

A METROPOLITAN PLANNING ORGANIZATION

STIP Prioritization Meeting
OTO Offices
2208 W. Chesterfield Blvd, Suite 101
September 4, 2019
1:30 PM

Agenda

- 1. Review attached prioritization glossary proposed modifications
- 2. Review project scores as adjusted
- 3. Group discussion of any needed adjustments to scoring
- 4. Prioritize Projects (Rank)
- 5. Top 5 Regional Priority List
- 6. Next Technical Committee Meeting- September 18th. Another meeting can be scheduled prior if needed.

WEB MAP available here

8/21/19

STIP Prioritization

Meeting Notes:

Interstate loop- Move down the list until after the Springfield Comprehensive Plan is completed.

Tom Dancey will assist us in recounting Kansas Expressway in order to possibly modify the v/c scores. Possible combine entire corridor with phases.

OTO (Dave) is rechecking the peak period on US60 in Republic to specifically look at a possible higher peak/lower speed during the 4:30 to 5:30 period.

UPDATE: No Change in Scores

Add ITS projects as a program near the top of the list

Combine three projects into 1 project 60/P Intersection. P Improvements to Miller and P/Miller Intersection improvements.

OTO will ask MoDOT for 5-year accident rates and explore using it.

UPDATE: 5-year accident rate calculation not available for at least two months. We have requested this information for next year.

Add Identifier Number to the Projects.

UPDATE: Using Project Score as Identifier

Modify the V/C Ratio to Include another step from .92 to 1 at 11 points

Bridge- not impactful at this time but decided to leave it.

Continue to seek information on Freight Bottlenecks

FY 2021-2025 STIP Project Prioritization Glossary

1. High Volume Corridors. Corridors that have high volumes will be awarded additional points.

Corridors are scored based upon AADT. This data is obtained annually from MoDOT. The most recent data is used.

Over 40,000 = 6 Points 30,000 to 40,000 = 5 Points 20,000 to 30,000 = 4 Points 10,000 to 20,000 = 3 Points 0 to 10,000 = 2 Points

2. Safety

Safety Scores for Project Segments and Intersections (40 points possible)

The MoDOT Actual Accident Rate, 3-Year Fatality Average, and 3-Year Injury Average for State System (SS) Roadway Segments in the SW District were included in an additive combination to produce the priority safety scores for proposed projects. Accident data for the 3-year period from 2015 to 2017 were provided by the MoDOT Central Office in the SS Segment file. The actual accident rate for segments were calculated by MoDOT using a standard formula from the FHWA's *Roadway Departure Safety: A Manual for Local Rural Road Owners* as follows:

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<u>Crashes*100,000,000</u>
3 [yrs]* 365[days]* [AADT] * [Length]
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Fatality and injury rate calculations for segments use the same formula but only consider fatal crashes or injury crashes in the numerator. Actual Accident, Fatality, and Injury rates are calculated by MoDOT for State System Intersections according to the following formula:

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<u>Crashes*1,000,000</u>
3 [yrs]* 365[days]* [ENTERING_VOLUME]
```

An average for all actual accident rates by roadway type was calculated for state system segments within the MoDOT SW District area. Averages were calculated for intersections with the same number of approach legs. Individual rates for segments and intersections were then divided by the average for either roadway type or number of approach legs District-wide. This produced a value above or below one. Values above one indicated how many times greater the individual segment or intersection rate was above its type average. Conversely, values below one indicated that the segment or intersection rate was less than the average for its type in the SW District. Ultimately, this created a symmetrical value among all types suitable for reclassification. The fatality and injury averages by roadway or approach leg values were classed in to four quartiles based on percentile rank accordingly for these metrics:

Actual Rate by Type		3-Year Fatality Avg.		3-Year Injury Avg.
= > 1.5 = 4	+	75th - 100th = 4	+	75th - 100th = 4
> 1.5 and => 1 = 3	+	50th - 75th = 3	+	50th - 75th = 3
> 1 and $=> 0.5 = 2$	+	25th - 50th = 2	+	25th - 50th = 2
>.5 -0 = 1	+	0th - 25th = 1	+	0th - 25th = 1

The reclassed rank values for Actual Accident, Fatality, and Injury rate were then added together creating a range of safety scores from 3 to 12. The safety scores are then rescaled from 1-10 corresponding to the original scale of 3-12. A multiplier of 4 was applied to the rescaled value of 1-10 to award safety points as depicted below:

Safety Score	Rescaled Safety	Safety Score	Safety Points
Value →	Score \rightarrow	Multiplier \rightarrow	Awarded
3	1	<i>x</i> 4	1 4
4	2	X4	1 8
5	3	X4	1 12
6	4	X4	16
7	5	X4	20
8	6	X4	24
9	7	X4	28
10	8	X4	32
11	9	X4	36
12	10	X4	40

3. Improvement or Removal of At-Grade Railroad Crossing

Yes = 5

No = 0

If a project improves or removes an at-grade railroad crossing, it received five points.

4. Congestion Management Current

Current volume-to-capacity greater than or equal to 0.86 = 7 Points Current volume-to-capacity greater than or equal to 0.92 = 11 Points Current Volume-to-Capacity Greater than or equal to 1 = 14 Points

A volume-to-capacity ratio for roadways in the OTO region was calculated using 2018 Average Annual Daily Traffic totals and percentage of bus and combo semi-trailer traffic obtained from the MoDOT Central Office. A passenger car equivalent volume was calculated by multiplying the roadway AADT by the percent of bus and semi traffic. This value was subtracted from the AADT value, multiplied by 3 and then added back to the AADT value. The passenger car equivalent value was compared to roadway capacities stored in the travel demand model to determine the current V/C scoring. Capacity for roadway segments along Hwy 14, Route MM, US Hwy 60 east of US Hwy 65 and through Republic were revised using 24-hour capacities determined via a roadway capacity analysis conducted for the OTO by CJW Consultants. Capacities at other locations of known improvements, e.g. auxiliary lanes added to segments along James River Freeway were revised by OTO staff. The travel demand model no-build scenario for 2040 includes projects committed through 2018. The projected volume to capacity ratio for the 2040 no-build scenario is used for the future V/C scoring. The ratio of 0.86 is considered Level of Service E (or at capacity).

Current volume-to-capacity ratios were calculated for total roadway volumes including all directions of travel. A project was awarded points based on the highest v/c ratio intersecting the project road segment or intersection. Projects with segments less than 0.86, current or future, received 0 points.

5. Congestion Management Future

Future (2040 or most recent model run) volume-to-capacity greater than or equal to 0.86 = 5 Points. Future volume-to-capacity ratios were calculated for opposing directions. The segment with the highest future v/c ratio intersecting the project area was used to determine the score.

6. Environmental Justice

Environmental Justice Tracts

In order to adequately consider historically disadvantaged groups. Each of these categories has been mapped by Census Tract percentages from the 2012 – 2016 American Community Survey 5-Year Estimates. If the value for one of these categories is greater than the average Tract percentage for the MPO area, it is considered high percentage tract. If a proposed project intersects or is adjacent to one or both identified tracts is will be given points as follows:

Intersecting or adjacent to tract consider to have a high percentage of minorities = 2 points Intersecting or adjacent to tract consider to have a high percentage of low income = 2 points

7. Multi-Modal (maximum of 3 points)

Intermodal Benefit (Bike/Ped/Transit and Truck/Rail)

No intermodal potential = 1 points

Facilitates transfer or intermodal potential between 1 to 2 modes = 1 point x number of modes In this category, one point is awarded for each mode connected. A single-mode project receives one point in this category. One point is awarded for each additional mode connected.

8. Freight Corridor Statewide Freight Plan

Project is on a corridor that is identified as a Tier I or Tier II facility in the State Freight Plan

Tier 1 = 2 Points

Tier 2 = 1 Point

9. Percentage Freight Traffic

Greater than 20% = 3

Between 15% and 20% = 2

Between 10 and 15% = 1

10. Travel Time

The OTO employs Acyclica wifi sensors and INRIX/HERE travel time data which utilizes mobile signals contained in the Regional Integrated Transportation Information System (RITIS) to develop travel time analytics at locations along roadways in the OTO area. Travel time data are collected for all weekdays during April. The collection period for the AM peak is from 7:15 AM - 8:15 AM for all roadways. The collection period for the PM peak varies from 5:00 PM - 6:00 PM for Freeways and Springfield arterials to 5:30 PM - 6:30 PM for arterials outside of Springfield. Travel times are converted to miles per hour and subtracted from the posted speed limit. Points are awarded for travel delay along roadway segments during either AM or PM peak periods according to the following scales:

Arterials

20.0 mph or more Below the Speed Limit = 14 10.0 to 19.9 mph Below the Speed Limit = 10 5.0 to 9.9 mph Below the Speed Limit = 4 Above the Speed Limit to 4.9 mph Below = 0

Freeways

10 mph or more Below the Speed Limit = 14 9.9 to 5 mph Below the Speed Limit = 10 4.9 to 0.1 mph Below the Speed Limit = 4 Equal to or Above the Speed Limit = 0

11. Bridge Condition (4 points possible)

Project corridor includes a structurally deficient bridge determined to be poor or very poor by MoDOT.

Yes = 4 Points No = 0 Points

				High		At Grade						Percent		
	Priority			Volume		RR	Current	Future VC		Multi-	Freight	Freight	Travel	Bridge
RANK	Score	Roadway	Project Description	Corridor	Safety	Removal	VC Ratio	Ratio	EJ	Modal	Corridor	Traffic	Time	Condition
		ITS	Fiber Signal Interconnect Improvements in Springfield and Ozark											
	73	13 (Kansas)	Capacity, Safety and Operational Improvements Sunshine to Chestnut Expwy	6	28	0	14	5	4	1	. 1	0	14	0
	72	13 (Kansas)	Capacity, Safety and Operational Improvements Chestnut Expwy to 44	5	28	0	14	5	4	1	. 1	0	14	0
	64	US 60	Capacity and Safety Improvements- M to Main St	5	24	0	14	5	0	1	. 1	0	14	0
	64	US 60	Convert to Freeway from US 65 to FR 223	5	24	0	14	5	0	1	. 2	3	10	0
	63	Glenstone	Safety and Operational Improvements 44 to Kearney	4	36	0	7	5	0	1	. 0	0	10	0
	60	60/MM	Intersection/ RR Crossing Improvements	4	16	5	14	5	0	1	. 1	0	14	0
	59	I-44	Capacity Improvements from Kansas to West Bypass	6	24	0	14	5	0	1	. 2	3	0	4
	58	14	Capacity/Safety/Operational Improvements 6th to 14th	3	28	0	11	5	0	1	. 0	0	10	0
	58	14	Capacity/Safety/Operational 14th Street to W	3	28	0	11	5	0	1	. 0	0	10	0
	58	14	Route W/Salers Ln control upgrade	3	28	0	11	5	0	1	. 0	0	10	0
	57	I-44/160	Ramp improvements	6	16	0	14	5	0	1	. 2	3	10	0
	57	13 (Kansas)	Safety and Operational Improvements Battlefield to JRF	4	28	0	0	5	4	1	. 1	0	14	0
	57	65	Interchange Improvements at Kearney	6	16	0	11	5	0	1	. 2	2	14	0
	57	I-44	Operational Improvements from 125 to 65	6	28	0	7	0	0	1	. 2	3	10	0
	57	13	Capacity/Safety/Operational Improvements from Battlefield to Sunshine	5	20	0	11	5	4	1	. 1	0	10	0
	56	160/ FR146	Intersection Improvements	4	32	0	0	5	4	1	. 0	0	10	0
	55	I-44	Capacity Improvements from 65 to Glenstone	6	24	0	14	5	0	1	. 2	3	0	0
	53	1-44	Capacity Improvements from Glenstone to Kansas	6	20	0	14	5	2	1	. 2	3	0	0
	53	160	Six-Lane from Plainview to AA	5	28	0	0	5	0	1	. 0	0	14	0
	52	LP 44	Chestnut Expwy from Kansas to National	4	28	0	0	5	4	1	. 0	0	10	0
	52	BU 65	Chestnut Expwy from Glenstone to Patterson	4	24	0	0	5	4	1	. 0	0	14	0
	52	BU 65	Chestnut Expwy from Patterson to US 65	4	24	0	0	5	4	1	. 0	0	14	0
	51	60	JRF- Operational Improvements Campbell to Kansas	6	24	0	0	5	0	1	. 1	0	14	0
	51	60/65	Interchange Improvements	6	16	0	11	5	0	1	. 2	0	10	0
	50	US 160	West Bypass & College control upgrade	4	28	0	0	5	2	1	. 0	0	10	0
	48	60	JRF- Capacity and Operational Improvements National to Campbell	6	28	0	7	5	0	1	. 1	0	0	0
	48	65	Capacity and Operational Improvements 14 to F	6	32		0	0	0	1	. 1	0	4	
	48	160	Safety and Operational Improvements from CC to 14	4	28	0	0	5	0	1	. 0	0	10	0
	48	160	Chestnut to I-44	4	24		0	5	4	1	. 0	0	10	
	48	I-44	Capacity and Operational Improvements from Chestnut to 360	6	16	0	11	5	0	1	. 2	3	4	0
	48	RT B	I-44 WB Ramp	2	28		0	0	0	1	. 0	3	14	0
	47	160	Six-Lane from AA to CC	4	28		0	0	0	1	. 0	0	14	
	47	CC	Widening US 65 to Fremont	3	28		0	5	0	1	. 0	0	10	0
	47	14	Operational and Safety Improvements Tiffany to Cheyenne	3	28		0	5	0	1			10	
	47	160	Safety and Operational Improvements 44 to Division	3	24		0	5	4	1	. 0		10	
	46	14	Intersection Improvements at W	3	16	0	11	5	0	1	. 0	0	10	
	46	CC	Operational and Safety Improvements Main to Cheyenne	2	28		0	5	0		. 0		10	
	45	LP 44	Chestnut Expwy from National to Glenstone	4	28		0	0	2			0	10	
	45	160	Intersection Improvements at FR 123	3	12			5	0				10	
	45	FF	Operational and Safety Improvements	3	24			5	2				10	
	44	60/P	Intersection Improvements at P Highway Widen P Highway to Miller including Miller Intersection	4	16		7	5	0			0	10	
	44	US 60	Safety and Operational Improvements- JRF to M	4	24		0	0	0			0	14	
	44	1-44	Operational Improvements from West Bypass to Chestnut	5	24		0	0	0		. 2	2	10	
	44		Widening US 65 to NN	3	24		11	5	0			0	0	
	44	14	Nicholas to OTO Western Limits	2	36		0	5	0			0	0	
	43	I-44/125	Ramp Extension	6	16		0	5	0			3	10	
	43	14	Operational and Safety Improvements Cheyenne to 32nd	3	24		0		0				10	
	73	4 -7	Specialization and society improvements oneyonine to seria	<u> </u>	4-7	- 3	<u> </u>				. 0	<u> </u>		<u> </u>

				High		At Grade						Percent		
	Priority			Volume		RR	Current	Future VC		Multi-	Freight	Freight	Travel	Bridge
RANK	Score	Roadway	Project Description	Corridor	Safety	Removal	VC Ratio	Ratio	EJ	Modal	Corridor	Traffic	Time	Condition
	43	14	OTC Campus Entrance control upgrade	3	24	0	0	5	0	1	0	0	10	0
	43	ZZ	Roundabout at FR 182	2	40	0	0	0	0	1	0	0	0	0
	41	CC	Extension from Main to 160	2	28	0	0	0	0	1	0	0	10	0
	41	174	Operational Improvements Main to 60	2	28	0	0	0	0	1	0	0	10	0
	40	60	Interchange with Kansas Expressway	6	16	0	0	0	2	1	1	0	14	0
	38	I-44/ 125	Interchange signalization	6	16	0	0	0	0	1	2	3	10	0
	37	60	JRF- Operational Improvements Kansas to West Bypass	5	24	0	0	0	2	1	1	0	4	0
	37	MM	Operational and Safety Improvements 1-44 to 360	2	24	0	0	5	0	1	0	1	4	0
	36	60	Intersection Improvements at FR 103	4	16	0	0	0	0	1	1	0	14	0
	36	125	Safety Improvements 125 to OTO North Boundary	2	28	0	0	0	0	1	0	1	4	0
	35	CC/22nd	Intersection Improvements	3	16	0	0	5	0	1	0	0	10	0
	35	FF	Operational Improvments through Battlefield	3	24	0	0	5	2	1	0	0	0	0
	35	14	Majestic Oak Dr right turn lane	3	16	0	0	5	0	1	0	0	10	0
	34	14	Hwy 14 & 15th Street control upgrade	3	4	0	11	5	0	1	0	0	10	0
	33	60	Capacity, Operational and Safety Improvements west of Republic	3	12	0	7	5	0	1	1	0	4	0
	33	160	Safety and Operations 14 to OTO Southern Boundary	3	24	0	0	5	0	1	0	0	0	0
	32	65	Operational Improvements CC to 14	6	20	0	0	0	0	1	1	0	4	0
	32	65	Longview Interchange	6	20	0	0	0	0	1	1	0	4	0
	32	RT H	RT AA/FR 80 control upgrade	2	24	0	0	5	0	1	0	0	0	0
	31	14	Hwy 14 & Church control upgrade	3	4	0	14	5	0	1	0	0	4	0
	31	NN	Operational and Safety Improvements J to Pheasant	2	28	0	0	0	0	1	0	0	0	0
	31	125/00	Intersection Improvements	2	16	0	0	0	0	1	2	0	10	0
	30	CC	Intersection Improvements at Main Street in Nixa	2	12	0	0	5	0	1	0	0	10	0
	29	174	Intersection Improvements at Main Street	2	16	0	0	0	0	1	0	0	10	0
	29	M	Operational Improvements ZZ to FF	2	24	0	0	0	2	1	0	0	0	0
	28	US 160	West Bypass & Grand control upgrade	4	4	0	0	5	4	1	0	0	10	
	28	65/ FR 94	Intersection Improvements	3	16	0	0	5	0	1	1	2	0	0
	28	14	Intersection Improvements at 3rd and Oak	3	8	0	7	5	0	1	0	0	4	0
	28	NN	Operational and Safety Improvements	2	20	0	0	5	0	1	0	0	0	0
	27	65/AA	Intersection Improvements	3	20	0	0	0	0	1	1	2	0	0
	27	14	Intersection at Combs Rd left turn lane	3	8		0	5	0	1	0	0	10	0
	27	MM	Intersection Improvements at Sawyer	2	20		0	0	0	1	0	0	4	0
	25	FF/ Weaver	Intersection Improvements	3	16		0		0			0	0	0
	24	14	Operational and Safety Imprrovements W to JJ	3	16		0		0			0	4	0
	24	125/ FR 84	Intersection Improvements	2	16		0		0			1	4	
	24	ZZ	Intersection Improvements at Hines	2	16		0		0		0	0	0	
	24	ZZ	Intersection Improvements at FR 174	2	16		0		0			0	0	
	23	14	Intersection at Fremont Rd right turn lane	3	4	0	0		0		0	0	10	
	23	00	Intersection Improvements at Washington	2	16		0		0			0	4	0
	23	125/YY	Intersection Improvements	2	16		0		0		0	0	4	0
	23	125/ FR 132	Intersection Improvements	2	16		0		0			0	4	0
	21	LP 44	Chestnut Expwy & Orchard Crest control upgrade	3	12		0		0		0	1	4	0
	21	174	Intersection Improvements at Boston	2	8		0		0			0	10	
	19	NN	Intersection at Melton right turn lane	2	16		0	0	0			0	0	
	19	RT H	FR 94 left turn lane	2	16		0	0	0			0	0	
	18	US 65	US Hwy 65 & FR 68 right turn lane	3	12		0		0		1	1	0	
	12	NN	Intersection at Sunset	2	4	0	0		0			0	0	
	81	I-244	Interstate Loop	6	28	0	14	5	4	1	2	3	14	4

Ozarks Transportation Organization

TOP 5 Transportation Investment Projects

Keeping Traffic Moving Safely and Efficiently Throughout the Region

State Highway 13 Through Springfield

US60 through the OTO Region

- Upgrade to Freeway Standards east of Springfield
- Expand James River Freeway to six lanes
- Increase Capacity between Springfield and Republic
- US 60/MM Intersection and Rail Crossing Improvements

I-44- Capacity Improvements through the OTO area

State Highway 14 Improvements East of Ozark

Intelligent Transportation System Improvements to include signal fiber connection and advanced signal detection systems

Locally Owned Investment Priorities

Improving Sense of Place and Quality of Life for Local Residents

Galloway Street Improvements in Springfield

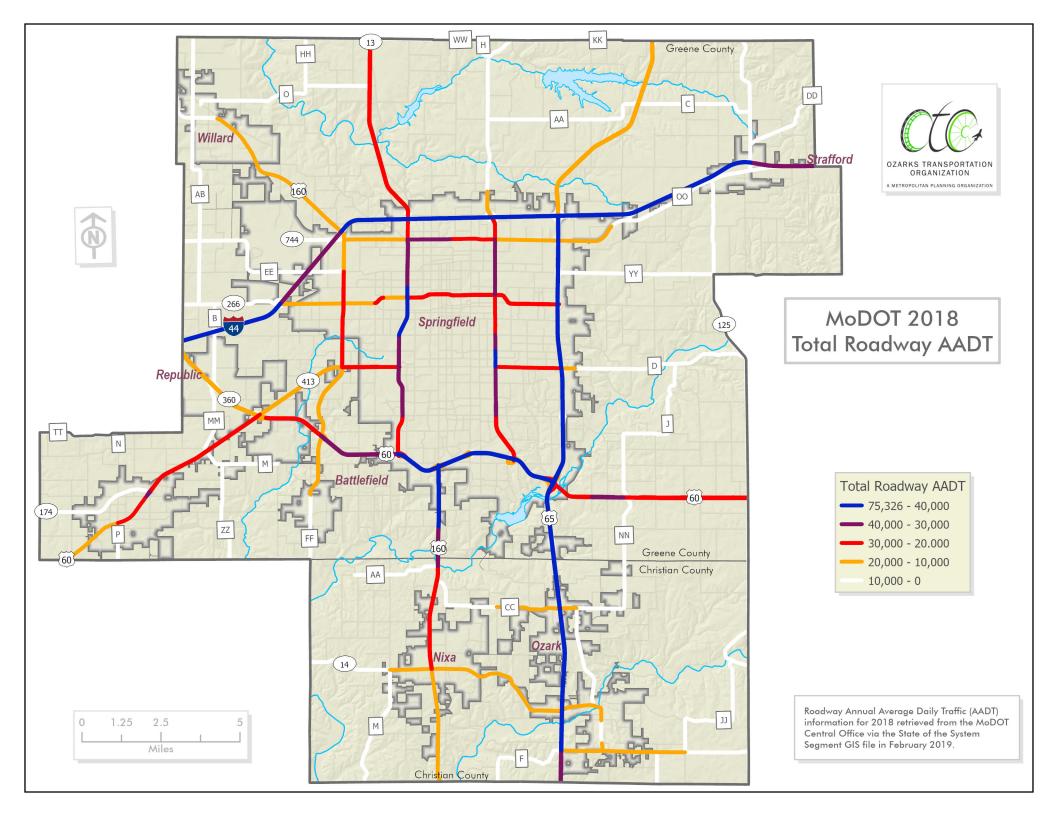
Grant Street Multimodal Corridor connecting Wonders of Wildlife to Downtown

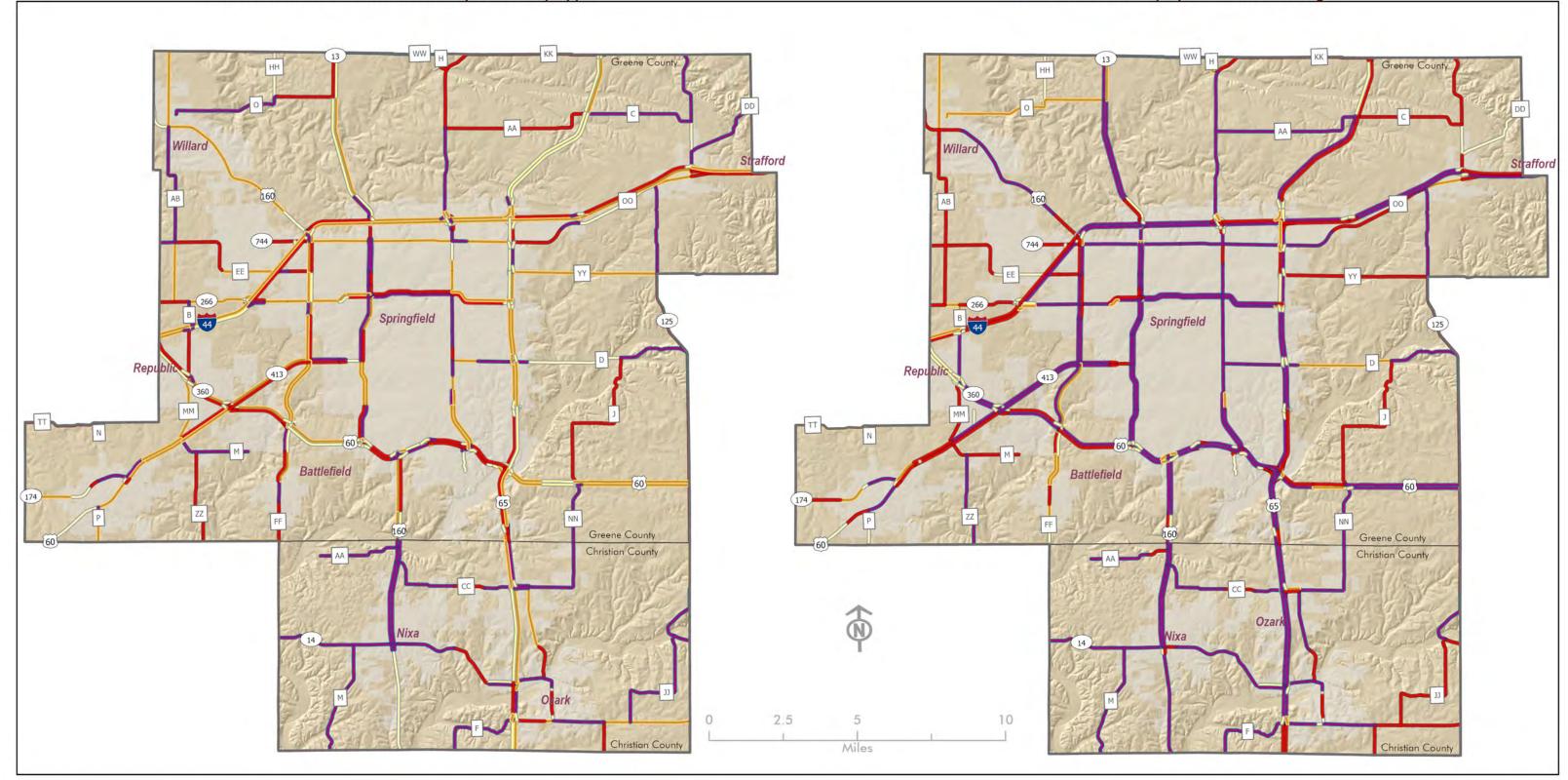
Mill Street Improvements in Ozark

Chadwick Flyer Trail Construction connecting Springfield and Ozark

Safety Improvements to the Wilson's Creek Battlefield Entrance

LIVE Republic Pedestrian and Multimodal Improvements to include a pedestrian bridge over US60 and essential community trail connections.





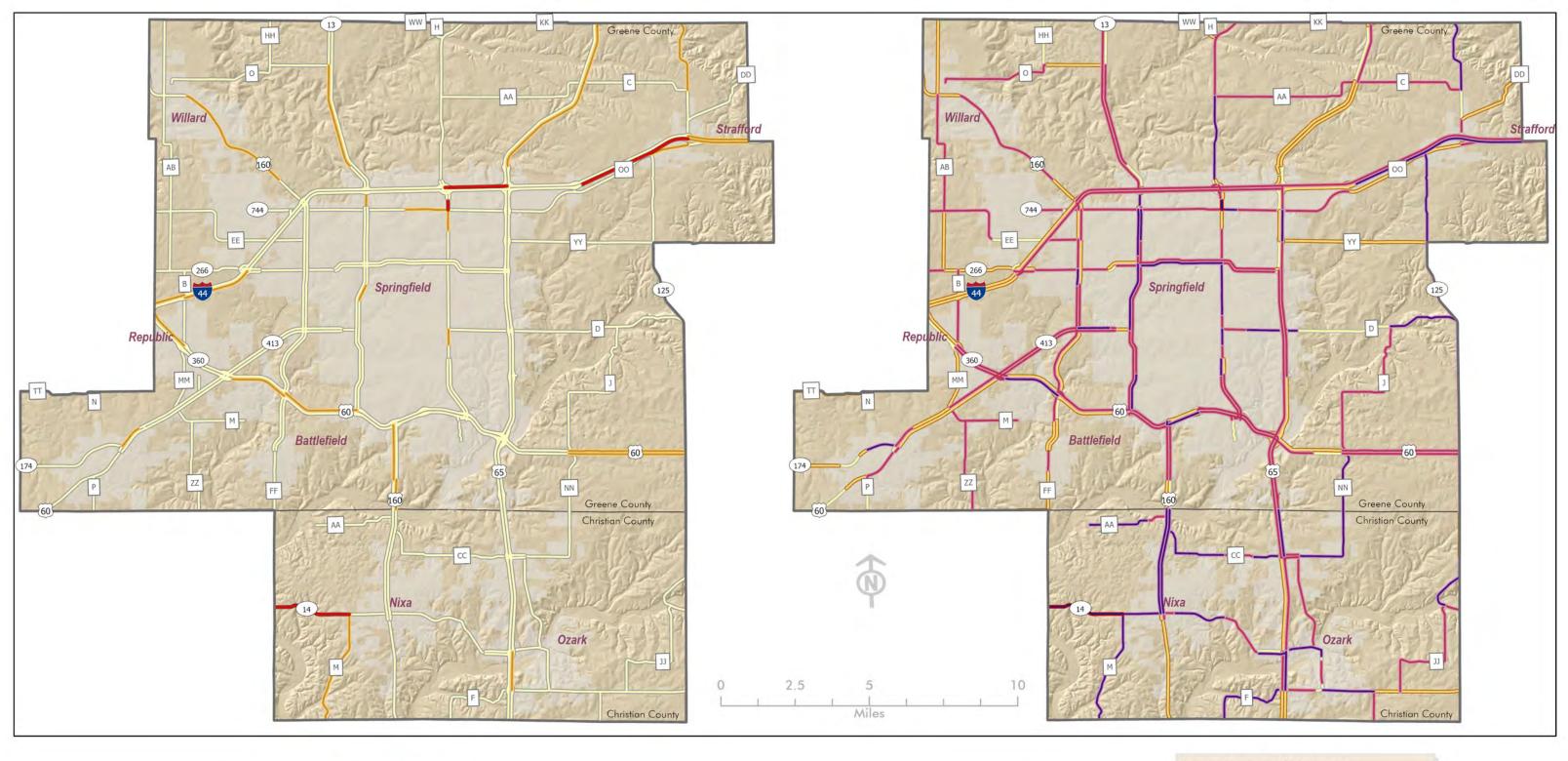
Actual Accident Rate by Roadway Type

- 1.49 1.01 times the SW District Average (3 points)
- 1 0.51 times the SW District Average (2 points)
- = 0.5 0 times the SW District Average (1 point)



3-Year Injury Accident Average

- 20.667 1.667 (4 points)
- 1.333 0.667 (3 points)
- 0.333 (2 points)
- ___ 0 (1 point)





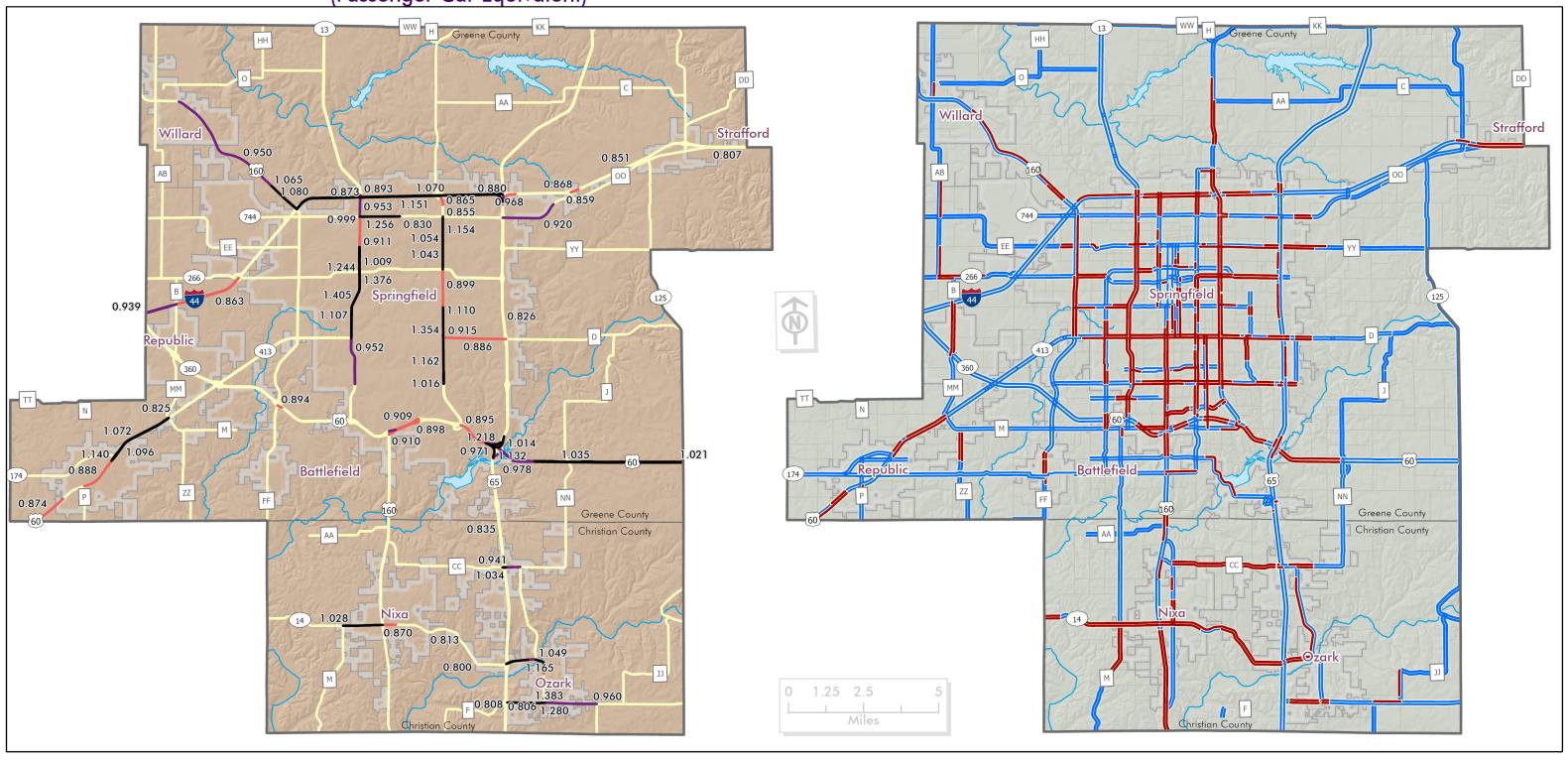


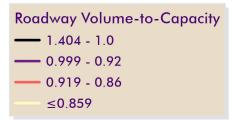
Cumulative Safety Score

- 11 -12 (36 40 prioritization points)
- 9 10 (28 32 prioritization points)
- 7 8 (20 24 prioritization points)
- 5 6 (12 16 prioritization points)
- 3 4 (4 8 prioritization points)

2018 Roadway Volume-to-Capacity Ratio (Passenger Car Equivalent)

Model Year 2040 Volume-to-Capacity Ratio

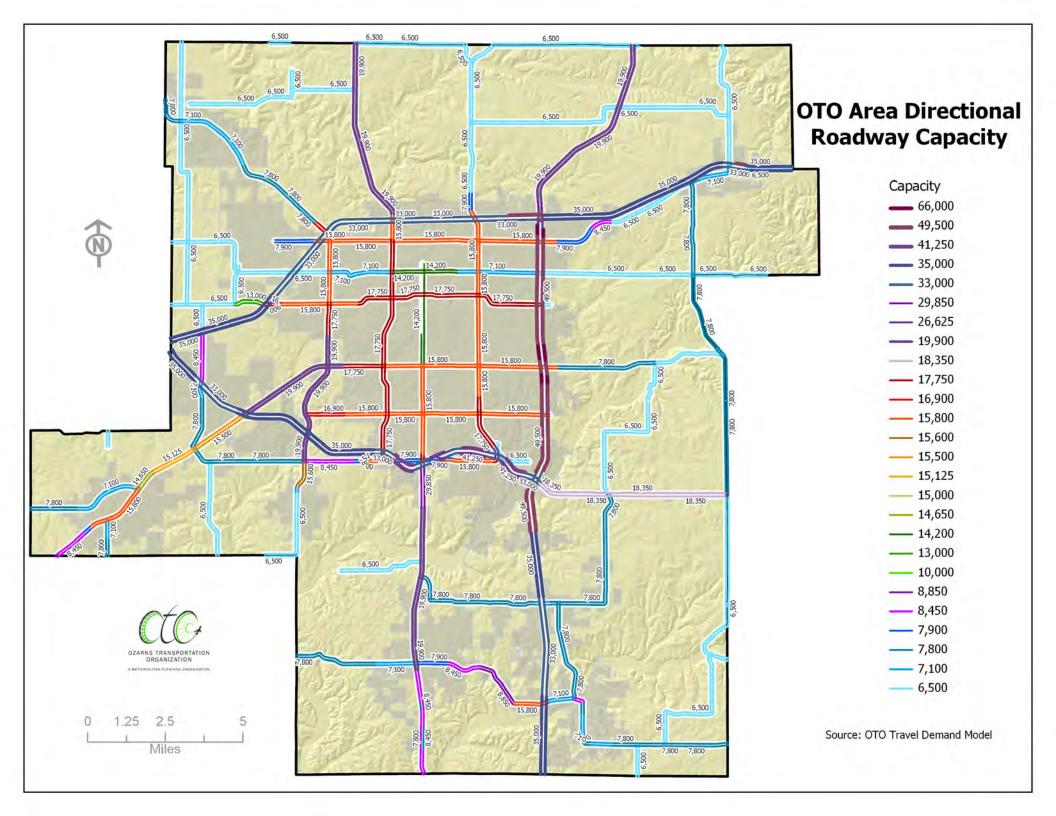


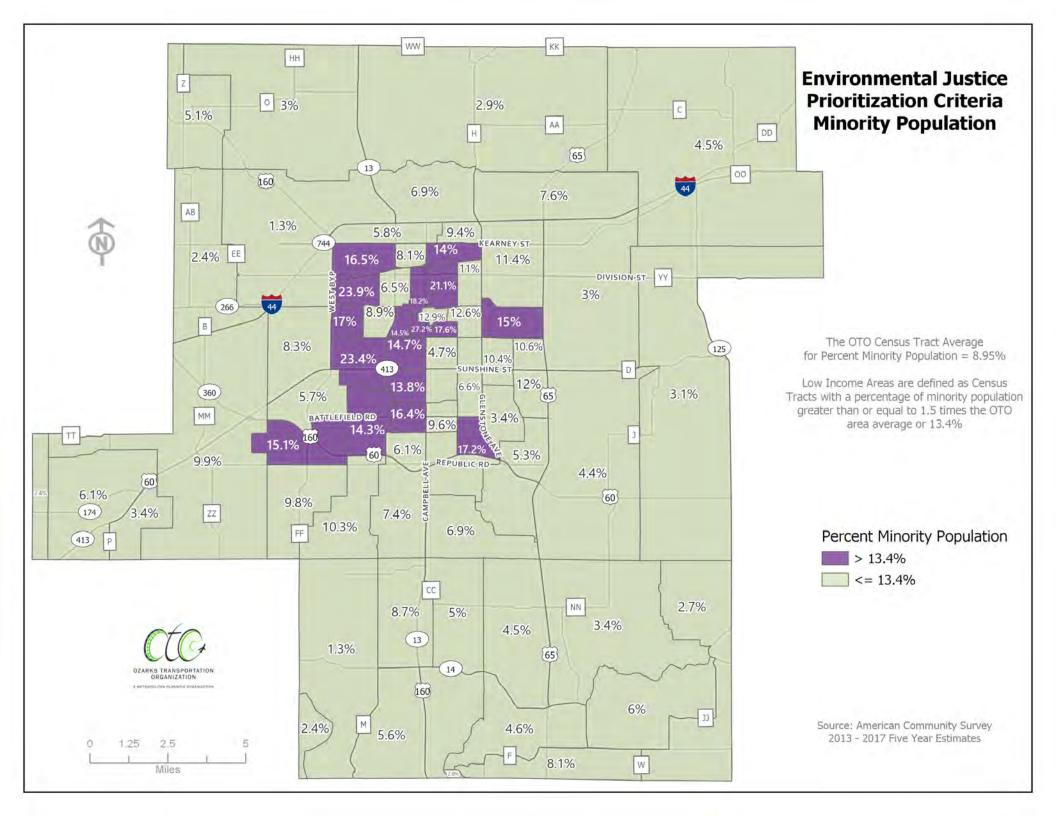


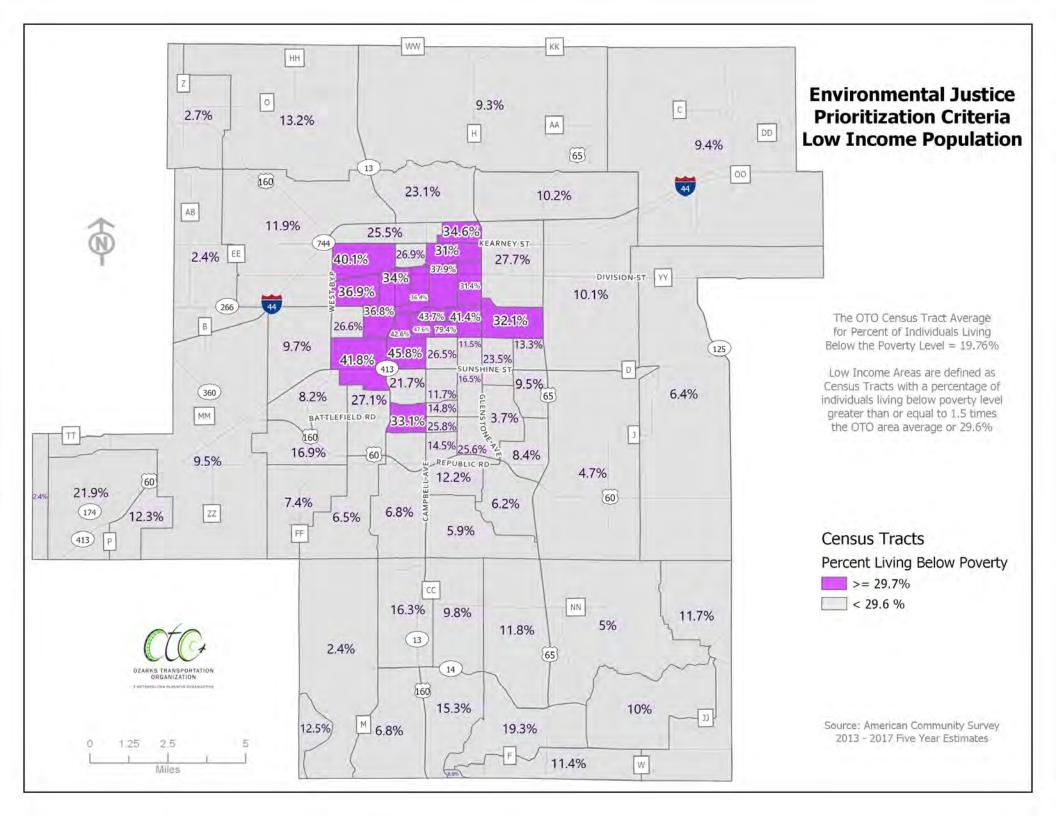
2018 roadway volumes were derived from MoDOT AADT and applying a three-passenger car equivalent to bus and combo-semi truck traffic.



2040 Volume-to-Capacity
—— => 0.86
—— < 0.86

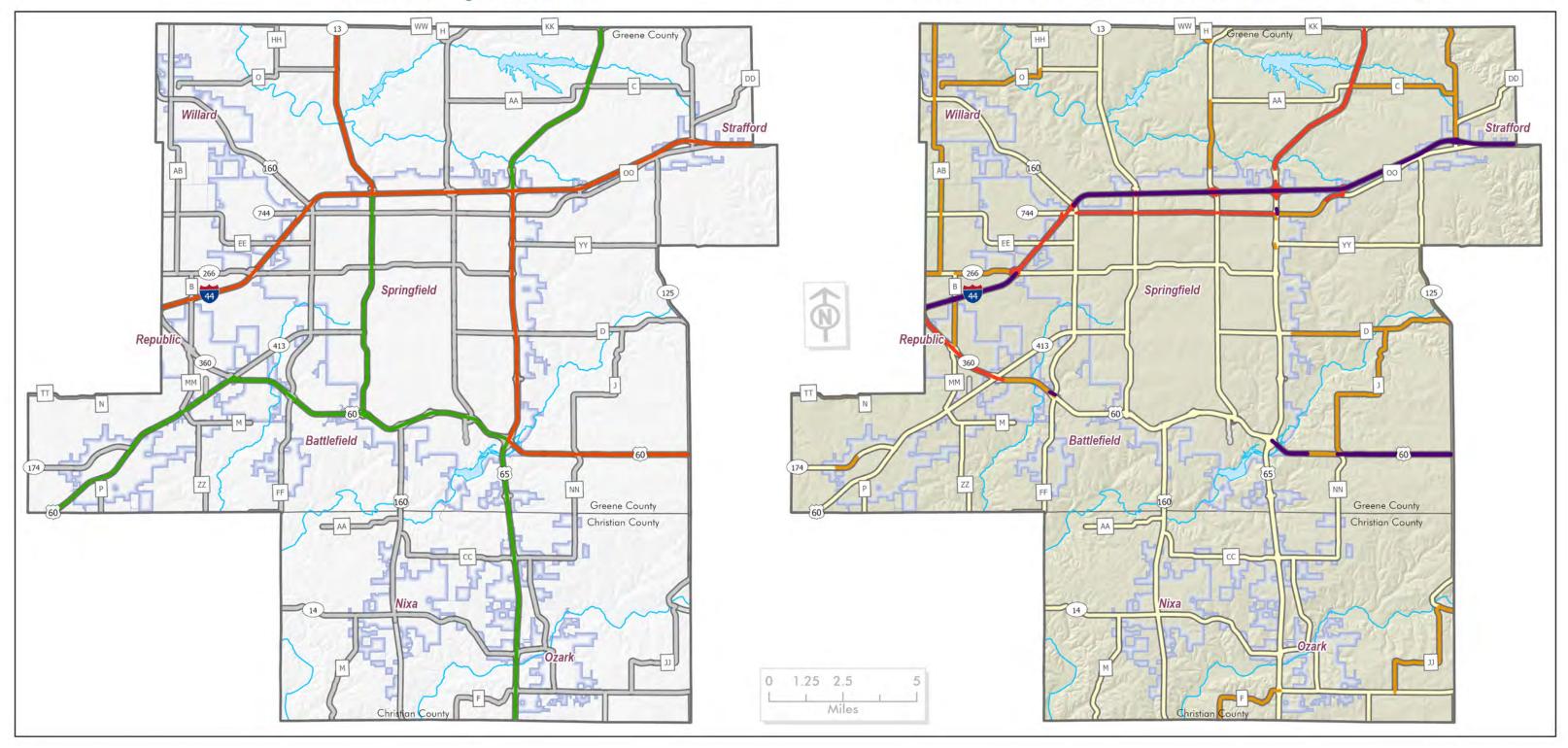






Missouri Freight Network

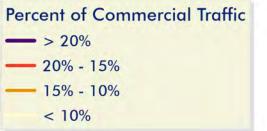
Commercial Traffic as a Percentage of MoDOT 2018 AADT

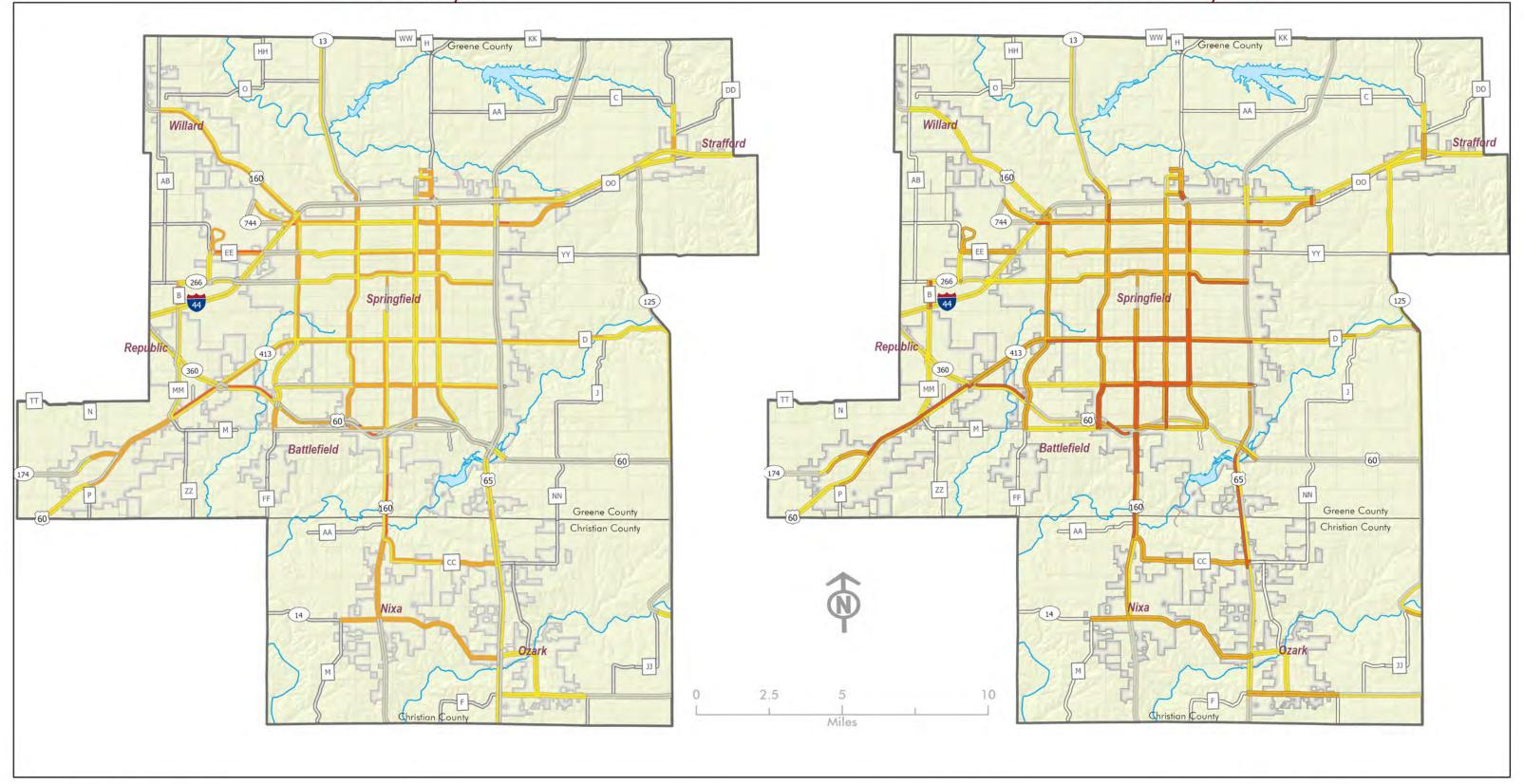




Sources: MoDOT 2017 Freight Plan. Freight Network Recreated from Springfield Area Inset on P. 3-22. Percentage of commercial traffic from MoDOT 2018 State of the System Segment GIS file retrieved from the Central Office in February 2019.

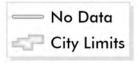






Arterial Travel Speed

- <= 5 mph Below the Posted Speed Limit
- 5.1 to 10 mph Below the Posted Speed Limit
- 10.1 to 20 mph Below the Posted Speed Limit
- -> 20 mph Below the Posted Speed Limit





Freeway Travel Speed

- <= 0 mph Below the Posted Speed Limit
- 0.1 to 4.9 mph Below the Posted Speed Limit
- 9.9 to 5 mph Below the Posted Speed Limit
- > 10 mph Below the Posted Speed Limit

