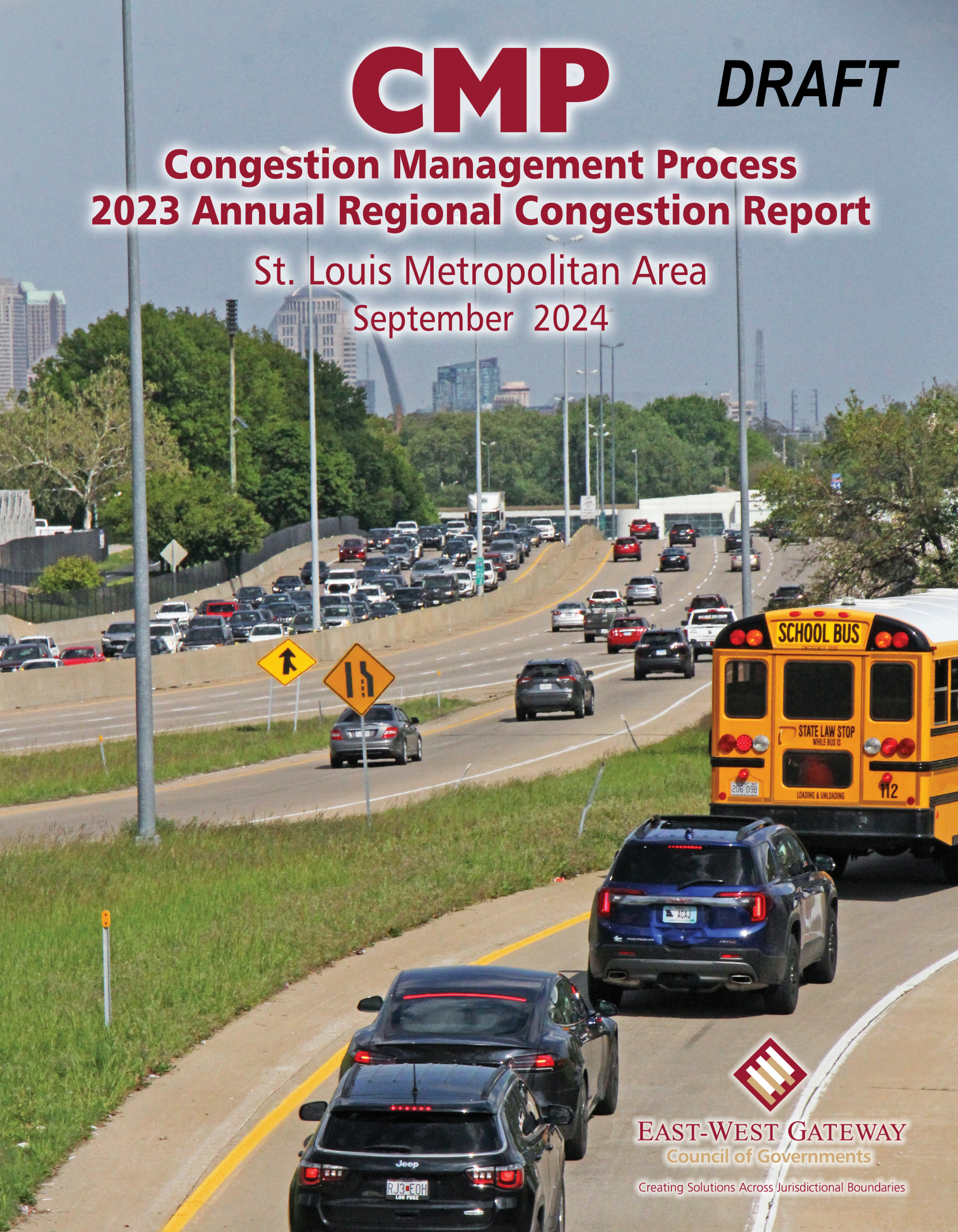


CMP

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Congestion Management Process 2023 Annual Regional Congestion Report

St. Louis Metropolitan Area
September 2024



EAST-WEST GATEWAY
Council of Governments

Creating Solutions Across Jurisdictional Boundaries

DRAFT

2023

Annual Regional Congestion Report

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Introduction

The Congestion Management Process (CMP) is a systematic and regionally accepted approach to effectively managing traffic congestion and providing insights into transportation system performance. As the Metropolitan Planning Organization (MPO) for the St. Louis region, which has a population of over 2.5 million, East-West Gateway is responsible for maintaining a CMP as part of its ongoing transportation planning process.

The CMP is a systematic way of monitoring, measuring, and diagnosing the causes of present and future congestion across various modes of transportation within the region. This entails recommending alternative and new strategies for managing congestion, as well as evaluating the effectiveness of implemented strategies.

The purpose of the MPO transportation planning process is to comprehensively consider possible strategies, evaluate projects from diverse viewpoints, and meaningfully engage key stakeholders to support strategic regional decisions regarding congestion management. Potential strategies include improving roadways, expanding transit capacity, encouraging bicycling, and ensuring safe walking environments. These strategies provide a connecting link between the Long-Range Transportation Plan (LRTP), the Transportation Improvement Plan (TIP), and the Regional Intelligent Transportation System (ITS) Architecture. The CMP is bound 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 for evaluating projects nominated for inclusion in the TIP as CMP objectives are integrated into the application scoring and prioritization process. Transportation systems management and operations for congestion management are implemented through Intelligent Transportation Systems (ITS), such as traffic signal improvements, traveler information projects, Automatic Vehicle Identification (AVI), Automatic Vehicle Location (AVL) technologies, and the use of electronic fare systems. Also, proposed ITS projects must adhere to regional CMP strategies.

The 2023 Regional Congestion Report comprises four sections; scope of the CMP network, regional interstate and arterial congestion analyses, evaluation of mobility-enhancing strategies, and a conclusion that notes a broader outlook on regional congestion.

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 a contract with HERE to access its data and use the Regional Integrated Transportation Information System (RITIS). RITIS is an automated data sharing, dissemination, and archiving system that includes many performance measures, dashboards, and visual analytics tools housed at the University of Maryland.

MoDOT's contract provides access to Missouri MPOs, which gives EWG the ability to analyze the HERE data set for the entire eight-county region. The three performance measures analyzed in this study are Speed Index (SI), Planning Time Index (PTI), and Travel Time Index (TTI).

These performance measures are defined below:

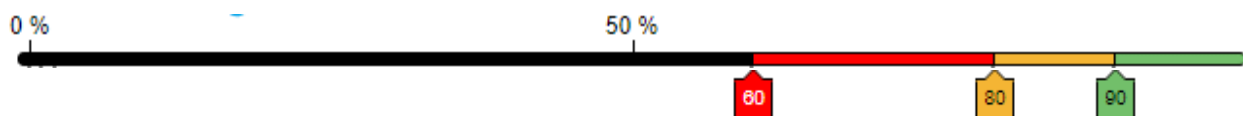
- **Speed Index (SI)** is the ratio of average speeds to the 85th-percentile (free-flow) speed of a roadway segment. Speed Index helped identify possible congested interstates.
- **Travel Time Index (TTI)** is travel time, represented as a percentage of the ideal travel time. For example, a TTI value of 1.2 means travel time during the peak period is 20% longer than the free-flow travel time between the same origin and destination.
- **Planning Time Index (PTI)** is the total travel time that should be planned when extra time (buffer time) is included in the trip. PTI accounts for typical delay as well as unexpected delay, thus comparing the near-worst case travel time to travel time in free flow conditions. For example, a Planning Time Index of 1.60 means that, for a 10-minute trip, the total time that should be planned to ensure on-time arrival is 16 minutes (10 minutes x 1.60 = 16 minutes). In this scenario, the buffer time alone is 6 minutes (10 minutes x 0.6 percent). The higher the Planning Time Index, the more unreliable travel time is.

1 Scope of CMP Network Congestion Analysis

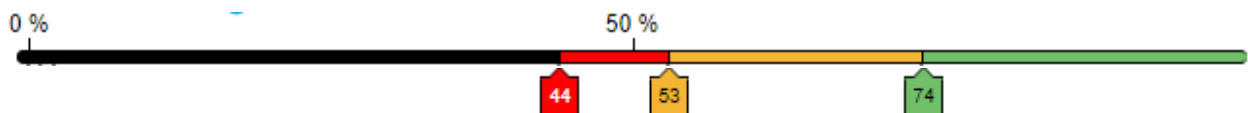
The CMP network consists of Interstates, other Freeways and Expressways, and Principal Arterials included in the National Highway System (NHS). This analysis is limited to the core urban and suburban areas of the St. Louis region, where congestion is prevalent on a regular, recurring basis. For the purposes 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. All performance measures are calculated and compared based on congestion data from these time periods.

The process of identifying the congested network for this analysis involved a detailed visual inspection of Speed Index on all NHS roadways in the region. This is the ratio of average speeds to the 85th-percentile speed, which represents the free-flow speed of a roadway. The thresholds below were applied to the Speed Index to reveal the various levels of congestion.

Interstates:



Arterials:



The congested location selection process is as follows:

- For Interstates, locations with a Speed Index below 90% were identified. For arterials, locations with a Speed Index below 74% were identified.
- Congested arterial sections with a length of 0.3 miles or less were eliminated from the selection. Such short lengths could represent segments near a stop sign or a traffic signal and congestion on them is likely due to intersection stops rather than roadway capacity.

2 Regional Interstate and Arterial Congestion Analyses

This section covers the spatial analysis of the congested interstates and arterials, overview of the selected congested locations, and congestion performance analyses.

2.1 Congested CMP Network

The scope of analysis on the Missouri side of the region consisted of all Interstate highways in St. Louis City, St. Louis, Franklin, Jefferson, and St. Charles Counties. On the Illinois side, all interstates in Madison, Monroe, and St. Clair Counties were analyzed. The limits that were chosen include the locations where congestion exists on a regular recurring basis on the Interstate highways in our region.

This report looks at the congested arterial locations separately for each area because arterial operations vary widely in the region. These areas are determined by population density and land use, as these characteristics greatly influence traffic congestion and arterial operations. Analyzing by area allows each jurisdiction to better understand their congestion issues and devise tailored strategies for traffic mitigation. The spatial distribution of the regional interstate and arterial network is shown in Figure 1.

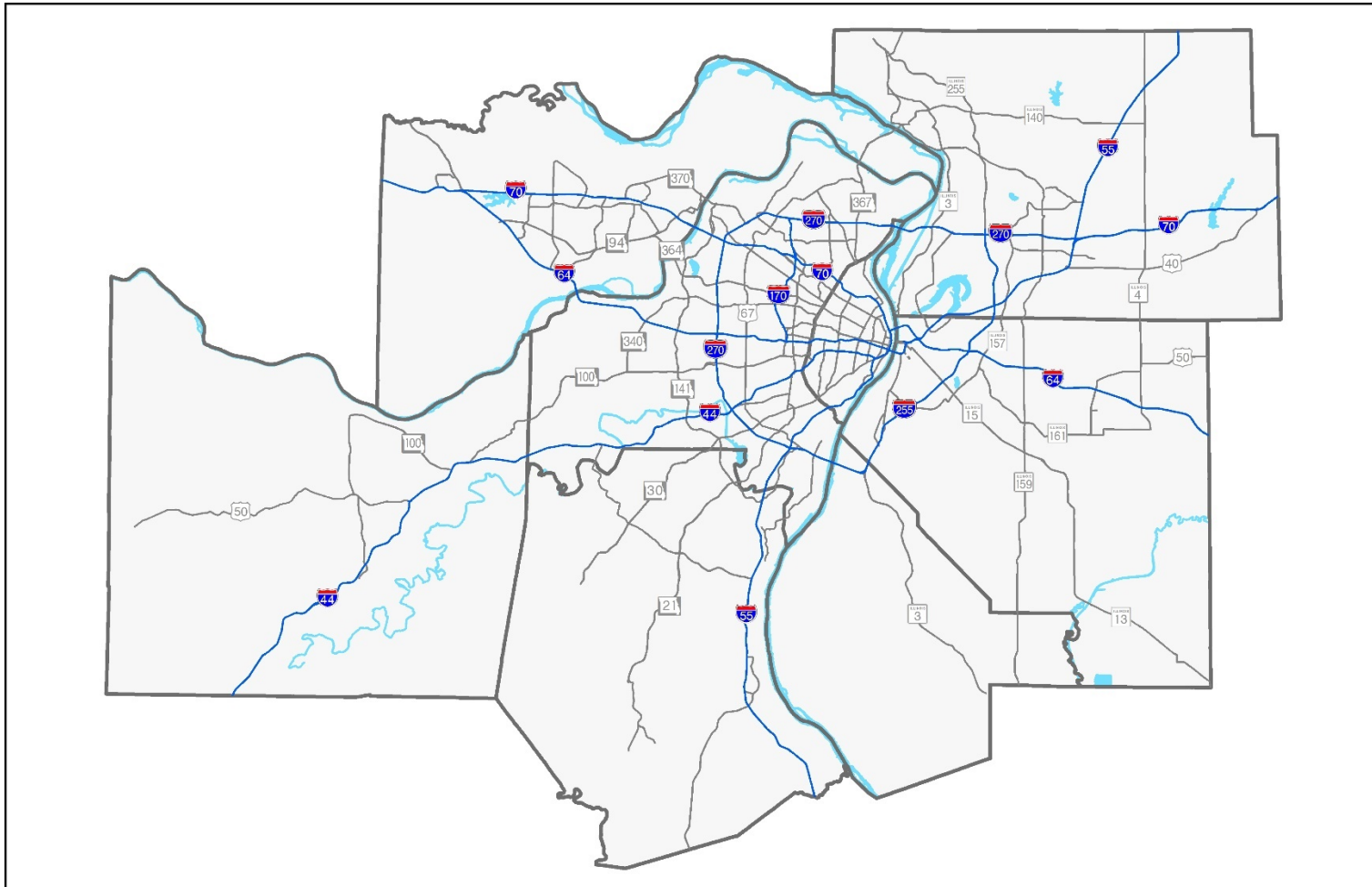
Interstates

A total of 569.2 directional interstate miles, which includes the bi-directional mileage of travel for each road segment, were selected for the regional analysis. The analysis determined that 113.56 total interstate miles were congested. In the AM peak from 6 – 9am, 35.74 miles or 6.3% of total miles were congested. In the evening peak from 3 – 6pm, 77.82 miles or 13.7% of total miles were congested. Table 1 shows a breakdown.

Table 1: Regional Congested Interstate Miles

Full Network (AM and PM)			AM Congestion		PM Congestion	
Area	Miles	Percent	Miles	Percent	Miles	Percent
St. Louis City	30.78	27.1%	9.54	26.7%	21.24	27.3%
St. Louis	50.67	44.6%	21.42	59.9%	29.25	37.6%
St. Charles	13.92	12.3%	0	0.0%	13.92	17.9%
Jefferson	7.7	6.8%	0	0.0%	7.7	9.9%
Illinois	10.49	9.2%	4.78	13.4%	5.71	7.3%
Total	113.56		35.74		77.82	

Figure 1: Regional Interstate and Arterial Network



Regional Network

East-West Gateway Region

Regional Network

- ~ Interstate
- ~ Major Arterial

Other Map Data

- ▭ County Boundary
- ~ River / Lake



Sources: Federal Highway Administration, Here Data;
East-West Gateway Council of Governments



July 2024

Arterials

This analysis identified a total of 100.49 miles on the regional arterial network that were considered congested in the morning and evening peak periods. A comparison of congested miles by area is shown in Table 2. St. Louis City had the most congested miles, closely followed by Illinois and St. Louis County. Comparing peak times, the PM rush hour had 6.5 times as many congested arterial miles.

Table 2: Comparison of Regional Congested Arterial Miles 2023

Area	Total	AM Congestion		PM Congestion	
	Miles	Miles	Percent	Miles	Percent
St. Louis City	30.01	8.48	63.0%	21.53	24.7%
St. Louis County	24.5	1.93	14.3%	22.57	25.9%
St. Charles	9.69	0	0.0%	9.69	11.1%
Jefferson	2.3	0.84	6.2%	1.46	1.7%
Franklin	7.3	1.58	11.7%	5.72	6.6%
Illinois	26.69	0.64	4.8%	26.05	30.0%
Total	100.49	13.47		87.02	

2.2 Key Definitions and Selected Congested Locations

The tables in this section provide information on Queue Length, TTI, PTI, Severity, and Delay Impact for each congested location.

Important definitions:

- **Queue Length** is the length of congested roadway segment in miles.
- **Severity** is the average of the TTI and PTI. It considers two aspects of congestion; the average delay of a congested location and how reliable the average travel time is from day to day. Higher severity numbers reflect more severe congestion.
- **Delay Impact** is obtained by multiplying the Queue Length at a location by the TTI. Its purpose is to compare the impact of delay to motorists, by factoring in the comparative lengths of the queues in each congested location.

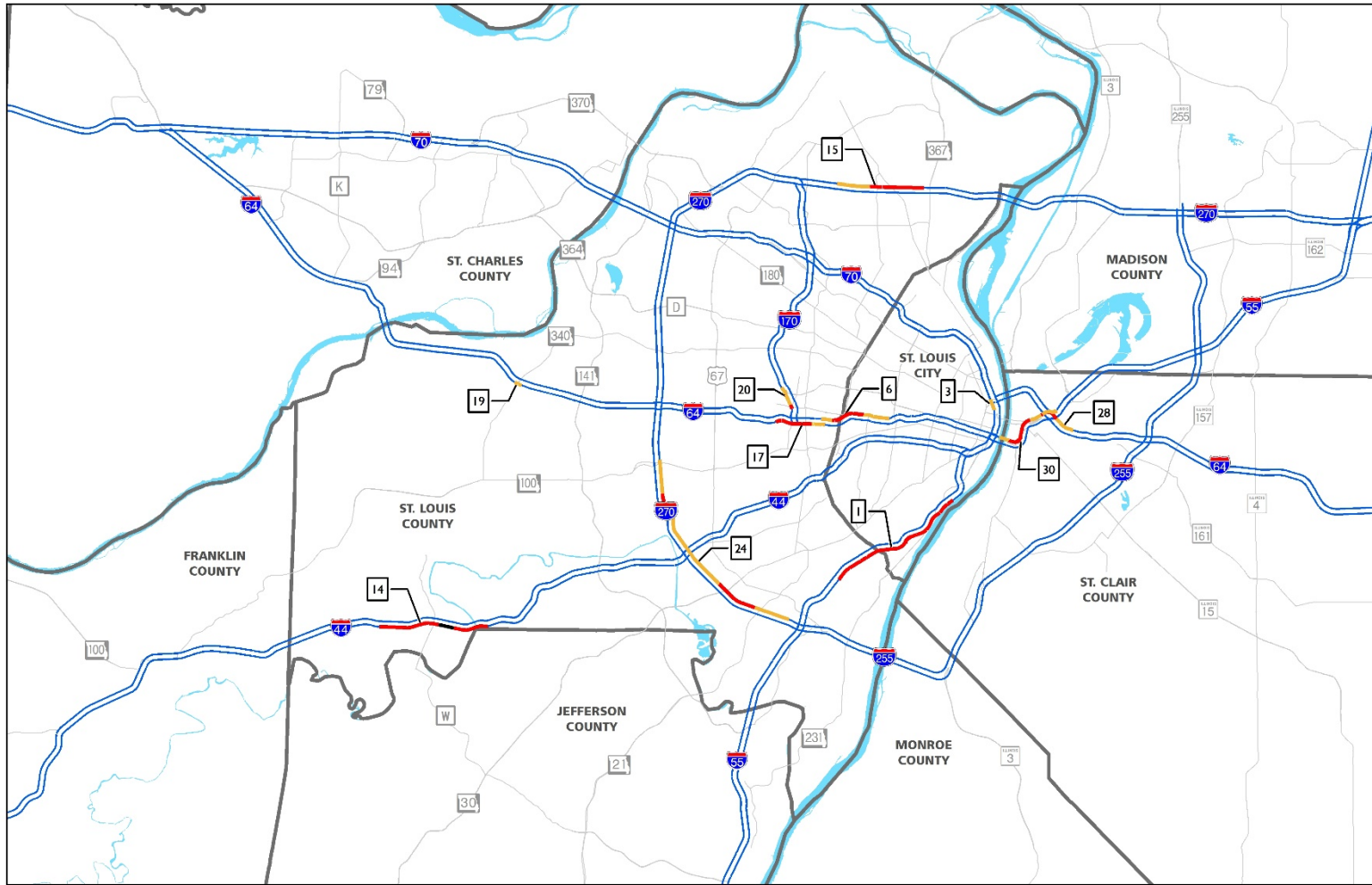
Interstates

The interstate analysis resulted in the selection of 113.56 directional miles of congestion: 50.67 miles in St. Louis County, 30.78 miles in the City of St. Louis, 13.92 miles in St. Charles County, 10.49 miles in Illinois counties, and 7.7 miles in Jefferson County. Table 3 lists the identified congested locations along with their performance measures during the AM and PM peaks, ordered by Map ID Number. Figures 2 (AM) and 3 (PM) link the location of selected congested interstates to its map ID number.

Table 3: Congested Interstate Locations

Map ID No.	Route	Limits	State	Area	Direction	Peak	Queue Length (Mi)	PTI	TTI	Severity	Delay Impact	
1	I-55	Arsenal to Union Rd	MO	St. Louis City	NB	AM	6.08	3.02	1.45	2.24	8.82	
2	I-55	Park Ave to Reavis Barracks	MO	St. Louis City	SB	PM	9.81	3.75	1.76	2.76	17.27	
3	I-70	I-70 Express to 7th St	MO	St. Louis City	EB	AM	0.53	2.41	1.12	1.77	0.59	
4	I-70	I-64 to Salisbury St	MO	St. Louis City	EB	PM	3.87	2.61	1.24	1.93	4.80	
5	I-70	Riverview Blvd to Jennings Staton Rd	MO	St. Louis City	WB	PM	1.15	2.55	1.29	1.92	1.48	
6	I-64	Hampton Ave to Big Bend Blvd	MO	St. Louis City	WB	AM	2.93	2.78	1.29	2.04	3.78	
7	I-64	S Kingshighway to Big Bend Blvd	MO	St. Louis City	WB	PM	3.93	3.29	1.9	2.60	7.47	
8	I-64	I-70 to Jefferson Ave	MO	St. Louis City	EB	PM	2.05	2.62	1.35	1.99	2.77	
9	I-70	Cass Ave to I-44	MO	St. Louis City	WB	PM	0.43	1.26	1.19	1.23	0.51	
10	I-70	TR Hughes to MO-K	MO	St. Charles	WB	PM	2.64	2.18	1.2	1.69	3.17	
11	I-64	MO-N to I-70	MO	St. Charles	WB	PM	5.59	4.05	1.85	2.95	10.34	
12	I-70	MO-A to Pearce Blvd	MO	St. Charles	WB	PM	5.69	2.64	1.47	2.06	8.36	
13	I-44	MO-141 to Antire Rd	MO	St. Louis County	WB	PM	1.53	2.17	1.18	1.68	1.81	
14	I-44	Lewis Rd to MO-109	MO	St. Louis County	EB	AM	4.64	3.56	1.46	2.51	6.77	
15	I-270	Old Halls Ferry Rd to N Elizabeth Ave	MO	St. Louis County	WB	AM	3.66	3.36	1.41	2.39	5.16	
16	I-64	Clayton Rd to Ballas Rd	MO	St. Louis County	WB	PM	3.33	2.68	1.24	1.96	4.13	
17	I-64	Big Bend Blvd to I-170	MO	St. Louis County	EB	AM	2.17	2.8	1.28	2.04	2.78	
18	I-64	Bellevue Ave to 40 Dr	MO	St. Louis County	EB	PM	4.34	2.54	1.38	1.96	5.99	
19	I-64	Olive Blvd to Chesterfield Pkwy	MO	St. Louis County	EB	AM	0.31	2.86	1.16	2.01	0.36	
20	I-170	Forest Park Pkwy to Galleria Pkwy	MO	St. Louis County	SB	AM	1.06	2.06	1.19	1.63	1.26	
21	I-170	Delmar Blvd to I-64	MO	St. Louis County	SB	PM	3.16	2.71	1.48	2.10	4.68	
22	I-170	Hanley Rd to Airport Rd	MO	St. Louis County	NB	PM	1.14	2.38	1.49	1.94	1.7	
23	I-270	Page Ave to Tesson Ferry	MO	St. Louis County	SB	PM	15.75	2.4	1.35	1.88	21.26	
24	I-270	Tesson Ferry to Manchester Rd	MO	St. Louis County	NB	AM	9.58	2.3	1.24	1.77	11.88	
25	I-55	MO-Z to McNutt St	MO	Jefferson	SB	PM	6.46	1.89	1.18	1.54	7.62	
26	I-55	Veterans Blvd to US-67	MO	Jefferson	SB	PM	1.24	1.79	1.12	1.46	1.39	
27	I-255	Missouri/Illinois State line	IL	Illinois	SB	PM	2.27	1.23	1.2	1.22	2.72	
28	I-55/I-70	I-64 / IL-3	IL	Illinois	WB	AM	0.66	2.32	1.2	1.76	0.79	
29	I-55/I-70	IL-157 to IL-255	IL	Illinois	EB	PM	0.55	1.15	1.16	1.16	0.64	
30	I-55/I-64	Poplar St Bridge to 25th St	IL	Illinois	WB	AM	4.12	2.43	1.29	1.86	5.31	
31	I-55/I-64	Martin Luther King Dr to Poplar St Bridge	IL	Illinois	EB	PM	2.49	2.31	1.38	1.85	3.44	
32	I-55/I-64	Poplar St Bridge	IL	Illinois	WB	PM	0.4	1.57	1.13	1.35	0.45	
Total							113.56					

Figure 2: Interstate Congested Locations (AM Peak)



**2023 Congested Locations
Interstates - AM Peak**
East-West Gateway Region

- Interstate Congestion**
- ↘ Severe
 - ↘ Heavy
 - ↘ Moderate
 - ↘ Uncongested

- Other Map Data**
- ~ Arterial
 - ▭ County Boundary
 - 🌊 River / Lake

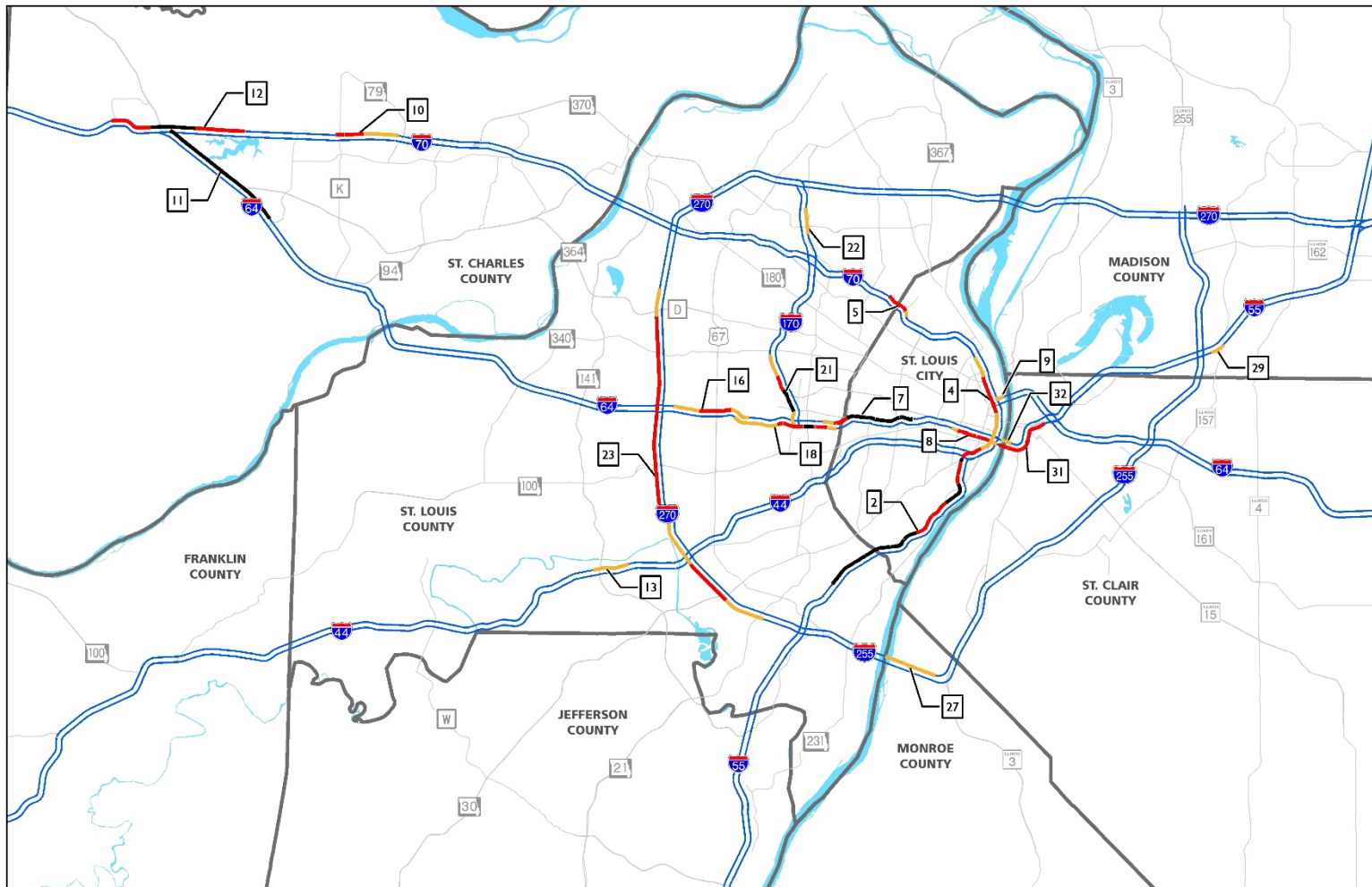


Sources: Federal Highway Administration, Here Data;
East-West Gateway Council of Governments



August 2024

Figure 3: Interstate Congested Locations (PM Peak)



**2023 Congested Locations
Interstates - PM Peak**
East-West Gateway Region

- Interstate Congestion**
- ↘ Severe
 - ↘ Heavy
 - ↘ Moderate
 - ↘ Uncongested

- Other Map Data**
- ~ Arterial
 - ▭ County Boundary
 - 🌊 River / Lake



Sources: Federal Highway Administration, Here Data;
East-West Gateway Council of Governments



Arterials

The arterial analysis determined 100.49 directional miles of congestion: 30.01 miles in the city of St. Louis, 26.69 miles in Illinois counties, 24.5 miles in St. Louis County, 9.69 miles in St. Charles County, 7.3 miles in Franklin County, and 2.3 miles in Jefferson County. Tables 4 through 9 show the identified congested locations, ordered by Map ID Number, along with their performance measures during the AM and PM peaks for each area. Each congested location can be found on one of Figures 4a, 4b, 5a, or 5b.

Table 4: St. Louis City

Map ID No.	Route	Limits	State	Direction	Peak	Queue Length (Mi)	PTI	TTI	Severity	Delay Impact
1	Tucker Blvd	Park Ave to Lafayette Ave	MO	NB	AM	0.34	2	1.37	1.69	0.47
2	Tucker Blvd	Market St to Cole St	MO	SB	AM	0.57	1.77	1.38	1.58	0.79
3	Tucker Blvd	Market St to Cole St	MO	SB	PM	0.57	1.92	1.48	1.70	0.84
4	Kingshighway	Laclede Ave to Manchester Ave	MO	SB	AM	1.26	2.19	1.54	1.87	1.94
5	Kingshighway	Laclede Ave to Manchester Ave	MO	SB	PM	1.26	2.73	1.84	2.29	2.32
6	Kingshighway	Laclede Ave to Forest Park Ave	MO	NB	AM	0.79	2.64	1.67	2.16	1.32
7	Kingshighway	Lindell Blvd to I-64	MO	NB	PM	1.05	2.28	1.69	1.99	1.77
8	Kingshighway	Arsenal St	MO	NB	PM	0.98	1.73	1.4	1.57	1.37
9	McCausland Ave	Arsenal St to I-64	MO	SB	AM	0.7	2.44	1.59	2.02	1.11
10	McCausland Ave	Arsenal St to Southwest Ave	MO	SB	PM	0.43	2	1.48	1.74	0.64
11	McCausland Ave	Oakland Ave to Southwest Ave	MO	NB	PM	0.73	2.1	1.5	1.80	1.10
12	Market St	US-40 to Forest Park Ave	MO	WB	PM	0.55	2.44	1.56	2.00	0.86
13	Market St	7th St to Tucker Blvd	MO	EB	PM	0.44	2.45	1.59	2.02	0.70
14	Market St	18th St to Jefferson Ave	MO	EB	PM	0.93	2.09	1.4	1.75	1.30
15	Skinker Blvd	Forest Park Pkwy	MO	SB	PM	0.43	3.57	1.93	2.75	0.83
16	Skinker Blvd	Delmar Blvd	MO	NB	PM	0.43	1.73	1.47	1.60	0.63
17	Broadway	Cole St to Washington Ave	MO	SB	PM	0.51	2.36	1.52	1.94	0.78
18	Broadway	Olive St to Chouteau Ave	MO	SB	PM	0.72	2.3	1.37	1.84	0.99
19	S Broadway	S Jefferson Ave	MO	NB	PM	0.53	1.86	1.41	1.64	0.75
20	Cole St	I-44 to N Tucker Blvd	MO	EB	AM	0.55	2.31	1.51	1.91	0.83
21	Cole St	I-44 to N Tucker Blvd	MO	EB	PM	0.55	2.07	1.42	1.75	0.78
22	Cole St	N Tucker Blvd	MO	WB	AM	0.46	2.2	1.57	1.89	0.72
23	Cole St	N Tucker Blvd to I-44	MO	WB	PM	0.55	2.52	1.64	2.08	0.90
24	Forest Park Ave	N Skinker Blvd to N Big Bend Blvd	MO	WB	PM	1.62	2.51	1.6	2.06	2.59

25	Forest Park Ave	N Skinker Blvd to N Big Bend Blvd	MO	WB	AM	1.3	1.75	1.43	1.59	1.86	
26	Forest Park Pkwy	S Kingshighway Blvd	MO	WB	PM	1.3	1.75	1.45	1.60	1.89	
27	Forest Park Pkwy	I-64 to S Kingshighway Blvd	MO	EB	PM	2.03	1.79	1.42	1.61	2.88	
28	Grand Blvd	I-70	MO	SB	AM	0.39	2.86	2.13	2.50	0.83	
29	Grand Blvd	I-70	MO	SB	PM	0.39	3.33	2.6	2.97	1.01	
30	Grand Blvd	Hall St	MO	NB	AM	0.35	2.29	1.65	1.97	0.58	
31	Grand Blvd	Hall St	MO	NB	PM	0.35	2.29	1.86	2.08	0.65	
32	Grand Blvd	Lindell Blvd to I-64	MO	NB	PM	0.38	2.11	1.62	1.87	0.62	
33	Grand Blvd	Arsenal St	MO	NB	PM	0.71	2	1.56	1.78	1.11	
34	Hampton Ave	I-44	MO	NB	PM	0.6	1.69	1.43	1.56	0.86	
35	Jefferson Ave	Washington Blvd	MO	NB	AM	0.3	2.27	2.78	2.53	0.83	
36	Jefferson Ave	Washington Blvd	MO	NB	PM	0.3	1.54	1.75	1.65	0.53	
37	Jefferson Ave	Market St	MO	SB	AM	0.3	2.36	1.54	1.95	0.46	
38	Jefferson Ave	Market St	MO	SB	PM	0.3	3.71	2.07	2.89	0.62	
39	Jefferson Ave	I-64	MO	SB	AM	0.34	2.36	1.71	2.04	0.58	
40	Jefferson Ave	I-64	MO	SB	PM	0.34	2.6	1.7	2.15	0.58	
41	Jefferson Ave	MO-30	MO	SB	PM	0.43	1.93	1.42	1.68	0.61	
78	MO-D	Skinker Pkwy	MO	WB	PM	0.46	1.8	1.41	1.61	0.65	
85	MO-100	S Big Bend	MO	WB	PM	0.83	1.83	1.54	1.69	1.28	
89	MO-100	McCausland Ave	MO	EB	AM	0.83	1.86	1.45	1.66	1.20	
90	MO-100	McCausland Ave	MO	EB	PM	0.83	2.36	1.84	2.10	1.53	
							Total	30.01			

Table 5: St. Charles County

Map ID No.	Route	Limits	State	Direction	Peak	Queue Length (Mi)	PTI	TTI	Severity	Delay Impact
74	US-61	I-70 to I-64	MO	NB	PM	0.53	2.24	1.45	1.85	0.77
97	Mexico Rd	Jungermann Rd	MO	WB	PM	0.57	1.68	1.45	1.57	0.83
98	Mid Rivers Mall Dr	I-70 to Suemandy Rd	MO	SB	PM	0.94	1.98	1.51	1.75	1.42
99	MO-94	W Clay St to I-70	MO	SB	PM	1.99	1.76	1.5	1.63	2.99
100	MO-94	MO-370	MO	NB	PM	1.73	1.55	1.37	1.46	2.37
101	MO-94	Mid Rivers Mall Dr	MO	NB	PM	3.93	1.54	1.39	1.47	5.46
						Total	9.69			

Table 6: St. Louis County

Map ID No.	Route	Limits	State	Direction	Peak	Queue Length (Mi)	PTI	TTI	Severity	Delay Impact
69	US-67	Patterson Rd to Charbonier Rd	MO	SB	PM	0.67	2.28	1.54	1.91	1.03
70	US-67	Old St Charles Rd	MO	SB	PM	0.34	2	1.47	1.74	0.50
72	US-67	Patterson Rd	MO	NB	AM	0.37	2	1.5	1.75	0.56
73	US-67	MO-AC to Patterson Rd	MO	NB	PM	2.53	2.02	1.52	1.77	3.85
75	US-61	I-55 to US-50	MO	NB	PM	0.81	2.08	1.54	1.81	1.25
76	US-61	Big Bend to I-44	MO	SB	PM	1.69	1.98	1.47	1.73	2.48
77	US-61	Mattis Rd	MO	SB	PM	0.96	1.67	1.44	1.56	1.38
79	MO-D	Woodson Rd	MO	WB	PM	0.35	2.21	1.67	1.94	0.58
80	MO-D	Schuetz Rd	MO	EB	AM	0.37	2.05	1.4	1.73	0.52
81	MO-141	US-61	MO	SB	PM	1.24	2.92	1.64	2.28	2.03
82	MO-141	Marshall Rd to Hawkins Rd	MO	SB	PM	0.85	2.06	1.42	1.74	1.21
86	MO-100	MO-141 to Baxter Rd	MO	WB	PM	2.28	2.58	1.55	2.07	3.53
87	MO-100	Old State Rd	MO	WB	AM	0.53	1.67	1.36	1.52	0.72
88	MO-100	Old State Rd	MO	WB	PM	0.53	2.1	1.8	1.95	0.95
91	MO-100	MO-141	MO	EB	PM	0.45	1.88	1.55	1.72	0.70
92	MO-30	US-61	MO	WB	AM	0.33	1.82	1.41	1.62	0.47
93	MO-30	US-61	MO	WB	PM	0.33	2.38	1.71	2.05	0.56
94	MO-30	Gravois to Watson Rd	MO	WB	PM	1.71	3.39	1.56	2.48	2.67
95	MO-30	Sappington Rd	MO	EB	AM	0.33	1.78	1.42	1.60	0.47
96	MO-30	Sappington Rd	MO	EB	PM	0.33	2	1.66	1.83	0.55
102	Laclede Station Rd	Murdoch Ave	MO	SB	PM	0.43	2.38	1.27	1.83	0.55
103	MO-340	I-270	MO	SB	PM	0.85	2.33	1.53	1.93	1.30
104	MO-340	Chesterfield Pkwy to Baxter Rd	MO	SB	PM	0.94	3.69	1.81	2.75	1.70
105	MO-340	Craig Rd	MO	NB	PM	0.69	1.8	1.48	1.64	1.02
106	MO-366	I-44	MO	WB	PM	0.44	1.75	1.42	1.59	0.62
107	MO-367	I-270	MO	NB	PM	1.51	2.67	1.66	2.17	2.51
108	MO-AC	I-270 to Old Halls Ferry Rd	MO	NB	PM	0.69	2.83	1.68	2.26	1.16
109	MO-U	I-70 to W Florissant Ave	MO	NB	PM	1.95	1.79	1.42	1.61	2.77
						Total	24.5			

Table 7: Jefferson County

Map ID No.	Route	Limits	State	Direction	Peak	Queue Length (Mi)	PTI	TTI	Severity	Delay Impact
71	US-67	MO-CC	MO	SB	PM	0.62	4.83	2.52	3.68	1.56
83	MO-141	Arnold Church Rd to US-61	MO	NB	AM	0.84	1.82	1.49	1.66	1.25
84	MO-141	Arnold Church Rd to US-61	MO	NB	PM	0.84	1.94	1.65	1.80	1.39
						Total	2.3			

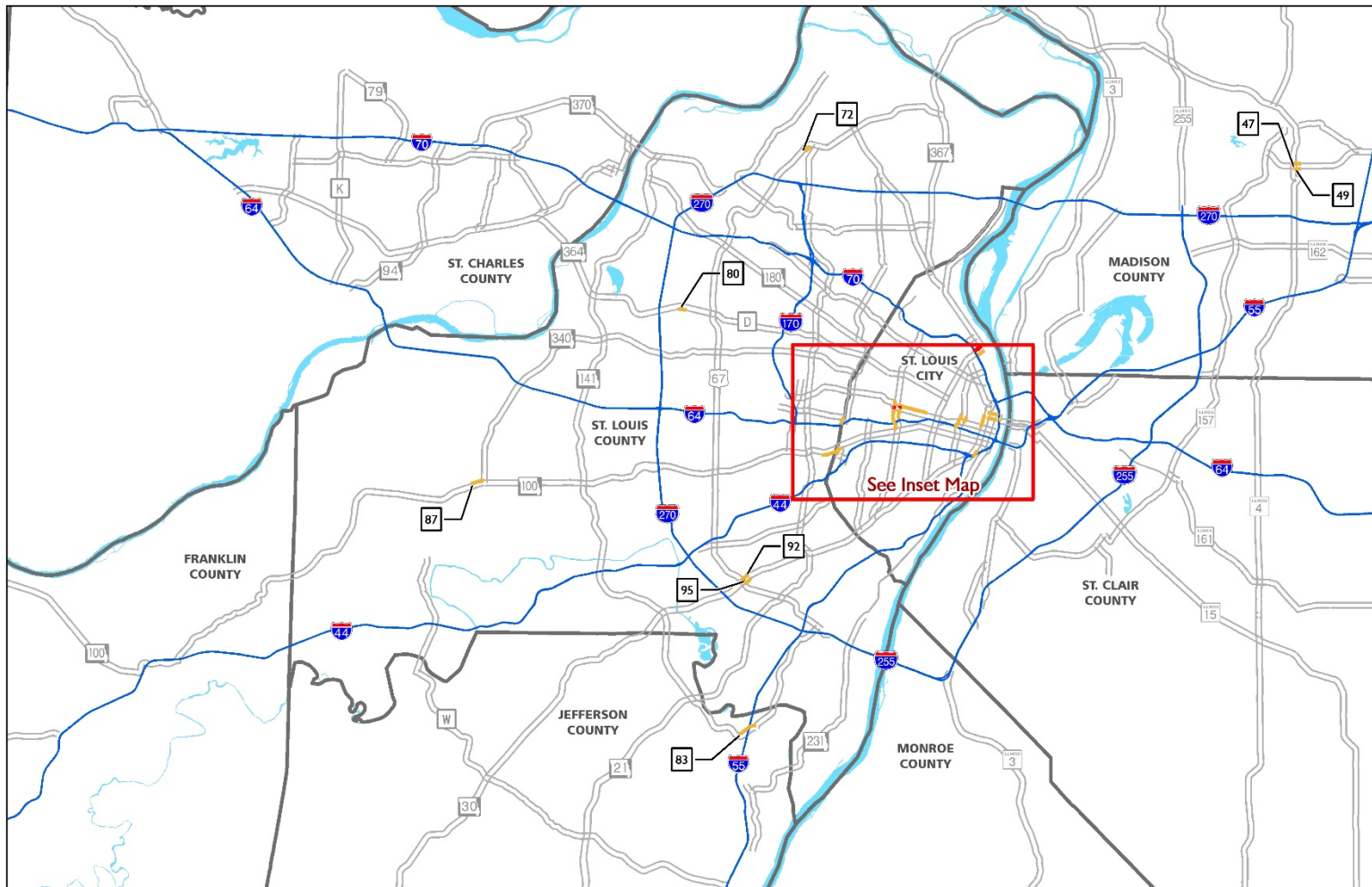
Table 8: Franklin County

Map ID No.	Route	Limits	State	Direction	Peak	Queue Length (Mi)	PTI	TTI	Severity	Delay Impact	
42	MO-47	Old MO-66	MO	SB	PM	1.49	1.69	1.46	1.58	2.18	
43	MO-47	E Independence Dr	MO	NB	PM	1.16	1.7	1.43	1.57	1.66	
44	MO-47	I-44	MO	NB	AM	1.58	1.64	1.47	1.56	2.32	
45	MO-47	I-44	MO	NB	PM	1.58	1.84	1.58	1.71	2.50	
46	US-50	Independence Dr	MO	WB	PM	1.49	1.6	1.41	1.51	2.10	
Total						7.3					

Table 9: Illinois

Map ID No.	Route	Limits	State	Direction	Peak	Queue Length (Mi)	PTI	TTI	Severity	Delay Impact	
47	Governors Pkwy	Troy Rd	IL	EB	AM	0.32	2	1.45	1.73	0.46	
48	Governors Pkwy	Troy Rd to IL-57	IL	EB	PM	1.7	1.92	1.53	1.73	2.60	
49	Governors Pkwy	IL-159	IL	WB	AM	0.32	2.2	1.64	1.92	0.52	
50	Governors Pkwy	IL-159	IL	WB	PM	0.32	2.54	2.07	2.31	0.66	
51	IL-203	Madison Ave to E 23rd St	IL	SB	PM	0.92	1.67	1.41	1.54	1.30	
52	IL-159	I-270	IL	SB	PM	1.47	1.61	1.42	1.52	2.09	
53	IL-159	I-270 to I-162	IL	SB	PM	1.37	1.6	1.38	1.49	1.89	
54	IL-159	Lincoln Hwy to Frank Scott Pkwy	IL	SB	PM	1.8	2.15	1.69	1.92	3.04	
55	IL-159	Governors Pkwy to I-270	IL	NB	PM	3.55	2.08	1.56	1.82	5.54	
56	IL-159	I-64 to Lincoln Hwy	IL	NB	PM	2.05	1.82	1.53	1.68	3.14	
57	IL-157	Center Grove Rd to I-270	IL	SB	PM	0.58	1.82	1.56	1.69	0.90	
58	IL-157	I-70/I-55 to Saint Louis Rd	IL	SB	PM	0.78	1.78	1.55	1.67	1.21	
59	IL-157	University Dr	IL	NB	PM	0.52	1.91	1.62	1.77	0.84	
60	IL-157	Horseshoe Lake Rd	IL	NB	PM	0.47	1.29	1.61	1.45	0.76	
61	IL-140	Washington Ave to IL-111	IL	EB	PM	1.14	1.85	1.52	1.69	1.73	
62	IL-140	IL-255 to IL-111	IL	WB	PM	0.4	2.05	1.71	1.88	0.68	
63	IL-140	Washington Ave to Broadway St	IL	WB	PM	1.03	2	1.62	1.81	1.67	
64	IL-3	IL-111 to Washington Ave	IL	NB	PM	3.43	1.64	1.45	1.55	4.97	
65	IL-3	E Broadway to St. Louis Ave	IL	NB	PM	0.31	1.68	1.4	1.54	0.43	
66	IL-3	Parkview Dr	IL	NB	PM	1.03	1.66	1.41	1.54	1.45	
67	IL-3	Washington Ave to IL-111	IL	SB	PM	2.25	1.67	1.5	1.59	3.38	
68	IL-3	Parkview Dr	IL	SB	PM	0.93	2.19	1.54	1.87	1.43	
Total						26.69					

Figure 4a: Arterial Congested Locations (AM Peak)



**2023 Congested Locations
Arterials - AM Peak**
East-West Gateway Region

- | Arterial Congestion | Other Map Data |
|---------------------|-----------------|
| Heavy | Interstate |
| Moderate | County Boundary |
| Uncongested | River / Lake |

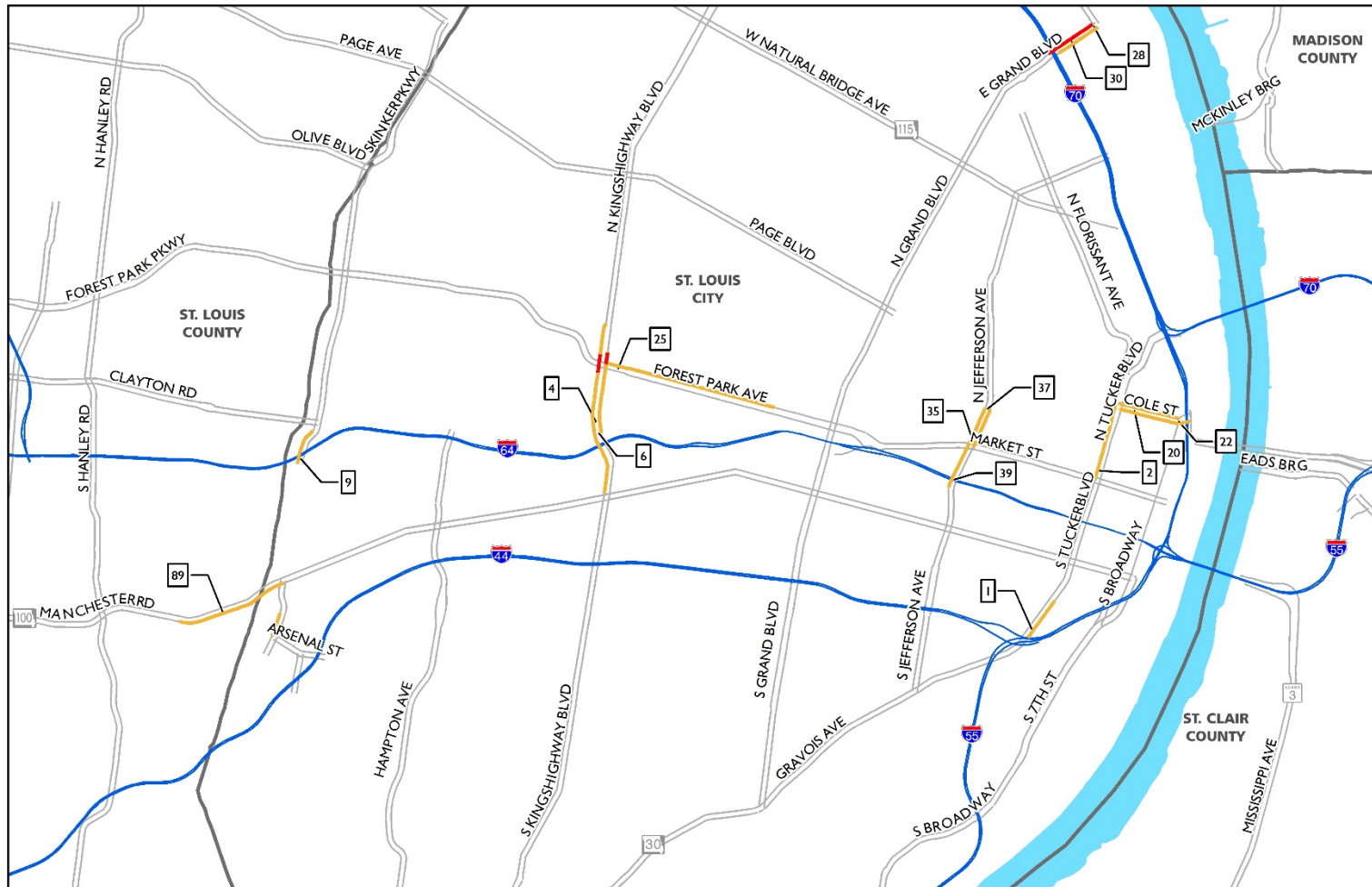


Sources: Federal Highway Administration, Here Data;
East-West Gateway Council of Governments



August 2024

Figure 4b: Arterial Congested Locations Inset Map (AM Peak)



**2023 Congested Locations
Arterials - AM Peak Inset**
East-West Gateway Region

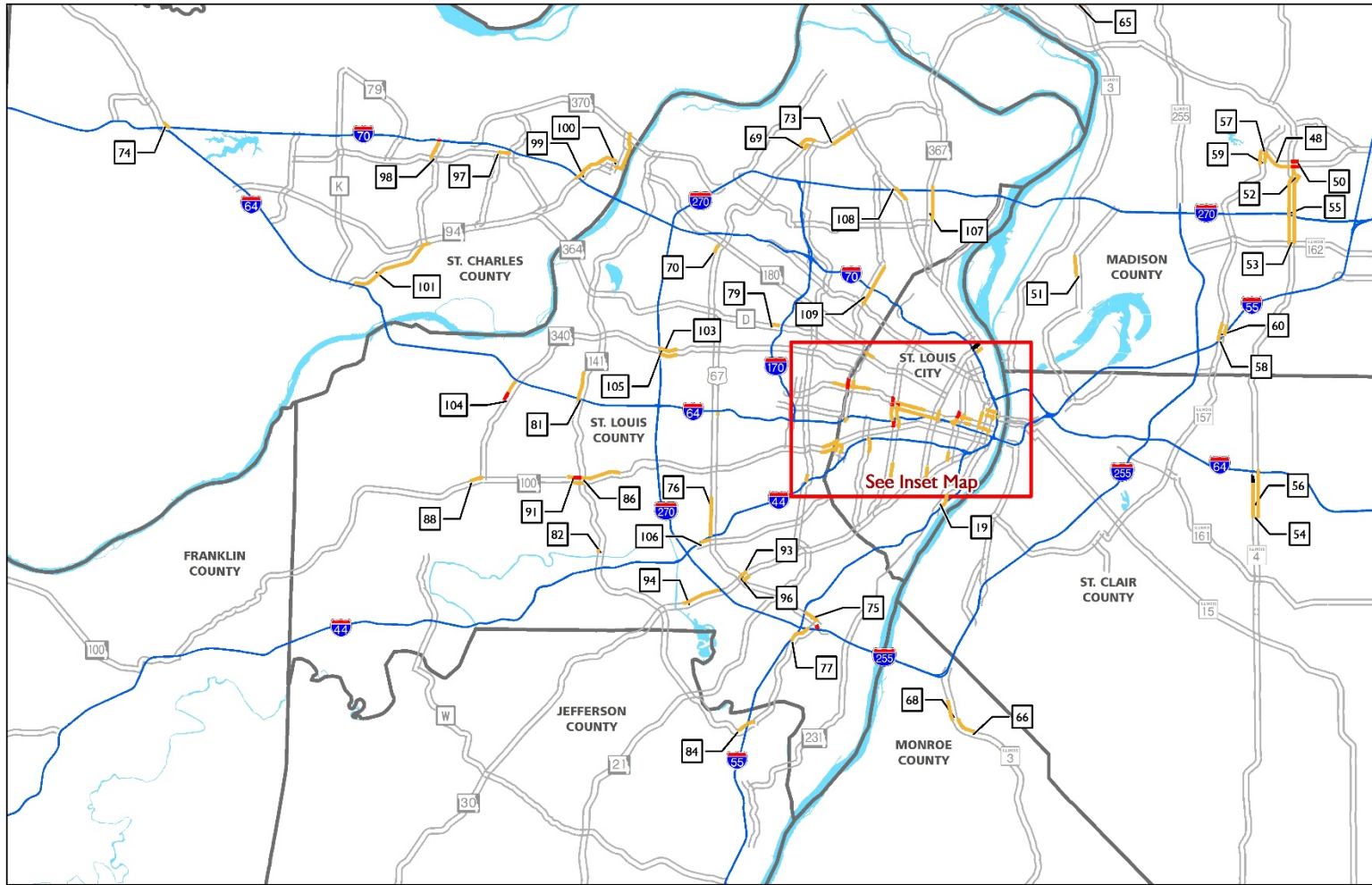
- | | |
|----------------------------|-----------------------|
| Arterial Congestion | Other Map Data |
| Heavy | Interstate |
| Moderate | County Boundary |
| Uncongested | River / Lake |



Sources: Federal Highway Administration, Here Data,
East-West Gateway Council of Governments

EAST-WEST GATEWAY
Council of Governments
August 2024

Figure 5a: Arterial Congested Locations (PM Peak)



**2023 Congested Locations
Arterials - PM Peak**
East-West Gateway Region

- | Arterial Congestion | Other Map Data |
|---------------------|-------------------|
| ↘ Severe | ↗ Interstate |
| ↘ Heavy | ▭ County Boundary |
| ↘ Moderate | 🌊 River / Lake |
| ↘ Uncongested | |

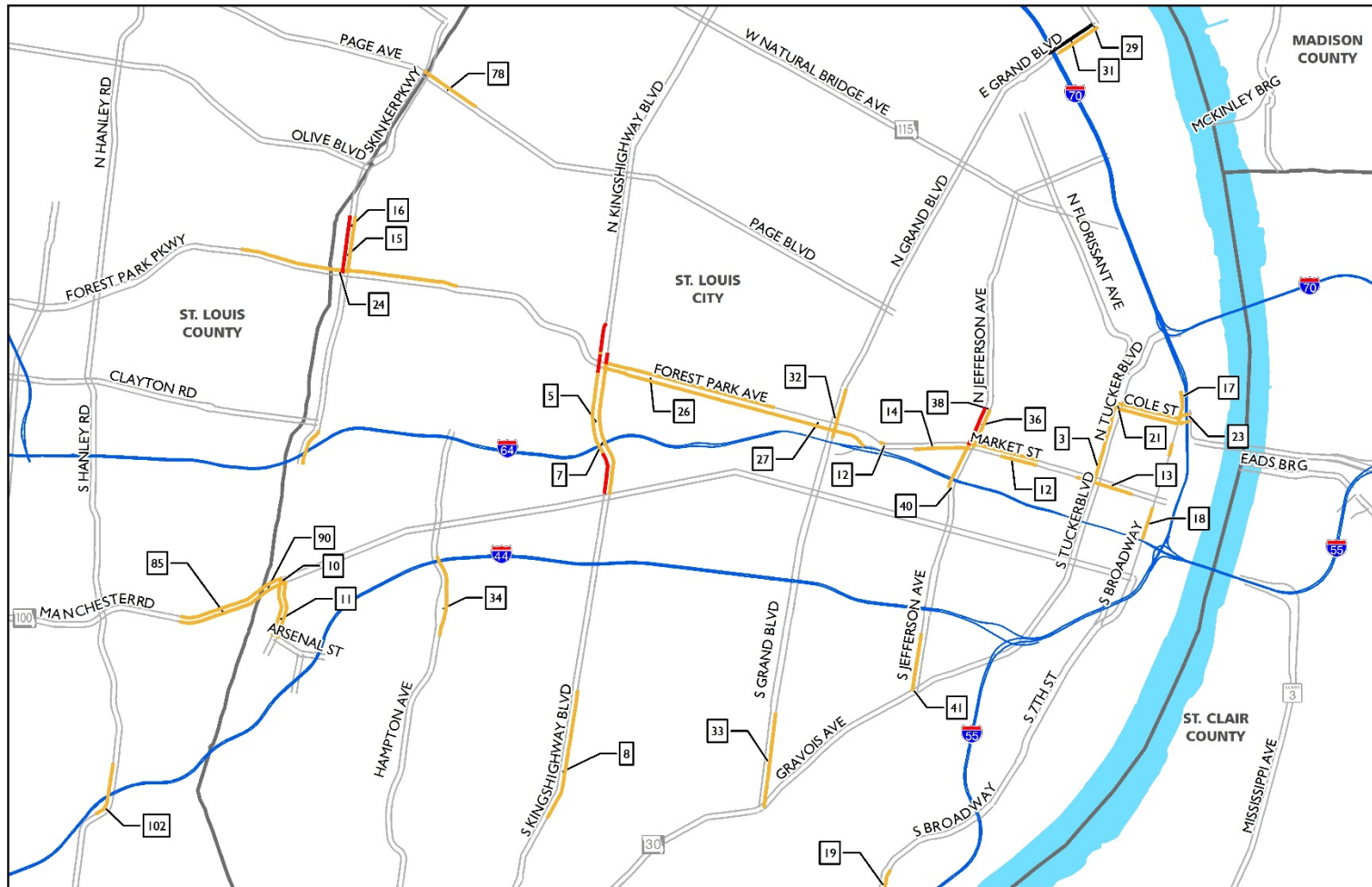


Sources: Federal Highway Administration, Here Data;
East-West Gateway Council of Governments



August 2024

Figure 5b: Arterial Congested Locations Inset Map (PM Peak)



**2023 Congested Locations
Arterials - PM Peak Inset**
East-West Gateway Region

- | Arterial Congestion | Other Map Data |
|---------------------|-----------------|
| Severe | Interstate |
| Heavy | County Boundary |
| Moderate | River / Lake |
| Uncongested | |



Sources: Federal Highway Administration, Here Data,
East-West Gateway Council of Governments



2.3 Congestion Performance Analyses

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
- Assess congestion mitigation strategies, programs, and projects

In this section, three key analyses were undertaken for AM and PM peak periods. These are:

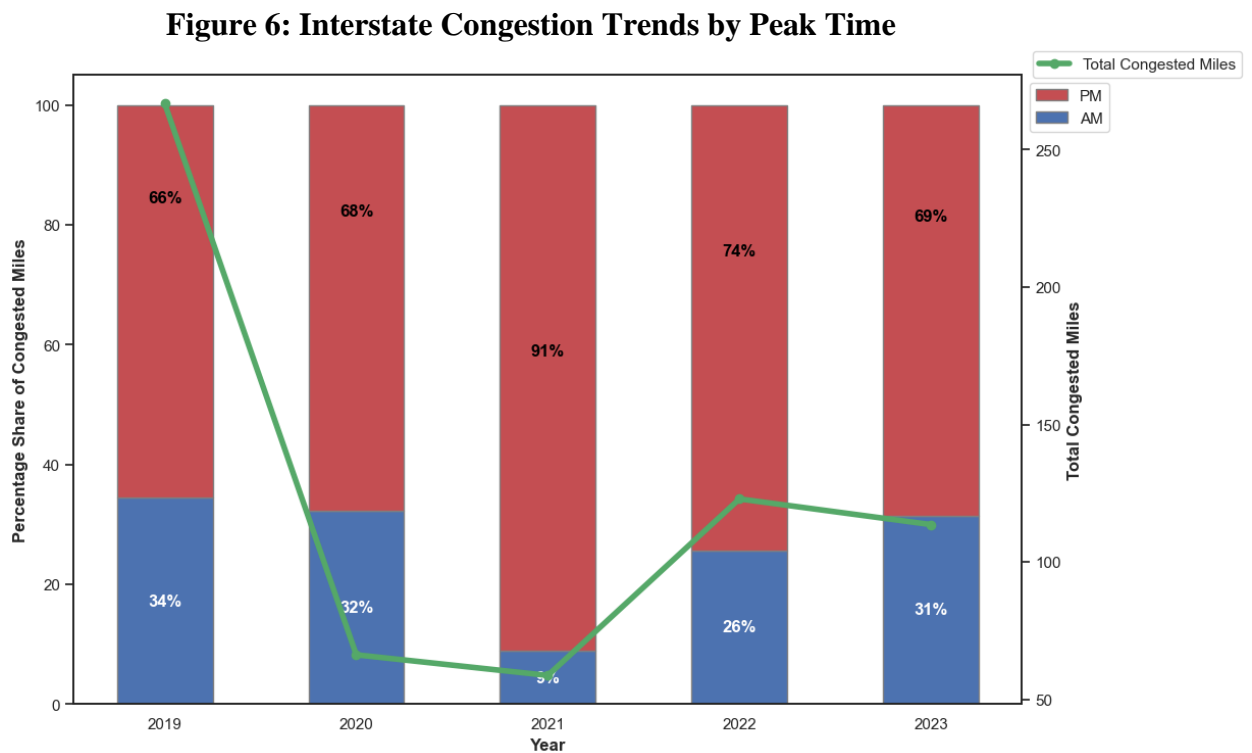
- Trends in congested miles by peak-period
- Trends in average PTI by peak-period
- Trends in average TTI by peak-period

2.3.1 Total Congestion Trends

Total Congestion Trend analysis focuses on overall changes in total congestion over time by peak period.

Interstates

Figure 6 compares the share of total interstate congested miles by peak period over the last 5 years.



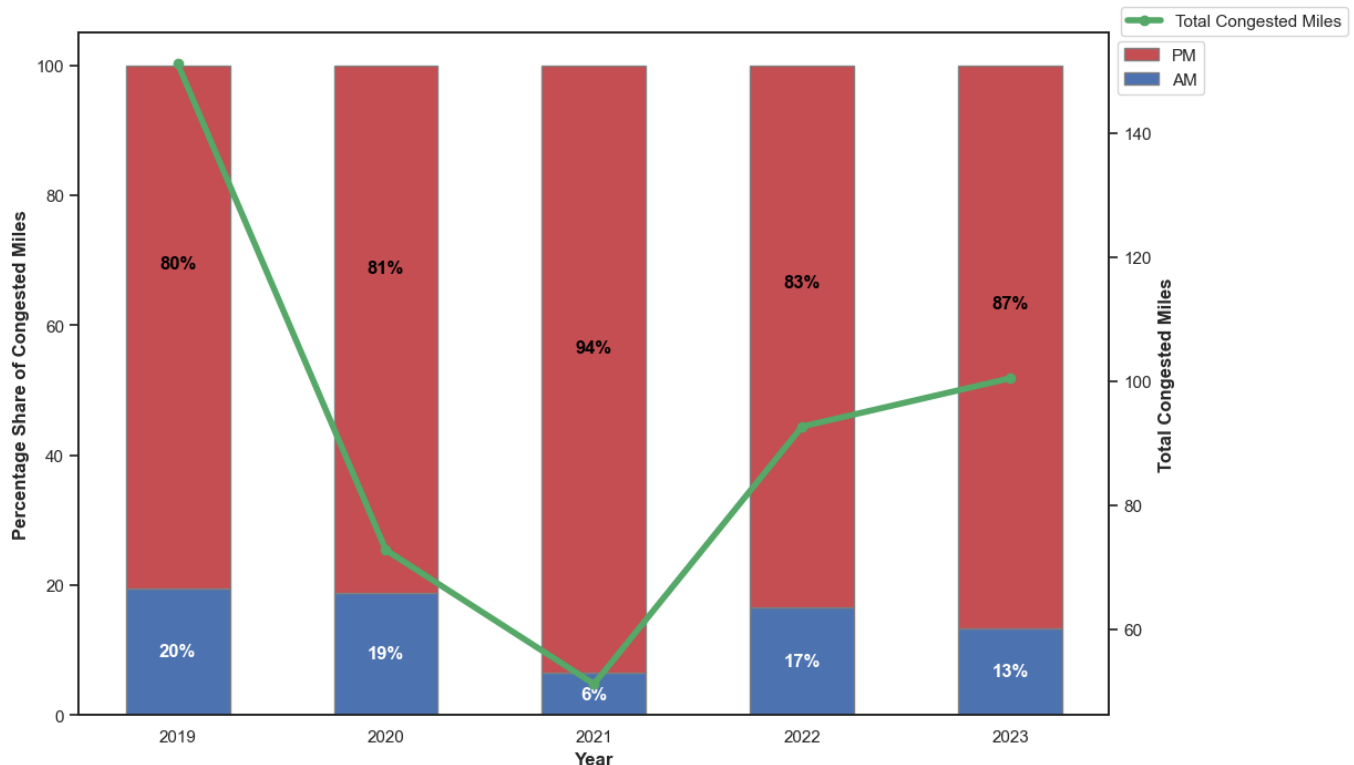
Observations:

- The average PM share of total congested miles was 74%.
- During Covid-19, total congested miles saw a significant reduction.
- The data suggests that the AM and PM percentage split has returned to Pre-Covid levels while the total congested miles remain much lower.

Arterials

Figure 7 compares the share of total arterial congested miles by peak period over the last 5 years.

Figure 7: Arterial Congestion Trends by Peak Time



Observations:

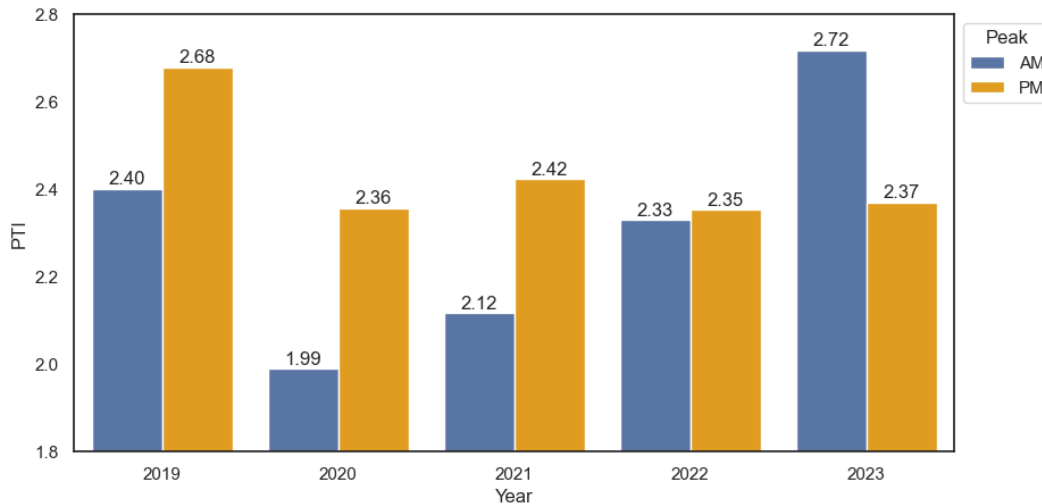
- The average PM share of total congested arterial miles was 84%.
- Like interstates, during the Covid years, the total arterial congested miles dropped sharply.
- From 2022 to 2023, total congested arterial miles increased by 7.78 miles, likely as more workers returned to the office.

2.3.2 Planning Time Index Trend by Peak-Period

Interstates

Figure 8 represents the change in average PTI for interstates. Since Covid-19, AM PTI has trended upward, while PM PTI has remained stable and is notably lower than 2019 levels. With 4 major work zones in our region, the average AM PTI spiked in 2023, giving drivers less reliable commute times. These work zones are listed in Appendix 4.

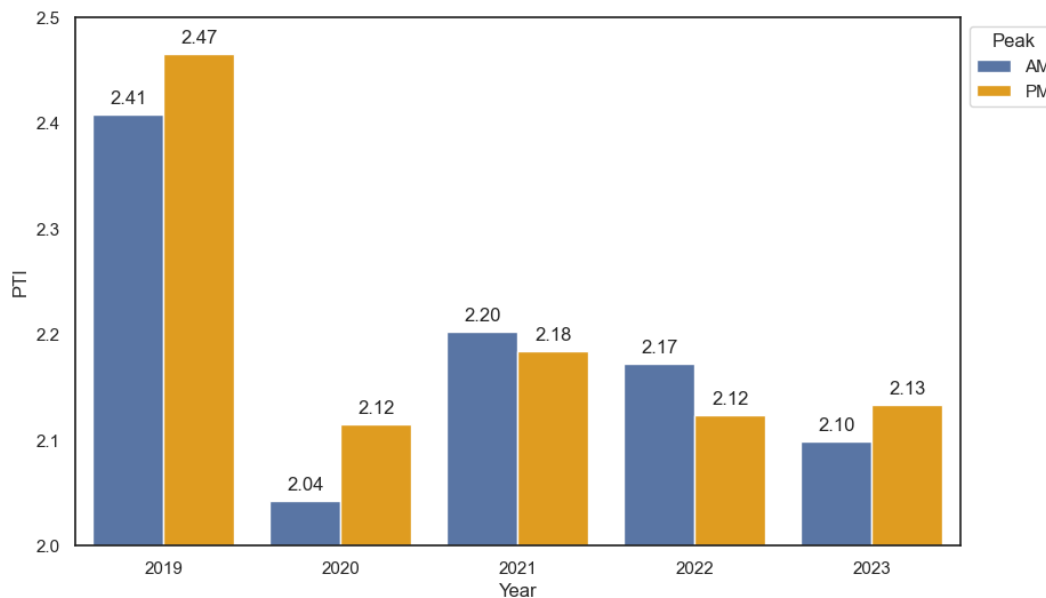
Figure 8: Interstate Trends in Planning Time Index (Average)



Arterials

Figure 9 represents the change in average PTI for Arterials. The average PTI for both AM and PM peak times decreased drastically during Covid. After a rise in 2021, PTI saw a slight drop off and has remained steady, showing planning time became more consistent along arterials.

Figure 9: Arterial Trends in Planning Time Index (Average)

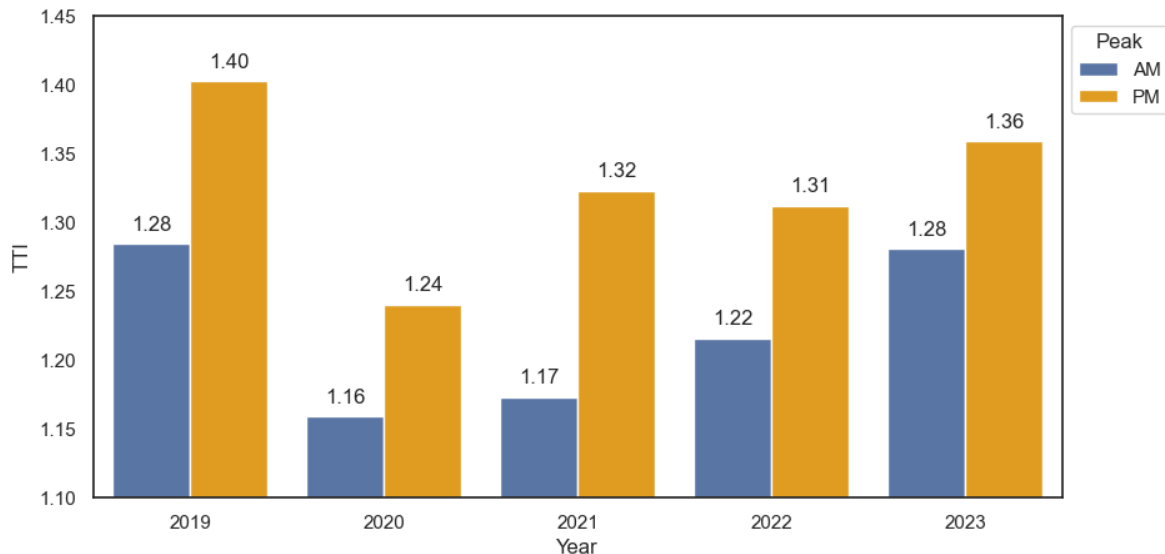


2.3.3 Travel Time Index Trend by Peak-Period

Interstates

Figure 10 compares interstate average TTI for morning and evening peak periods. The average TTI decreased significantly in 2020 due to Covid-19 and has increased gradually each year since.

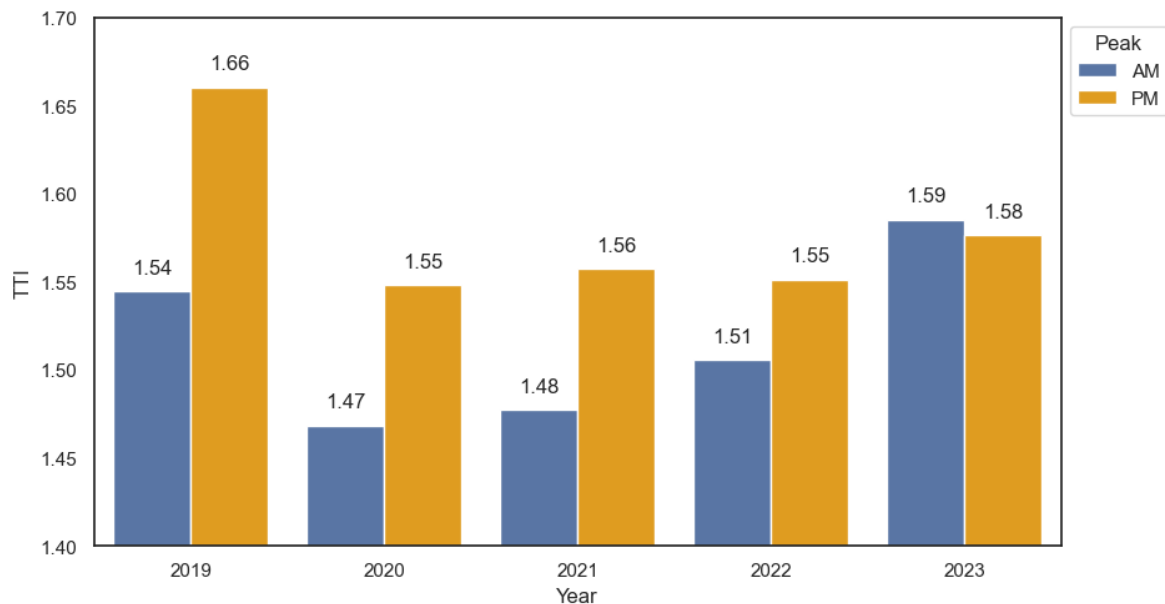
Figure 10: Interstate Trends in Travel Time Index (Average)



Arterials

Figure 11 compares arterial average TTI for morning and evening peak periods. The PM levels have remained mostly constant after 2019. On the other hand, AM TTI has gradually increased since Covid, with a spike in 2023, as work zones likely caused more morning congestion.

Figure 11: Arterial Trends in Travel Time Index (Average)



2.4 Ranked Congested Locations

The top 10 interstate congested locations by severity and delay impact are shown in tables 10 and 11, respectively. Tables 12 and 13, represent the same information for arterials. Delay Impact metric is TTI multiplied by the Queue Length and reveals the impact of delay to motorists. Severity is the average of TTI and PTI, which considers two aspects of congestion; the average delay of a congested location and how reliable the average travel time is from day to day.

The complete lists of ranked congested locations are available in Appendices 1 and 2.

Interstates

Table 10: Top 10 Locations by Severity

Rank by Severity	Map ID No.	Route	Limits	State	Area	Direction	Peak	Queue Length (Mi)	Severity
1	11	I-64	MO-N to I-70	MO	St. Charles	WB	PM	5.59	2.95
2	2	I-55	Park Ave to Reavis Barracks	MO	St. Louis City	SB	PM	9.81	2.76
3	7	I-64	S Kingshighway to Big Bend Blvd	MO	St. Louis City	WB	PM	3.93	2.60
4	14	I-44	Lewis Rd to MO-109	MO	St. Louis County	EB	AM	4.64	2.51
5	15	I-270	Old Halls Ferry Rd to N Elizabeth Ave	MO	St. Louis County	WB	AM	3.66	2.39
6	1	I-55	Arsenal to Union Rd	MO	St. Louis City	NB	AM	6.08	2.24
7	21	I-170	Delmar Blvd to I-64	MO	St. Louis County	SB	PM	3.16	2.10
8	12	I-70	MO-A to Pearce Blvd	MO	St. Charles	WB	PM	5.69	2.06
9	17	I-64	Big Bend Blvd to I-170	MO	St. Louis County	EB	AM	2.17	2.04
10	6	I-64	Hampton Ave to Big Bend Blvd	MO	St. Louis City	WB	AM	2.93	2.78

Table 11: Top 10 Locations by Delay Impact

Rank by Delay Impact	Map ID No.	Route	Limits	State	Area	Direction	Peak	Queue Length (Mi)	Delay Impact
1	23	I-270	Page Ave to Tesson Ferry	MO	St. Louis County	SB	PM	15.75	21.26
2	2	I-55	Park Ave to Reavis Barracks	MO	St. Louis City	SB	PM	9.81	17.27
3	24	I-270	Tesson Ferry to Manchester Rd	MO	St. Louis County	NB	AM	9.58	11.88
4	11	I-64	MO-N to I-70	MO	St. Charles	WB	PM	5.59	10.34
5	1	I-55	Arsenal to Union Rd	MO	St. Louis City	NB	AM	6.08	8.82
6	12	I-70	MO-A to Pearce Blvd	MO	St. Charles	WB	PM	5.69	8.36
7	25	I-55	MO-Z to McNutt St	MO	Jefferson	SB	PM	6.46	7.62
8	7	I-64	S Kingshighway to Big Bend Blvd	MO	St. Louis City	WB	PM	3.93	7.47
9	14	I-44	Lewis Rd to MO-109	MO	St. Louis County	EB	AM	4.64	6.77
10	18	I-64	Bellevue Ave to 40 Dr	MO	St. Louis County	EB	PM	4.34	5.99

Arterials

Table 12: Top 10 Locations by Severity

Rank by Severity	Map ID No.	Route	Limits	State	Area	Direction	Peak	Queue Length (Mi)	Severity
1	71	US-67	MO-CC	MO	Jefferson	SB	PM	0.62	3.68
2	29	Grand Blvd	I-70	MO	St. Louis City	SB	PM	0.39	2.97
3	38	Jefferson Ave	Market St	MO	St. Louis City	SB	PM	0.3	2.89
4	104	MO-340	Chesterfield Pkwy to Baxter Rd	MO	St. Louis County	SB	PM	0.94	2.75
5	15	Skinker Blvd	Forest Park Pkwy	MO	St. Louis City	SB	PM	0.43	2.75
6	35	Jefferson Ave	Washington Blvd	MO	St. Louis City	NB	AM	0.3	2.53
7	28	Grand Blvd	I-70	MO	St. Louis City	SB	AM	0.39	2.50
8	94	MO-30	Gravois to Watson Rd	MO	St. Louis County	WB	PM	1.71	2.48
9	50	Governors Pkwy	IL-159	IL	Illinois	WB	PM	0.32	2.31
10	5	Kingshighway	Laclede Ave to Manchester Ave	MO	St. Louis City	SB	PM	1.26	2.29

Table 13: Top 10 Locations by Delay Impact

Rank by Delay Impact	Map ID No.	Route	Limits	State	Area	Direction	Peak	Queue Length (Mi)	Delay Impact
1	55	IL-159	Governors Pkwy to I-270	IL	Illinois	NB	PM	3.55	5.54
2	101	MO-94	Mid Rivers Mall Dr	MO	St. Charles	NB	PM	3.93	5.46
3	64	IL-3	IL-111 to Washington Ave	IL	Illinois	NB	PM	3.43	4.97
4	73	US-67	MO-AC to Patterson Rd	MO	St. Louis County	NB	PM	2.53	3.85
5	86	MO-100	MO-141 to Baxter Rd	MO	St. Louis County	WB	PM	2.28	3.53
6	67	IL-3	Washington Ave to IL-111	IL	Illinois	SB	PM	2.25	3.38
7	56	IL-159	I-64 to Lincoln Hwy	IL	Illinois	NB	PM	2.05	3.14
8	54	IL-159	Lincoln Hwy to Frank Scott Pkwy	IL	Illinois	SB	PM	1.8	3.04
9	99	MO-94	W Clay St to I-70	MO	St. Charles	SB	PM	1.99	2.99
10	27	Forest Park Pkwy	I-64 to S Kingshighway Blvd	MO	St. Louis City	EB	PM	2.03	2.88

2.5 Changes in Overall Severity and Delay Impact

This section provides a high-level comparison of congestion Severity and Delay Impact on the regional network over the last 5 years. As a reminder, 2019 was the last full year pre-Covid.

Interstates

As shown in Figure 12, the highest level of severity occurred in 2021 and pertains to a major MoDOT project, building a full interchange on I-64 between 21st Street and Jefferson. This caused severe congestion on I-64, from Ewing Ave to Poplar St Bridge. This project was completed in 2022.

The same figure also shows that the second most severe congestion occurred in 2022. This is attributed to the construction of the southbound Broadway ramp over I-44 in downtown St. Louis. This caused severe congestion on I-70 southbound during the PM peak. This project is now completed.

The highest severity for 2023 interstate locations dropped below the 2022 level, but on average, severity increased. As projects were completed, the total number of congested interstate locations decreased by 7. The most severe congestion for this year occurred on I-55 southbound in the PM from Park Ave to Reavis Barracks. This can be attributed to the I-55 Bridge Rehab project that aims to improve 14 bridges along the corridor. This project is expected to continue into 2026.

Delay Impact, as seen in Figure 13, shows very similar trends in 2022 and 2023. The measures for these years are between the high pre-Covid delay and lower mid-Covid delay, likely due to changes in flexible work schedules and lifestyles. However, Delay Impact remains well below the 2019 levels.

Arterials

Arterial Severity and Delay Impact were lowest in 2021 and have since then seen a steady increase. In 2023, congestion worsened as VMT increased to work, home, businesses, schools, and other neighborhood destinations. This created 7 more congested locations, and 8 more congested miles, as compared to 2022 (Figure 14).

Figure 12: Severity of All Congested Interstates 2019-2023

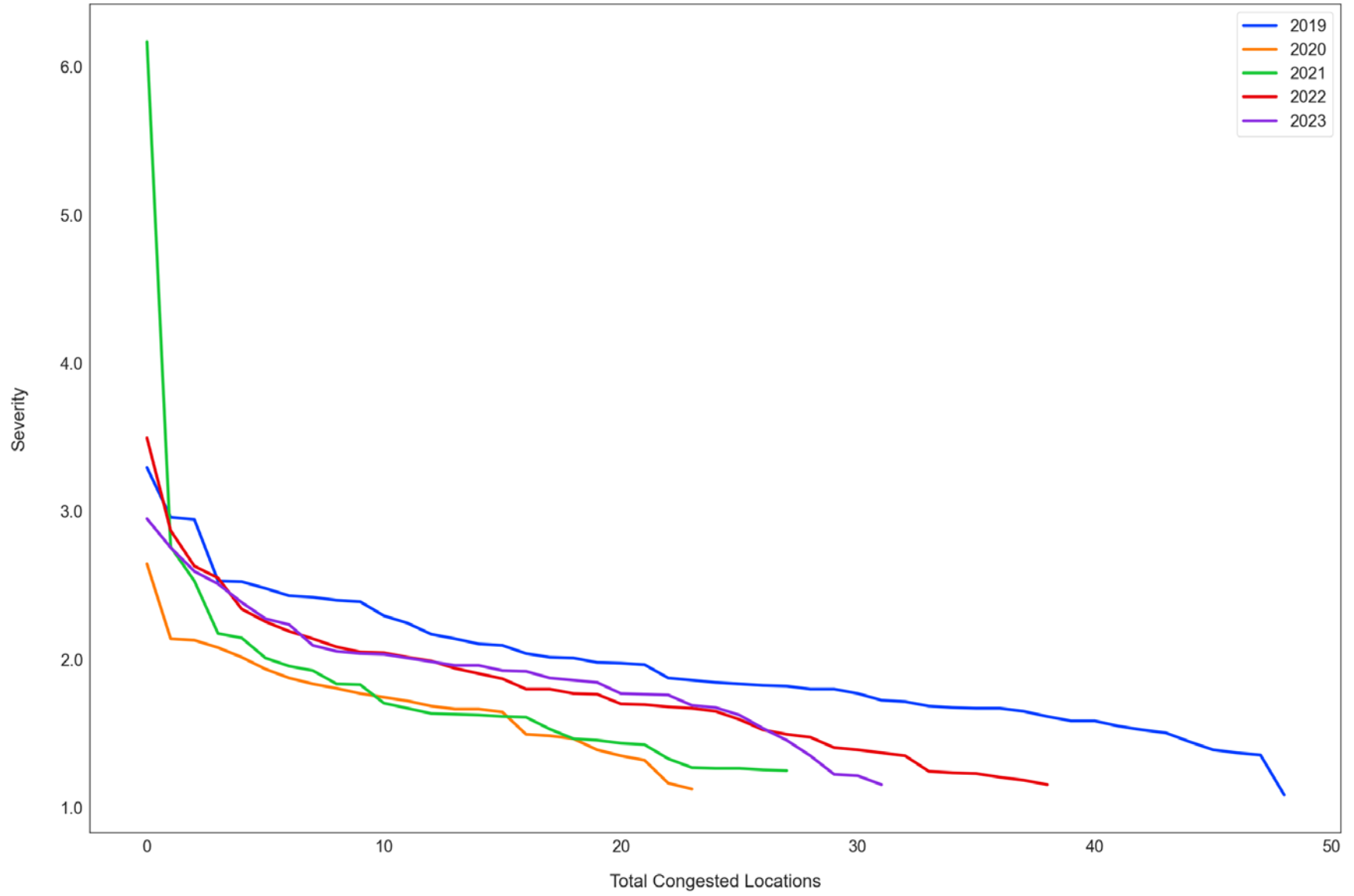


Figure 13: Delay Impact of All Congested Interstates 2019-2023

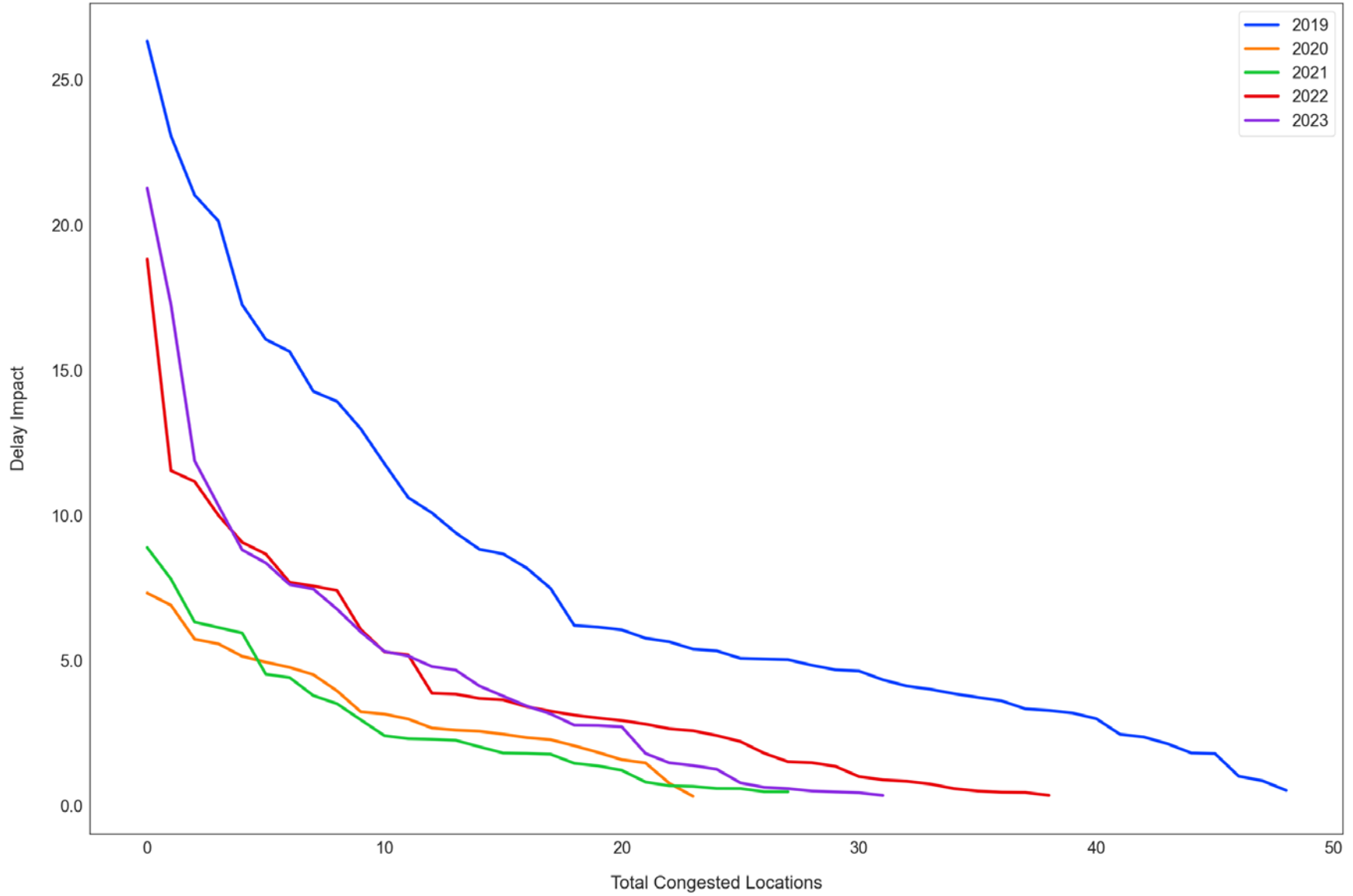


Figure 14: Severity of All Congested Arterials 2019-2023

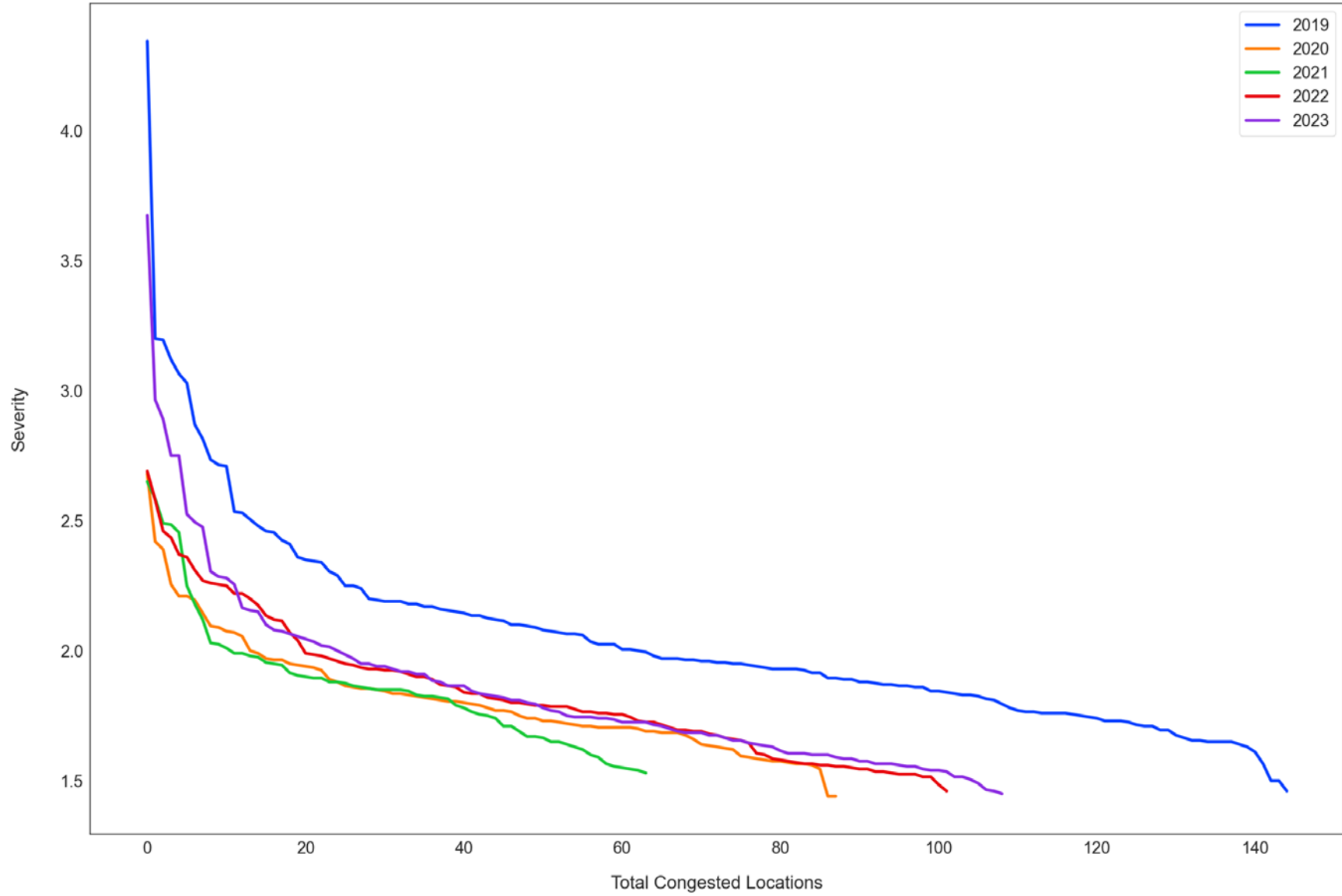
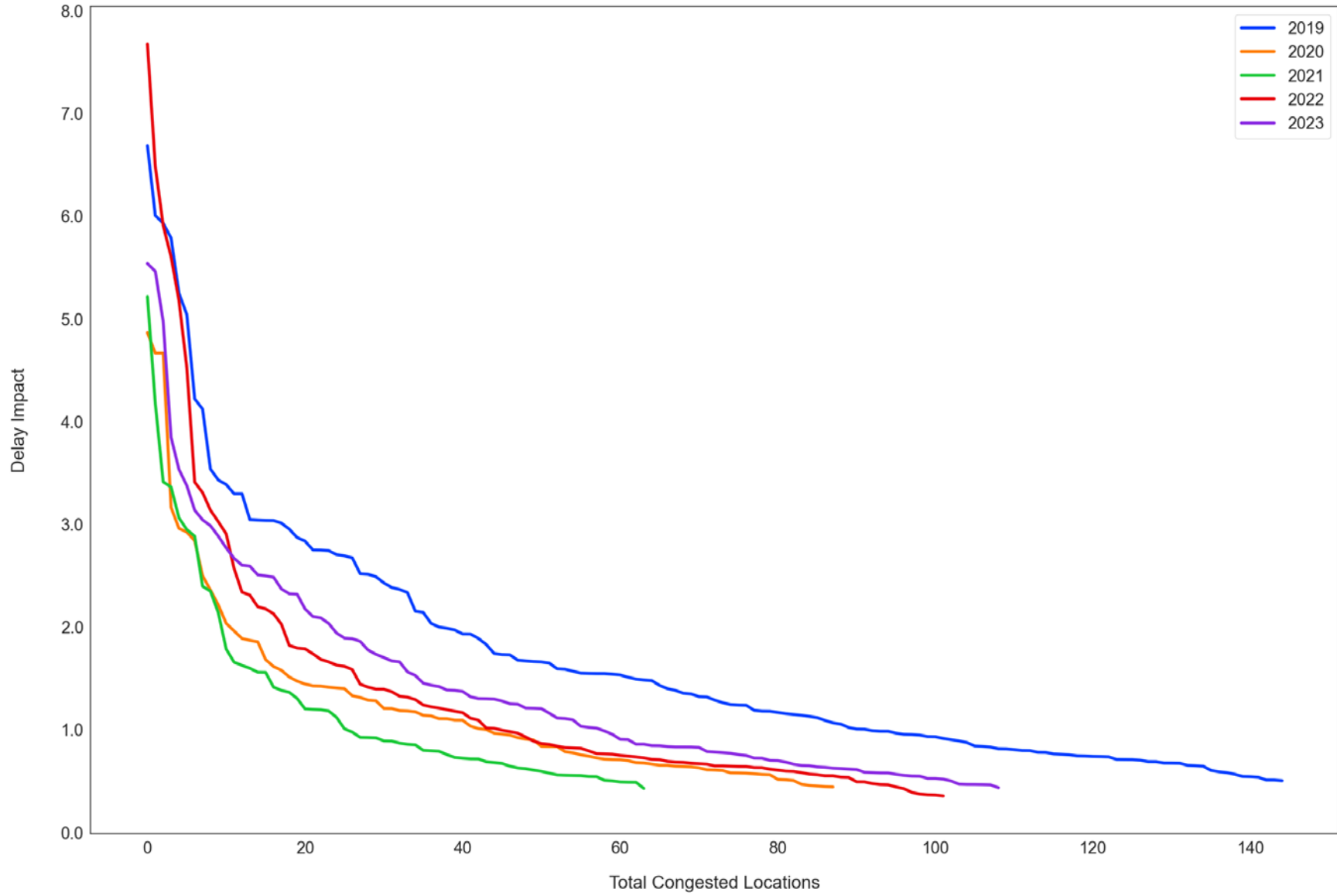


Figure 15: Delay Impact of All Congested Arterials 2019-2023



2.6 Comparison of Interstates by Severity and Delay Impact

Tables 14a – 15b examine Severity and Delay Impact figures above for 2022 and 2023. In these tables, recurring locations are color coded. Of the top 10 most severely congested locations in 2022, 7 occurred again in 2023. For Delay Impact, 9 of the top 10 most delayed locations in 2022 re-appeared in 2023. For 7 of the 10 locations, delay worsened. The Queue Length on I-70 westbound in St. Charles reduced by 2 miles, showing a large reduction in Delay Impact. Motorists continue to face severe delays on I-55 as construction carries on. Congestion on I-270 southbound worsened during the PM peak and delayed motorists the most in 2023 (Table 15a).

Table 14a: Ten Most Severe Locations 2023

Rank by Severity	Map ID No.	Route	Limits	Area	Direction	Peak	Queue Length (Mi)	Severity	Difference from 2022
1	11	I-64	MO-N to I-70	St. Charles	WB	PM	5.59	2.95	+ 0.08
2	2	I-55	Park Ave to Reavis Barracks	St. Louis City	SB	PM	9.81	2.76	+ 0.13
3	7	I-64	S Kingshighway to Big Bend Blvd	St. Louis City	WB	PM	3.93	2.60	+ 0.05
4	14	I-44	Lewis Rd to MO-109	St. Louis County	EB	AM	4.64	2.51	+ 1.44
5	15	I-270	Old Halls Ferry Rd to N Elizabeth Ave	St. Louis County	WB	AM	3.66	2.39	+ 0.13
6	1	I-55	Arsenal to Union Rd	St. Louis City	NB	AM	6.08	2.24	- 0.10
7	21	I-170	Delmar Blvd to I-64	St. Louis County	SB	PM	3.16	2.10	- 0.04
8	12	I-70	MO-A to Pearce Blvd	St. Charles	WB	PM	5.69	2.06	+ 0.01
9	17	I-64	Big Bend Blvd to I-170	St. Louis County	EB	AM	2.17	2.04	+ 0.14
10	6	I-64	Hampton Ave to Big Bend Blvd	St. Louis City	WB	AM	2.93	2.04	+ 0.10

Table 14b: Ten Most Severe Locations 2022

Rank by Severity	Map ID No.	Route	Limits	Area	Direction	Peak	Queue Length (Mi)	Severity
1	8	I-70	I-44 to Stan Musial Bridge	St. Louis City	SB	PM	0.96	3.50
2	11	I-64	MO-N to I-70	St. Charles	WB	PM	5.59	2.87
3	1	I-55	Park Ave to Virginia Ave	St. Louis City	SB	PM	5.34	2.63
4	4	I-64	S Kingshighway Blvd to Boland Pl	St. Louis City	WB	PM	4.23	2.55
5	2	I-55	Potomac St to Weber Rd	St. Louis City	NB	AM	5.08	2.34
6	20	I-270	New Halls Ferry Rd to N Elizabeth Ave	St. Louis County	WB	AM	2.96	2.26
7	34	I-64	St Clair/Clinton County Line to IL-161	Illinois	WB	PM	1.97	2.19
8	24	I-170	Ladue Rd to I-64	St. Louis County	SB	PM	2.26	2.14
9	22	I-270	Florissant Ave to US-67	St. Louis County	EB	PM	6.02	2.09
10	12	I-70	Lake St. Louis Blvd to Pearce Blvd	St. Charles	WB	PM	7.7	2.05

Table 15a: Ten Most Delay Impacted Locations 2023

Rank by Delay Impact	Map ID No.	Route	Limits	Area	Direction	Peak	Queue Length (Mi)	Delay Impact	Difference from 2022
1	23	I-270	Page Ave to Tesson Ferry	St. Louis County	SB	PM	15.75	21.26	+ 2.44
2	2	I-55	Park Ave to Reavis Barracks	St. Louis City	SB	PM	9.81	17.27	+ 8.19
3	24	I-270	Tesson Ferry to Manchester Rd	St. Louis County	NB	AM	9.58	11.88	+ 0.34
4	11	I-64	MO-N to I-70	St. Charles	WB	PM	5.59	10.34	+ 0.33
5	1	I-55	Arsenal to Union Rd	St. Louis City	NB	AM	6.08	8.82	+ 1.4
6	12	I-70	MO-A to Pearce Blvd	St. Charles	WB	PM	5.69	8.36	- 2.81
7	25	I-55	MO-Z to McNutt St	Jefferson	SB	PM	6.46	7.62	+ 0.05
8	7	I-64	S Kingshighway to Big Bend Blvd	St. Louis City	WB	PM	3.93	7.47	- 0.23
9	14	I-44*	Lewis Rd to MO-109	St. Louis County	EB	AM	4.64	6.77	+ 1.85
10	18	I-64	Bellevue Ave to 40 Dr	St. Louis County	EB	PM	4.34	5.99	- 0.09

Table 15b: Ten Most Delay Impacted Locations 2022

Rank by Delay Impact	Map ID No.	Route	Limits	Area	Direction	Peak	Queue Length (Mi)	Delay Impact
1	25	I-270	MO-340 to Tesson Ferry	St. Louis County	SB	PM	14.59	18.82
2	26	I-270	Tesson Ferry to Manchester Rd	St. Louis County	NB	AM	9.54	11.54
3	12	I-70	Lake St. Louis Blvd to Pearce Blvd	St. Charles	WB	PM	7.7	11.17
4	11	I-64	MO-N to I-70	St. Charles	WB	PM	5.59	10.01
5	1	I-55	Park Ave to Virginia Ave	St. Louis City	SB	PM	5.34	9.08
6	22	I-270*	Florissant Ave to US-67	St. Louis County	EB	PM	6.02	8.67
7	4	I-64	S Kingshighway Blvd to Boland Pl	St. Louis City	WB	PM	4.23	7.70
8	29	I-55	MO-Z to McNutt St	Jefferson	SB	PM	6.47	7.57
9	2	I-55	Potomac St to Weber Rd	St. Louis City	NB	AM	5.08	7.42
10	18	I-64	Bellevue Ave to US-61	St. Louis County	EB	PM	4.34	6.08

Color coded by recurring locations with varying limits

*These congested locations are non-recurring work zones

2.7 Congestion Progression

This section provides a series of figures that represent the progression of congested segments of the regional interstate network over space and time for 2022 and 2023. Each figure represents congested locations for the average of a single hour during the morning peak and evening peak period. Additionally, these figures can help identify where the bottlenecks begin and compare their progression during the peak hours. The figures suggest total congested miles are higher in the PM peak period, a finding also supported in the previous sections.

Figures 16-18, show AM recurring congestion on I-270 Northbound in St. Louis County, and I-64 into and out of the St. Louis City. Figure 16 also suggests an earlier start to congestion in 2023. The congestion seen along I-55 North into St. Louis City, I-270 West in Florissant, on I-55 at the Poplar Street Bridge interchange, and I-44 East in Eureka are all due to road work.

In the PM Figures 19-21, for construction related delays, 2 projects were impactful: the I-270 North project and the I-55 South Bridge Rehab project. Between 2022 and 2023, as construction wrapped up on I-270 North, congestion is no longer seen. For the I-55 project, as construction continues, the growing impact of severe congestion is seen, especially during the PM peak.

Additionally, recurring congestion is worsening, as seen in these Figures. Some notable PM congested locations include I-270 South in St. Louis County, and at I-64 and I-70 in St. Charles County.

Figure 16: Regional Interstate Congestion (6-7 AM)

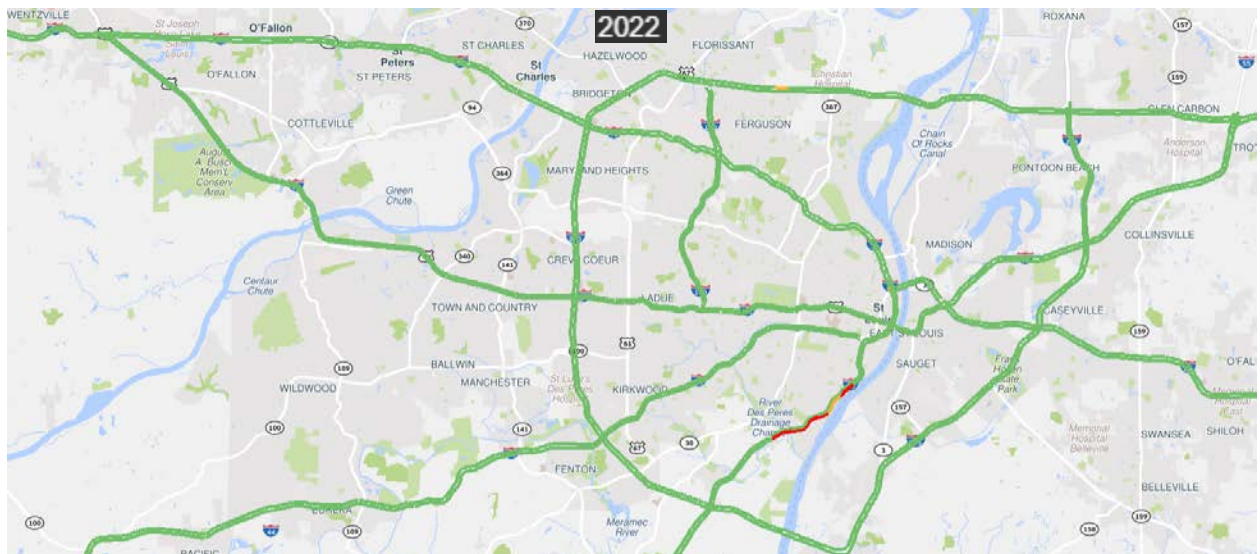
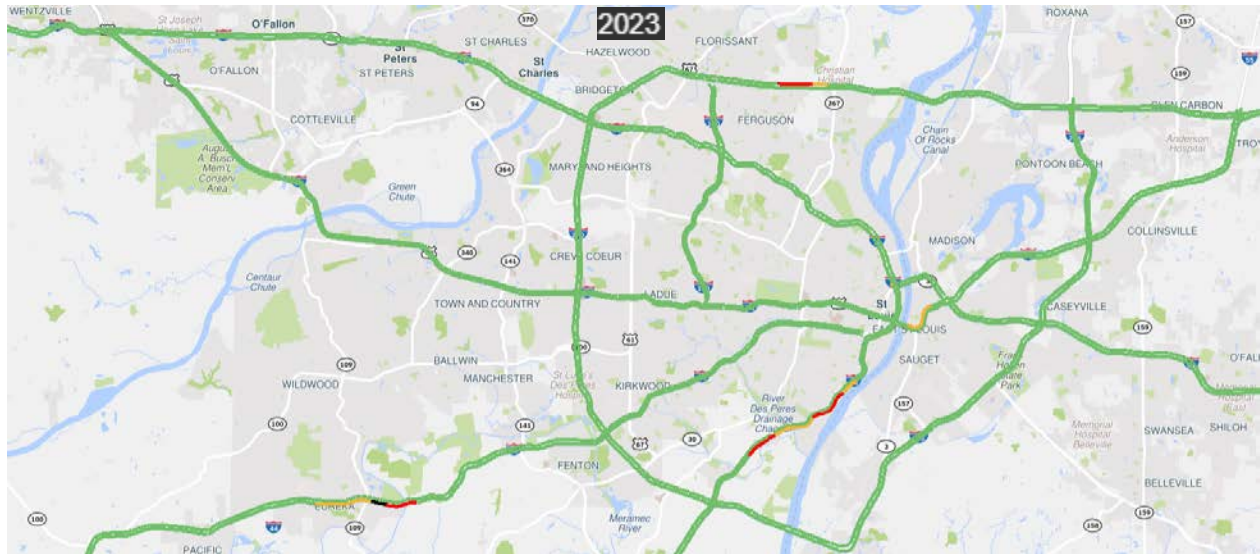
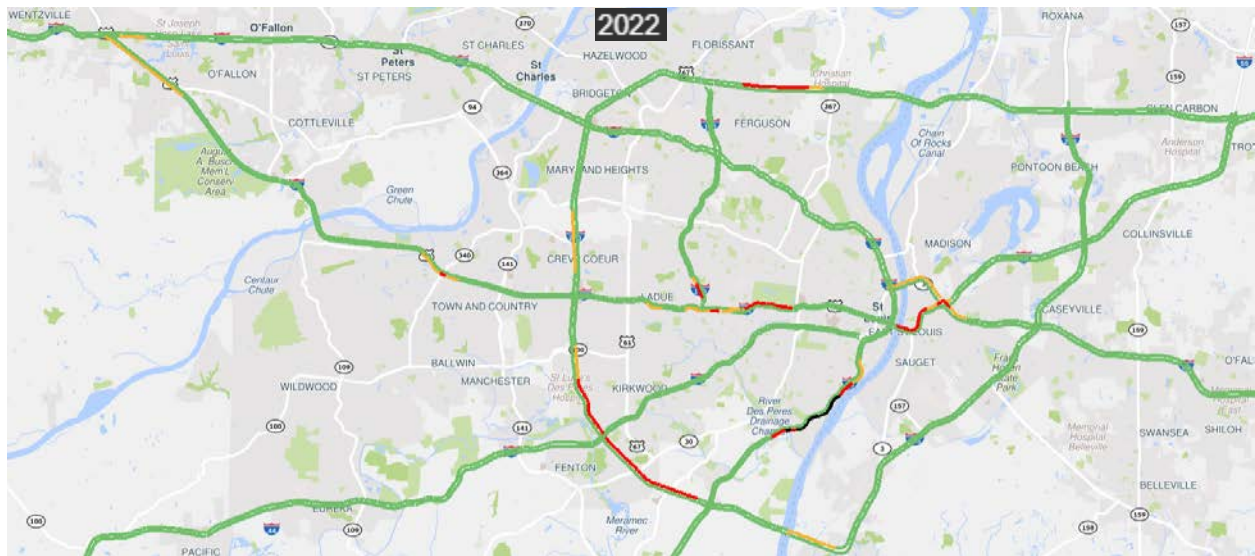
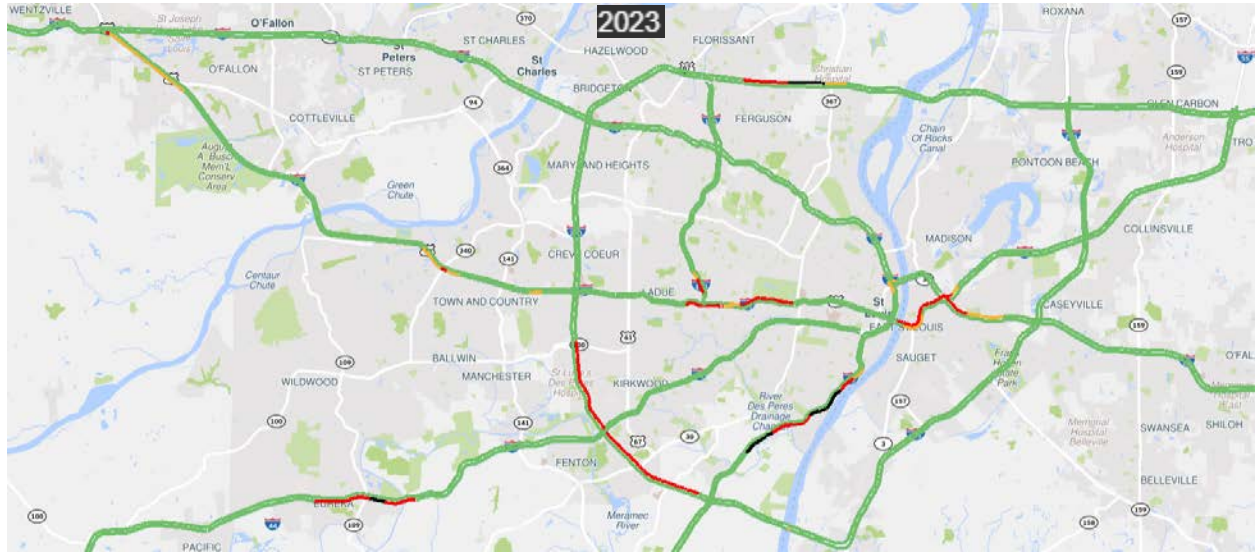


Figure 17: Regional Interstate Congestion (7-8 AM)



Congestion (%)



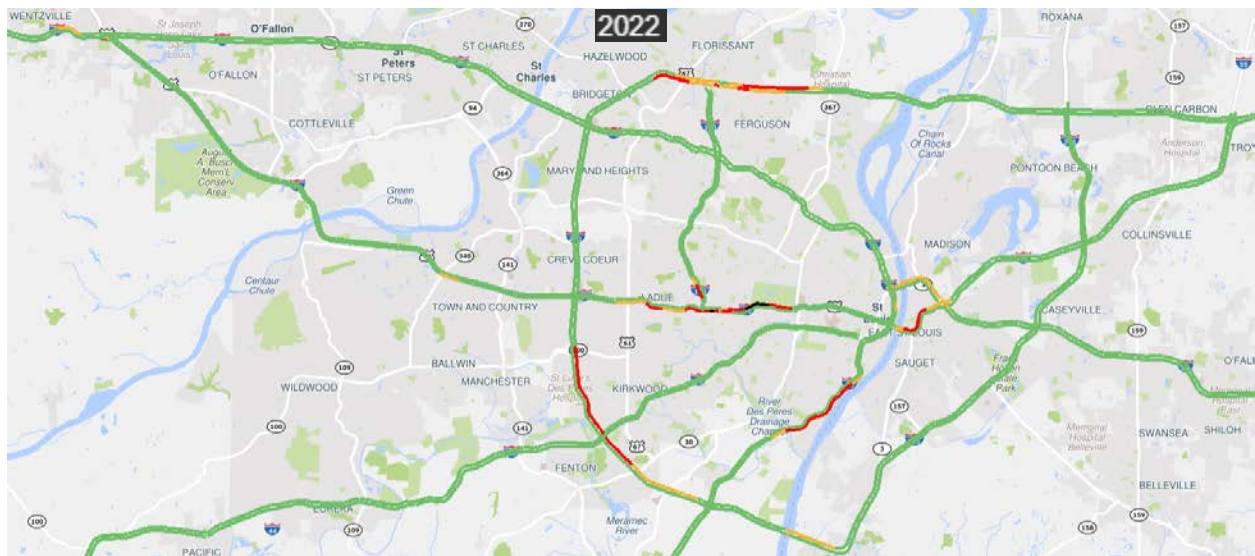
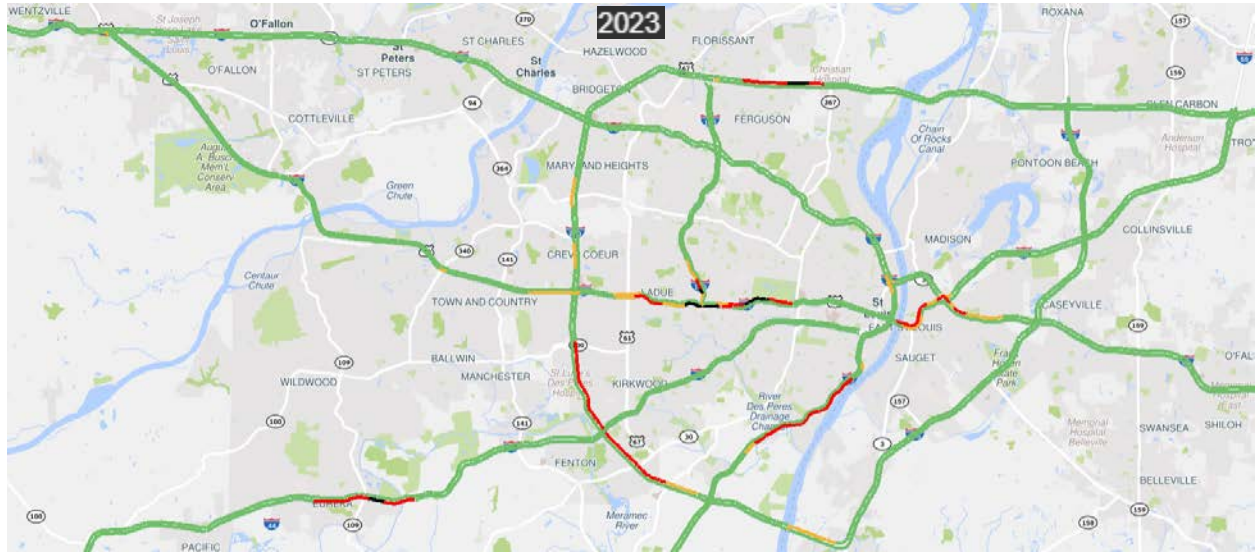
Severe

Heavy

Moderate

Uncongested

Figure 18: Regional Interstate Congestion (8-9 AM)



Congestion (%)



Severe

Heavy

Moderate

Uncongested

Figure 19: Regional Interstate Congestion (3-4 PM)

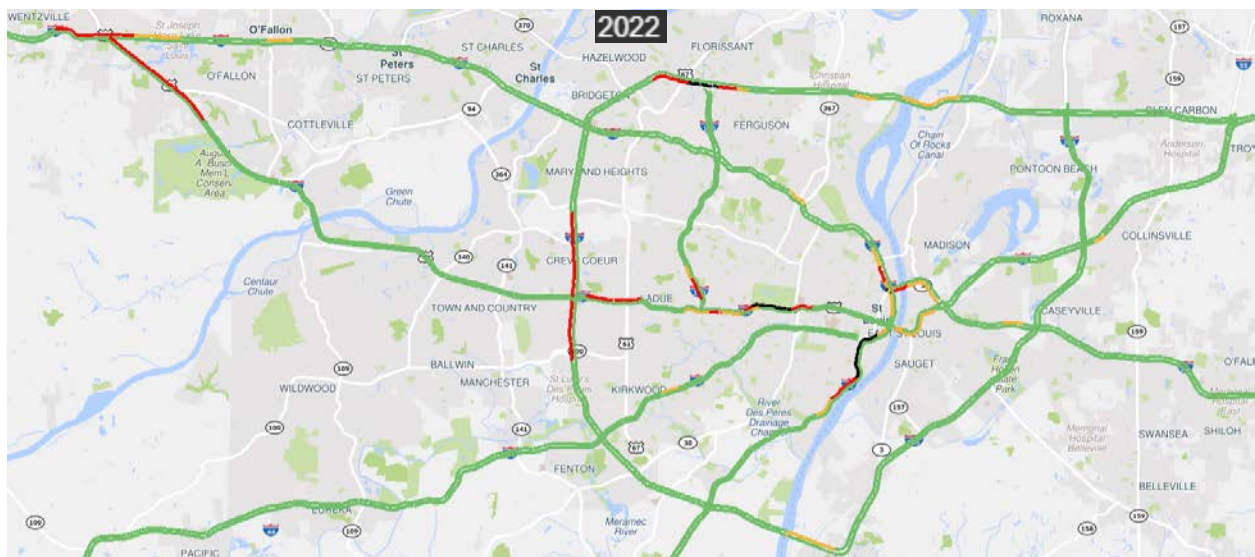
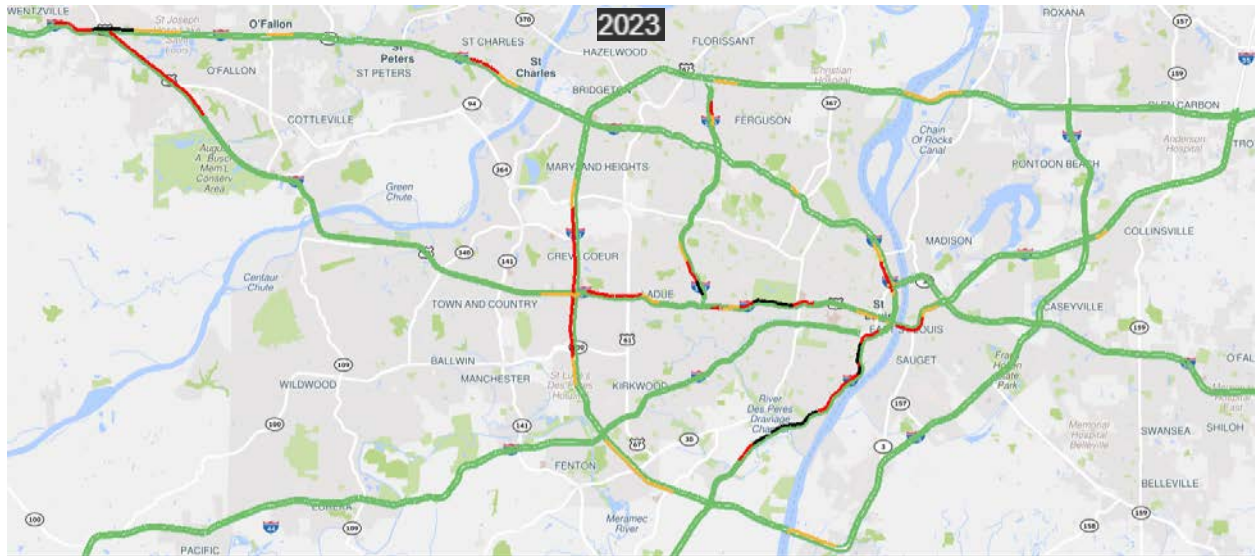
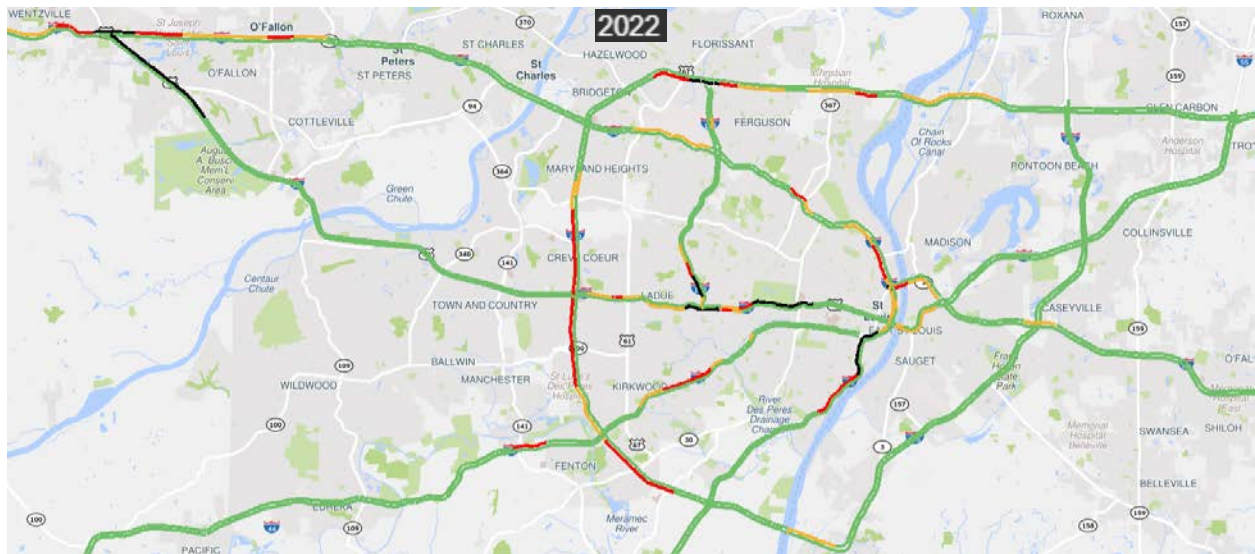
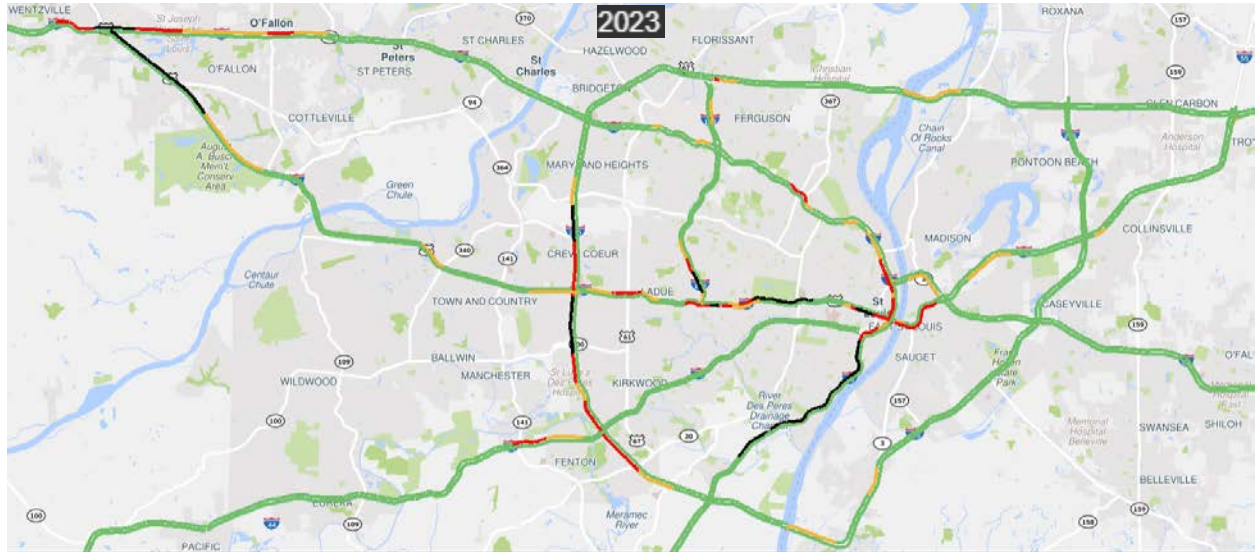


Figure 20: Regional Interstate Congestion (4-5 PM)



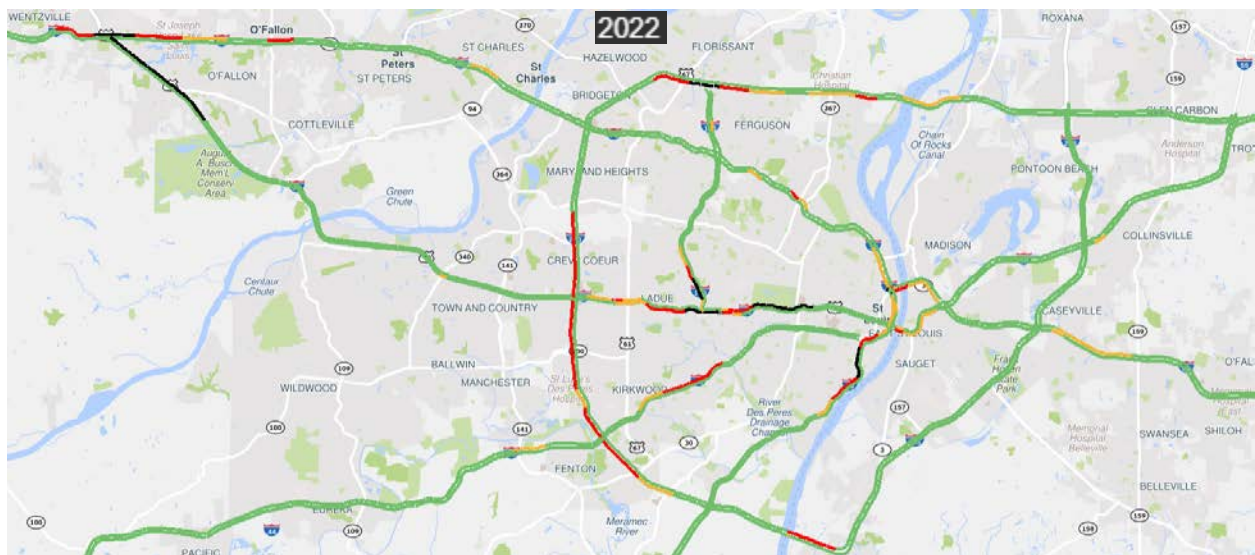
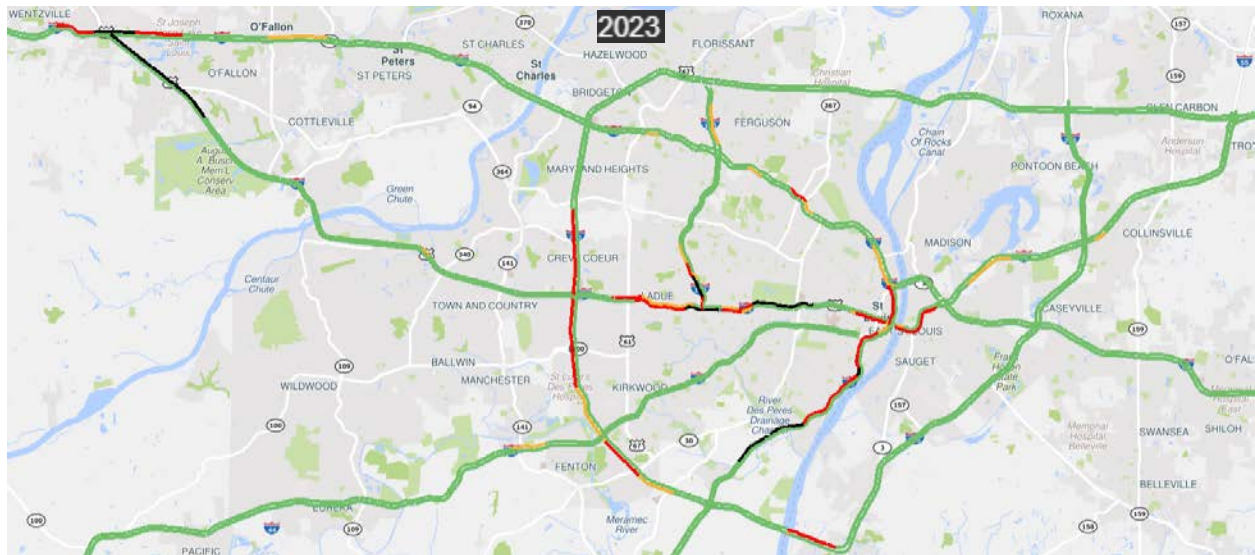
Severe

Heavy

Moderate

Uncongested

Figure 21: Regional Interstate Congestion (5-6 PM)



Severe

Heavy

Moderate

Uncongested

3 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. Strategies that significantly improve congestion are encouraged in future project sponsorship.

Currently, IDOT and MoDOT’s 2023 signal optimization reports are in the works. They are expected to be ready in the fall of 2024.

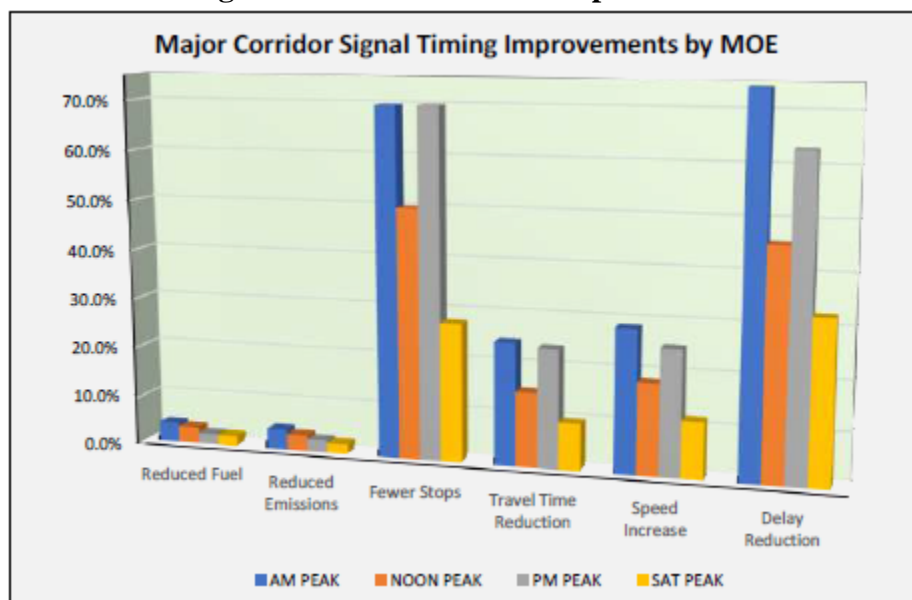
The following section provides information on St. Charles County’s 2022 Gateway Green Light (GGL) Signal Optimization project.

3.1 St. Charles County’s Gateway Green Light (GGL) Signal Optimization

Signal optimization is the fine-tuning traffic lights along a roadway corridor. It involves testing different timings for when lights change, setting how long each cycle should last, adjusting when one light turns green compared to another, and deciding the order in which lights change. In O’Fallon, MO, a total of 24 signals across 8 different roadways were analyzed with the goals to reduce stops, shorten waiting queues, minimize fuel waste, and ensure a steady movement of vehicles through one light to the next.

Based on before/after travel time comparisons and modeling output for gasoline consumption and emissions data, the estimated peak hour benefits of the optimization effort are captured in Figure 22. MOE stands for Measures of Effectiveness.

Figure 22: Corridor Wide Improvements



Tables 16 and 17 are derived from the project's emissions and benefit report, summarizing the benefits based on Synchro modeling results.

Table 16: Annual Emissions Reduction

Corridor	Annual CO Reduction (lbs)	Annual NOx Reduction (lbs)	Annual VOC Reduction (lbs)	Total Annual Emissions Reduction (lbs)
Main Street	2,434	476	556	3,466
Mexico Road	3,889	952	1,139	5,980
TR Hughes Blvd	2,857	569	661	4,087
Tom Ginnever Avenue	1,071	198	304	1,574
Sonderen Street	450	93	119	661
OFallon Road/Feise Road	1,217	225	265	1,706
Overall Annual Emissions Reductions	11,918	2,513	3,043	17,475

Table 17: Project Benefit Summary

Corridor	Stop Reduction: Annual Benefit	Delay Reduction: Annual Benefit	Fuel Reduction: Annual Benefit	Total Annual Benefit
Main Street	\$17,020	\$190,142	\$74,034	\$281,196
Mexico Road	\$5,559	\$135,511	\$112,422	\$253,492
TR Hughes Blvd	\$3,163	\$98,030	\$82,260	\$183,453
Tom Ginnever Avenue	\$5,951	\$75,880	\$32,904	\$114,735
Sonderen Street	\$4,511	\$37,584	\$21,936	\$64,031
OFallon Road/Feise Road	\$7,300	\$137,808	\$38,388	\$183,496
Overall Annual Benefits	\$43,504	\$674,954	\$361,944	\$1,080,402
Annualized Project Cost	\$38,805			
Benefit Cost Ratio	28:1			

3.2 Regional Intelligent Data Sharing Initiative (RIDS)

RIDS consolidates transportation information into one place and allows data warehousing, data integration, and data visualization. It was created by a group of Mizzou software developers and is now headed by Dr. Yaw Adu-Gyamfi. It houses 12 terabytes of data on crashes, incidents, work zones, speed, travel time, weather, and probe data. It also provides live roadway CCTV.

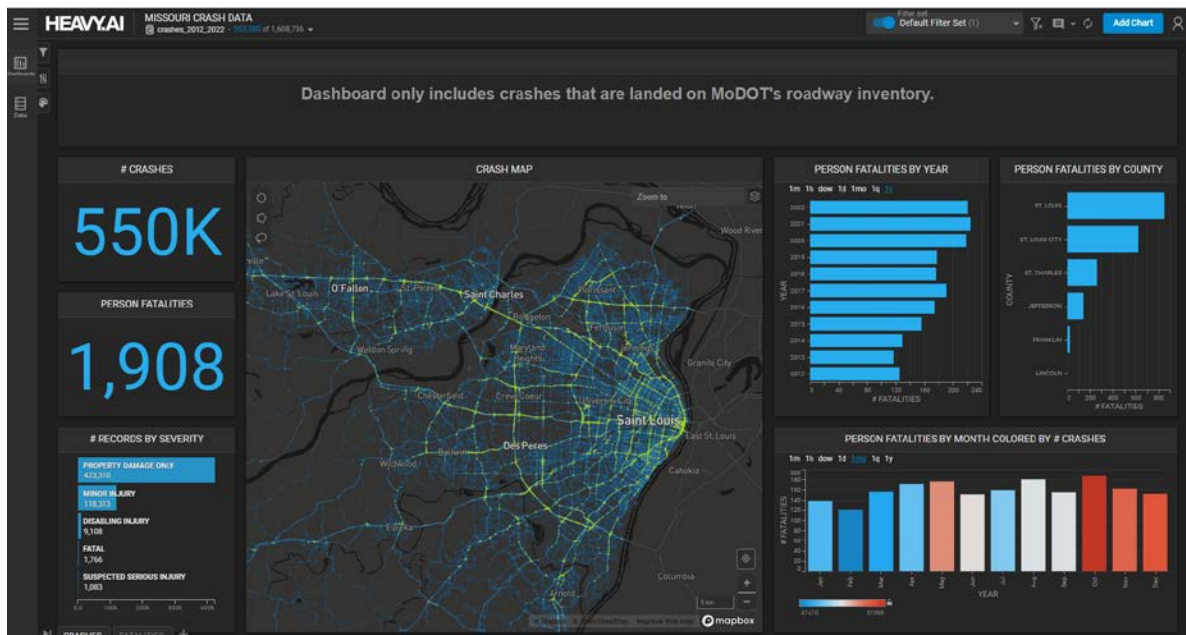
RIDS includes 15 apps and allows users to query for and quickly download data. It also offers real-time data on incidents and traffic conditions, as well as predictive components for assessing crash risk. It's a valuable tool that makes regional transportation information widely available to support planning, decision making, operations management, and incident response. It can be accessed by anyone associated with Missouri or Illinois transportation agencies at

<https://ridsi-dash.com/>

RIDS dashboard sample



Safety dashboard sample



Work Zone dashboard sample



4 Conclusions

Congestion in the Gateway region has risen following the pandemic. As more workers return to the office, commute times are on the rise. Additionally, as seen in Appendix 4, many major work zones caused severe delays for drivers in 2023.

Table 18: Comparing Interstates

Measure	2021		2022		2023	
	AM	PM	AM	PM	AM	PM
Total Congested Miles	5.2	53.5	31.51	91.39	35.74	77.82
Average PTI	2.12	2.42	2.33	2.35	2.72	2.37
Average TTI	1.17	1.32	1.22	1.31	1.28	1.36
Average Severity	1.64	1.87	1.77	1.83	2	1.86
Average Delay Impact	2.08	2.93	3.29	4.62	4.32	5.33

Coming out of Covid, total congested interstate miles increased greatly in 2022. In 2023, completion of the I-270 North project reduced total PM congested miles by 13.5. Comparing congestion metrics of 2022 to 2023, every AM congestion measure saw an increase. This indicated worsening traffic for commuters and unreliability in travel times, likely attributable to road work on major interstates. As seen by increased Delay Impact during both peak times, motorists experienced longer stretches of congestion on interstates throughout the region.

Table 19: Comparing Arterials

Measure	2021		2022		2023	
	AM	PM	AM	PM	AM	PM
Total Congested Miles	3.3	47.9	15.42	77.29	13.47	87.02
Average PTI	2.2	2.18	2.17	2.12	2.1	2.13
Average TTI	1.48	1.56	1.51	1.55	1.59	1.58
Average Severity	1.84	1.87	1.84	1.84	1.84	1.85
Average Delay Impact	0.7	1.32	1.08	1.47	0.91	1.56

In 2023, total congested AM arterial miles decreased slightly causing AM Delay Impact to fall. The analysis determined 7.78 more congested arterial miles and all PM congestion metrics rose slightly in 2023 compared to 2022.

As seen in this report, Covid forced a reduction in vehicular travel as the public adapted with remote work, school, and online shopping. Overall, vehicle miles traveled increased in 2023, causing worsened congestion and longer travel times throughout the region.

Appendices

Appendix 1: 2023 Ranked Interstate Locations

Table A.1: 2023 Interstate Locations Ranked by Severity

Rank by Severity	Map ID No.	Route	Limits	State	Area	Direction	Peak	Queue Length (Mi)	PTI	TTI	Severity	Delay Impact
1	11	I-64	MO-N to I-70	MO	St. Charles	WB	PM	5.59	4.05	1.85	2.95	10.34
2	2	I-55	Park Ave to Reavis Barracks	MO	St. Louis City	SB	PM	9.81	3.75	1.76	2.76	17.27
3	7	I-64	S Kingshighway to Big Bend Blvd	MO	St. Louis City	WB	PM	3.93	3.29	1.9	2.60	7.47
4	14	I-44	Lewis Rd to MO-109	MO	St. Louis County	EB	AM	4.64	3.56	1.46	2.51	6.77
5	15	I-270	Old Halls Ferry Rd to N Elizabeth Ave	MO	St. Louis County	WB	AM	3.66	3.36	1.41	2.39	5.16
6	1	I-55	Arsenal to Union Rd	MO	St. Louis City	NB	AM	6.08	3.02	1.45	2.24	8.82
7	21	I-170	Delmar Blvd to I-64	MO	St. Louis County	SB	PM	3.16	2.71	1.48	2.10	4.68
8	12	I-70	MO-A to Pearce Blvd	MO	St. Charles	WB	PM	5.69	2.64	1.47	2.06	8.36
9	17	I-64	Big Bend Blvd to I-170	MO	St. Louis County	EB	AM	2.17	2.8	1.28	2.04	2.78
10	6	I-64	Hampton Ave to Big Bend Blvd	MO	St. Louis City	WB	AM	2.93	2.78	1.29	2.04	3.78
11	19	I-64	Olive Blvd to Chesterfield Pkwy	MO	St. Louis County	EB	AM	0.31	2.86	1.16	2.01	0.36
12	8	I-64	I-70 to Jefferson Ave	MO	St. Louis City	EB	PM	2.05	2.62	1.35	1.99	2.77
13	16	I-64	Clayton Rd to Ballas Rd	MO	St. Louis County	WB	PM	3.33	2.68	1.24	1.96	4.13
14	18	I-64	Bellevue Ave to 40 Dr	MO	St. Louis County	EB	PM	4.34	2.54	1.38	1.96	5.99
15	22	I-170	Hanley Rd to Airport Rd	MO	St. Louis County	NB	PM	1.14	2.38	1.49	1.94	1.70
16	4	I-70	I-64 to Salisbury St	MO	St. Louis City	EB	PM	3.87	2.61	1.24	1.93	4.80
17	5	I-70	Riverview Blvd to Jennings Staton Rd	MO	St. Louis City	WB	PM	1.15	2.55	1.29	1.92	1.48
18	23	I-270	Page Ave to Tesson Ferry	MO	St. Louis County	SB	PM	15.75	2.4	1.35	1.88	21.26
19	30	I-55/I-64	Poplar St Bridge to 25th St	IL	Illinois	WB	AM	4.12	2.43	1.29	1.86	5.31
20	31	I-55/I-64	Martin Luther King Dr to Poplar St Bridge	IL	Illinois	EB	PM	2.49	2.31	1.38	1.85	3.44
21	24	I-270	Tesson Ferry to Manchester Rd	MO	St. Louis County	NB	AM	9.58	2.3	1.24	1.77	11.88
22	3	I-70	I-70 Express to 7th St	MO	St. Louis City	EB	AM	0.53	2.41	1.12	1.77	0.59
23	28	I-55/I-70	I-64 / IL-3	IL	Illinois	WB	AM	0.66	2.32	1.2	1.76	0.79
24	10	I-70	TR Hughes to MO-K	MO	St. Charles	WB	PM	2.64	2.18	1.2	1.69	3.17
25	13	I-44	MO-141 to Antire Rd	MO	St. Louis County	WB	PM	1.53	2.17	1.18	1.68	1.81
26	20	I-170	Forest Park Pkwy to Galleria Pkwy	MO	St. Louis County	SB	AM	1.06	2.06	1.19	1.63	1.26
27	25	I-55	MO-Z to McNutt St	MO	Jefferson	SB	PM	6.46	1.89	1.18	1.54	7.62
28	26	I-55	Veterans Blvd to US-67	MO	Jefferson	SB	PM	1.24	1.79	1.12	1.46	1.39
29	32	I-55/I-64	Poplar St Bridge	IL	Illinois	WB	PM	0.4	1.57	1.13	1.35	0.45
30	9	I-70	Cass Ave to I-44	MO	St. Louis City	WB	PM	0.43	1.26	1.19	1.23	0.51

31	27	I-255	Missouri/Illinois State line	IL	Illinois	SB	PM	2.27	1.23	1.2	1.22	2.72
32	29	I-55/I-70	IL-157 to IL-255	IL	Illinois	EB	PM	0.55	1.15	1.16	1.16	0.64

Table A.2: 2023 Interstate Locations Ranked by Delay Impact

Rank by Delay Impact	Map ID No.	Route	Limits	State	Area	Direction	Peak	Queue Length (Mi)	PTI	TTI	Severity	Delay Impact
1	23	I-270	Page Ave to Tesson Ferry	MO	St. Louis County	SB	PM	15.75	2.4	1.35	1.88	21.26
2	2	I-55	Park Ave to Reavis Barracks	MO	St. Louis City	SB	PM	9.81	3.75	1.76	2.76	17.27
3	24	I-270	Tesson Ferry to Manchester Rd	MO	St. Louis County	NB	AM	9.58	2.3	1.24	1.77	11.88
4	11	I-64	MO-N to I-70	MO	St. Charles	WB	PM	5.59	4.05	1.85	2.95	10.34
5	1	I-55	Arsenal to Union Rd	MO	St. Louis City	NB	AM	6.08	3.02	1.45	2.24	8.82
6	12	I-70	MO-A to Pearce Blvd	MO	St. Charles	WB	PM	5.69	2.64	1.47	2.06	8.36
7	25	I-55	MO-Z to McNutt St	MO	Jefferson	SB	PM	6.46	1.89	1.18	1.54	7.62
8	7	I-64	S Kingshighway to Big Bend Blvd	MO	St. Louis City	WB	PM	3.93	3.29	1.9	2.60	7.47
9	14	I-44	Lewis Rd to MO-109	MO	St. Louis County	EB	AM	4.64	3.56	1.46	2.51	6.77
10	18	I-64	Bellevue Ave to 40 Dr	MO	St. Louis County	EB	PM	4.34	2.54	1.38	1.96	5.99
11	30	I-55/I-64	Poplar St Bridge to 25th St	IL	Illinois	WB	AM	4.12	2.43	1.29	1.86	5.31
12	15	I-270	Old Halls Ferry Rd to N Elizabeth Ave	MO	St. Louis County	WB	AM	3.66	3.36	1.41	2.39	5.16
13	4	I-70	I-64 to Salisbury St	MO	St. Louis City	EB	PM	3.87	2.61	1.24	1.93	4.80
14	21	I-170	Delmar Blvd to I-64	MO	St. Louis County	SB	PM	3.16	2.71	1.48	2.10	4.68
15	16	I-64	Clayton Rd to Ballas Rd	MO	St. Louis County	WB	PM	3.33	2.68	1.24	1.96	4.13
16	6	I-64	Hampton Ave to Big Bend Blvd	MO	St. Louis City	WB	AM	2.93	2.78	1.29	2.04	3.78
17	31	I-55/I-64	Martin Luther King Dr to Poplar St Bridge	IL	Illinois	EB	PM	2.49	2.31	1.38	1.85	3.44
18	10	I-70	TR Hughes to MO-K	MO	St. Charles	WB	PM	2.64	2.18	1.2	1.69	3.17
19	17	I-64	Big Bend Blvd to I-170	MO	St. Louis County	EB	AM	2.17	2.8	1.28	2.04	2.78
20	8	I-64	I-70 to Jefferson Ave	MO	St. Louis City	EB	PM	2.05	2.62	1.35	1.99	2.77
21	27	I-255	Missouri/Illinois State line	IL	Illinois	SB	PM	2.27	1.23	1.2	1.22	2.72
22	13	I-44	MO-141 to Antire Rd	MO	St. Louis County	WB	PM	1.53	2.17	1.18	1.68	1.81
23	22	I-170	Hanley Rd to Airport Rd	MO	St. Louis County	NB	PM	1.14	2.38	1.49	1.94	1.70
24	5	I-70	Riverview Blvd to Jennings Staton Rd	MO	St. Louis City	WB	PM	1.15	2.55	1.29	1.92	1.48
25	26	I-55	Veterans Blvd to US-67	MO	Jefferson	SB	PM	1.24	1.79	1.12	1.46	1.39
26	20	I-170	Forest Park Pkwy to Galleria Pkwy	MO	St. Louis County	SB	AM	1.06	2.06	1.19	1.63	1.26
27	28	I-55/I-70	I-64 / IL-3	IL	Illinois	WB	AM	0.66	2.32	1.2	1.76	0.79

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28	29	I-55/I-70	IL-157 to IL-255	IL	Illinois	EB	PM	0.55	1.15	1.16	1.16	0.64
29	3	I-70	I-70 Express to 7th St	MO	St. Louis City	EB	AM	0.53	2.41	1.12	1.77	0.59
30	9	I-70	Cass Ave to I-44	MO	St. Louis City	WB	PM	0.43	1.26	1.19	1.23	0.51
31	32	I-55/I-64	Poplar St Bridge	IL	Illinois	WB	PM	0.4	1.57	1.13	1.35	0.45
32	19	I-64	Olive Blvd to Chesterfield Pkwy	MO	St. Louis County	EB	AM	0.31	2.86	1.16	2.01	0.36

Appendix 2: 2023 Ranked Arterial Locations

Table A.3: 2023 City of St. Louis Arterial Locations Ranked by Severity

Rank by Severity	Map ID No.	Route	Limits	Direction	Peak	Queue Length (Mi)	PTI	TTI	Severity	Delay Impact
1	29	Grand Blvd	I-70	SB	PM	0.39	3.33	2.6	2.97	1.01
2	38	Jefferson Ave	Market St	SB	PM	0.3	3.71	2.07	2.89	0.62
3	15	Skinker Blvd	Forest Park Pkwy	SB	PM	0.43	3.57	1.93	2.75	0.83
4	35	Jefferson Ave	Washington Blvd	NB	AM	0.3	2.27	2.78	2.53	0.83
5	28	Grand Blvd	I-70	SB	AM	0.39	2.86	2.13	2.50	0.83
6	5	Kingshighway	Laclede Ave to Manchester Ave	SB	PM	1.26	2.73	1.84	2.29	2.32
7	6	Kingshighway	Laclede Ave to Forest Park Ave	NB	AM	0.79	2.64	1.67	2.16	1.32
8	40	Jefferson Ave	I-64	SB	PM	0.34	2.6	1.7	2.15	0.58
9	90	MO-100	McCausland Ave	EB	PM	0.83	2.36	1.84	2.10	1.53
10	23	Cole St	N Tucker Blvd to I-44	WB	PM	0.55	2.52	1.64	2.08	0.90
11	31	Grand Blvd	Hall St	NB	PM	0.35	2.29	1.86	2.08	0.65
12	24	Forest Park Ave	N Skinker Blvd to N Big Bend Blvd	WB	PM	1.62	2.51	1.6	2.06	2.59
13	39	Jefferson Ave	I-64	SB	AM	0.34	2.36	1.71	2.04	0.58
14	13	Market St	7th St to Tucker Blvd	EB	PM	0.44	2.45	1.59	2.02	0.70
15	9	McCausland Ave	Arsenal St to I-64	SB	AM	0.7	2.44	1.59	2.02	1.11
16	12	Market St	US-40 to Forest Park Ave	WB	PM	0.55	2.44	1.56	2.00	0.86
17	7	Kingshighway	Lindell Blvd to I-64	NB	PM	1.05	2.28	1.69	1.99	1.77
18	30	Grand Blvd	Hall St	NB	AM	0.35	2.29	1.65	1.97	0.58
19	37	Jefferson Ave	Market St	SB	AM	0.3	2.36	1.54	1.95	0.46
20	17	Broadway	Cole St to Washington Ave	SB	PM	0.51	2.36	1.52	1.94	0.78
21	20	Cole St	I-44 to N Tucker Blvd	EB	AM	0.55	2.31	1.51	1.91	0.83
22	22	Cole St	N Tucker Blvd	WB	AM	0.46	2.2	1.57	1.89	0.72
23	4	Kingshighway	Laclede Ave to Manchester Ave	SB	AM	1.26	2.19	1.54	1.87	1.94
24	32	Grand Blvd	Lindell Blvd to I-64	NB	PM	0.38	2.11	1.62	1.87	0.62
25	18	Broadway	Olive St to Chouteau Ave	SB	PM	0.72	2.3	1.37	1.84	0.99
26	11	McCausland Ave	Oakland Ave to Southwest Ave	NB	PM	0.73	2.1	1.5	1.80	1.10
27	33	Grand Blvd	Arsenal St	NB	PM	0.71	2	1.56	1.78	1.11
28	14	Market St	18th St to Jefferson Ave	EB	PM	0.93	2.09	1.4	1.75	1.30
29	21	Cole St	I-44 to N Tucker Blvd	EB	PM	0.55	2.07	1.42	1.75	0.78
30	10	McCausland Ave	Arsenal St to Southwest Ave	SB	PM	0.43	2	1.48	1.74	0.64
31	3	Tucker Blvd	Market St to Cole St	SB	PM	0.57	1.92	1.48	1.70	0.84
32	1	Tucker Blvd	Park Ave to Lafayette Ave	NB	AM	0.34	2	1.37	1.69	0.47
33	85	MO-100	S Big Bend	WB	PM	0.83	1.83	1.54	1.69	1.28

34	41	Jefferson Ave	MO-30	SB	PM	0.43	1.93	1.42	1.68	0.61
35	89	MO-100	McCausland Ave	EB	AM	0.83	1.86	1.45	1.66	1.20
36	36	Jefferson Ave	Washington Blvd	NB	PM	0.3	1.54	1.75	1.65	0.53
37	19	S Broadway	S Jefferson Ave	NB	PM	0.53	1.86	1.41	1.64	0.75
38	27	Forest Park Pkwy	I-64 to S Kingshighway Blvd	EB	PM	2.03	1.79	1.42	1.61	2.88
39	78	MO-D	Skinker Pkwy	WB	PM	0.46	1.8	1.41	1.61	0.65
40	16	Skinker Blvd	Delmar Blvd	NB	PM	0.43	1.73	1.47	1.60	0.63
41	26	Forest Park Pkwy	S Kingshighway Blvd	WB	PM	1.3	1.75	1.45	1.60	1.89
42	25	Forest Park Ave	N Skinker Blvd to N Big Bend Blvd	WB	AM	1.3	1.75	1.43	1.59	1.86
43	2	Tucker Blvd	Market St to Cole St	SB	AM	0.57	1.77	1.38	1.58	0.79
44	8	Kingshighway	Arsenal St	NB	PM	0.98	1.73	1.4	1.57	1.37
45	34	Hampton Ave	I-44	NB	PM	0.6	1.69	1.43	1.56	0.86

Table A.4: 2023 City of St. Louis Arterial Locations Ranked by Delay Impact

Rank by Delay Impact	Map ID No.	Route	Limits	Direction	Peak	Queue Length (Mi)	PTI	TTI	Severity	Delay Impact
1	27	Forest Park Pkwy	I-64 to S Kingshighway Blvd	EB	PM	2.03	1.79	1.42	1.605	2.88
2	24	Forest Park Ave	N Skinker Blvd to N Big Bend Blvd	WB	PM	1.62	2.51	1.6	2.055	2.59
3	5	Kingshighway	Laclede Ave to Manchester Ave	SB	PM	1.26	2.73	1.84	2.285	2.32
4	4	Kingshighway	Laclede Ave to Manchester Ave	SB	AM	1.26	2.19	1.54	1.865	1.94
5	26	Forest Park Pkwy	S Kingshighway Blvd	WB	PM	1.3	1.75	1.45	1.6	1.89
6	25	Forest Park Ave	N Skinker Blvd to N Big Bend Blvd	WB	AM	1.3	1.75	1.43	1.59	1.86
7	7	Kingshighway	Lindell Blvd to I-64	NB	PM	1.05	2.28	1.69	1.985	1.77
8	90	MO-100	McCausland Ave	EB	PM	0.83	2.36	1.84	2.1	1.53
9	8	Kingshighway	Arsenal St	NB	PM	0.98	1.73	1.4	1.565	1.37
10	6	Kingshighway	Laclede Ave to Forest Park Ave	NB	AM	0.79	2.64	1.67	2.155	1.32
11	14	Market St	18th St to Jefferson Ave	EB	PM	0.93	2.09	1.4	1.745	1.30
12	85	MO-100	S Big Bend	WB	PM	0.83	1.83	1.54	1.685	1.28
13	89	MO-100	McCausland Ave	EB	AM	0.83	1.86	1.45	1.655	1.20
14	9	McCausland Ave	Arsenal St to I-64	SB	AM	0.7	2.44	1.59	2.015	1.11
15	33	Grand Blvd	Arsenal St	NB	PM	0.71	2	1.56	1.78	1.11
16	11	McCausland Ave	Oakland Ave to Southwest Ave	NB	PM	0.73	2.1	1.5	1.8	1.10
17	29	Grand Blvd	I-70	SB	PM	0.39	3.33	2.6	2.965	1.01
18	18	Broadway	Olive St to Chouteau Ave	SB	PM	0.72	2.3	1.37	1.835	0.99
19	23	Cole St	N Tucker Blvd to I-44	WB	PM	0.55	2.52	1.64	2.08	0.90

20	12	Market St	US-40 to Forest Park Ave	WB	PM	0.55	2.44	1.56	2	0.86
21	34	Hampton Ave	I-44	NB	PM	0.6	1.69	1.43	1.56	0.86
22	3	Tucker Blvd	Market St to Cole St	SB	PM	0.57	1.92	1.48	1.7	0.84
23	35	Jefferson Ave	Washington Blvd	NB	AM	0.3	2.27	2.78	2.525	0.83
24	28	Grand Blvd	I-70	SB	AM	0.39	2.86	2.13	2.495	0.83
25	20	Cole St	I-44 to N Tucker Blvd	EB	AM	0.55	2.31	1.51	1.91	0.83
26	15	Skinker Blvd	Forest Park Pkwy	SB	PM	0.43	3.57	1.93	2.75	0.83
27	2	Tucker Blvd	Market St to Cole St	SB	AM	0.57	1.77	1.38	1.575	0.79
28	21	Cole St	I-44 to N Tucker Blvd	EB	PM	0.55	2.07	1.42	1.745	0.78
29	17	Broadway	Cole St to Washington Ave	SB	PM	0.51	2.36	1.52	1.94	0.78
30	19	S Broadway	S Jefferson Ave	NB	PM	0.53	1.86	1.41	1.635	0.75
31	22	Cole St	N Tucker Blvd	WB	AM	0.46	2.2	1.57	1.885	0.72
32	13	Market St	7th St to Tucker Blvd	EB	PM	0.44	2.45	1.59	2.02	0.70
33	31	Grand Blvd	Hall St	NB	PM	0.35	2.29	1.86	2.075	0.65
34	78	MO-D	Skinker Pkwy	WB	PM	0.46	1.8	1.41	1.605	0.65
35	10	McCausland Ave	Arsenal St to Southwest Ave	SB	PM	0.43	2	1.48	1.74	0.64
36	16	Skinker Blvd	Delmar Blvd	NB	PM	0.43	1.73	1.47	1.6	0.63
37	38	Jefferson Ave	Market St	SB	PM	0.3	3.71	2.07	2.89	0.62
38	32	Grand Blvd	Lindell Blvd to I-64	NB	PM	0.38	2.11	1.62	1.865	0.62
39	41	Jefferson Ave	MO-30	SB	PM	0.43	1.93	1.42	1.675	0.61
40	39	Jefferson Ave	I-64	SB	AM	0.34	2.36	1.71	2.035	0.58
41	40	Jefferson Ave	I-64	SB	PM	0.34	2.6	1.7	2.15	0.58
42	30	Grand Blvd	Hall St	NB	AM	0.35	2.29	1.65	1.97	0.58
43	36	Jefferson Ave	Washington Blvd	NB	PM	0.3	1.54	1.75	1.645	0.53
44	1	Tucker Blvd	Park Ave to Lafayette Ave	NB	AM	0.34	2	1.37	1.685	0.47
45	37	Jefferson Ave	Market St	SB	AM	0.3	2.36	1.54	1.95	0.46

Table A.5: 2023 St. Louis County Arterial Locations Ranked by Severity

Rank by Severity	Map ID No.	Route	Limits	Direction	Peak	Queue Length (Mi)	PTI	TTI	Severity	Delay Impact
1	104	MO-340	Chesterfield Pkwy to Baxter Rd	SB	PM	0.94	3.69	1.81	2.75	1.70
2	94	MO-30	Gravois to Watson Rd	WB	PM	1.71	3.39	1.56	2.48	2.67
3	81	MO-141	US-61	SB	PM	1.24	2.92	1.64	2.28	2.03
4	108	MO-AC	I-270 to Old Halls Ferry Rd	NB	PM	0.69	2.83	1.68	2.26	1.16
5	107	MO-367	I-270	NB	PM	1.51	2.67	1.66	2.17	2.51
6	86	MO-100	MO-141 to Baxter Rd	WB	PM	2.28	2.58	1.55	2.07	3.53
7	93	MO-30	US-61	WB	PM	0.33	2.38	1.71	2.05	0.56
8	88	MO-100	Old State Rd	WB	PM	0.53	2.1	1.8	1.95	0.95

9	79	MO-D	Woodson Rd	WB	PM	0.35	2.21	1.67	1.94	0.58
10	103	MO-340	I-270	SB	PM	0.85	2.33	1.53	1.93	1.30
11	69	US-67	Patterson Rd to Charbonier Rd	SB	PM	0.67	2.28	1.54	1.91	1.03
12	96	MO-30	Sappington Rd	EB	PM	0.33	2	1.66	1.83	0.55
13	102	Laclede Station Rd	Murdoch Ave	SB	PM	0.43	2.38	1.27	1.83	0.55
14	75	US-61	I-55 to US-50	NB	PM	0.81	2.08	1.54	1.81	1.25
15	73	US-67	MO-AC to Patterson Rd	NB	PM	2.53	2.02	1.52	1.77	3.85
16	72	US-67	Patterson Rd	NB	AM	0.37	2	1.5	1.75	0.56
17	82	MO-141	Marshall Rd to Hawkins Rd	SB	PM	0.85	2.06	1.42	1.74	1.21
18	70	US-67	Old St Charles Rd	SB	PM	0.34	2	1.47	1.74	0.50
19	76	US-61	Big Bend to I-44	SB	PM	1.69	1.98	1.47	1.73	2.48
20	80	MO-D	Schuetz Rd	EB	AM	0.37	2.05	1.4	1.73	0.52
21	91	MO-100	MO-141	EB	PM	0.45	1.88	1.55	1.72	0.70
22	105	MO-340	Craig Rd	NB	PM	0.69	1.8	1.48	1.64	1.02
23	92	MO-30	US-61	WB	AM	0.33	1.82	1.41	1.62	0.47
24	109	MO-U	I-70 to W Florissant Ave	NB	PM	1.95	1.79	1.42	1.61	2.77
25	95	MO-30	Sappington Rd	EB	AM	0.33	1.78	1.42	1.60	0.47
26	106	MO-366	I-44	WB	PM	0.44	1.75	1.42	1.59	0.62
27	77	US-61	Mattis Rd	SB	PM	0.96	1.67	1.44	1.56	1.38
28	87	MO-100	Old State Rd	WB	AM	0.53	1.67	1.36	1.52	0.72

Table A.6: 2023 St. Louis County Arterial Locations Ranked by Delay Impact

Rank by Delay Impact	Map ID No.	Route	Limits	Direction	Peak	Queue Length (Mi)	PTI	TTI	Severity	Delay Impact
1	73	US-67	MO-AC to Patterson Rd	NB	PM	2.53	2.02	1.52	1.77	3.85
2	86	MO-100	MO-141 to Baxter Rd	WB	PM	2.28	2.58	1.55	2.07	3.53
3	109	MO-U	I-70 to W Florissant Ave	NB	PM	1.95	1.79	1.42	1.61	2.77
4	94	MO-30	Gravois to Watson Rd	WB	PM	1.71	3.39	1.56	2.48	2.67
5	107	MO-367	I-270	NB	PM	1.51	2.67	1.66	2.17	2.51
6	76	US-61	Big Bend to I-44	SB	PM	1.69	1.98	1.47	1.73	2.48
7	81	MO-141	US-61	SB	PM	1.24	2.92	1.64	2.28	2.03
8	104	MO-340	Chesterfield Pkwy to Baxter Rd	SB	PM	0.94	3.69	1.81	2.75	1.70
9	77	US-61	Mattis Rd	SB	PM	0.96	1.67	1.44	1.56	1.38
10	103	MO-340	I-270	SB	PM	0.85	2.33	1.53	1.93	1.30
11	75	US-61	I-55 to US-50	NB	PM	0.81	2.08	1.54	1.81	1.25
12	82	MO-141	Marshall Rd to Hawkins Rd	SB	PM	0.85	2.06	1.42	1.74	1.21

13	108	MO-AC	I-270 to Old Halls Ferry Rd	NB	PM	0.69	2.83	1.68	2.26	1.16
14	69	US-67	Patterson Rd to Charbonier Rd	SB	PM	0.67	2.28	1.54	1.91	1.03
15	105	MO-340	Craig Rd	NB	PM	0.69	1.8	1.48	1.64	1.02
16	88	MO-100	Old State Rd	WB	PM	0.53	2.1	1.8	1.95	0.95
17	87	MO-100	Old State Rd	WB	AM	0.53	1.67	1.36	1.52	0.72
18	91	MO-100	MO-141	EB	PM	0.45	1.88	1.55	1.72	0.70
19	106	MO-366	I-44	WB	PM	0.44	1.75	1.42	1.59	0.62
20	79	MO-D	Woodson Rd	WB	PM	0.35	2.21	1.67	1.94	0.58
21	93	MO-30	US-61	WB	PM	0.33	2.38	1.71	2.05	0.56
22	72	US-67	Patterson Rd	NB	AM	0.37	2	1.5	1.75	0.56
23	96	MO-30	Sappington Rd	EB	PM	0.33	2	1.66	1.83	0.55
24	102	Laclede Station Rd	Murdoch Ave	SB	PM	0.43	2.38	1.27	1.83	0.55
25	80	MO-D	Schuetz Rd	EB	AM	0.37	2.05	1.4	1.73	0.52
26	70	US-67	Old St Charles Rd	SB	PM	0.34	2	1.47	1.74	0.50
27	95	MO-30	Sappington Rd	EB	AM	0.33	1.78	1.42	1.60	0.47
28	92	MO-30	US-61	WB	AM	0.33	1.82	1.41	1.62	0.47

Table A.7: 2023 St. Charles County Arterial Locations Ranked by Severity

Rank by Severity	Map ID No.	Route	Limits	Direction	Peak	Queue Length (Mi)	PTI	TTI	Severity	Delay Impact
1	74	US-61	I-70 to I-64	NB	PM	0.53	2.24	1.45	1.85	0.77
2	98	Mid Rivers Mall Dr	I-70 to Suemandy Rd	SB	PM	0.94	1.98	1.51	1.75	1.42
3	99	MO-94	W Clay St to I-70	SB	PM	1.99	1.76	1.5	1.63	2.99
4	97	Mexico Rd	Jungermann Rd	WB	PM	0.57	1.68	1.45	1.57	0.83
5	101	MO-94	Mid Rivers Mall Dr	NB	PM	3.93	1.54	1.39	1.47	5.46
6	100	MO-94	MO-370	NB	PM	1.73	1.55	1.37	1.46	2.37

Table A.8: 2023 St. Charles County Arterial Locations Ranked by Delay Impact

Rank by Delay Impact	Map ID No.	Route	Limits	Direction	Peak	Queue Length (Mi)	PTI	TTI	Severity	Delay Impact
1	101	MO-94	Mid Rivers Mall Dr	NB	PM	3.93	1.54	1.39	1.47	5.46
2	99	MO-94	W Clay St to I-70	SB	PM	1.99	1.76	1.5	1.63	2.99
3	100	MO-94	MO-370	NB	PM	1.73	1.55	1.37	1.46	2.37
4	98	Mid Rivers Mall Dr	I-70 to Suemandy Rd	SB	PM	0.94	1.98	1.51	1.75	1.42
5	97	Mexico Rd	Jungermann Rd	WB	PM	0.57	1.68	1.45	1.57	0.83
6	74	US-61	I-70 to I-64	NB	PM	0.53	2.24	1.45	1.85	0.77

Table A.9: 2023 Jefferson County Arterial Locations Ranked by Severity and Delay Impact

Rank	Map ID No.	Route	Limits	Direction	Peak	Queue Length (Mi)	PTI	TTI	Severity	Delay Impact
1	71	US-67	MO-CC	SB	PM	0.62	4.83	2.52	3.68	1.56
2	84	MO-141	Arnold Church Rd to US-61	NB	PM	0.84	1.94	1.65	1.80	1.39
3	83	MO-141	Arnold Church Rd to US-61	NB	AM	0.84	1.82	1.49	1.66	1.25

Table A.10: 2023 Franklin County Arterial Locations Ranked by Severity

Rank by Severity	Map ID No.	Route	Limits	Direction	Peak	Queue Length (Mi)	PTI	TTI	Severity	Delay Impact
1	45	MO-47	I-44	NB	PM	1.58	1.84	1.58	1.71	2.50
2	42	MO-47	Old MO-66	SB	PM	1.49	1.69	1.46	1.58	2.18
3	43	MO-47	E Independence Dr	NB	PM	1.16	1.7	1.43	1.57	1.66
4	44	MO-47	I-44	NB	AM	1.58	1.64	1.47	1.56	2.32
5	46	US-50	Independence Dr	WB	PM	1.49	1.6	1.41	1.51	2.10

Table A.11: 2023 Franklin County Arterial Locations Ranked by Delay Impact

Rank by Delay Impact	Map ID No.	Route	Limits	Direction	Peak	Queue Length (Mi)	PTI	TTI	Severity	Delay Impact
1	45	MO-47	I-44	NB	PM	1.58	1.84	1.58	1.71	2.50
2	44	MO-47	I-44	NB	AM	1.58	1.64	1.47	1.56	2.32
3	42	MO-47	Old MO-66	SB	PM	1.49	1.69	1.46	1.58	2.18
4	46	US-50	Independence Dr	WB	PM	1.49	1.6	1.41	1.51	2.10
5	43	MO-47	E Independence Dr	NB	PM	1.16	1.7	1.43	1.57	1.66

Table A.12: 2023 Illinois Arterial Locations Ranked by Severity

Rank by Severity	Map ID No.	Route	Limits	Direction	Peak	Queue Length (Mi)	PTI	TTI	Severity	Delay Impact
1	50	Governors Pkwy	IL-159	WB	PM	0.32	2.54	2.07	2.31	0.66
2	49	Governors Pkwy	IL-159	WB	AM	0.32	2.2	1.64	1.92	0.52
3	54	IL-159	Lincoln Hwy to Frank Scott Pkwy	SB	PM	1.8	2.15	1.69	1.92	3.04
4	62	IL-140	IL-255 to IL-111	WB	PM	0.4	2.05	1.71	1.88	0.68
5	68	IL-3	Parkview Dr	SB	PM	0.93	2.19	1.54	1.87	1.43
6	55	IL-159	Governors Pkwy to I-270	NB	PM	3.55	2.08	1.56	1.82	5.54
7	63	IL-140	Washington Ave to Broadway St	WB	PM	1.03	2	1.62	1.81	1.67

8	59	IL-157	University Dr	NB	PM	0.52	1.91	1.62	1.77	0.84
9	47	Governors Pkwy	Troy Rd	EB	AM	0.32	2	1.45	1.73	0.46
10	48	Governors Pkwy	Troy Rd to IL-57	EB	PM	1.7	1.92	1.53	1.73	2.60
11	57	IL-157	Center Grove Rd to I-270	SB	PM	0.58	1.82	1.56	1.69	0.90
12	61	IL-140	Washington Ave to IL-111	EB	PM	1.14	1.85	1.52	1.69	1.73
13	56	IL-159	I-64 to Lincoln Hwy	NB	PM	2.05	1.82	1.53	1.68	3.14
14	58	IL-157	I-70/I-55 to Saint Louis Rd	SB	PM	0.78	1.78	1.55	1.67	1.21
15	67	IL-3	Washington Ave to IL-111	SB	PM	2.25	1.67	1.5	1.59	3.38
16	64	IL-3	IL-111 to Washington Ave	NB	PM	3.43	1.64	1.45	1.55	4.97
17	51	IL-203	Madison Ave to E 23rd St	SB	PM	0.92	1.67	1.41	1.54	1.30
18	65	IL-3	E Broadway to St. Louis Ave	NB	PM	0.31	1.68	1.4	1.54	0.43
19	66	IL-3	Parkview Dr	NB	PM	1.03	1.66	1.41	1.54	1.45
20	52	IL-159	I-270	SB	PM	1.47	1.61	1.42	1.52	2.09
21	53	IL-159	I-270 to I-162	SB	PM	1.37	1.6	1.38	1.49	1.89
22	60	IL-157	Horseshoe Lake Rd	NB	PM	0.47	1.29	1.61	1.45	0.76

Table A.13: 2023 Illinois Arterial Locations Ranked by Delay Impact

Rank by Delay Impact	Map ID No.	Route	Limits	Direction	Peak	Queue Length (Mi)	PTI	TTI	Severity	Delay Impact
1	55	IL-159	Governors Pkwy to I-270	NB	PM	3.55	2.08	1.56	1.82	5.54
2	64	IL-3	IL-111 to Washington Ave	NB	PM	3.43	1.64	1.45	1.55	4.97
3	67	IL-3	Washington Ave to IL-111	SB	PM	2.25	1.67	1.5	1.59	3.38
4	56	IL-159	I-64 to Lincoln Hwy	NB	PM	2.05	1.82	1.53	1.68	3.14
5	54	IL-159	Lincoln Hwy to Frank Scott Pkwy	SB	PM	1.8	2.15	1.69	1.92	3.04
6	48	Governors Pkwy	Troy Rd to IL-57	EB	PM	1.7	1.92	1.53	1.73	2.60
7	52	IL-159	I-270	SB	PM	1.47	1.61	1.42	1.52	2.09
8	53	IL-159	I-270 to I-162	SB	PM	1.37	1.6	1.38	1.49	1.89
9	61	IL-140	Washington Ave to IL-111	EB	PM	1.14	1.85	1.52	1.69	1.73
10	63	IL-140	Washington Ave to Broadway St	WB	PM	1.03	2	1.62	1.81	1.67
11	66	IL-3	Parkview Dr	NB	PM	1.03	1.66	1.41	1.54	1.45
12	68	IL-3	Parkview Dr	SB	PM	0.93	2.19	1.54	1.87	1.43

13	51	IL-203	Madison Ave to E 23rd St	SB	PM	0.92	1.67	1.41	1.54	1.30
14	58	IL-157	I-70/I-55 to Saint Louis Rd	SB	PM	0.78	1.78	1.55	1.67	1.21
15	57	IL-157	Center Grove Rd to I-270	SB	PM	0.58	1.82	1.56	1.69	0.90
16	59	IL-157	University Dr	NB	PM	0.52	1.91	1.62	1.77	0.84
17	60	IL-157	Horseshoe Lake Rd	NB	PM	0.47	1.29	1.61	1.45	0.76
18	62	IL-140	IL-255 to IL-111	WB	PM	0.4	2.05	1.71	1.88	0.68
19	50	Governors Pkwy	IL-159	WB	PM	0.32	2.54	2.07	2.31	0.66
20	49	Governors Pkwy	IL-159	WB	AM	0.32	2.2	1.64	1.92	0.52
21	47	Governors Pkwy	Troy Rd	EB	AM	0.32	2	1.45	1.73	0.46
22	65	IL-3	E Broadway to St. Louis Ave	NB	PM	0.31	1.68	1.4	1.54	0.43

Appendix 3: 2022 Congested Locations

Table A.14: 2022 Congested Interstate Locations

Map ID No.	Route	Limits	State	Area	Direction	Peak	Queue Length (Mi)	PTI	TTI	Severity	Delay Impact
1	I-55	Park Ave to Virginia Ave	MO	St. Louis City	SB	PM	5.34	3.56	1.7	2.63	9.08
2	I-55	Potomac St to Weber Rd	MO	St. Louis City	NB	AM	5.08	3.22	1.46	2.34	7.42
3	I-64	Hampton Ave to Big Bend Blvd	MO	St. Louis City	WB	AM	2.96	2.63	1.25	1.94	3.70
4	I-64	S Kingshighway Blvd to Boland Pl	MO	St. Louis City	WB	PM	4.23	3.28	1.82	2.55	7.70
5	I-70	Cole St	MO	St. Louis City	WB	PM	0.44	1.25	1.16	1.21	0.51
6	I-70	Riverview Blvd to Jennings Station Rd	MO	St. Louis City	WB	PM	1.09	2.49	1.25	1.87	1.36
7	I-70	I-64 to Broadway	MO	St. Louis City	EB	PM	4.37	2.21	1.19	1.70	5.20
8	I-70	I-44 to Stan Musial Bridge	MO	St. Louis City	SB	PM	0.96	5.44	1.55	3.50	1.49
9	I-70	I-44 to Stan Musial Bridge	MO	St. Louis City	NB	AM	0.9	1.58	1.12	1.35	1.01
10	I-70	I-44 to Cass Ave	MO	St. Louis City	NB	PM	0.4	1.29	1.17	1.23	0.47
11	I-64	CR-N to I-70	MO	St. Charles	WB	PM	5.59	3.95	1.79	2.87	10.01
12	I-70	Lake St. Louis Blvd to Pearce Blvd	MO	St. Charles	WB	PM	7.7	2.65	1.45	2.05	11.17
13	I-70	CR-K to Bryan Rd	MO	St. Charles	WB	PM	1.18	2.31	1.29	1.80	1.52
14	I-44	S Laclede Station Rd to Big Bend Blvd	MO	St. Louis County	WB	PM	4.31	2.16	1.23	1.70	5.30
15	I-44	MO-141	MO	St. Louis County	WB	PM	1.55	2.17	1.17	1.67	1.81
16	I-64	US-61 to Ballas Rd	MO	St. Louis County	WB	PM	2.44	2.06	1.24	1.65	3.03
17	I-64	Big Bend Blvd to I-170	MO	St. Louis County	EB	AM	2.16	2.58	1.23	1.91	2.66
18	I-64	Bellevue Ave to US-61	MO	St. Louis County	EB	PM	4.34	2.58	1.4	1.99	6.08
19	I-64	Olive Blvd to Chesterfield Pkwy	MO	St. Louis County	EB	AM	0.31	2.86	1.17	2.02	0.36
20	I-270	New Halls Ferry Rd to N Elizabeth Ave	MO	St. Louis County	WB	AM	2.96	3.2	1.31	2.26	3.88
21	I-270	Lilac Ave to MO-367	MO	St. Louis County	EB	PM	3.12	1.14	1.17	1.16	3.65
22	I-270	Florissant Ave to US-67	MO	St. Louis County	EB	PM	6.02	2.73	1.44	2.09	8.67
23	I-170	Forest Park Pkwy to Galleria Pkwy	MO	St. Louis County	SB	AM	0.69	2.3	1.23	1.77	0.85
24	I-170	Ladue Rd to I-64	MO	St. Louis County	SB	PM	2.26	2.77	1.51	2.14	3.41
25	I-270	MO-340 to MO-21	MO	St. Louis County	SB	PM	14.59	2.31	1.29	1.80	18.82
26	I-270	MO-100 to MO-21	MO	St. Louis County	NB	AM	9.54	2.33	1.21	1.77	11.54
27	I-64	Forty Dr to Exit 28B	MO	St. Louis County	EB	AM	0.8	2.07	1.12	1.60	0.90

28	I-64	Airport Rd to Hanley Rd	MO	St. Louis County	NB	PM	0.53	1.62	1.12	1.37	0.59	
29	I-55	MO-Z to McNutt St	MO	Jefferson	SB	PM	6.47	1.88	1.17	1.53	7.57	
30	I-270	Riverview Dr	IL	Illinois	WB	PM	2.79	1.35	1.12	1.235	3.12	
31	I-255	Missouri / Illinois State Line	IL	Illinois	SB	AM	2.27	1.23	1.14	1.19	2.59	
32	I-255	Missouri / Illinois State Line	IL	Illinois	SB	PM	2.27	1.25	1.24	1.245	2.81	
33	I-70	I-55/I-64 to I-55/I-70	IL	Illinois	SB	PM	1.91	1.83	1.16	1.50	2.22	
34	I-64	St Clair/Clinton County Line to IL-161	IL	Illinois	WB	PM	1.97	3.15	1.23	2.19	2.42	
35	I-64	Martin Luther King Dr to Poplar St Bridge	IL	Illinois	WB	AM	3.18	2.15	1.21	1.68	3.85	
36	I-64	MO--IL State Border to Poplar St Bridge	IL	Illinois	WB	PM	0.4	1.66	1.15	1.41	0.46	
37	I-64	St Clair/Clinton County Border to IL-161	IL	Illinois	EB	PM	2.63	2.85	1.24	2.05	3.26	
38	I-64	Martin Luther King Dr to Poplar St Bridge	IL	Illinois	EB	PM	2.49	1.6	1.18	1.39	2.94	
39	I-55/I-70	IL-3	IL	Illinois	WB	AM	0.66	1.81	1.14	1.48	0.75	
Total							122.9					

Table A.15: 2022 Congested Interstate Locations Ranked by Severity

Rank by Severity	Map ID No.	Route	Limits	State	Area	Direction	Peak	Queue Length (Mi)	PTI	TTI	Severity	Delay Impact
1	8	I-70	I-44 to Stan Musial Bridge	MO	St. Louis City	SB	PM	0.96	5.44	1.55	3.50	1.49
2	11	I-64	CR-N to I-70	MO	St. Charles	WB	PM	5.59	3.95	1.79	2.87	10.01
3	1	I-55	Park Ave to Virginia Ave	MO	St. Louis City	SB	PM	5.34	3.56	1.7	2.63	9.08
4	4	I-64	S Kingshighway Blvd to Boland Pl	MO	St. Louis City	WB	PM	4.23	3.28	1.82	2.55	7.70
5	2	I-55	Potomac St to Weber Rd	MO	St. Louis City	NB	AM	5.08	3.22	1.46	2.34	7.42
6	20	I-270	New Halls Ferry Rd to N Elizabeth Ave	MO	St. Louis County	WB	AM	2.96	3.2	1.31	2.26	3.88
7	34	I-64	St Clair/Clinton County Line to IL-161	IL	Illinois	WB	PM	1.97	3.15	1.23	2.19	2.42
8	24	I-170	Ladue Rd to I-64	MO	St. Louis County	SB	PM	2.26	2.77	1.51	2.14	3.41
9	22	I-270	Florissant Ave to US-67	MO	St. Louis County	EB	PM	6.02	2.73	1.44	2.09	8.67
10	12	I-70	Lake St. Louis Blvd to Pearce Blvd	MO	St. Charles	WB	PM	7.7	2.65	1.45	2.05	11.17
11	37	I-64	St Clair/Clinton County Border to IL-161	IL	Illinois	EB	PM	2.63	2.85	1.24	2.05	3.26
12	19	I-64	Olive Blvd to Chesterfield Pkwy	MO	St. Louis County	EB	AM	0.31	2.86	1.17	2.02	0.36
13	18	I-64	Belleve Ave to US-61	MO	St. Louis County	EB	PM	4.34	2.58	1.4	1.99	6.08
14	3	I-64	Hampton Ave to Big Bend Blvd	MO	St. Louis City	WB	AM	2.96	2.63	1.25	1.94	3.70
15	17	I-64	Big Bend Blvd to I-170	MO	St. Louis County	EB	AM	2.16	2.58	1.23	1.91	2.66

16	6	I-70	Riverview Blvd to Jennings Station Rd	MO	St. Louis City	WB	PM	1.09	2.49	1.25	1.87	1.36
17	13	I-70	CR-K to Bryan Rd	MO	St. Charles	WB	PM	1.18	2.31	1.29	1.80	1.52
18	25	I-270	MO-340 to MO-21	MO	St. Louis County	SB	PM	14.59	2.31	1.29	1.80	18.82
19	26	I-270	MO-100 to MO-21	MO	St. Louis County	NB	AM	9.54	2.33	1.21	1.77	11.54
20	23	I-170	Forest Park Pkwy to Galleria Pkwy	MO	St. Louis County	SB	AM	0.69	2.3	1.23	1.77	0.85
21	7	I-70	I-64 to Broadway	MO	St. Louis City	EB	PM	4.37	2.21	1.19	1.70	5.20
22	14	I-44	S Laclede Station Rd to Big Bend Blvd	MO	St. Louis County	WB	PM	4.31	2.16	1.23	1.70	5.30
23	35	I-64	Martin Luther King Dr to Poplar St Bridge	IL	Illinois	WB	AM	3.18	2.15	1.21	1.68	3.85
24	15	I-44	MO-141	MO	St. Louis County	WB	PM	1.55	2.17	1.17	1.67	1.81
25	16	I-64	US-61 to Ballas Rd	MO	St. Louis County	WB	PM	2.44	2.06	1.24	1.65	3.03
26	27	I-64	Forty Dr to Exit 28B	MO	St. Louis County	EB	AM	0.8	2.07	1.12	1.60	0.90
27	29	I-55	MO-Z to McNutt St	MO	Jefferson	SB	PM	6.47	1.88	1.17	1.53	7.57
28	33	I-70	I-55/I-64 to I-55/I-70	IL	Illinois	SB	PM	1.91	1.83	1.16	1.50	2.22
29	39	I-55 / I-70	IL-3	IL	Illinois	WB	AM	0.66	1.81	1.14	1.48	0.75
30	36	I-64	MO--IL State Border to Poplar St Bridge	IL	Illinois	WB	PM	0.4	1.66	1.15	1.41	0.46
31	38	I-64	Martin Luther King Dr to Poplar St Bridge	IL	Illinois	EB	PM	2.49	1.6	1.18	1.39	2.94
32	28	I-64	Airport Rd to Hanley Rd	MO	St. Louis County	NB	PM	0.53	1.62	1.12	1.37	0.59
33	9	I-70	I-44 to Stan Musial Bridge	MO	St. Louis City	NB	AM	0.9	1.58	1.12	1.35	1.01
34	32	I-255	Missouri / Illinois State Line	IL	Illinois	SB	PM	2.27	1.25	1.24	1.25	2.81
35	30	I-270	Riverview Dr	IL	Illinois	WB	PM	2.79	1.35	1.12	1.24	3.12
36	10	I-70	I-44 to Cass Ave	MO	St. Louis City	NB	PM	0.4	1.29	1.17	1.23	0.47
37	5	I-70	Cole St	MO	St. Louis City	WB	PM	0.44	1.25	1.16	1.21	0.51
38	31	I-255	Missouri / Illinois State Line	IL	Illinois	SB	AM	2.27	1.23	1.14	1.19	2.59
39	21	I-270	Lilac Ave to MO-367	MO	St. Louis County	EB	PM	3.12	1.14	1.17	1.16	3.65

Table A.16: 2022 Congested Interstate Locations Ranked by Delay Impact

Rank by Delay Impact	Map ID No.	Route	Limits	State	Area	Direction	Peak	Queue Length (Mi)	PTI	TTI	Severity	Delay Impact
1	25	I-270	MO-340 to MO-21	MO	St. Louis County	SB	PM	14.59	2.31	1.29	1.80	18.82
2	26	I-270	MO-100 to MO-21	MO	St. Louis County	NB	AM	9.54	2.33	1.21	1.77	11.54
3	12	I-70	Lake St. Louis Blvd to Pearce Blvd	MO	St. Charles	WB	PM	7.7	2.65	1.45	2.05	11.17
4	11	I-64	CR-N to I-70	MO	St. Charles	WB	PM	5.59	3.95	1.79	2.87	10.01
5	1	I-55	Park Ave to Virginia Ave	MO	St. Louis City	SB	PM	5.34	3.56	1.7	2.63	9.08
6	22	I-270	Florissant Ave to US-67	MO	St. Louis County	EB	PM	6.02	2.73	1.44	2.09	8.67
7	4	I-64	S Kingshighway Blvd to Boland Pl	MO	St. Louis City	WB	PM	4.23	3.28	1.82	2.55	7.70
8	29	I-55	MO-Z to McNutt St	MO	Jefferson	SB	PM	6.47	1.88	1.17	1.53	7.57
9	2	I-55	Potomac St to Weber Rd	MO	St. Louis City	NB	AM	5.08	3.22	1.46	2.34	7.42
10	18	I-64	Bellevue Ave to US-61	MO	St. Louis County	EB	PM	4.34	2.58	1.4	1.99	6.08
11	14	I-44	S Laclede Station Rd to Big Bend Blvd	MO	St. Louis County	WB	PM	4.31	2.16	1.23	1.70	5.30
12	7	I-70	I-64 to Broadway	MO	St. Louis City	EB	PM	4.37	2.21	1.19	1.70	5.20
13	20	I-270	New Halls Ferry Rd to N Elizabeth Ave	MO	St. Louis County	WB	AM	2.96	3.2	1.31	2.26	3.88
14	35	I-64	Martin Luther King Dr to Poplar St Bridge	IL	Illinois	WB	AM	3.18	2.15	1.21	1.68	3.85
15	3	I-64	Hampton Ave to Big Bend Blvd	MO	St. Louis City	WB	AM	2.96	2.63	1.25	1.94	3.70
16	21	I-270	Lilac Ave to MO-367	MO	St. Louis County	EB	PM	3.12	1.14	1.17	1.16	3.65
17	24	I-170	Ladue Rd to I-64	MO	St. Louis County	SB	PM	2.26	2.77	1.51	2.14	3.41
18	37	I-64	St Clair/Clinton County Border to IL-161	IL	Illinois	EB	PM	2.63	2.85	1.24	2.05	3.26
19	30	I-270	Riverview Dr	IL	Illinois	WB	PM	2.79	1.35	1.12	1.24	3.12
20	16	I-64	US-61 to Ballas Rd	MO	St. Louis County	WB	PM	2.44	2.06	1.24	1.65	3.03
21	38	I-64	Martin Luther King Dr to Poplar St Bridge	IL	Illinois	EB	PM	2.49	1.6	1.18	1.39	2.94
22	32	I-255	Missouri / Illinois State Line	IL	Illinois	SB	PM	2.27	1.25	1.24	1.25	2.81
23	17	I-64	Big Bend Blvd to I-170	MO	St. Louis County	EB	AM	2.16	2.58	1.23	1.91	2.66
24	31	I-255	Missouri / Illinois State Line	IL	Illinois	SB	AM	2.27	1.23	1.14	1.19	2.59
25	34	I-64	St Clair/Clinton County Line to IL-161	IL	Illinois	WB	PM	1.97	3.15	1.23	2.19	2.42
26	33	I-70	I-55/I-64 to I-55/I-70	IL	Illinois	SB	PM	1.91	1.83	1.16	1.50	2.22
27	15	I-44	MO-141	MO	St. Louis County	WB	PM	1.55	2.17	1.17	1.67	1.81
28	13	I-70	CR-K to Bryan Rd	MO	St. Charles	WB	PM	1.18	2.31	1.29	1.80	1.52
29	8	I-70	I-44 to Stan Musial Bridge	MO	St. Louis City	SB	PM	0.96	5.44	1.55	3.50	1.49

30	6	I-70	Riverview Blvd to Jennings Station Rd	MO	St. Louis City	WB	PM	1.09	2.49	1.25	1.87	1.36
31	9	I-70	I-44 to Stan Musial Bridge	MO	St. Louis City	NB	AM	0.9	1.58	1.12	1.35	1.01
32	27	I-64	Forty Dr to Exit 28B	MO	St. Louis County	EB	AM	0.8	2.07	1.12	1.595	0.90
33	23	I-170	Forest Park Pkwy to Galleria Pkwy	MO	St. Louis County	SB	AM	0.69	2.3	1.23	1.77	0.85
34	39	I-55 / I-70	IL-3	IL	Illinois	WB	AM	0.66	1.81	1.14	1.48	0.75
35	28	I-64	Airport Rd to Hanley Rd	MO	St. Louis County	NB	PM	0.53	1.62	1.12	1.37	0.59
36	5	I-70	Cole St	MO	St. Louis City	WB	PM	0.44	1.25	1.16	1.21	0.51
37	10	I-70	I-44 to Cass Ave	MO	St. Louis City	NB	PM	0.4	1.29	1.17	1.23	0.47
38	36	I-64	MO-IL State Border to Poplar St Bridge	IL	Illinois	WB	PM	0.4	1.66	1.15	1.41	0.46
39	19	I-64	Olive Blvd to Chesterfield Pkwy	MO	St. Louis County	EB	AM	0.31	2.86	1.17	2.02	0.36

Table A.17: 2022 Congested Arterial Locations

Map ID No.	Route	Limits	State	Area	Direction	Peak	Queue Length (Mi)	PTI	TTI	Severity	Delay Impact
1	Kingshighway Blvd	Lindell Blvd to Forest Park Ave	MO	St. Louis City	SB	AM	0.31	2.58	1.5	2.04	0.47
2	Kingshighway Blvd	Lindell Blvd to Manchester Rd	MO	St. Louis City	SB	PM	1.23	2.62	1.73	2.18	2.13
3	S Kingshighway	Laclede Ave to Forest Park Ave	MO	St. Louis City	NB	AM	0.58	2.54	1.6	2.07	0.93
4	S Kingshighway	Laclede Ave to I-64	MO	St. Louis City	NB	PM	1.05	2.03	1.55	1.79	1.63
5	Skinker Blvd	Forest Park Pkwy	MO	St. Louis City	SB	PM	0.43	2.78	1.74	2.26	0.75
6	Skinker Blvd	Delmar Blvd	MO	St. Louis City	NB	PM	0.43	1.73	1.43	1.58	0.61
7	McCausland Ave	Arsenal St to Manchester Rd	MO	St. Louis City	NB	PM	0.43	2.1	1.49	1.80	0.64
8	McCausland Ave	Arsenal St to I-64	MO	St. Louis City	SB	AM	0.27	2.8	1.82	2.31	0.49
9	Market St	18th St to Jefferson Ave	MO	St. Louis City	WB	AM	0.28	1.93	1.39	1.66	0.39
10	Market St	US-40 to Jefferson Ave	MO	St. Louis City	WB	PM	0.51	2.11	1.42	1.77	0.72
11	Market St	7th St to Tucker Blvd	MO	St. Louis City	EB	PM	0.44	2.33	1.57	1.95	0.69
12	Jefferson Ave	I-64	MO	St. Louis City	SB	AM	0.34	2.36	1.62	1.99	0.55
13	Jefferson Ave	I-64	MO	St. Louis City	SB	PM	0.34	2.89	1.85	2.37	0.63
14	Jefferson Ave	Market St	MO	St. Louis City	SB	PM	0.3	2.6	1.64	2.12	0.49
15	Jefferson Ave	MO-30	MO	St. Louis City	SB	PM	0.43	3.38	1.78	2.58	0.77
16	Forest Park Ave	S Kingshighway Blvd	MO	St. Louis City	WB	AM	1.3	1.65	1.4	1.53	1.82
17	Forest Park Ave	S Kingshighway Blvd	MO	St. Louis City	WB	PM	1.3	1.65	1.38	1.52	1.79
18	Forest Park Pkwy	S Kingshighway Blvd	MO	St. Louis City	EB	PM	0.49	1.94	1.39	1.67	0.68
19	Forest Park Ave	S Vandeventer Ave	MO	St. Louis City	EB	PM	1.22	1.65	1.38	1.52	1.68
20	Hampton Ave	I-44	MO	St. Louis City	SB	PM	0.47	2.88	1.56	2.22	0.73

21	Hampton Ave	I-44	MO	St. Louis City	NB	PM	0.6	1.69	1.44	1.57	0.86
22	Grand Blvd	I-70	MO	St. Louis City	SB	AM	0.39	2.22	1.7	1.96	0.66
23	Grand Blvd	I-70	MO	St. Louis City	SB	PM	0.39	2.5	1.9	2.20	0.74
24	Grand Blvd	Lindell Blvd to Manchester Rd	MO	St. Louis City	NB	PM	0.38	2.11	1.56	1.84	0.59
25	Grand Blvd	I-44 to Arsenal St	MO	St. Louis City	NB	PM	0.26	2	1.36	1.68	0.35
26	Tucker Blvd	Market St	MO	St. Louis City	SB	PM	0.57	1.92	1.47	1.70	0.84
27	Cole St	N tucker Blvd to I-44	MO	St. Louis City	WB	PM	0.55	2.44	1.5	1.97	0.83
28	Broadway	Cole St to Washington Ave	MO	St. Louis City	SB	PM	0.25	2.18	1.49	1.84	0.37
29	Broadway	Spruce St to Chouteau Ave	MO	St. Louis City	SB	PM	0.25	2.77	1.46	2.12	0.37
30	US-50	Independence Dr	MO	Franklin	WB	AM	1.49	1.71	1.36	1.54	2.03
31	US-50	Independence Dr	MO	Franklin	WB	PM	1.49	2.09	1.55	1.82	2.31
32	US-50	MO-47	MO	Franklin	EB	AM	0.45	2.1	1.43	1.77	0.64
33	US-50	MO-47	MO	Franklin	EB	PM	0.45	2.2	1.52	1.86	0.68
34	MO-47	Old MO-66	MO	Franklin	SB	PM	1.49	1.63	1.46	1.55	2.18
35	MO-47	E Independence Dr	MO	Franklin	NB	PM	1.16	1.77	1.43	1.60	1.66
36	MO-47	I-44	MO	Franklin	NB	AM	1.58	1.53	1.39	1.46	2.20
37	MO-47	I-44	MO	Franklin	NB	PM	1.58	1.64	1.48	1.56	2.34
38	IL-157	Center Grove Rd	IL	Illinois	SB	PM	0.58	1.82	1.53	1.68	0.89
39	IL-157	Horseshoe Lake Rd	IL	Illinois	SB	PM	0.78	1.88	1.55	1.72	1.21
40	IL-157	University Dr	IL	Illinois	NB	PM	0.52	1.91	1.58	1.75	0.82
41	IL-157	Horseshoe Lake Rd	IL	Illinois	NB	PM	0.47	1.88	1.51	1.70	0.71
42	IL-140	IL-255	IL	Illinois	WB	AM	0.4	1.95	1.6	1.78	0.64
43	IL-140	IL-255	IL	Illinois	WB	PM	0.4	2.05	1.68	1.87	0.67
44	IL-140	Washington Ave	IL	Illinois	WB	AM	1.01	2	1.38	1.69	1.39
45	IL-140	Washington Ave	IL	Illinois	WB	PM	1.01	2	1.6	1.80	1.62
46	IL-140	N Bellwood Dr to Homer M Adams Pkwy	IL	Illinois	EB	PM	5.05	2.06	1.52	1.79	7.68
47	IL-111	US-67	IL	Illinois	NB	PM	2.9	2.22	1.56	1.89	4.52
48	IL-15	CR-89	IL	Illinois	EB	AM	0.77	2.25	1.55	1.90	1.19
49	IL-15	CR-89	IL	Illinois	EB	PM	0.77	2.35	1.61	1.98	1.24
50	IL-3	Washington Ave	IL	Illinois	SB	AM	2.25	2.37	1.47	1.92	3.31
51	IL-3	Washington Ave to IL-111	IL	Illinois	SB	PM	4.09	1.68	1.37	1.53	5.60
52	IL-3	Parkview Dr	IL	Illinois	SB	PM	0.93	2	1.52	1.76	1.41
53	IL-3	IL-111 to Washington Ave	IL	Illinois	NB	AM	1.16	3	1.54	2.27	1.79
54	IL-3	IL-111 to Washington Ave	IL	Illinois	NB	PM	3.43	2.98	1.89	2.44	6.48
55	IL-3	E Broadway	IL	Illinois	NB	PM	0.31	1.68	1.37	1.53	0.42
56	IL-3	Parkview Dr	IL	Illinois	NB	PM	1.03	1.66	1.4	1.53	1.44
57	IL-203	Madison Ave	IL	Illinois	SB	PM	0.92	1.67	1.43	1.55	1.32

58	IL-159	Lincoln Hwy to Frank Scott Pkwy	IL	Illinois	SB	PM	1.8	2.21	1.68	1.95	3.02
59	IL-159	A St to Washington Ave	IL	Illinois	SB	PM	0.44	2.04	1.47	1.76	0.65
60	IL-159	Governors Pkwy to Troy Rd	IL	Illinois	NB	PM	2.2	2.07	1.55	1.81	3.41
61	IL-159	I-64 to Lincoln Hwy	IL	Illinois	NB	PM	2.05	1.88	1.53	1.71	3.14
62	US-50	IL-4	IL	Illinois	EB	PM	4.19	2.04	1.41	1.73	5.91
63	Governors Pkwy	IL-159	IL	Illinois	WB	AM	0.32	1.83	1.38	1.61	0.44
64	Governors Pkwy	IL-159	IL	Illinois	WB	PM	0.32	2.2	1.77	1.99	0.57
65	Governors Pkwy	Troy Rd to IL-157	IL	Illinois	EB	PM	0.32	2.14	1.72	1.93	0.55
66	MO-D	Woodson Rd	MO	St. Louis County	WB	PM	0.35	2.21	1.66	1.94	0.58
67	MO-141	Arnold Church Rd	MO	Jefferson	NB	AM	0.37	1.96	1.61	1.79	0.60
68	MO-141	Arnold Church Rd to Us-61	MO	Jefferson	NB	PM	0.84	1.89	1.63	1.76	1.37
69	MO-100	S Big Bend Blvd	MO	St. Louis County	WB	PM	0.83	1.69	1.42	1.56	1.18
70	MO-100	Henry Ave to Baxter Rd	MO	St. Louis County	WB	PM	0.6	2.69	1.82	2.26	1.09
71	MO-100	Old State Rd	MO	St. Louis County	WB	PM	0.53	2	1.82	1.91	0.96
72	MO-100	McCausland Ave	MO	St. Louis County	EB	PM	0.83	2.17	1.68	1.93	1.39
73	MO-100	MO-141	MO	St. Louis County	EB	PM	0.45	2	1.57	1.79	0.71
74	US-67	Patterson Rd to Charbonier Rd	MO	St. Louis County	SB	PM	0.67	2.23	1.51	1.87	1.01
75	US-67	Old St Charles Rd	MO	St. Louis County	SB	PM	0.34	1.78	1.36	1.57	0.46
76	US-67	MO-CC	MO	Jefferson	SB	AM	0.62	1.71	1.38	1.55	0.86
77	US-67	MO-CC	MO	Jefferson	SB	PM	0.62	3.41	1.97	2.69	1.22
78	US-67	Patterson Rd	MO	St. Louis County	NB	AM	0.37	2	1.45	1.73	0.54
79	US-67	Old Halls Ferry Rd to Patterson Rd	MO	St. Louis County	NB	PM	3.32	2.24	1.56	1.90	5.18
80	US-61	Big Bend Blvd to I-44	MO	St. Louis County	SB	PM	1.69	2.33	1.52	1.93	2.57
81	US-61	US-50	MO	St. Louis County	SB	PM	0.58	1.72	1.41	1.57	0.82
82	US-61	Mattis Rd	MO	St. Louis County	SB	PM	0.96	1.59	1.38	1.49	1.32
83	US-61	I-70 to I-64	MO	St. Charles	NB	PM	0.53	2.24	1.44	1.84	0.76
84	MO-30	US-61	MO	St. Louis County	WB	PM	0.34	2.21	1.65	1.93	0.56
85	MO-30	Sappington Rd	MO	St. Louis County	EB	PM	0.34	2	1.57	1.79	0.53
86	MO-94	W Clay St to I-70	MO	St. Charles	SB	PM	1.99	1.69	1.46	1.58	2.91
87	MO-94	Pralle Lane	MO	St. Charles	SB	PM	0.61	2.87	1.63	2.25	0.99
88	Mexico Rd	Jungermann Rd	MO	St. Charles	WB	PM	0.57	1.68	1.39	1.54	0.79
89	MO-366	I-44/US-50	MO	St. Louis County	WB	PM	0.44	1.84	1.47	1.66	0.65
90	MO-340	I-270	MO	St. Louis County	SB	PM	0.85	1.75	1.37	1.56	1.16
91	MO-340	Baxter Rd	MO	St. Louis County	SB	PM	0.38	2.92	2	2.46	0.76

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92	MO-340	Craig Rd	MO	St. Louis County	NB	PM	0.69	1.69	1.42	1.56	0.98	
93	MO-340	Clayton Rd to MO-100	MO	St. Louis County	NB	AM	0.85	3.2	1.52	2.36	1.29	
94	Hereford Ave	N Elizabeth Ave to N Florissant Rd	MO	St. Louis County	EB	PM	0.42	2.07	1.44	1.76	0.60	
95	MO-AC	I-270 to Old Halls Ferry Rd	MO	St. Louis County	NB	PM	0.69	2.83	1.61	2.22	1.11	
96	S Kingshighway Blvd	I-64 to Manchester Rd	MO	St. Louis City	SB	AM	0.31	1.93	1.53	1.73	0.47	
97	Grand Blvd	Gravois Ave to Arsenal St	MO	St. Louis City	NB	PM	0.71	1.86	1.43	1.65	1.02	
98	MO-D	Skinker Pkwy	MO	St. Louis County	WB	PM	0.46	1.8	1.37	1.59	0.63	
99	MO-100	MO-JJ / Ballas Rd	MO	St. Louis County	EB	PM	0.25	1.93	1.45	1.69	0.36	
100	MO-100	S Vandeventer Ave to S Kingshighway Blvd	MO	St. Louis City	EB	PM	0.99	2	1.6	1.80	1.58	
101	MO-100	S Broadway to Truman Pkwy	MO	St. Louis City	EB	PM	0.46	2.18	1.45	1.82	0.67	
102	MO-100	S Vandeventer to S Kingshighway Blvd	MO	St. Louis City	WB	PM	0.96	2.46	1.81	2.14	1.74	
Total							92.71					

Appendix 4: 2023 Major Congestion Impact Work Zones

EWG obtained these locations by observing Figures 2 and 3 and getting input from MoDOT. The delay times were collected data using the RITIS performance summaries and the bottleneck ranking tool. Based on the data, the following locations were considered major impact work zones.

Missouri

- **Map ID # 14: I-44 Eastbound (Lewis Rd near Eureka)**
Project type: Bridge rehabilitation over Meramec River
Impact: One lane of capacity taken resulting in a 3.26-mile bottleneck. During peak hours of 7-9 AM, drivers heading towards St. Louis saw delays of 20 to 30 minutes.
- **Map ID #'s 1 and 2: I-55 North and Southbound (I-55/I-44 Split to Bayless Avenue)**
Project Type: Rehabilitation of 14 bridges and pavement reconstruction
Impact: Regular lane shifts and ramp closures. 2 lanes of capacity taken in both directions causing delays up to 24 minutes.
- **Map ID # 27: I-255 Jefferson Barracks Bridge (Westbound into Missouri)**
Project Type: Bridge rehabilitation and preventative maintenance
Impact: Narrowed lanes, 1 eastbound lane closed, and full closure of westbound bridge with traffic shifted to the other side from spring to late fall of 2023.
- **Map ID # 15: I-270 North Project (W Florissant Ave to New Halls Ferry Rd)**
Project Type: Reconstruction of interchanges, 2 additional lanes, replaced bridges
Impact: Multiple ramp closures and caused morning delays up to 15 minutes.

Illinois

- **Map ID #'s 28, 30, 31, 32: I-55/I-64/I-70 both directions (Poplar St Bridge IL)**
Project Type: Bridge rehabilitation, repair, and painting
Impact: Lane shifts and closures causing an average 2.11-mile traffic bottleneck. The average westbound speeds dipped below 43 mph, in worst cases causing 16 minutes of AM delay.

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