



Arkansas on the Move

Using LOS and LOTTR to
Understand Capacity Challenges

Arkansas Transportation Summit 2025

Overview

What is LOS and LOTTR?

Data Needs & Facility Determination

Level of Service (LOS) Threshold Values

Level of Travel Time Reliability (LOTTR)

Acceptability Ratio & Validation

Macros

Capacity Project Identification



What is Level of Service (LOS)?


- A qualitative measure describing operational conditions within a traffic stream, and their perception by motorist and/or passengers
- Generally describes these conditions in terms of such factors as speed and travel time, freedom to maneuver, traffic interruptions, comfort and convenience, and safety

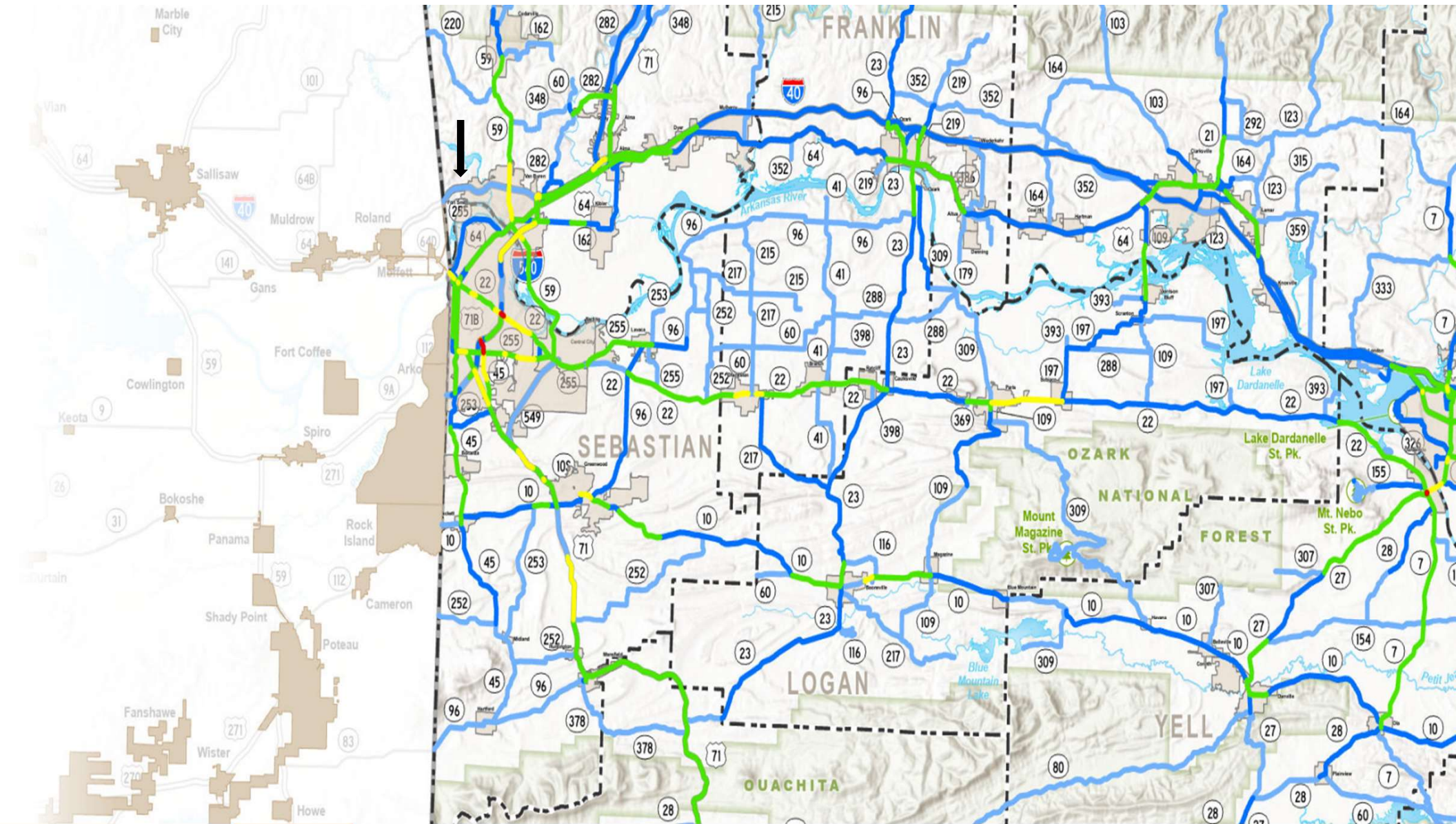
Level of Service Breakdown

- A – free flow
- B – reasonably free flow
- C – stable flow
- D – approaching unstable flow
- E – stable flow
- F – forced or breakdown flow

Level of Service Breakdown

LOS A describes free-flow operations. FFS prevails on the freeway or multilane highway, and vehicles are almost completely unimpeded in their ability to maneuver within the traffic stream. The effects of incidents or point breakdowns are easily absorbed.





smooth sailing



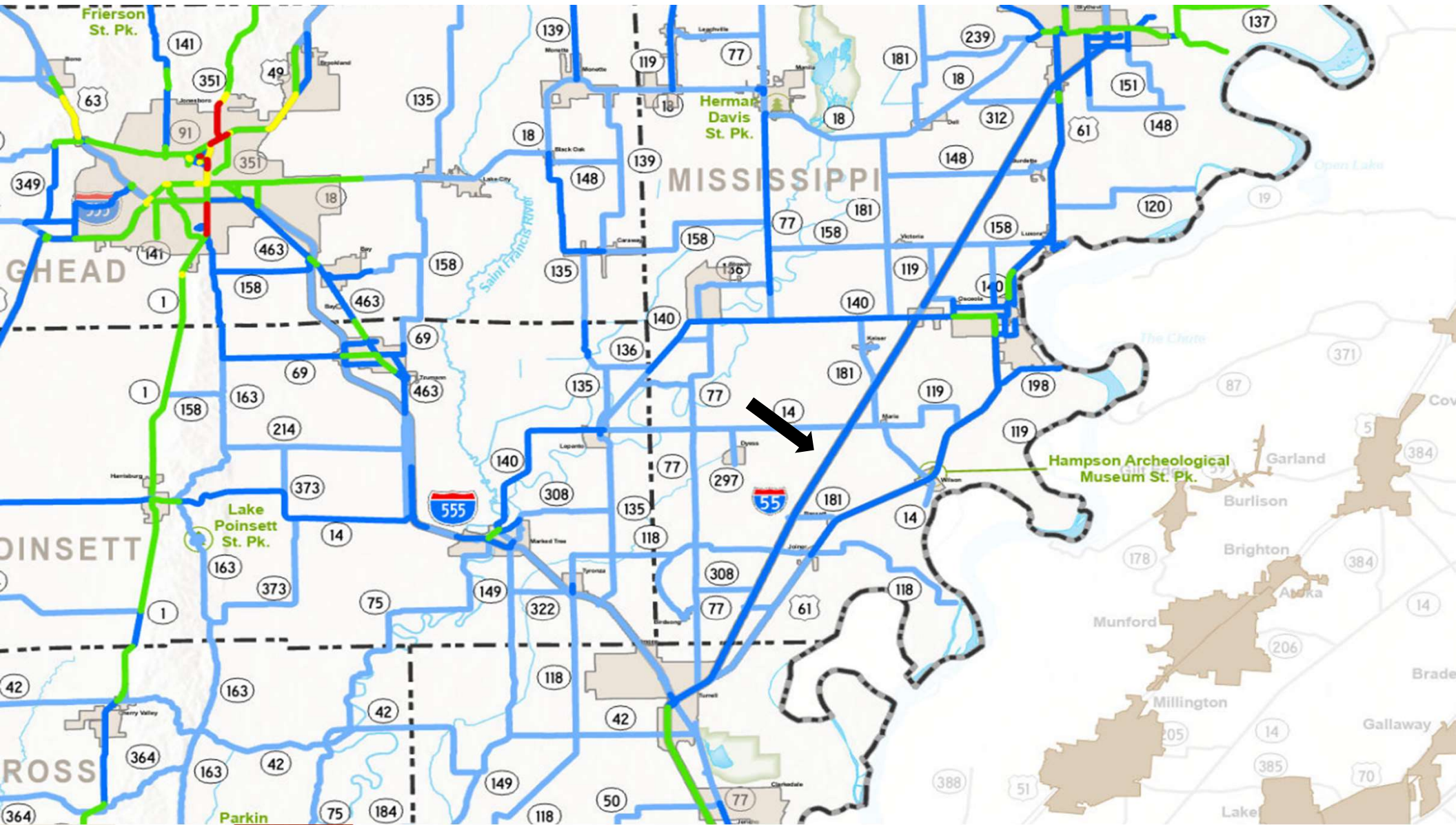
EASTBOUND



Level of Service Breakdown

LOS B represents reasonably free-flow operations, and FFS on the freeway or multilane highway is maintained. The ability to maneuver within the traffic stream is only slightly restricted, and the general level of physical and






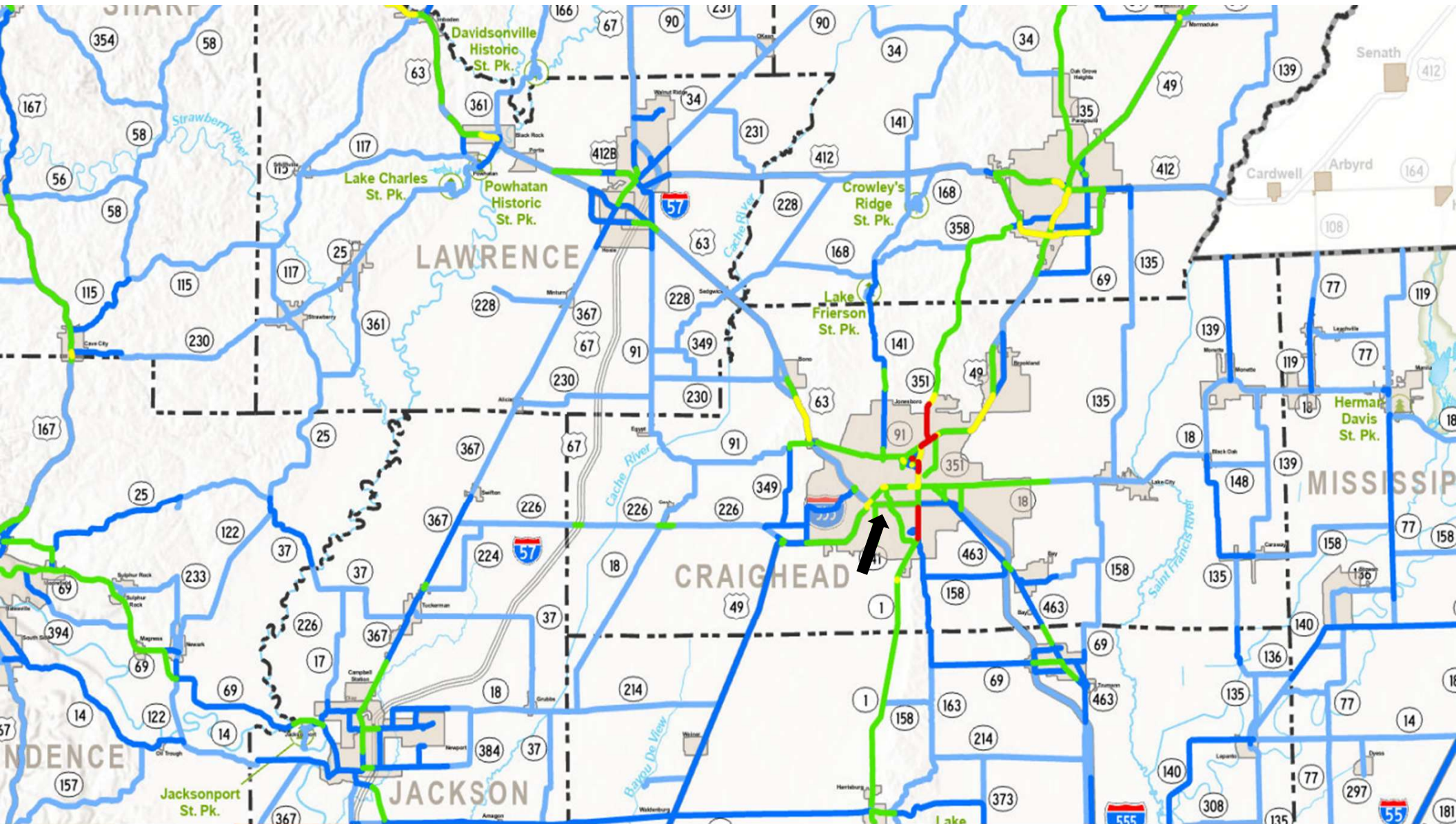


NORTHBOUND

Level of Service Breakdown

LOS C provides for flow with speeds near the FFS of the freeway or multilane highway. Freedom to maneuver within the traffic stream is noticeably restricted, and lane changes require more care and vigilance on the part of the driver. Minor incidents may still be absorbed, but the local deterioration in service quality will be significant. Queues may be expected to form behind any significant blockages.








Okay a little busy now

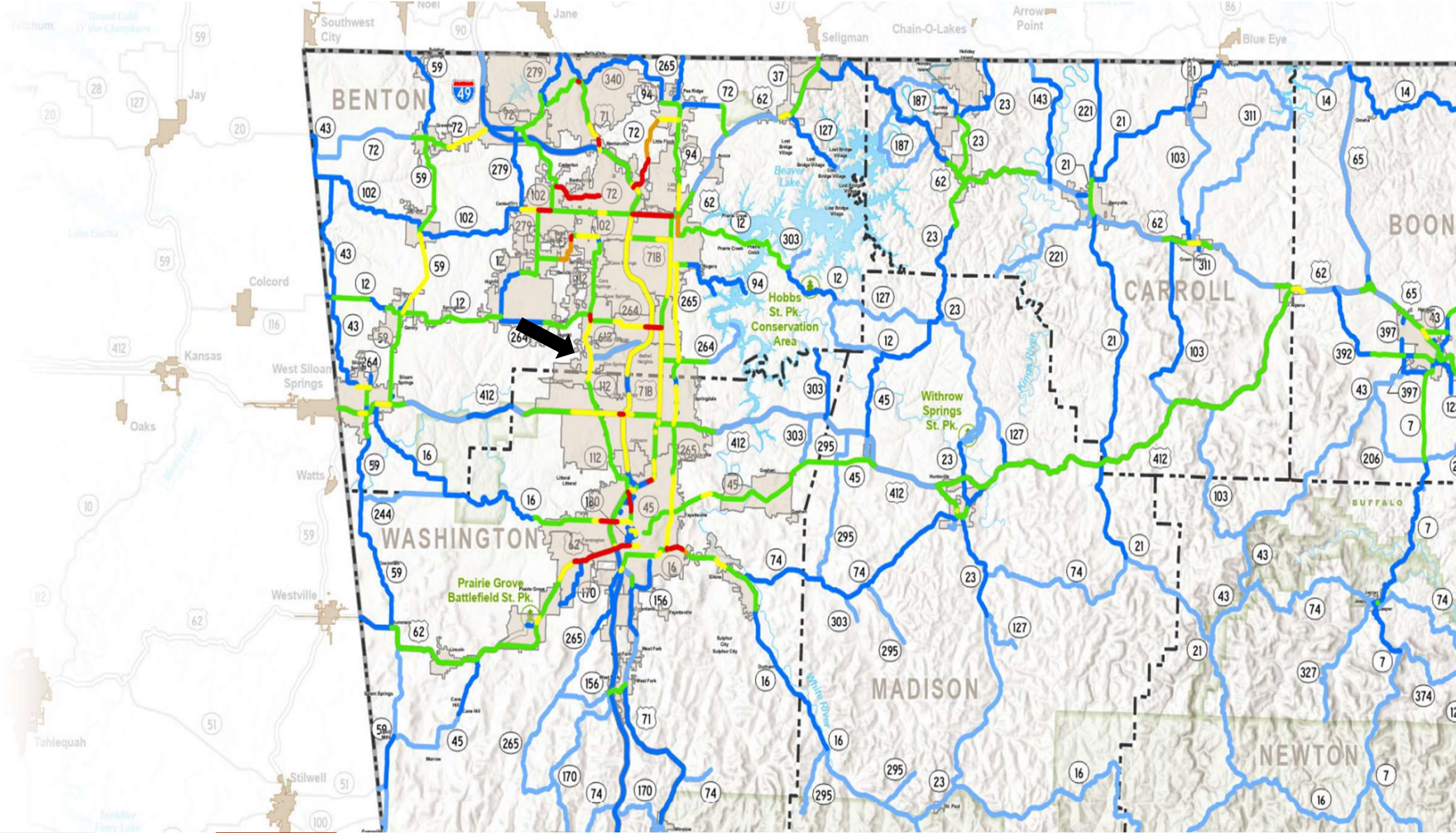


SOUTHBOUND

Level of Service Breakdown

LOS D is the level at which speeds begin to decline with increasing flows, with density increasing more quickly. Freedom to maneuver within the traffic stream is seriously limited, and drivers experience reduced physical and psychological comfort levels. Even minor incidents can be expected to create queuing, because the traffic stream has little space to absorb disruptions.



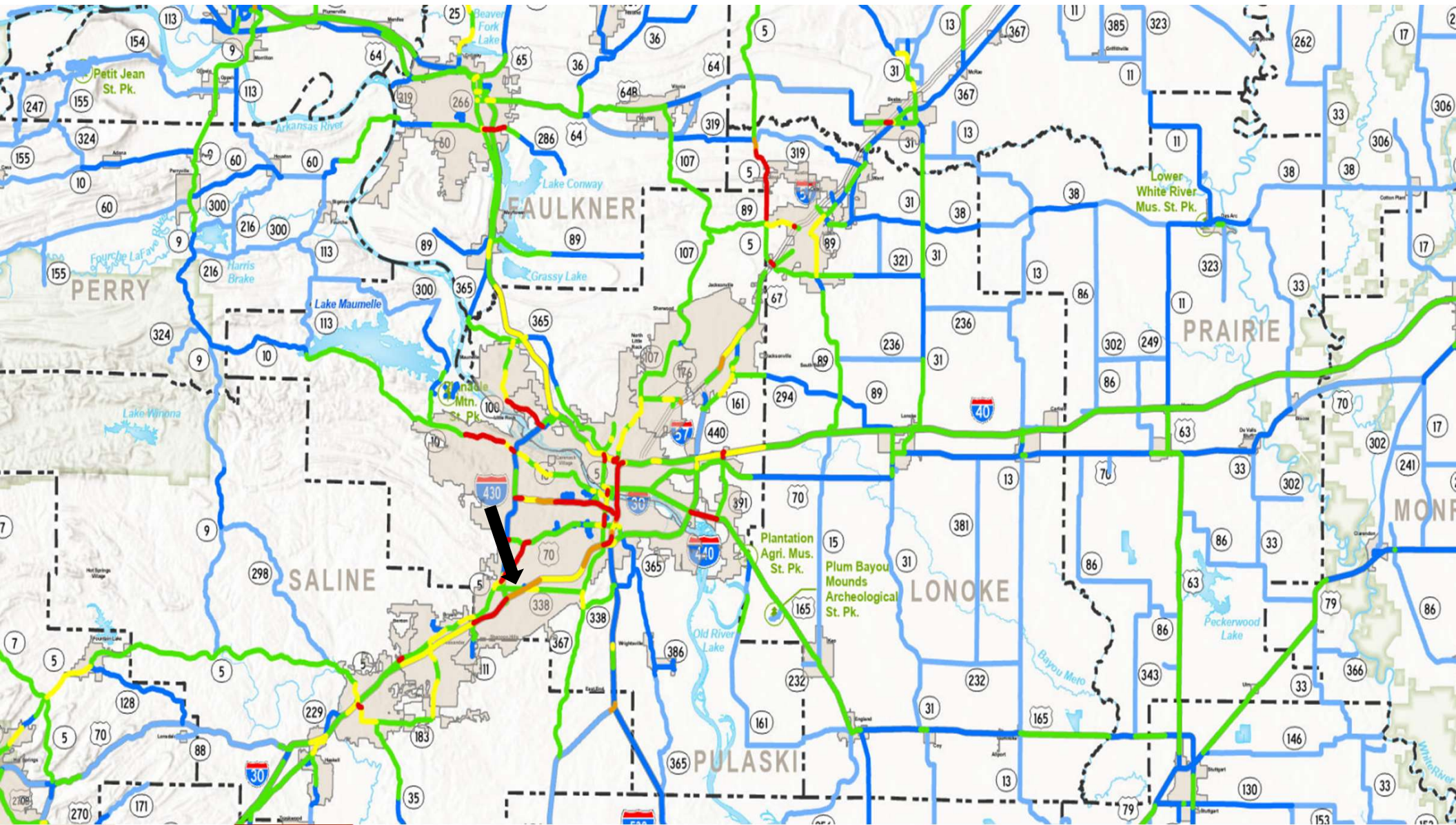




NORTHBOUND

Level of Service Breakdown

- LOS E describes operation at or near capacity. Operations on the freeway or multilane highway at this level are highly volatile because there are virtually no usable gaps within the traffic stream, leaving little room to maneuver within the traffic stream. Any disruption to the traffic stream, such as vehicles entering from a ramp or an access point or a vehicle changing lanes, can establish a disruption wave that propagates throughout the upstream traffic stream. Toward the upper boundary of LOS E, the traffic stream has no ability to dissipate even the most minor disruption, and any incident can be expected to produce a serious breakdown and substantial queuing. The physical and psychological comfort afforded to drivers is poor.



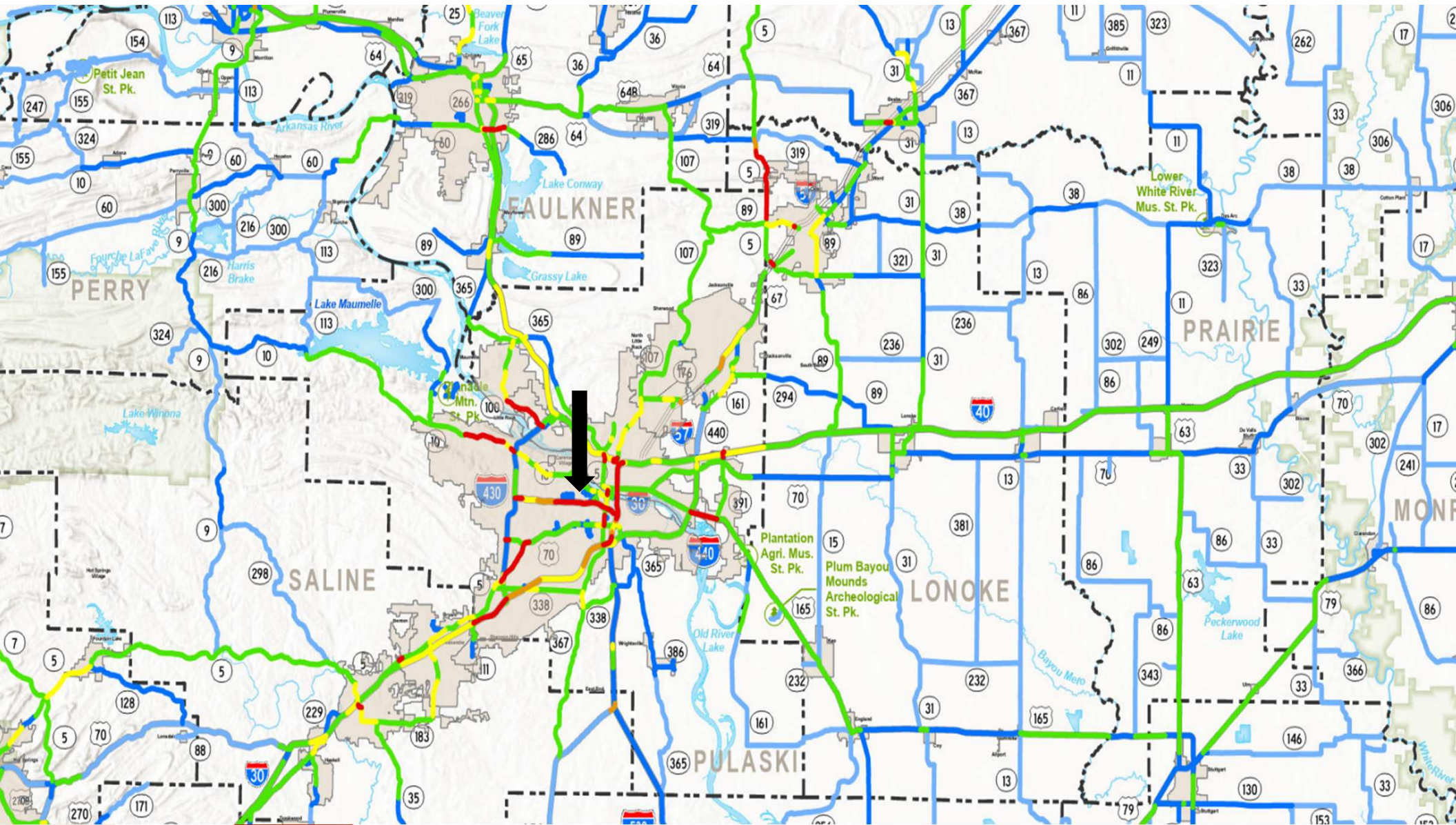


EASTBOUND

Level of Service Breakdown

LOS F describes unstable flow. Such conditions exist within queues forming behind bottlenecks. Breakdowns occur for a number of reasons:

- Traffic incidents can temporarily reduce the capacity of a short segment, so that the number of vehicles arriving at a point is greater than the number of vehicles that can move through it.
- Points of recurring congestion, such as merge or weaving segments and lane drops, experience very high demand in which the number of vehicles arriving is greater than the number of vehicles that can be discharged.
- In analyses using forecast volumes, the projected flow rate can exceed the estimated capacity of a given location.



TRAFFIC NIGHTMARE.



WESTBOUND

ARIZONA
WESTBOUND
NEXT 3 MILES
TO KANSAS, OKLAHOMA, MISSOURI

Level of Travel Time Reliability

LOTTR	Score
1.00	Good
1.15	Good to Moderate
1.3	Moderate
1.4	Moderate to Poor
≥ 1.5	Poor

- The consistency or dependability in travel times, as measured from day-to-day and/or across different times of the day
- $$\text{LOTTR} = \frac{80\text{th Percentile Travel Time}}{50\text{th Percentile Travel time}}$$
- Travel Times are gathered through the National Performance Management Research Data Set (NPMRDS) which is a national dataset of vehicle probe base travel times and speeds
- The consistency or dependability in travel times, as measured from day-to-day and/or across different times of the day

Best 14 min 3h 27m 59 min —

Chick-fil-A, 11525 Cantrell Rd, Little Rock

913-909 S Main St, Little Rock, AR 72202

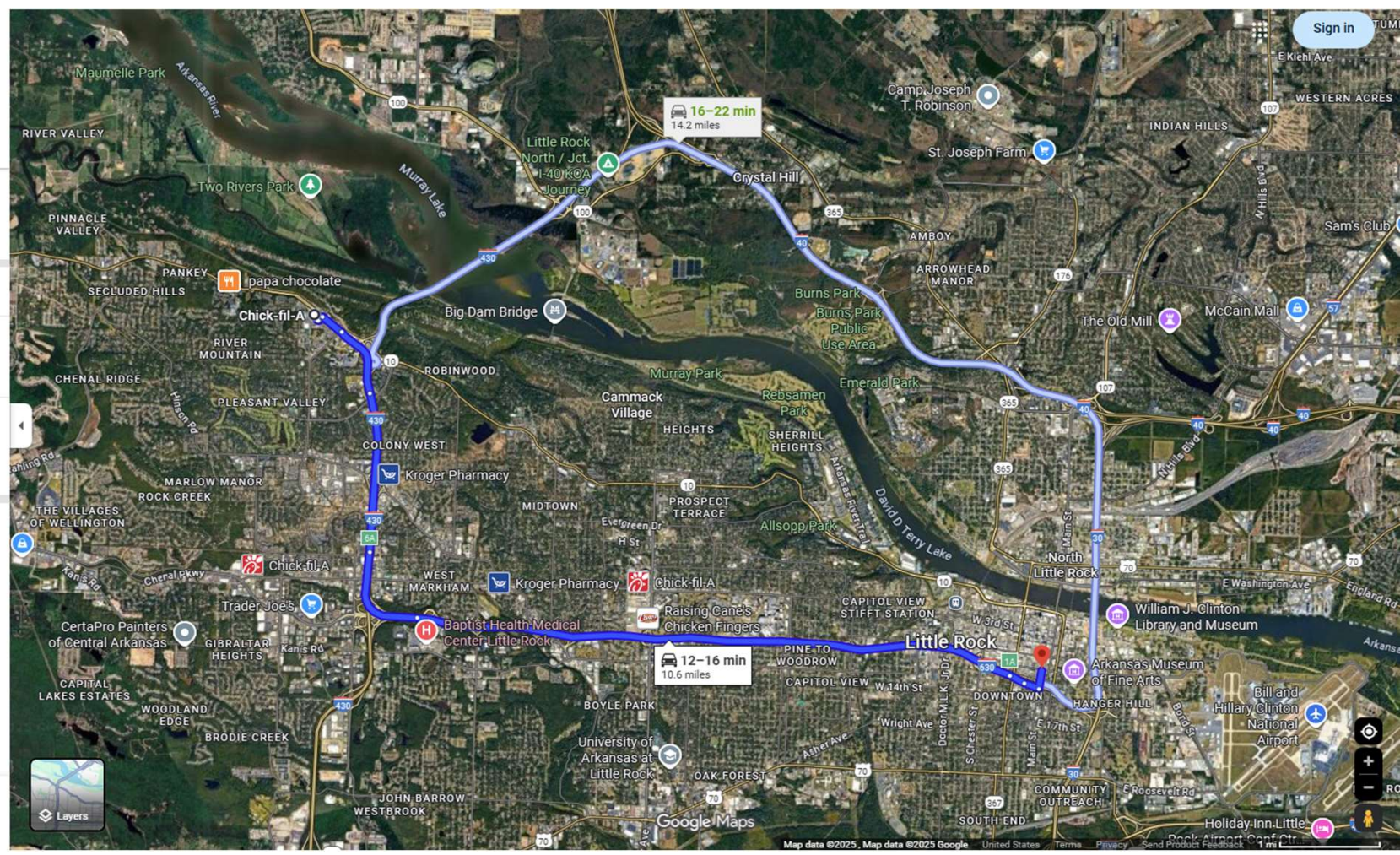
Depart at 9:06 AM Thu, Oct 23

Send directions to your phone Copy link

- via I-630 E typically 12-16 min
Arrive around 9:22 AM
10.6 miles
- via I-430 N and I-40 E typically 16-22 min
Arrive around 9:28 AM
14.2 miles

- Explore nearby 913-909 S Main St
- Restaurants
 - Hotels
 - Gas stations
 - Parking Lots
 - More

New! Continue your trip, tap the notification on your phone to get directions



Best 18 min 3h 27m 59 min

Chick-fil-A, 11525 Cantrell Rd, Little Rock

913-909 S Main St, Little Rock, AR 72202

Depart at 7:51 AM Thu, Oct 23

Send directions to your phone Copy link

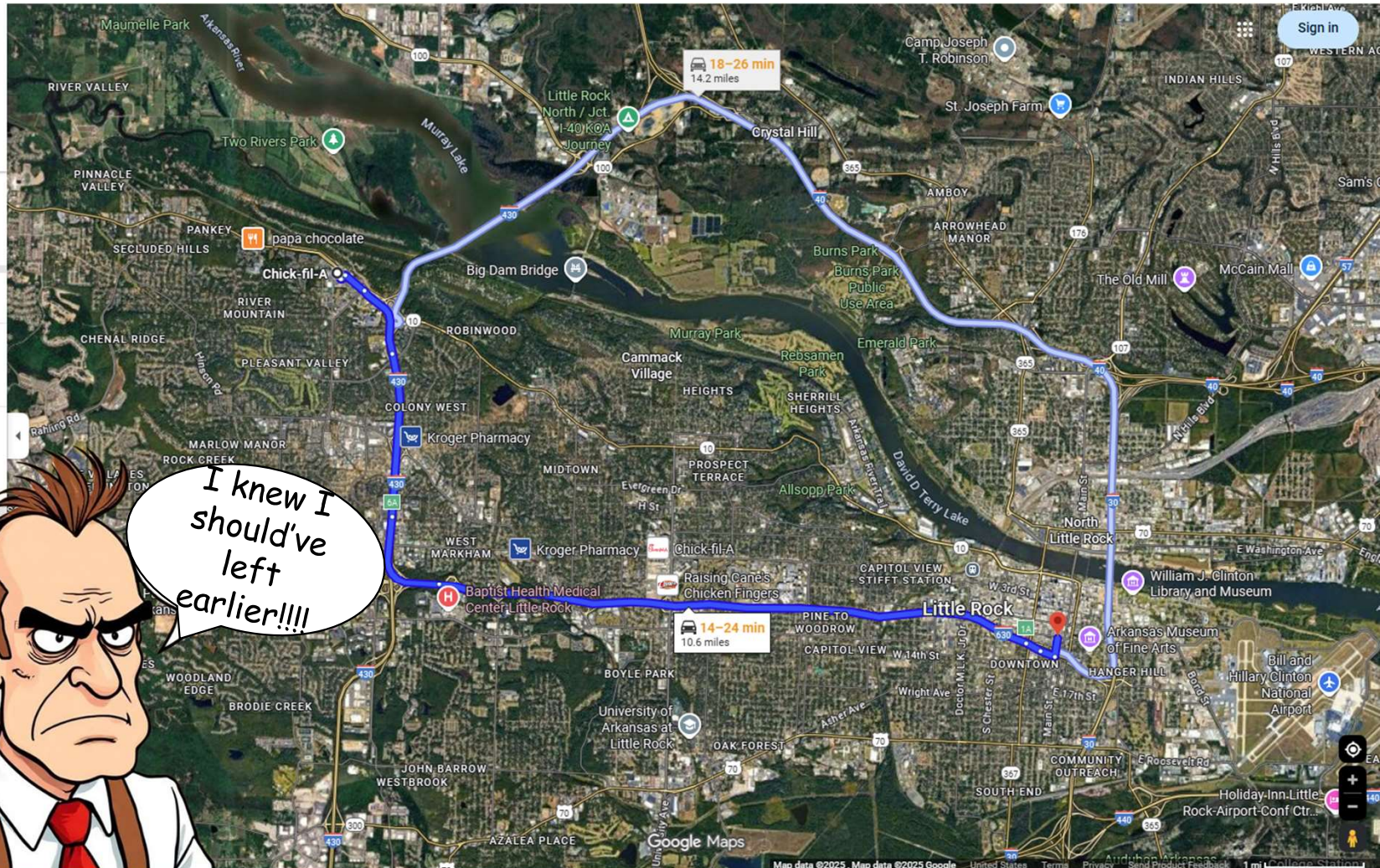
via I-630 E typically 14-24 min
 Arrive around 8:15 AM
 10.6 miles

via I-430 N and I-40 E typically 18-26 min
 Arrive around 8:17 AM
 14.2 miles

Explore nearby 913-909 S Main St

Restaurants Hotels Gas stations Parking Lots

New! Continue your trip, tap the on your phone to get directions



Level of Travel Time Reliability Limitations

- LOTTR primarily measures travel time reliability. It reflects the congestion level to some extent. However, it may not entirely capture the varying levels of congestion;
- LOTTR values are calculated using different sample sizes in different locations, making comparisons between locations somewhat challenging;
- The numeric value is derived from NPMRDS 2024 data(from locations with an ADT>10,000 and TMC segment>0.1 mile to ensure greater accuracy);

Data Needs

Efficiency and accuracy

Roadway Inventory – 2023

- dbo_OUT_Mileage

Traffic Data – 2023

- K – density (vehicle/mile/lane)
- D – Directional Distributional Factor
- Peak Hour ADT
- Truck Percentage

Level of Travel Time Reliability (LOTTR) – 2023

Facility Determination

Facility types are determined using the Roadway Inventory

- Urban/Rural
- Access
- Number of Lanes
- Passing Lanes
- Median
- High Type

		Rural Urban Area	Access	Number of Lanes
Urban	Freeway	2, 3, 4 (Population greater than 5,000)	1 (Full Control)	4 or More
	Arterial	2, 3, 4 (Population greater than 5,000)	Other	Any
	Arterial - High Type ¹	2, 3, 4 (Population greater than 5,000)	N/A	N/A
Rural	Freeway	1 (Rural)	1 (Full Control)	4 or More
	Multilane	1 (Rural)	Other	4 or More
	Arterial ²	1 (Rural)	N/A	N/A
	Two-Lane	1 (Rural)	Other	3 or Fewer
	Two-Lane Passing ³	1 (Rural)	Other	3 or Fewer

¹Urban Arterial High Type was used on select roadways where engineering judgement suggested design features increased the per-lane roadway capacity.
²Rural Arterial was used on rural highways that had interrupted flow characteristics (multiple traffic signals, etc.).
³Two-Lane Passing was used on rural two-lane highways with periodic passing opportunities. This designation was used for the entire length between major destinations regardless of the presence of a passing lane at any specific location.

LOS Thresholds

Thresholds are based on Highway Capacity Manual (HCM 7) methodologies

LOS Thresholds (pc/ln/hr)							
			A	B	C	D	E
Urban	Freeway	UF	813	1299	1718	2039	2280
	Arterial	UA	0	340	740	850	880
	Arterial - High Type	UAH	0	560	890	990	990
Rural	Freeway	RF	438	1024	1522	1839	2147
	Multilane	RM	647	1056	1513	1847	2062
	Arterial	RA	0	340	740	850	880
	2 Lane	R2L	90	220	420	760	1700
	2L w Passing	R2LP	140	310	720	1410	1700
³ High Type Arterial represents a corridor where capacity has been enhanced without main lane widening (double left turn lanes, improved side street approaches, access management, favorable timings, etc.)							

Acceptability Ratio & Validation



For additional validation, peaking factors were reviewed using location specific data

- HPMS, planning studies, etc.
- Previous analysis' notes and comments were considered

$$\text{Acceptability Ratio} = \frac{\text{Hourly Volume}}{\text{Unacceptable Threshold}}$$

Efficiency, accuracy, & consistency

Macros

What are Macros?

Macros are recorded code that automates repetitive Excel tasks, turning hours of big data cleaning into one-click processing



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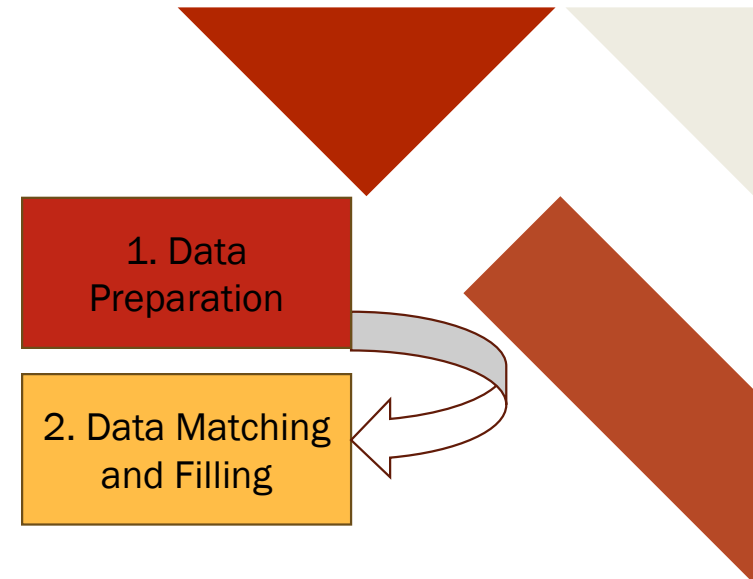


1. Data
Preparation

Macros

What are Macros?

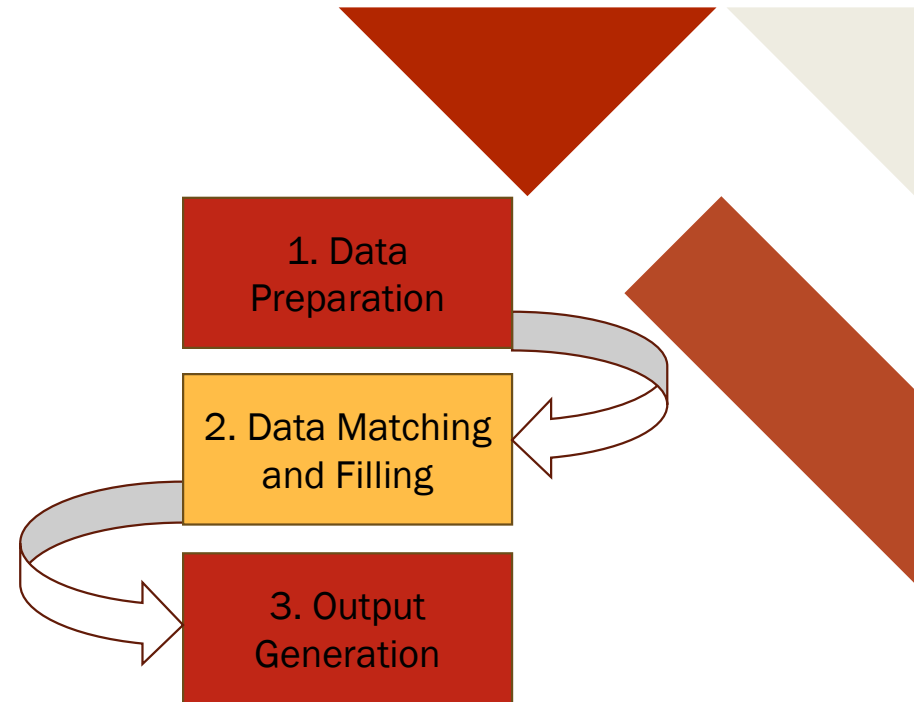
Macros are recorded code that automates repetitive Excel tasks, turning hours of big data cleaning into one-click processing



Macros

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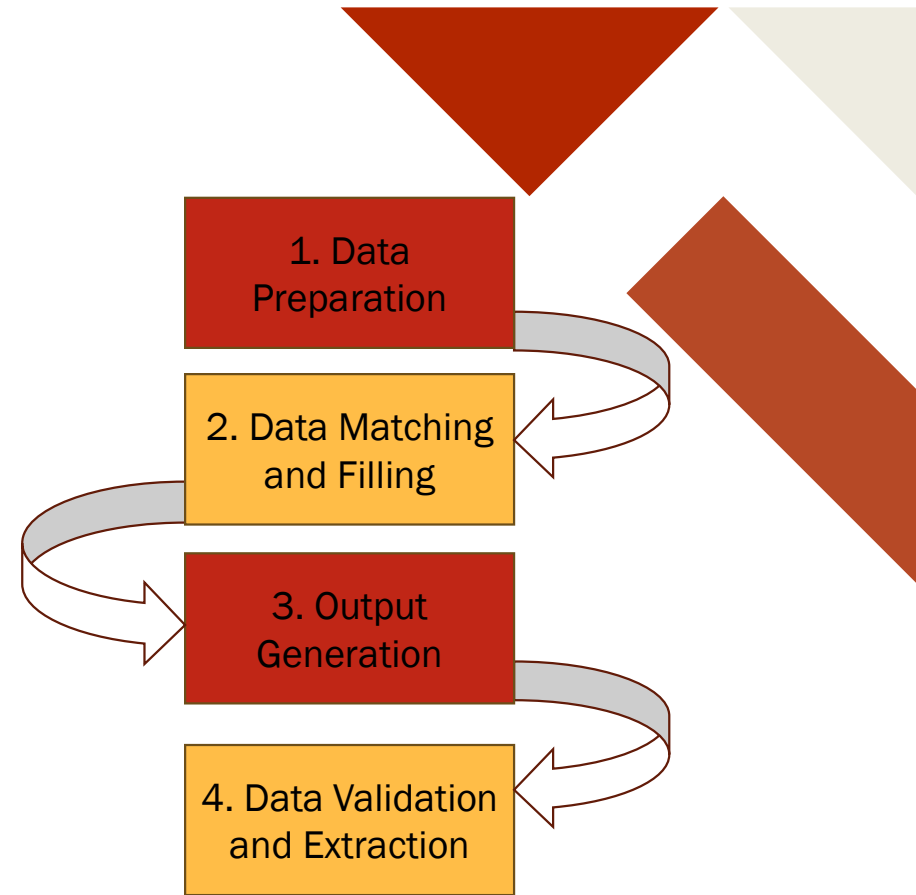
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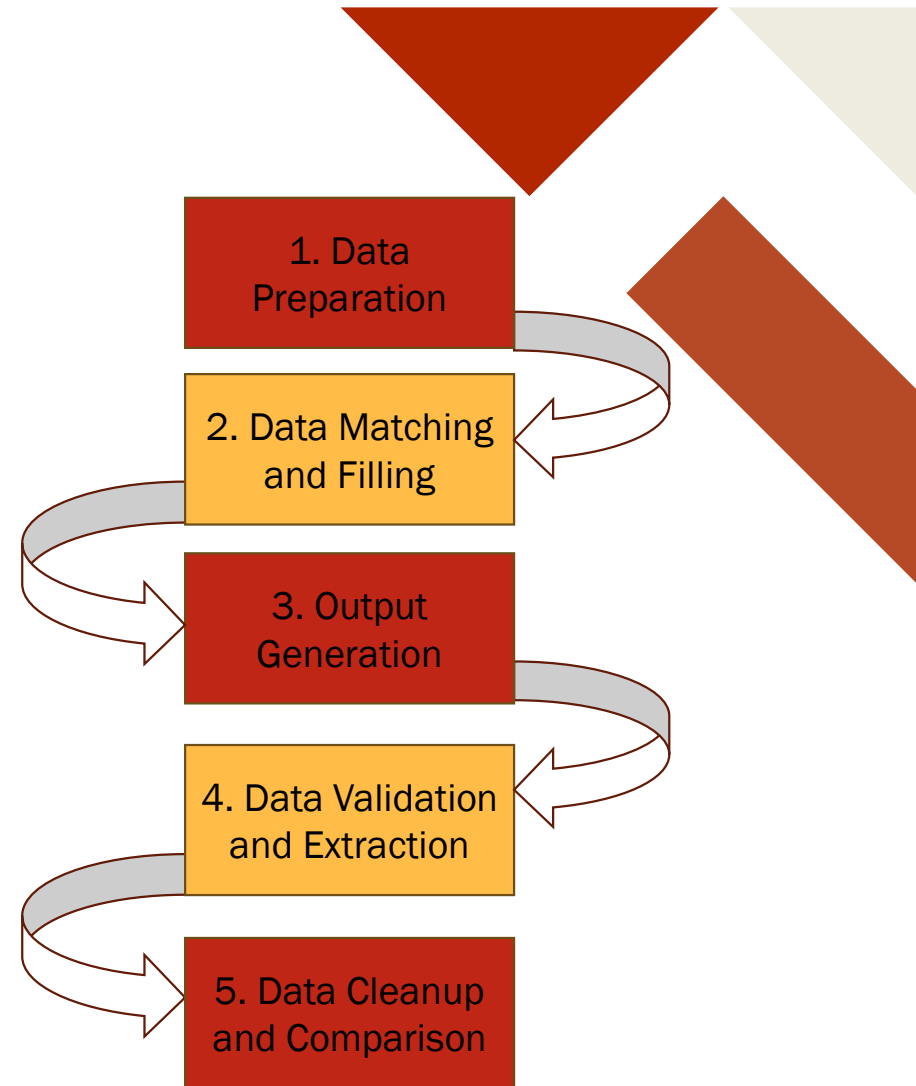
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Macros

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Macros are recorded code that automates repetitive Excel tasks, turning hours of big data cleaning into one-click processing



EB14

Line Item	Category	Value	Unit	Notes
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1	A	B	C	D	E	F	G	H	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL
2	ID	District	Count	Route	Section	Logmil	EndLogmil	RoadLength	Route+Section	BLM	ELM	Type	ONE/TWO	LANES	Passin	Media	ADT hpn	Station	PHV hpn	PHT hpn	PHT % hp	K hpm	D hpn	K(Adj)	DHV	DHV(Adj)	LOS	Acceptanc
3	1595	02	01	00001	040	0	0.132	0.132	00001040	0	0.132	R2L	Two-Way	1	No	Yes	5626				16%	0.1	60%	0.076	338.640192	339	C	0.806286171
4	147770	02	01	00001	040	0.132	0.3	0.168	00001040	0.132	0.3	R2L	Two-Way	1	No	Yes	3300	2	332	23	7%	0.10060606	63%	0.076	179.7585063	180	B	0.427996444
5	128058	02	01	00001	040	0.3	1.551	1.251	00001040	0.3	1.551	R2L	Two-Way	1	No	Yes	3300	2	332	23	7%	0.10060606	63%	0.076	179.7585063	180	B	0.427996444
6	147908	02	01	00001	040	1.551	1.568	0.017	00001040	1.551	1.568	R2L	Two-Way	1	No	Yes	3300	2	332	23	7%	0.10060606	63%	0.076	179.7585063	180	B	0.427996444
7	128059	02	01	00001	040	1.568	1.928	0.36	00001040	1.568	1.928	R2L	Two-Way	1	No	Yes	3300	2	332	23	7%	0.10060606	63%	0.076	179.7585063	180	B	0.427996444
8	1585	02	01	00001	04B	0	0.017	0.017	00001048	0	0.017	R2L	Multi-Way	1	No	Yes	3051				16%	0.1	60%	0.076	183.645792	184	B	0.437251886
9	149323	02	01	00001	04B	0.017	0.064	0.047	00001048	0.017	0.064	R2L	Multi-Way	1	No	Yes	3051				16%	0.1	60%	0.076	183.645792	184	B	0.437251886
10	149322	02	01	00001	04B	0.064	0.572	0.508	00001048	0.064	0.572	R2L	Two-Way	1	No	No	2953				16%	0.1	60%	0.076	177.746976	178	B	0.423207086
11	1586	02	01	00001	04B	0.572	1.16	0.588	00001048	0.572	1.16	R2L	Two-Way	1	No	No	2104				16%	0.1	60%	0.076	126.643968	127	B	0.301533257
12	147910	02	01	00001	04B	1.16	1.443	0.283	00001048	1.16	1.443	R2L	Two-Way	1	No	No	2361				16%	0.1	60%	0.076	142.113312	142	B	0.338365029
13	1590	02	01	00001	04B	1.443	2.201	0.758	00001048	1.443	2.201	R2L	Two-Way	1	No	Yes	3373				16%	0.1	60%	0.076	203.027616	203	B	0.483399086
14	1602	02	01	00001	050	0	0.29	0.29	00001050	0	0.29	R2L	Two-Way	1	No	No	1948				16%	0.1	60%	0.076	117.254016	117	B	0.279176229
15	1603	02	01	00001	050	0.29	0.992	0.702	00001050	0.29	0.992	R2L	Two-Way	1	No	No	1948				16%	0.1	60%	0.076	117.254016	117	B	0.279176229
16	147912	02	01	00001	050	0.992	1.033	0.041	00001050	0.992	1.033	R2L	Two-Way	1	No	No	1715				16%	0.1	60%	0.076	117.254016	117	B	0.279176229
17	147911	02	01	00001	050	1.033	2.993	1.96	00001050	1.033	2.993	R2L	Two-Way	1	No	No	1948				16%	0.1	60%	0.076	117.254016	117	B	0.279176229
18	147913	02	01	00001	050	2.993	3.061	0.068	00001050	2.993	3.061	R2L	Two-Way	1	No	No	1948				16%	0.1	60%	0.076	117.254016	117	B	0.279176229
19	147914	02	01	00001	050	3.061	3.97	0.909	00001050	3.061	3.97	R2L	Two-Way	1	No	No	1948				16%	0.1	60%	0.076	117.254016	117	B	0.279176229
20	1606	02	01	00001	050	3.97	4.005	0.035	00001050	3.97	4.005	R2L	Two-Way	1	No	No	1715				16%	0.1	60%	0.076	103.22928	103	B	0.245784
21	1607	02	01	00001	050	4.005	5.275	1.27	00001050	4.005	5.275	R2L	Two-Way	1	No	No	1400	7	139	30	22%	0.09928571	68%	0.076	104.1091041	104	B	0.247878819
22	148288	02	01	00001	050	5.275	7.305	2.03	00001050	5.275	7.305	R2L	Two-Way	1	No	No	1400	7	139	30	22%	0.09928571	68%	0.076	104.1091041	104	B	0.247878819
23	147916	02	01	00001	050	7.305	7.322	0.017	00001050	7.305	7.322	R2L	Two-Way	1	No	No	1400	7	139	30	22%	0.09928571	68%	0.076	104.1091041	104	B	0.247878819
24	147915	02	01	00001	050	7.322	8.123	0.801	00001050	7.322	8.123	R2L	Two-Way	1	No	No	1400	7	139	30	22%	0.09928571	68%	0.076	104.1091041	104	B	0.247878819
25	1609	02	01	00001	050	8.123	8.606	0.483	00001050	8.123	8.606	R2L	Two-Way	1	No	No	1400	7	139	30	22%	0.09928571	68%	0.076	104.1091041	104	B	0.247878819
26	147918	02	01	00001	050	8.606	8.616	0.01	00001050	8.606	8.616	R2L	Two-Way	1	No	No	1400	7	139	30	22%	0.09928571	68%	0.076	104.1091041	104	B	0.247878819
27	147917	02	01	00001	050	8.616	10.17	1.554	00001050	8.616	10.17	R2L	Two-Way	1	No	No	1400	7	139	30	22%	0.09928571	68%	0.076	104.1091041	104	B	0.247878819
28	1612	02	01	00001	050	10.17	12.105	1.935	00001050	10.17	12.105	R2L	Two-Way	1	No	No	1400	7	139	30	22%	0.09928571	68%	0.076	104.1091041	104	B	0.247878819
29	1613	02	01	00001	050	12.105	13.1	0.995	00001050	12.105	13.1	R2L	Two-Way	1	No	No	1303				16%	0.1	60%	0.076	78.430176	78	A	0.186738514
30	1614	02	01	00001	050	13.1	13.509	0.409	00001050	13.1	13.509	R2L	Two-Way	1	No	No	1298				16%	0.1	60%	0.076	78.129216	78	A	0.186021943
31	1615	02	01	00001	050	13.509	13.889	0.38	00001050	13.509	13.889	R2L	Two-Way	1	No	No	998				16%	0.1	60%	0.076	60.071616	60	A	0.143027657
32	1616	02	01	00001	050	13.889	14.063	0.174	00001050	13.889	14.063	R2L	Two-Way	1	No	No	952				16%	0.1	60%	0.076	57.302784	57	A	0.1364352
33	1599	02	01	00001	055	0	0.26	0.26	00001055	0	0.26	R2L	Two-Way	1	No	No	162				16%	0.1	60%	0.076	9.751104	10	A	0.023216914
34	138969	02	01	00001	055	0.26	0.39	0.13	00001055	0.26	0.39	R2L	Two-Way	1	No	No	162				16%	0.1	60%	0.076	9.751104	10	A	0.023216914
35	1601	02	01	00001	055	0.39	0.513	0.123	00001055	0.39	0.513	R2L	Two-Way	1	No	No	162				16%	0.1	60%	0.076	9.751104	10	A	0.023216914
36	1618	02	01	00011	060	0	0.042	0.042	00011060	0	0.042	R2L	Two-Way	1	No	No	457				16%	0.1	60%	0.076	27.507744	28	A	0.065494629
37	147921	02	01	00011	060	0.042	0.12	0.078	00011060	0.042	0.12	R2L	Two-Way	1	No	No	457				16%	0.1	60%	0.076	27.507744	28	A	0.065494629
38	1620	02	01	00011	060	0.12	0.801	0.681	00011060	0.12	0.801	R2L	Two-Way	1	No	No	457				16%	0.1	60%	0.076	27.507744	28	A	0.065494629
39	1621	02	01	00011	060	0.801	2.367	1.566	00011060	0.801	2.367	R2L	Two-Way	1	No	No	523				16%	0.1	60%	0.076	31.480416	31	A	0.074953371
40	1622	02	01	00011	060	2.367	3.267	0.9	00011060	2.367	3.267	R2L	Two-Way	1	No	No	480	12	53	15	28%	0.11041667	58%	0.076	33.41510858	33	A	0.079559782
41	1623	02	01	00011	060	3.267	8.519	5.252	00011060	3.267	8.519	R2L	Two-Way	1	No	No	194				16%	0.1	60%	0.076	11.677248	12	A	0.027802971
42	1624	02	01	00013	070	0	0.32	0.32	00013070	0	0.32	R2L	Two-Way	1	No	No	463				16%	0.1	60%	0.076	27.868896	28	A	0.066354514
43	1625	02	01	00013	070	0.32	2.51	2.19	00013070	0.32	2.51	R2L	Two-Way	1	No	No	463				16%	0.1	60%	0.076	27.868896	28	A	0.066354514
44	1626	02	01	00013	070	2.51	2.541	0.031	00013070	2.51	2.541	R2L	Two-Way	1	No	No	463				16%	0.1	60%	0.076	27.868896	28	A	0.066354514
45	147922	02	01	00013	070	2.541	2.62	0.079	00013070	2.541	2.62	R2L	Two-Way	1	No	No	463				16%	0.1	60%	0.076	27.868896	28	A	0.066354514

DBO Out Mileage



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL			
	ID	Distri	Count	Rout	Secti	Logmil	EndLogmil	RoadLength	Route+Sectio	BLM	ELM	Type	ONE/TW	LANES	Passin	Media	ADT hpn	Stator	PHV hpr	PHT hpn	PHT % hp	K hpmi	D hpr	K(adj)	DHV	DHV (adj)	LOS	Acceptanc													
1																																									
2	1595	02	01	00001	040	0	0.132	0.132	00001040	0	0.132	R2L	Two-Way	1	No	Yes	5626				16%	0.1	60%	0.076	338.640192	339	C	0.806286171													
3	147770	02	01	00001	040	0.132	0.3	0.168	00001040	0.132	0.3	R2L	Two-Way	1	No	Yes	3300	2	332	23	7%	0.10060606	63%	0.076	179.7585063	180	B	0.427996444													
4	128058	02	01	00001	040	0.3	1.551	1.251	00001040	0.3	1.551	R2L	Two-Way	1	No	Yes	3300	2	332	23	7%	0.10060606	63%	0.076	179.7585063	180	B	0.427996444													
5	147908	02	01	00001	040	1.551	1.568	0.017	00001040	1.551	1.568	R2L	Two-Way	1	No	Yes	3300	2	332	23	7%	0.10060606	63%	0.076	179.7585063	180	B	0.427996444													
6	128059	02	01	00001	040	1.568	1.928	0.36	00001040	1.568	1.928	R2L	Two-Way	1	No	Yes	3300	2	332	23	7%	0.10060606	63%	0.076	179.7585063	180	B	0.427996444													
7	1585	02	01	00001	048	0	0.017	0.017	00001048	0	0.017	R2L	Multi-Way	1	No	Yes	3051				16%	0.1	60%	0.076	183.645792	184	B	0.437251886													
8	149323	02	01	00001	048	0.017	0.064	0.047	00001048	0.017	0.064	R2L	Multi-Way	1	No	Yes	3051				16%	0.1	60%	0.076	183.645792	184	B	0.437251886													
9	149322	02	01	00001	048	0.064	0.572	0.508	00001048	0.064	0.572	R2L	Two-Way	1	No	No	2953				16%	0.1	60%	0.076	177.746976	178	B	0.423207086													
10	1586	02	01	00001	048	0.572	1.16	0.588	00001048	0.572	1.16	R2L	Two-Way	1	No	No	2104				16%	0.1	60%	0.076	126.643968	127	B	0.301533257													
11	147910	02	01	00001	048	1.16	1.443	0.283	00001048	1.16	1.443	R2L	Two-Way	1	No	No	2361				16%	0.1	60%	0.076	142.113312	142	B	0.338365029													
12	1590	02	01	00001	048	1.443	2.201	0.758	00001048	1.443	2.201	R2L	Two-Way	1	No	Yes	3373				16%	0.1	60%	0.076	203.027616	203	B	0.483399086													
13	1602	02	01	00001	050	0	0.29	0.29	00001050	0	0.29	R2L	Two-Way	1	No	No	1948				16%	0.1	60%	0.076	117.254016	117	B	0.279176229													
14	1603	02	01	00001	050	0.29	0.992	0.702	00001050	0.29	0.992	R2L	Two-Way	1	No	No	1948				16%	0.1	60%	0.076	117.254016	117	B	0.279176229													
15	147912	02	01	00001	050	0.992	1.033	0.041	00001050	0.992	1.033	R2L	Two-Way	1	No	No	1715				16%	0.1	60%	0.076	117.254016	117	B	0.279176229													
16	147911	02	01	00001	050	1.033	2.993	1.96	00001050	1.033	2.993	R2L	Two-Way	1	No	No	1948				16%	0.1	60%	0.076	117.254016	117	B	0.279176229													
17	147913	02	01	00001	050	2.993	3.061	0.068	00001050	2.993	3.061	R2L	Two-Way	1	No	No	1948				16%	0.1	60%	0.076	117.254016	117	B	0.279176229													
18	147914	02	01	00001	050	3.061	3.97	0.909	00001050	3.061	3.97	R2L	Two-Way	1	No	No	1948				16%	0.1	60%	0.076	117.254016	117	B	0.279176229													
19	1606	02	01	00001	050	3.97	4.005	0.035	00001050	3.97	4.005	R2L	Two-Way	1	No	No	1715				16%	0.1	60%	0.076	103.22928	103	B	0.245784													
20	1607	02	01	00001	050	4.005	5.275	1.27	00001050	4.005	5.275	R2L	Two-Way	1	No	No	1400	7	139	30	22%	0.09928571	68%	0.076	104.1091041	104	B	0.247878819													
21	148288	02	01	00001	050	5.275	7.305	2.03	00001050	5.275	7.305	R2L	Two-Way	1	No	No	1400	7	139	30	22%	0.09928571	68%	0.076	104.1091041	104	B	0.247878819													
22	147916	02	01	00001	050	7.305	7.322	0.017	00001050	7.305	7.322	R2L	Two-Way	1	No	No	1400	7	139	30	22%	0.09928571	68%	0.076	104.1091041	104	B	0.247878819													
23	147915	02	01	00001	050	7.322	8.123	0.801	00001050	7.322	8.123	R2L	Two-Way	1	No	No	1400	7	139	30	22%	0.09928571	68%	0.076	104.1091041	104	B	0.247878819													
24	1609	02	01	00001	050	8.123	8.606	0.483	00001050	8.123	8.606	R2L	Two-Way	1	No	No	1400	7	139	30	22%	0.09928571	68%	0.076	104.1091041	104	B	0.247878819													
25	147918	02	01	00001	050	8.606	8.616	0.01	00001050	8.606	8.616	R2L	Two-Way	1	No	No	1400	7	139	30	22%	0.09928571	68%	0.076	104.1091041	104	B	0.247878819													
26	147917	02	01	00001	050	8.616	10.17	1.554	00001050	8.616	10.17	R2L	Two-Way	1	No	No	1400	7	139	30	22%	0.09928571	68%	0.076	104.1091041	104	B	0.247878819													
27	1612	02	01	00001	050	10.17	12.105	1.935	00001050	10.17	12.105	R2L	Two-Way	1	No	No	1400	7	139	30	22%	0.09928571	68%	0.076	104.1091041	104	B	0.247878819													
28	1613	02	01	00001	050	12.105	13.1	0.995	00001050	12.105	13.1	R2L	Two-Way	1	No	No	1303				16%	0.1	60%	0.076	78.430176	78	A	0.186738514													
29	1614	02	01	00001	050	13.1	13.509	0.409	00001050	13.1	13.509	R2L	Two-Way	1	No	No	1298				16%	0.1	60%	0.076	78.129216	78	A	0.186021943													
30	1615	02	01	00001	050	13.509	13.889	0.38	00001050	13.509	13.889	R2L	Two-Way	1	No	No	998				16%	0.1	60%	0.076	60.071616	60	A	0.143027657													
31	1616	02	01	00001	050	13.889	14.063	0.174	00001050	13.889	14.063	R2L	Two-Way	1	No	No	952				16%	0.1	60%	0.076	57.302784	57	A	0.1364352													
32	1599	02	01	00001	055	0	0.26	0.26	00001055	0	0.26	R2L	Two-Way	1	No	No	162				16%	0.1	60%	0.076	9.751104	10	A	0.023216914													
33	138969	02	01	00001	055	0.26	0.39	0.13	00001055	0.26	0.39	R2L	Two-Way	1	No	No	162				16%	0.1	60%	0.076	9.751104	10	A	0.023216914													
34	1601	02	01	00001	055	0.39	0.513	0.123	00001055	0.39	0.513	R2L	Two-Way	1	No	No	162				16%	0.1	60%	0.076	9.751104	10	A	0.023216914													
35	1618	02	01	00011	060	0	0.042	0.042	00011060	0	0.042	R2L	Two-Way	1	No	No	457				16%	0.1	60%	0.076	27.507744	28	A	0.065494629													
36	147921	02	01	00011	060	0.042	0.12	0.078	00011060	0.042	0.12	R2L	Two-Way	1	No	No	457				16%	0.1	60%	0.076	27.507744	28	A	0.065494629													
37	1620	02	01	00011	060	0.12	0.801	0.681	00011060	0.12	0.801	R2L	Two-Way	1	No	No	457				16%	0.1	60%	0.076	27.507744	28	A	0.065494629													
38	1621	02	01	00011	060	0.801	2.367	1.566	00011060	0.801	2.367	R2L	Two-Way	1	No	No	523				16%	0.1	60%	0.076	31.480416	31	A	0.074953371													
39	1622	02	01	00011	060	2.367	3.267	0.9	00011060	2.367	3.267	R2L	Two-Way	1	No	No	480	12	53	15	28%	0.11041667	58%	0.076	33.4150858	33	A	0.079559782													
40	1623	02	01	00011	060	3.267	8.519	5.252	00011060	3.267	8.519	R2L	Two-Way	1	No	No	194				16%	0.1	60%	0.076	11.677248	12	A	0.027802971													
41	1624	02	01	00013	070	0	0.32	0.32	00013070	0	0.32	R2L	Two-Way	1	No	No	463				16%	0.1	60%	0.076	27.868896	28	A	0.066354514													
42	1625	02	01	00013	070	0.32	2.51	2.19	00013070	0.32	2.51	R2L	Two-Way	1	No	No	463				16%	0.1	60%	0.076	27.868896	28	A	0.066354514													
43	1626	02	01	00013	070	2.51	2.541	0.031	00013070	2.51	2.541	R2L	Two-Way	1	No	No	463				16%	0.1	60%	0.076	27.868896	28	A	0.066354514													
44	147922	02	01	00013	070	2.541	2.62	0.079	00013070	2.541	2.62	R2L	Two-Way	1	No	No	463				16%	0.1	60%	0.076	27.868896	28	A	0.066354514													

DBO Out Mileage

HPMS Report

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL
ID	Distri	Count	Rout	Secti	Logmil	EndLogmil	RoadLength	Route+Section	BLM	ELM	Type	ONE/TW	LANES	Passin	Media	ADT hpn	Stator	PHV hpn	PHT hpn	PHT % hp	K hpm	D hpn	K(Adj)	DHV	DHV(Adj)	LOS	Acceptanc										
1	1595	02	01	00001	040	0	0.132	0.132	00001040	0	0.132	R2L	Two-Way	1	No	Yes	5626				16%	0.1	60%	0.076	338.640192	339	C							0.806286171			
2	147770	02	01	00001	040	0.132	0.3	0.168	00001040	0.132	0.3	R2L	Two-Way	1	No	Yes	3300	2	332	23	7%	0.10060606	63%	0.076	179.7585063	180	B							0.427996444			
3	128058	02	01	00001	040	0.3	1.551	1.251	00001040	0.3	1.551	R2L	Two-Way	1	No	Yes	3300	2	332	23	7%	0.10060606	63%	0.076	179.7585063	180	B							0.427996444			
4	147908	02	01	00001	040	1.551	1.568	0.017	00001040	1.551	1.568	R2L	Two-Way	1	No	Yes	3300	2	332	23	7%	0.10060606	63%	0.076	179.7585063	180	B							0.427996444			
5	128059	02	01	00001	040	1.568	1.928	0.36	00001040	1.568	1.928	R2L	Two-Way	1	No	Yes	3300	2	332	23	7%	0.10060606	63%	0.076	179.7585063	180	B							0.427996444			
6	1585	02	01	00001	048	0	0.017	0.017	00001048	0	0.017	R2L	Multi-Way	1	No	Yes	3051				16%	0.1	60%	0.076	183.645792	184	B							0.437251886			
7	149323	02	01	00001	048	0.017	0.064	0.047	00001048	0.017	0.064	R2L	Multi-Way	1	No	Yes	3051				16%	0.1	60%	0.076	183.645792	184	B							0.437251886			
8	149322	02	01	00001	048	0.064	0.572	0.508	00001048	0.064	0.572	R2L	Two-Way	1	No	No	2953				16%	0.1	60%	0.076	177.746976	178	B							0.423207086			
9	1586	02	01	00001	048	0.572	1.16	0.588	00001048	0.572	1.16	R2L	Two-Way	1	No	No	2104				16%	0.1	60%	0.076	126.643968	127	B							0.301533257			
10	147910	02	01	00001	048	1.16	1.443	0.283	00001048	1.16	1.443	R2L	Two-Way	1	No	No	2361				16%	0.1	60%	0.076	142.113312	142	B							0.338365029			
11	1590	02	01	00001	048	1.443	2.201	0.758	00001048	1.443	2.201	R2L	Two-Way	1	No	Yes	3373				16%	0.1	60%	0.076	203.027616	203	B							0.483399086			
12	1602	02	01	00001	050	0	0.29	0.29	00001050	0	0.29	R2L	Two-Way	1	No	No	1948				16%	0.1	60%	0.076	117.254016	117	B							0.279176229			
13	1603	02	01	00001	050	0.29	0.992	0.702	00001050	0.29	0.992	R2L	Two-Way	1	No	No	1948				16%	0.1	60%	0.076	117.254016	117	B							0.279176229			
14	147912	02	01	00001	050	0.992	1.033	0.041	00001050	0.992	1.033	R2L	Two-Way	1	No	No	1948				16%	0.1	60%	0.076	117.254016	117	B							0.279176229			
15	147911	02	01	00001	050	1.033	2.993	1.96	00001050	1.033	2.993	R2L	Two-Way	1	No	No	1948				16%	0.1	60%	0.076	117.254016	117	B							0.279176229			
16	147913	02	01	00001	050	2.993	3.061	0.068	00001050	2.993	3.061	R2L	Two-Way	1	No	No	1948				16%	0.1	60%	0.076	117.254016	117	B							0.279176229			
17	147914	02	01	00001	050	3.061	3.97	0.909	00001050	3.061	3.97	R2L	Two-Way	1	No	No	1948				16%	0.1	60%	0.076	117.254016	117	B							0.279176229			
18	1606	02	01	00001	050	3.97	4.005	0.035	00001050	3.97	4.005	R2L	Two-Way	1	No	No	1715				16%	0.1	60%	0.076	103.22928	103	B							0.245784			
19	1607	02	01	00001	050	4.005	5.275	1.27	00001050	4.005	5.275	R2L	Two-Way	1	No	No	1400	7	139	30	22%	0.09928571	68%	0.076	104.1091041	104	B							0.247878819			
20	148288	02	01	00001	050	5.275	7.305	2.03	00001050	5.275	7.305	R2L	Two-Way	1	No	No	1400	7	139	30	22%	0.09928571	68%	0.076	104.1091041	104	B							0.247878819			
21	147916	02	01	00001	050	7.305	7.322	0.017	00001050	7.305	7.322	R2L	Two-Way	1	No	No	1400	7	139	30	22%	0.09928571	68%	0.076	104.1091041	104	B							0.247878819			
22	147915	02	01	00001	050	7.322	8.123	0.801	00001050	7.322	8.123	R2L	Two-Way	1	No	No	1400	7	139	30	22%	0.09928571	68%	0.076	104.1091041	104	B							0.247878819			
23	1609	02	01	00001	050	8.123	8.606	0.483	00001050	8.123	8.606	R2L	Two-Way	1	No	No	1400	7	139	30	22%	0.09928571	68%	0.076	104.1091041	104	B							0.247878819			
24	147918	02	01	00001	050	8.606	8.616	0.01	00001050	8.606	8.616	R2L	Two-Way	1	No	No	1400	7	139	30	22%	0.09928571	68%	0.076	104.1091041	104	B							0.247878819			
25	147917	02	01	00001	050	8.616	10.17	1.554	00001050	8.616	10.17	R2L	Two-Way	1	No	No	1400	7	139	30	22%	0.09928571	68%	0.076	104.1091041	104	B							0.247878819			
26	1612	02	01	00001	050	10.17	12.105	1.935	00001050	10.17	12.105	R2L	Two-Way	1	No	No	1400	7	139	30	22%	0.09928571	68%	0.076	104.1091041	104	B							0.247878819			
27	1613	02	01	00001	050	12.105	13.1	0.995	00001050	12.105	13.1	R2L	Two-Way	1	No	No	1303				16%	0.1	60%	0.076	78.430176	78	A							0.186738514			
28	1614	02	01	00001	050	13.1	13.509	0.409	00001050	13.1	13.509	R2L	Two-Way	1	No	No	1298				16%	0.1	60%	0.076	78.129216	78	A							0.186021943			
29	1615	02	01	00001	050	13.509	13.889	0.38	00001050	13.509	13.889	R2L	Two-Way	1	No	No	998				16%	0.1	60%	0.076	60.071616	60	A							0.143027657			
30	1616	02	01	00001	050	13.889	14.063	0.174	00001050	13.889	14.063	R2L	Two-Way	1	No	No	952				16%	0.1	60%	0.076	57.302784	57	A							0.1364352			
31	1599	02	01	00001	055	0	0.26	0.26	00001055	0	0.26	R2L	Two-Way	1	No	No	162				16%	0.1	60%	0.076	9.751104	10	A							0.023216914			
32	138969	02	01	00001	055	0.26	0.39	0.13	00001055	0.26	0.39	R2L	Two-Way	1	No	No	162				16%	0.1	60%	0.076	9.751104	10	A							0.023216914			
33	1601	02	01	00001	055	0.39	0.513	0.123	00001055	0.39	0.513	R2L	Two-Way	1	No	No	162				16%	0.1	60%	0.076	9.751104	10	A							0.023216914			
34	1618	02	01	00011	060	0	0.042	0.042	00011060	0	0.042	R2L	Two-Way	1	No	No	457				16%	0.1	60%	0.076	27.507744	28	A							0.065494629			
35	147921	02	01	00011	060	0.042	0.12	0.078	00011060	0.042	0.12	R2L	Two-Way	1	No	No	457				16%	0.1	60%	0.076	27.507744	28	A							0.065494629			
36	1620	02	01	00011	060	0.12	0.801	0.681	00011060	0.12	0.801	R2L	Two-Way	1	No	No	457				16%	0.1	60%	0.076	27.507744	28	A							0.065494629			
37	1621	02	01	00011	060	0.801	2.367	1.566	00011060	0.801	2.367	R2L	Two-Way	1	No	No	523				16%	0.1	60%	0.076	31.480416	31	A							0.074953371			
38	1622	02	01	00011	060	2.367	3.267	0.9	00011060	2.367	3.267	R2L	Two-Way	1	No	No	480	12	53	15	28%	0.11041667	58%	0.076	33.4150858	33	A							0.079559782			
39	1623	02	01	00011	060	3.267	8.519	5.252	00011060	3.267	8.519	R2L	Two-Way	1	No	No	194				16%	0.1	60%	0.076	11.677248	12	A							0.027802971			
40	1624	02	01	00013	070	0	0.32	0.32	00013070	0	0.32	R2L	Two-Way	1	No	No	463				16%	0.1	60%	0.076	27.868896	28	A							0.066354514			
41	1625	02	01	00013	070	0.32	2.51	2.19	00013070	0.32	2.51	R2L	Two-Way	1	No	No	463				16%	0.1	60%	0.076	27.868896	28	A							0.066354514			
42	1626	02	01	00013	070	2.51	2.541	0.031	00013070	2.51	2.541	R2L	Two-Way	1	No	No	463				16%	0.1	60%	0.076	27.868896	28	A							0.066354514			
43	147922	02	01	00013	070	2.541	2.62	0.079	00013070	2.541	2.62	R2L	Two-Way	1	No	No	463				16%	0.1	60%	0.076	27.868896	28	A							0.066354514			

Previous Year

Outputs(New)

Double Check

U	V	W	X	Y	Z	AE	AF	AG	AH	AI	AJ	AK	AL	AM
Type	ONE/TWO	LANES	Passing	Median	ADT hpms	K hpms	D hpms	K(adj.)	DHV	DHV (adj.)	LOS	Acceptance		
UA	Two-Way	2	No	Yes	23669	0.1	0.6	0.1	781.077	781.077	D	0.918914118		
UA	Two-Way	2	No	Yes	23107	0.1	0.6	0.1	762.531	762.531	D	0.897095294		
RF	Multi-Way	2	No	Yes	40204	0.1	0.6	0.076	1356.644	1356.643776	C	0.891355963		
RF	Multi-Way	2	No	Yes	40204	0.1	0.6	0.076	1356.644	1356.643776	C	0.891355963		
RF	Multi-Way	2	No	Yes	40204	0.1	0.6	0.076	1356.644	1356.643776	C	0.891355963		
RF	Multi-Way	2	No	Yes	40204	0.1	0.6	0.076	1356.644	1356.643776	C	0.891355963		
RF	Multi-Way	2	No	Yes	40204	0.1	0.6	0.076	1356.644	1356.643776	C	0.891355963		
RF	Multi-Way	2	No	Yes	40204	0.1	0.6	0.076	1356.644	1356.643776	C	0.891355963		
RF	Multi-Way	2	No	Yes	40204	0.1	0.6	0.076	1356.644	1356.643776	C	0.891355963		
RF	Multi-Way	2	No	Yes	40204	0.1	0.6	0.076	1356.644	1356.643776	C	0.891355963		
RF	Multi-Way	2	No	Yes	40204	0.1	0.6	0.076	1356.644	1356.643776	C	0.891355963		
RF	Multi-Way	2	No	Yes	40204	0.1	0.6	0.076	1356.644	1356.643776	C	0.891355963		
RF	Multi-Way	2	No	Yes	40204	0.1	0.6	0.076	1356.644	1356.643776	C	0.891355963		
R2L	Two-Way	1	No	No	6216	0.1	0.6	0.076	374.1535	374.153472	C	0.8908416		
R2L	Two-Way	1	No	No	6216	0.1	0.6	0.076	374.1535	374.153472	C	0.8908416		
R2L	Two-Way	1	No	No	6216	0.1	0.6	0.076	374.1535	374.153472	C	0.8908416		
R2L	Two-Way	1	No	No	6216	0.1	0.6	0.076	374.1535	374.153472	C	0.8908416		
R2L	Two-Way	1	No	No	6216	0.1	0.6	0.076	374.1535	374.153472	C	0.8908416		
RF	Multi-Way	2	No	Yes	40083	0.1	0.6	0.076	1352.561	1352.560752	C	0.888673293		
RF	Multi-Way	2	No	Yes	40083	0.1	0.6	0.076	1352.561	1352.560752	C	0.888673293		
RF	Multi-Way	2	No	Yes	40083	0.1	0.6	0.076	1352.561	1352.560752	C	0.888673293		
RF	Multi-Way	2	No	Yes	40083	0.1	0.6	0.076	1352.561	1352.560752	C	0.888673293		
RF	Multi-Way	2	No	Yes	40083	0.1	0.6	0.076	1352.561	1352.560752	C	0.888673293		
RF	Multi-Way	2	No	Yes	40083	0.1	0.6	0.076	1352.561	1352.560752	C	0.888673293		

igh_Type Passing_Lanes Median

U	V	W	X	Y	Z	AE	AF	AG	AH	AI	AJ	AK	AL	AM
Type	ONE/TWO	LANES	Passing	Median	ADT hpms	K hpms	D hpms	K(adj.)	DHV	DHV (adj.)	LOS	Acceptance		
UA	Two-Way	2	No	Yes	23669	0.1	0.6	0.1	781.077	781.077	D	0.918914118		
UA	Two-Way	2	No	Yes	23107	0.1	0.6	0.1	762.531	762.531	D	0.897095294		
RF	Multi-Way	2	No	Yes	40204	0.1	0.6	0.076	1356.644	1356.643776	C	0.891355963		
RF	Multi-Way	2	No	Yes	40204	0.1	0.6	0.076	1356.644	1356.643776	C	0.891355963		
RF	Multi-Way	2	No	Yes	40204	0.1	0.6	0.076	1356.644	1356.643776	C	0.891355963		
RF	Multi-Way	2	No	Yes	40204	0.1	0.6	0.076	1356.644	1356.643776	C	0.891355963		
RF	Multi-Way	2	No	Yes	40204	0.1	0.6	0.076	1356.644	1356.643776	C	0.891355963		
RF	Multi-Way	2	No	Yes	40204	0.1	0.6	0.076	1356.644	1356.643776	C	0.891355963		
RF	Multi-Way	2	No	Yes	40204	0.1	0.6	0.076	1356.644	1356.643776	C	0.891355963		
RF	Multi-Way	2	No	Yes	40204	0.1	0.6	0.076	1356.644	1356.643776	C	0.891355963		
RF	Multi-Way	2	No	Yes	40204	0.1	0.6	0.076	1356.644	1356.643776	C	0.891355963		
RF	Multi-Way	2	No	Yes	40204	0.1	0.6	0.076	1356.644	1356.643776	C	0.891355963		
RF	Multi-Way	2	No	Yes	40204	0.1	0.6	0.076	1356.644	1356.643776	C	0.891355963		
RF	Multi-Way	2	No	Yes	40204	0.1	0.6	0.076	1356.644	1356.643776	C	0.891355963		
RF	Multi-Way	2	No	Yes	40204	0.1	0.6	0.076	1356.644	1356.643776	C	0.891355963		
RF	Multi-Way	2	No	Yes	40204	0.1	0.6	0.076	1356.644	1356.643776	C	0.891355963		
R2L	Two-Way	1	No	No	6216	0.1	0.6	0.076	374.1535	374.153472	C	0.8908416		
R2L	Two-Way	1	No	No	6216	0.1	0.6	0.076	374.1535	374.153472	C	0.8908416		
R2L	Two-Way	1	No	No	6216	0.1	0.6	0.076	374.1535	374.153472	C	0.8908416		
R2L	Two-Way	1	No	No	6216	0.1	0.6	0.076	374.1535	374.153472	C	0.8908416		
R2L	Two-Way	1	No	No	6216	0.1	0.6	0.076	374.1535	374.153472	C	0.8908416		
RF	Multi-Way	2	No	Yes	40083	0.1	0.6	0.076	1352.561	1352.560752	C	0.888673293		
RF	Multi-Way	2	No	Yes	40083	0.1	0.6	0.076	1352.561	1352.560752	C	0.888673293		
RF	Multi-Way	2	No	Yes	40083	0.1	0.6	0.076	1352.561	1352.560752	C	0.888673293		
RF	Multi-Way	2	No	Yes	40083	0.1	0.6	0.076	1352.561	1352.560752	C	0.888673293		
RF	Multi-Way	2	No	Yes	40083	0.1	0.6	0.076	1352.561	1352.560752	C	0.888673293		
RF	Multi-Way	2	No	Yes	40083	0.1	0.6	0.076	1352.561	1352.560752	C	0.888673293		

$$DHV = \frac{ADT (HPM) \times K(adj.) \times (1 \text{ or } D(hpms)) \times (1 + 2 \times PHT \%)}{\text{Number of lanes}}$$

igh_Type Passing_Lanes Median

U	V	W	X	Y	Z	AE	AF	AG	AH	AI	AJ	AK	AL	AM
Type	ONE/TWO	LANES	Passing	Median	ADT hpms	K hpms	D hpms	K(adj.)	DHV	DHV (adj.)	LOS	Acceptance		
UA	Two-Way	2	No	Yes	23669	0.1	0.6	0.1	781.077	781.077	D	0.918914118		
UA	Two-Way	2	No	Yes	23107	0.1	0.6	0.1	762.531	762.531	D	0.897095294		
RF	Multi-Way	2	No	Yes	40204	0.1	0.6	0.076	1356.644	1356.643776	C	0.891355963		
RF	Multi-Way	2	No	Yes	40204	0.1	0.6	0.076	1356.644	1356.643776	C	0.891355963		
RF	Multi-Way	2	No	Yes	40204	0.1	0.6	0.076	1356.644	1356.643776	C	0.891355963		
RF	Multi-Way	2	No	Yes	40204	0.1	0.6	0.076	1356.644	1356.643776	C	0.891355963		
RF	Multi-Way	2	No	Yes	40204	0.1	0.6	0.076	1356.644	1356.643776	C	0.891355963		
RF	Multi-Way	2	No	Yes	40204	0.1	0.6	0.076	1356.644	1356.643776	C	0.891355963		
RF	Multi-Way	2	No	Yes	40204	0.1	0.6	0.076	1356.644	1356.643776	C	0.891355963		
RF	Multi-Way	2	No	Yes	40204	0.1	0.6	0.076	1356.644	1356.643776	C	0.891355963		
RF	Multi-Way	2	No	Yes	40204	0.1	0.6	0.076	1356.644	1356.643776	C	0.891355963		
RF	Multi-Way	2	No	Yes	40204	0.1	0.6	0.076	1356.644	1356.643776	C	0.891355963		
RF	Multi-Way	2	No	Yes	40204	0.1	0.6	0.076	1356.644	1356.643776	C	0.891355963		
R2L	Two-Way	1	No	No	6216	0.1	0.6	0.076	374.1535	374.153472	C	0.8908416		
R2L	Two-Way	1	No	No	6216	0.1	0.6	0.076	374.1535	374.153472	C	0.8908416		
R2L	Two-Way	1	No	No	6216	0.1	0.6	0.076	374.1535	374.153472	C	0.8908416		
R2L	Two-Way	1	No	No	6216	0.1	0.6	0.076	374.1535	374.153472	C	0.8908416		
RF	Multi-Way	2	No	Yes	40083	0.1	0.6	0.076	1352.561	1352.560752	C	0.888673293		
RF	Multi-Way	2	No	Yes	40083	0.1	0.6	0.076	1352.561	1352.560752	C	0.888673293		
RF	Multi-Way	2	No	Yes	40083	0.1	0.6	0.076	1352.561	1352.560752	C	0.888673293		
RF	Multi-Way	2	No	Yes	40083	0.1	0.6	0.076	1352.561	1352.560752	C	0.888673293		
RF	Multi-Way	2	No	Yes	40083	0.1	0.6	0.076	1352.561	1352.560752	C	0.888673293		
RF	Multi-Way	2	No	Yes	40083	0.1	0.6	0.076	1352.561	1352.560752	C	0.888673293		

$$DHV = \frac{ADT (HPMS) \times K(adj.) \times (1 \text{ or } D(hpms)) \times (1 + 2 \times PHT \%)}{\text{Number of lanes}}$$

DHV is then adjusted based on road type, median, or whether it is a one way road

U	V	W	X	Y	Z	AE	AF	AG	AH	AI	AJ	AK	AL	AM
Type	ONE/TWO	LANES	Passing	Median	ADT hpms	K hpms	D hpms	K(adj.)	DHV	DHV (adj.)	LOS	Acceptance		
UA	Two-Way	2	No	Yes	23669	0.1	0.6	0.1	781.077	781.077	D	0.918914118		
UA	Two-Way	2	No	Yes	23107	0.1	0.6	0.1	762.531	762.531	D	0.897095294		
RF	Multi-Way	2	No	Yes	40204	0.1	0.6	0.076	1356.644	1356.643776	C	0.891355963		
RF	Multi-Way	2	No	Yes	40204	0.1	0.6	0.076	1356.644	1356.643776	C	0.891355963		
RF	Multi-Way	2	No	Yes	40204	0.1	0.6	0.076	1356.644	1356.643776	C	0.891355963		
RF	Multi-Way	2	No	Yes	40204	0.1	0.6	0.076	1356.644	1356.643776	C	0.891355963		
RF	Multi-Way	2	No	Yes	40204	0.1	0.6	0.076	1356.644	1356.643776	C	0.891355963		
RF	Multi-Way	2	No	Yes	40204	0.1	0.6	0.076	1356.644	1356.643776	C	0.891355963		
RF	Multi-Way	2	No	Yes	40204	0.1	0.6	0.076	1356.644	1356.643776	C	0.891355963		
RF	Multi-Way	2	No	Yes	40204	0.1	0.6	0.076	1356.644	1356.643776	C	0.891355963		
RF	Multi-Way	2	No	Yes	40204	0.1	0.6	0.076	1356.644	1356.643776	C	0.891355963		
RF	Multi-Way	2	No	Yes	40204	0.1	0.6	0.076	1356.644	1356.643776	C	0.891355963		
RF	Multi-Way	2	No	Yes	40204	0.1	0.6	0.076	1356.644	1356.643776	C	0.891355963		
RF	Multi-Way	2	No	Yes	40204	0.1	0.6	0.076	1356.644	1356.643776	C	0.891355963		
RF	Multi-Way	2	No	Yes	40204	0.1	0.6	0.076	1356.644	1356.643776	C	0.891355963		
RF	Multi-Way	2	No	Yes	40204	0.1	0.6	0.076	1356.644	1356.643776	C	0.891355963		
RF	Multi-Way	2	No	Yes	40204	0.1	0.6	0.076	1356.644	1356.643776	C	0.891355963		
RF	Multi-Way	2	No	Yes	40204	0.1	0.6	0.076	1356.644	1356.643776	C	0.891355963		
R2L	Two-Way	1	No	No	6216	0.1	0.6	0.076	374.1535	374.153472	C	0.8908416		
R2L	Two-Way	1	No	No	6216	0.1	0.6	0.076	374.1535	374.153472	C	0.8908416		
R2L	Two-Way	1	No	No	6216	0.1	0.6	0.076	374.1535	374.153472	C	0.8908416		
R2L	Two-Way	1	No	No	6216	0.1	0.6	0.076	374.1535	374.153472	C	0.8908416		
R2L	Two-Way	1	No	No	6216	0.1	0.6	0.076	374.1535	374.153472	C	0.8908416		
RF	Multi-Way	2	No	Yes	40083	0.1	0.6	0.076	1352.561	1352.560752	C	0.888673293		
RF	Multi-Way	2	No	Yes	40083	0.1	0.6	0.076	1352.561	1352.560752	C	0.888673293		
RF	Multi-Way	2	No	Yes	40083	0.1	0.6	0.076	1352.561	1352.560752	C	0.888673293		
RF	Multi-Way	2	No	Yes	40083	0.1	0.6	0.076	1352.561	1352.560752	C	0.888673293		
RF	Multi-Way	2	No	Yes	40083	0.1	0.6	0.076	1352.561	1352.560752	C	0.888673293		
RF	Multi-Way	2	No	Yes	40083	0.1	0.6	0.076	1352.561	1352.560752	C	0.888673293		

$$DHV = \frac{ADT (HPMS) \times K(adj.) \times (1 \text{ or } D(hpms)) \times (1 + 2 \times PHT \%)}{\text{Number of lanes}}$$

DHV is then adjusted based on road type, median, or whether it is a one way road

DHV is then compared to the Thresholds to figure the Level of Service

igh_Type Passing_Lanes Median

U	V	W	X	Y	Z	AE	AF	AG	AH	AI	AJ	AK	AL	AM
Type	ONE/TWO	LANES	Passing	Median	ADT hpms	K hpms	D hpms	K(adj.)	DHV	DHV (adj.)	LOS	Acceptance		
UA	Two-Way	2	No	Yes	23669	0.1	0.6	0.1	781.077	781.077	D	0.918914118		
UA	Two-Way	2	No	Yes	23107	0.1	0.6	0.1	762.531	762.531	D	0.897095294		
RF	Multi-Way	2	No	Yes	40204	0.1	0.6	0.076	1356.644	1356.643776	C	0.891355963		
RF	Multi-Way	2	No	Yes	40204	0.1	0.6	0.076	1356.644	1356.643776	C	0.891355963		
RF	Multi-Way	2	No	Yes	40204	0.1	0.6	0.076	1356.644	1356.643776	C	0.891355963		
RF	Multi-Way	2	No	Yes	40204	0.1	0.6	0.076	1356.644	1356.643776	C	0.891355963		
RF	Multi-Way	2	No	Yes	40204	0.1	0.6	0.076	1356.644	1356.643776	C	0.891355963		
RF	Multi-Way	2	No	Yes	40204	0.1	0.6	0.076	1356.644	1356.643776	C	0.891355963		
RF	Multi-Way	2	No	Yes	40204	0.1	0.6	0.076	1356.644	1356.643776	C	0.891355963		
RF	Multi-Way	2	No	Yes	40204	0.1	0.6	0.076	1356.644	1356.643776	C	0.891355963		
RF	Multi-Way	2	No	Yes	40204	0.1	0.6	0.076	1356.644	1356.643776	C	0.891355963		
RF	Multi-Way	2	No	Yes	40204	0.1	0.6	0.076	1356.644	1356.643776	C	0.891355963		
RF	Multi-Way	2	No	Yes	40204	0.1	0.6	0.076	1356.644	1356.643776	C	0.891355963		
RF	Multi-Way	2	No	Yes	40204	0.1	0.6	0.076	1356.644	1356.643776	C	0.891355963		
RF	Multi-Way	2	No	Yes	40204	0.1	0.6	0.076	1356.644	1356.643776	C	0.891355963		
RF	Multi-Way	2	No	Yes	40204	0.1	0.6	0.076	1356.644	1356.643776	C	0.891355963		
R2L	Two-Way	2	No	No	6216	0.1	0.6	0.076	374.1535	374.153472	C	0.8908416		
R2L	Two-Way	2	No	No	6216	0.1	0.6	0.076	374.1535	374.153472	C	0.8908416		
R2L	Two-Way	2	No	No	6216	0.1	0.6	0.076	374.1535	374.153472	C	0.8908416		
R2L	Two-Way	2	No	No	6216	0.1	0.6	0.076	374.1535	374.153472	C	0.8908416		
R2L	Two-Way	2	No	No	6216	0.1	0.6	0.076	374.1535	374.153472	C	0.8908416		
RF	Multi-Way	2	No	No	1352	0.1	0.6	0.076	1352.561	1352.560752	C	0.888673293		
RF	Multi-Way	2	No	No	1352	0.1	0.6	0.076	1352.561	1352.560752	C	0.888673293		
RF	Multi-Way	2	No	No	1352	0.1	0.6	0.076	1352.561	1352.560752	C	0.888673293		
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RF	Multi-Way	2	No	No	1352	0.1	0.6	0.076	1352.561	1352.560752	C	0.888673293		

$$DHV = \frac{ADT (HPM) \times K(adj.) \times (1 \text{ or } D(hpms)) \times (1 + 2 \times PHT \%)}{\text{Number of lanes}}$$

DHV is then adjusted based on road type, median, or whether it is a one way road

DHV is then compared to the Thresholds to figure the Level of Service

$$\text{Acceptance} = \frac{\text{Threshold for road type}}{DHV}$$

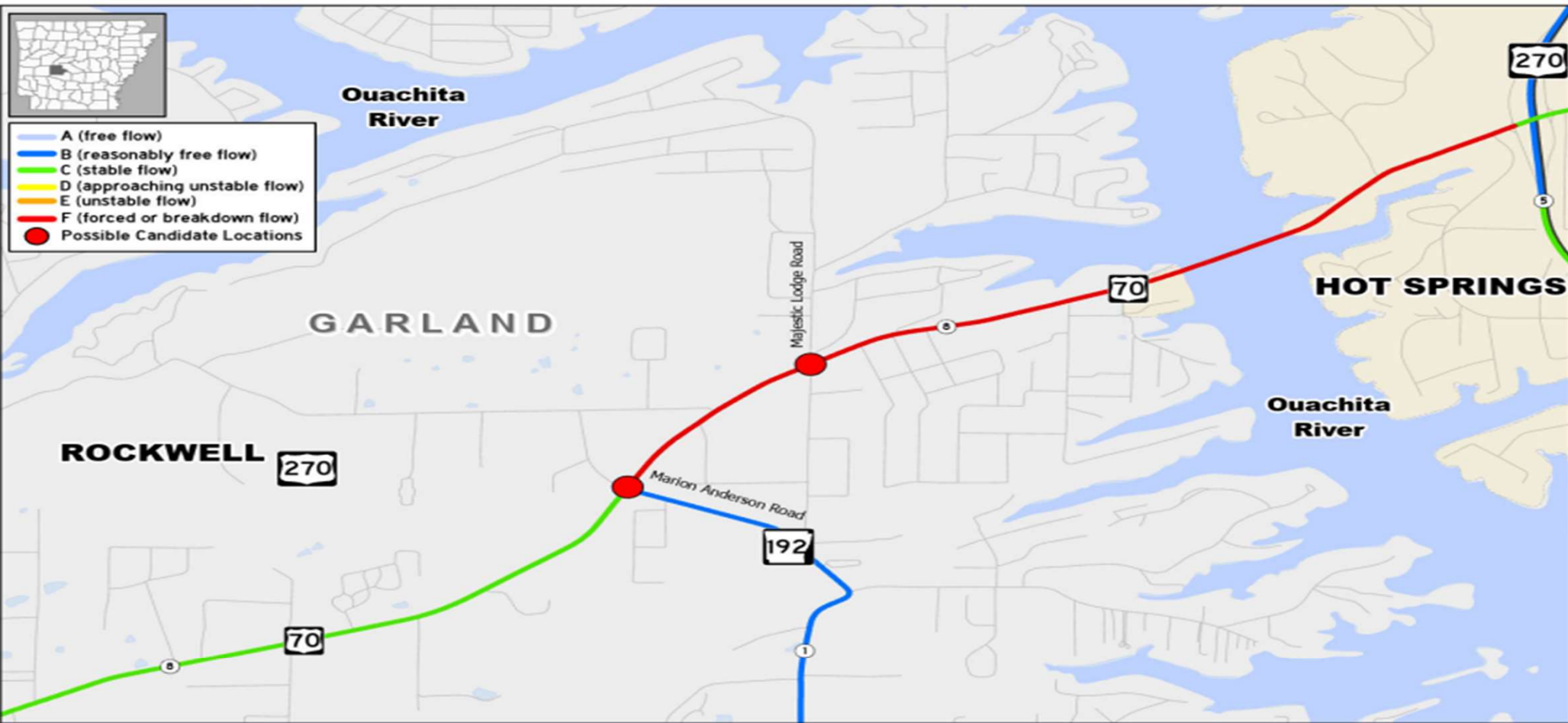
High_Type Passing_Lanes Median +

Capacity Project Identification

- Potential capacity improvements were scoped for locations with an acceptability ratio ≥ 1.0
- Current STIP projects and construction jobs were considered
- Planning studies, if available, were used to scope improvements
- LOTTR ≥ 1.5 were considered in addition to the acceptability ratio

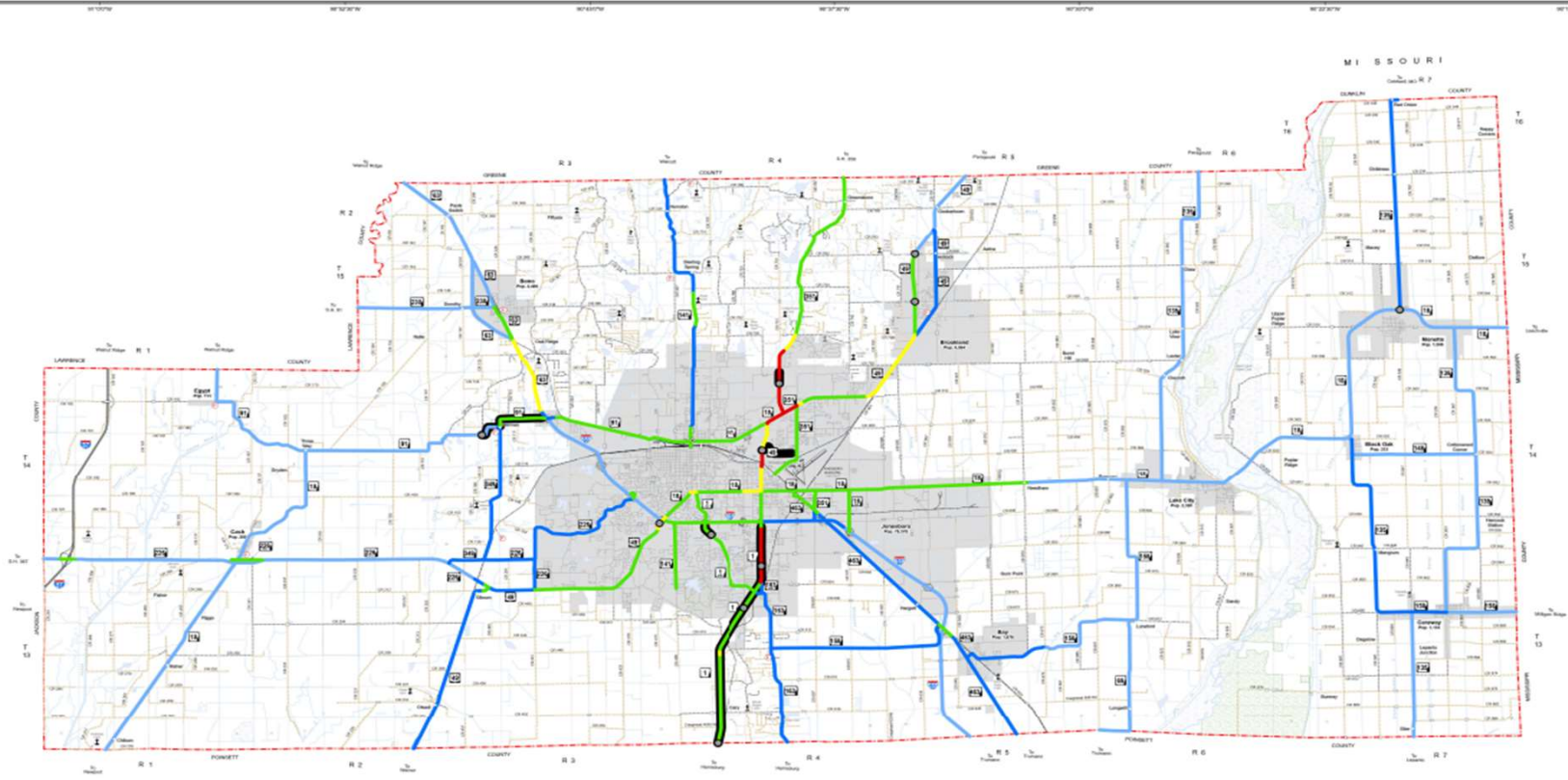


Tier	Score	LOTTR
A	≥ 1.20	≥ 1.5
B	≥ 1.10	≥ 1.3
C	≥ 1.05	N/A
D (Opt. 1)	≥ 1.00	N/A
D (Opt. 2)	N/A	≥ 1.5



Highway 70/Marion Anderson Road Intersection
Highway 70/Majestic Lodge Road Intersection
 Highway 70, Section 8
 Garland County





GENERAL HIGHWAY MAP
CRAIGHEAD COUNTY
 ARKANSAS

Arkansas Department of Transportation
 Planning & Research Division
 GIS & Mapping Section
 12/2023



2023 Level of Service

- A (free flow)
- B (reasonably free flow)
- C (stable flow)
- D (approaching unstable flow)
- E (unstable flow)
- F (forced or breakdown flow)
- STIP Lines
- STIP Points

- County Boundary
- Municipal Boundary
- Interstate
- U.S. Highway
- State Highway
- Interstate Ramps and Frontage
- Municipal Road
- Local Paved Road
- Local Unpaved Road
- Private Paved Road
- Private Unpaved Road
- Railroad

Legend

- Airport Runways
- Rivers and Lakes (Major/Minor)
- Swamps
- Rivers and Streams (Minor)
- Canals and Ditches
- Sections
- Public Leads
- Cemetery
- Post Office
- Fire Stations
- County Seat
- Unincorporated Community

GENERAL HIGHWAY MAP
**FAULKNER, LONOKE, PULASKI
& SALINE COUNTIES**
ARKANSAS

Presented by
Arkansas Department of Transportation
Planning & Research Division
GIS & Mapping Section

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Federal Highway Administration
Date: 11/2023

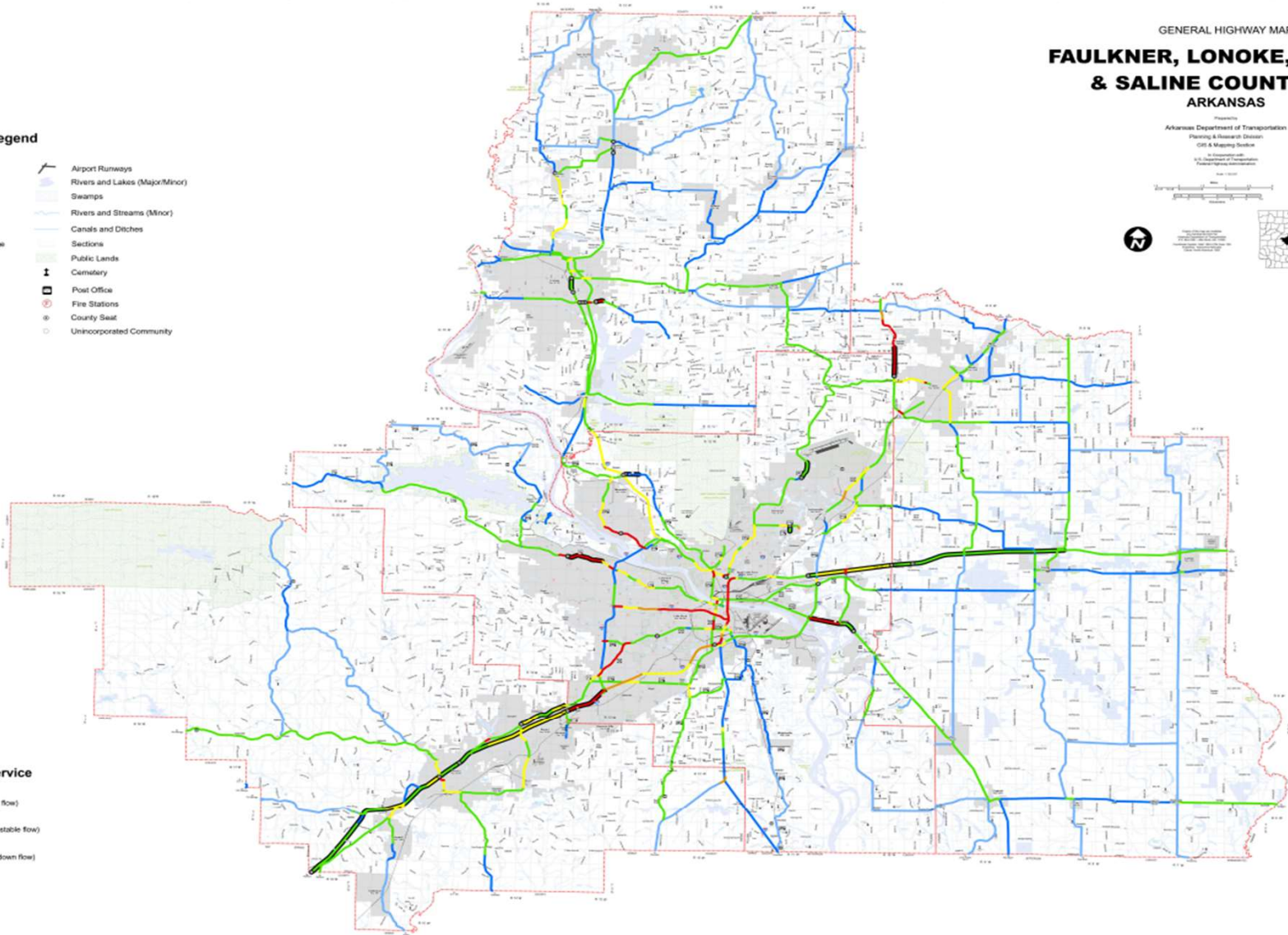


Legend

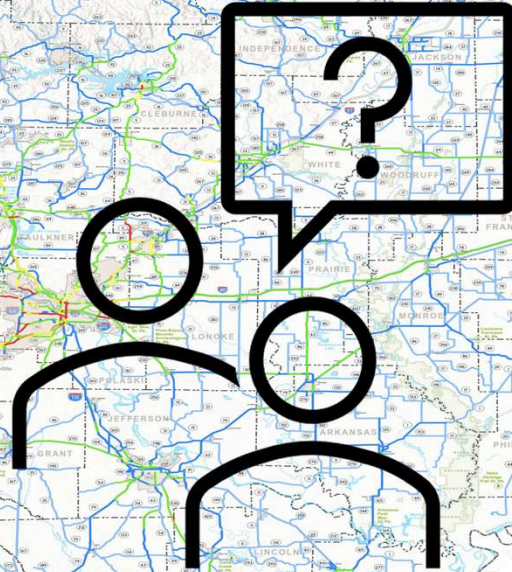
- County Boundary
- Municipal Boundary
- Interstate
- U.S. Highway
- State Highway
- Interstate Ramps and Frontage
- Municipal Road
- Local Paved Road
- Local Unpaved Road
- Private Paved Road
- Private Unpaved Road
- Railroad
- Airport Runways
- Rivers and Lakes (Major/Minor)
- Swamps
- Rivers and Streams (Minor)
- Canals and Ditches
- Sections
- Public Lands
- Cemetery
- Post Office
- Fire Stations
- County Seat
- Unincorporated Community

2023 Level of Service

- A (free flow)
- B (reasonably free flow)
- C (stable flow)
- D (approaching unstable flow)
- E (unstable flow)
- F (forced or breakdown flow)
- STP Lines
- STP Points



Questions?



GENERAL HIGHWAY MAP of **Arkansas**

Prepared and issued by the Arkansas Department of Transportation
Transportation Planning and Policy Division

- Interstate (I)
 - U.S. Highway (7)
 - Other State Highway (2)
- Level of Service**
- A (free flow)
 - B (reasonably free flow)
 - C (stable flow)
 - D (approaching unstable flow)
 - E (unstable flow)
 - F (forced or breakdown flow)

