IL-140	Washington Ave to IL-3	EB	IL	PM	1.15	3.33	3.40	3.25	3.32
12	IL-140	CR-51 to I-55	WB	IL	AM	3.84	1.56	1.62	1.70	1.62
13	IL-140	CR-51 to I-55	WB	IL	PM	3.84	1.70	1.69	1.71	1.70
14	IL-143	IL-111 to IL-3	WB	IL	AM	2.05	3.22	3.40	3.53	3.38
15	IL-143	IL-111 to IL-3	WB	IL	PM	2.05	3.59	3.56	3.51	3.55
16	IL-157	Horseshoe Lake Rd to I-55/I-70/US-40	SB	IL	AM	1.92	2.00	2.37	2.36	2.24
17	IL-157	Horseshoe Lake Rd to I-55/I-70/US-40	SB	IL	PM	1.92	2.74	2.92	3.12	2.92
18	IL-157	I-55/I-70/US-40 to Horseshoe Lake Rd	NB	IL	PM	1.87	2.14	2.23	2.32	2.23
19	IL-159	Main to IL-15	SB	IL	PM	1.21	4.43	4.73	4.91	4.69
20	JEFFERSON	Arsenal to Park	NB	MO	PM	1.35	5.17	5.24	5.20	5.20
21	JEFFERSON	Washington Blvd to Park Ave	SB	MO	PM	1.23	3.72	5.34	5.72	4.92
22	JEFFERSON	Washington Blvd to Park Ave	SB	MO	AM	1.23	3.62	4.06	4.49	4.05
23	KINGSHIGHWAY	Shaw to Delmar	NB	MO	AM	2.73	8.07	9.72	10.08	9.28
24	KINGSHIGHWAY	I-44 to Delmar	NB	MO	PM	2.38	8.64	8.92	8.85	8.80
25	KINGSHIGHWAY	Laclede Ave to Manchester	SB	MO	PM	1.28	4.87	5.47	5.74	5.36
26	LACLEDE ST RD	Big Bend to Murdoch	SB	MO	AM	0.49	1.16	1.42	1.45	1.34
27	LACLEDE ST RD	Union Pacific to Murdoch	SB	MO	PM	1.10	2.96	3.95	4.98	3.96
28	MCCAUSLAND AVE	Arsenal to I-64	NB	MO	AM	1.44	3.23	4.55	4.98	4.24
29	MCCAUSLAND AVE	Arsenal to I-64	NB	MO	PM	1.44	4.29	4.64	4.71	4.55
30	MCCAUSLAND AVE	I-64 to Arsenal	SB	MO	PM	1.56	4.01	5.26	6.57	5.27
31	MCCAUSLAND AVE	I-64 to Oakland	NB	MO	AM	0.29	0.74	1.08	1.26	1.02
32	MCCAUSLAND AVE	I-64 to Oakland	NB	MO	PM	0.29	1.00	1.06	1.07	1.04
33	MO-100	Vandeventer to Kingshighway	WB	MO	PM	0.96	5.15	6.48	7.58	6.40
34	MO-100	Big Bend to McCausland	EB	MO	PM	0.83	4.69	5.03	5.29	5.00
35	MO-100	Kingshighway to Vandeventer	EB	MO	PM	0.96	8.86	9.17	9.12	9.05
36	MO-100	Vandeventer to Kingshighway	WB	MO	AM	1.57	3.13	3.72	4.07	3.64
37	MO-100	McCausland to Big Bend	WB	MO	AM	0.83	2.31	3.26	3.93	3.16
38	MO-100	McCausland to Big Bend	WB	MO	PM	0.83	4.39	4.49	4.73	4.53
39	MO-100	Kingshighway to Vandeventer	EB	MO	AM	0.96	3.07	3.59	4.24	3.63
40	MO-141	Hawkins to Vance	NB	MO	AM	1.89	7.26	11.52	11.37	10.03
41	MO-141	Big Bend to I-44	SB	MO	PM	1.88	8.20	12.60	13.29	11.35
42	MO-141	MO-AB/Ladue Rd to I-64/US-40/US-61	SB	MO	PM	1.63	2.71	3.82	4.95	3.82
43	MO-141	Marshall to I-44	SB	MO	AM	0.73	1.90	2.46	2.60	2.32
44	MO-340	Chesterfield Pky North to Baxter Rd	SB	MO	PM	1.38	5.52	7.60	10.46	7.86
45	MO-94	I-64/US-40/US-61 to Mid Rivers Mall Dr	NB	MO	PM	4.19	6.31	7.18	8.14	7.21
46	MO-94	I-70/Veterans Memorial Pky/Bogey Rd to MO-364	SB	MO	PM	2.33	6.24	7.13	7.53	6.96
47	MO-94	N 5th Street to I-70	SB	MO	PM	3.49	11.07	10.86	10.96	10.96
48	MO-D	I-170 to Schuetz Rd	WB	MO	PM	4.28	8.95	10.46	11.58	10.33
49	MO-D	Concourse to Schuetz	EB	MO	AM	0.50	0.88	1.12	1.07	1.02
50	MO-K	I-70 to MO-364	SB	MO	PM	3.50	8.03	8.52	8.82	8.46
51	SALISBURY ST	N FLORISSANT AVE to I-70	EB	MO	AM	0.49	1.69	2.24	2.44	2.12
52	SALISBURY ST	N FLORISSANT AVE to I-70	EB	MO	PM	0.72	3.72	4.73	4.61	4.35
53	SALISBURY ST	I-70 to Natural Bridge	WB	MO	AM	0.75	2.29	3.08	3.19	2.85
54	SALISBURY ST	I-70 to Natural Bridge	WB	MO	PM	0.75	3.31	3.33	3.27	3.30
55	SKINKER	Forest Park Pky to Delmar	NB	MO	AM	0.43	1.22	1.46	1.56	1.41
56	SKINKER	Forest Park Pky to Delmar	NB	MO	PM	0.43	1.52	1.60	1.59	1.57
57	SKINKER	Forest Park Pky to Delmar	SB	MO	AM	0.43	1.29	1.80	2.34	1.81
58	SKINKER	Forest Park Pky to Delmar	SB	MO	PM	0.43	1.95	2.40	2.64	2.33
59	US-67	I-270 to Old Halls Ferry Rd	NB	MO	PM	5.59	15.26	17.04	18.11	16.80

Table 35: Travel Time Index

No.	Route	Limits	Direction	State	Peak	Queue Length	6-7 AM/ 3-4 PM	7-8 AM/ 4-5 PM	8-9 AM/ 5-6 PM	3-HR AVG
1	FOREST PARK AVE	I-64 to Kingshighway	WB	MO	AM	2.14	1.34	1.71	1.78	1.61
2	FOREST PARK AVE	I-64 to Kingshighway	WB	MO	PM	2.14	1.90	1.89	1.90	1.90
3	FOREST PARK AVE	Kingshighway to I-64	EB	MO	PM	2.05	1.77	1.74	1.74	1.75
4	FOREST PARK AVE	Kingshighway to I-64	EB	MO	AM	2.05	1.28	1.48	1.69	1.48
5	HAMPTON AVE	I-64/US-40 to I-44	SB	MO	PM	1.02	1.59	1.96	2.30	1.95
6	HANLEY	Shaw Park Dr to I-64/US-40/Eager Rd	SB	MO	PM	1.30	1.23	1.58	2.10	1.64
7	HANLEY/LACLEDE ST RD	Murdoch to MO-100/Manchester Rd	NB	MO	AM	1.55	0.91	1.47	1.80	1.39
8	IL-111	Forest Blvd to I-55/I-70/US-40	NB	IL	AM	3.01	1.36	1.38	1.46	1.40
9	IL-111	Forest Blvd to I-55/I-70/US-40	NB	IL	PM	3.01	1.53	1.53	1.52	1.53
10	IL-140	Washington Ave to IL-3	EB	IL	AM	1.15	1.31	1.37	1.50	1.39
11	IL-140	Washington Ave to IL-3	EB	IL	PM	1.15	1.81	1.85	1.77	1.81
12	IL-140	CR-51 to I-55	WB	IL	AM	3.84	1.38	1.43	1.51	1.44
13	IL-140	CR-51 to I-55	WB	IL	PM	3.84	1.51	1.50	1.52	1.51
14	IL-143	IL-111 to IL-3	WB	IL	AM	2.05	1.39	1.47	1.52	1.46
15	IL-143	IL-111 to IL-3	WB	IL	PM	2.05	1.55	1.54	1.52	1.53
16	IL-157	Horseshoe Lake Rd to I-55/I-70/US-40	SB	IL	AM	1.92	1.26	1.49	1.48	1.41
17	IL-157	Horseshoe Lake Rd to I-55/I-70/US-40	SB	IL	PM	1.92	1.72	1.83	1.96	1.84
18	IL-157	I-55/I-70/US-40 to Horseshoe Lake Rd	NB	IL	PM	1.87	1.46	1.52	1.59	1.52
19	IL-159	Main to IL-15	SB	IL	PM	1.21	1.71	1.83	1.90	1.81
20	JEFFERSON	Arsenal to Park	NB	MO	PM	1.35	1.55	1.57	1.56	1.56
21	JEFFERSON	Washington Blvd to Park Ave	SB	MO	PM	1.23	1.28	1.84	1.97	1.70
22	JEFFERSON	Washington Blvd to Park Ave	SB	MO	AM	1.23	1.25	1.40	1.55	1.40
23	KINGSHIGHWAY	Shaw to Delmar	NB	MO	AM	2.73	1.20	1.44	1.49	1.38
24	KINGSHIGHWAY	I-44 to Delmar	NB	MO	PM	2.38	1.48	1.53	1.52	1.51
25	KINGSHIGHWAY	Laclede Ave to Manchester	SB	MO	PM	1.28	1.64	1.84	1.93	1.80
26	LACLEDE ST RD	Big Bend to Murdoch	SB	MO	AM	0.49	1.23	1.50	1.54	1.42
27	LACLEDE ST RD	Union Pacific to Murdoch	SB	MO	PM	1.10	1.26	1.68	2.12	1.69
28	MCCAUSLAND AVE	Arsenal to I-64	NB	MO	AM	1.44	1.02	1.44	1.58	1.35
29	MCCAUSLAND AVE	Arsenal to I-64	NB	MO	PM	1.44	1.36	1.47	1.49	1.44
30	MCCAUSLAND AVE	I-64 to Arsenal	SB	MO	PM	1.56	1.19	1.56	1.94	1.56
31	MCCAUSLAND AVE	I-64 to Oakland	NB	MO	AM	0.29	1.05	1.54	1.79	1.46
32	MCCAUSLAND AVE	I-64 to Oakland	NB	MO	PM	0.29	1.42	1.51	1.52	1.48
33	MO-100	Vandeventer to Kingshighway	WB	MO	PM	0.96	2.42	3.05	3.57	3.01
34	MO-100	Big Bend to McCausland	EB	MO	PM	0.83	2.44	2.62	2.75	2.61
35	MO-100	Kingshighway to Vandeventer	EB	MO	PM	0.96	1.45	1.51	1.50	1.49
36	MO-100	Vandeventer to Kingshighway	WB	MO	AM	1.57	1.48	1.75	1.92	1.71
37	MO-100	McCausland to Big Bend	WB	MO	AM	0.83	1.02	1.44	1.73	1.39
38	MO-100	McCausland to Big Bend	WB	MO	PM	0.83	1.94	1.98	2.08	2.00
39	MO-100	Kingshighway to Vandeventer	EB	MO	AM	0.96	1.39	1.63	1.92	1.65
40	MO-141	Hawkins to Vance	NB	MO	AM	1.89	0.98	1.55	1.53	1.35
41	MO-141	Big Bend to I-44	SB	MO	PM	1.88	1.21	1.86	1.96	1.68
42	MO-141	MO-AB/Ladue Rd to I-64/US-40/US-61	SB	MO	PM	1.63	1.02	1.44	1.87	1.44
43	MO-141	Marshall to I-44	SB	MO	AM	0.73	1.24	1.60	1.69	1.51
44	MO-340	Chesterfield Pky North to Baxter Rd	SB	MO	PM	1.38	0.94	1.30	1.79	1.35
45	MO-94	I-64/US-40/US-61 to Mid Rivers Mall Dr	NB	MO	PM	4.19	1.46	1.66	1.89	1.67
46	MO-94	I-70/Veterans Memorial Pky/Bogey Rd to MO-364	SB	MO	PM	2.33	1.22	1.39	1.47	1.36
47	MO-94	N 5th Street to I-70	SB	MO	PM	3.49	1.37	1.35	1.36	1.36
48	MO-D	I-170 to Schuetz Rd	WB	MO	PM	4.28	1.33	1.55	1.72	1.53
49	MO-D	Concourse to Schuetz	EB	MO	AM	0.50	1.18	1.50	1.43	1.37
50	MO-K	I-70 to MO-364	SB	MO	PM	3.50	1.41	1.49	1.54	1.48
51	SALISBURY ST	N FLORISSANT AVE to I-70	EB	MO	AM	0.49	1.29	1.70	1.85	1.61
52	SALISBURY ST	N FLORISSANT AVE to I-70	EB	MO	PM	0.72	1.97	2.50	2.44	2.30
53	SALISBURY ST	I-70 to Natural Bridge	WB	MO	AM	0.75	1.14	1.54	1.59	1.42
54	SALISBURY ST	I-70 to Natural Bridge	WB	MO	PM	0.75	1.65	1.66	1.63	1.65
55	SKINKER	Forest Park Pky to Delmar	NB	MO	AM	0.43	1.24	1.49	1.59	1.44
56	SKINKER	Forest Park Pky to Delmar	NB	MO	PM	0.43	1.55	1.63	1.61	1.60
57	SKINKER	Forest Park Pky to Delmar	SB	MO	AM	0.43	1.26	1.76	2.29	1.76
58	SKINKER	Forest Park Pky to Delmar	SB	MO	PM	0.43	1.91	2.35	2.58	2.28
59	US-67	I-270 to Old Halls Ferry Rd	NB	MO	PM	5.59	1.36	1.52	1.62	1.50

Freeway Performance Measures (Peak Hours)

Table 36: Buffer Time

No.	Route	Limits	Direction	State	Peak	Queue Length	6-7 AM/ 3-4 PM	7-8 AM/ 4-5 PM	8-9 AM/ 5-6 PM	AVG.
1	I-270	I-70 to I-55/I-255/Exit 1	SB	MO	PM	21.00	18.55	38.92	40.69	35.74
2	I-64	Chesterfield Pky/Exit 20 to McCausland Ave/Exit 33	EB	MO	PM	14.00	2.96	12.46	20.49	14.55
3	I-270	I-55/I-255/Exit 1 to MO-100/Manchester Rd/Exit 9	NB	MO	AM	10.00	9.09	25.64	22.48	21.07
4	I-64	MO-K to I-70	WB	MO	PM	10.00	8.10	17.23	16.61	15.49
5	I-70	Zumbehl/Exit 227 to Natural Bridge Rd/Exit 237/Exit 238	EB	MO	AM	9.22	0.27	9.88	9.74	7.71
6	I-70	Lake St Louis Blvd/Exit 214 to MO-79/Exit 220	EB	MO	AM	8.50	1.84	10.67	6.07	6.84
7	I-64	I-270/Exit 25 to McCausland to Ave/Exit 33	EB	MO	AM	7.80	1.04	13.01	14.68	12.20
8	I-70	I-270/Exit 231 to Cave Springs/Exit 225	WB	MO	PM	7.34	1.85	5.22	6.37	5.19
9	I-270	Lilac/Exit 33 to Elizabeth/Washington St/Exit 28	WB	MO	AM	6.76	1.74	10.26	7.20	6.93
10	I-70	MO-A/Exit 212 to Pearce Blvd/Exit 208	WB	MO	PM	5.70	3.96	6.12	6.21	5.51
11	I-64	Kingshighway/Exit 36 to I-170/Brentwood Blvd/Exit 31	WB	MO	AM	5.52	0.63	10.79	10.84	9.62
12	I-70	I-170/Exit 238 to MO-180/St Charles Rock/Exit 234	WB	MO	PM	5.44	2.57	6.80	8.21	6.49
13	I-270	McDonnell Blvd/Exit 23 to Elizabeth-Washington St/Exit 28	EB	MO	PM	5.40	8.08	16.02	20.20	17.20
14	I-70/I-44/I-55	Stan Musial Brg. to Park	ALL	MO	PM	5.35	0.94	1.82	2.14	1.70
15	I-64	I-170/Brentwood Blvd/Exit 31 to I-270/Exit 25	WB	MO	PM	5.15	4.52	6.58	7.75	6.61
16	I-170	I-64 to MO-D	SB	MO	AM	4.49	0.73	5.49	7.21	5.19
17	I-64	Kingshighway/Exit 36 to I-55/I-70/US-40	EB	MO	PM	4.46	12.91	20.52	22.42	19.93
18	I-64	Chesterfield Pky/Exit 20 to Boones Crossing/Exit 17	WB	MO	PM	4.35	2.87	5.20	5.42	4.85
19	I-170	MO-180/St Charles Rock/Exit 5 to Hanley Rd/Exit 9	NB	MO	PM	4.33	1.95	5.65	7.17	5.87
20	I-170	I-64 to MO-D	SB	MO	PM	4.18	6.23	11.16	13.98	11.85
21	I-270	Dorsett Rd/Exit 17 to MO-AB/Ladue Rd/Exit 13	SB	MO	AM	4.13	0.41	3.33	3.49	2.49
22	I-64, I-55/I-64	Baugh Ave. to Poplar St Brg.	WB	IL	AM	4.12	6.28	12.84	10.35	10.37
23	I-44/I-55	Grand Ave/Exit 247 to I-44/I-55/Gravois/Exit 207	EB-SB	MO	PM	3.84	4.37	6.19	6.10	7.24
24	I-44	I-270/Exit 276 to MO-141/Exit 272	WB	MO	PM	3.77	1.12	3.44	3.82	3.06
25	I-44	Bowles Ave/Exit 274 to US-50/US-61/US-67/ Exit 277	EB	MO	PM	3.70	1.30	3.78	4.12	2.84
26	I-70	Shreve/Exit 245 to Lucas & Hunt Rd/Exit 241	WB	MO	PM	3.61	2.10	5.02	4.84	4.10
27	I-64	Baxter to Timberlake Manor Pky/Exit 21	EB	MO	AM	3.56	0.22	4.77	2.95	3.50
28	I-70	Kingshighway/Exit 244 to Lucas & Hunt Rd/Exit 241	WB	MO	AM	3.07	0.17	3.17	4.74	3.50
29	I-44	Bowles Ave/Exit 274 to Highway Dr/Exit 275	EB	MO	AM	3.00	0.32	4.92	6.45	3.40
30	I-44	Hampton/Exit 286 to Shrewsbury/Exit 283	WB	MO	PM	2.92	2.67	6.45	7.77	6.88
31	I-55	Potomac to Park Ave/7Th St/Exit 208	NB	MO	AM	2.89	1.13	4.52	3.43	3.37
32	I-44	Tenth St/Exit 249 to I-55/I-64/US-40/Exit 251	WB	MO	AM	2.02	0.29	3.42	2.27	2.30

Table 37: Buffer Time Index

No.	Route	Limits	Direction	State	Peak	Queue Length	6-7 AM/ 3-4 PM	7-8 AM/ 4-5 PM	8-9 AM/ 5-6 PM	AVG.
1	I-270	I-70 to I-55/I-255/Exit 1	SB	MO	PM	21.00	0.90	1.94	2.04	1.77
2	I-64	Chesterfield Pky/Exit 20 to McCausland Ave/Exit 33	EB	MO	PM	14.00	0.18	0.86	1.43	0.96
3	I-270	I-55/I-255/Exit 1 to MO-100/Manchester Rd./Exit 9	NB	MO	AM	10.00	0.93	2.61	2.29	2.15
4	I-64	MO-K to I-70	WB	MO	PM	10.00	0.86	1.83	1.76	1.65
5	I-70	Zumbehl/Exit 227 to Natural Bridge Rd/Exit 237/Exit 238	EB	MO	AM	9.22	0.03	1.07	1.05	0.84
6	I-70	Lake St Louis Blvd/Exit 214 to MO-79/Exit 220	EB	MO	AM	8.50	0.23	1.31	0.74	0.84
7	I-64	I-270/Exit 25 to McCausland to Ave/Exit 33	EB	MO	AM	7.80	0.13	1.67	1.88	1.57
8	I-70	I-270/Exit 231 to Cave Springs/Exit 225	WB	MO	PM	7.34	0.26	0.73	0.88	0.72
9	I-270	Lilac/Exit 33 to Elizabeth/Washington St/Exit 28	WB	MO	AM	6.76	0.26	1.51	1.06	1.02
10	I-70	MO-A/Exit 212 to Pearce Blvd/Exit 208	WB	MO	PM	5.70	0.74	1.13	1.15	1.02
11	I-64	Kingshighway/Exit 36 to I-170/Brentwood Blvd/Exit 31	WB	MO	AM	5.52	0.11	1.93	1.93	1.72
12	I-70	I-170/Exit 238 to MO-180/St Charles Rock/Exit 234	WB	MO	PM	5.44	0.46	1.24	1.49	1.18
13	I-270	McDonnell Blvd/Exit 23 to Elizabeth-Washington St/Exit 28	EB	MO	PM	5.40	1.50	3.03	3.83	1.92
14	I-70/I-44/I-55	Stan Musial Brg. to Park	ALL	MO	PM	5.35	0.71	1.32	1.53	1.24
15	I-64	I-170/Brentwood Blvd/Exit 31 to I-270/Exit 25	WB	MO	PM	5.15	0.85	1.28	1.51	1.27
16	I-170	I-64 to MO-D	SB	MO	AM	4.49	0.17	1.26	1.65	1.19
17	I-64	Kingshighway/Exit 36 to I-55/I-70/US-40	EB	MO	PM	4.46	2.70	4.32	4.71	4.18
18	I-64	Chesterfield Pky/Exit 20 to Boones Crossing/Exit 17	WB	MO	PM	4.35	0.68	1.21	1.25	1.13
19	I-170	MO-180/St Charles Rock/Exit 5 to Hanley Rd/Exit 9	NB	MO	PM	4.33	0.45	1.32	1.68	1.37
20	I-170	I-64 to MO-D	SB	MO	PM	4.18	1.19	2.32	2.96	2.41
21	I-270	Dorsett Rd/Exit 17 to MO-AB/Ladue Rd/Exit 13	SB	MO	AM	4.13	0.10	0.82	0.86	0.61
22	I-64, I-55/I-64	Baugh Ave. to Poplar St Brg.	WB	IL	AM	4.12	1.30	2.65	2.14	2.14
23	I-44/I-55	Grand Ave/Exit 247 to I-44/I-55/Gravois/Exit 207	EB-SB	MO	PM	3.84	1.82	2.51	2.44	2.87
24	I-44	I-270/Exit 276 to MO-141/Exit 272	WB	MO	PM	3.77	0.30	0.93	1.04	0.83
25	I-44	Bowles Ave/Exit 274 to US-50/US-61/US-67/ Exit 277	EB	MO	PM	3.70	0.33	1.03	1.12	0.93
26	I-70	Shreve/Exit 245 to Lucas & Hunt Rd/Exit 241	WB	MO	PM	3.61	0.50	1.29	1.27	1.04
27	I-64	Baxter to Timberlake Manor Pky/Exit 21	EB	MO	AM	3.56	0.06	1.33	0.82	0.98
28	I-70	Kingshighway/Exit 244 to Lucas & Hunt Rd/Exit 241	WB	MO	AM	3.07	0.05	0.99	1.47	1.09
29	I-44	Bowles Ave/Exit 274 to Highway Dr/Exit 275	EB	MO	AM	3.00	0.11	1.67	2.20	0.91
30	I-44	Hampton/Exit 286 to Shrewsbury/Exit 283	WB	MO	PM	2.92	0.89	2.15	2.59	2.29
31	I-55	Potomac to Park Ave/7Th St/Exit 208	NB	MO	AM	2.89	0.38	1.53	1.16	1.14
32	I-44	Tenth St/Exit 249 to I-55/I-64/US-40/Exit 251	WB	MO	AM	2.02	0.13	1.48	0.98	0.99

Table 38: Planning Time

No.	Route	Limits	Direction	State	Peak	Queue Length	6-7 AM/ 3-4 PM	7-8 AM/ 4-5 PM	8-9 AM/ 5-6 PM	AVG.
1	I-270	I-70 to I-55/I-255/Exit 1	SB	MO	PM	21.00	39.09	58.96	60.66	55.89
2	I-64	Chesterfield Pky/Exit 20 to McCausland Ave/Exit 33	EB	MO	PM	14.00	19.54	26.95	34.81	29.68
3	I-270	I-55/I-255/Exit 1 to MO-100/Manchester Rd./Exit 9	NB	MO	AM	10.00	18.88	35.45	32.28	30.88
4	I-64	MO-K to I-70	WB	MO	PM	10.00	17.49	26.66	26.03	24.90
5	I-70	Zumbehl/Exit 227 to Natural Bridge Rd/Exit 237/Exit 238	EB	MO	AM	9.22	9.50	19.12	18.98	16.90
6	I-70	Lake St Louis Blvd/Exit 214 to MO-79/Exit 220	EB	MO	AM	8.50	9.94	18.82	14.23	14.97
7	I-64	I-270/Exit 25 to McCausland to Ave/Exit 33	EB	MO	AM	7.80	8.78	20.79	22.48	19.97
8	I-70	I-270/Exit 231 to Cave Springs/Exit 225	WB	MO	PM	7.34	9.02	12.38	13.60	12.38
9	I-270	Lilac/Exit 33 to Elizabeth/Washington St/Exit 28	WB	MO	AM	6.76	8.52	17.04	13.99	13.72
10	I-70	MO-A/Exit 212 to Pearce Blvd/Exit 208	WB	MO	PM	5.70	9.31	11.51	11.62	10.90
11	I-64	Kingshighway/Exit 36 to I-170/Brentwood Blvd/Exit 31	WB	MO	AM	5.52	6.20	16.39	16.47	15.22
12	I-70	I-170/Exit 238 to MO-180/St Charles Rock/Exit 234	WB	MO	PM	5.44	8.12	12.30	13.71	12.00
13	I-270	McDonnell Blvd/Exit 23 to Elizabeth-Washington St/Exit 28	EB	MO	PM	5.40	13.46	21.31	25.47	26.18
14	I-70/I-44/I-55	Stan Musial Brg. to Park	ALL	MO	PM	5.35	2.52	3.36	3.67	3.25
15	I-64	I-170/Brentwood Blvd/Exit 31 to I-270/Exit 25	WB	MO	PM	5.15	9.86	11.73	12.87	11.82
16	I-170	I-64 to MO-D	SB	MO	AM	4.49	5.07	9.84	11.56	9.53
17	I-64	Kingshighway/Exit 36 to I-55/I-70/US-40	EB	MO	PM	4.46	17.68	25.27	27.19	24.69
18	I-64	Chesterfield Pky/Exit 20 to Boones Crossing/Exit 17	WB	MO	PM	4.35	7.10	9.49	9.77	9.14
19	I-170	MO-180/St Charles Rock/Exit 5 to Hanley Rd/Exit 9	NB	MO	PM	4.33	6.27	9.94	11.44	10.17
20	I-170	I-64 to MO-D	SB	MO	PM	4.18	11.46	15.98	18.71	16.77
21	I-270	Dorsett Rd/Exit 17 to MO-AB/Ladue Rd/Exit 13	SB	MO	AM	4.13	4.46	7.40	7.56	6.55
22	I-64, I-55/I-64	Baugh Ave. to Poplar St Brg.	WB	IL	AM	4.12	11.11	17.68	15.19	15.20
23	I-44/I-55	Grand Ave/Exit 247 to I-44/I-55/Gravois/Exit 207	EB-SB	MO	PM	3.84	6.50	8.32	8.28	9.50
24	I-44	I-270/Exit 276 to MO-141/Exit 272	WB	MO	PM	3.77	4.80	7.13	7.50	6.75
25	I-44	Bowles Ave/Exit 274 to US-50/US-61/US-67/ Exit 277	EB	MO	PM	3.70	5.20	7.47	7.79	5.88
26	I-70	Shreve/Exit 245 to Lucas & Hunt Rd/Exit 241	WB	MO	PM	3.61	6.28	8.91	8.66	8.06
27	I-64	Baxter to Timberlake Manor Pky/Exit 21	EB	MO	AM	3.56	3.79	8.35	6.53	7.08
28	I-70	Kingshighway/Exit 244 to Lucas & Hunt Rd/Exit 241	WB	MO	AM	3.07	3.37	6.38	7.95	6.71
29	I-44	Bowles Ave/Exit 274 to Highway Dr/Exit 275	EB	MO	AM	3.00	3.25	7.85	9.39	7.11
30	I-44	Hampton/Exit 286 to Shrewsbury/Exit 283	WB	MO	PM	2.92	5.68	9.45	10.77	9.89
31	I-55	Potomac to Park Ave/7Th St/Exit 208	NB	MO	AM	2.89	4.07	7.46	6.37	6.31
32	I-44	Tenth St/Exit 249 to I-55/I-64/US-40/Exit 251	WB	MO	AM	2.02	2.61	5.73	4.58	4.61

Table 39: Planning Time Index

No.	Route	Limits	Direction	State	Peak	Queue Length	6-7 AM/ 3-4 PM	7-8 AM/ 4-5 PM	8-9 AM/ 5-6 PM	AVG.
1	I-270	I-70 to I-55/I-255/Exit 1	SB	MO	PM	21.00	1.89	2.86	2.94	2.71
2	I-64	Chesterfield Pky/Exit 20 to McCausland Ave/Exit 33	EB	MO	PM	14.00	1.40	1.93	2.50	2.13
3	I-270	I-55/I-255/Exit 1 to MO-100/Manchester Rd./Exit 9	NB	MO	AM	10.00	1.87	3.52	3.20	3.06
4	I-64	MO-K to I-70	WB	MO	PM	10.00	1.82	2.78	2.71	2.59
5	I-70	Zumbahl/Exit 227 to Natural Bridge Rd/Exit 237/Exit 238	EB	MO	AM	9.22	1.03	2.07	2.05	1.83
6	I-70	Lake St Louis Blvd/Exit 214 to MO-79/Exit 220	EB	MO	AM	8.50	1.17	2.21	1.67	1.76
7	I-64	I-270/Exit 25 to McCausland Ave/Exit 33	EB	MO	AM	7.80	1.13	2.67	2.88	2.56
8	I-70	I-270/Exit 231 to Cave Springs/Exit 225	WB	MO	PM	7.34	1.21	1.67	1.83	1.67
9	I-270	Lilac/Exit 33 to Elizabeth/Washington St/Exit 28	WB	MO	AM	6.76	1.26	2.52	2.07	2.03
10	I-70	MO-A/Exit 212 to Pearce Blvd/Exit 208	WB	MO	PM	5.70	1.79	2.22	2.24	2.10
11	I-64	Kingshighway/Exit 36 to I-170/Brentwood Blvd/Exit 31	WB	MO	AM	5.52	1.12	2.97	2.98	2.76
12	I-70	I-170/Exit 238 to MO-180/St Charles Rock/Exit 234	WB	MO	PM	5.44	1.48	2.24	2.49	2.18
13	I-270	McDonnell Blvd/Exit 23 to Elizabeth-Washington St/Exit 28	EB	MO	PM	5.40	2.49	3.95	4.72	2.86
14	I-70/I-44/I-55	Stan Musial Brg. to Park	ALL	MO	PM	5.35	1.52	2.07	2.26	2.01
15	I-64	I-170/Brentwood Blvd/Exit 31 to I-270/Exit 25	WB	MO	PM	5.15	1.91	2.28	2.50	2.29
16	I-170	I-64 to MO-D	SB	MO	AM	4.49	1.10	2.13	2.51	2.07
17	I-64	Kingshighway/Exit 36 to I-55/I-70/US-40	EB	MO	PM	4.46	3.65	5.22	5.61	5.10
18	I-64	Chesterfield Pky/Exit 20 to Boones Crossing/Exit 17	WB	MO	PM	4.35	1.63	2.18	2.25	2.10
19	I-170	MO-180/St Charles Rock/Exit 5 to Hanley Rd/Exit 9	NB	MO	PM	4.33	1.45	2.29	2.64	2.35
20	I-170	I-64 to MO-D	SB	MO	PM	4.18	2.49	3.47	4.06	3.64
21	I-270	Dorsett Rd/Exit 17 to MO-AB/Ladue Rd/Exit 13	SB	MO	AM	4.13	1.08	1.79	1.83	1.59
22	I-64, I-55/I-64	Baugh Ave. to Poplar St Brg.	WB	IL	AM	4.12	2.27	3.61	3.10	3.11
23	I-44/I-55	Grand Ave/Exit 247 to I-44/I-55/Gravois/Exit 207	EB-SB	MO	PM	3.84	3.01	3.80	3.78	4.19
24	I-44	I-270/Exit 276 to MO-141/Exit 272	WB	MO	PM	3.77	1.30	1.93	2.03	1.82
25	I-44	Bowles Ave/Exit 274 to US-50/US-61/US-67/ Exit 277	EB	MO	PM	3.70	1.40	2.02	2.10	1.96
26	I-70	Shreve/Exit 245 to Lucas & Hunt Rd/Exit 241	WB	MO	PM	3.61	1.60	2.26	2.20	2.05
27	I-64	Baxter to Timberlake Manor Pky/Exit 21	EB	MO	AM	3.56	1.07	2.35	1.84	1.99
28	I-70	Kingshighway/Exit 244 to Lucas & Hunt Rd/Exit 241	WB	MO	AM	3.07	1.01	1.91	2.38	2.01
29	I-44	Bowles Ave/Exit 274 to Highway Dr/Exit 275	EB	MO	AM	3.00	1.09	2.62	3.13	1.92
30	I-44	Hampton/Exit 286 to Shrewsbury/Exit 283	WB	MO	PM	2.92	1.94	3.24	3.69	3.39
31	I-55	Potomac to Park Ave/7Th St/Exit 208	NB	MO	AM	2.89	1.34	2.46	2.10	2.08
32	I-44	Tenth St/Exit 249 to I-55/I-64/US-40/Exit 251	WB	MO	AM	2.02	1.18	2.60	2.08	2.09

Table 40: Speed

No.	Route	Limits	Direction	State	Peak	Queue Length	6-7 AM/ 3-4 PM	7-8 AM/ 4-5 PM	8-9 AM/ 5-6 PM	AVG.
1	I-270	I-70 to I-55/I-255/Exit 1	SB	MO	PM	21.00	49.28	37.08	35.71	39.86
2	I-64	Chesterfield Pky/Exit 20 to McCausland Ave/Exit 33	EB	MO	PM	14.00	55.98	49.42	41.60	48.29
3	I-270	I-55/I-255/Exit 1 to MO-100/Manchester Rd/Exit 9	NB	MO	AM	10.00	50.78	30.86	37.03	38.00
4	I-64	MO-K to I-70	WB	MO	PM	10.00	57.36	43.12	44.19	47.45
5	I-70	Zumbehl/Exit 227 to Natural Bridge Rd/Exit 237/Exit 238	EB	MO	AM	9.22	62.67	49.51	51.46	54.07
6	I-70	Lake St Louis Blvd/Exit 214 to MO-79/Exit 220	EB	MO	AM	8.50	62.84	49.22	56.02	55.53
7	I-64	I-270/Exit 25 to McCausland to Ave/Exit 33	EB	MO	AM	7.80	63.03	41.79	36.79	44.89
8	I-70	I-270/Exit 231 to Cave Springs/Exit 225	WB	MO	PM	7.34	58.37	52.30	49.20	53.05
9	I-270	Lilac/Exit 33 to Elizabeth/Washington St/Exit 28	WB	MO	AM	6.76	59.39	42.64	49.63	49.71
10	I-70	MO-A/Exit 212 to Pearce Blvd/Exit 208	WB	MO	PM	5.70	56.66	51.16	52.57	53.40
11	I-64	Kingshighway/Exit 36 to I-170/Brentwood Blvd/Exit 31	WB	MO	AM	5.52	60.86	35.37	35.28	41.15
12	I-70	I-170/Exit 238 to MO-180/St Charles Rock/Exit 234	WB	MO	PM	5.44	55.47	44.98	41.73	46.74
13	I-270	McDonnell Blvd/Exit 23 to Elizabeth-Washington St/Exit 28	EB	MO	PM	5.40	42.36	27.82	25.59	37.52
14	I-70/I-44/I-55	Stan Musial Brg. to Park	ALL	MO	PM	5.35	45.43	39.64	38.89	41.13
15	I-64	I-170/Brentwood Blvd/Exit 31 to I-270/Exit 25	WB	MO	PM	5.15	49.45	46.86	43.58	46.53
16	I-170	I-64 to MO-D	SB	MO	AM	4.49	56.06	42.98	39.28	45.14
17	I-64	Kingshighway/Exit 36 to I-55/I-70/US-40	EB	MO	PM	4.46	31.75	19.55	19.96	22.63
18	I-64	Chesterfield Pky/Exit 20 to Boones Crossing/Exit 17	WB	MO	PM	4.35	57.44	46.44	44.41	48.84
19	I-170	MO-180/St Charles Rock/Exit 5 to Hanley Rd/Exit 9	NB	MO	PM	4.33	54.88	42.39	37.86	44.00
20	I-170	I-64 to MO-D	SB	MO	PM	4.18	40.95	29.52	23.85	29.96
21	I-270	Dorsett Rd/Exit 17 to MO-AB/Ladue Rd/Exit 13	SB	MO	AM	4.13	60.83	52.18	52.09	54.81
22	I-64, I-55/I-64	Baugh Ave. to Poplar St Brg.	WB	IL	AM	4.12	42.55	29.91	35.71	35.37
23	I-44/I-55	Grand Ave/Exit 247 to I-44/I-55/Gravois/Exit 207	EB-SB	MO	PM	3.84	39.40	33.24	33.07	30.90
24	I-44	I-270/Exit 276 to MO-141/Exit 272	WB	MO	PM	3.77	59.48	50.47	48.62	52.47
25	I-44	Bowles Ave/Exit 274 to US-50/US-61/US-67/ Exit 277	EB	MO	PM	3.70	58.05	48.32	47.56	50.10
26	I-70	Shreve/Exit 245 to Lucas & Hunt Rd/Exit 241	WB	MO	PM	3.61	50.51	41.09	41.48	44.01
27	I-64	Baxter to Timberlake Manor Pky/Exit 21	EB	MO	AM	3.56	63.51	44.83	53.48	52.91
28	I-70	Kingshighway/Exit 244 to Lucas & Hunt Rd/Exit 241	WB	MO	AM	3.07	59.63	48.65	42.43	49.37
29	I-44	Bowles Ave/Exit 274 to Highway Dr/Exit 275	EB	MO	AM	3.00	62.78	46.99	46.08	53.49
30	I-44	Hampton/Exit 286 to Shrewsbury/Exit 283	WB	MO	PM	2.92	50.59	35.03	29.19	36.37
31	I-55	Potomac to Park Ave/7Th St/Exit 208	NB	MO	AM	2.89	56.24	41.51	47.40	47.71
32	I-44	Tenth St/Exit 249 to I-55/I-64/US-40/Exit 251	WB	MO	AM	2.02	54.19	40.98	46.03	46.50

Table 41: Travel Time

No.	Route	Limits	Direction	State	Peak	Queue Length	6-7 AM/ 3-4 PM	7-8 AM/ 4-5 PM	8-9 AM/ 5-6 PM	AVG.
1	I-270	I-70 to I-55/I-255/Exit 1	SB	MO	PM	21.00	25.13	33.40	34.68	31.01
2	I-64	Chesterfield Pky/Exit 20 to McCausland Ave/Exit 33	EB	MO	PM	14.00	14.95	16.93	20.12	17.33
3	I-270	I-55/I-255/Exit 1 to MO-100/Manchester Rd./Exit 9	NB	MO	AM	10.00	11.92	19.61	16.34	15.92
4	I-64	MO-K to I-70	WB	MO	PM	10.00	10.56	14.05	13.71	12.77
5	I-70	Zumbehl/Exit 227 to Natural Bridge Rd/Exit 237/Exit 238	EB	MO	AM	9.22	8.86	11.21	10.79	10.23
6	I-70	Lake St Louis Blvd/Exit 214 to MO-79/Exit 220	EB	MO	AM	8.50	8.12	10.37	9.11	9.19
7	I-64	I-270/Exit 25 to McCausland to Ave/Exit 33	EB	MO	AM	7.80	7.43	11.20	12.72	10.43
8	I-70	I-270/Exit 231 to Cave Springs/Exit 225	WB	MO	PM	7.34	7.54	8.42	8.95	8.30
9	I-270	Lilac/Exit 33 to Elizabeth/Washington St/Exit 28	WB	MO	AM	6.76	6.83	9.52	8.18	8.16
10	I-70	MO-A/Exit 212 to Pearce Blvd/Exit 208	WB	MO	PM	5.70	6.04	6.69	6.51	6.41
11	I-64	Kingshighway/Exit 36 to I-170/Brentwood Blvd/Exit 31	WB	MO	AM	5.52	5.44	9.36	9.39	8.05
12	I-70	I-170/Exit 238 to MO-180/St Charles Rock/Exit 234	WB	MO	PM	5.44	5.88	7.25	7.82	6.98
13	I-270	McDonnell Blvd/Exit 23 to Elizabeth-Washington St/Exit 28	EB	MO	PM	5.40	7.65	11.64	12.66	14.63
14	I-70/I-44/I-55	Stan Musial Brg. to Park	ALL	MO	PM	5.35	1.76	2.01	2.04	1.94
15	I-64	I-170/Brentwood Blvd/Exit 31 to I-270/Exit 25	WB	MO	PM	5.15	6.25	6.60	7.10	6.65
16	I-170	I-64 to MO-D	SB	MO	AM	4.49	4.48	5.84	6.39	5.56
17	I-64	Kingshighway/Exit 36 to I-55/I-70/US-40	EB	MO	PM	4.46	8.43	13.70	13.41	11.83
18	I-64	Chesterfield Pky/Exit 20 to Boones Crossing/Exit 17	WB	MO	PM	4.35	4.54	5.62	5.88	5.34
19	I-170	MO-180/St Charles Rock/Exit 5 to Hanley Rd/Exit 9	NB	MO	PM	4.33	4.74	6.13	6.87	5.91
20	I-170	I-64 to MO-D	SB	MO	PM	4.18	6.13	8.50	10.53	8.38
21	I-270	Dorsett Rd/Exit 17 to MO-AB/Ladue Rd/Exit 13	SB	MO	AM	4.13	4.07	4.74	4.75	4.52
22	I-64, I-55/I-64	Baugh Ave. to Poplar St Brg.	WB	IL	AM	4.12	5.81	8.27	6.93	6.99
23	I-44/I-55	Grand Ave/Exit 247 to I-44/I-55/Gravois/Exit 207	EB-SB	MO	PM	3.84	3.14	4.33	4.41	4.65
24	I-44	I-270/Exit 276 to MO-141/Exit 272	WB	MO	PM	3.77	3.81	4.49	4.66	4.32
25	I-44	Bowles Ave/Exit 274 to US-50/US-61/US-67/ Exit 277	EB	MO	PM	3.70	3.83	4.60	4.67	3.59
26	I-70	Shreve/Exit 245 to Lucas & Hunt Rd/Exit 241	WB	MO	PM	3.61	4.28	5.27	5.22	4.92
27	I-64	Baxter to Timberlake Manor Pky/Exit 21	EB	MO	AM	3.56	3.36	4.77	3.99	4.04
28	I-70	Kingshighway/Exit 244 to Lucas & Hunt Rd/Exit 241	WB	MO	AM	3.07	3.09	3.78	4.34	3.73
29	I-44	Bowles Ave/Exit 274 to Highway Dr/Exit 275	EB	MO	AM	3.00	2.86	3.82	3.90	4.15
30	I-44	Hampton/Exit 286 to Shrewsbury/Exit 283	WB	MO	PM	2.92	3.46	5.00	6.00	4.82
31	I-55	Potomac to Park Ave/7Th St/Exit 208	NB	MO	AM	2.89	3.08	4.17	3.65	3.63
32	I-44	Tenth St/Exit 249 to I-55/I-64/US-40/Exit 251	WB	MO	AM	2.02	2.24	2.96	2.63	2.61

Table 42: Travel Time Index

No.	Route	Limits	Direction	State	Peak	Queue Length	6-7 AM/ 3-4 PM	7-8 AM/ 4-5 PM	8-9 AM/ 5-6 PM	AVG.
1	I-270	I-70 to I-55/I-255/Exit 1	SB	MO	PM	21.00	1.22	1.62	1.68	1.51
2	I-64	Chesterfield Pky/Exit 20 to McCausland Ave/Exit 33	EB	MO	PM	14.00	1.07	1.21	1.44	1.24
3	I-270	I-55/I-255/Exit 1 to MO-100/Manchester Rd/Exit 9	NB	MO	AM	10.00	1.18	1.94	1.62	1.58
4	I-64	MO-K to I-70	WB	MO	PM	10.00	1.10	1.46	1.43	1.33
5	I-70	Zumbehl/Exit 227 to Natural Bridge Rd/Exit 237/Exit 238	EB	MO	AM	9.22	0.96	1.21	1.17	1.11
6	I-70	Lake St Louis Blvd/Exit 214 to MO-79/Exit 220	EB	MO	AM	8.50	0.95	1.22	1.07	1.08
7	I-64	I-270/Exit 25 to McCausland to Ave/Exit 33	EB	MO	AM	7.80	0.95	1.44	1.63	1.34
8	I-70	I-270/Exit 231 to Cave Springs/Exit 225	WB	MO	PM	7.34	1.01	1.13	1.20	1.12
9	I-270	Lilac/Exit 33 to Elizabeth/Washington St/Exit 28	WB	MO	AM	6.76	1.01	1.41	1.21	1.21
10	I-70	MO-A/Exit 212 to Pearce Blvd/Exit 208	WB	MO	PM	5.70	1.16	1.29	1.25	1.24
11	I-64	Kingshighway/Exit 36 to I-170/Brentwood Blvd/Exit 31	WB	MO	AM	5.52	0.99	1.70	1.70	1.46
12	I-70	I-170/Exit 238 to MO-180/St Charles Rock/Exit 234	WB	MO	PM	5.44	1.07	1.32	1.42	1.27
13	I-270	McDonnell Blvd/Exit 23 to Elizabeth-Washington St/Exit 28	EB	MO	PM	5.40	1.42	2.16	2.34	1.60
14	I-70/I-44/I-55	Stan Musial Brg. to Park	ALL	MO	PM	5.35	1.08	1.23	1.26	1.19
15	I-64	I-170/Brentwood Blvd/Exit 31 to I-270/Exit 25	WB	MO	PM	5.15	1.21	1.28	1.38	1.29
16	I-170	I-64 to MO-D	SB	MO	AM	4.49	0.97	1.27	1.39	1.21
17	I-64	Kingshighway/Exit 36 to I-55/I-70/US-40	EB	MO	PM	4.46	1.74	2.83	2.77	2.44
18	I-64	Chesterfield Pky/Exit 20 to Boones Crossing/Exit 17	WB	MO	PM	4.35	1.04	1.29	1.35	1.23
19	I-170	MO-180/St Charles Rock/Exit 5 to Hanley Rd/Exit 9	NB	MO	PM	4.33	1.09	1.42	1.58	1.36
20	I-170	I-64 to MO-D	SB	MO	PM	4.18	1.33	1.85	2.28	1.82
21	I-270	Dorsett Rd/Exit 17 to MO-AB/Ladue Rd/Exit 13	SB	MO	AM	4.13	0.99	1.15	1.15	1.09
22	I-64, I-55/I-64	Baugh Ave. to Poplar St Brg.	WB	IL	AM	4.12	1.19	1.69	1.41	1.43
23	I-44/I-55	Grand Ave/Exit 247 to I-44/I-55/Gravois/Exit 207	EB-SB	MO	PM	3.84	1.53	2.04	2.07	2.11
24	I-44	I-270/Exit 276 to MO-141/Exit 272	WB	MO	PM	3.77	1.03	1.21	1.26	1.17
25	I-44	Bowles Ave/Exit 274 to US-50/US-61/US-67/ Exit 277	EB	MO	PM	3.70	1.03	1.24	1.26	1.20
26	I-70	Shreve/Exit 245 to Lucas & Hunt Rd/Exit 241	WB	MO	PM	3.61	1.09	1.34	1.33	1.25
27	I-64	Baxter to Timberlake Manor Pky/Exit 21	EB	MO	AM	3.56	0.94	1.34	1.12	1.13
28	I-70	Kingshighway/Exit 244 to Lucas & Hunt Rd/Exit 241	WB	MO	AM	3.07	0.92	1.13	1.30	1.11
29	I-44	Bowles Ave/Exit 274 to Highway Dr/Exit 275	EB	MO	AM	3.00	0.96	1.28	1.30	1.12
30	I-44	Hampton/Exit 286 to Shrewsbury/Exit 283	WB	MO	PM	2.92	1.19	1.71	2.06	1.65
31	I-55	Potomac to Park Ave/7Th St/Exit 208	NB	MO	AM	2.89	1.02	1.38	1.20	1.20
32	I-44	Tenth St/Exit 249 to I-55/I-64/US-40/Exit 251	WB	MO	AM	2.02	1.02	1.34	1.19	1.18

Appendix 2: Regional Work Zones

Table 43: 2017 Work Zones

MODOT												
Area	County	Job Number	Route	Direction	Mile Markers (start to finish)	Log Miles (start to finish)	Description	Total Project Estimate	Timing of Traffic Impacts (ie. Summer, april-october, etc)	Type of Traffic Impact (day/night/24, # of lanes open)	Anticipated Work Zone Delay (minutes)	Anticipated Work Zone Queue (miles)
FJ	Jefferson	6S3123	61	NB & SB	None	182.660 to 189.117	Pavement and ADA Transition Plan improvements from Rte. M to south of Church Road.	3,584	January - October 2017	One lane open at all times- night work only.	0 minutes NB & SB	0 miles NB & SB
FJ	Jefferson		55	NB & SB	165	180	Resurfacing and bridge work, bridge work will require lane closures and weekend closures during peak hours		March 2017- November 2108	One lane open at all times paving work at night only. Bridge work will require weekend closures	30 min	2-5 miles
FJ	Franklin Warren	J6P2321	47		Missouri River	0.843	Missouri River Bridge Replacement Project.	63,000	Current - June 2019	Occasional lane closures during offpeak hours; Demolition of Existing Bridge in 2019 will require total closures for durations less than 60 minutes.	<15 Minutes	<1 Mile
STC	St. Charles	6I2326	70		228-229		Interchange improvements at Fairgrounds Rd. and at Fifth St., add lane under Rte. 94, and build north outer road in St Charles.	18,175	April 2016-April 2017	Various timing of closures including one lane on I-70, Fairgrounds bridge closure, ramp closures at Fifth Street, shortterm closures of I-70 for Fairgrounds bridge work.	20 minutes EB 3PM-7PM minutes WB	0 2 miles EB 3PM-7PM WB
STC	St. Charles	6I2418	70	EB & WB	217.3 to 219.0		Restripe lanes, improve interchanges, construct outer roads and sidewalks from Woodlawn Ave. to TR Hughes Blvd. including Main St. intersections. Cost Share funds \$3,878,533. CMAQ funds \$3,500,000. City of O'Fallon \$6,132,000. Project involves bridges L0710 and A6157.	11,000	Dec 2017 - December 2018	Various right lane closures of I-70	20 minutes EB 3PM-7PM minutes WB	5 2 miles EB 3PM-7PM miles WB
STC	St. Charles	6I3133	70	EB & WB	222.6 to 229.4		Pavement and barrier wall improvements from Mid Rivers Mall Drive to 5th Street.	9,570	Feb 2017 to Nov 2017	Nighttime lane closures mill/fill. Weekend lane closures median lane.	6 mins EB 9PM; 14 min WB 11 PM	0.3 mi EB; 0.6 mi WB

STC	St. Charles	6I3197	70	EB & WB	209.4		Bridge improvements at eight locations in St. Charles County. Project involves bridges A5406, A6120, A5395, A7132, A5958, A4323, A4320 and A5800.	670	Summer 2017	Weekend closure two lanes at a time to remove/replace latex overlay	15 mins	2 miles	
STC	St. Charles	6P3071	61	NB & SB		132.5 to 133.1	New interchange at Rte. P and Peine Road and safety improvements at median crossovers from north of Peine Road to north of Rte. A in Wentzville. \$4,331,337 Cost Share, \$2,795,199 Wentzville and \$3,500,000 St. Charles County. Involves bridge H0149.	13,683	Sep 2017 to Nov 2018	Occasional lane closures during offpeak hours	1 min	0.1 mi	
STC	St. Charles	J6P3135	364	WB & EB			Guard Cable and Guardrail between Mid Rivers Mall Drive and I-64.		Spring - Fall 2017				
STC	St. Charles		70	EB & WB			David Hockel Parkway Interchange, Between Wentzville Parkway and Route W.		Summer 2017- through 2018				
STC	St. Charles	TAP-9900(677)	94	EB & WB	None	EB 107 to 108 WB 28 to 29	Construction of new Shared Use Path across 364 and 94 from Centennial Greenway to South Old Highway 94.	4,819	March 2017 - December 2017	Various lane closures. Full closure required in order to install ped. Bridges.	5 mins	.1 mi	
STC	St. Charles	TAP-9900(677)	364	EB & WB	12 to 13	EB 13.49 to 14.43 WB 6.65 to 7.89	Construction of new Shared Use Path across 364 and 94 from Centennial Greenway to South Old Highway 94.	4,819	March 2017 - December 2017	Various lane closures. Full closure required in order to install ped. Bridges.	5 mins	.1 mi	
CITY	St. Louis City	6I2332	44	EB & WB	290	EB 290.5 to 291.2	Bridge improvements @ 3rd Street Viaduct	20,385	August - November 2016	Permement single lane closure from 4 to 3-10' lanes for half at a time construction. Various daytime and nighttime additional lane closures.	65 minutes EB 10AM-2PM 110 minutes WB 9AM-3PM	4 miles EB 10AM-2AM miles WB 9AM-3PM	6
						WB 2.0 to 2.6			April to November 2017				

CITY	St. Louis City	6I2377C/	I-64	EB	209	40.3 to 40.8	EB PSB Bridge Deck Overlay / Widening / Ramp Construction	50,000	January 2017 - December 2018	Three Lanes open on EB PSB, 2 Lanes EB64 and 1 NB I-55 On Ramp to EB 64.		
		6I2377D/										
		6I3026/6I3025										
CITY	St. Louis City	6I3112	70	EB & WB	244 to 249	EB 0.6 to 5.9	Pavement improvements along the reversible lanes from east of Union to Broadway.	2,229	June - July 2017	Full closure of the reversible lanes for two weeks. Reversible lanes are only operated in the EB direction.	10 minutes EB 6 to 9 am	0.7 miles EB 6 to 9 am
						WB 0.0 to 5.4					23 minutes EB 3 to 7 pm	2.0 miles EB 3 to 7 pm
CITY	St. Louis City	J6I3205	70	WB	246	246.4 to 246.2	Relocate the WB exit ramp from North Broadway to Carrie Avenue	1,500	August - December 2017	Full closure of exit ramp to make final connection for two weeks.		
CITY	St Louis County and City		I-64	EB & WB	27 to 35	27.6 to 34.6	Mainline bridge epoxy overlays from west of Spodee to east of Tamm	1,580	July - October 2017	Weekend half at a time construction with 2 Lanes to remain open.		
CITY	St. Louis City	J6P2365	30	EB & WB		47.0 to 52.7	Resurface	3,700	March - August 2017	Off-peak lane closures		
N	St. Louis	6I2104	70	EB	238-239		Bridge improvements at the I-170 interchange, includes bridges on I-170 over Rte. 115. Project involves bridges A2999, A3000, A3001, A3002, A3003, A3004, A3005, A3006, A3007, A3008 and A3009.	6,753	Starting Summer 2016 - May extend into 2017?	Long term lane closures on I-70. Various ramp closures and off peak additional lane closures.	0 minutes EB; 0 minutes WB	0 miles EB; 0 miles WB
N	St. Louis	J6I3136	I-270	EB & WB	26-34	0 - 9	Pavement Overlay from the I-170 Interchange to the Chain of Rocks Bridge.	13,819	Spring - Fall 2017	Nighttime lane closures.	Minor to Moderate	Minor to Moderate
N	St. Louis	J6P3164	141	NB & SB		24 - 27	Guard cable from River valley Dr. to Casino Ctr. Dr.	440	Fall - Winter 2017	Off-peak lane closures	Minor	Minor
N	St. Louis	J6Q2039F	67	NB & SB		16	Lindbergh Tunnel - ITS	765				
N	Various	J6S3199	Various				High Friction treatments at Var. Loc.	531	Summer - Fall 2017	Weekend lane & Ramp closures	Minor	Minor
N	St. Louis	J6M0261	70	EB & WB	231		Heat Straightening girders on I-70 bridge over 141	300	Spring - Summer 2017	Night & weekend lane & ramp closures on I-70 and NB 141	10 minutes EB; 10 minutes WB	1 mile EB; 1 mile WB
N & SW	St. Louis	J6P3206	64	WB	33		Slide repair - 9 locations (WB 64 @ Big Bend only significant traffic impact)	955	Summer 2017	WB 64 exit to Big Bend restricted 24/7 during construction, off peak lane closures on WB 64	Moderate	Moderate

N	St. Louis	J6S3062	141	NB & SB		27 - 31	Pavement improvements from the I-70 Interchange to the Route 370 Interchange.	5,681	Spring - Fall 2017	Nighttime lane closures.	Minor	Minor
SW	St. Louis	6I2423	44	EB & WB	272		Interchange improvements at I-44/Rte. 141, intersection improvements at Vance Rd./Rte. 141 and pavement improvements along Rte. 141 from north of Vance Rd. to south of I-44. Design/Build project. \$2,550,000 Congestion Mitigation & Air Quality Improvement Program funds.	25,500	January - December	Lane Closures possible off peak on I-44. Lane closures possible on 141. TBD	0 minutes EB; 0 minutes WB	
SW	St. Louis	6I3034D	44	EB & WB	282-283	EB 282.3 to 283.3	Pavement and bridge improvement from Murdoch to River Des Peres at BNSF railroad. Project involves bridges A1739 and A1733.	17,320	March-November 2017	3 of 4 lanes open in both directions. Bridge replacement will shift 3 lanes to opposing bridge. Continues to December 2017.	0 minutes EB; 0 minutes WB	0 miles EB; 0 miles WB
SW	St. Louis	6I3132	I-64	EB & WB	13.6 - 19.6		Mill and Overlay	8,424	Spring - Fall 2017	Night lane closures		
SW	St. Louis	6I3157	I-270	NB & SB		E 16.8 - 9.7 W 29.6 - 18.9	Mill and Overlay	10,764	Spring - Fall 2017	Night lane closures		
SW	St. Louis	6I3114	44	EB	264-272		Pavement improvements from Rte 141 to Rte 109	7,286	April - November	Mainly night work		
SW	St. Louis	J6I2316	I-270	NB & SB	08-Jul		Bridge deck replacement on the Big Bend bridge.		Summer 2017	Night lane closures		

NB: Job Numbers 612332, 312377C/612377D/613026/613025 had significant congestion impact.

IDOT											
	Madison		McKinley Br.				Deck Seal One weekend complete closure		April - August	0	
	Madison		Clark Br.				Deck Seal Alton, One lane closed at a time		April - May	1 of 2	
			I-255 NB/SB				Pavement patching JB Bridge to Collinsville Ave.		March - June	1 or 2 of 3	
	St. Clair		I-55/64 EB/WB				Bridge Repairs East end of PSB		May - October Will require coordination w/ MODOT	3 of 4	
	St. Clair		IL 15 EB/WB				Bridge Repairs At IL 157		June - August Lane shifts, narrow lanes	1 or 2 of 2	
	St. Clair		I-255 NB/SB				Shoulder Repairs IL 3 to IL 15		June - September	2 of 3	
	Madison		I-55/70 EB/WB				Bridge Painting At I-255		June - October	1 or 2 of 3	
	St. Clair		I-64 EB/WB				Bridge Painting Between IL 157 and I-255		June - October	1 or 2 of 3	
	St. Clair		I-55/70 EB/WB				Bridge Repairs Railroad overpass west of IL 203		June - August Complete closure, one weekend each direction	0	
	Madison		I-270 EB/WB				Bridge Repairs, Resurfacing IL 203 to I-255		August - October	1 or 2 of 3	
			I-270 EB/WB				Bridge Inspection		June	1 of 2	
			MLK Bridge				Bridge Inspection		September	0 or 1	
			McKinley Br.				Bridge Inspection		September	1 of 2	

St. Louis County Projects											
							Lackland Bridge over east tributary of Fee Fee Creek BRM-4956(603)		Could impact Page (RT D)		
							St. Charles Rock Road, near I-270 and Hwy 141		Project may have minor impacts		
							Big Bend/Manchester Intersection				
							Creve Coeur Mill Road Bridge (may impact intersections of Highway 141 at Creve Coeur Mill and Olive Boulevard at Creve Coeur Mill.		Project may impact intersections of Highway 141 at Creve Coeur Mill and Olive Boulevard at Creve Coeur Mill		
							Shackelford Road		On-going		

Appendix 3: Congested Location Performance Comparisons

2016 Arterial Locations

Table 44: Severity

No.	Route	Limits	Direction	State	Peak	Queue Length	PTI	TTI	Severity	Rank	Category
1	IL-157	I-55/I-70/US-40 to Horseshoe Lake Rd	NB	IL	PM	0.47	2.88	2.32	2.60	1	High
2	HAMPTON AVE	I-64/US-40 to I-44	SB	MO	PM	1.02	3.12	1.89	2.51	2	High
3	MO-D	I-270 to Schuetz Rd	EB	MO	AM	0.53	2.93	1.52	2.23	3	High
4	IL-157	I-55/I-70/US-40 to Horseshoe Lake Rd	NB	IL	AM	0.47	2.42	1.89	2.16	4	High
5	IL-157	Horseshoe Lake Rd to I-55/I-70/US-40	SB	IL	PM	0.78	2.21	1.76	1.99	5	High
6	MO-141	Hawkins to Vance	NB	MO	AM	4.10	2.56	1.39	1.98	6	High
7	HANLEY	Shaw Park Dr to I-64/US-40/Eager Rd	SB	MO	PM	1.30	2.46	1.42	1.94	7	High
8	FOREST PARK AVE	I-64 to Kingshighway	WB	MO	PM	2.14	2.11	1.66	1.89	8	High
9	MO-141	MO-AB/Ladue Rd to I-64/US-40/US-61	SB	MO	PM	1.63	2.27	1.49	1.88	9	High
10	JEFFERSON	I-64/US-40 to I-44	SB	MO	PM	1.05	2.30	1.40	1.85	10	High
11	MO-141	Big Bend to I-44	SB	MO	PM	3.90	1.97	1.72	1.85	11	High
12	KINGSHIGHWAY	US-40 to Delmar	NB	MO	PM	1.62	2.20	1.48	1.84	12	High
13	KINGSHIGHWAY	Laclede to I-64/US-40	SB	MO	PM	0.75	2.10	1.55	1.83	13	High
14	KINGSHIGHWAY	I-64/US-40 to I-44	SB	MO	PM	1.47	2.16	1.47	1.82	14	Moderate
15	MO-141	Marshall to I-44	SB	MO	AM	0.85	1.90	1.65	1.78	15	Moderate
16	MO-94	I-64/US-40/US-61 to Mid Rivers Mall Dr	NB	MO	PM	4.19	1.96	1.55	1.76	16	Moderate
17	MO-100	Vandeventer to Kingshighway	WB	MO	PM	1.57	2.02	1.48	1.75	17	Moderate
18	KINGSHIGHWAY	I-64/US-40 to Lindell	NB	MO	AM	0.75	2.01	1.47	1.74	18	Moderate
19	US-67	I-270 to Old Halls Ferry Rd	NB	MO	PM	5.59	2.04	1.41	1.73	19	Moderate
20	MO-141	MO-30 to MO-21	SB	MO	PM	4.14	2.06	1.37	1.72	20	Moderate
21	FOREST PARK AVE	I-64 to Kingshighway	WB	MO	AM	2.14	1.95	1.45	1.70	21	Moderate
22	FOREST PARK AVE	Kingshighway to I-64	EB	MO	PM	2.05	1.87	1.49	1.68	22	Moderate
23	MO-340	Chesterfield Pky North to Baxter Rd	SB	MO	PM	2.74	2.04	1.26	1.65	23	Moderate
24	SALISBURY ST	N. Florissant to I-70	EB	MO	PM	0.75	1.87	1.34	1.61	24	Moderate
25	MO-K	I-70 to MO-364	SB	MO	PM	3.50	1.76	1.41	1.59	25	Moderate
26	MO-94	I-70/Veterans Memorial Pky/Bogey Rd to MO-364	WB	MO	PM	3.39	1.84	1.33	1.59	26	Moderate
27	IL-143	IL-111 to IL-3	WB	IL	PM	1.78	1.64	1.50	1.57	27	Low
28	IL-157	Horseshoe Lake Rd to I-55/I-70/US-40	SB	IL	AM	0.78	1.72	1.40	1.56	28	Low
29	FOREST PARK AVE	Kingshighway to I-64	EB	MO	AM	2.05	1.76	1.34	1.55	29	Low
30	IL-143	IL-111 to IL-3	WB	IL	AM	1.78	1.64	1.46	1.55	30	Low
31	MO-340	I-170 to US-67/N Lindbergh Blvd	SB	MO	PM	4.32	1.81	1.26	1.54	31	Low
32	JEFFERSON	Broadway to I-44	NB	MO	PM	1.99	1.74	1.33	1.54	32	Low
33	IL-111	Forest Blvd to I-55/I-70/US-40	NB	IL	PM	2.01	1.53	1.46	1.50	33	Low
34	HANLEY	MO-100/Manchester Rd to I-64/US-40/Eager Rd	NB	MO	PM	1.30	1.69	1.30	1.50	34	Low
35	MO-94	I-64/US-40/US-61 to Mid Rivers Mall Dr	NB	MO	AM	4.19	1.52	1.33	1.43	35	Low
36	MO-100	Big Bend to McCausland	EB	MO	PM	1.42	1.58	1.22	1.40	36	Low
37	IL-111	Forest Blvd to I-55/I-70/US-40	NB	IL	AM	2.01	1.44	1.35	1.40	37	Low
38	MO-D	I-170 to Schuetz Rd	WB	MO	PM	4.28	1.49	1.17	1.33	38	Low

Table 45: Total Impact

No.	Route	Limits	Direction	State	Peak	Queue Length	PTI	TTI	Total Impact	Rank	Category
1	US-67	I-270 to Old Halls Ferry Rd	NB	MO	PM	5.59	2.04	1.41	7.88	1	High
2	MO-141	Big Bend to I-44	SB	MO	PM	3.90	1.97	1.72	6.71	2	High
3	MO-94	I-64/US-40/US-61 to Mid Rivers Mall Dr	NB	MO	PM	4.19	1.96	1.55	6.49	3	High
4	MO-141	Hawkins to Vance	NB	MO	AM	4.10	2.56	1.39	5.70	4	High
5	MO-141	MO-30 to MO-21	SB	MO	PM	4.14	2.06	1.37	5.67	5	High
6	MO-94	I-64/US-40/US-61 to Mid Rivers Mall Dr	NB	MO	AM	4.19	1.52	1.33	5.57	6	High
7	MO-340	I-170 to US-67/N Lindbergh Blvd	SB	MO	PM	4.32	1.81	1.26	5.44	7	High
8	MO-D	I-170 to Schuetz Rd	WB	MO	PM	4.28	1.49	1.17	5.01	8	High
9	MO-K	I-70 to MO-364	SB	MO	PM	3.50	1.76	1.41	4.94	9	High
10	MO-94	I-70/Veterans Memorial Pky/Bogey Rd to MO-364	WB	MO	PM	3.39	1.84	1.33	4.51	10	High
11	FOREST PARK AVE	I-64 to Kingshighway	WB	MO	PM	2.14	2.11	1.66	3.55	11	High
12	MO-340	Chesterfield Pky North to Baxter Rd	SB	MO	PM	2.74	2.04	1.26	3.45	12	High
13	FOREST PARK AVE	I-64 to Kingshighway	WB	MO	AM	2.14	1.95	1.45	3.10	13	High
14	FOREST PARK AVE	Kingshighway to I-64	EB	MO	PM	2.05	1.87	1.49	3.05	14	Moderate
15	IL-111	Forest Blvd to I-55/I-70/US-40	NB	IL	PM	2.01	1.53	1.46	2.93	15	Moderate
16	FOREST PARK AVE	Kingshighway to I-64	EB	MO	AM	2.05	1.76	1.34	2.75	16	Moderate
17	IL-111	Forest Blvd to I-55/I-70/US-40	NB	IL	AM	2.01	1.44	1.35	2.71	17	Moderate
18	IL-143	IL-111 to IL-3	WB	IL	PM	1.78	1.64	1.50	2.67	18	Moderate
19	JEFFERSON	Broadway to I-44	NB	MO	PM	1.99	1.74	1.33	2.65	19	Moderate
20	IL-143	IL-111 to IL-3	WB	IL	AM	1.78	1.64	1.46	2.60	20	Moderate
21	MO-141	MO-AB/Ladue Rd to I-64/US-40/US-61	SB	MO	PM	1.63	2.27	1.49	2.43	21	Moderate
22	KINGSHIGHWAY	US-40 to Delmar	NB	MO	PM	1.62	2.20	1.48	2.40	22	Moderate
23	MO-100	Vandeventer to Kingshighway	WB	MO	PM	1.57	2.02	1.48	2.32	23	Moderate
24	KINGSHIGHWAY	I-64/US-40 to I-44	SB	MO	PM	1.47	2.16	1.47	2.16	24	Moderate
25	HAMPTON AVE	I-64/US-40 to I-44	SB	MO	PM	1.02	3.12	1.89	1.93	25	Moderate
26	HANLEY	Shaw Park Dr to I-64/US-40/Eager Rd	SB	MO	PM	1.30	2.46	1.42	1.85	26	Low
27	MO-100	Big Bend to McCausland	EB	MO	PM	1.42	1.58	1.22	1.73	27	Low
28	HANLEY	MO-100/Manchester Rd to I-64/US-40/Eager Rd	NB	MO	PM	1.30	1.69	1.30	1.69	28	Low
29	JEFFERSON	I-64/US-40 to I-44	SB	MO	PM	1.05	2.30	1.40	1.47	29	Low
30	MO-141	Marshall to I-44	SB	MO	AM	0.85	1.90	1.65	1.40	30	Low
31	IL-157	Horseshoe Lake Rd to I-55/I-70/US-40	SB	IL	PM	0.78	2.21	1.76	1.37	31	Low
32	KINGSHIGHWAY	Laclede to I-64/US-40	SB	MO	PM	0.75	2.10	1.55	1.16	32	Low
33	KINGSHIGHWAY	I-64/US-40 to Lindell	NB	MO	AM	0.75	2.01	1.47	1.10	33	Low
34	IL-157	Horseshoe Lake Rd to I-55/I-70/US-40	SB	IL	AM	0.78	1.72	1.40	1.09	34	Low
35	IL-157	I-55/I-70/US-40 to Horseshoe Lake Rd	NB	IL	PM	0.47	2.88	2.32	1.09	35	Low
36	SALISBURY ST	N. Florissant to I-70	EB	MO	PM	0.75	1.87	1.34	1.01	36	Low
37	IL-157	I-55/I-70/US-40 to Horseshoe Lake Rd	NB	IL	AM	0.47	2.42	1.89	0.89	37	Low
38	MO-D	I-270 to Schuetz Rd	EB	MO	AM	0.53	2.93	1.52	0.81	38	Low

Table 46: Variability

No.	Route	Limits	Direction	State	Peak	Queue Length	PTI	TTI	Variability	Rank	Category
1	MO-D	I-270 to Schuetz Rd	EB	MO	AM	0.53	2.93	1.52	1.93	1	High
2	MO-141	Hawkins to Vance	NB	MO	AM	4.10	2.56	1.39	1.84	2	High
3	HANLEY	Shaw Park Dr to I-64/US-40/Eager Rd	SB	MO	PM	1.30	2.46	1.42	1.73	3	High
4	HAMPTON AVE	I-64/US-40 to I-44	SB	MO	PM	1.02	3.12	1.89	1.65	4	High
5	JEFFERSON	I-64/US-40 to I-44	SB	MO	PM	1.05	2.30	1.40	1.64	5	High
6	MO-340	Chesterfield Pky North to Baxter Rd	SB	MO	PM	2.74	2.04	1.26	1.62	6	High
7	MO-141	MO-AB/Ladue Rd to I-64/US-40/US-61	SB	MO	PM	1.63	2.27	1.49	1.52	7	High
8	MO-141	MO-30 to MO-21	SB	MO	PM	4.14	2.06	1.37	1.50	8	High
9	KINGSHIGHWAY	US-40 to Delmar	NB	MO	PM	1.62	2.20	1.48	1.49	9	High
10	KINGSHIGHWAY	I-64/US-40 to I-44	SB	MO	PM	1.47	2.16	1.47	1.47	10	High
11	US-67	I-270 to Old Halls Ferry Rd	NB	MO	PM	5.59	2.04	1.41	1.45	11	High
12	MO-340	I-170 to US-67/N Lindbergh Blvd	SB	MO	PM	4.32	1.81	1.26	1.44	12	High
13	SALISBURY ST	N. Florissant to I-70	EB	MO	PM	0.75	1.87	1.34	1.40	13	High
14	MO-94	I-70/Veterans Memorial Pky/Bogey Rd to MO-364	WB	MO	PM	3.39	1.84	1.33	1.38	14	Moderate
15	KINGSHIGHWAY	I-64/US-40 to Lindell	NB	MO	AM	0.75	2.01	1.47	1.37	15	Moderate
16	MO-100	Vandeventer to Kingshighway	WB	MO	PM	1.57	2.02	1.48	1.36	16	Moderate
17	KINGSHIGHWAY	Laclede to I-64/US-40	SB	MO	PM	0.75	2.10	1.55	1.35	17	Moderate
18	FOREST PARK AVE	I-64 to Kingshighway	WB	MO	AM	2.14	1.95	1.45	1.34	18	Moderate
19	FOREST PARK AVE	Kingshighway to I-64	EB	MO	AM	2.05	1.76	1.34	1.31	19	Moderate
20	JEFFERSON	Broadway to I-44	NB	MO	PM	1.99	1.74	1.33	1.31	20	Moderate
21	HANLEY	MO-100/Manchester Rd to I-64/US-40/Eager Rd	NB	MO	PM	1.30	1.69	1.30	1.30	21	Moderate
22	MO-100	Big Bend to McCausland	EB	MO	PM	1.42	1.58	1.22	1.30	22	Moderate
23	IL-157	I-55/I-70/US-40 to Horseshoe Lake Rd	NB	IL	AM	0.47	2.42	1.89	1.28	23	Moderate
24	MO-D	I-170 to Schuetz Rd	WB	MO	PM	4.28	1.49	1.17	1.27	24	Moderate
25	FOREST PARK AVE	I-64 to Kingshighway	WB	MO	PM	2.14	2.11	1.66	1.27	25	Moderate
26	MO-94	I-64/US-40/US-61 to Mid Rivers Mall Dr	NB	MO	PM	4.19	1.96	1.55	1.26	26	Low
27	IL-157	Horseshoe Lake Rd to I-55/I-70/US-40	SB	IL	PM	0.78	2.21	1.76	1.26	27	Low
28	FOREST PARK AVE	Kingshighway to I-64	EB	MO	PM	2.05	1.87	1.49	1.26	28	Low
29	MO-K	I-70 to MO-364	SB	MO	PM	3.50	1.76	1.41	1.25	29	Low
30	IL-157	I-55/I-70/US-40 to Horseshoe Lake Rd	NB	IL	PM	0.47	2.88	2.32	1.24	30	Low
31	IL-157	Horseshoe Lake Rd to I-55/I-70/US-40	SB	IL	AM	0.78	1.72	1.40	1.23	31	Low
32	MO-141	Marshall to I-44	SB	MO	AM	0.85	1.90	1.65	1.15	32	Low
33	MO-141	Big Bend to I-44	SB	MO	PM	3.90	1.97	1.72	1.15	33	Low
34	MO-94	I-64/US-40/US-61 to Mid Rivers Mall Dr	NB	MO	AM	4.19	1.52	1.33	1.14	34	Low
35	IL-143	IL-111 to IL-3	WB	IL	AM	1.78	1.64	1.46	1.12	35	Low
36	IL-143	IL-111 to IL-3	WB	IL	PM	1.78	1.64	1.50	1.09	36	Low
37	IL-111	Forest Blvd to I-55/I-70/US-40	NB	IL	AM	2.01	1.44	1.35	1.07	37	Low
38	IL-111	Forest Blvd to I-55/I-70/US-40	NB	IL	PM	2.01	1.53	1.46	1.05	38	Low

2017 Arterial Locations

Table 47: Severity

No.	Route	Limits	Direction	State	Peak	Queue Length	PTI	TTI	Severity	Rank	Category
1	MO-100	Vandeventer to Kingshighway	WB	MO	PM	0.96	4.50	3.01	3.76	1	High
2	SKINKER	Forest Park Pky to Delmar	SB	MO	PM	0.43	5.00	2.28	3.64	2	High
3	SALISBURY ST	N FLORISSANT AVE to I-70	EB	MO	PM	0.49	3.66	2.30	2.98	3	High
4	MO-100	Big Bend to McCausland	EB	MO	PM	0.83	3.25	2.61	2.93	4	High
5	HAMPTON AVE	I-64/US-40 to I-44	SB	MO	PM	1.02	3.62	1.95	2.79	5	High
6	HANLEY	Shaw Park Dr to I-64/US-40/Eager Rd	SB	MO	PM	1.30	3.56	1.64	2.60	6	High
7	LACLEDE ST RD	Union Pacific to Murdoch	SB	MO	PM	1.10	3.26	1.69	2.48	7	High
8	MO-141	Big Bend to I-44	SB	MO	PM	1.88	3.23	1.68	2.46	8	High
9	KINGSHIGHWAY	Laclede Ave to Manchester	SB	MO	PM	1.07	2.86	1.80	2.33	9	High
10	JEFFERSON	Washington Blvd to Park Ave	SB	MO	PM	1.23	2.89	1.70	2.30	10	High
11	SKINKER	Forest Park Pky to Delmar	SB	MO	AM	0.43	2.78	1.76	2.27	11	High
12	MO-100	McCausland to Big Bend	WB	MO	PM	0.83	2.44	2.00	2.22	12	High
13	IL-157	Horseshoe Lake Rd to I-55/I-70/US-40	SB	IL	PM	1.92	2.57	1.84	2.21	13	High
14	MCCAUSLAND AVE	I-64 to Arsenal	SB	MO	PM	1.30	2.85	1.56	2.21	14	High
15	FOREST PARK AVE	I-64 to Kingshighway	WB	MO	PM	2.14	2.49	1.90	2.20	15	High
16	HANLEY/LACLEDE ST RD	Murdoch to MO-100/Manchester Rd	NB	MO	AM	1.55	2.90	1.39	2.15	16	High
17	IL-159	Main to IL-15	SB	IL	PM	1.21	2.38	1.81	2.10	17	High
18	MCCAUSLAND AVE	I-64 to Oakland	NB	MO	AM	0.29	2.68	1.46	2.07	18	High
19	IL-140	Washington Ave to IL-3	EB	IL	PM	1.15	2.32	1.81	2.07	19	High
20	MO-141	MO-AB/Ladue Rd to I-64/US-40/US-61	SB	MO	PM	1.63	2.68	1.44	2.06	20	High
21	SALISBURY ST	N FLORISSANT AVE to I-70	EB	MO	AM	0.49	2.45	1.61	2.03	21	Moderate
22	MO-141	Hawkins to Vance	NB	MO	AM	1.89	2.68	1.35	2.02	22	Moderate
23	SALISBURY ST	I-70 to Natural Bridge	WB	MO	PM	0.75	2.36	1.65	2.01	23	Moderate
24	FOREST PARK AVE	Kingshighway to I-64	EB	MO	PM	2.05	2.21	1.75	1.98	24	Moderate
25	MO-100	Vandeventer to Kingshighway	WB	MO	AM	0.96	2.25	1.71	1.98	25	Moderate
26	MO-141	Marshall to I-44	SB	MO	AM	0.73	2.43	1.51	1.97	26	Moderate
27	MO-94	I-64/US-40/US-61 to Mid Rivers Mall Dr	NB	MO	PM	4.19	2.26	1.67	1.97	27	Moderate
28	MO-340	Chesterfield Pky North to Baxter Rd	SB	MO	PM	1.38	2.55	1.35	1.95	28	Moderate
29	MO-100	Kingshighway to Vandeventer	EB	MO	AM	0.96	2.17	1.65	1.91	29	Moderate
30	JEFFERSON	Arsenal to Park	NB	MO	PM	1.35	2.24	1.56	1.90	30	Moderate
31	FOREST PARK AVE	I-64 to Kingshighway	WB	MO	AM	2.14	2.18	1.61	1.90	31	Moderate
32	MO-D	I-170 to Schuetz Rd	WB	MO	PM	4.28	2.26	1.53	1.90	32	Moderate
33	MCCAUSLAND AVE	Arsenal to I-64	NB	MO	AM	1.44	2.43	1.35	1.89	33	Moderate
34	SKINKER	Forest Park Pky to Delmar	NB	MO	PM	0.43	2.17	1.60	1.89	34	Moderate
35	KINGSHIGHWAY	I-44 to Delmar	NB	MO	PM	2.38	2.23	1.51	1.87	35	Moderate
36	US-67	I-270 to Old Halls Ferry Rd	NB	MO	PM	5.59	2.16	1.50	1.83	36	Moderate
37	MCCAUSLAND AVE	I-64 to Oakland	NB	MO	PM	0.29	2.12	1.48	1.80	37	Moderate
38	SALISBURY ST	I-70 to Natural Bridge	WB	MO	AM	0.75	2.11	1.42	1.77	38	Moderate
39	MCCAUSLAND AVE	Arsenal to I-64	NB	MO	PM	1.44	2.07	1.44	1.76	39	Moderate
40	FOREST PARK AVE	Kingshighway to I-64	EB	MO	AM	2.05	2.01	1.48	1.75	40	Low
41	IL-157	I-55/I-70/US-40 to Horseshoe Lake Rd	NB	IL	PM	1.87	1.96	1.52	1.74	41	Low
42	MO-D	Concourse to Schuetz	EB	MO	AM	0.50	2.07	1.37	1.72	42	Low
43	SKINKER	Forest Park Pky to Delmar	NB	MO	AM	0.43	2.00	1.44	1.72	43	Low
44	JEFFERSON	Washington Blvd to Park Ave	SB	MO	AM	1.23	2.03	1.40	1.72	44	Low
45	KINGSHIGHWAY	Shaw to Delmar	NB	MO	AM	2.73	2.04	1.38	1.71	45	Low
46	MO-94	I-70/Veterans Memorial Pky/Bogey Rd to MO-364	SB	MO	PM	2.33	2.06	1.36	1.71	46	Low
47	MO-100	McCausland to Big Bend	WB	MO	AM	0.83	2.00	1.39	1.70	47	Low
48	LACLEDE ST RD	Big Bend to Murdoch	SB	MO	AM	0.49	1.94	1.42	1.68	48	Low
49	MO-100	Kingshighway to Vandeventer	EB	MO	PM	0.96	1.84	1.49	1.67	49	Low
50	MO-K	I-70 to MO-364	SB	MO	PM	3.50	1.84	1.48	1.66	50	Low
51	IL-143	IL-111 to IL-3	WB	IL	PM	2.05	1.77	1.53	1.65	51	Low
52	IL-157	Horseshoe Lake Rd to I-55/I-70/US-40	SB	IL	AM	1.92	1.84	1.41	1.63	52	Low
53	IL-140	CR-51 to I-55	WB	IL	PM	0.90	1.71	1.51	1.61	53	Low
54	IL-140	Washington Ave to IL-3	EB	IL	AM	1.15	1.81	1.39	1.60	54	Low
55	IL-111	Forest Blvd to I-55/I-70/US-40	NB	IL	PM	3.01	1.64	1.53	1.59	55	Low
56	IL-143	IL-111 to IL-3	WB	IL	AM	2.05	1.70	1.46	1.58	56	Low
57	IL-140	CR-51 to I-55	WB	IL	AM	0.90	1.66	1.44	1.55	57	Low
58	MO-94	N 5th Street to I-70	SB	MO	PM	3.49	1.68	1.36	1.52	58	Low
59	IL-111	Forest Blvd to I-55/I-70/US-40	NB	IL	AM	3.01	1.53	1.40	1.47	59	Low

Table 48: Total Impact

No.	Route	Limits	Direction	State	Peak	Queue Length	PTI	TTI	Total Impact	Rank	Category
1	US-67	I-270 to Old Halls Ferry Rd	NB	MO	PM	5.59	2.16	1.50	8.39	1	High
2	MO-94	I-64/US-40/US-61 to Mid Rivers Mall Dr	NB	MO	PM	4.19	2.26	1.67	7.00	2	High
3	MO-D	I-170 to Schuetz Rd	WB	MO	PM	4.28	2.26	1.53	6.55	3	High
4	IL-140	CR-51 to I-55	WB	IL	PM	0.90	1.71	1.51	5.80	4	High
5	IL-140	CR-51 to I-55	WB	IL	AM	0.90	1.66	1.44	5.53	5	High
6	MO-K	I-70 to MO-364	SB	MO	PM	3.50	1.84	1.48	5.18	6	High
7	MO-94	N 5th Street to I-70	SB	MO	PM	3.49	1.68	1.36	4.75	7	High
8	IL-111	Forest Blvd to I-55/I-70/US-40	NB	IL	PM	3.01	1.64	1.53	4.61	8	High
9	IL-111	Forest Blvd to I-55/I-70/US-40	NB	IL	AM	3.01	1.53	1.40	4.21	9	High
10	FOREST PARK AVE	I-64 to Kingshighway	WB	MO	PM	2.14	2.49	1.90	4.07	10	High
11	KINGSHIGHWAY	Shaw to Delmar	NB	MO	AM	2.73	2.04	1.38	3.77	11	High
12	KINGSHIGHWAY	I-44 to Delmar	NB	MO	PM	2.38	2.23	1.51	3.59	12	High
13	FOREST PARK AVE	Kingshighway to I-64	EB	MO	PM	2.05	2.21	1.75	3.59	13	High
14	IL-157	Horseshoe Lake Rd to I-55/I-70/US-40	SB	IL	PM	1.92	2.57	1.84	3.53	14	High
15	FOREST PARK AVE	I-64 to Kingshighway	WB	MO	AM	2.14	2.18	1.61	3.45	15	High
16	MO-94	I-70/Veterans Memorial Pky/Bogey Rd to MO-364	SB	MO	PM	2.33	2.06	1.36	3.17	16	High
17	MO-141	Big Bend to I-44	SB	MO	PM	1.88	3.23	1.68	3.16	17	High
18	IL-143	IL-111 to IL-3	WB	IL	PM	2.05	1.77	1.53	3.14	18	High
19	FOREST PARK AVE	Kingshighway to I-64	EB	MO	AM	2.05	2.01	1.48	3.03	19	High
20	IL-143	IL-111 to IL-3	WB	IL	AM	2.05	1.70	1.46	2.99	20	High
21	MO-100	Vandeventer to Kingshighway	WB	MO	PM	0.96	4.50	3.01	2.89	21	Moderate
22	IL-157	I-55/I-70/US-40 to Horseshoe Lake Rd	NB	IL	PM	1.87	1.96	1.52	2.84	22	Moderate
23	IL-157	Horseshoe Lake Rd to I-55/I-70/US-40	SB	IL	AM	1.92	1.84	1.41	2.71	23	Moderate
24	MO-100	Vandeventer to Kingshighway	WB	MO	AM	0.96	2.25	1.71	2.68	24	Moderate
25	MO-141	Hawkins to Vance	NB	MO	AM	1.89	2.68	1.35	2.55	25	Moderate
26	MCCAUSLAND AVE	I-64 to Arsenal	SB	MO	PM	1.30	2.85	1.56	2.43	26	Moderate
27	MO-141	MO-AB/Ladue Rd to I-64/US-40/US-61	SB	MO	PM	1.63	2.68	1.44	2.35	27	Moderate
28	KINGSHIGHWAY	Laclede Ave to Manchester	SB	MO	PM	1.07	2.86	1.80	2.30	28	Moderate
29	IL-159	Main to IL-15	SB	IL	PM	1.21	2.38	1.81	2.19	29	Moderate
30	MO-100	Big Bend to McCausland	EB	MO	PM	0.83	3.25	2.61	2.17	30	Moderate
31	HANLEY/LACLEDE ST RD	Murdoch to MO-100/Manchester Rd	NB	MO	AM	1.55	2.90	1.39	2.15	31	Moderate
32	HANLEY	Shaw Park Dr to I-64/US-40/Eager Rd	SB	MO	PM	1.30	3.56	1.64	2.13	32	Moderate
33	JEFFERSON	Arsenal to Park	NB	MO	PM	1.35	2.24	1.56	2.11	33	Moderate
34	JEFFERSON	Washington Blvd to Park Ave	SB	MO	PM	1.23	2.89	1.70	2.09	34	Moderate
35	IL-140	Washington Ave to IL-3	EB	IL	PM	1.15	2.32	1.81	2.08	35	Moderate
36	MCCAUSLAND AVE	Arsenal to I-64	NB	MO	PM	1.44	2.07	1.44	2.07	36	Moderate
37	HAMPTON AVE	I-64/US-40 to I-44	SB	MO	PM	1.02	3.62	1.95	1.99	37	Moderate
38	MCCAUSLAND AVE	Arsenal to I-64	NB	MO	AM	1.44	2.43	1.35	1.94	38	Moderate
39	MO-340	Chesterfield Pky North to Baxter Rd	SB	MO	PM	1.38	2.55	1.35	1.86	39	Moderate
40	LACLEDE ST RD	Union Pacific to Murdoch	SB	MO	PM	1.10	3.26	1.69	1.86	40	Low
41	JEFFERSON	Washington Blvd to Park Ave	SB	MO	AM	1.23	2.03	1.40	1.72	41	Low
42	MO-100	McCausland to Big Bend	WB	MO	PM	0.83	2.44	2.00	1.66	42	Low
43	SALISBURY ST	N FLORISSANT AVE to I-70	EB	MO	PM	0.49	3.66	2.30	1.66	43	Low
44	IL-140	Washington Ave to IL-3	EB	IL	AM	1.15	1.81	1.39	1.60	44	Low
45	MO-100	Kingshighway to Vandeventer	EB	MO	AM	0.96	2.17	1.65	1.58	45	Low
46	MO-100	Kingshighway to Vandeventer	EB	MO	PM	0.96	1.84	1.49	1.43	46	Low
47	SALISBURY ST	I-70 to Natural Bridge	WB	MO	PM	0.75	2.36	1.65	1.24	47	Low
48	MO-100	McCausland to Big Bend	WB	MO	AM	0.83	2.00	1.39	1.15	48	Low
49	MO-141	Marshall to I-44	SB	MO	AM	0.73	2.43	1.51	1.10	49	Low
50	SALISBURY ST	I-70 to Natural Bridge	WB	MO	AM	0.75	2.11	1.42	1.07	50	Low
51	SKINKER	Forest Park Pky to Delmar	SB	MO	PM	0.43	5.00	2.28	0.98	51	Low
52	SALISBURY ST	N FLORISSANT AVE to I-70	EB	MO	AM	0.49	2.45	1.61	0.79	52	Low
53	SKINKER	Forest Park Pky to Delmar	SB	MO	AM	0.43	2.78	1.76	0.76	53	Low
54	LACLEDE ST RD	Big Bend to Murdoch	SB	MO	AM	0.49	1.94	1.42	0.70	54	Low
55	SKINKER	Forest Park Pky to Delmar	NB	MO	PM	0.43	2.17	1.60	0.69	55	Low
56	MO-D	Concourse to Schuetz	EB	MO	AM	0.50	2.07	1.37	0.69	56	Low
57	SKINKER	Forest Park Pky to Delmar	NB	MO	AM	0.43	2.00	1.44	0.62	57	Low
58	MCCAUSLAND AVE	I-64 to Oakland	NB	MO	PM	0.29	2.12	1.48	0.43	58	Low
59	MCCAUSLAND AVE	I-64 to Oakland	NB	MO	AM	0.29	2.68	1.46	0.42	59	Low

Table 49: Variability

No.	Route	Limits	Direction	State	Peak	Queue Length	PTI	TTI	Variability	Rank	Category
1	SKINKER	Forest Park Pky to Delmar	SB	MO	PM	0.43	5.00	2.28	2.19	1	High
2	HANLEY	Shaw Park Dr to I-64/US-40/Eager Rd	SB	MO	PM	1.30	3.56	1.64	2.17	2	High
3	HANLEY/LACLEDE ST RD	Murdoch to MO-100/Manchester Rd	NB	MO	AM	1.55	2.90	1.39	2.09	3	High
4	MO-141	Hawkins to Vance	NB	MO	AM	1.89	2.68	1.35	1.99	4	High
5	LACLEDE ST RD	Union Pacific to Murdoch	SB	MO	PM	1.10	3.26	1.69	1.93	5	High
6	MO-141	Big Bend to I-44	SB	MO	PM	1.88	3.23	1.68	1.92	6	High
7	MO-340	Chesterfield Pky North to Baxter Rd	SB	MO	PM	1.38	2.55	1.35	1.89	7	High
8	MO-141	MO-AB/Ladue Rd to I-64/US-40/US-61	SB	MO	PM	1.63	2.68	1.44	1.86	8	High
9	HAMPTON AVE	I-64/US-40 to I-44	SB	MO	PM	1.02	3.62	1.95	1.86	9	High
10	MCCAUSLAND AVE	I-64 to Oakland	NB	MO	AM	0.29	2.68	1.46	1.84	10	High
11	MCCAUSLAND AVE	I-64 to Arsenal	SB	MO	PM	1.30	2.85	1.56	1.83	11	High
12	MCCAUSLAND AVE	Arsenal to I-64	NB	MO	AM	1.44	2.43	1.35	1.80	12	High
13	JEFFERSON	Washington Blvd to Park Ave	SB	MO	PM	1.23	2.89	1.70	1.70	13	High
14	MO-141	Marshall to I-44	SB	MO	AM	0.73	2.43	1.51	1.61	14	High
15	SALISBURY ST	N FLORISSANT AVE to I-70	EB	MO	PM	0.49	3.66	2.30	1.59	15	High
16	KINGSHIGHWAY	Laclede Ave to Manchester	SB	MO	PM	1.07	2.86	1.80	1.59	16	High
17	SKINKER	Forest Park Pky to Delmar	SB	MO	AM	0.43	2.78	1.76	1.58	17	High
18	SALISBURY ST	N FLORISSANT AVE to I-70	EB	MO	AM	0.49	2.45	1.61	1.52	18	High
19	MO-94	I-70/Veterans Memorial Pky/Bogey Rd to MO-364	SB	MO	PM	2.33	2.06	1.36	1.51	19	High
20	MO-D	Concourse to Schuetz	EB	MO	AM	0.50	2.07	1.37	1.51	20	High
21	MO-100	Vandeventer to Kingshighway	WB	MO	PM	0.96	4.50	3.01	1.50	21	Moderate
22	SALISBURY ST	I-70 to Natural Bridge	WB	MO	AM	0.75	2.11	1.42	1.49	22	Moderate
23	KINGSHIGHWAY	Shaw to Delmar	NB	MO	AM	2.73	2.04	1.38	1.48	23	Moderate
24	MO-D	I-170 to Schuetz Rd	WB	MO	PM	4.28	2.26	1.53	1.48	24	Moderate
25	KINGSHIGHWAY	I-44 to Delmar	NB	MO	PM	2.38	2.23	1.51	1.48	25	Moderate
26	JEFFERSON	Washington Blvd to Park Ave	SB	MO	AM	1.23	2.03	1.40	1.45	26	Moderate
27	US-67	I-270 to Old Halls Ferry Rd	NB	MO	PM	5.59	2.16	1.50	1.44	27	Moderate
28	MO-100	McCausland to Big Bend	WB	MO	AM	0.83	2.00	1.39	1.44	28	Moderate
29	MCCAUSLAND AVE	Arsenal to I-64	NB	MO	PM	1.44	2.07	1.44	1.44	29	Moderate
30	JEFFERSON	Arsenal to Park	NB	MO	PM	1.35	2.24	1.56	1.44	30	Moderate
31	MCCAUSLAND AVE	I-64 to Oakland	NB	MO	PM	0.29	2.12	1.48	1.43	31	Moderate
32	SALISBURY ST	I-70 to Natural Bridge	WB	MO	PM	0.75	2.36	1.65	1.43	32	Moderate
33	IL-157	Horseshoe Lake Rd to I-55/I-70/US-40	SB	IL	PM	1.92	2.57	1.84	1.40	33	Moderate
34	SKINKER	Forest Park Pky to Delmar	NB	MO	AM	0.43	2.00	1.44	1.39	34	Moderate
35	LACLEDE ST RD	Big Bend to Murdoch	SB	MO	AM	0.49	1.94	1.42	1.37	35	Moderate
36	FOREST PARK AVE	Kingshighway to I-64	EB	MO	AM	2.05	2.01	1.48	1.36	36	Moderate
37	SKINKER	Forest Park Pky to Delmar	NB	MO	PM	0.43	2.17	1.60	1.36	37	Moderate
38	FOREST PARK AVE	I-64 to Kingshighway	WB	MO	AM	2.14	2.18	1.61	1.35	38	Moderate
39	MO-94	I-64/US-40/US-61 to Mid Rivers Mall Dr	NB	MO	PM	4.19	2.26	1.67	1.35	39	Moderate
40	MO-100	Vandeventer to Kingshighway	WB	MO	AM	0.96	2.25	1.71	1.32	40	Low
41	MO-100	Kingshighway to Vandeventer	EB	MO	AM	0.96	2.17	1.65	1.32	41	Low
42	IL-159	Main to IL-15	SB	IL	PM	1.21	2.38	1.81	1.31	42	Low
43	FOREST PARK AVE	I-64 to Kingshighway	WB	MO	PM	2.14	2.49	1.90	1.31	43	Low
44	IL-157	Horseshoe Lake Rd to I-55/I-70/US-40	SB	IL	AM	1.92	1.84	1.41	1.30	44	Low
45	IL-140	Washington Ave to IL-3	EB	IL	AM	1.15	1.81	1.39	1.30	45	Low
46	IL-157	I-55/I-70/US-40 to Horseshoe Lake Rd	NB	IL	PM	1.87	1.96	1.52	1.29	46	Low
47	IL-140	Washington Ave to IL-3	EB	IL	PM	1.15	2.32	1.81	1.28	47	Low
48	FOREST PARK AVE	Kingshighway to I-64	EB	MO	PM	2.05	2.21	1.75	1.26	48	Low
49	MO-100	Big Bend to McCausland	EB	MO	PM	0.83	3.25	2.61	1.25	49	Low
50	MO-K	I-70 to MO-364	SB	MO	PM	3.50	1.84	1.48	1.24	50	Low
51	MO-94	N 5th Street to I-70	SB	MO	PM	3.49	1.68	1.36	1.24	51	Low
52	MO-100	Kingshighway to Vandeventer	EB	MO	PM	0.96	1.84	1.49	1.23	52	Low
53	MO-100	McCausland to Big Bend	WB	MO	PM	0.83	2.44	2.00	1.22	53	Low
54	IL-143	IL-111 to IL-3	WB	IL	AM	2.05	1.70	1.46	1.16	54	Low
55	IL-143	IL-111 to IL-3	WB	IL	PM	2.05	1.77	1.53	1.16	55	Low
56	IL-140	CR-51 to I-55	WB	IL	AM	0.90	1.66	1.44	1.15	56	Low
57	IL-140	CR-51 to I-55	WB	IL	PM	0.90	1.71	1.51	1.13	57	Low
58	IL-111	Forest Blvd to I-55/I-70/US-40	NB	IL	AM	3.01	1.53	1.40	1.09	58	Low
59	IL-111	Forest Blvd to I-55/I-70/US-40	NB	IL	PM	3.01	1.64	1.53	1.07	59	Low

2016 Freeway Locations

Table 50: Severity

No.	Route	Limits	Direction	State	Peak	Queue Length	PTI	TTI	Severity	Rank	Category
1	I-64	Kingshighway/Exit 36 to I-55/I-70/US-40	EB	MO	PM	4.30	3.99	1.92	2.96	1	High
2	I-55	Grand Ave/Exit 247 to I-44/I-55/Gravois/Exit 207	EB-SB	MO	PM	5.77	3.36	1.78	2.57	2	High
3	I-44	I-55/Exit 290 to Arsenal St/Exit 284	WB	MO	PM	5.20	3.19	1.44	2.32	3	High
4	I-64	Kingshighway/Exit 36 to I-170/Brentwood Blvd/Exit 31	WB	MO	AM	5.52	2.97	1.50	2.24	4	High
5	I-70	I-270/Exit 232 to Cave Springs/Exit 225	WB	MO	PM	5.00	2.86	1.52	2.19	5	High
6	I-270	I-55/I-255/Exit 1 to I-64/US-40/US-61/Exit 12	NB	MO	AM	12.70	2.79	1.50	2.15	6	High
7	I-270	I-70 to I-55/I-255/Exit 1	SB	MO	PM	21.00	2.79	1.48	2.14	7	High
8	I-270	McDonnell Blvd/Exit 23 to MO-367/Exit 31	EB	MO	PM	12.00	2.73	1.50	2.12	8	High
9	I-64	Chesterfield Pky/Exit 20 to McCausland Ave/Exit 33	EB	MO	PM	14.00	2.75	1.47	2.11	9	High
10	I-170	MO-180/St Charles Rock/Exit 5 to I-64/Eager Rd/Exit 1B/Exit 1A	SB	MO	PM	6.69	2.70	1.50	2.10	10	High
11	I-64	Baxter to I-270/Exit 25	EB	MO	AM	6.15	2.75	1.42	2.09	11	High
12	I-55	Baugh Ave. to Poplar St Brg.	WB-SB	IL	AM	4.39	2.43	1.39	1.91	12	High
13	I-64	MO-K to I-70	WB	MO	PM	10.00	2.51	1.27	1.89	13	High
14	I-64	I-270/Exit 25 to McCausland to Ave/Exit 33	EB	MO	AM	9.57	2.46	1.30	1.88	14	Moderate
15	I-64	I-170/Brentwood Blvd/Exit 31 to Chesterfield Pky/Exit 20	WB	MO	PM	12.00	2.24	1.29	1.77	15	Moderate
16	I-55	Virginia Ave/Exit 203 to Reavis Barracks Rd/Exit 199	SB	MO	PM	5.31	2.27	1.21	1.74	16	Moderate
17	I-70	I-270/Exit 232 to Jennings Sta Rd/Exit 242	EB	MO	PM	11.00	2.23	1.21	1.72	17	Moderate
18	I-70	Broadway/Exit 246 to Lucas & Hunt Rd/Exit 241	WB	MO	AM	3.35	2.18	1.21	1.70	18	Moderate
19	I-70	Shreve/Exit 245 to MO-N/Florissant Rd/Exit 240	WB	MO	PM	2.44	2.26	1.12	1.69	19	Moderate
20	I-170	Forest Park Pky/Exit 1E to Hanley Rd/Exit 9	NB	MO	PM	8.98	2.10	1.26	1.68	20	Moderate
21	I-270	Lilac/Exit 33 to Elizabeth/Washington St/Exit 28	WB	MO	AM	7.15	2.11	1.23	1.67	21	Moderate
22	I-70	Cave Springs/Exit 225 to Natural Bridge Rd/Exit 237/Exit 238	EB	MO	AM	14.16	2.11	1.20	1.66	22	Moderate
23	I-70	I-170/Exit 238 to I-270/Exit 232	WB	MO	PM	6.45	2.03	1.23	1.63	23	Moderate
24	I-70/I-44/I-55	Stan Musial Brg. to Park	EB/WB/NB	MO	PM	3.11	2.06	1.19	1.62	24	Moderate
25	I-44	Tenth St/Exit 249 to I-55/I-64/US-40/Exit 251	WB	MO	AM	2.02	1.99	1.17	1.58	25	Moderate
26	I-170	I-64 to MO-D	SB	MO	AM	4.49	1.89	1.14	1.52	26	Low
27	I-44	Berry Rd/Exit 279 to Kingshighway/Exit 287	EB	MO	AM	7.94	1.87	1.14	1.51	27	Low
28	I-55	Potomac to Park Ave/7Th St/Exit 208	NB	MO	AM	6.21	1.86	1.13	1.50	28	Low
29	I-44	Bowles Ave/Exit 274 to US-50/US-61/US-67/ Exit 277	EB	MO	PM	4.31	1.82	1.14	1.48	29	Low
30	I-270	Dorsett Rd/Exit 17 to MO-AB/Ladue Rd/Exit 13	SB	MO	AM	6.18	1.81	1.14	1.48	30	Low
31	MO-364	Jungerman to I-270/MO-D	EB	MO	AM	8.61	1.80	1.09	1.45	31	Low
32	I-44	MO-141/Exit 272 to I-270/Exit 276	EB	MO	AM	4.70	1.76	1.09	1.43	32	Low
33	I-70	Bryan Rd/Exit 216 to MO-W/Exit 203	WB	MO	PM	14.00	1.62	1.18	1.40	33	Low
34	MO-364	I-270/MO-D to MO-94/Muegge Rd/Exit 13/Exit 12	WB	MO	PM	8.61	1.69	1.08	1.39	34	Low
35	I-44	Big Bend Rd/Exit 278 to Antire Rd/Exit 269	WB	MO	PM	11.00	1.55	1.17	1.36	35	Low
36	I-55	I-44/I-55/Gravois/Exit 207 to Potomac St/Exit 206	SB	MO	PM	2.48	1.52	1.14	1.33	36	Low
37	I-70	Lake St Louis Blvd/Exit 214 to MO-79/Exit 220	EB	MO	AM	8.50	1.50	1.04	1.27	37	Low

Table 51: Total Impact

No.	Route	Limits	Direction	State	Peak	Queue Length	PTI	TTI	Total Impact	Rank	Category
1	I-270	I-70 to I-55/I-255/Exit 1	SB	MO	PM	21.00	2.79	1.48	31.08	1	High
2	I-64	Chesterfield Pky/Exit 20 to McCausland Ave/Exit 33	EB	MO	PM	14.00	2.75	1.47	20.58	2	High
3	I-270	I-55/I-255/Exit 1 to I-64/US-40/US-61/Exit 12	NB	MO	AM	12.70	2.79	1.50	19.05	3	High
4	I-270	McDonnell Blvd/Exit 23 to MO-367/Exit 31	EB	MO	PM	12.00	2.73	1.50	18.00	4	High
5	I-70	Cave Springs/Exit 225 to Natural Bridge Rd/Exit 237/Exit 238	EB	MO	AM	14.16	2.11	1.20	16.99	5	High
6	I-70	Bryan Rd/Exit 216 to MO-W/Exit 203	WB	MO	PM	14.00	1.62	1.18	16.52	6	High
7	I-64	I-170/Brentwood Blvd/Exit 31 to Chesterfield Pky/Exit 20	WB	MO	PM	12.00	2.24	1.29	15.48	7	High
8	I-70	I-270/Exit 232 to Jennings Sta Rd/Exit 242	EB	MO	PM	11.00	2.23	1.21	13.31	8	High
9	I-44	Big Bend Rd/Exit 278 to Antire Rd/Exit 269	WB	MO	PM	11.00	1.55	1.17	12.87	9	High
10	I-64	MO-K to I-70	WB	MO	PM	10.00	2.51	1.27	12.70	10	High
11	I-64	I-270/Exit 25 to McCausland to Ave/Exit 33	EB	MO	AM	9.57	2.46	1.30	12.44	11	High
12	I-170	Forest Park Pky/Exit 1E to Hanley Rd/Exit 9	NB	MO	PM	8.98	2.10	1.26	11.31	12	High
13	I-55	Grand Ave/Exit 247 to I-44/I-55/Gravois/Exit 207	EB-SB	MO	PM	5.77	3.36	1.78	10.24	13	High
14	I-170	MO-180/St Charles Rock/Exit 5 to I-64/Eager Rd/Exit 1B/Exit 1A	SB	MO	PM	6.69	2.70	1.50	10.04	14	Moderate
15	MO-364	Jungerman to I-270/MO-D	EB	MO	AM	8.61	1.80	1.09	9.38	15	Moderate
16	MO-364	I-270/MO-D to MO-94/Muegge Rd/Exit 13/Exit 12	WB	MO	PM	8.61	1.69	1.08	9.30	16	Moderate
17	I-44	Berry Rd/Exit 279 to Kingshighway/Exit 287	EB	MO	AM	7.94	1.87	1.14	9.05	17	Moderate
18	I-70	Lake St Louis Blvd/Exit 214 to MO-79/Exit 220	EB	MO	AM	8.50	1.50	1.04	8.84	18	Moderate
19	I-270	Lilac/Exit 33 to Elizabeth/Washington St/Exit 28	WB	MO	AM	7.15	2.11	1.23	8.79	19	Moderate
20	I-64	Baxter to I-270/Exit 25	EB	MO	AM	6.15	2.75	1.42	8.73	20	Moderate
21	I-64	Kingshighway/Exit 36 to I-170/Brentwood Blvd/Exit 31	WB	MO	AM	5.52	2.97	1.50	8.28	21	Moderate
22	I-64	Kingshighway/Exit 36 to I-55/I-70/US-40	EB	MO	PM	4.30	3.99	1.92	8.26	22	Moderate
23	I-70	I-170/Exit 238 to I-270/Exit 232	WB	MO	PM	6.45	2.03	1.23	7.93	23	Moderate
24	I-70	I-270/Exit 232 to Cave Springs/Exit 225	WB	MO	PM	5.00	2.86	1.52	7.60	24	Moderate
25	I-44	I-55/Exit 290 to Arsenal St/Exit 284	WB	MO	PM	5.20	3.19	1.44	7.49	25	Moderate
26	I-270	Dorsett Rd/Exit 17 to MO-AB/Ladue Rd/Exit 13	SB	MO	AM	6.18	1.81	1.14	7.05	26	Low
27	I-55	Potomac to Park Ave/7Th St/Exit 208	NB	MO	AM	6.21	1.86	1.13	7.02	27	Low
28	I-55	Virginia Ave/Exit 203 to Reavis Barracks Rd/Exit 199	SB	MO	PM	5.31	2.27	1.21	6.43	28	Low
29	I-55	Baugh Ave. to Poplar St Brg.	WB-SB	IL	AM	4.39	2.43	1.39	6.12	29	Low
30	I-44	MO-141/Exit 272 to I-270/Exit 276	EB	MO	AM	4.70	1.76	1.09	5.12	30	Low
31	I-170	I-64 to MO-D	SB	MO	AM	4.49	1.89	1.14	5.12	31	Low
32	I-44	Bowles Ave/Exit 274 to US-50/US-61/US-67/ Exit 277	EB	MO	PM	4.31	1.82	1.14	4.91	32	Low
33	I-70	Broadway/Exit 246 to Lucas & Hunt Rd/Exit 241	WB	MO	AM	3.35	2.18	1.21	4.05	33	Low
34	I-70/I-44/I-55	Stan Musial Brg. to Park	EB/WB/NB	MO	PM	3.11	2.06	1.19	3.69	34	Low
35	I-55	I-44/I-55/Gravois/Exit 207 to Potomac St/Exit 206	SB	MO	PM	2.48	1.52	1.14	2.83	35	Low
36	I-70	Shreve/Exit 245 to MO-N/Florissant Rd/Exit 240	WB	MO	PM	2.44	2.26	1.12	2.73	36	Low
37	I-44	Tenth St/Exit 249 to I-55/I-64/US-40/Exit 251	WB	MO	AM	2.02	1.99	1.17	2.36	37	Low

Table 52: Variability

No.	Route	Limits	Direction	State	Peak	Queue Length	PTI	TTI	Variability	Rank	Category
1	I-44	I-55/Exit 290 to Arsenal St/Exit 284	WB	MO	PM	5.20	3.19	1.44	2.22	1	High
2	I-64	Kingshighway/Exit 36 to I-55/I-70/US-40	EB	MO	PM	4.30	3.99	1.92	2.08	2	High
3	I-70	Shreve/Exit 245 to MO-N/Florissant Rd/Exit 240	WB	MO	PM	2.44	2.26	1.12	2.02	3	High
4	I-64	Kingshighway/Exit 36 to I-170/Brentwood Blvd/Exit 31	WB	MO	AM	5.52	2.97	1.50	1.98	4	High
5	I-64	MO-K to I-70	WB	MO	PM	10.00	2.51	1.27	1.98	5	High
6	I-64	Baxter to I-270/Exit 25	EB	MO	AM	6.15	2.75	1.42	1.94	6	High
7	I-55	Grand Ave/Exit 247 to I-44/I-55/Gravois/Exit 207	EB-SB	MO	PM	5.77	3.36	1.78	1.89	7	High
8	I-64	I-270/Exit 25 to McCausland to Ave/Exit 33	EB	MO	AM	9.57	2.46	1.30	1.89	8	High
9	I-270	I-70 to I-55/I-255/Exit 1	SB	MO	PM	21.00	2.79	1.48	1.89	9	High
10	I-70	I-270/Exit 232 to Cave Springs/Exit 225	WB	MO	PM	5.00	2.86	1.52	1.88	10	High
11	I-55	Virginia Ave/Exit 203 to Reavis Barracks Rd/Exit 199	SB	MO	PM	5.31	2.27	1.21	1.88	11	High
12	I-64	Chesterfield Pky/Exit 20 to McCausland Ave/Exit 33	EB	MO	PM	14.00	2.75	1.47	1.87	12	High
13	I-270	I-55/I-255/Exit 1 to I-64/US-40/US-61/Exit 12	NB	MO	AM	12.70	2.79	1.50	1.86	13	High
14	I-70	I-270/Exit 232 to Jennings Sta Rd/Exit 242	EB	MO	PM	11.00	2.23	1.21	1.84	14	Moderate
15	I-270	McDonnell Blvd/Exit 23 to MO-367/Exit 31	EB	MO	PM	12.00	2.73	1.50	1.82	15	Moderate
16	I-70	Broadway/Exit 246 to Lucas & Hunt Rd/Exit 241	WB	MO	AM	3.35	2.18	1.21	1.80	16	Moderate
17	I-170	MO-180/St Charles Rock/Exit 5 to I-64/Eager Rd/Exit 1B/Exit 1A	SB	MO	PM	6.69	2.70	1.50	1.80	17	Moderate
18	I-70	Cave Springs/Exit 225 to Natural Bridge Rd/Exit 237/Exit 238	EB	MO	AM	14.16	2.11	1.20	1.76	18	Moderate
19	I-55	Baugh Ave. to Poplar St Brg.	WB-SB	IL	AM	4.39	2.43	1.39	1.74	19	Moderate
20	I-64	I-170/Brentwood Blvd/Exit 31 to Chesterfield Pky/Exit 20	WB	MO	PM	12.00	2.24	1.29	1.74	20	Moderate
21	I-70/I-44/I-55	Stan Musial Brg. to Park	EB/WB/NB	MO	PM	3.11	2.06	1.19	1.73	21	Moderate
22	I-270	Lilac/Exit 33 to Elizabeth/Washington St/Exit 28	WB	MO	AM	7.15	2.11	1.23	1.72	22	Moderate
23	I-44	Tenth St/Exit 249 to I-55/I-64/US-40/Exit 251	WB	MO	AM	2.02	1.99	1.17	1.70	23	Moderate
24	I-170	Forest Park Pky/Exit 1E to Hanley Rd/Exit 9	NB	MO	PM	8.98	2.10	1.26	1.67	24	Moderate
25	I-170	I-64 to MO-D	SB	MO	AM	4.49	1.89	1.14	1.66	25	Moderate
26	MO-364	Jungerman to I-270/MO-D	EB	MO	AM	8.61	1.80	1.09	1.65	26	Low
27	I-70	I-170/Exit 238 to I-270/Exit 232	WB	MO	PM	6.45	2.03	1.23	1.65	27	Low
28	I-55	Potomac to Park Ave/7Th St/Exit 208	NB	MO	AM	6.21	1.86	1.13	1.65	28	Low
29	I-44	Berry Rd/Exit 279 to Kingshighway/Exit 287	EB	MO	AM	7.94	1.87	1.14	1.64	29	Low
30	I-44	MO-141/Exit 272 to I-270/Exit 276	EB	MO	AM	4.70	1.76	1.09	1.61	30	Low
31	I-44	Bowles Ave/Exit 274 to US-50/US-61/US-67/ Exit 277	EB	MO	PM	4.31	1.82	1.14	1.60	31	Low
32	I-270	Dorsett Rd/Exit 17 to MO-AB/Ladue Rd/Exit 13	SB	MO	AM	6.18	1.81	1.14	1.59	32	Low
33	MO-364	I-270/MO-D to MO-94/Muegge Rd/Exit 13/Exit 12	WB	MO	PM	8.61	1.69	1.08	1.56	33	Low
34	I-70	Lake St Louis Blvd/Exit 214 to MO-79/Exit 220	EB	MO	AM	8.50	1.50	1.04	1.44	34	Low
35	I-70	Bryan Rd/Exit 216 to MO-W/Exit 203	WB	MO	PM	14.00	1.62	1.18	1.37	35	Low
36	I-55	I-44/I-55/Gravois/Exit 207 to Potomac St/Exit 206	SB	MO	PM	2.48	1.52	1.14	1.33	36	Low
37	I-44	Big Bend Rd/Exit 278 to Antire Rd/Exit 269	WB	MO	PM	11.00	1.55	1.17	1.32	37	Low

2017 Freeway Locations

Table 53: Severity

No.	Route	Limits	Direction	State	Peak	Queue Length	PTI	TTI	Severity	Rank	Category
1	I-64	Kingshighway/Exit 36 to I-55/I-70/US-40	EB	MO	PM	4.46	5.10	2.44	3.77	1	High
2	I-44/I-55	Grand Ave/Exit 247 to I-44/I-55/Gravois/Exit 207	EB-SB	MO	PM	3.84	4.19	2.11	3.15	2	High
3	I-170	I-64 to MO-D	SB	MO	PM	4.18	3.64	1.82	2.73	3	High
4	I-44	Hampton/Exit 286 to Shrewsbury/Exit 283	WB	MO	PM	2.92	3.39	1.65	2.52	4	High
5	I-270	I-55/I-255/Exit 1 to MO-100/Manchester Rd./Exit 9	NB	MO	AM	10.00	3.06	1.58	2.32	5	High
6	I-64, I-55/I-64	Baugh Ave. to Poplar St Brg.	WB	IL	AM	4.12	3.11	1.43	2.27	6	High
7	I-270	McDonnell Blvd/Exit 23 to Elizabeth-Washington St/Exit 28	EB	MO	PM	5.40	2.86	1.60	2.23	7	High
8	I-270	I-70 to I-55/I-255/Exit 1	SB	MO	PM	21.00	2.71	1.51	2.11	8	High
9	I-64	Kingshighway/Exit 36 to I-170/Brentwood Blvd/Exit 31	WB	MO	AM	5.52	2.76	1.46	2.11	9	High
10	I-64	MO-K to I-70	WB	MO	PM	10.00	2.59	1.33	1.96	10	High
11	I-64	I-270/Exit 25 to McCausland to Ave/Exit 33	EB	MO	AM	7.80	2.56	1.34	1.95	11	High
12	I-170	MO-180/St Charles Rock/Exit 5 to Hanley Rd/Exit 9	NB	MO	PM	4.33	2.35	1.36	1.86	12	Moderate
13	I-64	I-170/Brentwood Blvd/Exit 31 to I-270/Exit 25	WB	MO	PM	5.15	2.29	1.29	1.79	13	Moderate
14	I-70	I-170/Exit 238 to MO-180/St Charles Rock/Exit 234	WB	MO	PM	5.44	2.18	1.27	1.73	14	Moderate
15	I-64	Chesterfield Pky/Exit 20 to McCausland Ave/Exit 33	EB	MO	PM	14.00	2.13	1.24	1.69	15	Moderate
16	I-70	MO-A/Exit 212 to Pearce Blvd/Exit 208	WB	MO	PM	5.70	2.10	1.24	1.67	16	Moderate
17	I-64	Chesterfield Pky/Exit 20 to Boones Crossing/Exit 17	WB	MO	PM	4.35	2.10	1.23	1.67	17	Moderate
18	I-70	Shreve/Exit 245 to Lucas & Hunt Rd/Exit 241	WB	MO	PM	3.61	2.05	1.25	1.65	18	Moderate
19	I-55	Potomac to Park Ave/7Th St/Exit 208	NB	MO	AM	2.89	2.08	1.20	1.64	19	Moderate
20	I-170	I-64 to MO-D	SB	MO	AM	4.49	2.07	1.21	1.64	20	Moderate
21	I-44	Tenth St/Exit 249 to I-55/I-64/US-40/Exit 251	WB	MO	AM	2.02	2.09	1.18	1.64	21	Moderate
22	I-270	Lilac/Exit 33 to Elizabeth/Washington St/Exit 28	WB	MO	AM	6.76	2.03	1.21	1.62	22	Low
23	I-70/I-44/I-55	Stan Musial Brg. to Park	EB-WB-NB	MO	PM	3.45	2.01	1.19	1.60	23	Low
24	I-44	Bowles Ave/Exit 274 to US-50/US-61/US-67/ Exit 277	EB	MO	PM	3.70	1.96	1.20	1.58	24	Low
25	I-64	Baxter to Timberlake Manor Pky/Exit 21	EB	MO	AM	3.56	1.99	1.13	1.56	25	Low
26	I-70	Kingshighway/Exit 244 to Lucas & Hunt Rd/Exit 241	WB	MO	AM	3.07	2.01	1.11	1.56	26	Low
27	I-44	Bowles Ave/Exit 274 to Highway Dr/Exit 275	EB	MO	AM	3.00	1.92	1.12	1.52	27	Low
28	I-44	I-270/Exit 276 to MO-141/Exit 272	WB	MO	PM	3.77	1.82	1.17	1.50	28	Low
29	I-70	Zumbehl/Exit 227 to Natural Bridge Rd/Exit 237/Exit 238	EB	MO	AM	9.22	1.83	1.11	1.47	29	Low
30	I-70	Lake St Louis Blvd/Exit 214 to MO-79/Exit 220	EB	MO	AM	8.50	1.76	1.08	1.42	30	Low
31	I-70	I-270/Exit 231 to Cave Springs/Exit 225	WB	MO	PM	7.34	1.67	1.12	1.40	31	Low
32	I-270	Dorsett Rd/Exit 17 to MO-AB/Ladue Rd/Exit 13	SB	MO	AM	4.13	1.59	1.09	1.34	32	Low

Table 54: Total Impact

No.	Route	Limits	Direction	State	Peak	Queue Length	PTI	TTI	Total Impact	Rank	Category
1	I-270	I-70 to I-55/I-255/Exit 1	SB	MO	PM	21.00	2.71	1.51	31.71	1	High
2	I-64	Chesterfield Pky/Exit 20 to McCausland Ave/Exit 33	EB	MO	PM	14.00	2.13	1.24	17.36	2	High
3	I-270	I-55/I-255/Exit 1 to MO-100/Manchester Rd./Exit 9	NB	MO	AM	10.00	3.06	1.58	15.80	3	High
4	I-64	MO-K to I-70	WB	MO	PM	10.00	2.59	1.33	13.30	4	High
5	I-64	Kingshighway/Exit 36 to I-55/I-70/US-40	EB	MO	PM	4.46	5.10	2.44	10.88	5	High
6	I-64	I-270/Exit 25 to McCausland Ave/Exit 33	EB	MO	AM	7.80	2.56	1.34	10.45	6	High
7	I-70	Zumbel/Exit 227 to Natural Bridge Rd/Exit 237/Exit 238	EB	MO	AM	9.22	1.83	1.11	10.23	7	High
8	I-70	Lake St Louis Blvd/Exit 214 to MO-79/Exit 220	EB	MO	AM	8.50	1.76	1.08	9.18	8	High
9	I-270	McDonnell Blvd/Exit 23 to Elizabeth-Washington St/Exit 28	EB	MO	PM	5.40	2.86	1.60	8.64	9	High
10	I-70	I-270/Exit 231 to Cave Springs/Exit 225	WB	MO	PM	7.34	1.67	1.12	8.22	10	High
11	I-270	Lilac/Exit 33 to Elizabeth/Washington St/Exit 28	WB	MO	AM	6.76	2.03	1.21	8.18	11	High
12	I-44/I-55	Grand Ave/Exit 247 to I-44/I-55/Gravois/Exit 207	EB-SB	MO	PM	3.84	4.19	2.11	8.10	12	Moderate
13	I-64	Kingshighway/Exit 36 to I-170/Brentwood Blvd/Exit 31	WB	MO	AM	5.52	2.76	1.46	8.06	13	Moderate
14	I-170	I-64 to MO-D	SB	MO	PM	4.18	3.64	1.82	7.61	14	Moderate
15	I-70	MO-A/Exit 212 to Pearce Blvd/Exit 208	WB	MO	PM	5.70	2.10	1.24	7.07	15	Moderate
16	I-70	I-170/Exit 238 to MO-180/St Charles Rock/Exit 234	WB	MO	PM	5.44	2.18	1.27	6.91	16	Moderate
17	I-64	I-170/Brentwood Blvd/Exit 31 to I-270/Exit 25	WB	MO	PM	5.15	2.29	1.29	6.64	17	Moderate
18	I-70/I-44/I-55	Stan Musial Brg. to Park	EB-WB-NB	MO	PM	3.45	2.01	1.19	6.35	18	Moderate
19	I-64, I-55/I-64	Baugh Ave. to Poplar St Brg.	WB	IL	AM	4.12	3.11	1.43	5.89	19	Moderate
20	I-170	MO-180/St Charles Rock/Exit 5 to Hanley Rd/Exit 9	NB	MO	PM	4.33	2.35	1.36	5.89	20	Moderate
21	I-170	I-64 to MO-D	SB	MO	AM	4.49	2.07	1.21	5.43	21	Moderate
22	I-64	Chesterfield Pky/Exit 20 to Boones Crossing/Exit 17	WB	MO	PM	4.35	2.10	1.23	5.35	22	Low
23	I-44	Hampton/Exit 286 to Shrewsbury/Exit 283	WB	MO	PM	2.92	3.39	1.65	4.82	23	Low
24	I-70	Shreve/Exit 245 to Lucas & Hunt Rd/Exit 241	WB	MO	PM	3.61	2.05	1.25	4.51	24	Low
25	I-270	Dorsett Rd/Exit 17 to MO-AB/Ladue Rd/Exit 13	SB	MO	AM	4.13	1.59	1.09	4.50	25	Low
26	I-44	Bowles Ave/Exit 274 to US-50/US-61/US-67/Exit 277	EB	MO	PM	3.70	1.96	1.20	4.44	26	Low
27	I-44	I-270/Exit 276 to MO-141/Exit 272	WB	MO	PM	3.77	1.82	1.17	4.41	27	Low
28	I-64	Baxter to Timberlake Manor Pky/Exit 21	EB	MO	AM	3.56	1.99	1.13	4.02	28	Low
29	I-55	Potomac to Park Ave/7Th St/Exit 208	NB	MO	AM	2.89	2.08	1.20	3.47	29	Low
30	I-70	Kingshighway/Exit 244 to Lucas & Hunt Rd/Exit 241	WB	MO	AM	3.07	2.01	1.11	3.41	30	Low
31	I-44	Bowles Ave/Exit 274 to Highway Dr/Exit 275	EB	MO	AM	3.00	1.92	1.12	3.36	31	Low
32	I-44	Tenth St/Exit 249 to I-55/I-64/US-40/Exit 251	WB	MO	AM	2.02	2.09	1.18	2.38	32	Low

Table 55: Variability

No.	Route	Limits	Direction	State	Peak	Queue Length	PTI	TTI	Variability	Rank	Category
1	I-64, I-55/I-64	Baugh Ave. to Poplar St Brg.	WB	IL	AM	4.12	3.11	1.43	2.17	1	High
2	I-64	Kingshighway/Exit 36 to I-55/I-70/US-40	EB	MO	PM	4.46	5.10	2.44	2.09	2	High
3	I-44	Hampton/Exit 286 to Shrewsbury/Exit 283	WB	MO	PM	2.92	3.39	1.65	2.05	3	High
4	I-170	I-64 to MO-D	SB	MO	PM	4.18	3.64	1.82	2.00	4	High
5	I-44/I-55	Grand Ave/Exit 247 to I-44/I-55/Gravois/Exit 207	EB-SB	MO	PM	3.84	4.19	2.11	1.99	5	High
6	I-64	MO-K to I-70	WB	MO	PM	10.00	2.59	1.33	1.95	6	High
7	I-270	I-55/I-255/Exit 1 to MO-100/Manchester Rd./Exit 9	NB	MO	AM	10.00	3.06	1.58	1.94	7	High
8	I-64	I-270/Exit 25 to McCausland to Ave/Exit 33	EB	MO	AM	7.80	2.56	1.34	1.91	8	High
9	I-64	Kingshighway/Exit 36 to I-170/Brentwood Blvd/Exit 31	WB	MO	AM	5.52	2.76	1.46	1.89	9	High
10	I-70	Kingshighway/Exit 244 to Lucas & Hunt Rd/Exit 241	WB	MO	AM	3.07	2.01	1.11	1.81	10	High
11	I-270	I-70 to I-55/I-255/Exit 1	SB	MO	PM	21.00	2.71	1.51	1.79	11	High
12	I-270	McDonnell Blvd/Exit 23 to Elizabeth-Washington St/Exit 28	EB	MO	PM	5.40	2.86	1.60	1.79	12	Moderate
13	I-64	I-170/Brentwood Blvd/Exit 31 to I-270/Exit 25	WB	MO	PM	5.15	2.29	1.29	1.78	13	Moderate
14	I-44	Tenth St/Exit 249 to I-55/I-64/US-40/Exit 251	WB	MO	AM	2.02	2.09	1.18	1.77	14	Moderate
15	I-64	Baxter to Timberlake Manor Pky/Exit 21	EB	MO	AM	3.56	1.99	1.13	1.76	15	Moderate
16	I-55	Potomac to Park Ave/7Th St/Exit 208	NB	MO	AM	2.89	2.08	1.20	1.73	16	Moderate
17	I-170	MO-180/St Charles Rock/Exit 5 to Hanley Rd/Exit 9	NB	MO	PM	4.33	2.35	1.36	1.73	17	Moderate
18	I-64	Chesterfield Pky/Exit 20 to McCausland Ave/Exit 33	EB	MO	PM	14.00	2.13	1.24	1.72	18	Moderate
19	I-70	I-170/Exit 238 to MO-180/St Charles Rock/Exit 234	WB	MO	PM	5.44	2.18	1.27	1.72	19	Moderate
20	I-44	Bowles Ave/Exit 274 to Highway Dr/Exit 275	EB	MO	AM	3.00	1.92	1.12	1.71	20	Moderate
21	I-170	I-64 to MO-D	SB	MO	AM	4.49	2.07	1.21	1.71	21	Moderate
22	I-64	Chesterfield Pky/Exit 20 to Boones Crossing/Exit 17	WB	MO	PM	4.35	2.10	1.23	1.71	22	Low
23	I-70	MO-A/Exit 212 to Pearce Blvd/Exit 208	WB	MO	PM	5.70	2.10	1.24	1.69	23	Low
24	I-70/I-44/I-55	Stan Musial Brg. to Park	EB-WB-NB	MO	PM	3.45	2.01	1.19	1.69	24	Low
25	I-270	Lilac/Exit 33 to Elizabeth/Washington St/Exit 28	WB	MO	AM	6.76	2.03	1.21	1.68	25	Low
26	I-70	Zumbehl/Exit 227 to Natural Bridge Rd/Exit 237/Exit 238	EB	MO	AM	9.22	1.83	1.11	1.65	26	Low
27	I-70	Shreve/Exit 245 to Lucas & Hunt Rd/Exit 241	WB	MO	PM	3.61	2.05	1.25	1.64	27	Low
28	I-44	Bowles Ave/Exit 274 to US-50/US-61/US-67/ Exit 277	EB	MO	PM	3.70	1.96	1.20	1.63	28	Low
29	I-70	Lake St Louis Blvd/Exit 214 to MO-79/Exit 220	EB	MO	AM	8.50	1.76	1.08	1.63	29	Low
30	I-44	I-270/Exit 276 to MO-141/Exit 272	WB	MO	PM	3.77	1.82	1.17	1.56	30	Low
31	I-70	I-270/Exit 231 to Cave Springs/Exit 225	WB	MO	PM	7.34	1.67	1.12	1.49	31	Low
32	I-270	Dorsett Rd/Exit 17 to MO-AB/Ladue Rd/Exit 13	SB	MO	AM	4.13	1.59	1.09	1.46	32	Low