

EAST-WEST GATEWAY

## St. Louis Metropolitan Area

February 2018

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The intractable nature of recurring traffic congestion makes it important for continuous data collection and analysis. The EWG MPO is committed to alleviating traffic congestion by implementing a Congestion Management Process (CMP) which is a systematic way of monitoring, measuring and diagnosing the causes of current and future congestion on a region's multi-modal transportation systems; evaluating and recommending alternative strategies to manage current and future regional congestion; and monitoring and evaluating the performance of strategies implemented to manage congestion.

The CMP is implemented in pursuance of mandated requirements under the auspices of Fixing America's Surface Transportation (FAST) Act. This legislation and its predecessor laws (ISTEA, 1991; TEA-21, 1998; SAFETEA-LU, 2005; MAP-21, 2012; and FAST, 2015) have all empowered EWG to develop a CMP that is incorporated into the region's constrained Long-Range Transportation Plan.

The St. Louis Metropolitan Area CMP specifies that East-West Gateway will develop an annual report on regional congestion, mitigation efforts and evaluation results. This annual CMP Report serves as a yearly review of regional congestion for 2016. It covers definition of congested CMP network, development of performance measures, data sources, identification of congested locations, and mobility project evaluation reports.

## 2 Identify Congested CMP Network

For the purposes of this analysis, the morning peak-period is from 6 am to 9 am and the evening peakperiod is from 3 pm to 6 pm . The source of data is explained in detail in part 4. All performance measures are calculated and compared based on data from these time periods. The process of identifying the congested network for this analysis involved a detailed visual inspection of Speed Index congestion on all National Highway System (NHS) roadways in the region depicted on the NHS map. This index is the ratio of average speeds to 85th-percentile speeds. Four thresholds are applied to the Speed Index to reveal the various categories of congestion from the system for both arterials and freeways ${ }^{1}$.

The following two maps (Figures 1 and 2) aim to show the spatial extent of the CMP network considered for measuring congestion in the region rather than as an assessment of congestion. Of the 2,476 congested CMP network miles, arterials accounted for 1,588 miles while freeways represented 888 miles.

[^0]Figure 1: Arterial CMP Network


Figure 2: Freeway CMP Network


This inspection resulted in selection of congested roadways by direction and peak time (see Tables 1 and 2). These tables list the locations on both freeways and arterials that meet these criteria for the 3 hour AM or PM peak period. Arterials accounted for 81 miles of the congested roadways while freeways represented 285 miles.

Table 1: Selected Congested Arterials

| No. | Route | Limits | Direction | State | Peak | Queue Length |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | US-67 | I-270 to Old Halls Ferry Rd | NB | MO | PM | 5.59 |
| 2 | MO-141 | Marshall to l-44 | SB | MO | AM | 0.85 |
| 3 | MO-141 | Big Bend to l-44 | SB | MO | PM | 3.90 |
| 4 | MO-94 | I-64/US-40/US-61 to Mid Rivers Mall Dr | NB | MO | AM | 4.19 |
| 5 | MO-94 | I-64/US-40/US-61 to Mid Rivers Mall Dr | NB | MO | PM | 4.19 |
| 6 | MO-141 | MO-30 to MO-21 | SB | MO | PM | 4.14 |
| 7 | MO-100 | Vandeventer to Kingshighway | WB | MO | PM | 1.57 |
| 8 | MO-141 | Hawkins to Vance | NB | MO | AM | 4.10 |
| 9 | MO-100 | Big Bend to McCausland | EB | MO | PM | 1.42 |
| 10 | MO-94 | I-70/Veterans Memorial Pky/Bogey Rd to MO-364 | WB | MO | PM | 3.39 |
| 11 | MO-K | I-70 to MO-364 | SB | MO | PM | 3.50 |
| 12 | MO-340 | I-170 to US-67/N Lindbergh Blvd | SB | MO | PM | 4.32 |
| 13 | MO-340 | Chesterfield Pky North to Baxter Rd | SB | MO | PM | 2.74 |
| 14 | FOREST PARK AVE | I-64 to Kingshighway | WB | MO | AM | 2.14 |
| 15 | FOREST PARK AVE | I-64 to Kingshighway | WB | MO | PM | 2.14 |
| 16 | FOREST PARK AVE | Kingshighway to 1-64 | EB | MO | PM | 2.05 |
| 17 | FOREST PARK AVE | Kingshighway to I-64 | EB | MO | AM | 2.05 |
| 18 | IL-111 | Forest Blvd to I-55/I-70/US-40 | NB | IL | AM | 2.01 |
| 19 | IL-111 | Forest Blvd to I-55/I-70/US-40 | NB | IL | PM | 2.01 |
| 20 | JEFFERSON | Broadway to l-44 | NB | MO | PM | 1.99 |
| 21 | IL-143 | IL-111 to IL-3 | WB | IL | AM | 1.78 |
| 22 | IL-143 | IL-111 to IL-3 | WB | IL | PM | 1.78 |
| 23 | HANLEY | MO-100/Manchester Rd to I-64/US-40/Eager Rd | NB | MO | PM | 1.30 |
| 24 | MO-141 | MO-AB/Ladue Rd to I-64/US-40/US-61 | SB | MO | PM | 1.63 |
| 25 | KINGSHIGHWAY | US-40 to Delmar | NB | MO | PM | 1.62 |
| 26 | KINGSHIGHWAY | I-64/US-40 to I-44 | SB | MO | PM | 1.47 |
| 27 | HANLEY | Shaw Park Dr to I-64/US-40/Eager Rd | SB | MO | PM | 1.30 |
| 28 | JEFFERSON | I-64/US-40 to I-44 | SB | MO | PM | 1.05 |
| 29 | HAMPTON AVE | I-64/US-40 to I-44 | SB | MO | PM | 1.02 |
| 30 | IL-157 | Horseshoe Lake Rd to I-55/I-70/US-40 | SB | IL | AM | 0.78 |
| 31 | IL-157 | Horseshoe Lake Rd to I-55/I-70/US-40 | SB | IL | PM | 0.78 |
| 32 | KINGSHIGHWAY | I-64/US-40 to Lindell | NB | MO | AM | 0.75 |
| 33 | KINGSHIGHWAY | Laclede to I-64/US-40 | SB | MO | PM | 0.75 |
| 34 | SALISBURY ST | N. Florissant to I-70 | EB | MO | PM | 0.75 |
| 35 | MO-D | I-270 to Schuetz Rd | EB | MO | AM | 0.53 |
| 36 | MO-D | I-170 to Schuetz Rd | WB | MO | PM | 4.28 |
| 37 | IL-157 | I-55/I-70/US-40 to Horseshoe Lake Rd | NB | IL | AM | 0.47 |
| 38 | IL-157 | I-55/I-70/US-40 to Horseshoe Lake Rd | NB | IL | PM | 0.47 |
| TOTAL |  |  |  |  |  | 80.80 |

Table 2: Selected Congested Freeways

| No. | Route | Limits | Direction | State | Peak | Queue Length |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | 1-270 | I-70 to I-55/I-255/Exit 1 | SB | MO | PM | 21.00 |
| 2 | 1-70 | Cave Springs/Exit 225 to Natural Bridge Rd/Exit 237/Exit 238 | EB | MO | AM | 14.16 |
| 3 | 1-64 | Chesterfield Pky/Exit 20 to McCausland to Ave/Exit 33 | EB | MO | PM | 14.00 |
| 4 | 1-70 | Bryan Rd/Exit 216 to MO-W/Exit 203 | WB | MO | PM | 14.00 |
| 5 | 1-270 | I-55/I-255/Exit 1 to I-64/US-40/US-61/Exit 12 | NB | MO | AM | 12.70 |
| 6 | 1-270 | McDonnell Blvd/Exit 23 to MO-367/Exit 31 | EB | MO | PM | 12.00 |
| 7 | 1-64 | I-170/Brentwood Blvd/Exit 31 to Chesterfield Pky/Exit 20 | WB | MO | PM | 12.00 |
| 8 | 1-44 | Big Bend Rd/Exit 278 to Antire Rd/Exit 269 | WB | MO | PM | 11.00 |
| 9 | 1-70 | I-270/Exit 232 to Jennings Sta Rd/Exit 242 | EB | MO | PM | 11.00 |
| 10 | 1-64 | MO-K to I-70 | WB | MO | PM | 10.00 |
| 11 | 1-64 | 1-270/Exit 25 to McCausland to Ave/Exit 33 | EB | MO | AM | 9.57 |
| 12 | I-170 | Forest Park Pky/Exit 1E to Hanley Rd/Exit 9 | NB | MO | PM | 8.98 |
| 13 | MO-364 | Jungerman to I-270/MO-D | EB | MO | AM | 8.61 |
| 14 | MO-364 | I-270/MO-D to MO-94/Muegge Rd/Exit 13/Exit 12 | WB | MO | PM | 8.61 |
| 15 | 1-70 | Lake St Louis Blvd/Exit 214 to MO-79/Exit 220 | EB | MO | AM | 8.50 |
| 16 | 1-44 | Berry Rd/Exit 279 to Kingshighway/Exit 287 | EB | MO | AM | 7.94 |
| 17 | I-270 | Lilac/Exit 33 to Elizabeth/Washington St/Exit 28 | WB | MO | AM | 7.15 |
| 18 | 1-170 | MO-180/St Charles Rock/Exit 5 to I-64/Eager Rd/Exit 1B/Exit 1A | SB | MO | PM | 6.69 |
| 19 | 1-70 | I-170/Exit 238 to I-270/Exit 232 | WB | MO | PM | 6.45 |
| 20 | 1-55 | Potomac to Park Ave/7Th St/Exit 208 | NB | MO | AM | 6.21 |
| 21 | 1-270 | Dorsett Rd/Exit 17 to MO-AB/Ladue Rd/Exit 13 | SB | MO | AM | 6.18 |
| 22 | 1-64 | Baxter to I-270/Exit 25 | EB | MO | AM | 6.15 |
| 23 | 1-55 | Grand Ave/Exit 247 to l-44/I-55/Gravois/Exit 207 | EB-SB | MO | PM | 5.77 |
| 24 | 1-64 | Kingshighway/Exit 36 to l-170/Brentwood Blvd/Exit 31 | WB | MO | AM | 5.52 |
| 25 | 1-55 | Virginia Ave/Exit 203 to Reavis Barracks Rd/Exit 199 | SB | MO | PM | 5.31 |
| 26 | 1-44 | 1-55/Exit 290 to Arsenal St/Exit 284 | WB | MO | PM | 5.20 |
| 27 | 1-70 | I-270/Exit 232 to Cave Springs/Exit 225 | WB | MO | PM | 5.00 |
| 28 | 1-44 | MO-141/Exit 272 to I-270/Exit 276 | EB | MO | AM | 4.70 |
| 29 | I-170 | I-64 to MO-D | SB | MO | AM | 4.49 |
| 30 | 1-55 | Baugh Ave. to Poplar St Brg to M1 King Bridge/Exit 2 | WB-SB | IL | AM | 4.39 |
| 31 | 1-44 | Bowles Ave/Exit 274 to US-50/US-61/US-67/ Exit 277 | EB | MO | PM | 4.31 |
| 32 | 1-64 | Kingshighway/Exit 36 to I-55/I-70/US-40 | EB | MO | PM | 4.30 |
| 33 | 1-70 | Broadway/Exit 246 to Lucas \& Hunt Rd/Exit 241 | WB | MO | AM | 3.35 |
| 34 | I-70/I-44/I-55 | Stan Musial Brg. to Park | EB/WB/NB | MO | PM | 3.11 |
| 35 | 1-55 | I-44/I-55/Gravois/Exit 207 to Potomac St/Exit 206 | SB | MO | PM | 2.48 |
| 36 | 1-70 | Shreve/Exit 245 to MO-N/Florissant Rd/Exit 240 | WB | MO | PM | 2.44 |
| 37 | 1-44 | Tenth St/Exit 249 to I-55/I-64/US-40/Exit 251 | WB | MO | AM | 2.02 |
| TOTAL |  |  |  |  |  | 285.29 |

### 2.1 Selected Congested Locations on Arterial

Figures 3 to 14 show the spatial distribution of Speed Index in the region by peak time. The figures depict the hourly progression of congestion in contrast to the performance measures which are calculated based on the 3 hour peak periods. They depict how the congestion increases and decreases during the peak hours at the various locations. Please note that some locations on these maps show as congested for short periods that are not included in the list of congested locations because they do not meet the thresholds for the 3 hour peak. In addition, Figures 15 and 16 depict the distribution of congested miles in each peak hour.

Arterial Congestion Thresholds

| Severe | Heavy | Moderate | Light |  |
| :---: | :---: | :---: | :---: | :---: |
| $0 \%$ | $44 \%$ | $53 \%$ | $74 \%$ | $100 \%$ |

Figure 3: Spatial Distribution of Congested Arterial Locations (6-7 AM)


## Congested Location:

A. MO-141, NB, Hawkins to I-44

Figure 4: Spatial Distribution of Congested Arterial Locations (7-8 AM)


## Congested Locations:

A. MO-94, EB, I-64/US-40/US-61 to Mid Rivers Mall Dr
B. MO-141, NB, Hawkins to Vance (Construction impacts- see Appendix 2)
C. MO-141, SB, Marshall to I-44 (Construction impacts- see Appendix 2)
D. MO-D, EB, I-270 to Schuetz Rd

Figure 5: Spatial Distribution of Congested Arterial Locations (8-9 AM)


## Congested Locations:

A. FOREST PARK AVE, WB, I-64 to Kingshighway
B. FOREST PARK AVE, EB, Kingshighway to I-64
C. KINGSHIGHWAY, NB, I-64/US-40 to Lindell
D. IL-111, NB, Forest Blvd to I-55/I-70/US-40
E. IL-143, WB, IL-111 to IL-3
F. IL-157, SB, Horseshoe Lake Rd to I-55/I-70/US-40
G. IL-157, NB, I-55/I-70/US-40 to Horseshoe Lake Rd

Figure 6: Spatial Distribution of Congested Arterial Locations (3-4 PM)


## Congested Locations:

A. IL-111, NB, Forest Blvd to I-55/I-70/US-40
B. IL-157, NB, I-55/I-70/US-40 to Horseshoe Lake Rd
C. IL-157, SB, Horseshoe Lake Rd to I-55/I-70/US-40
D. IL-143, WB, IL-111 to IL-3
E. JEFFERSON, NB, Broadway to I-44

Figure 7: Spatial Distribution of Congested Arterial Locations (4-5 PM)


## Congested Locations:

A. MO-D, WB, I-170 to Schuetz Rd
B. MO-K, SB, I-70 to MO-364
C. US-67, NB, I-270 to Old Halls Ferry Rd
D. HANLEY, NB, MO-100/Manchester Rd to I-64/US-40/Eager Rd
E. MO-141, SB, MO-30 to MO-21
F. MO-141, SB, MO-AB/Ladue Rd to I-64/US-40/US-61
G. MO-141, SB, Big Bend to I-44 (Construction impact- see Appendix 2)
H. MO-340, SB, Chesterfield Pky North to Baxter Rd
I. MO-94, EB, I-64/US-40/US-61 to Mid Rivers Mall Dr

Figure 8: Spatial Distribution of Congested Arterial Locations (5-6 PM)

A. FOREST PARK AVE, EB, Kingshighway to I-64
B. FOREST PARK AVE, WB, I-64 to Kingshighway
C. HAMPTON AVE, SB, I-64/US-40 to I-44
D. SALISBURY ST, EB, N. Florissant to I-70
E. HANLEY, SB, Shaw Park Dr to I-64/US-40/Eager Rd
F. JEFFERSON, SB, I-64/US-40 to I-44
G. KINGSHIGHWAY, NB, US-40 to Delmar
H. KINGSHIGHWAY, SB, I-64/US-40 to I-44
I. KINGSHIGHWAY, SB, Laclede to I-64/US-40
J. MO-100, EB, Big Bend to McCausland
K. MO-100, WB, Vandeventer to Kingshighway
L. MO-340, SB, I-170 to US-67/N Lindbergh Blvd
M. MO-94, WB, I-70/Veterans Memorial Pky/Bogey Rd to MO-364
2.2 Selected Congested Locations on Freeways

Freeway Congestion Thresholds

| Severe | Heavy | Moderate | Light |  |
| :---: | :---: | :---: | :---: | :---: |
| $0 \%$ | $60 \%$ | $80 \%$ | $90 \%$ | $100 \%$ |

Figure 9: Spatial Distribution of Congested Freeway Locations (6-7 AM)


## Congested Locations:

A. I-55/I-64, WB-SB, Baugh Ave. to Poplar St Brg (Construction impacts- see Appendix 2)

Figure 10: Spatial Distribution of Congested Freeway Locations (7-8 AM)


## Congested Locations:

A. I-270, NB, I-55/I-255/Exit 1 to I-64/US-40/US-61/Exit 12
B. I-70, EB, Cave Springs/Exit 225 to Natural Bridge Rd/Exit 237/Exit 238 (Construction impacts- see Appendix 2)
C. I-270, SB, Dorsett Rd.Exit 17 to MO-AB/Ladue Rd/Exit 13
D. I-44, EB, MO-141/Exit 272 to I-270/Exit 276 (Construction impacts- see Appendix 2)
E. I-64, EB, Baxter to I-270/Exit 25 (Construction impacts- see Appendix 2)
F. I-70, EB, Lake St Louis Blvd/Exit 214 to MO-79/Exit 220
G. MO-364, EB, Jungerman to I-270/MO-D

Figure 11: Spatial Distribution of Congested Freeway Locations (8-9 AM)


Congested Locations:
A. I-170, SB, MO-180/ST Charles Rock/Exit 5 to I-64
B. I-270, WB, Lilac/Exit 33 to Elizabeth/Washington St/Exit 28 (Construction impacts- see Appendix 2)
C. I-44, EB, Berry Rd/Exit 279 to Kingshighway/Exit 287 (Construction impacts- see Appendix 2)
D. I-70, WB, Broadway/Exit 246 to MO-U/Lucas \& Hunt Rd/Exit 241
E. I-70, WB, Tenth St/Exit 249 to I-55/I-64/US-40/Exit 251
F. I-55, NB, Potomac to Park Ave/7Th St/Exit 208
G. I-64, EB, I-270/Exit 25 to McCausland to Ave/Exit 33
H. I-64, WB, Kingshighway/Exit 36 to I-170/Brentwood Blvd/Exit 31

Figure 12: Spatial Distribution of Congested Freeway Locations (3-4 PM)


## Congested Locations:

A. I-70, WB, Bryan Rd/Exit 216 to MO-W/Exit 203
B. I-64, WB, MO-K to I-70 (Construction impacts- see Appendix 2)

Figure 13: Spatial Distribution of Congested Freeway Locations (4-5 PM)


## Congested Locations:

A. I-64, EB, Kingshighway/Exit 36 to I-55/I-70/US-40
B. I-70/I-44/I-55, EB/WB/NB, Stan Musial Brg. to Park
C. I-55, SB, I-44/I-55/Gravois/Exit 207 to Potomac St/Exit 206
D. I-70, WB, Shreve Ave/Exit 245 to MO-N/Florissant Rd/Exit 240
E. I-270, EB, McDonnell Blvd/Exit 23 to MO-367/Exit 31
F. I-44, WB, I-55/Exit 290 to Arsenal St/Exit 284
G. I-55, EB-SB, Grand Ave/Exit 247 to I-44/I-55/Gravois/Exit 207
H. I-170, NB, Forest Park Pky/Exit 1E to Hanley Rd/Exit 9 (Construction impacts- see Appendix 2)
I. I-70, EB, I-270/Exit 232 to Jennings Sta Rd/Exit 242

Figure 14: Spatial Distribution of Congested Freeway Locations (5-6 PM)


## Congested Locations:

A. I-270, SB, I-70 to I-55/I-255/Exit 1
B. I-64, EB, Chesterfield Pky/Exit 20 to McCausland Ave/Exit 33
C. I-70, WB, Bryan Rd/Exit 216 to MO-W/Exit 203
D. I-64, WB, I-170/Brentwood Blvd/Exit 31 to Chesterfield Pky/Exit 20
E. I-44, WB, Big Bend Rd/Exit 278 to Antire Rd/Exit 269 (Construction impacts- see Appendix 2)
F. I-64, WB, MO-K to I-70 (Construction impacts- see Appendix 2)
G. MO-364, WB, I-270/MO-D to MO-94/Muegge Rd/Exit 13/Exit 12
H. I-170, SB, MO-180/St Charles Rock/Exit 5 to I-64/Eager Rd/Exit 1B/Exit 1A
I. I-70, WB, I-170/Exit 238 to I-270/Exit 232
J. I-55, SB, Virginia Ave/Exit 203 to Reavis Barracks Rd/Exit 199
K. I-70, WB, I-270/Exit 232 to Cave Springs/Exit 225 (Construction impacts- see Appendix 2)
L. I-44, EB, Bowles Ave/Exit 274 to US-50/US-61/US-67/ Exit 277

### 2.3 Percent of Miles Congested

Figures 15 and 16 depict the percentage of moderate, heavy and severe congestion for each hour of the AM and PM peak periods. The percentages are calculated based on the compilation of all the congested locations that occur during each hour of the peak periods.

Figure 15: Percent of Miles Congested (Arterials)


Figure 16: Percent of Miles Congested (Freeways)


## Summary of Findings

## Arterials:

- For arterials, moderate congestion varies between $80 \%$ and $100 \%$ of the congestion during the peak periods, while severe and heavy congestion account for up to $13 \%$, at most.


## Freeways:

- For freeways, moderate congestion varies between $42 \%$ and $76 \%$ of the congestion, while heavy and severe congestion takes $50 \%$, at most.
- The congestion queue lengths are far higher in moderate congestion than when congestion is heavy during morning peaks.
- For evening peaks, the moderate and heavy congestion locations have about the same queue lengths.


### 2.4 Freeway Congestion Intensity and Duration

A congestion scan is a graphic representation of how congestion on a corridor varies by location and time of day. Time of day is shown on the horizontal axis by hour for the entire day. Location along the corridor is shown in miles on the vertical axis and is referenced to intersecting roadways. Congestion is
represented using the same color coding that is used for the congestion maps contained in this report. The resulting visual shows where congestion occurs along the corridor, the intensity of the congestion and the time of day it occurs. The solid yellow and red bands represent continuous congestion along a corridor with the width of a band showing the length of time that the congestion occurs and the length of a band showing the distance in miles of the congestion. Figures 17 to 30 show the space-time representation of freeway congestion.

Figure 17: I-44, between Lewis Rd. and I-55 (2016).


Figure 18: I-55, between MO-141 and I-64 (2016).


Figure 19: I-64, between I-55/I-70 and I-55/I-64 (2016).


Figure 20: I-64 and I-55/I-64 (2016).


Figure 21: US-40, between I-70 and MO-94 (2016).


Figure 22: I-70, between I-55/I-64 and Florissant (2016).


Figure 23: I-70, between Jennings St. Rd. and I-170 (2016).


Figure 24: I-70, between MO-370 and MO-N (2016).


Figure 25: I-70, MO-94 and MO-W (2016).


Figure 26: I-270, Licac and MO-180/St. Charles Rock Rd. (2016).


Figure 27: I-270, between Dorsett and I-55/I-255 (2016).


Figure 28: MO-94, between Harvester Rd. and Mid Rivers Mall (2016).


Figure 29: MO-364, between Maryland Heights and I-270 (2016).


Figure 30: I-70, between Hanley to I-64 (2016).


## 3 Performance Measures

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

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

Eight performance measures are available from our database. These are buffer time (BT), Buffer Time Index (BTI), planning time (PT), Planning Time Index (PTI), speed, Speed Index (SI), travel time (TT), and Travel Time Index (TTI). These performance measures are defined as follows:

- Buffer time is the extra time that travelers must add to their average travel time when planning trips to ensure on-time arrival. It is the difference between 95 th percentile travel time and average travel time.
- Buffer Time Index is the ratio of buffer time to average travel time. It measures travel time reliability. For example, a buffer index of 0.4 means that, for a 20 -minute trip, a traveler should add an extra 8 minutes ( 20 minutes $x 0.4$ percent $=8$ minutes) to ensure on-time arrival most of the time.
- Planning time is the total time a traveler should plan for to ensure on-time arrival, 19 out of 20 trips.
- Planning Time Index is the total travel time that should be planned when extra time (buffer time) is included in the trip. For example, a Planning Time Index of 1.60 means that, for a 15 -minute trip, the total time that should be planned for the trip is 24 minutes ( 15 minutes x $1.60=24$ minutes). In this scenario, the buffer time alone is 9 minutes ( 15 minutes $\times 0.6$ percent). The higher the Planning Time Index, the more unreliable travel time is.
- Speed is the number of miles a vehicle is driven in an hour. Speed Index is the ratio of average speeds to $85^{\text {th }}$-percentile speeds of a segment.
- Travel Time is the average time spent traveling from the beginning to the end of a road segment.
- Travel Time Index is Travel Time represented as a percentage of the ideal travel time. For example, a TTI value of 1.2 means travel time during peak period is $20 \%$ longer than the freeflow travel time between the same origin and destination.


## 4 Collect Data / Monitor System Performance

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

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

Performance measures analyzed here represent average annual weekday data. Tables 3 and 4 provide peak period system information. Detailed hourly variations for each congested location within each peak period are appended to this report (Appendix 1). These tables are included to show how congestion varies throughout the peak period for each location.

Table 3: Arterial Performance Measures (Annual Weekday)

| No. | Route | Limits | Direction | State | Peak | Queue <br> Length | BT | BTI | PT | PTI | Speed | TT | TTI |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | US-67 | I-270 to Old Halls Ferry Rd | NB | M0 | PM | 5.59 | 10.86 | 0.91 | 22.82 | 2.04 | 21.23 | 15.80 | 1.41 |
| 2 | M0-340 | I-170 to US-67/N Lindbergh Blvd | SB | M0 | PM | 4.32 | 4.55 | 0.59 | 12.29 | 1.81 | 21.68 | 8.58 | 1.26 |
| 3 | M0-D | I-170 to Schuetz Rd | WB | M0 | PM | 4.28 | 0.12 | 0.17 | 0.81 | 1.49 | 46.94 | 0.64 | 1.17 |
| 4 | M0-94 | I-64/US-40/US-61 to Mid Rivers Mall Dr | NB | M0 | AM | 4.19 | 1.71 | 0.35 | 6.56 | 1.52 | 43.69 | 5.76 | 1.33 |
| 5 | M0-94 | I-64/US-40/US-61 to Mid Rivers Mall Dr | NB | M0 | PM | 4.19 | 3.45 | 0.69 | 8.47 | 1.96 | 37.50 | 6.71 | 1.55 |
| 6 | M0-141 | M0-30 to M0-21 | SB | M0 | PM | 4.14 | 5.78 | 1.08 | 11.13 | 2.06 | 33.41 | 7.43 | 1.37 |
| 7 | M0-141 | Hawkins to Vance | NB | M0 | AM | 4.10 | 10.33 | 1.67 | 16.50 | 2.56 | 24.63 | 8.97 | 1.39 |
| 8 | M0-141 | Big Bend to I-44 | SB | M0 | PM | 3.90 | 4.45 | 0.81 | 9.96 | 1.97 | 36.80 | 8.72 | 1.72 |
| 9 | M0-K | I-70 to M0-364 | SB | M0 | PM | 3.50 | 3.55 | 0.62 | 9.26 | 1.76 | 25.93 | 7.44 | 1.41 |
| 10 | M0-94 | I-70/Veterans Memorial Pky/Bogey Rd to M0-364 | WB | M0 | PM | 3.39 | 4.01 | 0.74 | 9.40 | 1.84 | 30.00 | 6.77 | 1.33 |
| 11 | M0-340 | Chesterfield Pky North to Baxter Rd | SB | M0 | PM | 2.74 | 5.55 | 0.87 | 11.92 | 2.04 | 22.30 | 7.36 | 1.26 |
| 12 | FOREST PARK AVE | I-64 to Kingshighway | WB | M0 | AM | 2.14 | 5.51 | 1.17 | 10.21 | 2.11 | 15.98 | 8.03 | 1.66 |
| 13 | FOREST PARK AVE | I-64 to Kingshighway | WB | M0 | PM | 2.14 | 5.46 | 1.36 | 9.48 | 1.95 | 18.19 | 7.05 | 1.45 |
| 14 | FOREST PARK AVE | Kingshighway to I-64 | EB | M0 | PM | 2.05 | 3.84 | 0.87 | 8.25 | 1.87 | 18.74 | 6.57 | 1.49 |
| 15 | FOREST PARK AVE | Kingshighway to I-64 | EB | M0 | AM | 2.05 | 4.09 | 1.12 | 7.73 | 1.76 | 20.80 | 5.92 | 1.34 |
| 16 | LL-111 | Forest Blvd to I-55/I-70/US-40 | NB | IL | AM | 2.01 | 1.44 | 0.62 | 3.78 | 1.44 | 33.98 | 3.56 | 1.35 |
| 17 | IL-111 | Forest Blvd to I-55/I-70/US-40 | NB | IL | PM | 2.01 | 1.45 | 0.56 | 4.03 | 1.53 | 31.60 | 3.83 | 1.46 |
| 18 | JEFFERSON | Broadway to I-44 | NB | M0 | PM | 1.99 | 3.44 | 0.70 | 8.38 | 1.74 | 18.66 | 6.40 | 1.33 |
| 19 | IL-143 | LL-111 to LL-3 | WB | IL | AM | 1.78 | 1.78 | 0.88 | 3.81 | 1.64 | 31.43 | 3.39 | 1.46 |
| 20 | IL-143 | LL-111 to LL-3 | WB | IL | PM | 1.78 | 1.67 | 0.78 | 3.81 | 1.64 | 30.59 | 3.48 | 1.50 |
| 21 | M0-141 | M0-AB/Ladue Rd to I-64/US-40/US-61 | SB | M0 | PM | 1.63 | 3.19 | 1.13 | 6.02 | 2.27 | 24.76 | 3.95 | 1.49 |
| 22 | KINGSHIGHWAY | US-40 to Delmar | NB | M0 | PM | 1.62 | 1.46 | 0.60 | 3.89 | 2.20 | 17.28 | 2.62 | 1.48 |
| 23 | M0-100 | Vandeventer to Kingshighway | WB | M0 | PM | 1.57 | 8.32 | 1.00 | 16.66 | 2.02 | 16.99 | 12.20 | 1.48 |
| 24 | KINGSHIGHWAY | I-64/US-40 to I-44 | SB | M0 | PM | 1.47 | 3.67 | 0.83 | 8.07 | 2.16 | 16.13 | 5.49 | 1.47 |
| 25 | M0-100 | Big Bend to McCausland | EB | M0 | PM | 1.42 | 5.28 | 0.59 | 14.29 | 1.58 | 18.99 | 11.01 | 1.22 |
| 26 | HANLEY | M0-100/Manchester Rd to I-64/US-40/Eager Rd | NB | M0 | PM | 1.30 | 2.67 | 0.61 | 7.02 | 1.69 | 18.31 | 5.38 | 1.30 |
| 27 | HANLEY | Shaw Park Dr to I-64/US-40/Eager Rd | SB | M0 | PM | 1.30 | 4.31 | 1.29 | 7.67 | 2.46 | 17.64 | 4.41 | 1.42 |
| 28 | JEFFERSON | I-64/US-40 to I-44 | SB | M0 | PM | 1.05 | 3.95 | 1.06 | 7.69 | 2.30 | 16.56 | 4.69 | 1.40 |
| 29 | HAMPTON AVE | I-64/US-40 to I-44 | SB | M0 | PM | 1.02 | 5.03 | 1.58 | 8.21 | 3.12 | 12.28 | 4.96 | 1.89 |
| 30 | M0-141 | Marshall to I-44 | SB | M0 | AM | 0.85 | 4.41 | 0.85 | 9.63 | 1.90 | 38.46 | 8.34 | 1.65 |
| 31 | LL-157 | Horseshoe Lake Rd to I-55/I-70/US-40 | SB | IL | AM | 0.78 | 1.37 | 1.10 | 2.60 | 1.72 | 22.21 | 2.11 | 1.40 |
| 32 | IL-157 | Horseshoe Lake Rd to I-55/I-70/US-40 | SB | IL | PM | 0.78 | 1.81 | 1.18 | 3.35 | 2.21 | 17.62 | 2.66 | 1.76 |
| 33 | KINGSHIGHWAY | I-64/US-40 to Lindell | NB | M0 | AM | 0.75 | 2.07 | 1.40 | 3.55 | 2.01 | 17.40 | 2.60 | 1.47 |
| 34 | KINGSHIGHWAY | Laclede to I-64/US-40 | SB | M0 | PM | 0.75 | 1.44 | 0.60 | 3.83 | 2.10 | 15.99 | 2.83 | 1.55 |
| 35 | SALISBURY ST | N. Florissant to I-70 | EB | M0 | PM | 0.75 | 2.13 | 0.83 | 4.70 | 1.87 | 13.39 | 3.36 | 1.34 |
| 36 | M0-D | I-270 to Schuetz Rd | EB | M0 | AM | 0.53 | 1.46 | 2.18 | 2.12 | 2.93 | 29.03 | 1.10 | 1.52 |
| 37 | IL-157 | I-55/I-70/US-40 to Horseshoe Lake Rd | NB | IL | AM | 0.47 | 0.93 | 1.66 | 1.48 | 2.42 | 24.37 | 1.16 | 1.89 |
| 38 | IL-157 | I-55/I-70/US-40 to Horseshoe Lake Rd | NB | IL | PM | 0.47 | 1.14 | 1.85 | 1.76 | 2.88 | 19.86 | 1.42 | 2.32 |

Table 4: Freeway Performance Measures (Annual Weekday)

| No. | Route | Limits | Direction | State | Peak | $\begin{aligned} & \text { Queue } \\ & \text { Lenggh } \\ & \hline \end{aligned}$ | BT | BTI | PT | PTI | Speed | TT | TTI |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | I-270 | I-70 to -55/-25/Exit 1 | SB | M0 | PM | 21.00 | 37.28 | 1.84 | 57.60 | 2.79 | 40.58 | 30.52 | 1.48 |
| 2 | I-70 | Cave Springs/Exit 225 to Natural Bridge Rd/Exit 237/Exit 238 | EB | M0 | AM | 14.16 | 15.84 | 1.13 | 29.90 | 2.11 | 50.20 | 16.93 | 1.20 |
| 3 | I-64 | Chesterfield Pky/Exit 20 to McCausland Ave/Exit 33 | EB | M0 | PM | 14.00 | 23.01 | 1.49 | 38.43 | 2.75 | 40.79 | 20.52 | 1.47 |
| 4 | I-70 | Bryan Rd/Exit 216 to MO-W/Exit 203 | WB | M0 | PM | 14.00 | 7.63 | 0.59 | 20.54 | 1.62 | 56.04 | 14.94 | 1.18 |
| 5 | I-270 | I-55/-255/Exit 1 to I-64/US-40/US-61/Exit 12 | NB | M0 | AM | 12.70 | 22.86 | 1.82 | 35.40 | 2.79 | 40.03 | 19.03 | 1.50 |
| 6 | I-270 | McDonnell BlvdExit 23 to M0-367/Exit 31 | EB | M0 | PM | 12.00 | 20.20 | 1.70 | 32.07 | 2.73 | 40.11 | 17.55 | 1.50 |
| 7 | I-64 | I-170/Brentwood Blv/Exit 31 to Chesterfield Pky/Exit 20 | WB | M0 | PM | 12.00 | 13.96 | 1.11 | 26.52 | 2.24 | 46.49 | 15.27 | 1.29 |
| 8 | I-44 | Big Bend Rd/Exit 278 to Antire Rd/Exit 269 | WB | M0 | PM | 11.00 | 5.72 | 0.52 | 16.79 | 1.55 | 53.14 | 12.66 | 1.17 |
| 9 | I-70 | I-270/Exit 232 to Jennings Sta Rd/Exit 242 | EB | M0 | PM | 11.00 | 13.87 | 1.16 | 25.80 | 2.23 | 47.84 | 13.97 | 1.21 |
| 10 | I-64 | M0-K to - 70 | WB | M0 | PM | 10.00 | 13.95 | 1.38 | 24.09 | 2.51 | 49.56 | 12.22 | 1.27 |
| 11 | I-64 | I-270/Exit 25 to McCausland to Ave/Exit 33 | EB | M0 | AM | 9.57 | 13.33 | 1.30 | 23.58 | 2.46 | 46.00 | 12.49 | 1.30 |
| 12 | I-170 | Forest Park Py/Exit 1E to Hanley Rd/Exit9 | NB | M0 | PM | 8.98 | 9.54 | 1.02 | 18.89 | 2.10 | 47.64 | 11.31 | 1.26 |
| 13 | M0-364 | Jungerman to I-270/MO-D | EB | M0 | AM | 8.61 | 6.90 | 0.78 | 15.71 | 1.80 | 54.16 | 9.54 | 1.09 |
| 14 | M0-364 | I-270/MO-D to MO-94Muuge e RdExit 13/Exit 12 | WB | M0 | PM | 8.61 | 5.95 | 0.69 | 14.53 | 1.69 | 55.47 | 9.30 | 1.08 |
| 15 | I.70 | Lake St Louis Blvd/Exit 214 to M0-791Exit 220 | EB | M0 | AM | 8.50 | 4.42 | 0.53 | 12.75 | 1.50 | 57.89 | 8.81 | 1.04 |
| 16 | I-44 | Berry RJ/Exit 279 to KinghighwayExit 287 | EB | M0 | AM | 7.94 | 6.73 | 0.83 | 14.88 | 1.87 | 52.64 | 9.05 | 1.14 |
| 17 | I-270 | Lilac/Exit 33 to Elizabeth/Washington StExit 28 | WB | M0 | AM | 7.15 | 7.99 | 1.12 | 15.12 | 2.11 | 48.49 | 8.84 | 1.23 |
| 18 | I-170 | M0-180/St Charles RockExit 5 to I-64/Eager Rd/Exit 1BEExit 1A | SB | M0 | PM | 6.69 | 11.59 | 1.52 | 19.22 | 2.70 | 37.72 | 10.64 | 1.50 |
| 19 | I-70 | I-170\|Exit 238 to - -270|Exit 232 | WB | M0 | PM | 6.45 | 6.54 | 0.98 | 13.24 | 2.03 | 48.30 | 8.01 | 1.23 |
| 20 | I-55 | Potomac to Park Ave/7Th StExit 208 | NB | M0 | AM | 6.21 | 5.43 | 0.85 | 11.81 | 1.86 | 51.67 | 7.22 | 1.13 |
| 21 | I-270 | Dorsett Rd/Exit 17 to M0-ABLLadue RdExit 13 | SB | M0 | AM | 6.18 | 5.22 | 0.88 | 11.19 | 1.81 | 52.72 | 7.03 | 1.14 |
| 22 | I-64 | Baxter to I-270)Exit 25 | EB | M0 | AM | 6.15 | 10.29 | 1.56 | 16.90 | 2.75 | 42.20 | 8.74 | 1.42 |
| 23 | I-55 | Grand Ave/Exit 247 to I-44/-55/Gravois/Exit 207 | EB-SB | M0 | PM | 5.77 | 10.17 | 2.04 | 14.51 | 3.36 | 32.96 | 7.37 | 1.78 |
| 24 | I-64 | Kinghtighway/Exit 36 to I -170/Brentwood Blv/Exit 31 | WB | M0 | AM | 5.52 | 10.56 | 1.81 | 16.38 | 2.97 | 39.92 | 8.30 | 1.50 |
| 25 | I-55 | Virginia Ave/Exit 203 to Reavis Barracks Rd/Exit 199 | SB | M0 | PM | 5.31 | 6.92 | 1.34 | 12.06 | 2.27 | 49.71 | 6.41 | 1.21 |
| 26 | I-44 | I-55/Exit 290 to Assenal StExit 284 | WB | M0 | PM | 5.20 | 11.65 | 2.18 | 16.99 | 3.19 | 40.69 | 7.66 | 1.44 |
| 27 | I-70 | I-270\|Exit 232 to Cave SpringsExit 225 | WB | M0 | PM | 5.00 | 9.53 | 1.87 | 14.63 | 2.86 | 38.78 | 7.77 | 1.52 |
| 28 | I-44 | M0-141/Exit 272 to -270\|Exit 276 | EB | M0 | AM | 4.70 | 6.12 | 0.79 | 13.87 | 1.76 | 54.88 | 8.60 | 1.09 |
| 29 | I-170 | I-64 to M0-D | SB | M0 | AM | 4.49 | 4.53 | 0.95 | 9.31 | 1.89 | 47.97 | 5.62 | 1.14 |
| 30 | I-55 | Baggh Ave. to Poplar St Brg. | WB-SB | L | AM | 4.39 | 3.82 | 1.54 | 6.38 | 2.43 | 36.65 | 3.72 | 1.39 |
| 31 | I-44 | Bowles Ave/Exit 274 to US-50/US-61/US-67/ Exit 277 | EB | M0 | PM | 4.31 | 3.42 | 0.77 | 7.83 | 1.82 | 52.45 | 4.93 | 1.14 |
| 32 | 1-64 | Kinghtighway/Exit 36 to $\mathrm{I}-55 /-70 / \mathrm{US}$-40 | EB | M0 | PM | 4.30 | 17.24 | 2.72 | 23.57 | 3.99 | 28.98 | 11.32 | 1.92 |
| 33 | I-70 | Broadway/Exit 246 to Lucas \& Hunt RdExit 241 | WB | M0 | AM | 3.35 | 4.50 | 1.30 | 7.98 | 2.18 | 45.46 | 4.42 | 1.21 |
| 34 | I-70/I-4/1/-5 | Stan Musial Brg. to Park | EB/WBNB | M0 | PM | 3.11 | 1.95 | 1.34 | 3.53 | 2.06 | 40.93 | 1.99 | 1.19 |
| 35 | I-55 | I-44/-55/Gravois/Exit 207 to Potomac StExit 206 | SB | M0 | PM | 2.48 | 1.22 | 0.48 | 3.77 | 1.52 | 52.43 | 2.84 | 1.14 |
| 36 | I-70 | Shreve/Exit 245 to MO-N/Florisant R/JExit 240 | WB | M0 | PM | 2.44 | 3.37 | 1.33 | 5.90 | 2.26 | 50.06 | 2.92 | 1.12 |
| 37 | I-44 | Tenth StExit 249 to --55/-64/US-40/Exit 251 | WB | M0 | AM | 2.02 | 16.43 | 0.63 | 4.38 | 1.99 | 46.93 | 2.58 | 1.17 |

b) Rank Congested Locations

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

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

Locations were ranked with 1 being the worst condition and the highest numbered location in the list being the least severe of the congested locations. This ranking exercise helps in determining which segments rank the highest in terms of congestion relief needs. Tables 5 to 10 below show congested location ranking for arterials and freeways.

Table 5: Ranking of Congested Arterial Locations by Severity

| No. | Route | Limits | Direction | State | Peak | Queue <br> Length | PTI | TTI | Severity | Total Impact | Variability |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | IL-157 | I-55/I-70/US-40 to Horseshoe Lake Rd | NB | IL | PM | 0.47 | 2.88 | 2.32 | 2.60 | 1.09 | 1.24 |
| 2 | HAMPTON AVE | I-64/US-40 to I-44 | SB | M0 | PM | 1.02 | 3.12 | 1.89 | 2.51 | 1.93 | 1.65 |
| 3 | MO-D | I-270 to Schuetz Rd | EB | M0 | AM | 0.53 | 2.93 | 1.52 | 2.23 | 0.81 | 1.93 |
| 4 | IL-157 | I-55/I-70/US-40 to Horseshoe Lake Rd | NB | IL | AM | 0.47 | 2.42 | 1.89 | 2.16 | 0.89 | 1.28 |
| 5 | LL-157 | Horseshoe Lake Rd to I-55/I-70/US-40 | SB | LL | PM | 0.78 | 2.21 | 1.76 | 1.99 | 1.37 | 1.26 |
| 6 | M0-141 | Hawkins to Vance | NB | M0 | AM | 4.10 | 2.56 | 1.39 | 1.98 | 5.70 | 1.84 |
| 7 | HANLEY | Shaw Park Dr to I-64/US-40/Eager Rd | SB | M0 | PM | 1.30 | 2.46 | 1.42 | 1.94 | 1.85 | 1.73 |
| 8 | FOREST PARK AVE | I-64 to Kingshighway | WB | MO | PM | 2.14 | 2.11 | 1.66 | 1.89 | 3.55 | 1.27 |
| 9 | M0-141 | MO-AB/Ladue Rd to I-64/US-40/US-61 | SB | M0 | PM | 1.63 | 2.27 | 1.49 | 1.88 | 2.43 | 1.52 |
| 10 | JEFFERSON | I-64/US-40 to I-44 | SB | M0 | PM | 1.05 | 2.30 | 1.40 | 1.85 | 1.47 | 1.64 |
| 11 | M0-141 | Big Bend to I-44 | SB | M0 | PM | 3.90 | 1.97 | 1.72 | 1.85 | 6.71 | 1.15 |
| 12 | KINGSHIGHWAY | US-40 to Delmar | NB | M0 | PM | 1.62 | 2.20 | 1.48 | 1.84 | 2.40 | 1.49 |
| 13 | KINGSHIGHWAY | Laclede to I-64/US-40 | SB | M0 | PM | 0.75 | 2.10 | 1.55 | 1.83 | 1.16 | 1.35 |
| 14 | KINGSHIGHWAY | I-64/US-40 to I-44 | SB | M0 | PM | 1.47 | 2.16 | 1.47 | 1.82 | 2.16 | 1.47 |
| 15 | M0-141 | Marshall to I-44 | SB | M0 | AM | 0.85 | 1.90 | 1.65 | 1.78 | 1.40 | 1.15 |
| 16 | M0-94 | I-64/US-40/US-61 to Mid Rivers Mall Dr | NB | M0 | PM | 4.19 | 1.96 | 1.55 | 1.76 | 6.49 | 1.26 |
| 17 | M0-100 | Vandeventer to Kingshighway | WB | M0 | PM | 1.57 | 2.02 | 1.48 | 1.75 | 2.32 | 1.36 |
| 18 | KINGSHIGHWAY | I-64/US-40 to Lindell | NB | M0 | AM | 0.75 | 2.01 | 1.47 | 1.74 | 1.10 | 1.37 |
| 19 | US-67 | I-270 to Old Halls Ferry Rd | NB | M0 | PM | 5.59 | 2.04 | 1.41 | 1.73 | 7.88 | 1.45 |
| 20 | M0-141 | MO-30 to M0-21 | SB | M0 | PM | 4.14 | 2.06 | 1.37 | 1.72 | 5.67 | 1.50 |
| 21 | FOREST PARK AVE | I-64 to Kingshighway | WB | M0 | AM | 2.14 | 1.95 | 1.45 | 1.70 | 3.10 | 1.34 |
| 22 | FOREST PARK AVE | Kingshighway to I-64 | EB | M0 | PM | 2.05 | 1.87 | 1.49 | 1.68 | 3.05 | 1.26 |
| 23 | MO-340 | Chesterfield Pky North to Baxter Rd | SB | M0 | PM | 2.74 | 2.04 | 1.26 | 1.65 | 3.45 | 1.62 |
| 24 | SALISBURY ST | N. Florissant to I-70 | EB | M0 | PM | 0.75 | 1.87 | 1.34 | 1.61 | 1.01 | 1.40 |
| 25 | M0-94 | I-70/Veterans Memorial Pky/Bogey Rd to M0-364 | WB | M0 | PM | 3.39 | 1.84 | 1.33 | 1.59 | 4.51 | 1.38 |
| 26 | MO-K | I-70 to M0-364 | SB | M0 | PM | 3.50 | 1.76 | 1.41 | 1.59 | 4.94 | 1.25 |
| 27 | IL-143 | IL-111 to IL-3 | WB | IL | PM | 1.78 | 1.64 | 1.50 | 1.57 | 2.67 | 1.09 |
| 28 | IL-157 | Horseshoe Lake Rd to I-55/I-70/US-40 | SB | LL | AM | 0.78 | 1.72 | 1.40 | 1.56 | 1.09 | 1.23 |
| 29 | FOREST PARK AVE | Kingshighway to I-64 | EB | M0 | AM | 2.05 | 1.76 | 1.34 | 1.55 | 2.75 | 1.31 |
| 30 | IL-143 | LL-111 to IL-3 | WB | IL | AM | 1.78 | 1.64 | 1.46 | 1.55 | 2.60 | 1.12 |
| 31 | M0-340 | I-170 to US-67/N Lindbergh Blvd | SB | M0 | PM | 4.32 | 1.81 | 1.26 | 1.54 | 5.44 | 1.44 |
| 32 | JEFFERSON | Broadway to I-44 | NB | M0 | PM | 1.99 | 1.74 | 1.33 | 1.54 | 2.65 | 1.31 |
| 33 | IL-111 | Forest Blvd to I-55/I-70/US-40 | NB | IL | PM | 2.01 | 1.53 | 1.46 | 1.50 | 2.93 | 1.05 |
| 34 | HANLEY | M0-100/Manchester Rd to I-64/US-40/Eager Rd | NB | M0 | PM | 1.30 | 1.69 | 1.30 | 1.50 | 1.69 | 1.30 |
| 35 | M0-94 | I-64/US-40/US-61 to Mid Rivers Mall Dr | NB | M0 | AM | 4.19 | 1.52 | 1.33 | 1.43 | 5.57 | 1.14 |
| 36 | M0-100 | Big Bend to McCausland | EB | M0 | PM | 1.42 | 1.58 | 1.22 | 1.40 | 1.73 | 1.30 |
| 37 | LL-111 | Forest Blvd to I-55/I-70/US-40 | NB | IL | AM | 2.01 | 1.44 | 1.35 | 1.40 | 2.71 | 1.07 |
| 38 | MO-D | I-170 to Schuetz Rd | WB | M0 | PM | 4.28 | 1.49 | 1.17 | 1.33 | 5.01 | 1.27 |

Table 6: Ranking of Congested Arterial Locations by Total Impact

| No. | Route | Limits | Direction | State | Peak | Queue <br> Length | PTI | TTI | Severity | Total Impact | Variability |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | US-67 | I-270 to Old Halls Ferry Rd | NB | MO | PM | 5.59 | 2.04 | 1.41 | 1.73 | 7.88 | 1.45 |
| 2 | MO-141 | Big Bend to I-44 | SB | MO | PM | 3.90 | 1.97 | 1.72 | 1.85 | 6.71 | 1.15 |
| 3 | M0-94 | I-64/US-40/US-61 to Mid Rivers Mall Dr | NB | MO | PM | 4.19 | 1.96 | 1.55 | 1.76 | 6.49 | 1.26 |
| 4 | M0-141 | Hawkins to Vance | NB | MO | AM | 4.10 | 2.56 | 1.39 | 1.98 | 5.70 | 1.84 |
| 5 | M0-141 | MO-30 to M0-21 | SB | MO | PM | 4.14 | 2.06 | 1.37 | 1.72 | 5.67 | 1.50 |
| 6 | M0-94 | I-64/US-40/US-61 to Mid Rivers Mall Dr | NB | MO | AM | 4.19 | 1.52 | 1.33 | 1.43 | 5.57 | 1.14 |
| 7 | M0-340 | I-170 to US-67/N Lindbergh Blvd | SB | M0 | PM | 4.32 | 1.81 | 1.26 | 1.54 | 5.44 | 1.44 |
| 8 | MO-D | I-170 to Schuetz Rd | WB | MO | PM | 4.28 | 1.49 | 1.17 | 1.33 | 5.01 | 1.27 |
| 9 | MO-K | I-70 to MO-364 | SB | M0 | PM | 3.50 | 1.76 | 1.41 | 1.59 | 4.94 | 1.25 |
| 10 | MO-94 | I-70/Veterans Memorial Pky/Bogey Rd to M0-364 | WB | M0 | PM | 3.39 | 1.84 | 1.33 | 1.59 | 4.51 | 1.38 |
| 11 | FOREST PARK AVE | I-64 to Kingshighway | WB | MO | PM | 2.14 | 2.11 | 1.66 | 1.89 | 3.55 | 1.27 |
| 12 | MO-340 | Chesterfield Pky North to Baxter Rd | SB | MO | PM | 2.74 | 2.04 | 1.26 | 1.65 | 3.45 | 1.62 |
| 13 | FOREST PARK AVE | I-64 to Kingshighway | WB | MO | AM | 2.14 | 1.95 | 1.45 | 1.70 | 3.10 | 1.34 |
| 14 | FOREST PARK AVE | Kingshighway to I-64 | EB | MO | PM | 2.05 | 1.87 | 1.49 | 1.68 | 3.05 | 1.26 |
| 15 | LL-111 | Forest Blvd to I-55/I-70/US-40 | NB | IL | PM | 2.01 | 1.53 | 1.46 | 1.50 | 2.93 | 1.05 |
| 16 | FOREST PARK AVE | Kingshighway to I-64 | EB | MO | AM | 2.05 | 1.76 | 1.34 | 1.55 | 2.75 | 1.31 |
| 17 | LL-111 | Forest Blvd to I-55/I-70/US-40 | NB | IL | AM | 2.01 | 1.44 | 1.35 | 1.40 | 2.71 | 1.07 |
| 18 | IL-143 | IL-111 to IL-3 | WB | IL | PM | 1.78 | 1.64 | 1.50 | 1.57 | 2.67 | 1.09 |
| 19 | JEFFERSON | Broadway to I-44 | NB | MO | PM | 1.99 | 1.74 | 1.33 | 1.54 | 2.65 | 1.31 |
| 20 | IL-143 | IL-111 to IL-3 | WB | IL | AM | 1.78 | 1.64 | 1.46 | 1.55 | 2.60 | 1.12 |
| 21 | M0-141 | MO-AB/Ladue Rd to I-64/US-40/US-61 | SB | MO | PM | 1.63 | 2.27 | 1.49 | 1.88 | 2.43 | 1.52 |
| 22 | KINGSHIGHWAY | US-40 to Delmar | NB | MO | PM | 1.62 | 2.20 | 1.48 | 1.84 | 2.40 | 1.49 |
| 23 | MO-100 | Vandeventer to Kingshighway | WB | MO | PM | 1.57 | 2.02 | 1.48 | 1.75 | 2.32 | 1.36 |
| 24 | KINGSHIGHWAY | I-64/US-40 to I-44 | SB | MO | PM | 1.47 | 2.16 | 1.47 | 1.82 | 2.16 | 1.47 |
| 25 | HAMPTON AVE | I-64/US-40 to I-44 | SB | MO | PM | 1.02 | 3.12 | 1.89 | 2.51 | 1.93 | 1.65 |
| 26 | HANLEY | Shaw Park Dr to I-64/US-40/Eager Rd | SB | MO | PM | 1.30 | 2.46 | 1.42 | 1.94 | 1.85 | 1.73 |
| 27 | MO-100 | Big Bend to McCausland | EB | MO | PM | 1.42 | 1.58 | 1.22 | 1.40 | 1.73 | 1.30 |
| 28 | HANLEY | MO-100/Manchester Rd to I-64/US-40/Eager Rd | NB | MO | PM | 1.30 | 1.69 | 1.30 | 1.50 | 1.69 | 1.30 |
| 29 | JEFFERSON | I-64/US-40 to I-44 | SB | M0 | PM | 1.05 | 2.30 | 1.40 | 1.85 | 1.47 | 1.64 |
| 30 | M0-141 | Marshall to I-44 | SB | MO | AM | 0.85 | 1.90 | 1.65 | 1.78 | 1.40 | 1.15 |
| 31 | IL-157 | Horseshoe Lake Rd to I-55/I-70/US-40 | SB | IL | PM | 0.78 | 2.21 | 1.76 | 1.99 | 1.37 | 1.26 |
| 32 | KINGSHIGHWAY | Laclede to I-64/US-40 | SB | MO | PM | 0.75 | 2.10 | 1.55 | 1.83 | 1.16 | 1.35 |
| 33 | KINGSHIGHWAY | I-64/US-40 to Lindell | NB | MO | AM | 0.75 | 2.01 | 1.47 | 1.74 | 1.10 | 1.37 |
| 34 | IL-157 | Horseshoe Lake Rd to I-55/I-70/US-40 | SB | IL | AM | 0.78 | 1.72 | 1.40 | 1.56 | 1.09 | 1.23 |
| 35 | IL-157 | I-55/I-70/US-40 to Horseshoe Lake Rd | NB | IL | PM | 0.47 | 2.88 | 2.32 | 2.60 | 1.09 | 1.24 |
| 36 | SALISBURY ST | N. Florissant to I-70 | EB | MO | PM | 0.75 | 1.87 | 1.34 | 1.61 | 1.01 | 1.40 |
| 37 | IL-157 | I-55/I-70/US-40 to Horseshoe Lake Rd | NB | IL | AM | 0.47 | 2.42 | 1.89 | 2.16 | 0.89 | 1.28 |
| 38 | MO-D | I-270 to Schuetz Rd | EB | M0 | AM | 0.53 | 2.93 | 1.52 | 2.23 | 0.81 | 1.93 |

Table 7: Ranking of Congested Arterial Locations by Variability

| No. | Route | Limits | Direction | State | Peak | Queue <br> Length | PTI | TTI | Severity | Total Impact | Variability |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | MO-D | I-270 to Schuetz Rd | EB | MO | AM | 0.53 | 2.93 | 1.52 | 2.23 | 0.81 | 1.93 |
| 2 | MO-141 | Hawkins to Vance | NB | MO | AM | 4.10 | 2.56 | 1.39 | 1.98 | 5.70 | 1.84 |
| 3 | HANLEY | Shaw Park Dr to I-64/US-40/Eager Rd | SB | MO | PM | 1.30 | 2.46 | 1.42 | 1.94 | 1.85 | 1.73 |
| 4 | HAMPTON AVE | I-64/US-40 to I-44 | SB | MO | PM | 1.02 | 3.12 | 1.89 | 2.51 | 1.93 | 1.65 |
| 5 | JEFFERSON | I-64/US-40 to I-44 | SB | MO | PM | 1.05 | 2.30 | 1.40 | 1.85 | 1.47 | 1.64 |
| 6 | MO-340 | Chesterfield Pky North to Baxter Rd | SB | MO | PM | 2.74 | 2.04 | 1.26 | 1.65 | 3.45 | 1.62 |
| 7 | MO-141 | MO-AB/Ladue Rd to I-64/US-40/US-61 | SB | MO | PM | 1.63 | 2.27 | 1.49 | 1.88 | 2.43 | 1.52 |
| 8 | MO-141 | MO-30 to MO-21 | SB | MO | PM | 4.14 | 2.06 | 1.37 | 1.72 | 5.67 | 1.50 |
| 9 | KINGSHIGHWAY | US-40 to Delmar | NB | MO | PM | 1.62 | 2.20 | 1.48 | 1.84 | 2.40 | 1.49 |
| 10 | KINGSHIGHWAY | I-64/US-40 to I-44 | SB | MO | PM | 1.47 | 2.16 | 1.47 | 1.82 | 2.16 | 1.47 |
| 11 | US-67 | I-270 to Old Halls Ferry Rd | NB | MO | PM | 5.59 | 2.04 | 1.41 | 1.73 | 7.88 | 1.45 |
| 12 | MO-340 | I-170 to US-67/N Lindbergh Blvd | SB | MO | PM | 4.32 | 1.81 | 1.26 | 1.54 | 5.44 | 1.44 |
| 13 | SALISBURY ST | N. Florissant to I-70 | EB | MO | PM | 0.75 | 1.87 | 1.34 | 1.61 | 1.01 | 1.40 |
| 14 | MO-94 | I-70/Veterans Memorial Pky/Bogey Rd to M0-364 | WB | MO | PM | 3.39 | 1.84 | 1.33 | 1.59 | 4.51 | 1.38 |
| 15 | KINGSHIGHWAY | I-64/US-40 to Lindell | NB | MO | AM | 0.75 | 2.01 | 1.47 | 1.74 | 1.10 | 1.37 |
| 16 | MO-100 | Vandeventer to Kingshighway | WB | MO | PM | 1.57 | 2.02 | 1.48 | 1.75 | 2.32 | 1.36 |
| 17 | KINGSHIGHWAY | Laclede to I-64/US-40 | SB | MO | PM | 0.75 | 2.10 | 1.55 | 1.83 | 1.16 | 1.35 |
| 18 | FOREST PARK AVE | I-64 to Kingshighway | WB | MO | AM | 2.14 | 1.95 | 1.45 | 1.70 | 3.10 | 1.34 |
| 19 | FOREST PARK AVE | Kingshighway to I-64 | EB | MO | AM | 2.05 | 1.76 | 1.34 | 1.55 | 2.75 | 1.31 |
| 20 | JEFFERSON | Broadway to I-44 | NB | MO | PM | 1.99 | 1.74 | 1.33 | 1.54 | 2.65 | 1.31 |
| 21 | HANLEY | MO-100/Manchester Rd to I-64/US-40/Eager Rd | NB | MO | PM | 1.30 | 1.69 | 1.30 | 1.50 | 1.69 | 1.30 |
| 22 | MO-100 | Big Bend to McCausland | EB | MO | PM | 1.42 | 1.58 | 1.22 | 1.40 | 1.73 | 1.30 |
| 23 | IL-157 | I-55/I-70/US-40 to Horseshoe Lake Rd | NB | IL | AM | 0.47 | 2.42 | 1.89 | 2.16 | 0.89 | 1.28 |
| 24 | MO-D | I-170 to Schuetz Rd | WB | MO | PM | 4.28 | 1.49 | 1.17 | 1.33 | 5.01 | 1.27 |
| 25 | FOREST PARK AVE | I-64 to Kingshighway | WB | MO | PM | 2.14 | 2.11 | 1.66 | 1.89 | 3.55 | 1.27 |
| 26 | MO-94 | I-64/US-40/US-61 to Mid Rivers Mall Dr | NB | MO | PM | 4.19 | 1.96 | 1.55 | 1.76 | 6.49 | 1.26 |
| 27 | IL-157 | Horseshoe Lake Rd to I-55/I-70/US-40 | SB | IL | PM | 0.78 | 2.21 | 1.76 | 1.99 | 1.37 | 1.26 |
| 28 | FOREST PARK AVE | Kingshighway to I-64 | EB | MO | PM | 2.05 | 1.87 | 1.49 | 1.68 | 3.05 | 1.26 |
| 29 | MO-K | I-70 to MO-364 | SB | MO | PM | 3.50 | 1.76 | 1.41 | 1.59 | 4.94 | 1.25 |
| 30 | IL-157 | I-55/I-70/US-40 to Horseshoe Lake Rd | NB | IL | PM | 0.47 | 2.88 | 2.32 | 2.60 | 1.09 | 1.24 |
| 31 | IL-157 | Horseshoe Lake Rd to I-55/I-70/US-40 | SB | IL | AM | 0.78 | 1.72 | 1.40 | 1.56 | 1.09 | 1.23 |
| 32 | MO-141 | Marshall to I-44 | SB | MO | AM | 0.85 | 1.90 | 1.65 | 1.78 | 1.40 | 1.15 |
| 33 | MO-141 | Big Bend to I-44 | SB | MO | PM | 3.90 | 1.97 | 1.72 | 1.85 | 6.71 | 1.15 |
| 34 | MO-94 | I-64/US-40/US-61 to Mid Rivers Mall Dr | NB | MO | AM | 4.19 | 1.52 | 1.33 | 1.43 | 5.57 | 1.14 |
| 35 | IL-143 | IL-111 to IL-3 | WB | IL | AM | 1.78 | 1.64 | 1.46 | 1.55 | 2.60 | 1.12 |
| 36 | IL-143 | IL-111 to IL-3 | WB | IL | PM | 1.78 | 1.64 | 1.50 | 1.57 | 2.67 | 1.09 |
| 37 | IL-111 | Forest Blvd to I-55/I-70/US-40 | NB | IL | AM | 2.01 | 1.44 | 1.35 | 1.40 | 2.71 | 1.07 |
| 38 | IL-111 | Forest Blvd to I-55/I-70/US-40 | NB | IL | PM | 2.01 | 1.53 | 1.46 | 1.50 | 2.93 | 1.05 |

Table 8: Ranking of Congested Freeway Locations by Severity

| No. | Route | Limits | Direction | State | Peak | Queue <br> Length | PTI | TTI | Severity | Total Impact | Variability |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | I-64 | Kingshighway/Exit 36 to I-55/I-70/US-40 | EB | M0 | PM | 4.30 | 3.99 | 1.92 | 2.96 | 8.26 | 2.08 |
| 2 | I-55 | Grand Ave/Exit 247 to I-44/I-55/Gravois/Exit 207 | EB-SB | M0 | PM | 5.77 | 3.36 | 1.78 | 2.57 | 10.24 | 1.89 |
| 3 | I-44 | I-55/Exit 290 to Arsenal St/Exit 284 | WB | M0 | PM | 5.20 | 3.19 | 1.44 | 2.32 | 7.49 | 2.22 |
| 4 | I-64 | Kingshighway/Exit 36 to I-170/Brentwood Blvd/Exit 31 | WB | M0 | AM | 5.52 | 2.97 | 1.50 | 2.24 | 8.28 | 1.98 |
| 5 | I-70 | I-270/Exit 232 to Cave Springs/Exit 225 | WB | M0 | PM | 5.00 | 2.86 | 1.52 | 2.19 | 7.60 | 1.88 |
| 6 | I-270 | I-55/I-255/Exit 1 to I-64/US-40/US-61/Exit 12 | NB | M0 | AM | 12.70 | 2.79 | 1.50 | 2.15 | 19.05 | 1.86 |
| 7 | I-270 | I-70 to I-55/I-255/Exit 1 | SB | M0 | PM | 21.00 | 2.79 | 1.48 | 2.14 | 31.08 | 1.89 |
| 8 | I-270 | McDonnell Blvd/Exit 23 to M0-367/Exit 31 | EB | M0 | PM | 12.00 | 2.73 | 1.50 | 2.12 | 18.00 | 1.82 |
| 9 | I-64 | Chesterfield Pky/Exit 20 to McCausland Ave/Exit 33 | EB | M0 | PM | 14.00 | 2.75 | 1.47 | 2.11 | 20.58 | 1.87 |
| 10 | I-170 | M0-180/St Charles Rock/Exit 5 to I-64/Eager Rd/Exit 1B/Exit 1A | SB | M0 | PM | 6.69 | 2.70 | 1.50 | 2.10 | 10.04 | 1.80 |
| 11 | I-64 | Baxter to I-270/Exit 25 | EB | M0 | AM | 6.15 | 2.75 | 1.42 | 2.09 | 8.73 | 1.94 |
| 12 | I-55 | Baugh Ave. to Poplar St Brg. | WB-SB | IL | AM | 4.39 | 2.43 | 1.39 | 1.91 | 6.12 | 1.74 |
| 13 | I-64 | MO-K to I-70 | WB | M0 | PM | 10.00 | 2.51 | 1.27 | 1.89 | 12.70 | 1.98 |
| 14 | I-64 | I-270/Exit 25 to McCausland to Ave/Exit 33 | EB | M0 | AM | 9.57 | 2.46 | 1.30 | 1.88 | 12.44 | 1.89 |
| 15 | I-64 | I-170/Brentwood Blvd/Exit 31 to Chesterfield Pky/Exit 20 | WB | M0 | PM | 12.00 | 2.24 | 1.29 | 1.77 | 15.48 | 1.74 |
| 16 | I-55 | Virginia Ave/Exit 203 to Reavis Barracks Rd/Exit 199 | SB | M0 | PM | 5.31 | 2.27 | 1.21 | 1.74 | 6.43 | 1.88 |
| 17 | I-70 | I-270/Exit 232 to Jennings Sta Rd/Exit 242 | EB | M0 | PM | 11.00 | 2.23 | 1.21 | 1.72 | 13.31 | 1.84 |
| 18 | I-70 | Broadway/Exit 246 to Lucas \& Hunt Rd/Exit 241 | WB | M0 | AM | 3.35 | 2.18 | 1.21 | 1.70 | 4.05 | 1.80 |
| 19 | I-70 | Shreve/Exit 245 to M0-N/Florissant Rd/Exit 240 | WB | M0 | PM | 2.44 | 2.26 | 1.12 | 1.69 | 2.73 | 2.02 |
| 20 | I-170 | Forest Park Pky/Exit 1E to Hanley Rd/Exit 9 | NB | M0 | PM | 8.98 | 2.10 | 1.26 | 1.68 | 11.31 | 1.67 |
| 21 | I-270 | Lilac/Exit 33 to Elizabeth/Washington St/Exit 28 | WB | M0 | AM | 7.15 | 2.11 | 1.23 | 1.67 | 8.79 | 1.72 |
| 22 | I-70 | Cave Springs/Exit 225 to Natural Bridge Rd/Exit 237/Exit 238 | EB | M0 | AM | 14.16 | 2.11 | 1.20 | 1.66 | 16.99 | 1.76 |
| 23 | I-70 | I-170/Exit 238 to I-270/Exit 232 | WB | M0 | PM | 6.45 | 2.03 | 1.23 | 1.63 | 7.93 | 1.65 |
| 24 | I-70/I-44/I-55 | Stan Musial Brg. to Park | EB/WB/NB | M0 | PM | 3.11 | 2.06 | 1.19 | 1.62 | 3.69 | 1.73 |
| 25 | I-44 | Tenth St/Exit 249 to I-55/I-64/US-40/Exit 251 | WB | M0 | AM | 2.02 | 1.99 | 1.17 | 1.58 | 2.36 | 1.70 |
| 26 | I-170 | I-64 to M0-D | SB | M0 | AM | 4.49 | 1.89 | 1.14 | 1.52 | 5.12 | 1.66 |
| 27 | I-44 | Berry Rd/Exit 279 to Kingshighway/Exit 287 | EB | M0 | AM | 7.94 | 1.87 | 1.14 | 1.51 | 9.05 | 1.64 |
| 28 | I-55 | Potomac to Park Ave/7Th St/Exit 208 | NB | M0 | AM | 6.21 | 1.86 | 1.13 | 1.50 | 7.02 | 1.65 |
| 29 | I-44 | Bowles Ave/Exit 274 to US-50/US-61/US-67/ Exit 277 | EB | M0 | PM | 4.31 | 1.82 | 1.14 | 1.48 | 4.91 | 1.60 |
| 30 | I-270 | Dorsett Rd/Exit 17 to M0-AB/Ladue Rd/Exit 13 | SB | M0 | AM | 6.18 | 1.81 | 1.14 | 1.48 | 7.05 | 1.59 |
| 31 | M0-364 | Jungerman to I-270/M0-D | EB | M0 | AM | 8.61 | 1.80 | 1.09 | 1.45 | 9.38 | 1.65 |
| 32 | I-44 | M0-141/Exit 272 to I-270/Exit 276 | EB | M0 | AM | 4.70 | 1.76 | 1.09 | 1.43 | 5.12 | 1.61 |
| 33 | I-70 | Bryan Rd/Exit 216 to MO-W/Exit 203 | WB | M0 | PM | 14.00 | 1.62 | 1.18 | 1.40 | 16.52 | 1.37 |
| 34 | M0-364 | I-270/M0-D to M0-94/Muegge Rd/Exit 13/Exit 12 | WB | M0 | PM | 8.61 | 1.69 | 1.08 | 1.39 | 9.30 | 1.56 |
| 35 | I-44 | Big Bend Rd/Exit 278 to Antire Rd/Exit 269 | WB | M0 | PM | 11.00 | 1.55 | 1.17 | 1.36 | 12.87 | 1.32 |
| 36 | I-55 | I-44/I-55/Gravois/Exit 207 to Potomac St/Exit 206 | SB | M0 | PM | 2.48 | 1.52 | 1.14 | 1.33 | 2.83 | 1.33 |
| 37 | I-70 | Lake St Louis Blvd/Exit 214 to M0-79/Exit 220 | EB | M0 | AM | 8.50 | 1.50 | 1.04 | 1.27 | 8.84 | 1.44 |

## Table 9: Ranking of Congested Freeway Locations by Total Impact

| No. | Route | Limits | Direction | State | Peak | Queue <br> Length | PTI | TTI | Severity | Total <br> Impact | Variability |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | I-270 | I-70 to I-55/I-255/Exit 1 | SB | M0 | PM | 21.00 | 2.79 | 1.48 | 2.14 | 31.08 | 1.89 |
| 2 | I-64 | Chesterfield Pky/Exit 20 to McCausland Ave/Exit 33 | EB | MO | PM | 14.00 | 2.75 | 1.47 | 2.11 | 20.58 | 1.87 |
| 3 | I-270 | I-55/I-255/Exit 1 to I-64/US-40/US-61/Exit 12 | NB | MO | AM | 12.70 | 2.79 | 1.50 | 2.15 | 19.05 | 1.86 |
| 4 | I-270 | McDonnell Blvd/Exit 23 to MO-367/Exit 31 | EB | MO | PM | 12.00 | 2.73 | 1.50 | 2.12 | 18.00 | 1.82 |
| 5 | I-70 | Cave Springs/Exit 225 to Natural Bridge Rd/Exit 237/Exit 238 | EB | M0 | AM | 14.16 | 2.11 | 1.20 | 1.66 | 16.99 | 1.76 |
| 6 | I-70 | Bryan Rd/Exit 216 to MO-W/Exit 203 | WB | MO | PM | 14.00 | 1.62 | 1.18 | 1.40 | 16.52 | 1.37 |
| 7 | I-64 | I-170/Brentwood Blvd/Exit 31 to Chesterfield Pky/Exit 20 | WB | M0 | PM | 12.00 | 2.24 | 1.29 | 1.77 | 15.48 | 1.74 |
| 8 | I-70 | I-270/Exit 232 to Jennings Sta Rd/Exit 242 | EB | M0 | PM | 11.00 | 2.23 | 1.21 | 1.72 | 13.31 | 1.84 |
| 9 | I-44 | Big Bend Rd/Exit 278 to Antire Rd/Exit 269 | WB | M0 | PM | 11.00 | 1.55 | 1.17 | 1.36 | 12.87 | 1.32 |
| 10 | I-64 | MO-K to I-70 | WB | MO | PM | 10.00 | 2.51 | 1.27 | 1.89 | 12.70 | 1.98 |
| 11 | I-64 | I-270/Exit 25 to McCausland to Ave/Exit 33 | EB | MO | AM | 9.57 | 2.46 | 1.30 | 1.88 | 12.44 | 1.89 |
| 12 | I-170 | Forest Park Pky/Exit 1E to Hanley Rd/Exit 9 | NB | M0 | PM | 8.98 | 2.10 | 1.26 | 1.68 | 11.31 | 1.67 |
| 13 | I-55 | Grand Ave/Exit 247 to I-44/I-55/Gravois/Exit 207 | EB-SB | MO | PM | 5.77 | 3.36 | 1.78 | 2.57 | 10.24 | 1.89 |
| 14 | I-170 | M0-180/St Charles Rock/Exit 5 to I-64/Eager Rd/Exit 1B/Exit 1A | SB | MO | PM | 6.69 | 2.70 | 1.50 | 2.10 | 10.04 | 1.80 |
| 15 | M0-364 | Jungerman to I-270/M0-D | EB | MO | AM | 8.61 | 1.80 | 1.09 | 1.45 | 9.38 | 1.65 |
| 16 | M0-364 | I-270/MO-D to MO-94/Muegge Rd/Exit 13/Exit 12 | WB | MO | PM | 8.61 | 1.69 | 1.08 | 1.39 | 9.30 | 1.56 |
| 17 | I-44 | Berry Rd/Exit 279 to Kingshighway/Exit 287 | EB | MO | AM | 7.94 | 1.87 | 1.14 | 1.51 | 9.05 | 1.64 |
| 18 | I-70 | Lake St Louis Blvd/Exit 214 to M0-79/Exit 220 | EB | M0 | AM | 8.50 | 1.50 | 1.04 | 1.27 | 8.84 | 1.44 |
| 19 | I-270 | Lilac/Exit 33 to Elizabeth/Washington St/Exit 28 | WB | M0 | AM | 7.15 | 2.11 | 1.23 | 1.67 | 8.79 | 1.72 |
| 20 | I-64 | Baxter to I-270/Exit 25 | EB | M0 | AM | 6.15 | 2.75 | 1.42 | 2.09 | 8.73 | 1.94 |
| 21 | I-64 | Kingshighway/Exit 36 to I-170/Brentwood Blvd/Exit 31 | WB | M0 | AM | 5.52 | 2.97 | 1.50 | 2.24 | 8.28 | 1.98 |
| 22 | I-64 | Kingshighway/Exit 36 to I-55/I-70/US-40 | EB | MO | PM | 4.30 | 3.99 | 1.92 | 2.96 | 8.26 | 2.08 |
| 23 | I-70 | I-170/Exit 238 to I-270/Exit 232 | WB | MO | PM | 6.45 | 2.03 | 1.23 | 1.63 | 7.93 | 1.65 |
| 24 | I-70 | I-270/Exit 232 to Cave Springs/Exit 225 | WB | M0 | PM | 5.00 | 2.86 | 1.52 | 2.19 | 7.60 | 1.88 |
| 25 | I-44 | I-55/Exit 290 to Arsenal St/Exit 284 | WB | M0 | PM | 5.20 | 3.19 | 1.44 | 2.32 | 7.49 | 2.22 |
| 26 | I-270 | Dorsett Rd/Exit 17 to MO-AB/Ladue Rd/Exit 13 | SB | M0 | AM | 6.18 | 1.81 | 1.14 | 1.48 | 7.05 | 1.59 |
| 27 | I-55 | Potomac to Park Ave/7Th St/Exit 208 | NB | MO | AM | 6.21 | 1.86 | 1.13 | 1.50 | 7.02 | 1.65 |
| 28 | I-55 | Virginia Ave/Exit 203 to Reavis Barracks Rd/Exit 199 | SB | M0 | PM | 5.31 | 2.27 | 1.21 | 1.74 | 6.43 | 1.88 |
| 29 | I-55 | Baugh Ave. to Poplar St Brg. | WB-SB | IL | AM | 4.39 | 2.43 | 1.39 | 1.91 | 6.12 | 1.74 |
| 30 | I-44 | MO-141/Exit 272 to I-270/Exit 276 | EB | MO | AM | 4.70 | 1.76 | 1.09 | 1.43 | 5.12 | 1.61 |
| 31 | I-170 | I-64 to MO-D | SB | MO | AM | 4.49 | 1.89 | 1.14 | 1.52 | 5.12 | 1.66 |
| 32 | I-44 | Bowles Ave/Exit 274 to US-50/US-61/US-67/ Exit 277 | EB | MO | PM | 4.31 | 1.82 | 1.14 | 1.48 | 4.91 | 1.60 |
| 33 | I-70 | Broadway/Exit 246 to Lucas \& Hunt Rd/Exit 241 | WB | MO | AM | 3.35 | 2.18 | 1.21 | 1.70 | 4.05 | 1.80 |
| 34 | I-70/I-44/I-55 | Stan Musial Brg. to Park | EB/WB/NB | M0 | PM | 3.11 | 2.06 | 1.19 | 1.62 | 3.69 | 1.73 |
| 35 | I-55 | I-44/I-55/Gravois/Exit 207 to Potomac St/Exit 206 | SB | MO | PM | 2.48 | 1.52 | 1.14 | 1.33 | 2.83 | 1.33 |
| 36 | I-70 | Shreve/Exit 245 to MO-N/Florissant Rd/Exit 240 | WB | M0 | PM | 2.44 | 2.26 | 1.12 | 1.69 | 2.73 | 2.02 |
| 37 | I-44 | Tenth St/Exit 249 to I-55/I-64/US-40/Exit 251 | WB | M0 | AM | 2.02 | 1.99 | 1.17 | 1.58 | 2.36 | 1.70 |

Table 10: Ranking of Congested Freeway Locations by Variability

| No. | Route | Limits | Direction | State | Peak | Queue <br> Length | PTI | TTI | Severity | Total Impact | Variability |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | I-44 | I-55/Exit 290 to Arsenal St/Exit 284 | WB | M0 | PM | 5.20 | 3.19 | 1.44 | 2.32 | 7.49 | 2.22 |
| 2 | I-64 | Kingshighway/Exit 36 to I-55/I-70/US-40 | EB | M0 | PM | 4.30 | 3.99 | 1.92 | 2.96 | 8.26 | 2.08 |
| 3 | I-70 | Shreve/Exit 245 to M0-N/Florissant Rd/Exit 240 | WB | M0 | PM | 2.44 | 2.26 | 1.12 | 1.69 | 2.73 | 2.02 |
| 4 | I-64 | Kingshighway/Exit 36 to I-170/Brentwood Blvd/Exit 31 | WB | M0 | AM | 5.52 | 2.97 | 1.50 | 2.24 | 8.28 | 1.98 |
| 5 | I-64 | M0-K to I-70 | WB | M0 | PM | 10.00 | 2.51 | 1.27 | 1.89 | 12.70 | 1.98 |
| 6 | I-64 | Baxter to I-270/Exit 25 | EB | M0 | AM | 6.15 | 2.75 | 1.42 | 2.09 | 8.73 | 1.94 |
| 7 | I-55 | Grand Ave/Exit 247 to I-44/I-55/Gravois/Exit 207 | EB-SB | M0 | PM | 5.77 | 3.36 | 1.78 | 2.57 | 10.24 | 1.89 |
| 8 | I-64 | I-270/Exit 25 to McCausland to Ave/Exit 33 | EB | M0 | AM | 9.57 | 2.46 | 1.30 | 1.88 | 12.44 | 1.89 |
| 9 | I-270 | I-70 to I-55/[-255/Exit 1 | SB | M0 | PM | 21.00 | 2.79 | 1.48 | 2.14 | 31.08 | 1.89 |
| 10 | I-70 | I-270/Exit 232 to Cave Springs/Exit 225 | WB | M0 | PM | 5.00 | 2.86 | 1.52 | 2.19 | 7.60 | 1.88 |
| 11 | I-55 | Virginia Ave/Exit 203 to Reavis Barracks Rd/Exit 199 | SB | M0 | PM | 5.31 | 2.27 | 1.21 | 1.74 | 6.43 | 1.88 |
| 12 | I-64 | Chesterfield Pky/Exit 20 to McCausland Ave/Exit 33 | EB | M0 | PM | 14.00 | 2.75 | 1.47 | 2.11 | 20.58 | 1.87 |
| 13 | I-270 | I-55/I-255/Exit 1 to I-64/US-40/US-61/Exit 12 | NB | M0 | AM | 12.70 | 2.79 | 1.50 | 2.15 | 19.05 | 1.86 |
| 14 | I-70 | I-270/Exit 232 to Jennings Sta Rd/Exit 242 | EB | M0 | PM | 11.00 | 2.23 | 1.21 | 1.72 | 13.31 | 1.84 |
| 15 | I-270 | McDonnell Blvd/Exit 23 to M0-367/Exit 31 | EB | M0 | PM | 12.00 | 2.73 | 1.50 | 2.12 | 18.00 | 1.82 |
| 16 | I-70 | Broadway/Exit 246 to Lucas \& Hunt Rd/Exit 241 | WB | M0 | AM | 3.35 | 2.18 | 1.21 | 1.70 | 4.05 | 1.80 |
| 17 | I-170 | M0-180/St Charles Rock/Exit 5 to I-64/Eager Rd/Exit 1B/Exit 1A | SB | M0 | PM | 6.69 | 2.70 | 1.50 | 2.10 | 10.04 | 1.80 |
| 18 | I-70 | Cave Springs/Exit 225 to Natural Bridge Rd/Exit 237/Exit 238 | EB | M0 | AM | 14.16 | 2.11 | 1.20 | 1.66 | 16.99 | 1.76 |
| 19 | I-55 | Baugh Ave. to Poplar St Brg. | WB-SB | IL | AM | 4.39 | 2.43 | 1.39 | 1.91 | 6.12 | 1.74 |
| 20 | I-64 | I-170/Brentwood Blvd/Exit 31 to Chesterfield Pky/Exit 20 | WB | M0 | PM | 12.00 | 2.24 | 1.29 | 1.77 | 15.48 | 1.74 |
| 21 | I-70/I-44/I-55 | Stan Musial Brg. to Park | EB/WB/NB | M0 | PM | 3.11 | 2.06 | 1.19 | 1.62 | 3.69 | 1.73 |
| 22 | I-270 | Lilac/Exit 33 to Elizabeth/Washington St/Exit 28 | WB | M0 | AM | 7.15 | 2.11 | 1.23 | 1.67 | 8.79 | 1.72 |
| 23 | I-44 | Tenth St/Exit 249 to I-55/I-64/US-40/Exit 251 | WB | M0 | AM | 2.02 | 1.99 | 1.17 | 1.58 | 2.36 | 1.70 |
| 24 | I-170 | Forest Park Pky/Exit 1E to Hanley Rd/Exit 9 | NB | M0 | PM | 8.98 | 2.10 | 1.26 | 1.68 | 11.31 | 1.67 |
| 25 | I-170 | I-64 to M0-D | SB | M0 | AM | 4.49 | 1.89 | 1.14 | 1.52 | 5.12 | 1.66 |
| 26 | M0-364 | Jungerman to I-270/M0-D | EB | M0 | AM | 8.61 | 1.80 | 1.09 | 1.45 | 9.38 | 1.65 |
| 27 | I-70 | I-170/Exit 238 to I-270/Exit 232 | WB | M0 | PM | 6.45 | 2.03 | 1.23 | 1.63 | 7.93 | 1.65 |
| 28 | I-55 | Potomac to Park Ave/7Th St/Exit 208 | NB | M0 | AM | 6.21 | 1.86 | 1.13 | 1.50 | 7.02 | 1.65 |
| 29 | I-44 | Berry Rd/Exit 279 to Kingshighway/Exit 287 | EB | M0 | AM | 7.94 | 1.87 | 1.14 | 1.51 | 9.05 | 1.64 |
| 30 | I-44 | M0-141/Exit 272 to I-270/Exit 276 | EB | M0 | AM | 4.70 | 1.76 | 1.09 | 1.43 | 5.12 | 1.61 |
| 31 | I-44 | Bowles Ave/Exit 274 to US-50/US-61/US-67/ Exit 277 | EB | M0 | PM | 4.31 | 1.82 | 1.14 | 1.48 | 4.91 | 1.60 |
| 32 | I-270 | Dorsett Rd/Exit 17 to M0-AB/Ladue Rd/Exit 13 | SB | M0 | AM | 6.18 | 1.81 | 1.14 | 1.48 | 7.05 | 1.59 |
| 33 | M0-364 | I-270/MO-D to M0-94/Muegge Rd/Exit 13/Exit 12 | WB | M0 | PM | 8.61 | 1.69 | 1.08 | 1.39 | 9.30 | 1.56 |
| 34 | I-70 | Lake St Louis Blvd/Exit 214 to M0-79/Exit 220 | EB | M0 | AM | 8.50 | 1.50 | 1.04 | 1.27 | 8.84 | 1.44 |
| 35 | I-70 | Bryan Rd/Exit 216 to M0-W/Exit 203 | WB | M0 | PM | 14.00 | 1.62 | 1.18 | 1.40 | 16.52 | 1.37 |
| 36 | I-55 | I-44/I-55/Gravois/Exit 207 to Potomac St/Exit 206 | SB | M0 | PM | 2.48 | 1.52 | 1.14 | 1.33 | 2.83 | 1.33 |
| 37 | I-44 | Big Bend Rd/Exit 278 to Antire Rd/Exit 269 | WB | M0 | PM | 11.00 | 1.55 | 1.17 | 1.36 | 12.87 | 1.32 |

## Summary of Findings

- Less severe locations tend to be less impactful and more reliable.
c) Performance Trend Analysis

We examined regional system performance trends to ascertain how well the region's congested locations have been performing over time. We calculated performance measures for all of the 2016 congested locations for the years 2012 through 2016 and averaged them for each year. We then graphed the performance measures for each year to determine trends. These graphs reflect the trends for the congested locations identified in 2016 over the last five years.

## i. Average Planning Time

Planning time is the time you must plan for a specific trip to arrive at your destination on time $95 \%$ of the time. The numbers shown in Figure 31 show a general upward trend from 2012 to 2016, with the exception the AM peak from 2015 to 2016.

## Figure 31: Planning Time


ii. Planning Time Index

Planning Time Index is a measure of travel time reliability. For example, a PTI of 2 means that for a trip that would take you 30 minutes in light traffic you would need to allow 1 hour to get to your destination on time $95 \%$ of the time. The trend analysis shows sharp increases in PTI across the region with the exception of the freeway AM peak in 2016.

Figure 32: Planning Time Index


## iii. Average Speed

Regional average freeway speeds for the congested locations was observed to be 47 miles per hour (mph). Arterial speeds stood at 25 mph . Generally, while regional speeds have steadily declined over time, arterial speeds have declined more sharply (see Figure 33). Declining speed is a sign of increasing congestion intensity.

Figure 33: Speed


## iv. Average Travel Time

Freeway average travel time was 9.88 minutes and arterial travel time was 5.43 minutes. Growth in travel time trended upward between 2012 and 2016, then experienced a drop from 2015 to 2016. Arterial travel times grew more quickly than on freeways, then experienced a significant drop in AM arterial travel time from 2015 to 2016 (see Figure 34).

Figure 34: Travel Time


## v. Travel Time Index

The average Travel Time Index for all congested locations in 2016 was 1.4. The average TTI was 1.28 and 1.48 for freeways and arterials, respectively. This means travel time during peak period was $28 \%$ longer on than free-flow travel times on freeways and $48 \%$ longer on arterials.

Figure 35: Travel Time Index


## Summary of Findings

- Average speeds have declined over the five year period for both arterials and freeways.
- Average peak-period Travel Times have been increased over the 5 year period.
- Planning Time Index has increased sharply between 2012 and 2016, a sign of worsening system reliability.
- In general, this indicates increasing congestion in the region over the 5-year period (2012 2016).

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

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

## a) Missouri Department of Transportation (MoDOT)

In 2016, MoDOT undertook 2 major signal optimization projects along I-70 and on MO-21, using CMAQ funds. The projects on I-70 were implemented at 9 selected interchanges: (1) Kingshighway; (2) Union; (3) Goodfellow; (4) Jennings Sta. Rd.; (5) Airflight; (6) Zumbehl; (7) Cave Springs; (8) Lake St. Louis; and (9) Wentzville. The MO-21 projects were implemented between Lutheran High School and Walden Ridge Rd.

Overall, as expected, the projects on I-70 had major reduction in delay, fuel consumption and emissions. For example, the reduction in delay averaged at about 9 per cent with a range between 3 per cent and 16 per cent. These results are shown in Table 11 below.

Table 11: Effects of Signal Timing on Delay, Fuel, and Emissions (I-70)

| No. | Interchanges | \% Change in <br> Delay | Fuel Savings <br> (gallons) | Emission Benefits <br> (kgs) |
| ---: | :--- | ---: | ---: | ---: |
| 1 | Kingshighway | $-5.23 \%$ | 884 | 170 |
| 2 | Union | $-11.40 \%$ | 1,456 | 135 |
| 3 | Goodfellow | $-13.10 \%$ | 4,784 | 458 |
| 4 | Jennings Sta. Rd. | $-13.70 \%$ | 1,144 | 106 |
| 5 | Airflight | $-9.12 \%$ | 4,004 | 388 |
| 6 | Zumbehl | $-15.70 \%$ | 23,764 | 973 |
| 7 | Cave Springs | $-7.23 \%$ | 3,328 | 544 |
| 8 | Lake St. Louis | $-3.53 \%$ | 6,968 | 728 |
| 9 | Wentzville | $-3.15 \%$ | 190 | 156 |
|  | TOTAL | $-9.13 \%$ | 46,522 | $\mathbf{3 , 6 5 8}$ |

Effect of optimization projects on MO-21 on congestion was conclusively positive. The evaluation report covered four indices: travel time, number of stops, average speed, and total delay. The corresponding emission reduction effect of these projects was 2,171 pounds of VOC, NOx, and CO. These congestion effects are shown in Table 12 below.

Table 12: Effects of Signal Timing on Congestion (MO-21)

| No. | Peak Hour | AM | Midday | PM |
| ---: | :--- | ---: | ---: | ---: |
| 1 | Travel Time (sec.) | $-4.00 \%$ | $-1.00 \%$ | $-5.00 \%$ |
| 2 | Number of Stops | $-33.30 \%$ | $-27.80 \%$ | $-10.70 \%$ |
| 3 | Average Speed (mph) | $4.30 \%$ | $+1.1 . \%$ | $3.80 \%$ |
| 4 | Total Delay (sec.) | $-27.00 \%$ | $-8.00 \%$ | $-13.00 \%$ |

b) Illinois Department of Transportation (IDOT)

The Illinois Department of Transportation (IDOT) undertook a number of signal timing projects in 19 locations along Illinois Route 159 (Fairview Heights, IL) at Milburn School Road, Fountains Parkway, Ludwig Drive, I-64 North Junction, I-64 South Junction, Market Place entrance, Lincoln Place entrance, U.S. Route 50, Lowe's entrance, and Ashland Avenue/ Longacre Drive; and U.S. Route 50 (Salem, IL) at Bunkum Road, Potomac Drive, Union Hill Road, Ruby Lane, Commerce Lane, West Mall entrance, Frey Lane, Schnucks entrance, and Lexington Drive.

These signal timing/coordination projects had marked effects on congestion. Specifically, the projects along Illinois Route 159 led to speed increases of, at least, 3\% during peak periods. Table 13 below shows the effect of these signal timing projects on average travel speeds.

Table 13: Effects of Signal Timing on Travel Speeds (Fairview Heights, IL)

| Route | Speeds |  |  |  |
| :---: | :--- | ---: | ---: | ---: |
|  | Peak | Pre-Study |  | Post-Study |
|  |  |  |  |  |
| Route 50 (WB) | AM Peak | 31.1 | 32.8 | $5.5 \%$ |
|  | PM Peak | 24.3 | 25.6 | $5.3 \%$ |
|  | Off-Peak | 27.0 | 28.8 | $6.7 \%$ |
| Route 50 (EB) | AM Peak | 28.4 | 30.6 | $7.7 \%$ |
|  | PM Peak | 26.0 | 26.7 | $2.7 \%$ |
|  | Off-Peak | 26.4 | 27.6 | $4.5 \%$ |

These projects made significant contributions to fuel consumption, operating cost and tailpipe emissions. An objective evaluation of the projects noted about 5 percent decline in fuel usage and operating cost, representing savings of about 100,000 gallons of fuel per annum. At an average fuel price of $\$ 2.26$ per gallon, this savings translates into about $\$ 250,000$. The overall effect of reduction in fuel use on total emissions was not trivial. In sum, total emissions from VOC, CO and NO was about 9 percent less than pre-study levels. Table 14 depicts the fuel reduction, operating cost savings and emission benefits resulting from these projects.

Table 14: Effects of Signal Timing on Fuel Use, Cost, and Emissions (Fairview Heights, IL)

| Measure | Pre-Study | Post-Study | \% Change |
| :--- | ---: | ---: | ---: |
| Annual Fuel Use (gal.) | $2,391,535$ | $2,278,805$ | $-4.7 \%$ |
| Annual Operating Cost (\$) | $5,404,869$ | $5,150,099$ | $-4.7 \%$ |
| Total Emissions (VOC, CO \& NO) | 871,306 | 791,273 | $-9.2 \%$ |

The projects implemented in Salem, IL also showed significant speed improvements. For both westbound and eastbound directions, the ex-post evaluations revealed peak-period speed improvements between $6 \%$ and $46 \%$. These results are shown in Table 15 below.

Table 15: Effects of Signal Timing on Travel Speeds (Salem, IL)

| Route |  | Speeds |  | \% Change |
| :---: | ---: | ---: | ---: | ---: |
|  | Speed | Pre-Study | Post-Study |  |
|  | AM Peak | 24.4 | 30.8 | $26.2 \%$ |
|  | PM Peak | 20.3 | 29.7 | $46.3 \%$ |
|  | Off-Peak | 23.8 | 30.6 | $28.6 \%$ |
| Route 50 (EB) | AM Peak | 28.3 | 29.9 | $5.7 \%$ |
|  | PM Peak | 20.9 | 24.1 | $15.3 \%$ |
|  | Off-Peak | 24.2 | 29.9 | $23.6 \%$ |

Similarly, the projects on US Route 50 (Salem, IL) chalked up noteworthy fuel and emission effects. Table 16 below compares pre-study and post-study effects of signal timing projects on fuel consumption, cost, and emissions. The signal timing projects in Salem, IL led to fuel consumption and operating costs reduction of $9 \%$. Finally, total emissions from VOC, CO and NO also reduced by about 55,000 pounds.

Table 16: Effects of Signal Timing on Fuel Use, Cost, and Emissions (Salem, IL)

| Measure | Pre-Study | Post-Study | \% Change |
| :--- | ---: | ---: | ---: |
| Annual Fuel Use (gal.) | 848,555 | 768,515 | $-9.4 \%$ |
| Annual Operating Cost (\$) | $1,917,734$ | $1,736,844$ | $-9.4 \%$ |
| Total Emissions (VOC, CO \& NO) | 309,398 | 254,449 | $-17.8 \%$ |

c) City of St. Louis

In 2016, the Kingshighway Bridge over Union Pacific Railroad (UPR) - immediately south of I-44- was under construction with 6 lanes of traffic, wider sidewalks, and pedestrian-scale lighting. This project closed a major arterial into South City- Kingshighway, from I-44 to Vandeventer. To better manage possible congestion, traffic was detoured to adjacent arterials of Vandeventer and Hampton. Arterial traffic was routed throughout the "Hill" neighborhood. Two lanes in each direction reopened in May of 2017 restoring some traffic patterns in the area. This project is scheduled to wrap up before 2018 arrives.

Also, Forest Park Parkway at Kingshighway was closed at the end of 2016. This project was to replace a bridge over the Metrolink tracks as well as bring the grade separated interchange of Kingshighway and Forest Park Parkway to a full at-grade intersection. This project closed Forest Park Parkway from DeBaliviere to Kingshighway. The detour was to use I-64 of which most traffic did not do. Most drivers preferred Lindell Blvd as their detour route causing much angst with local residents. The options for detours were not easy due to the location of Forest Park separating the work zone from the detour route along with adjacent work on Delmar with the Loop Trolley project.

The Loop Trolley project placed Delmar on a road diet from the traffic circle in University City to DeBaliviere in the City of St. Louis.
d) St. Charles County

St. Charles County continued implementation of new fiber and ITS devices as part of the County-wide Gateway Green Light (GGL) Program. The County's Arterial Management Interface (AMI) was completed, providing planned diversion routes and signal timings for interstate and freeway incidents. Through GGL and the support services it provides, signal coordination continued to be improved throughout the County based on observed issues, as well as customer feedback.

## Summary of Findings

- MoDOT: Signal optimization projects on I-70 and MO-21 led to significant reduction in delay, travel times, and number of stops.
- IDOT: Signal optimization projects implemented in Fairview Heights and Salem all led to reduction in speeds for both morning and evening peaks.

Traffic congestion in the St. Louis region continues to be a concern for the public and policy-makers alike. Traffic congestion in the region is disproportionately on freeways. Of the 366 congested miles of the CMP network in the AM and PM peak periods, freeways represented 285 miles while arterials had 81 miles. Most of the congestion in the region can be classified as being moderate for both morning and evening peak periods. For arterials, moderate congestion varies between $86 \%$ and $98 \%$ of the congestion during the peak periods, while severe and heavy congestion account for up to $14 \%$, at most. For freeways, moderate congestion varies between $42 \%$ and $76 \%$ of the congestion, while heavy and severe congestion accounts for $60 \%$, at most.

The increased congestion in the region has had significant impact on system reliability. Planning Time Index, a measure of system reliability, averaged 2.15 for all congested locations. This means, in order to insure on-time arrival most of the time, you would have to allow for 65 minutes of travel time for a trip that is normally made in 30 minutes due to unreliable travel times. Some of the roads with the most unreliable travel times in 2016 were MO-141, SB (Marshall to I-44 and Vance to I-44), US-67, NB (I-270 to Old Halls Ferry), I-270, SB (I-70 to I-55 and I-55 to I-64/US-40/US-61), and I-64, EB (Chesterfield Pkwy to McCausland).

Inter-jurisdictional coordination is vital for analyzing and mitigating regional traffic congestion. Since trips produced in one jurisdiction end up being attracted to others, the attendant congestion resulting from this flow of traffic does not respect artificial jurisdictional boundaries. Effective solutions to traffic congestion requires continued deliberations on transferring lessons from implemented strategies. The active participation of regional partners in sharing ideas on workable strategies and challenges in implementation at the Congestion Management and Operations Committee (CMOC) meetings is encouraging. Overall, evaluation results of the impact of signal timing projects on congestion in the region is positive.

MoDOT plays a key role in congestion management in the region. Indeed, about $62 \%$ of the identified arterial congested locations are on MoDOT's facilities (see Table 1). Twenty-two per cent of the arterial congested facilities are managed by city of St. Louis. IDOT is in charge of $12 \%$ of our arterial congested locations. The remaining 3\% of the congested arterial locations are found in St. Louis County. All the congested freeways are in Missouri side, except about 4 miles of I-55 on the Illinois side (1.5\%) (see Table 2).

The foregoing analysis has enhanced our understanding of congestion in the region and where we should consider directing congestion mitigation effects. We encourage stakeholders to continuously refer to the list of congested locations (Tables 1 and 2) in implementing mobility-enhancing strategies that have the potential to reduce regional congestion significantly.

## Appendices

## Appendix 1: Hourly Performance Measures

## Arterial Performance Measures (Peak Hours)

Table 17: Buffer Time

| No. | Route | Limits | Direction | State | Peak | Queue <br> Length | $\begin{array}{\|l} \hline 6-7 \mathrm{AM} / \\ \text { 3-4 PM } \\ \hline \end{array}$ | $\begin{gathered} 7-8 \mathrm{AM} / \\ \text { 4-5 PM } \end{gathered}$ | $\begin{array}{\|l\|} \hline 8-9 \mathrm{AM} / \\ 5-6 \mathrm{PM} \\ \hline \end{array}$ | AVG. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | US-67 | I-270 to Old Halls Ferry Rd | NB | MO | PM | 5.59 | 6.68 | 10.90 | 12.44 | 10.86 |
| 2 | MO-141 | Marshall to I-44 | SB | MO | AM | 0.85 | 5.87 | 16.17 | 20.61 | 13.44 |
| 3 | MO-141 | Big Bend to I-44 | SB | MO | PM | 3.90 | 3.44 | 4.21 | 4.66 | 4.41 |
| 4 | MO-94 | I-64/US-40/US-61 to Mid Rivers Mall Dr | NB | MO | AM | 4.19 | 1.45 | 1.73 | 1.81 | 1.71 |
| 5 | MO-94 | I-64/US-40/US-61 to Mid Rivers Mall Dr | NB | MO | PM | 4.19 | 2.00 | 2.92 | 4.81 | 3.45 |
| 6 | MO-141 | MO-30 to MO-21 | SB | MO | PM | 4.14 | 1.79 | 5.30 | 7.50 | 5.78 |
| 7 | MO-100 | Vandeventer to Kingshighway | WB | MO | PM | 1.57 | 6.77 | 8.49 | 9.67 | 8.32 |
| 8 | MO-141 | Hawkins to Vance | NB | MO | AM | 4.10 | 3.46 | 12.98 | 11.73 | 10.33 |
| 9 | MO-100 | Big Bend to McCausland | EB | MO | PM | 1.42 | 4.82 | 5.29 | 5.18 | 5.28 |
| 10 | MO-94 | I-70/Veterans Memorial Pky/Bogey Rd to MO-364 | WB | MO | PM | 3.39 | 2.81 | 4.32 | 4.47 | 4.01 |
| 11 | MO-K | I-70 to MO-364 | SB | MO | PM | 3.50 | 3.23 | 3.63 | 3.66 | 3.55 |
| 12 | MO-340 | I-170 to US-67/N Lindbergh Blvd | SB | MO | PM | 4.32 | 1.10 | 4.01 | 6.54 | 4.55 |
| 13 | MO-340 | Chesterfield Pky North to Baxter Rd | SB | MO | PM | 2.74 | 1.48 | 4.42 | 6.98 | 5.55 |
| 14 | FOREST PARK AVE | I-64 to Kingshighway | WB | MO | AM | 2.14 | 3.79 | 5.43 | 5.62 | 5.46 |
| 15 | FOREST PARK AVE | I-64 to Kingshighway | WB | MO | PM | 2.14 | 5.25 | 6.03 | 5.79 | 5.51 |
| 16 | FOREST PARK AVE | Kingshighway to I-64 | EB | MO | PM | 2.05 | 3.86 | 3.83 | 3.81 | 3.84 |
| 17 | FOREST PARK AVE | Kingshighway to I-64 | EB | MO | AM | 2.05 | 2.88 | 4.02 | 4.45 | 4.09 |
| 18 | IL-111 | Forest Blvd to I-55/I-70/US-40 | NB | IL | AM | 2.01 | 1.34 | 1.45 | 1.54 | 1.44 |
| 19 | IL-111 | Forest Blvd to I-55/I-70/US-40 | NB | IL | PM | 2.01 | 1.60 | 1.45 | 1.43 | 1.45 |
| 20 | JEFFERSON | Broadway to I-44 | NB | MO | PM | 1.99 | 3.62 | 3.64 | 3.34 | 3.44 |
| 21 | IL-143 | IL-111 to IL-3 | WB | IL | AM | 1.78 | 1.54 | 1.79 | 1.91 | 1.78 |
| 22 | IL-143 | IL-111 to IL-3 | WB | IL | PM | 1.78 | 1.81 | 1.67 | 1.66 | 1.67 |
| 23 | HANLEY | MO-100/Manchester Rd to I-64/US-40/Eager Rd | NB | MO | PM | 1.30 | 2.77 | 2.73 | 2.03 | 2.67 |
| 24 | MO-141 | MO-AB/Ladue Rd to I-64/US-40/US-61 | SB | MO | PM | 1.63 | 1.22 | 2.79 | 3.56 | 3.19 |
| 25 | KINGSHIGHWAY | US-40 to Delmar | NB | MO | PM | 1.62 | 1.29 | 1.73 | 1.43 | 1.46 |
| 26 | KINGSHIGHWAY | I-64/US-40 to I-44 | SB | MO | PM | 1.47 | 2.72 | 3.61 | 5.06 | 3.67 |
| 27 | HANLEY | Shaw Park Dr to I-64/US-40/Eager Rd | SB | MO | PM | 1.30 | 1.45 | 3.44 | 5.27 | 4.31 |
| 28 | JEFFERSON | I-64/US-40 to I-44 | SB | MO | PM | 1.05 | 1.70 | 4.30 | 5.25 | 3.95 |
| 29 | HAMPTON AVE | I-64/US-40 to I-44 | SB | MO | PM | 1.02 | 2.98 | 5.04 | 6.31 | 5.03 |
| 30 | IL-157 | Horseshoe Lake Rd to I-55/I-70/US-40 | SB | IL | AM | 0.78 | 1.01 | 1.53 | 1.49 | 1.37 |
| 31 | IL-157 | Horseshoe Lake Rd to I-55/I-70/US-40 | SB | IL | PM | 0.78 | 1.61 | 1.82 | 2.04 | 1.81 |
| 32 | KINGSHIGHWAY | I-64/US-40 to Lindell | NB | MO | AM | 0.75 | 1.71 | 2.07 | 2.61 | 2.07 |
| 33 | KINGSHIGHWAY | Laclede to I-64/US-40 | SB | MO | PM | 0.75 | 1.51 | 1.34 | 1.61 | 1.44 |
| 34 | SALISBURY ST | N. Florissant to I-70 | EB | MO | PM | 0.75 | 1.68 | 2.23 | 2.74 | 2.13 |
| 35 | MO-D | I-270 to Schuetz Rd | EB | MO | AM | 0.53 | 0.46 | 1.62 | 1.74 | 1.46 |
| 36 | MO-D | I-170 to Schuetz Rd | WB | MO | PM | 4.28 | 0.04 | 0.13 | 0.24 | 0.12 |
| 37 | IL-157 | I-55/I-70/US-40 to Horseshoe Lake Rd | NB | IL | AM | 0.47 | 0.87 | 0.93 | 0.99 | 0.93 |
| 38 | IL-157 | I-55/I-70/US-40 to Horseshoe Lake Rd | NB | IL | PM | 0.47 | 1.04 | 1.15 | 1.15 | 1.14 |

Table 18: Buffer Time Index

| No. | Route | Limits | Direction | State | Peak | Queue <br> Length | $\begin{aligned} & \text { 6-7 AM/ } \\ & \text { 3-4 PM } \end{aligned}$ | $\begin{aligned} & \hline 7.8 \mathrm{AM} / \\ & 4.5 \mathrm{PM} \\ & \hline \end{aligned}$ | $\begin{aligned} & 8-9 \mathrm{AM} / \\ & \text { 5-6 PM } \end{aligned}$ | AVG. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | US-67 | I-270 to Old Halls Ferry Rd | NB | M0 | PM | 5.59 | 0.56 | 0.91 | 1.03 | 0.91 |
| 2 | MO-141 | Marshall to I-44 | SB | M0 | AM | 0.85 | 0.59 | 1.59 | 1.96 | 1.31 |
| 3 | M0-141 | Big Bend to I-44 | SB | M0 | PM | 3.90 | 0.66 | 0.81 | 0.88 | 0.85 |
| 4 | M0-94 | I-64/US-40/US-61 to Mid Rivers Mall Dr | NB | M0 | AM | 4.19 | 0.30 | 0.36 | 0.37 | 0.35 |
| 5 | MO-94 | I-64/US-40/US-61 to Mid Rivers Mall Dr | NB | M0 | PM | 4.19 | 0.39 | 0.58 | 0.97 | 0.69 |
| 6 | MO-141 | MO-30 to MO-21 | SB | M0 | PM | 4.14 | 0.34 | 0.99 | 1.40 | 1.08 |
| 7 | MO-100 | Vandeventer to Kingshighway | WB | M0 | PM | 1.57 | 0.81 | 1.02 | 1.17 | 1.00 |
| 8 | M0-141 | Hawkins to Vance | NB | M0 | AM | 4.10 | 0.63 | 2.16 | 1.66 | 1.67 |
| 9 | MO-100 | Big Bend to McCausland | EB | M0 | PM | 1.42 | 0.53 | 0.59 | 0.58 | 0.59 |
| 10 | MO-94 | I-70/Veterans Memorial Pky/Bogey Rd to M0-364 | WB | M0 | PM | 3.39 | 0.53 | 0.81 | 0.81 | 0.74 |
| 11 | MO-K | I-70 to M0-364 | SB | M0 | PM | 3.50 | 0.59 | 0.65 | 0.60 | 0.62 |
| 12 | MO-340 | I-170 to US-67/N Lindbergh Blvd | SB | M0 | PM | 4.32 | 0.14 | 0.52 | 0.86 | 0.59 |
| 13 | M0-340 | Chesterfield Pky North to Baxter Rd | SB | M0 | PM | 2.74 | 0.24 | 0.70 | 1.07 | 0.87 |
| 14 | FOREST PARK AVE | I-64 to Kingshighway | WB | M0 | AM | 2.14 | 0.97 | 1.34 | 1.37 | 1.36 |
| 15 | FOREST PARK AVE | I-64 to Kingshighway | WB | M0 | PM | 2.14 | 1.10 | 1.28 | 1.26 | 1.17 |
| 16 | FOREST PARK AVE | Kingshighway to I-64 | EB | M0 | PM | 2.05 | 0.88 | 0.87 | 0.86 | 0.87 |
| 17 | FOREST PARK AVE | Kingshighway to I-64 | EB | M0 | AM | 2.05 | 0.82 | 1.12 | 1.17 | 1.12 |
| 18 | LL-111 | Forest Blvd to I-55/I-70/US-40 | NB | IL | AM | 2.01 | 0.58 | 0.62 | 0.66 | 0.62 |
| 19 | L-111 | Forest Blvd to I-55/I-70/US-40 | NB | IL | PM | 2.01 | 0.63 | 0.56 | 0.55 | 0.56 |
| 20 | JEFFERSON | Broadway to I-44 | NB | M0 | PM | 1.99 | 0.73 | 0.73 | 0.68 | 0.70 |
| 21 | L-143 | IL-111 to LL-3 | WB | IL | AM | 1.78 | 0.77 | 0.89 | 0.93 | 0.88 |
| 22 | LL-143 | IL-111 to LL-3 | WB | IL | PM | 1.78 | 0.85 | 0.78 | 0.77 | 0.78 |
| 23 | HANLEY | M0-100/Manchester Rd to I-64/US-40/Eager Rd | NB | M0 | PM | 1.30 | 0.65 | 0.64 | 0.45 | 0.61 |
| 24 | MO-141 | MO-AB/Ladue Rd to I-64/US-40/US-61 | SB | M0 | PM | 1.63 | 0.46 | 1.00 | 1.19 | 1.13 |
| 25 | KINGSHIGHWAY | US-40 to Delmar | NB | M0 | PM | 1.62 | 0.54 | 0.71 | 0.58 | 0.60 |
| 26 | KINGSHIGHWAY | I-64/US-40 to I-44 | SB | M0 | PM | 1.47 | 0.63 | 0.81 | 1.14 | 0.83 |
| 27 | HANLEY | Shaw Park Dr to I-64/US-40/Eager Rd | SB | M0 | PM | 1.30 | 0.42 | 1.03 | 1.59 | 1.29 |
| 28 | JEFFERSON | I-64/US-40 to I-44 | SB | M0 | PM | 1.05 | 0.46 | 1.15 | 1.38 | 1.06 |
| 29 | HAMPTON AVE | I-64/US-40 to I-44 | SB | M0 | PM | 1.02 | 0.95 | 1.59 | 1.96 | 1.58 |
| 30 | LL-157 | Horseshoe Lake Rd to I-55/I-70/US-40 | SB | IL | AM | 0.78 | 0.83 | 1.25 | 1.18 | 1.10 |
| 31 | L-157 | Horseshoe Lake Rd to I-55/I-70/US-40 | SB | IL | PM | 0.78 | 1.06 | 1.19 | 1.31 | 1.18 |
| 32 | KINGSHIGHWAY | I-64/US-40 to Lindell | NB | M0 | AM | 0.75 | 1.19 | 1.40 | 1.70 | 1.40 |
| 33 | KINGSHIGHWAY | Laclede to I-64/US-40 | SB | M0 | PM | 0.75 | 0.65 | 0.55 | 0.66 | 0.60 |
| 34 | SALISBURY ST | N. Florissant to I-70 | EB | M0 | PM | 0.75 | 0.65 | 0.88 | 1.08 | 0.83 |
| 35 | MO-D | I-270 to Schuetz Rd | EB | M0 | AM | 0.53 | 0.72 | 2.48 | 2.46 | 2.18 |
| 36 | MO-D | I-170 to Schuetz Rd | WB | M0 | PM | 4.28 | 0.05 | 0.19 | 0.35 | 0.17 |
| 37 | L-157 | I-55/I-70/US-40 to Horseshoe Lake Rd | NB | IL | AM | 0.47 | 1.60 | 1.69 | 1.70 | 1.66 |
| 38 | LL-157 | I-55/I-70/US-40 to Horseshoe Lake Rd | NB | IL | PM | 0.47 | 1.67 | 1.85 | 1.87 | 1.85 |

Table 19: Planning Time

| No. | Route | Limits | Direction | State | Peak | Queue <br> Length | $\begin{array}{\|c\|} \hline 6.7 \mathrm{AM} / \\ \hline 3-4 \mathrm{PM} \\ \hline \end{array}$ | $\begin{aligned} & 7-8 \mathrm{AM} / \\ & 4.5 \mathrm{PM} \\ & \hline \end{aligned}$ | $\begin{array}{\|c\|} \hline 8.9 \mathrm{AM} / \\ 5-6 \mathrm{PM} \\ \hline \end{array}$ | AVG. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | US-67 | I-270 to Old Halls Ferry Rd | NB | M0 | PM | 5.59 | 18.58 | 22.82 | 24.49 | 22.82 |
| 2 | MO-141 | Marshall to I-44 | SB | MO | AM | 0.85 | 15.86 | 26.34 | 31.13 | 23.67 |
| 3 | M0-141 | Big Bend to I-44 | SB | M0 | PM | 3.90 | 8.63 | 9.40 | 9.94 | 9.63 |
| 4 | MO-94 | I-64/US-40/US-61 to Mid Rivers Mall Dr | NB | MO | AM | 4.19 | 6.24 | 6.56 | 6.74 | 6.56 |
| 5 | MO-94 | I-64/US-40/US-61 to Mid Rivers Mall Dr | NB | M0 | PM | 4.19 | 7.09 | 7.95 | 9.76 | 8.47 |
| 6 | MO-141 | MO-30 to MO-21 | SB | MO | PM | 4.14 | 7.11 | 10.68 | 12.86 | 11.13 |
| 7 | MO-100 | Vandeventer to Kingshighway | WB | M0 | PM | 1.57 | 15.17 | 16.84 | 17.96 | 16.66 |
| 8 | MO-141 | Hawkins to Vance | NB | MO | AM | 4.10 | 8.91 | 18.98 | 18.80 | 16.50 |
| 9 | MO-100 | Big Bend to McCausland | EB | M0 | PM | 1.42 | 13.87 | 14.29 | 14.16 | 14.29 |
| 10 | MO-94 | I-70/Veterans Memorial Pky/Bogey Rd to MO-364 | WB | MO | PM | 3.39 | 8.13 | 9.64 | 10.00 | 9.40 |
| 11 | MO-K | I-70 to MO-364 | SB | M0 | PM | 3.50 | 8.69 | 9.26 | 9.70 | 9.26 |
| 12 | MO-340 | I-170 to US-67/N Lindbergh Blvd | SB | M0 | PM | 4.32 | 9.01 | 11.70 | 14.16 | 12.29 |
| 13 | MO-340 | Chesterfield Pky North to Baxter Rd | SB | M0 | PM | 2.74 | 7.75 | 10.70 | 13.54 | 11.92 |
| 14 | FOREST PARK AVE | I-64 to Kingshighway | WB | MO | AM | 2.14 | 7.70 | 9.47 | 9.71 | 9.48 |
| 15 | FOREST PARK AVE | I-64 to Kingshighway | WB | M0 | PM | 2.14 | 10.03 | 10.75 | 10.38 | 10.21 |
| 16 | FOREST PARK AVE | Kingshighway to I-64 | EB | M0 | PM | 2.05 | 8.25 | 8.25 | 8.24 | 8.25 |
| 17 | FOREST PARK AVE | Kingshighway to I-64 | EB | M0 | AM | 2.05 | 6.40 | 7.61 | 8.26 | 7.73 |
| 18 | IL-111 | Forest Blvd to I-55/I-70/US-40 | NB | IL | AM | 2.01 | 3.66 | 3.78 | 3.90 | 3.78 |
| 19 | IL-111 | Forest Blvd to I-55/I-70/US-40 | NB | IL | PM | 2.01 | 4.17 | 4.03 | 4.03 | 4.03 |
| 20 | JEFFERSON | Broadway to I-44 | NB | MO | PM | 1.99 | 8.58 | 8.59 | 8.26 | 8.38 |
| 21 | IL-143 | IL-111 to LL-3 | WB | IL | AM | 1.78 | 3.55 | 3.81 | 3.95 | 3.81 |
| 22 | IL-143 | IL-111 to LL-3 | WB | IL | PM | 1.78 | 3.95 | 3.81 | 3.81 | 3.81 |
| 23 | HANLEY | MO-100/Manchester Rd to I-64/US-40/Eager Rd | NB | MO | PM | 1.30 | 7.02 | 7.02 | 6.55 | 7.02 |
| 24 | MO-141 | MO-AB/Ladue Rd to I-64/US-40/US-61 | SB | MO | PM | 1.63 | 3.90 | 5.58 | 6.56 | 6.02 |
| 25 | KINGSHIGHWAY | US-40 to Delmar | NB | MO | PM | 1.62 | 3.68 | 4.17 | 3.89 | 3.89 |
| 26 | KINGSHIGHWAY | I-64/US-40 to I-44 | SB | MO | PM | 1.47 | 7.04 | 8.07 | 9.48 | 8.07 |
| 27 | HANLEY | Shaw Park Dr to I-64/US-40/Eager Rd | SB | MO | PM | 1.30 | 4.86 | 6.78 | 8.58 | 7.67 |
| 28 | JEFFERSON | I-64/US-40 to I-44 | SB | M0 | PM | 1.05 | 5.36 | 8.05 | 9.05 | 7.69 |
| 29 | HAMPTON AVE | I-64/US-40 to I-44 | SB | MO | PM | 1.02 | 6.13 | 8.21 | 9.53 | 8.21 |
| 30 | IL-157 | Horseshoe Lake Rd to I-55/I-70/US-40 | SB | IL | AM | 0.78 | 2.23 | 2.76 | 2.76 | 2.60 |
| 31 | IL-157 | Horseshoe Lake Rd to I-55/I-70/US-40 | SB | IL | PM | 0.78 | 3.13 | 3.35 | 3.61 | 3.35 |
| 32 | KINGSHIGHWAY | I-64/US-40 to Lindell | NB | MO | AM | 0.75 | 3.14 | 3.55 | 4.14 | 3.55 |
| 33 | KINGSHIGHWAY | Laclede to I-64/US-40 | SB | M0 | PM | 0.75 | 3.83 | 3.77 | 4.04 | 3.83 |
| 34 | SALISBURY ST | N. Florissant to I-70 | EB | MO | PM | 0.75 | 4.28 | 4.76 | 5.29 | 4.70 |
| 35 | MO-D | I-270 to Schuetz Rd | EB | MO | AM | 0.53 | 1.10 | 2.27 | 2.45 | 2.12 |
| 36 | MO-D | I-170 to Schuetz Rd | WB | MO | PM | 4.28 | 0.73 | 0.83 | 0.93 | 0.81 |
| 37 | IL-157 | I-55/I-70/US-40 to Horseshoe Lake Rd | NB | IL | AM | 0.47 | 1.41 | 1.48 | 1.57 | 1.48 |
| 38 | IL-157 | I-55/I-70/US-40 to Horseshoe Lake Rd | NB | IL | PM | 0.47 | 1.66 | 1.76 | 1.76 | 1.76 |

Table 20: Planning Time Index

| No. | Route | Limits | Direction | State | Peak | Queue <br> Length | $\begin{gathered} 6-7 \mathrm{AM} / 3 \\ 4 \mathrm{PM} \end{gathered}$ | $\begin{gathered} 7-8 \mathrm{AM} / \\ 4-5 \mathrm{PM} \end{gathered}$ | $\begin{array}{\|c\|} \hline 8-9 \mathrm{AM} / \\ \text { 5-6 PM } \end{array}$ | AVG. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | US-67 | I-270 to Old Halls Ferry Rd | NB | MO | PM | 5.59 | 1.66 | 2.04 | 2.18 | 2.04 |
| 2 | MO-141 | Marshall to I-44 | SB | MO | AM | 0.85 | 1.51 | 2.51 | 2.96 | 2.25 |
| 3 | MO-141 | Big Bend to I-44 | SB | MO | PM | 3.90 | 1.70 | 1.86 | 1.96 | 1.90 |
| 4 | MO-94 | I-64/US-40/US-61 to Mid Rivers Mall Dr | NB | MO | AM | 4.19 | 1.44 | 1.52 | 1.56 | 1.52 |
| 5 | MO-94 | I-64/US-40/US-61 to Mid Rivers Mall Dr | NB | MO | PM | 4.19 | 1.64 | 1.84 | 2.26 | 1.96 |
| 6 | MO-141 | MO-30 to MO-21 | SB | MO | PM | 4.14 | 1.31 | 1.97 | 2.37 | 2.06 |
| 7 | MO-100 | Vandeventer to Kingshighway | WB | MO | PM | 1.57 | 1.84 | 2.04 | 2.18 | 2.02 |
| 8 | MO-141 | Hawkins to Vance | NB | MO | AM | 4.10 | 1.39 | 2.95 | 2.92 | 2.56 |
| 9 | MO-100 | Big Bend to McCausland | EB | MO | PM | 1.42 | 1.54 | 1.58 | 1.57 | 1.58 |
| 10 | MO-94 | I-70/Veterans Memorial Pky/Bogey Rd to MO-364 | WB | MO | PM | 3.39 | 1.59 | 1.89 | 1.96 | 1.84 |
| 11 | MO-K | I-70 to MO-364 | SB | MO | PM | 3.50 | 1.65 | 1.76 | 1.84 | 1.76 |
| 12 | MO-340 | I-170 to US-67/N Lindbergh Blvd | SB | MO | PM | 4.32 | 1.33 | 1.72 | 2.08 | 1.81 |
| 13 | MO-340 | Chesterfield Pky North to Baxter Rd | SB | MO | PM | 2.74 | 1.33 | 1.83 | 2.32 | 2.04 |
| 14 | FOREST PARK AVE | I-64 to Kingshighway | WB | MO | AM | 2.14 | 1.59 | 1.95 | 2.00 | 1.95 |
| 15 | FOREST PARK AVE | I-64 to Kingshighway | WB | MO | PM | 2.14 | 2.07 | 2.22 | 2.14 | 2.11 |
| 16 | FOREST PARK AVE | Kingshighway to I-64 | EB | MO | PM | 2.05 | 1.87 | 1.87 | 1.87 | 1.87 |
| 17 | FOREST PARK AVE | Kingshighway to I-64 | EB | MO | AM | 2.05 | 1.45 | 1.73 | 1.88 | 1.76 |
| 18 | IL-111 | Forest Blvd to I-55/I-70/US-40 | NB | IL | AM | 2.01 | 1.39 | 1.44 | 1.48 | 1.44 |
| 19 | IL-111 | Forest Blvd to I-55/I-70/US-40 | NB | IL | PM | 2.01 | 1.59 | 1.53 | 1.53 | 1.53 |
| 20 | JEFFERSON | Broadway to I-44 | NB | MO | PM | 1.99 | 1.79 | 1.79 | 1.72 | 1.74 |
| 21 | IL-143 | IL-111 to IL-3 | WB | IL | AM | 1.78 | 1.53 | 1.64 | 1.70 | 1.64 |
| 22 | IL-143 | IL-111 to IL-3 | WB | IL | PM | 1.78 | 1.70 | 1.64 | 1.64 | 1.64 |
| 23 | HANLEY | MO-100/Manchester Rd to I-64/US-40/Eager Rd | NB | MO | PM | 1.30 | 1.69 | 1.69 | 1.58 | 1.69 |
| 24 | MO-141 | MO-AB/Ladue Rd to I-64/US-40/US-61 | SB | MO | PM | 1.63 | 1.47 | 2.11 | 2.48 | 2.27 |
| 25 | KINGSHIGHWAY | US-40 to Delmar | NB | MO | PM | 1.62 | 2.07 | 2.35 | 2.20 | 2.20 |
| 26 | KINGSHIGHWAY | I-64/US-40 to I-44 | SB | MO | PM | 1.47 | 1.89 | 2.16 | 2.54 | 2.16 |
| 27 | HANLEY | Shaw Park Dr to I-64/US-40/Eager Rd | SB | MO | PM | 1.30 | 1.56 | 2.18 | 2.76 | 2.46 |
| 28 | JEFFERSON | I-64/US-40 to I-44 | SB | MO | PM | 1.05 | 1.60 | 2.40 | 2.70 | 2.30 |
| 29 | HAMPTON AVE | I-64/US-40 to I-44 | SB | MO | PM | 1.02 | 2.33 | 3.12 | 3.62 | 3.12 |
| 30 | IL-157 | Horseshoe Lake Rd to I-55/I-70/US-40 | SB | IL | AM | 0.78 | 1.48 | 1.82 | 1.82 | 1.72 |
| 31 | IL-157 | Horseshoe Lake Rd to I-55/I-70/US-40 | SB | IL | PM | 0.78 | 2.07 | 2.21 | 2.38 | 2.21 |
| 32 | KINGSHIGHWAY | I-64/US-40 to Lindell | NB | MO | AM | 0.75 | 1.77 | 2.01 | 2.34 | 2.01 |
| 33 | KINGSHIGHWAY | Laclede to I-64/US-40 | SB | MO | PM | 0.75 | 2.10 | 2.07 | 2.21 | 2.10 |
| 34 | SALISBURY ST | N. Florissant to I-70 | EB | MO | PM | 0.75 | 1.71 | 1.90 | 2.11 | 1.87 |
| 35 | MO-D | I-270 to Schuetz Rd | EB | MO | AM | 0.53 | 1.52 | 3.14 | 3.38 | 2.93 |
| 36 | MO-D | I-170 to Schuetz Rd | WB | MO | PM | 4.28 | 1.34 | 1.52 | 1.71 | 1.49 |
| 37 | IL-157 | I-55/I-70/US-40 to Horseshoe Lake Rd | NB | IL | AM | 0.47 | 2.30 | 2.42 | 2.56 | 2.42 |
| 38 | IL-157 | I-55/I-70/US-40 to Horseshoe Lake Rd | NB | IL | PM | 0.47 | 2.71 | 2.88 | 2.88 | 2.88 |

Table 21: Speed

| No. | Route | Limits | Direction | State | Peak | Queue <br> Length | $\begin{aligned} & \text { 6-7 AM/ } \\ & \text { 3-4 PM } \end{aligned}$ | $\begin{gathered} \text { 7-8 AM/ } \\ \text { 4-5 PM } \end{gathered}$ | $\begin{gathered} 8-9 \mathrm{AM} / \\ 5-6 \mathrm{PM} \end{gathered}$ | AVG. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | US-67 | I-270 to Old Halls Ferry Rd | NB | MO | PM | 5.59 | 23.26 | 20.81 | 19.87 | 21.23 |
| 2 | MO-141 | Marshall to I-44 | SB | MO | AM | 0.85 | 33.30 | 24.93 | 22.16 | 26.03 |
| 3 | MO-141 | Big Bend to I-44 | SB | MO | PM | 3.90 | 41.22 | 37.97 | 36.51 | 38.46 |
| 4 | MO-94 | I-64/US-40/US-61 to Mid Rivers Mall Dr | NB | MO | AM | 4.19 | 46.35 | 42.92 | 42.04 | 43.69 |
| 5 | MO-94 | I-64/US-40/US-61 to Mid Rivers Mall Dr | NB | MO | PM | 4.19 | 40.91 | 37.73 | 34.40 | 37.50 |
| 6 | MO-141 | MO-30 to MO-21 | SB | MO | PM | 4.14 | 40.55 | 32.57 | 29.03 | 33.41 |
| 7 | MO-100 | Vandeventer to Kingshighway | WB | MO | PM | 1.57 | 17.80 | 16.88 | 16.33 | 16.99 |
| 8 | MO-141 | Hawkins to Vance | NB | MO | AM | 4.10 | 31.73 | 21.08 | 23.33 | 24.63 |
| 9 | MO-100 | Big Bend to McCausland | EB | MO | PM | 1.42 | 19.00 | 19.01 | 18.96 | 18.99 |
| 10 | MO-94 | I-70/Veterans Memorial Pky/Bogey Rd to MO-364 | WB | MO | PM | 3.39 | 32.16 | 29.46 | 28.59 | 30.00 |
| 11 | MO-K | I-70 to MO-364 | SB | MO | PM | 3.50 | 26.83 | 25.73 | 25.27 | 25.93 |
| 12 | MO-340 | I-170 to US-67/N Lindbergh Blvd | SB | MO | PM | 4.32 | 25.30 | 21.44 | 19.15 | 21.68 |
| 13 | MO-340 | Chesterfield Pky North to Baxter Rd | SB | MO | PM | 2.74 | 28.29 | 22.59 | 18.20 | 22.30 |
| 14 | FOREST PARK AVE | I-64 to Kingshighway | WB | MO | AM | 2.14 | 21.16 | 17.52 | 16.50 | 18.19 |
| 15 | FOREST PARK AVE | I-64 to Kingshighway | WB | MO | PM | 2.14 | 15.99 | 15.99 | 15.94 | 15.98 |
| 16 | FOREST PARK AVE | Kingshighway to I-64 | EB | MO | PM | 2.05 | 18.48 | 18.85 | 18.89 | 18.74 |
| 17 | FOREST PARK AVE | Kingshighway to I-64 | EB | MO | AM | 2.05 | 23.43 | 20.95 | 18.57 | 20.80 |
| 18 | IL-111 | Forest Blvd to I-55/I-70/US-40 | NB | IL | AM | 2.01 | 34.82 | 34.33 | 32.86 | 33.98 |
| 19 | IL-111 | Forest Blvd to I-55/I-70/US-40 | NB | IL | PM | 2.01 | 31.45 | 31.69 | 31.64 | 31.60 |
| 20 | JEFFERSON | Broadway to I-44 | NB | MO | PM | 1.99 | 18.30 | 18.65 | 19.04 | 18.66 |
| 21 | IL-143 | IL-111 to IL-3 | WB | IL | AM | 1.78 | 32.56 | 31.30 | 30.50 | 31.43 |
| 22 | IL-143 | IL-111 to IL-3 | WB | IL | PM | 1.78 | 30.27 | 30.60 | 30.89 | 30.59 |
| 23 | HANLEY | MO-100/Manchester Rd to I-64/US-40/Eager Rd | NB | MO | PM | 1.30 | 17.98 | 18.09 | 18.87 | 18.31 |
| 24 | MO-141 | MO-AB/Ladue Rd to I-64/US-40/US-61 | SB | MO | PM | 1.63 | 31.74 | 25.08 | 20.11 | 24.76 |
| 25 | KINGSHIGHWAY | US-40 to Delmar | NB | MO | PM | 1.62 | 17.07 | 16.95 | 17.85 | 17.28 |
| 26 | KINGSHIGHWAY | I-64/US-40 to I-44 | SB | MO | PM | 1.47 | 17.36 | 16.05 | 15.11 | 16.13 |
| 27 | HANLEY | Shaw Park Dr to I-64/US-40/Eager Rd | SB | MO | PM | 1.30 | 21.14 | 18.22 | 14.72 | 17.64 |
| 28 | JEFFERSON | I-64/US-40 to I-44 | SB | MO | PM | 1.05 | 19.84 | 15.82 | 14.80 | 16.56 |
| 29 | HAMPTON AVE | I-64/US-40 to I-44 | SB | MO | PM | 1.02 | 14.15 | 12.17 | 10.93 | 12.28 |
| 30 | IL-157 | Horseshoe Lake Rd to I-55/I-70/US-40 | SB | IL | AM | 0.78 | 25.52 | 21.02 | 20.71 | 22.21 |
| 31 | IL-157 | Horseshoe Lake Rd to I-55/I-70/US-40 | SB | IL | PM | 0.78 | 18.38 | 17.58 | 16.97 | 17.62 |
| 32 | KINGSHIGHWAY | I-64/US-40 to Lindell | NB | MO | AM | 0.75 | 20.00 | 17.13 | 15.62 | 17.40 |
| 33 | KINGSHIGHWAY | Laclede to I-64/US-40 | SB | MO | PM | 0.75 | 15.79 | 16.15 | 16.04 | 15.99 |
| 34 | SALISBURY ST | N. Florissant to I-70 | EB | MO | PM | 0.75 | 14.45 | 13.04 | 12.78 | 13.39 |
| 35 | MO-D | I-270 to Schuetz Rd | EB | MO | AM | 0.53 | 39.46 | 25.28 | 26.07 | 29.03 |
| 36 | MO-D | I-170 to Schuetz Rd | WB | MO | PM | 4.28 | 49.77 | 46.60 | 44.72 | 46.94 |
| 37 | IL-157 | I-55/I-70/US-40 to Horseshoe Lake Rd | NB | IL | AM | 0.47 | 26.86 | 23.92 | 22.71 | 24.37 |
| 38 | IL-157 | I-55/I-70/US-40 to Horseshoe Lake Rd | NB | IL | PM | 0.47 | 20.67 | 19.78 | 19.20 | 19.86 |

Table 22: Travel Time

| No. | Route | Limits | Direction | State | Peak | Queue <br> Length | $\begin{array}{\|c\|} \hline \text { 6-7 AM/ } \\ \text { 3-4 PM } \\ \hline \end{array}$ | $\begin{gathered} 7-8 \mathrm{AM} / \\ 4-5 \mathrm{PM} \end{gathered}$ | $\begin{gathered} \text { 8-9 AM/ } \\ \text { 5-6 PM } \end{gathered}$ | AVG. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | US-67 | I-270 to Old Halls Ferry Rd | NB | MO | PM | 5.59 | 14.42 | 16.11 | 16.88 | 15.80 |
| 2 | MO-141 | Marshall to I-44 | SB | MO | AM | 0.85 | 11.19 | 14.94 | 16.82 | 14.31 |
| 3 | MO-141 | Big Bend to I-44 | SB | MO | PM | 3.90 | 7.78 | 8.45 | 8.78 | 8.34 |
| 4 | MO-94 | I-64/US-40/US-61 to Mid Rivers Mall Dr | NB | MO | AM | 4.19 | 5.43 | 5.86 | 5.98 | 5.76 |
| 5 | MO-94 | I-64/US-40/US-61 to Mid Rivers Mall Dr | NB | MO | PM | 4.19 | 6.15 | 6.66 | 7.31 | 6.71 |
| 6 | MO-141 | MO-30 to MO-21 | SB | MO | PM | 4.14 | 6.12 | 7.62 | 8.55 | 7.43 |
| 7 | MO-100 | Vandeventer to Kingshighway | WB | MO | PM | 1.57 | 11.64 | 12.28 | 12.69 | 12.20 |
| 8 | MO-141 | Hawkins to Vance | NB | MO | AM | 4.10 | 6.97 | 10.49 | 9.48 | 8.97 |
| 9 | MO-100 | Big Bend to McCausland | EB | MO | PM | 1.42 | 11.01 | 11.00 | 11.03 | 11.01 |
| 10 | MO-94 | I-70/Veterans Memorial Pky/Bogey Rd to MO-364 | WB | MO | PM | 3.39 | 6.32 | 6.90 | 7.11 | 6.77 |
| 11 | MO-K | I-70 to MO-364 | SB | MO | PM | 3.50 | 7.20 | 7.50 | 7.64 | 7.44 |
| 12 | MO-340 | I-170 to US-67/N Lindbergh Blvd | SB | MO | PM | 4.32 | 7.35 | 8.67 | 9.71 | 8.58 |
| 13 | MO-340 | Chesterfield Pky North to Baxter Rd | SB | MO | PM | 2.74 | 5.80 | 7.27 | 9.02 | 7.36 |
| 14 | FOREST PARK AVE | I-64 to Kingshighway | WB | MO | AM | 2.14 | 6.06 | 7.32 | 7.77 | 7.05 |
| 15 | FOREST PARK AVE | I-64 to Kingshighway | WB | MO | PM | 2.14 | 8.02 | 8.02 | 8.05 | 8.03 |
| 16 | FOREST PARK AVE | Kingshighway to I-64 | EB | MO | PM | 2.05 | 6.67 | 6.53 | 6.52 | 6.57 |
| 17 | FOREST PARK AVE | Kingshighway to I-64 | EB | MO | AM | 2.05 | 5.26 | 5.88 | 6.63 | 5.92 |
| 18 | IL-111 | Forest Blvd to I-55/I-70/US-40 | NB | IL | AM | 2.01 | 3.47 | 3.52 | 3.68 | 3.56 |
| 19 | IL-111 | Forest Blvd to I-55/I-70/US-40 | NB | IL | PM | 2.01 | 3.84 | 3.81 | 3.82 | 3.83 |
| 20 | JEFFERSON | Broadway to I-44 | NB | MO | PM | 1.99 | 6.53 | 6.40 | 6.27 | 6.40 |
| 21 | IL-143 | IL-111 to IL-3 | WB | IL | AM | 1.78 | 3.27 | 3.40 | 3.49 | 3.39 |
| 22 | IL-143 | IL-111 to IL-3 | WB | IL | PM | 1.78 | 3.52 | 3.48 | 3.45 | 3.48 |
| 23 | HANLEY | MO-100/Manchester Rd to I-64/US-40/Eager Rd | NB | MO | PM | 1.30 | 5.48 | 5.45 | 5.22 | 5.38 |
| 24 | MO-141 | MO-AB/Ladue Rd to I-64/US-40/US-61 | SB | MO | PM | 1.63 | 3.08 | 3.90 | 4.87 | 3.95 |
| 25 | KINGSHIGHWAY | US-40 to Delmar | NB | MO | PM | 1.62 | 2.65 | 2.67 | 2.53 | 2.62 |
| 26 | KINGSHIGHWAY | I-64/US-40 to I-44 | SB | MO | PM | 1.47 | 5.09 | 5.51 | 5.86 | 5.49 |
| 27 | HANLEY | Shaw Park Dr to I-64/US-40/Eager Rd | SB | MO | PM | 1.30 | 3.68 | 4.27 | 5.28 | 4.41 |
| 28 | JEFFERSON | I-64/US-40 to I-44 | SB | MO | PM | 1.05 | 3.91 | 4.91 | 5.24 | 4.69 |
| 29 | HAMPTON AVE | I-64/US-40 to I-44 | SB | MO | PM | 1.02 | 4.31 | 5.01 | 5.58 | 4.96 |
| 30 | IL-157 | Horseshoe Lake Rd to I-55/I-70/US-40 | SB | IL | AM | 0.78 | 1.84 | 2.23 | 2.26 | 2.11 |
| 31 | IL-157 | Horseshoe Lake Rd to I-55/I-70/US-40 | SB | IL | PM | 0.78 | 2.55 | 2.67 | 2.76 | 2.66 |
| 32 | KINGSHIGHWAY | I-64/US-40 to Lindell | NB | MO | AM | 0.75 | 2.26 | 2.64 | 2.90 | 2.60 |
| 33 | KINGSHIGHWAY | Laclede to I-64/US-40 | SB | MO | PM | 0.75 | 2.87 | 2.80 | 2.82 | 2.83 |
| 34 | SALISBURY ST | N. Florissant to I-70 | EB | MO | PM | 0.75 | 3.11 | 3.45 | 3.52 | 3.36 |
| 35 | MO-D | I-270 to Schuetz Rd | EB | MO | AM | 0.53 | 0.81 | 1.26 | 1.22 | 1.10 |
| 36 | MO-D | I-170 to Schuetz Rd | WB | MO | PM | 4.28 | 0.60 | 0.64 | 0.67 | 0.64 |
| 37 | IL-157 | I-55/I-70/US-40 to Horseshoe Lake Rd | NB | IL | AM | 0.47 | 1.05 | 1.18 | 1.24 | 1.16 |
| 38 | IL-157 | I-55/I-70/US-40 to Horseshoe Lake Rd | NB | IL | PM | 0.47 | 1.36 | 1.43 | 1.47 | 1.42 |

Table 23: Travel Time Index

| No. | Route | Limits | Direction | State | Peak | Queue <br> Length | $\begin{array}{\|c\|} \hline 6.7 \mathrm{AM} / \\ \hline 3-4 \mathrm{PM} \\ \hline \end{array}$ | $\begin{array}{\|l} \hline 7.8 \mathrm{AM} / \\ 4.5 \mathrm{PM} \\ \hline \end{array}$ | $\begin{aligned} & \hline 8.9 \mathrm{AM} / \\ & \text { 5-6 PM } \\ & \hline \end{aligned}$ | AVG. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | US-67 | I-270 to Old Halls Ferry Rd | NB | M0 | PM | 5.59 | 1.29 | 1.44 | 1.51 | 1.41 |
| 2 | MO-141 | Marshall to I-44 | SB | M0 | AM | 0.85 | 1.06 | 1.42 | 1.60 | 1.36 |
| 3 | M0-141 | Big Bend to I-44 | SB | M0 | PM | 3.90 | 1.54 | 1.67 | 1.74 | 1.65 |
| 4 | MO-94 | I-64/US-40/US-61 to Mid Rivers Mall Dr | NB | M0 | AM | 4.19 | 1.26 | 1.36 | 1.39 | 1.33 |
| 5 | MO-94 | I-64/US-40/US-61 to Mid Rivers Mall Dr | NB | M0 | PM | 4.19 | 1.42 | 1.54 | 1.69 | 1.55 |
| 6 | M0-141 | MO-30 to MO-21 | SB | M0 | PM | 4.14 | 1.13 | 1.41 | 1.58 | 1.37 |
| 7 | MO-100 | Vandeventer to Kingshighway | WB | M0 | PM | 1.57 | 1.41 | 1.49 | 1.54 | 1.48 |
| 8 | MO-141 | Hawkins to Vance | NB | M0 | AM | 4.10 | 1.08 | 1.63 | 1.47 | 1.39 |
| 9 | MO-100 | Big Bend to McCausland | EB | M0 | PM | 1.42 | 1.22 | 1.22 | 1.22 | 1.22 |
| 10 | MO-94 | I-70/Veterans Memorial Pky/Bogey Rd to MO-364 | WB | M0 | PM | 3.39 | 1.24 | 1.35 | 1.39 | 1.33 |
| 11 | MO-K | I-70 to M0-364 | SB | M0 | PM | 3.50 | 1.37 | 1.42 | 1.45 | 1.41 |
| 12 | MO-340 | I-170 to US-67/N Lindbergh Blvd | SB | M0 | PM | 4.32 | 1.08 | 1.28 | 1.43 | 1.26 |
| 13 | MO-340 | Chesterfield Pky North to Baxter Rd | SB | M0 | PM | 2.74 | 0.99 | 1.24 | 1.55 | 1.26 |
| 14 | FOREST PARK AVE | I-64 to Kingshighway | WB | M0 | AM | 2.14 | 1.25 | 1.51 | 1.60 | 1.45 |
| 15 | FOREST PARK AVE | I-64 to Kingshighway | WB | M0 | PM | 2.14 | 1.65 | 1.65 | 1.66 | 1.66 |
| 16 | FOREST PARK AVE | Kingshighway to I-64 | EB | M0 | PM | 2.05 | 1.51 | 1.48 | 1.48 | 1.49 |
| 17 | FOREST PARK AVE | Kingshighway to I-64 | EB | M0 | AM | 2.05 | 1.19 | 1.33 | 1.51 | 1.34 |
| 18 | IL-111 | Forest Blvd to I-55/I-70/US-40 | NB | IL | AM | 2.01 | 1.32 | 1.34 | 1.40 | 1.35 |
| 19 | IL-111 | Forest Blvd to I-55/I-70/US-40 | NB | IL | PM | 2.01 | 1.46 | 1.45 | 1.45 | 1.46 |
| 20 | JEFFERSON | Broadway to I-44 | NB | M0 | PM | 1.99 | 1.36 | 1.33 | 1.31 | 1.33 |
| 21 | IL-143 | IL-111 to LL-3 | WB | IL | AM | 1.78 | 1.41 | 1.47 | 1.51 | 1.46 |
| 22 | IL-143 | IL-111 to LL-3 | WB | IL | PM | 1.78 | 1.52 | 1.50 | 1.49 | 1.50 |
| 23 | HANLEY | MO-100/Manchester Rd to I-64/US-40/Eager Rd | NB | M0 | PM | 1.30 | 1.32 | 1.31 | 1.26 | 1.30 |
| 24 | MO-141 | MO-AB/Ladue Rd to I-64/US-40/US-61 | SB | M0 | PM | 1.63 | 1.16 | 1.47 | 1.84 | 1.49 |
| 25 | KINGSHIGHWAY | US-40 to Delmar | NB | M0 | PM | 1.62 | 1.50 | 1.51 | 1.43 | 1.48 |
| 26 | KINGSHIGHWAY | I-64/US-40 to I-44 | SB | M0 | PM | 1.47 | 1.37 | 1.48 | 1.57 | 1.47 |
| 27 | HANLEY | Shaw Park Dr to I-64/US-40/Eager Rd | SB | M0 | PM | 1.30 | 1.18 | 1.37 | 1.70 | 1.42 |
| 28 | JEFFERSON | I-64/US-40 to I-44 | SB | M0 | PM | 1.05 | 1.17 | 1.47 | 1.57 | 1.40 |
| 29 | HAMPTON AVE | I-64/US-40 to I-44 | SB | M0 | PM | 1.02 | 1.64 | 1.91 | 2.12 | 1.89 |
| 30 | IL-157 | Horseshoe Lake Rd to I-55/I-70/US-40 | SB | IL | AM | 0.78 | 1.21 | 1.47 | 1.50 | 1.40 |
| 31 | IL-157 | Horseshoe Lake Rd to I-55/I-70/US-40 | SB | IL | PM | 0.78 | 1.69 | 1.76 | 1.83 | 1.76 |
| 32 | KINGSHIGHWAY | I-64/US-40 to Lindell | NB | M0 | AM | 0.75 | 1.28 | 1.49 | 1.63 | 1.47 |
| 33 | KINGSHIGHWAY | Laclede to I-64/US-40 | SB | M0 | PM | 0.75 | 1.57 | 1.54 | 1.55 | 1.55 |
| 34 | SALISBURY ST | N. Florissant to I-70 | EB | M0 | PM | 0.75 | 1.24 | 1.37 | 1.40 | 1.34 |
| 35 | MO-D | I-270 to Schuetz Rd | EB | M0 | AM | 0.53 | 1.12 | 1.74 | 1.69 | 1.52 |
| 36 | MO-D | I-170 to Schuetz Rd | WB | M0 | PM | 4.28 | 1.11 | 1.18 | 1.23 | 1.17 |
| 37 | IL-157 | I-55/I-70/US-40 to Horseshoe Lake Rd | NB | IL | AM | 0.47 | 1.71 | 1.92 | 2.03 | 1.89 |
| 38 | IL-157 | I-55/I-70/US-40 to Horseshoe Lake Rd | NB | IL | PM | 0.47 | 2.23 | 2.33 | 2.40 | 2.32 |

## Freeway Performance Measures (Peak Hours)

Table 24: Buffer Time

| No. | Route | Limits | Direction | State | Peak | Queue <br> Length | $\begin{aligned} & \hline 6-7 \mathrm{AM} / \\ & 3-4 \mathrm{PM} \\ & \hline \end{aligned}$ | $\begin{array}{\|l} \hline 7-8 \mathrm{AM} / \\ 4-5 \mathrm{PM} \\ \hline \end{array}$ | $\begin{array}{\|c} \hline 8-9 \mathrm{AM} / \\ 5-6 \mathrm{PM} \\ \hline \end{array}$ | AVG. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | I-270 | I-70 to I-55/I-255/Exit 1 | SB | M0 | PM | 21.00 | 15.76 | 39.32 | 47.80 | 37.28 |
| 2 | I-70 | Cave Springs/Exit 225 to Natural Bridge Rd/Exit 237/Exit 238 | EB | M0 | AM | 14.16 | 3.98 | 20.89 | 18.09 | 15.84 |
| 3 | I-64 | Chesterfield Pky/Exit 20 to McCausland Ave/Exit 33 | EB | M0 | PM | 14.00 | 13.59 | 22.69 | 27.65 | 23.01 |
| 4 | I-70 | Bryan Rd/Exit 216 to M0-W/Exit 203 | WB | M0 | PM | 14.00 | 5.14 | 9.27 | 9.06 | 7.63 |
| 5 | I-270 | I-55/I-255/Exit 1 to I-64/US-40/US-61/Exit 12 | NB | M0 | AM | 12.70 | 10.02 | 28.86 | 23.06 | 22.86 |
| 6 | I-270 | McDonnell Blvd/Exit 23 to MO-367/Exit 31 | EB | M0 | PM | 12.00 | 8.57 | 21.13 | 25.77 | 20.20 |
| 7 | I-64 | I-170/Brentwood Blvd/Exit 31 to Chesterfield Pky/Exit 20 | WB | M0 | PM | 12.00 | 10.30 | 15.39 | 15.39 | 13.96 |
| 8 | I-70 | Big Bend Rd/Exit 278 to Antire Rd/Exit 269 | EB | M0 | PM | 11.00 | 2.65 | 14.06 | 21.28 | 13.87 |
| 9 | I-44 | I-270/Exit 232 to Jennings Sta Rd/Exit 242 | WB | M0 | PM | 11.00 | 2.18 | 6.62 | 7.78 | 5.72 |
| 10 | I-64 | M0-K to I-70 | WB | M0 | PM | 10.00 | 6.55 | 16.02 | 16.85 | 13.95 |
| 11 | I-64 | I-270/Exit 25 to McCausland to Ave/Exit 33 | EB | M0 | AM | 9.57 | - | 13.50 | 17.30 | 13.33 |
| 12 | I-170 | Forest Park Pky/Exit 1E to Hanley Rd/Exit 9 | NB | M0 | PM | 8.98 | 4.08 | 9.92 | 13.79 | 9.54 |
| 13 | MO-364 | Jungerman to I-270/MO-D | EB | M0 | AM | 8.61 | 0.04 | 9.60 | 9.60 | 6.90 |
| 14 | MO-364 | I-270/MO-D to M0-94/Muegge Rd/Exit 13/Exit 12 | WB | M0 | PM | 8.61 | 0.09 | 3.55 | 10.03 | 5.95 |
| 15 | I-70 | Lake St Louis Blvd/Exit 214 to M0-79/Exit 220 | EB | M0 | AM | 8.50 | 1.29 | 7.59 | 1.62 | 4.42 |
| 16 | I-44 | Berry Rd/Exit 279 to Kingshighway/Exit 287 | EB | M0 | AM | 7.94 | 0.14 | 7.07 | 9.95 | 6.73 |
| 17 | I-270 | Lilac/Exit 33 to Elizabeth/Washington St/Exit 28 | WB | M0 | AM | 7.15 | 2.94 | 12.74 | 7.62 | 7.99 |
| 18 | I-170 | M0-180/St Charles Rock/Exit 5 to I-64/Eager Rd/Exit 1B/Exit 1A | SB | M0 | PM | 6.69 | 6.30 | 11.13 | 14.17 | 11.59 |
| 19 | I-70 | I-170/Exit 238 to I-270/Exit 232 | WB | M0 | PM | 6.45 | 1.72 | 7.48 | 10.67 | 6.54 |
| 20 | I-55 | Potomac to Park Ave/7Th St/Exit 208 | NB | M0 | AM | 6.21 | 1.59 | 8.27 | 4.44 | 5.43 |
| 21 | I-270 | Dorsett Rd/Exit 17 to M0-AB/Ladue Rd/Exit 13 | SB | M0 | AM | 6.18 | 0.71 | 7.11 | 6.29 | 5.22 |
| 22 | I-64 | Baxter to I-270/Exit 25 | EB | M0 | AM | 6.15 | 1.89 | 12.02 | 11.19 | 10.29 |
| 23 | I-55 | Grand Ave/Exit 247 to I-44/I-55/Gravois/Exit 207 | EB-SB | M0 | PM | 5.77 | 5.88 | 10.15 | 10.02 | 10.17 |
| 24 | I-64 | Kingshighway/Exit 36 to I-170/Brentwood Blvd/Exit 31 | WB | M0 | AM | 5.52 | 0.15 | 11.75 | 12.70 | 10.56 |
| 25 | I-55 | Virginia Ave/Exit 203 to Reavis Barracks Rd/Exit 199 | SB | M0 | PM | 5.31 | 1.77 | 6.97 | 9.77 | 6.92 |
| 26 | I-44 | I-55/Exit 290 to Arsenal St/Exit 284 | WB | M0 | PM | 5.20 | 2.79 | 10.13 | 15.52 | 11.65 |
| 27 | I-70 | I-270/Exit 232 to Cave Springs/Exit 225 | WB | M0 | PM | 5.00 | 7.00 | 10.31 | 12.43 | 9.53 |
| 28 | I-44 | MO-141/Exit 272 to I-270/Exit 276 | EB | M0 | AM | 4.70 | 0.74 | 8.10 | 7.81 | 6.12 |
| 29 | I-170 | I-64 to MO-D | SB | M0 | AM | 4.49 | 0.59 | 4.88 | 5.84 | 4.53 |
| 30 | I-55 | Baugh Ave. to Poplar St Brg. | WB-SB | IL | AM | 4.39 | 2.34 | 4.62 | 4.48 | 3.82 |
| 31 | I-44 | Bowles Ave/Exit 274 to US-50/US-61/US-67/ Exit 277 | EB | M0 | PM | 4.31 | 1.22 | 3.76 | 4.24 | 3.42 |
| 32 | I-64 | Kingshighway/Exit 36 to I-55/I-70/US-40 | EB | M0 | PM | 4.30 | 7.21 | 18.00 | 20.05 | 17.24 |
| 33 | I-70 | Broadway/Exit 246 to Lucas \& Hunt Rd/Exit 241 | WB | M0 | AM | 3.35 | 0.32 | 4.42 | 5.93 | 4.50 |
| 34 | I-70/I-44/I-55 | Stan Musial Brg. to Park | EB/WB/NB | M0 | PM | 3.11 | 1.20 | 2.11 | 2.43 | 1.95 |
| 35 | I-55 | I-44/I-55/Gravois/Exit 207 to Potomac St/Exit 206 | SB | M0 | PM | 2.48 | 0.35 | 1.20 | 2.23 | 1.22 |
| 36 | I-70 | Shreve/Exit 245 to MO-N/Florissant Rd/Exit 240 | WB | M0 | PM | 2.44 | 2.09 | 3.67 | 4.26 | 3.37 |
| 37 | I-44 | Tenth St/Exit 249 to I-55/I-64/US-40/Exit 251 | WB | M0 | AM | 2.02 | 0.35 | 2.93 | 1.93 | 16.43 |

Table 25: Buffer Time Index

| No. | Route | Limits | Direction | State | Peak | Queue Length | $\begin{aligned} & \text { 6-7AM/ } \\ & \text { 3-4PM } \end{aligned}$ | $\begin{gathered} 7-8 \mathrm{AM} / \\ 4.5 \mathrm{PM} \end{gathered}$ | $\begin{gathered} 8-9 \mathrm{AM} / 2 \\ 5-6 \mathrm{PM} \end{gathered}$ | AVG. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | I-270 | I-70 to I-55/-255/Exit 1 | SB | MO | PM | 21.00 | 0.78 | 1.93 | 2.35 | 1.84 |
| 2 | I-70 | Cave Springs/Exit 225 to Natural Bridge Rd/Exit 237/Exit 238 | EB | M0 | AM | 14.16 | 0.28 | 1.49 | 1.29 | 1.13 |
| 3 | I-64 | Chesterfield Pky/Exit 20 to McCausland Ave/Exit 33 | EB | M0 | PM | 14.00 | 0.95 | 1.50 | 1.64 | 1.49 |
| 4 | I-70 | Bryan Rd/Exit 216 to MO-W/Exit 203 | WB | MO | PM | 14.00 | 0.40 | 0.72 | 0.70 | 0.59 |
| 5 | I-270 | I-55/-255/Exit 1 to I-64/US-40/US-61/Exit 12 | NB | M0 | AM | 12.70 | 0.79 | 2.31 | 1.85 | 1.82 |
| 6 | I-270 | McDonnell Blvd/Exit 23 to MO-367/Exit 31 | EB | M0 | PM | 12.00 | 0.72 | 1.79 | 2.16 | 1.70 |
| 7 | I-64 | I-170/Brentwood Blvd/Exit 31 to Chesterfield Pky/Exit 20 | WB | M0 | PM | 12.00 | 0.86 | 1.25 | 1.14 | 1.11 |
| 8 | I-70 | Big Bend Rd/Exit 278 to Antire Rd/Exit 269 | EB | MO | PM | 11.00 | 0.23 | 1.20 | 1.71 | 1.16 |
| 9 | I-44 | I-270/Exit 232 to Jennings Sta Rd/Exit 242 | WB | M0 | PM | 11.00 | 0.20 | 0.60 | 0.70 | 0.52 |
| 10 | I-64 | MO-K to I-70 | WB | MO | PM | 10.00 | 0.64 | 1.58 | 1.67 | 1.38 |
| 11 | I-64 | I-270/Exit 25 to McCausland to Ave/Exit 33 | EB | M0 | AM | 9.57 | - | 1.35 | 1.76 | 1.30 |
| 12 | I-170 | Forest Park Pky/Exit 1E to Hanley Rd/Exit 9 | NB | MO | PM | 8.98 | 0.44 | 1.07 | 1.45 | 1.02 |
| 13 | MO-364 | Jungerman to I-270/MO-D | EB | M0 | AM | 8.61 |  | 1.09 | 1.09 | 0.78 |
| 14 | M0-364 | I-270/MO-D to M0-94/Muegge Rd/Exit 13/Exit 12 | WB | M0 | PM | 8.61 | 0.01 | 0.41 | 1.17 | 0.69 |
| 15 | I-70 | Lake St Louis Blvd/Exit 214 to MO-79/Exit 220 | EB | M0 | AM | 8.50 | 0.15 | 0.92 | 0.20 | 0.53 |
| 16 | I-44 | Berry Rd/Exit 279 to Kingshighway/Exit 287 | EB | M0 | AM | 7.94 | 0.02 | 0.87 | 1.26 | 0.83 |
| 17 | I-270 | Lilac/Exit 33 to Elizabeth/Washington St/Exit 28 | WB | M0 | AM | 7.15 | 0.29 | 1.28 | 0.78 | 1.12 |
| 18 | I-170 | M0-180/St Charles Rock/Exit 5 to I-64/Eager Rd/Exit 1B/Exit 1A | SB | M0 | PM | 6.69 | 0.84 | 1.47 | 1.80 | 1.52 |
| 19 | I-70 | I-170/Exit 238 to I-270/Exit 232 | WB | M0 | PM | 6.45 | 0.23 | 0.99 | 1.39 | 0.98 |
| 20 | I-55 | Potomac to Park Ave/7Th St/Exit 208 | NB | M0 | AM | 6.21 | 0.25 | 1.29 | 0.70 | 0.85 |
| 21 | I-270 | Dorsett Rd/Exit 17 to MO-AB/Ladue Rd/Exit 13 | SB | M0 | AM | 6.18 | 0.12 | 1.20 | 1.06 | 0.88 |
| 22 | I-64 | Baxter to I-270/Exit 25 | EB | M0 | AM | 6.15 | 0.26 | 1.85 | 1.81 | 1.56 |
| 23 | I-55 | Grand Ave/Exit 247 to I-44/I-55/Gravoi/Exit 207 | EB-SB | M0 | PM | 5.77 | 1.27 | 2.08 | 1.94 | 2.04 |
| 24 | I-64 | Kingshighway/Exit 36 to I-170/Brentwood Blvd/Exit 31 | WB | MO | AM | 5.52 | 0.02 | 2.07 | 2.21 | 1.81 |
| 25 | I-55 | Virginia Ave/Exit 203 to Reavis Barracks Rd/Exit 199 | SB | M0 | PM | 5.31 | 0.34 | 1.35 | 1.90 | 1.34 |
| 26 | I-44 | I-55/Exit 290 to Arsenal St/Exit 284 | WB | MO | PM | 5.20 | 0.53 | 1.90 | 2.88 | 2.18 |
| 27 | I-70 | I-270/Exit 232 to Cave Spring/Exit 225 | WB | M0 | PM | 5.00 | 1.16 | 1.71 | 2.06 | 1.87 |
| 28 | I-44 | M0-141/Exit 272 to I-270/Exit 276 | EB | M0 | AM | 4.70 | 0.10 | 1.05 | 1.01 | 0.79 |
| 29 | I-170 | I-64 to MO-D | SB | M0 | AM | 4.49 | 0.12 | 1.02 | 1.22 | 0.95 |
| 30 | I-55 | Baugh Ave. to Poplar St Brg. | WB-SB | LL | AM | 4.39 | 0.92 | 1.86 | 1.85 | 1.54 |
| 31 | I-44 | Bowles Ave/Exit 274 to US-50/US-61/US-67/ Exit 277 | EB | M0 | PM | 4.31 | 0.28 | 0.87 | 0.92 | 0.77 |
| 32 | I-64 | Kingshighway/Exit 36 to I-55/I-70/US-40 | EB | MO | PM | 4.30 | 1.16 | 2.87 | 3.08 | 2.72 |
| 33 | I-70 | Broadway/Exit 246 to Lucas \& Hunt Rd/Exit 241 | WB | M0 | AM | 3.35 | 0.09 | 1.28 | 1.72 | 1.30 |
| 34 | I-70/I-4/4/-55 | Stan Musial Brg. to Park | EB/WB/NB | M0 | PM | 3.11 | 0.88 | 1.45 | 1.66 | 1.34 |
| 35 | I-55 | I-44/-55/Gravois/Exit 207 to Potomac St/Exit 206 | SB | M0 | PM | 2.48 | 0.14 | 0.47 | 0.88 | 0.48 |
| 36 | I-70 | Shreve/Exit 245 to MO-N/Florissant Rd/Exit 240 | WB | M0 | PM | 2.44 | 0.83 | 1.46 | 1.67 | 1.33 |
| 37 | I-44 | Tenth St/Exit 249 to I-55/--64/US-40/Exit 251 | WB | M0 | AM | 2.02 | 0.15 | 1.29 | 0.85 | 0.63 |

Table 26: Planning Time

| No. | Route | Limits | Direction | State | Peak | Queue <br> Length | $\begin{aligned} & \text { 6-7AM/ } \\ & 3-4 \mathrm{PM} \end{aligned}$ | $\begin{aligned} & 7-8 \mathrm{AM} / \\ & 4-5 \mathrm{PM} \end{aligned}$ | $\begin{gathered} 8-9 \mathrm{AM} / \\ 5-6 \mathrm{PM} \end{gathered}$ | AVG. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | I-270 | I-70 to I-55/I-255/Exit 1 | SB | MO | PM | 21.00 | 36.00 | 59.65 | 68.18 | 57.60 |
| 2 | I-70 | Cave Springs/Exit 225 to Natural Bridge Rd/Exit 237/Exit 238 | EB | M0 | AM | 14.16 | 18.16 | 34.90 | 32.08 | 29.90 |
| 3 | I-64 | Chesterfield Pky/Exit 20 to McCausland Ave/Exit 33 | EB | M0 | PM | 14.00 | 27.85 | 37.79 | 44.53 | 38.43 |
| 4 | I-70 | Bryan Rd/Exit 216 to MO-W/Exit 203 | WB | M0 | PM | 14.00 | 18.06 | 22.22 | 21.92 | 20.54 |
| 5 | I-270 | I-55/I-255/Exit 1 to I-64/US-40/US-61/Exit 12 | NB | M0 | AM | 12.70 | 22.72 | 41.34 | 35.51 | 35.40 |
| 6 | I-270 | McDonnell Blvd/Exit 23 to MO-367/Exit 31 | EB | M0 | PM | 12.00 | 20.41 | 32.97 | 37.69 | 32.07 |
| 7 | I-64 | I-170/Brentwood Blvd/Exit 31 to Chesterfield Pky/Exit 20 | WB | M0 | PM | 12.00 | 22.21 | 27.67 | 28.86 | 26.52 |
| 8 | I-70 | Big Bend Rd/Exit 278 to Antire Rd/Exit 269 | EB | M0 | PM | 11.00 | 14.24 | 25.79 | 33.74 | 25.80 |
| 9 | I-44 | I-270/Exit 232 to Jennings Sta Rd/Exit 242 | WB | M0 | PM | 11.00 | 13.20 | 17.66 | 18.92 | 16.79 |
| 10 | I-64 | M0-K to I-70 | WB | M0 | PM | 10.00 | 16.73 | 26.15 | 26.97 | 24.09 |
| 11 | I-64 | I-270/Exit 25 to McCausland to Ave/Exit 33 | EB | MO | AM | 9.57 | 10.41 | 23.50 | 27.15 | 23.58 |
| 12 | I-170 | Forest Park Pky/Exit 1E to Hanley Rd/Exit 9 | NB | M0 | PM | 8.98 | 13.33 | 19.19 | 23.32 | 18.89 |
| 13 | M0-364 | Jungerman to I-270/MO-D | EB | M0 | AM | 8.61 | 8.91 | 18.40 | 18.40 | 15.71 |
| 14 | M0-364 | I-270/MO-D to M0-94/Muegge Rd/Exit 13/Exit 12 | WB | M0 | PM | 8.61 | 8.70 | 12.14 | 18.57 | 14.53 |
| 15 | I-70 | Lake St Louis Blvd/Exit 214 to MO-79/Exit 220 | EB | M0 | AM | 8.50 | 9.72 | 15.87 | 9.87 | 12.75 |
| 16 | I-44 | Berry Rd/Exit 279 to Kingshighway/Exit 287 | EB | M0 | AM | 7.94 | 8.53 | 15.22 | 17.87 | 14.88 |
| 17 | I-270 | Lilac/Exit 33 to Elizabeth/Washington St/Exit 28 | WB | M0 | AM | 7.15 | 13.04 | 22.71 | 17.45 | 15.12 |
| 18 | I-170 | MO-180/St Charles Rock/Exit 5 to I-64/Eager Rd/Exit 1B/Exit 1A | SB | M0 | PM | 6.69 | 13.77 | 18.72 | 22.02 | 19.22 |
| 19 | I-70 | I-170/Exit 238 to I-270/Exit 232 | WB | M0 | PM | 6.45 | 9.26 | 15.05 | 18.34 | 13.24 |
| 20 | I-55 | Potomac to Park Ave/7Th St/Exit 208 | NB | M0 | AM | 6.21 | 8.04 | 14.66 | 10.75 | 11.81 |
| 21 | I-270 | Dorsett Rd/Exit 17 to M0-AB/Ladue Rd/Exit 13 | SB | M0 | AM | 6.18 | 6.75 | 13.01 | 12.25 | 11.19 |
| 22 | I-64 | Baxter to I-270/Exit 25 | EB | M0 | AM | 6.15 | 9.04 | 18.52 | 17.38 | 16.90 |
| 23 | I-55 | Grand Ave/Exit 247 to I-44/I-55/Gravois/Exit 207 | EB-SB | M0 | PM | 5.77 | 9.67 | 14.06 | 14.53 | 14.51 |
| 24 | I-64 | Kingshighway/Exit 36 to I-170/Brentwood Blvd/Exit 31 | WB | M0 | AM | 5.52 | 6.21 | 17.43 | 18.44 | 16.38 |
| 25 | I-55 | Virginia Ave/Exit 203 to Reavis Barracks Rd/Exit 199 | SB | MO | PM | 5.31 | 6.92 | 12.12 | 14.90 | 12.06 |
| 26 | I-44 | I-55/Exit 290 to Arsenal St/Exit 284 | WB | M0 | PM | 5.20 | 8.08 | 15.45 | 20.92 | 16.99 |
| 27 | I-70 | I-270/Exit 232 to Cave Springs/Exit 225 | WB | M0 | PM | 5.00 | 13.05 | 16.33 | 18.48 | 14.63 |
| 28 | I-44 | MO-141/Exit 272 to I-270/Exit 276 | EB | M0 | AM | 4.70 | 8.54 | 15.83 | 15.53 | 13.87 |
| 29 | I-170 | I-64 to MO-D | SB | M0 | AM | 4.49 | 5.38 | 9.64 | 10.63 | 9.31 |
| 30 | I-55 | Baugh Ave. to Poplar St Brg. | WB-SB | IL | AM | 4.39 | 4.95 | 7.18 | 6.99 | 6.38 |
| 31 | I-44 | Bowles Ave/Exit 274 to US-50/US-61/US-67/ Exit 277 | EB | M0 | PM | 4.31 | 5.54 | 8.10 | 8.83 | 7.83 |
| 32 | I-64 | Kingshighway/Exit 36 to I-55/I-70/US-40 | EB | M0 | PM | 4.30 | 13.41 | 24.27 | 26.56 | 23.57 |
| 33 | I-70 | Broadway/Exit 246 to Lucas \& Hunt Rd/Exit 241 | WB | M0 | AM | 3.35 | 3.84 | 7.87 | 9.39 | 7.98 |
| 34 | I-70/I-44/I-55 | Stan Musial Brg. to Park | EB/WB/NB | M0 | PM | 3.11 | 2.82 | 3.68 | 3.99 | 3.53 |
| 35 | I-55 | I-44/I-55/Gravois/Exit 207 to Potomac St/Exit 206 | SB | M0 | PM | 2.48 | 2.89 | 3.75 | 4.77 | 3.77 |
| 36 | I-70 | Shreve/Exit 245 to MO-N/Florissant Rd/Exit 240 | WB | M0 | PM | 2.44 | 4.61 | 6.19 | 6.81 | 5.90 |
| 37 | I-44 | Tenth St/Exit 249 to I-55/I-64/US-40/Exit 251 | WB | M0 | AM | 2.02 | 2.64 | 5.21 | 4.22 | 4.38 |

Table 27: Planning Time Index

| No. | Route | Limits | Direction | State | Peak | Queue Length | $\begin{gathered} \text { 6-7AM/ } \\ 3-4 \mathrm{PM} \end{gathered}$ | $\begin{gathered} 7-8 \mathrm{AM} / 4 \\ 5 \mathrm{PM} \end{gathered}$ | $\begin{aligned} & 8-9 \mathrm{AM} / \\ & 5-6 \mathrm{PM} \end{aligned}$ | AVG. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | I-270 | I-70 to I-55/-255/Exit 1 | SB | M0 | PM | 21.00 | 1.74 | 2.89 | 3.30 | 2.79 |
| 2 | I-70 | Cave Spring/Exit 225 to Natural Bridge Rd/Exit 237/Exit 238 | EB | M0 | AM | 14.16 | 1.28 | 2.46 | 2.27 | 2.11 |
| 3 | I-64 | Chesterfield Pky/Exit 20 to McCausland Ave/Exit 33 | EB | M0 | PM | 14.00 | 2.00 | 2.71 | 3.19 | 2.75 |
| 4 | I-70 | Bryan Rd/Exit 216 to MO-W/Exit 203 | WB | M0 | PM | 14.00 | 1.43 | 1.75 | 1.73 | 1.62 |
| 5 | I-270 | I-55/-255/Exit 1 to I-64/US-40/US-61/Exit 12 | NB | M0 | AM | 12.70 | 1.79 | 3.26 | 2.80 | 2.79 |
| 6 | I-270 | McDonnell Blvd/Exit 23 to M0-367/Exit 31 | EB | M0 | PM | 12.00 | 1.74 | 2.81 | 3.21 | 2.73 |
| 7 | I-64 | I-170/Brentwood Blvd/Exit 31 to Chesterfield Pky/Exit 20 | WB | M0 | PM | 12.00 | 1.88 | 2.34 | 2.44 | 2.24 |
| 8 | I-70 | Big Bend Rd/Exit 278 to Antire Rd/Exit 269 | EB | M0 | PM | 11.00 | 1.23 | 2.23 | 2.92 | 2.23 |
| 9 | I-44 | I-270/Exit 232 to Jennings Sta Rd/Exit 242 | WB | M0 | PM | 11.00 | 1.22 | 1.63 | 1.74 | 1.55 |
| 10 | I-64 | M0-K to I-70 | WB | M0 | PM | 10.00 | 1.74 | 2.72 | 2.81 | 2.51 |
| 11 | I-64 | I-270/Exit 25 to McCausland to Ave/Exit 33 | EB | M0 | AM | 9.57 | 1.09 | 2.46 | 2.84 | 2.46 |
| 12 | I-170 | Forest Park Pky/Exit 1E to Hanley Rd/Exit 9 | NB | M0 | PM | 8.98 | 1.49 | 2.14 | 2.60 | 2.10 |
| 13 | M0-364 | Jungerman to I-270/MO-D | EB | M0 | AM | 8.61 | 1.02 | 2.10 | 2.10 | 1.80 |
| 14 | M0-364 | I-270/MO-D to MO-94/Muegge Rd/Exit 13/Exit 12 | WB | M0 | PM | 8.61 | 1.01 | 1.41 | 2.16 | 1.69 |
| 15 | I-70 | Lake St Louis Blvd/Exit 214 to MO-79/Exit 220 | EB | M0 | AM | 8.50 | 1.14 | 1.87 | 1.16 | 1.50 |
| 16 | I-44 | Berry Rd/Exit 279 to Kingshighway/Exit 287 | EB | M0 | AM | 7.94 | 1.07 | 1.92 | 2.25 | 1.87 |
| 17 | I-270 | Lilac/Exit 33 to Elizabeth/Washington St/Exit 28 | WB | M0 | AM | 7.15 | 1.29 | 2.25 | 1.73 | 2.11 |
| 18 | I-170 | M0-180/St Charles Rock/Exit 5 to I-64/Eager Rd/Exit 1B/Exit 1A | SB | M0 | PM | 6.69 | 1.93 | 2.63 | 3.09 | 2.70 |
| 19 | I-70 | I-170/Exit 238 to I-270/Exit 232 | WB | M0 | PM | 6.45 | 1.25 | 2.04 | 2.48 | 2.03 |
| 20 | I-55 | Potomac to Park Ave/7Th St/Exit 208 | NB | M0 | AM | 6.21 | 1.26 | 2.30 | 1.69 | 1.86 |
| 21 | I-270 | Dorsett Rd/Exit 17 to M0-AB/Ladue Rd/Exit 13 | SB | M0 | AM | 6.18 | 1.09 | 2.11 | 1.98 | 1.81 |
| 22 | I-64 | Baxter to I-270/Exit 25 | EB | M0 | AM | 6.15 | 1.47 | 3.01 | 3.83 | 2.75 |
| 23 | I-55 | Grand Ave/Exit 247 to I-44/I-55/Gravois/Exit 207 | EB-SB | M0 | PM | 5.77 | 2.43 | 3.39 | 3.38 | 3.36 |
| 24 | I-64 | Kingshighway/Exit 36 to I-170/Brentwood Blvd/Exit 31 | WB | M0 | AM | 5.52 | 1.13 | 3.16 | 3.34 | 2.97 |
| 25 | I-55 | Virginia Ave/Exit 203 to Reavis Barracks Rd/Exit 199 | SB | M0 | PM | 5.31 | 1.30 | 2.28 | 2.81 | 2.27 |
| 26 | I-44 | I-55/Exit 290 to Arsenal St/Exit 284 | WB | M0 | PM | 5.20 | 1.52 | 2.91 | 3.93 | 3.19 |
| 27 | I-70 | I-270/Exit 232 to Cave Spring/Exit 225 | WB | M0 | PM | 5.00 | 2.13 | 2.66 | 3.01 | 2.86 |
| 28 | I-44 | M0-141/Exit 272 to I-270/Exit 276 | EB | M0 | AM | 4.70 | 1.09 | 2.01 | 1.97 | 1.76 |
| 29 | I-170 | I-64 to M0-D | SB | M0 | AM | 4.49 | 1.10 | 1.96 | 2.16 | 1.89 |
| 30 | I-55 | Baugh Ave. to Poplar St Brg. | WB-SB | L | AM | 4.39 | 1.88 | 2.73 | 2.68 | 2.43 |
| 31 | I-44 | Bowles Ave/Exit 274 to US-50/US-61/US-67/ Exit 277 | EB | M0 | PM | 4.31 | 1.28 | 1.88 | 2.05 | 1.82 |
| 32 | I-64 | Kingshighway/Exit 36 to I-55/I-70/US-40 | EB | M0 | PM | 4.30 | 2.27 | 4.11 | 4.50 | 3.99 |
| 33 | I-70 | Broadway/Exit 246 to Lucas \& Hunt Rd/Exit 241 | WB | M0 | AM | 3.35 | 1.05 | 2.15 | 2.57 | 2.18 |
| 34 | I-70/I-44/I-55 | Stan Musial Brg. to Park | EB/WB/NB | M0 | PM | 3.11 | 1.66 | 2.14 | 2.36 | 2.06 |
| 35 | I-55 | I-44/--5/Gravois/Exit 207 to Potomac St/Exit 206 | SB | M0 | PM | 2.48 | 1.17 | 1.51 | 1.92 | 1.52 |
| 36 | I-70 | Shreve/Exit 245 to M0-N/Florissant Rd/Exit 240 | WB | M0 | PM | 2.44 | 1.76 | 2.37 | 2.61 | 2.26 |
| 37 | I-44 | Tenth St/Exit 249 to I-55/I-64/US-40/Exit 251 | WB | M0 | AM | 2.02 | 1.20 | 2.37 | 1.91 | 1.99 |

## Table 28: Speed

| No. | Route | Limits | Direction | State | Peak | Queue <br> Length | $\begin{array}{\|l\|} \hline 6-7 \mathrm{AM} / \\ \hline 3-4 \mathrm{PM} \\ \hline \end{array}$ | $\begin{aligned} & \text { 7-8AM/ } \\ & \text { 4-5PM } \end{aligned}$ | $\begin{array}{\|l} \hline 8-9 \mathrm{AM} / \\ 5-6 \mathrm{PM} \\ \hline \end{array}$ | AVG. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | I-270 | I-70 to I-55/I-255/Exit 1 | SB | M0 | PM | 21.00 | 52.03 | 38.47 | 34.83 | 40.58 |
| 2 | I-70 | Cave Springs/Exit 225 to Natural Bridge Rd/Exit 237/Exit 238 | EB | M0 | AM | 14.16 | 59.20 | 44.78 | 48.75 | 50.20 |
| 3 | I-70 | Chesterfield Pky/Exit 20 to McCausland Ave/Exit 33 | WB | M0 | PM | 14.00 | 58.82 | 55.13 | 54.36 | 56.04 |
| 4 | I-64 | Bryan Rd/Exit 216 to MO-W/Exit 203 | EB | M0 | PM | 14.00 | 48.03 | 40.36 | 35.80 | 40.79 |
| 5 | I-270 | I-55/I-255/Exit 1 to I-64/US-40/US-61/Exit 12 | NB | M0 | AM | 12.70 | 50.88 | 32.67 | 40.53 | 40.03 |
| 6 | I-64 | McDonnell Blvd/Exit 23 to MO-367/Exit 31 | WB | M0 | PM | 12.00 | 50.55 | 45.42 | 43.99 | 46.49 |
| 7 | I-270 | I-170/Brentwood Blvd/Exit 31 to Chesterfield Pky/Exit 20 | EB | M0 | PM | 12.00 | 51.58 | 37.26 | 35.02 | 40.11 |
| 8 | I-44 | Big Bend Rd/Exit 278 to Antire Rd/Exit 269 | WB | M0 | PM | 11.00 | 59.73 | 50.64 | 50.10 | 53.14 |
| 9 | I-70 | I-270/Exit 232 to Jennings Sta Rd/Exit 242 | EB | M0 | PM | 11.00 | 55.77 | 47.42 | 42.22 | 47.84 |
| 10 | I-64 | M0-K to I-70 | WB | M0 | PM | 10.00 | 58.11 | 45.84 | 46.50 | 49.56 |
| 11 | I-64 | I-270/Exit 25 to McCausland to Ave/Exit 33 | EB | M0 | AM | 9.57 | 62.53 | 44.09 | 37.73 | 46.00 |
| 12 | I-170 | Forest Park Pky/Exit 1E to Hanley Rd/Exit 9 | NB | M0 | PM | 8.98 | 53.80 | 46.89 | 43.36 | 47.64 |
| 13 | MO-364 | Jungerman to I-270/MO-D | WB | M0 | PM | 8.61 | 63.72 | 57.98 | 47.33 | 55.47 |
| 14 | MO-364 | I-270/MO-D to MO-94/Muegge Rd/Exit 13/Exit 12 | EB | M0 | AM | 8.61 | 63.41 | 48.56 | 48.56 | 54.16 |
| 15 | I-70 | Lake St Louis Blvd/Exit 214 to M0-79/Exit 220 | EB | M0 | AM | 8.50 | 62.40 | 52.08 | 60.29 | 57.89 |
| 16 | I-44 | Berry Rd/Exit 279 to Kingshighway/Exit 287 | EB | M0 | AM | 7.94 | 61.83 | 50.67 | 47.51 | 52.64 |
| 17 | I-270 | Lilac/Exit 33 to Elizabeth/Washington St/Exit 28 | WB | MO | AM | 7.15 | 56.94 | 44.87 | 51.19 | 48.49 |
| 18 | I-170 | M0-180/St Charles Rock/Exit 5 to I-64/Eager Rd/Exit 1B/Exit 1A | SB | M0 | PM | 6.69 | 48.01 | 37.27 | 31.39 | 37.72 |
| 19 | I-70 | I-170/Exit 238 to I-270/Exit 232 | WB | MO | PM | 6.45 | 57.17 | 47.08 | 43.29 | 48.30 |
| 20 | I-55 | Potomac to Park Ave/7Th St/Exit 208 | NB | M0 | AM | 6.21 | 57.87 | 45.85 | 52.78 | 51.67 |
| 21 | I-270 | Dorsett Rd/Exit 17 to MO-AB/Ladue Rd/Exit 13 | SB | MO | AM | 6.18 | 61.24 | 48.14 | 50.50 | 52.72 |
| 22 | I-64 | Baxter to I-270/Exit 25 | EB | M0 | AM | 6.15 | 58.39 | 34.86 | 39.68 | 42.20 |
| 23 | I-55 | Grand Ave/Exit 247 to I-44/I-55/Gravois/Exit 207 | EB-SB | M0 | PM | 5.77 | 41.71 | 32.67 | 30.39 | 32.96 |
| 24 | I-64 | Kingshighway/Exit 36 to I-170/Brentwood Blvd/Exit 31 | WB | M0 | AM | 5.52 | 60.19 | 34.46 | 33.91 | 39.92 |
| 25 | I-55 | Virginia Ave/Exit 203 to Reavis Barracks Rd/Exit 199 | SB | M0 | PM | 5.31 | 59.45 | 47.86 | 44.23 | 49.71 |
| 26 | I-44 | I-55/Exit 290 to Arsenal St/Exit 284 | WB | M0 | PM | 5.20 | 54.49 | 41.04 | 32.29 | 40.69 |
| 27 | I-70 | I-270/Exit 232 to Cave Springs/Exit 225 | WB | M0 | PM | 5.00 | 46.82 | 39.60 | 35.99 | 38.78 |
| 28 | I-44 | MO-141/Exit 272 to I-270/Exit 276 | EB | M0 | AM | 4.70 | 62.42 | 51.02 | 52.52 | 54.88 |
| 29 | I-170 | I-64 to MO-D | SB | M0 | AM | 4.49 | 57.59 | 46.75 | 42.08 | 47.97 |
| 30 | I-55 | Baugh Ave. to Poplar St Brg. | WB-SB | IL | AM | 4.39 | 42.19 | 32.50 | 35.24 | 36.65 |
| 31 | I-44 | Bowles Ave/Exit 274 to US-50/US-61/US-67/ Exit 277 | EB | M0 | PM | 4.31 | 58.42 | 50.68 | 49.17 | 52.45 |
| 32 | I-64 | Kingshighway/Exit 36 to I-55/I-70/US-40 | EB | M0 | PM | 4.30 | 44.46 | 24.69 | 24.69 | 28.98 |
| 33 | I-70 | Broadway/Exit 246 to Lucas \& Hunt Rd/Exit 241 | WB | M0 | AM | 3.35 | 56.62 | 43.46 | 39.51 | 45.46 |
| 34 | I-70/I-44/I-55 | Stan Musial Brg. to Park | EB/WB/NB | M0 | PM | 3.11 | 44.71 | 39.91 | 38.69 | 40.93 |
| 35 | I-55 | I-44/I-55/Gravois/Exit 207 to Potomac St/Exit 206 | SB | M0 | PM | 2.48 | 56.06 | 52.26 | 49.42 | 52.43 |
| 36 | I-70 | Shreve/Exit 245 to MO-N/Florissant Rd/Exit 240 | WB | M0 | PM | 2.44 | 54.20 | 49.11 | 47.35 | 50.06 |
| 37 | I-44 | Tenth St/Exit 249 to I-55/I-64/US-40/Exit 251 | WB | M0 | AM | 2.02 | 54.37 | 41.77 | 46.37 | 46.93 |

Table 29: Travel Time

| No. | Route | Limits | Direction | State | Peak | Queue <br> Length | $\begin{aligned} & \text { 6-7AM/ } \\ & 3-4 \mathrm{PM} \end{aligned}$ | $\begin{aligned} & \hline 7-8 \mathrm{AM} / \\ & 4-5 \mathrm{PM} \end{aligned}$ | $\begin{aligned} & 8-9 \mathrm{AM} / \\ & 5-6 \mathrm{PM} \end{aligned}$ | AVG. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | I-270 | I-70 to I-55/I-255/Exit 1 | SB | MO | PM | 21.00 | 23.80 | 32.20 | 35.56 | 30.52 |
| 2 | I-70 | Cave Springs/Exit 225 to Natural Bridge Rd/Exit 237/Exit 238 | EB | MO | AM | 14.16 | 14.35 | 18.98 | 17.43 | 16.93 |
| 3 | I-64 | Chesterfield Pky/Exit 20 to McCausland Ave/Exit 33 | EB | MO | PM | 14.00 | 17.42 | 20.74 | 23.38 | 20.52 |
| 4 | I-70 | Bryan Rd/Exit 216 to MO-W/Exit 203 | WB | MO | PM | 14.00 | 14.23 | 15.18 | 15.40 | 14.94 |
| 5 | I-270 | I-55/I-255/Exit 1 to I-64/US-40/US-61/Exit 12 | NB | MO | AM | 12.70 | 14.97 | 23.32 | 18.80 | 19.03 |
| 6 | I-270 | McDonnell Blvd/Exit 23 to MO-367/Exit 31 | EB | M0 | PM | 12.00 | 13.65 | 18.90 | 20.11 | 17.55 |
| 7 | I-64 | I-170/Brentwood Blvd/Exit 31 to Chesterfield Pky/Exit 20 | WB | MO | PM | 12.00 | 14.04 | 15.63 | 16.14 | 15.27 |
| 8 | I-70 | Big Bend Rd/Exit 278 to Antire Rd/Exit 269 | EB | M0 | PM | 11.00 | 11.98 | 14.09 | 15.83 | 13.97 |
| 9 | I-44 | I-270/Exit 232 to Jennings Sta Rd/Exit 242 | WB | M0 | PM | 11.00 | 11.26 | 13.29 | 13.43 | 12.66 |
| 10 | I-64 | M0-K to I-70 | WB | M0 | PM | 10.00 | 10.43 | 13.22 | 13.03 | 12.22 |
| 11 | I-64 | I-270/Exit 25 to McCausland to Ave/Exit 33 | EB | MO | AM | 9.57 | 9.18 | 13.02 | 15.22 | 12.49 |
| 12 | I-170 | Forest Park Pky/Exit 1E to Hanley Rd/Exit 9 | NB | MO | PM | 8.98 | 10.01 | 11.48 | 12.42 | 11.31 |
| 13 | M0-364 | Jungerman to I-270/MO-D | EB | M0 | AM | 8.61 | 8.15 | 10.64 | 10.64 | 9.54 |
| 14 | M0-364 | I-270/MO-D to M0-94/Muegge Rd/Exit 13/Exit 12 | WB | MO | PM | 8.61 | 8.09 | 8.89 | 10.90 | 9.30 |
| 15 | I-70 | Lake St Louis Blvd/Exit 214 to M0-79/Exit 220 | EB | MO | AM | 8.50 | 8.18 | 9.80 | 8.46 | 8.81 |
| 16 | I-44 | Berry Rd/Exit 279 to Kingshighway/Exit 287 | EB | M0 | AM | 7.94 | 7.71 | 9.41 | 10.03 | 9.05 |
| 17 | I-270 | Lilac/Exit 33 to Elizabeth/Washington St/Exit 28 | WB | MO | AM | 7.15 | 10.47 | 13.29 | 11.65 | 8.84 |
| 18 | I-170 | M0-180/St Charles Rock/Exit 5 to I-64/Eager Rd/Exit 1B/Exit 1A | SB | MO | PM | 6.69 | 8.36 | 10.77 | 12.79 | 10.64 |
| 19 | I-70 | I-170/Exit 238 to I-270/Exit 232 | WB | M0 | PM | 6.45 | 7.69 | 9.33 | 10.15 | 8.01 |
| 20 | I-55 | Potomac to Park Ave/7Th St/Exit 208 | NB | M0 | AM | 6.21 | 6.44 | 8.13 | 7.07 | 7.22 |
| 21 | I-270 | Dorsett Rd/Exit 17 to MO-AB/Ladue Rd/Exit 13 | SB | MO | AM | 6.18 | 6.05 | 7.70 | 7.34 | 7.03 |
| 22 | I-64 | Baxter to I-270/Exit 25 | EB | M0 | AM | 6.15 | 6.32 | 10.58 | 9.30 | 8.74 |
| 23 | I-55 | Grand Ave/Exit 247 to I-44/I-55/Gravois/Exit 207 | EB-SB | M0 | PM | 5.77 | 5.08 | 7.29 | 8.16 | 7.37 |
| 24 | I-64 | Kingshighway/Exit 36 to I-170/Brentwood Blvd/Exit 31 | WB | MO | AM | 5.52 | 5.50 | 9.61 | 9.77 | 8.30 |
| 25 | I-55 | Virginia Ave/Exit 203 to Reavis Barracks Rd/Exit 199 | SB | MO | PM | 5.31 | 5.36 | 6.66 | 7.20 | 6.41 |
| 26 | I-44 | I-55/Exit 290 to Arsenal St/Exit 284 | WB | M0 | PM | 5.20 | 5.72 | 7.60 | 9.66 | 7.66 |
| 27 | I-70 | I-270/Exit 232 to Cave Springs/Exit 225 | WB | MO | PM | 5.00 | 7.73 | 9.14 | 10.06 | 7.77 |
| 28 | I-44 | M0-141/Exit 272 to I-270/Exit 276 | EB | M0 | AM | 4.70 | 7.56 | 9.25 | 8.99 | 8.60 |
| 29 | I-170 | I-64 to MO-D | SB | M0 | AM | 4.49 | 4.68 | 5.76 | 6.40 | 5.62 |
| 30 | I-55 | Baugh Ave. to Poplar St Brg. | WB-SB | IL | AM | 4.39 | 3.22 | 4.13 | 3.81 | 3.72 |
| 31 | I-44 | Bowles Ave/Exit 274 to US-50/US-61/US-67/ Exit 277 | EB | M0 | PM | 4.31 | 4.43 | 5.11 | 5.26 | 4.93 |
| 32 | I-64 | Kingshighway/Exit 36 to I-55/I-70/US-40 | EB | M0 | PM | 4.30 | 7.38 | 13.29 | 13.29 | 11.32 |
| 33 | I-70 | Broadway/Exit 246 to Lucas \& Hunt Rd/Exit 241 | WB | M0 | AM | 3.35 | 3.55 | 4.63 | 5.09 | 4.42 |
| 34 | I-70/I-44/I-55 | Stan Musial Brg. to Park | EB/WB/NB | M0 | PM | 3.11 | 1.82 | 2.04 | 2.10 | 1.99 |
| 35 | I-55 | I-44/I-55/Gravois/Exit 207 to Potomac St/Exit 206 | SB | M0 | PM | 2.48 | 2.65 | 2.85 | 3.01 | 2.84 |
| 36 | I-70 | Shreve/Exit 245 to MO-N/Florissant Rd/Exit 240 | WB | M0 | PM | 2.44 | 2.70 | 2.98 | 3.09 | 2.92 |
| 37 | I-44 | Tenth St/Exit 249 to I-55/I-64/US-40/Exit 251 | WB | M0 | AM | 2.02 | 2.23 | 2.90 | 2.61 | 2.58 |

Table 30: Travel Time Index

| No. | Route | Limits | Direction | State | Peak | $\begin{aligned} & \text { Queue } \\ & \text { Length } \end{aligned}$ | $\begin{aligned} & \text { 6-7AM/ } \\ & \text { 3-4PM } \end{aligned}$ | $\begin{aligned} & \hline 7.8 \mathrm{AM} / \\ & 4.5 \mathrm{PM} \\ & \hline \end{aligned}$ | $\begin{aligned} & 8-9 \mathrm{AM} / \\ & 5-6 \mathrm{PM} \end{aligned}$ | AVG. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | I-270 | I-70 to I-55/I-255/Exit 1 | SB | M0 | PM | 21.00 | 1.15 | 1.56 | 1.72 | 1.48 |
| 2 | I-70 | Cave Springs/Exit 225 to Natural Bridge Rd/Exit 237/Exit 238 | EB | M0 | AM | 14.16 | 1.01 | 1.34 | 1.23 | 1.20 |
| 3 | I-64 | Chesterfield Pky/Exit 20 to McCausland Ave/Exit 33 | EB | M0 | PM | 14.00 | 1.25 | 1.49 | 1.68 | 1.47 |
| 4 | I-70 | Bryan Rd/Exit 216 to MO-W/Exit 203 | WB | M0 | PM | 14.00 | 1.12 | 1.20 | 1.22 | 1.18 |
| 5 | I-270 | I-55/-255/Exit 1 to I-64/US-40/US-61/Exit 12 | NB | M0 | AM | 12.70 | 1.18 | 1.84 | 1.48 | 1.50 |
| 6 | I-270 | McDonnell Blvd/Exit 23 to M0-367/Exit 31 | EB | M0 | PM | 12.00 | 1.16 | 1.61 | 1.71 | 1.50 |
| 7 | I-64 | I-170/Brentwood Blvd/Exit 31 to Chesterfield Pky/Exit 20 | WB | M0 | PM | 12.00 | 1.19 | 1.32 | 1.36 | 1.29 |
| 8 | I-70 | Big Bend Rd/Exit 278 to Antire Rd/Exit 269 | EB | M0 | PM | 11.00 | 1.04 | 1.22 | 1.37 | 1.21 |
| 9 | I-44 | I-270/Exit 232 to Jennings Sta Rd/Exit 242 | WB | M0 | PM | 11.00 | 1.04 | 1.22 | 1.24 | 1.17 |
| 10 | I-64 | M0-K to I-70 | WB | M0 | PM | 10.00 | 1.09 | 1.38 | 1.36 | 1.27 |
| 11 | I-64 | I-270/Exit 25 to McCausland to Ave/Exit 33 | EB | M0 | AM | 9.57 | 0.96 | 1.36 | 1.59 | 1.30 |
| 12 | I-170 | Forest Park Pky/Exit 1E to Hanley Rd/Exit 9 | NB | M0 | PM | 8.98 | 1.12 | 1.28 | 1.38 | 1.26 |
| 13 | M0-364 | Jungerman to I-270/MO-D | EB | M0 | AM | 8.61 | 0.93 | 1.22 | 1.22 | 1.09 |
| 14 | M0-364 | I-270/MO-D to M0-94/Muegge Rd/Exit 13/Exit 12 | WB | M0 | PM | 8.61 | 0.94 | 1.03 | 1.27 | 1.08 |
| 15 | I-70 | Lake St Louis Blvd/Exit 214 to M0-79/Exit 220 | EB | M0 | AM | 8.50 | 0.96 | 1.15 | 1.00 | 1.04 |
| 16 | I-44 | Berry Rd/Exit 279 to Kingshighway/Exit 287 | EB | M0 | AM | 7.94 | 0.97 | 1.18 | 1.26 | 1.14 |
| 17 | I-270 | Lilac/Exit 33 to Elizabeth/Washington St/Exit 28 | WB | M0 | AM | 7.15 | 1.04 | 1.32 | 1.15 | 1.23 |
| 18 | I-170 | M0-180/St Charles Rock/Exit 5 to I-64/Eager Rd/Exit 1B/Exit 1A | SB | M0 | PM | 6.69 | 1.18 | 1.51 | 1.80 | 1.50 |
| 19 | I-70 | I-170/Exit 238 to I-270/Exit 232 | WB | M0 | PM | 6.45 | 1.04 | 1.26 | 1.37 | 1.23 |
| 20 | I-55 | Potomac to Park Ave/7Th St/Exit 208 | NB | M0 | AM | 6.21 | 1.01 | 1.28 | 1.11 | 1.13 |
| 21 | I-270 | Dorsett Rd/Exit 17 to M0-AB/Ladue Rd/Exit 13 | SB | M0 | AM | 6.18 | 0.98 | 1.25 | 1.19 | 1.14 |
| 22 | I-64 | Baxter to I-270/Exit 25 | EB | M0 | AM | 6.15 | 1.03 | 1.72 | 1.51 | 1.42 |
| 23 | I-55 | Grand Ave/Exit 247 to I-44/I-55/Gravois/Exit 207 | EB-SB | M0 | PM | 5.77 | 1.37 | 1.86 | 1.94 | 1.78 |
| 24 | I-64 | Kingshighway/Exit 36 to I-170/Brentwood Blvd/Exit 31 | WB | M0 | AM | 5.52 | 1.00 | 1.74 | 1.77 | 1.50 |
| 25 | I-55 | Virginia Ave/Exit 203 to Reavis Barracks Rd/Exit 199 | SB | M0 | PM | 5.31 | 1.01 | 1.25 | 1.36 | 1.21 |
| 26 | I-44 | I-55/Exit 290 to Arsenal St/Exit 284 | WB | M0 | PM | 5.20 | 1.08 | 1.43 | 1.82 | 1.44 |
| 27 | I-70 | I-270/Exit 232 to Cave Spring/Exit 225 | WB | M0 | PM | 5.00 | 1.26 | 1.49 | 1.64 | 1.52 |
| 28 | I-44 | M0-141/Exit 272 to I-270/Exit 276 | EB | M0 | AM | 4.70 | 0.96 | 1.18 | 1.14 | 1.09 |
| 29 | I-170 | I-64 to M0-D | SB | M0 | AM | 4.49 | 0.95 | 1.17 | 1.30 | 1.14 |
| 30 | I-55 | Baugh Ave. to Poplar St Brg. | WB-SB | IL | AM | 4.39 | 1.19 | 1.55 | 1.43 | 1.39 |
| 31 | I-44 | Bowles Ave/Exit 274 to US-50/US-61/US-67/ Exit 277 | EB | M0 | PM | 4.31 | 1.03 | 1.18 | 1.22 | 1.14 |
| 32 | I-64 | Kingshighway/Exit 36 to I-55/I-70/US-40 | EB | M0 | PM | 4.30 | 1.25 | 2.25 | 2.25 | 1.92 |
| 33 | I-70 | Broadway/Exit 246 to Lucas \& Hunt Rd/Exit 241 | WB | M0 | AM | 3.35 | 0.97 | 1.27 | 1.39 | 1.21 |
| 34 | I-70/I-4/4/-55 | Stan Musial Brg. to Park | EB/WB/NB | M0 | PM | 3.11 | 1.08 | 1.22 | 1.25 | 1.19 |
| 35 | I-55 | I-44/-55/Gravois/Exit 207 to Potomac St/Exit 206 | SB | M0 | PM | 2.48 | 1.07 | 1.15 | 1.21 | 1.14 |
| 36 | I-70 | Shreve/Exit 245 to M0-N/Florissant Rd/Exit 240 | WB | M0 | PM | 2.44 | 1.03 | 1.14 | 1.18 | 1.12 |
| 37 | I-44 | Tenth St/Exit 249 to I-55/--64/US-40/Exit 251 | WB | M0 | AM | 2.02 | 1.01 | 1.32 | 1.19 | 1.17 |

## Appendix 2: Regional Work Zones

Table 31: 2016 Work Zones

| Route | Scope of Work | Details | Duration | Day/ Night |
| :---: | :---: | :---: | :---: | :---: |
| Franklin County |  |  |  |  |
|  | NA |  |  |  |
| Jefferson County |  |  |  |  |
| I-55 | Add a third lane from Rte. Z to 1 mile n/o Rte. Z | NB 55 on ramp from Rte. $Z$ will be closed for most of the spring/summer | 6 months | Both and weekend closure |
| St. Charles County |  |  |  |  |
| I-64 | Completion of Boone Bridge Project | Various Single and Double Lane Drops for Completion of items such as Barrier wall, Guardrail, Permanent Striping, Signing, Diamond Grinding, as well as the Demolition of the old bridge. | Through June | Both |
| I-64 | Completion of Boone Bridge Project | Various Single and Double Lane <br> Drops for Completion of items such as Barrier wall, Guardrail, <br> Permanent Striping, Signing, <br> Diamond Grinding, as well as the <br> Demolition of the old bridge. | Through June | Both |
| I-70 | Overlay | Various single and double lanes <br> closed for overlay between <br> Wentzville and Warren county line | Completio n date of December 2016 | Both |
| I-70 | New Interchange | Various single and double lanes closed for new interchange at 5th Street and Fairgrounds | Completio n date of June of 2017. | Both |
| W | Overlay | Single lane closed between I-70 and Hwy 61 | Completio $n$ date of October 2016 | Both |
| 70 | Bridge Rehab | Various single and double lanes closed for bridge deck repairs on various locations along I-70 | Completio n date on November 2016 | Both |


| 79 | Crack Sealing | Single lane closed between I-70 and Hwy M | Completio n date of December 2016 | Both |
| :---: | :---: | :---: | :---: | :---: |
| 61 | New Interchange | Varioius single lane closure for new interchange at Route P \& Peine Road. | Completio n date of late 2017 | Both |
| N | Center turn lane addition | Varioius single lane closure for new lane addition between Roundtower and Weiss Road | Completio n date of late 2017 | Both |
| St. Louis City |  |  |  |  |
| I-44 | Pavement/Bridge Rehabs Start Mid-March 2016 | Will Keep 3 Lanes open both directions between Shrewsberry and Kingshighway. | $\begin{aligned} & 3 / 16- \\ & 12 / 16 \end{aligned}$ | Day \& Night |
| I44/I55 | 5 Bridge Rehabs at the interchange of I-44/I55 | Various Detour Routes during bridge rehabilitation construction | $\begin{aligned} & 3 / 16-12- \\ & 16 \\ & \hline \end{aligned}$ |  <br> Night |
| $\begin{aligned} & \hline \text { EB I-64 } \\ & \text { PSB } \end{aligned}$ | PSB Bridge Deck Overlay, Bridge Ramp Construction (I55 \& 6 $6^{\text {th }}$ St) onto EB PSB | Three Lanes open on EB PSB. (2EB64 \& 1- I55 NB On Ramp to EB 64) | $\begin{aligned} & \text { 5/16-12- } \\ & 16 \end{aligned}$ | Day \& Night |
| $\begin{array}{\|l} \hline \text { I-55 NB } \\ 3^{\text {rd }} \mathrm{St} \\ \text { Viaduct } \end{array}$ | $3{ }^{\text {rd }}$ Street Bridge Deck Rehab. | 3 Lanes Open on NB-55 (Narrow Lanes) Currently 4 Lanes Open Limited work through winter | $\begin{aligned} & 11 / 16- \\ & 12 / 16 \end{aligned}$ | Day \& Night |
| St. Louis County |  |  |  |  |
| 70/270 | Bridge Rehabilitation - I- $70 \text { at I-270 }$ | Epoxy polymer overlays of 15 bridges in interchange. Includes weekend closures of various ramps. | 1/16-6/16 | Night |
| 70/170 | Bridge Rehabilitation - I- <br> 70 at I-170 | Rehab of 11 bridges in interchange and pavement improvements on I-70. Work involves closing various ramps at I-70 \& I-170 and at I-170 \& Route 115. Staged construction with long term lane closures on I-70. | Starting Summer 2016 | Day \& Night |
| 270 | Bridge Rehabilitation at Bellefontaine Rd. | Rehab I-270 bridges over Bellefontaine Rd. and overlay decks. Staged construction w/ 2 thru lanes each direction. | $\begin{aligned} & \hline 1 / 16- \\ & 8 / 16 \end{aligned}$ | Day \& Night |
| 141 | Pavement Improvements | Asphalt overlay, Riverport Dr. N. to Riverport Dr. S. | $\begin{aligned} & \hline 1 / 16- \\ & 11 / 16 \\ & \hline \end{aligned}$ | Night |
| 141 | Pavement Improvements | Pavement repairs \& undersealing, bridge rehabilitation, I-70 to Route 370. Includes weekend closures for bridge work. | Starting Summer 2016 | Day \& Night |
| D | Lane Additions | Add one lane each direction and signal improvements, west of Schuetz Rd. to east of Ball Dr. | Thru 7/16 | Day \& Night |
| D | Pavement Improvements | UBAWS overlay, Route 67 to I-170. | Summer <br> 2016 | Night |


| I-64 WB | Lane addition and overlay | Continuation of the lane addition between I-270 and Rte. 141. Asphalt paving from east of I-270 to east of Rte. 340. Off-peak lane closures. | Through Dec 2016 | Day \& Night |
| :---: | :---: | :---: | :---: | :---: |
| I-64 EB | Lane addition and overlay | Lane addition between Rte. 141 and I-270. Asphalt paving from east of Rte. 340 to east of I-270. Off-peak lane closures. | Through Dec 2016 | Day \& Night |
| Rte. 340 | Overlay, ADA, and landscaping | From east of I-270 to Rte. 67. Offpeak lane closures. | Through July 2016 |  <br> Night |
| Rte. 30 | Overlay and ADA | From the St. Louis City Limit to the Jefferson County Limit. Off-peak lane closures. | April <br> 2016 <br> through $2017$ | Day \& Night |
| Rte. 231 | Overlay and ADA | From I-255 to Franru. Off-peak lane closures. | April - <br> Nov 2016 | Day \& Night |
| I-44 SOR | Reconstruction of Antire Rd | 45 day full closure of the south outer road (Antire Rd.) Signed detour. | June- <br> August <br> 2016 | Day \& Night |
| 141/I-44 | 141/44 interchange improvements and 141/Vance Rd. intersection improvements | Design-Build - No details at this time |  |  |
| I-64 | Completion of Boone Bridge Project | Various Single and Double Lane Drops for Completion of items such as Barrier wall, Guardrail, Permanent Striping, Signing, Diamond Grinding, as well as the Demolition of the old bridge. | Through June | Both |
| IDOT |  |  |  |  |
| I-270 | Deck Sealing | EB \& WB at Mississippi River Bridge | 1 week | Night |
| I-55/70 | Bridge Repairs | EB \& WB east of IL 111, 2 of 3 open | 3 months | 24/7 |
| I-55/64 | Bridge Widening | WB just past MLK exits, 2 of 3 lanes open (right lane closed) | 10 months | 24/7 |
| I-55/64 | Pump Station Work | WB just past MLK exits, 2 of 3 lanes open (left lane closed) | 2 Weeks | 24/7 |
| MLK Br | Steel Repairs, Remove Scaffolding | Closures limited to off-peak hours or over non-event weekends | 3 Weeks in March | Night/ Weekend |


[^0]:    ${ }^{1}$ For arterials the thresholds are: greater than 0.74 (light), 0.53 to 0.74 (moderate), 0.44 to 0.53 (heavy), and less than 0.44 (severe). For freeways the thresholds are: greater than 0.9 (light), 0.8 to 0.9 (moderate), 0.8 to 0.6 (heavy), and less than 0.6 (severe).

