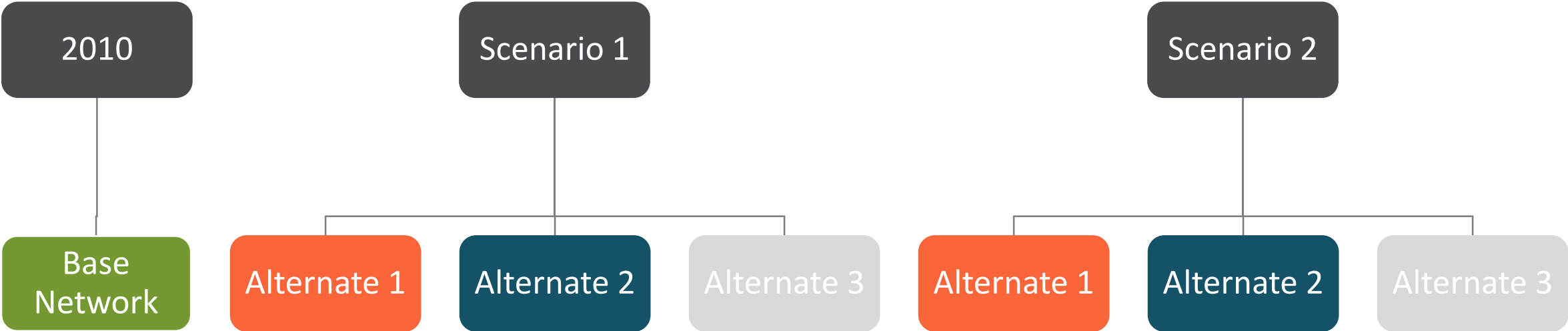




Transportation Alternate Networks

May 2016

Encompass 2040 Networks and Scenarios



Scenario 1: Historical Trend

- **Attractions:** Trend and schools
- **Housing:** Lower density residential developments
- **Employment:** Separated from housing, along transportation corridors
- **Transportation:** Auto-dependent

Scenario 2: Nodal Growth

- **Attractions:** Downtowns, service areas, TODs
- **Housing:** Mixed-use, infill, higher density developments
- **Employment:** Downtowns, TODs, mixed-use
- **Transportation:** More transportation options (including regional transit)

2010 Base Network

- Current conditions as of 2010
- Regional streets
- Fixed transit routes

Alternate 1

- No Build Alternate
- Present + Committed Projects
- Roadways and transit routes
- Improvements from 2010 to December 2016
- ODOT 8-Year Construction Work Plan (through 2016)

Alternate 2

- Future Improvements
- Member entity projects
- Roadway and transit routes
- Gap projects
- Long-range ODOT projects

Alternate 3

- Illustrative Alternate
- Regional transit
- No dedicated funding source

Alternate 2 Components

- Base Network
- Present + Committed Network (Alternate 1)
- Encompass 2040 Transportation Projects (member submitted)
- ODOT Projects (long-range)
- OTA Turnpikes
- Gap Projects
- ITS
 - Integrated Corridor Management
 - Adaptive Signal Control

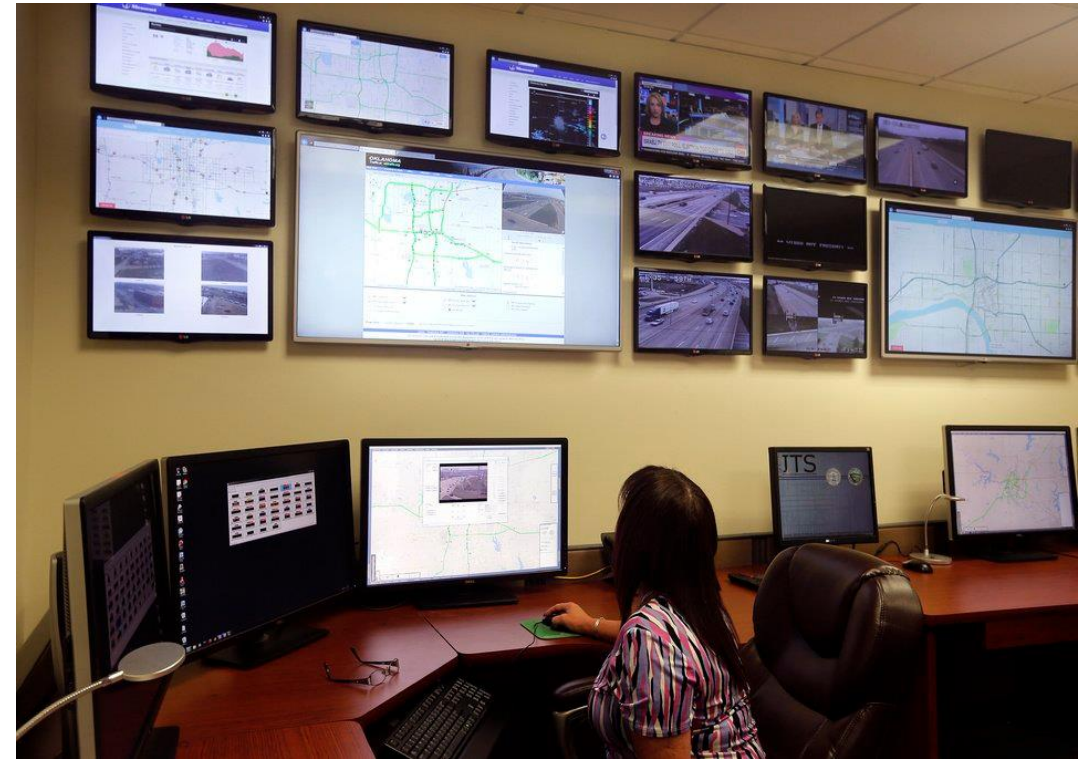
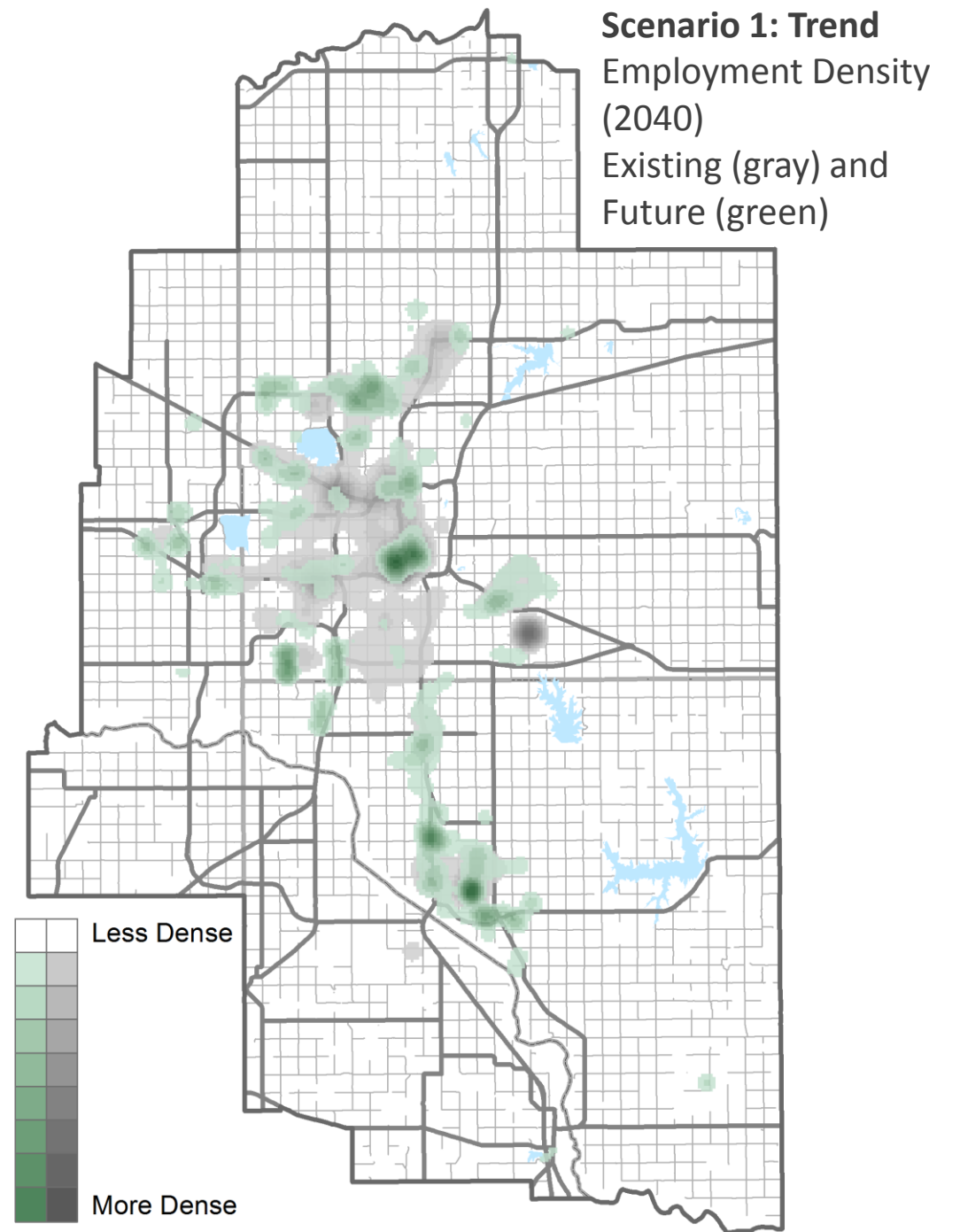
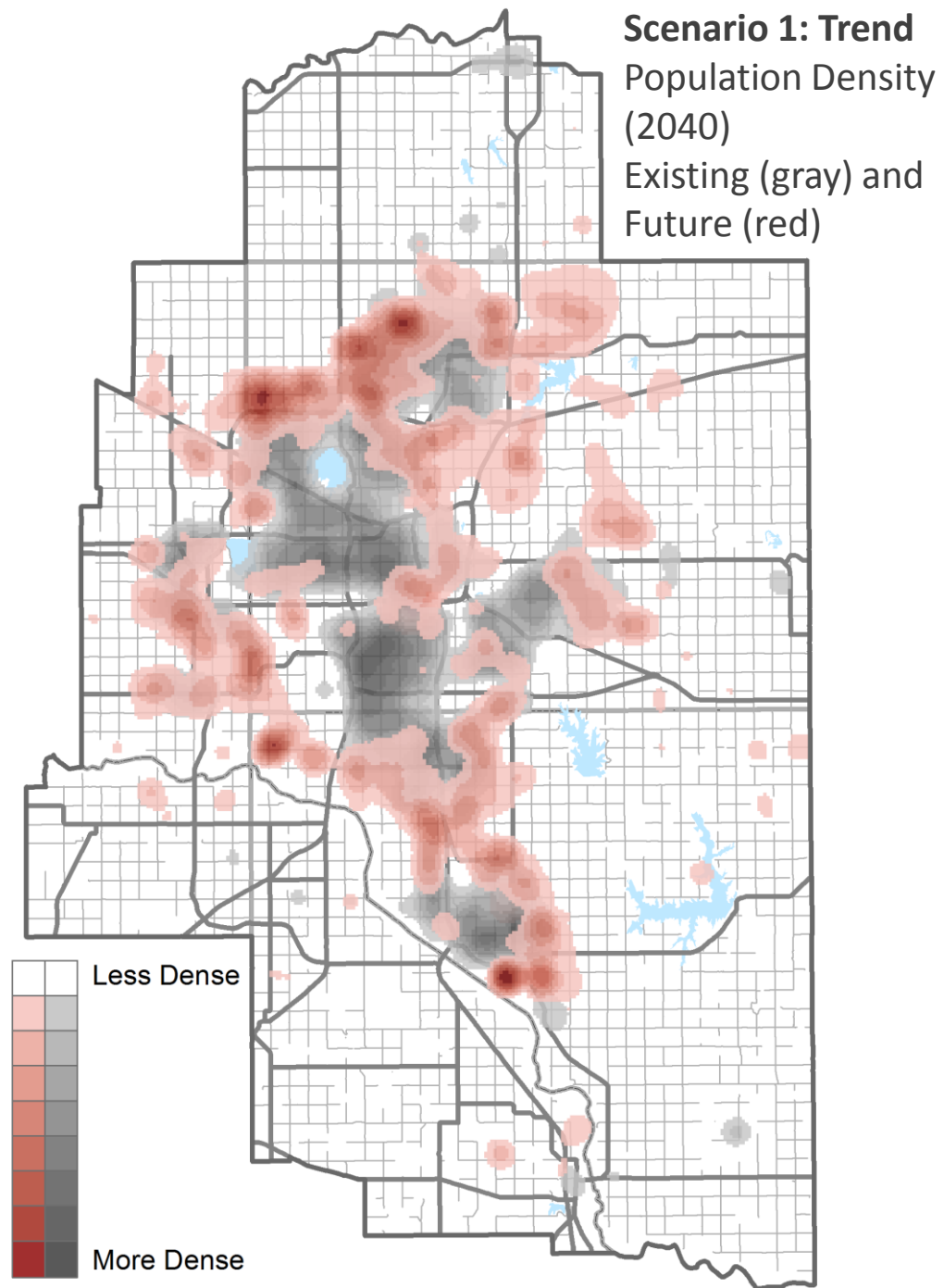


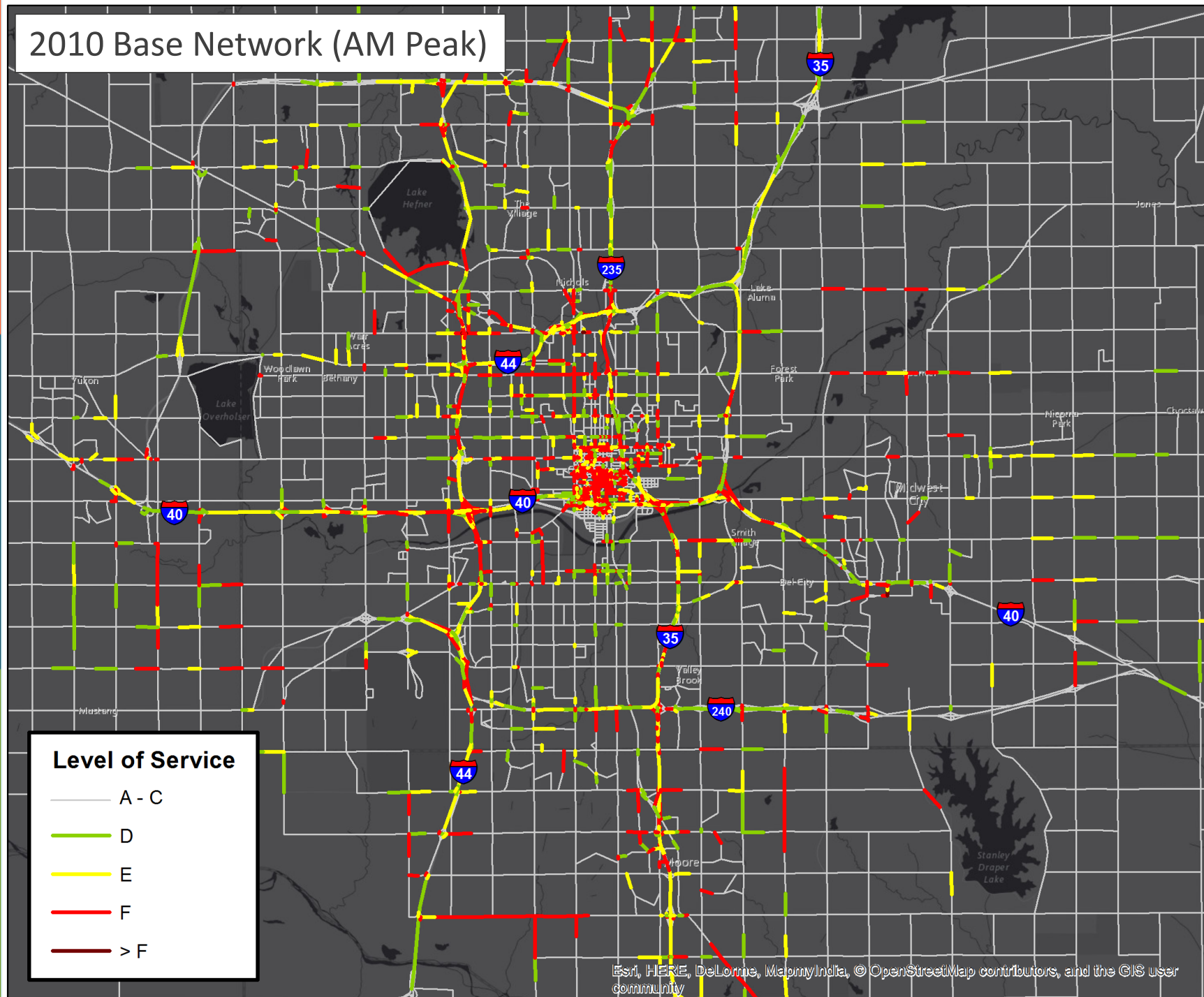
Photo: Sarah Phipps



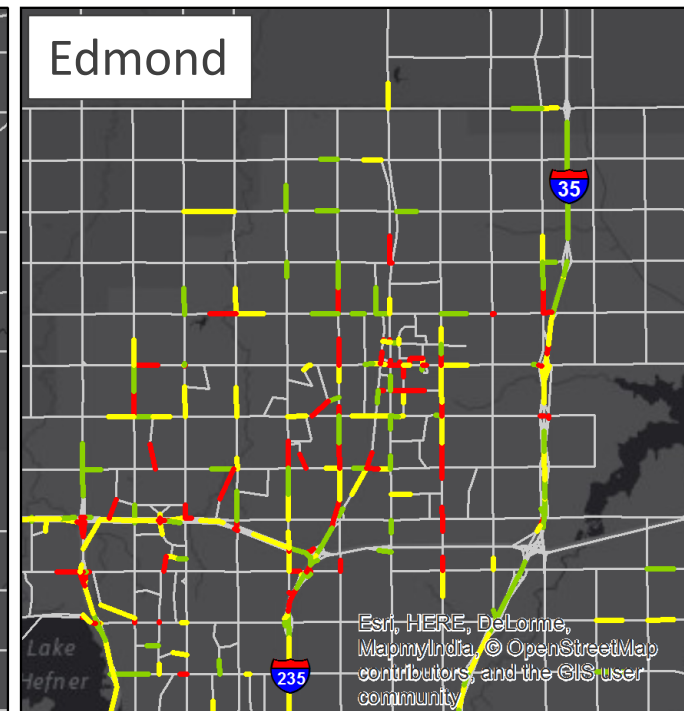
Model Output: Level of Service

Level of Service	Traffic Characteristics	Interpretation	Delay (seconds/vehicle)	Map Color Key
A	Free flow	No congestion	0 – 10	
B	Reasonably free flow	Light congestion	11 – 20	
C	Stable flow	Mild congestion	21 – 35	
D	Approaching unstable flow	Moderate congestion	36 – 55	
E	Unstable flow	Severe congestion	56 – 80	
F	Forced or breakdown flow	Extreme congestion	>80	
>F	Demand significantly exceeds roadway capacity			

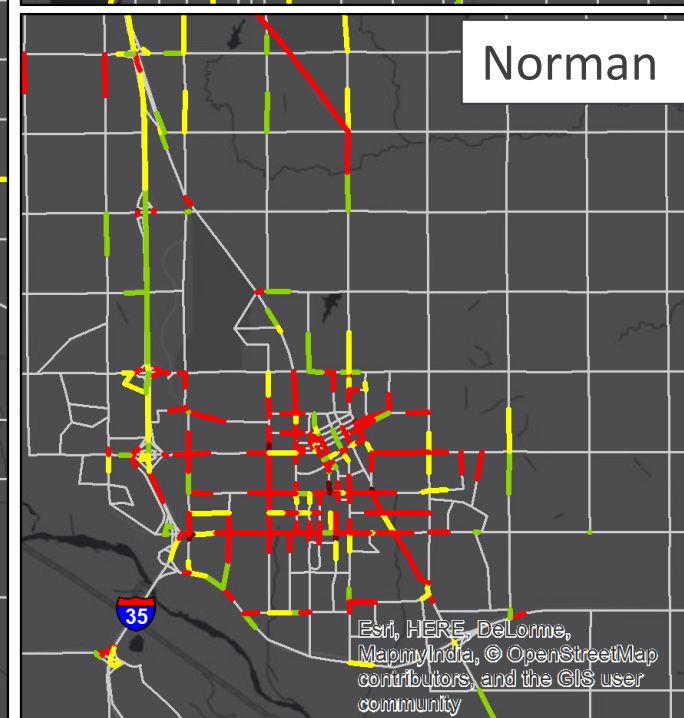
2010 Base Network (AM Peak)



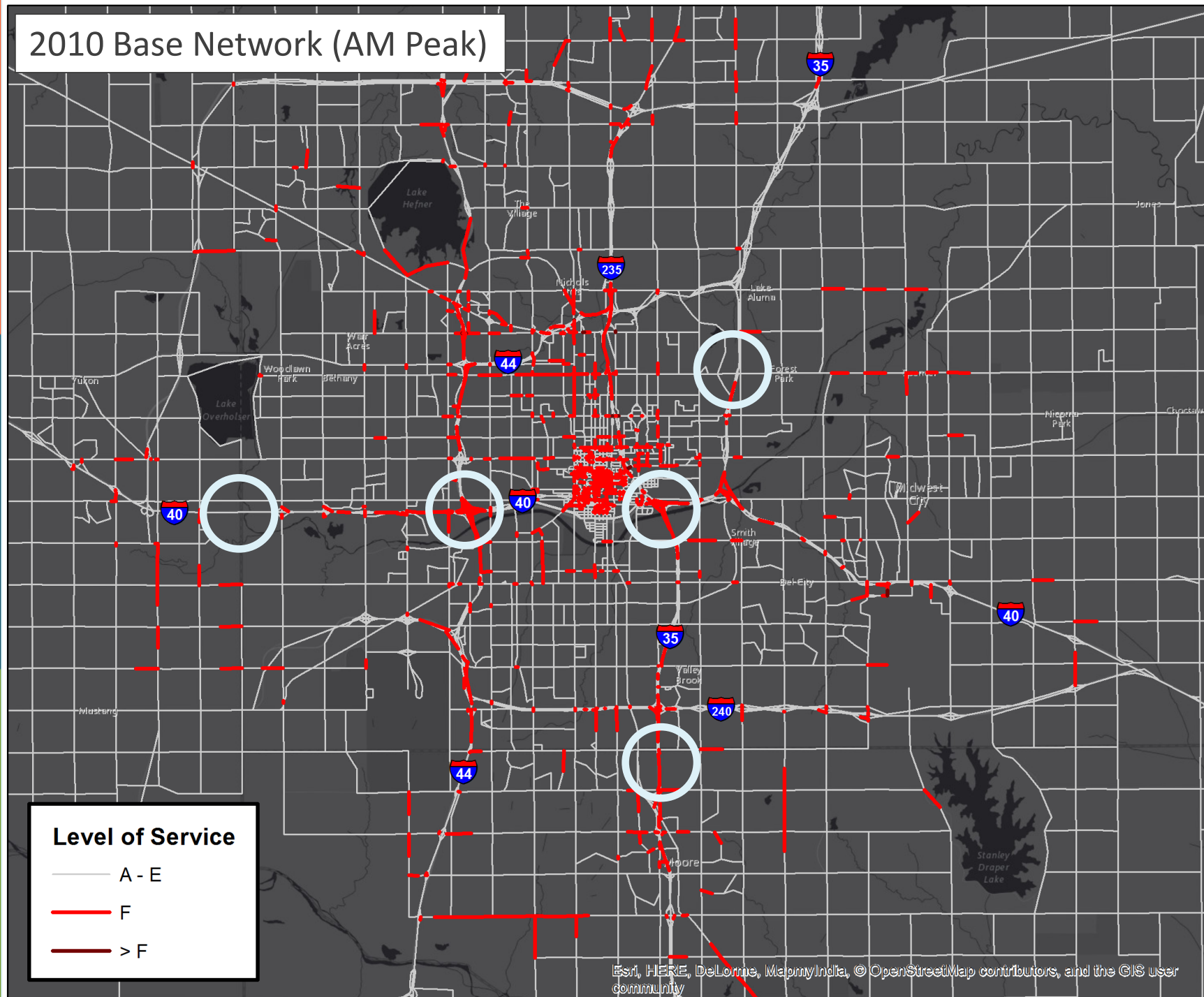
Edmond



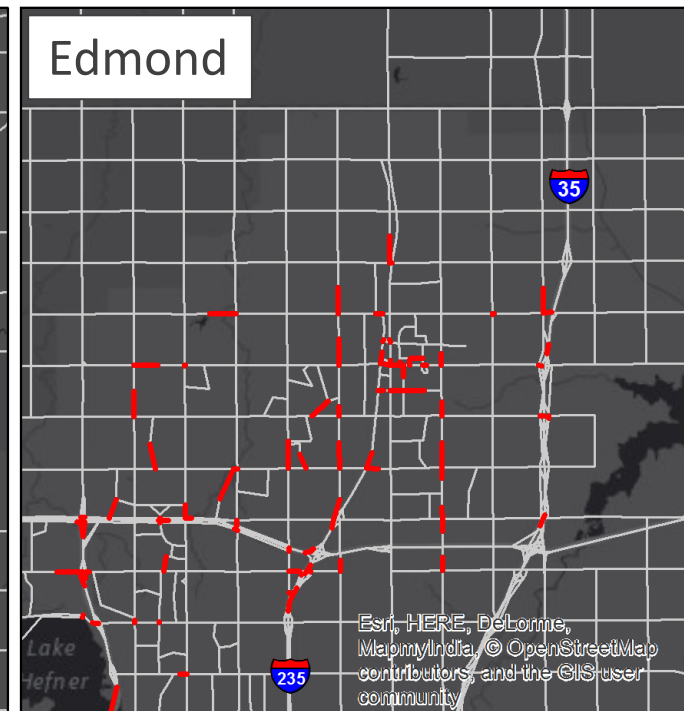
Norman



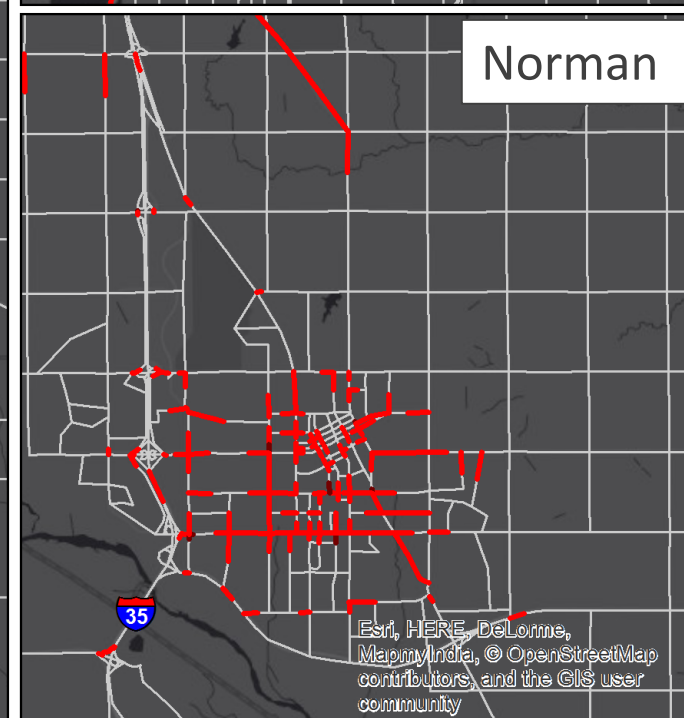
2010 Base Network (AM Peak)



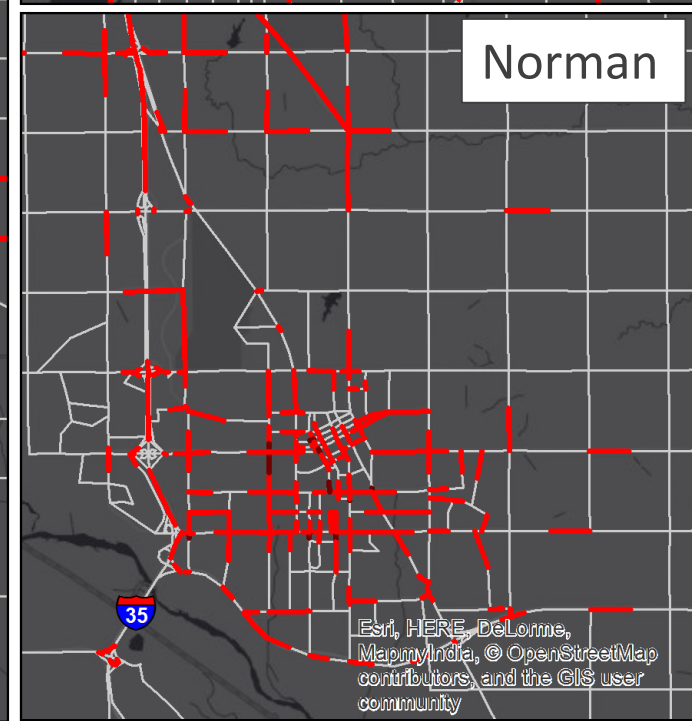
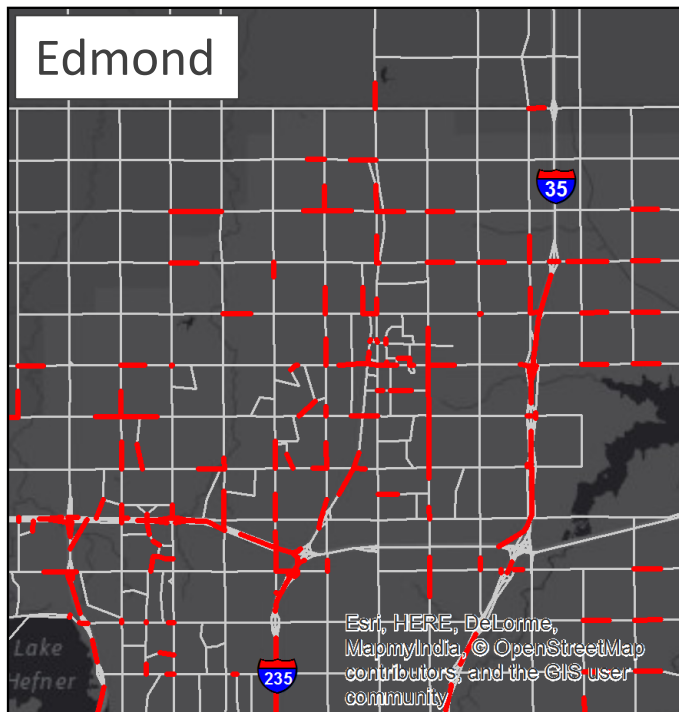
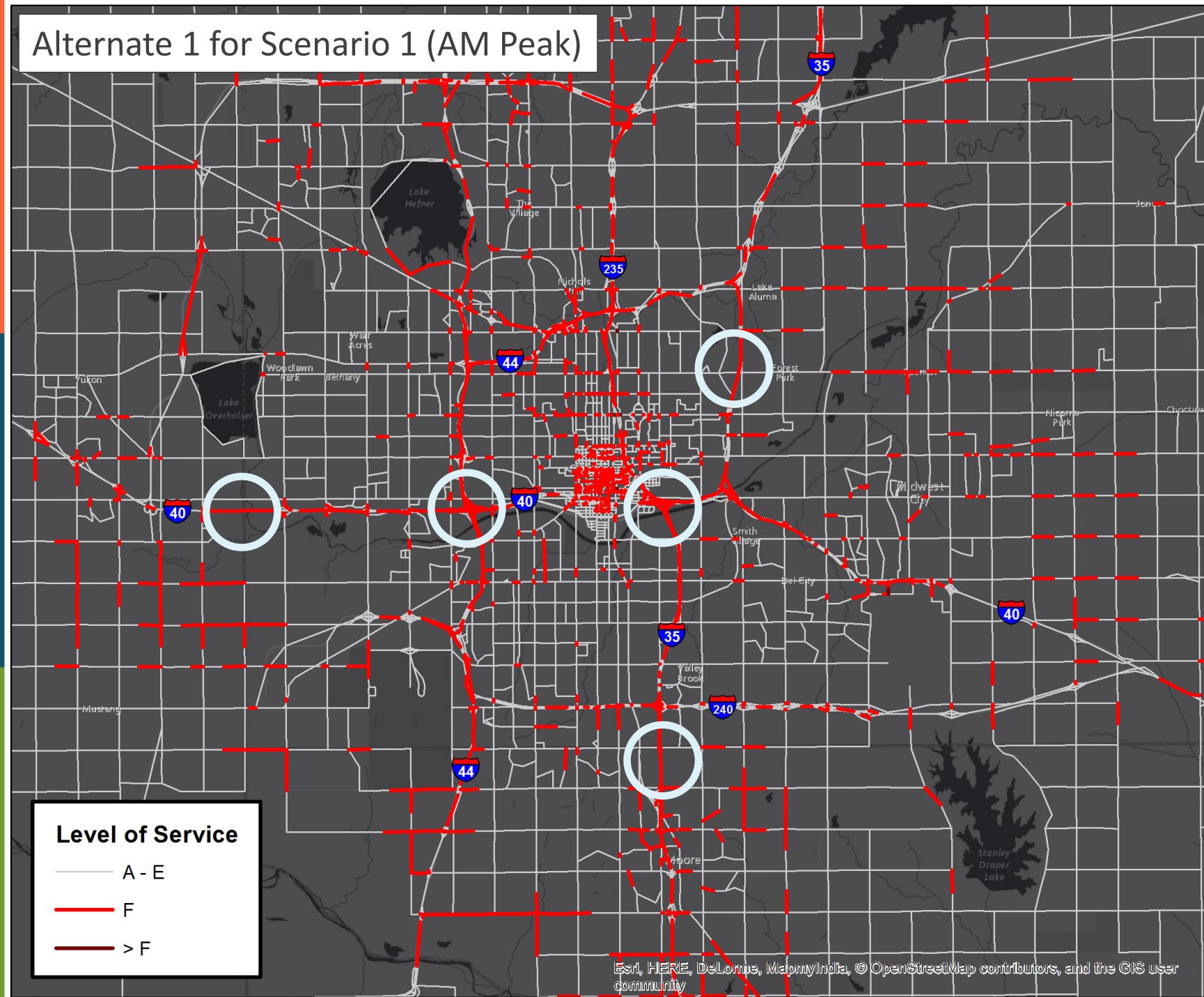
Edmond



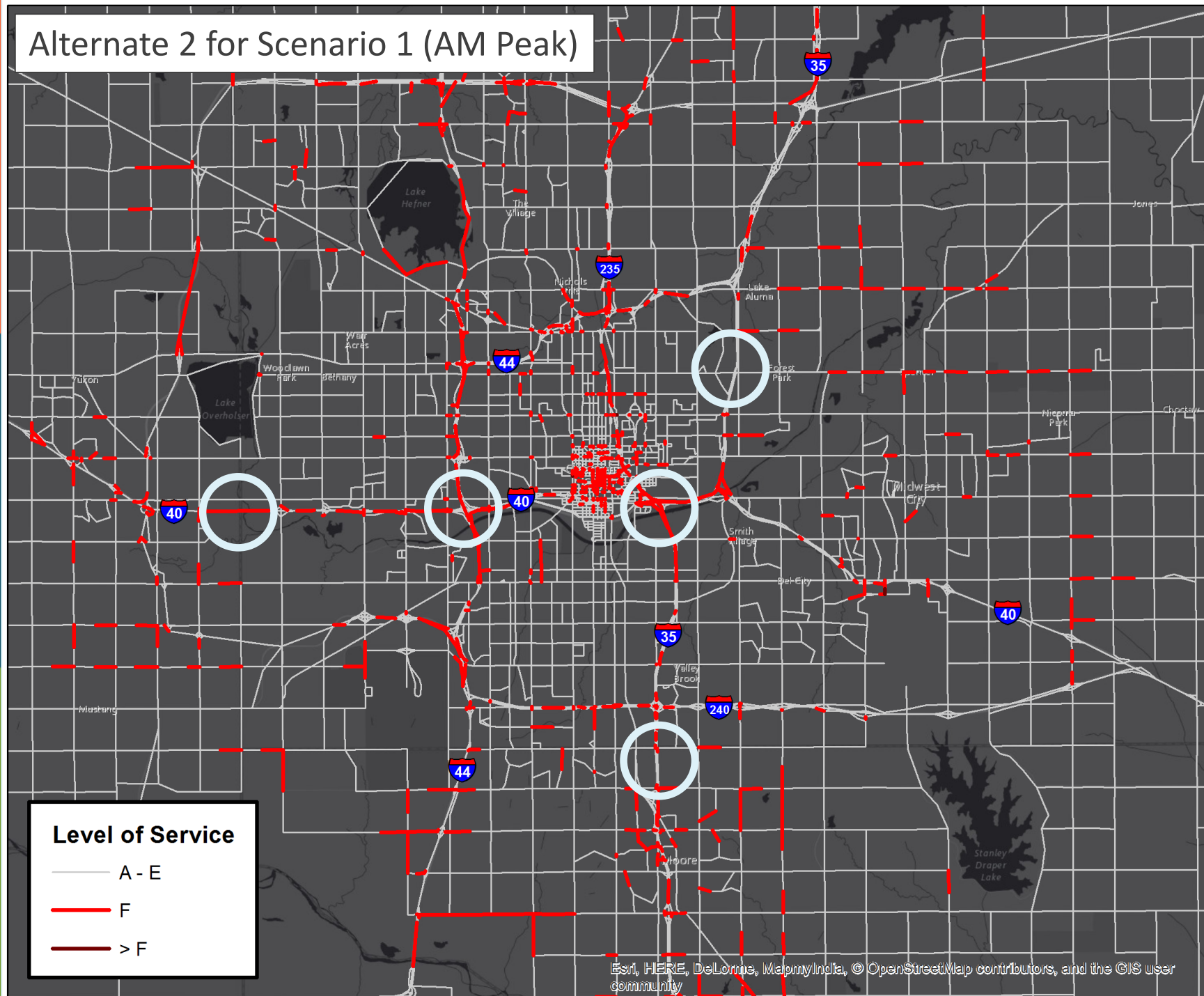
Norman



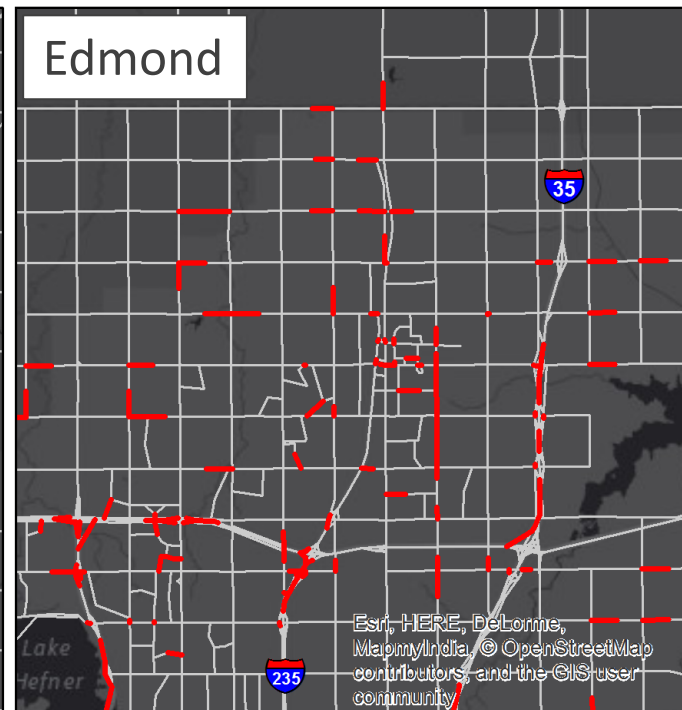
Alternate 1 for Scenario 1 (AM Peak)



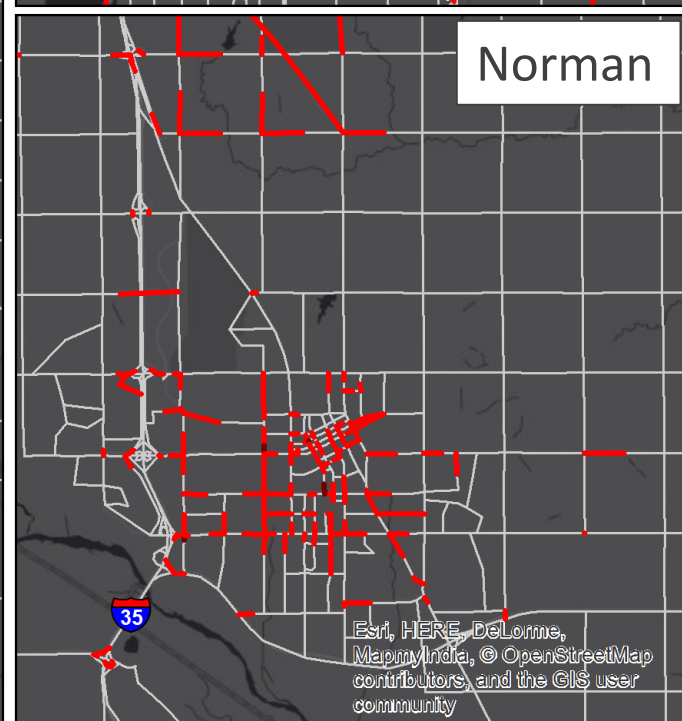
Alternate 2 for Scenario 1 (AM Peak)



Edmond

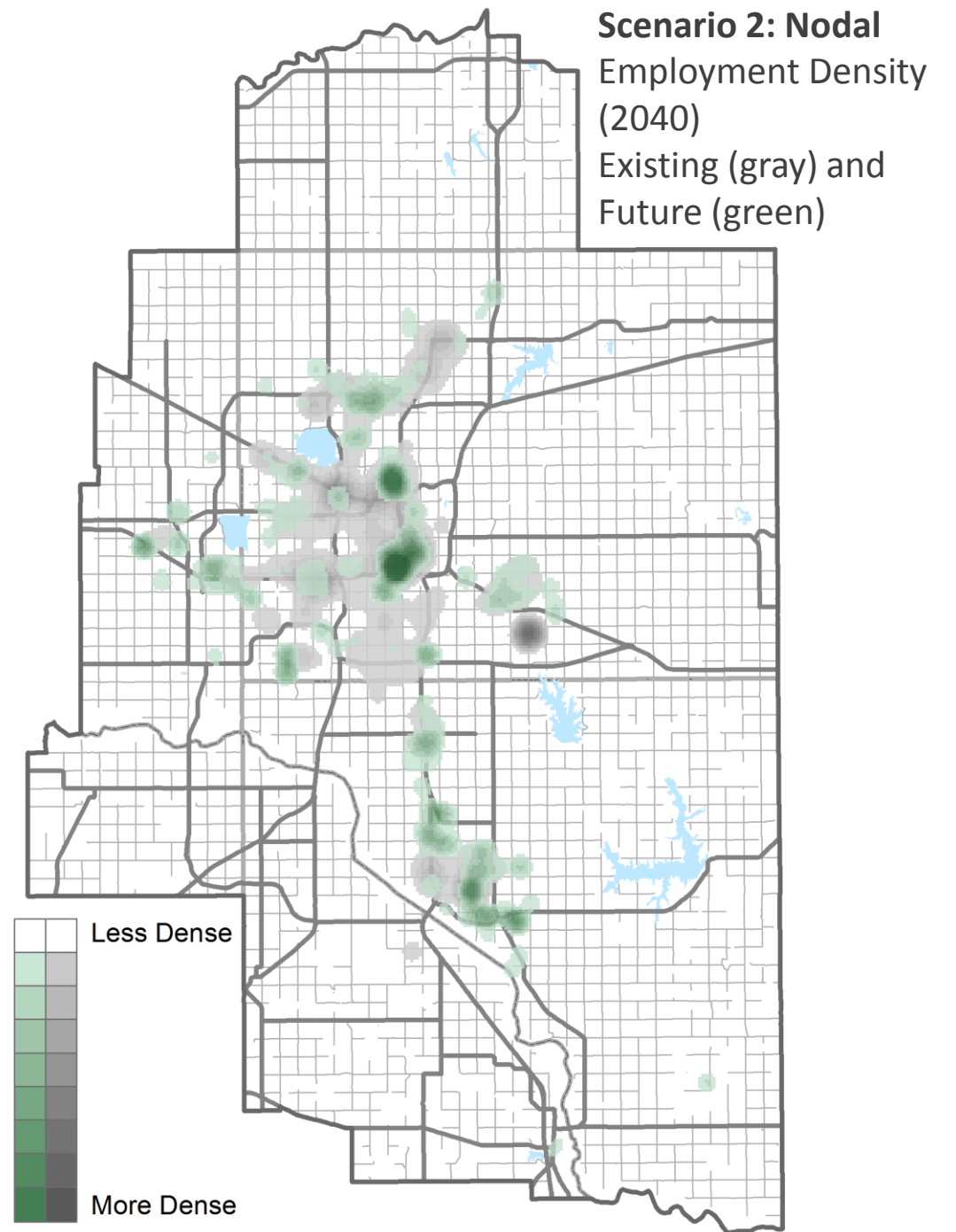
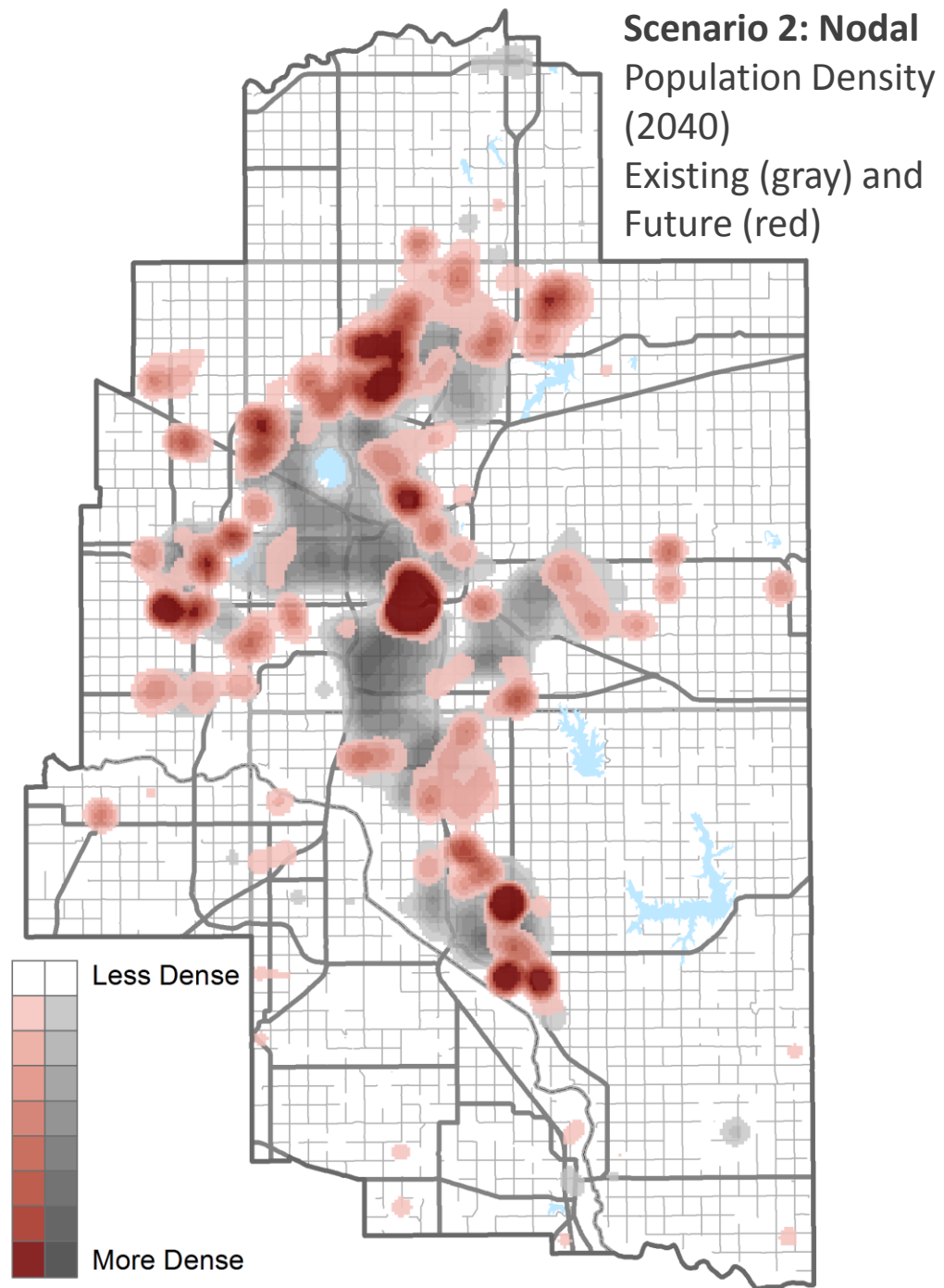


Norman

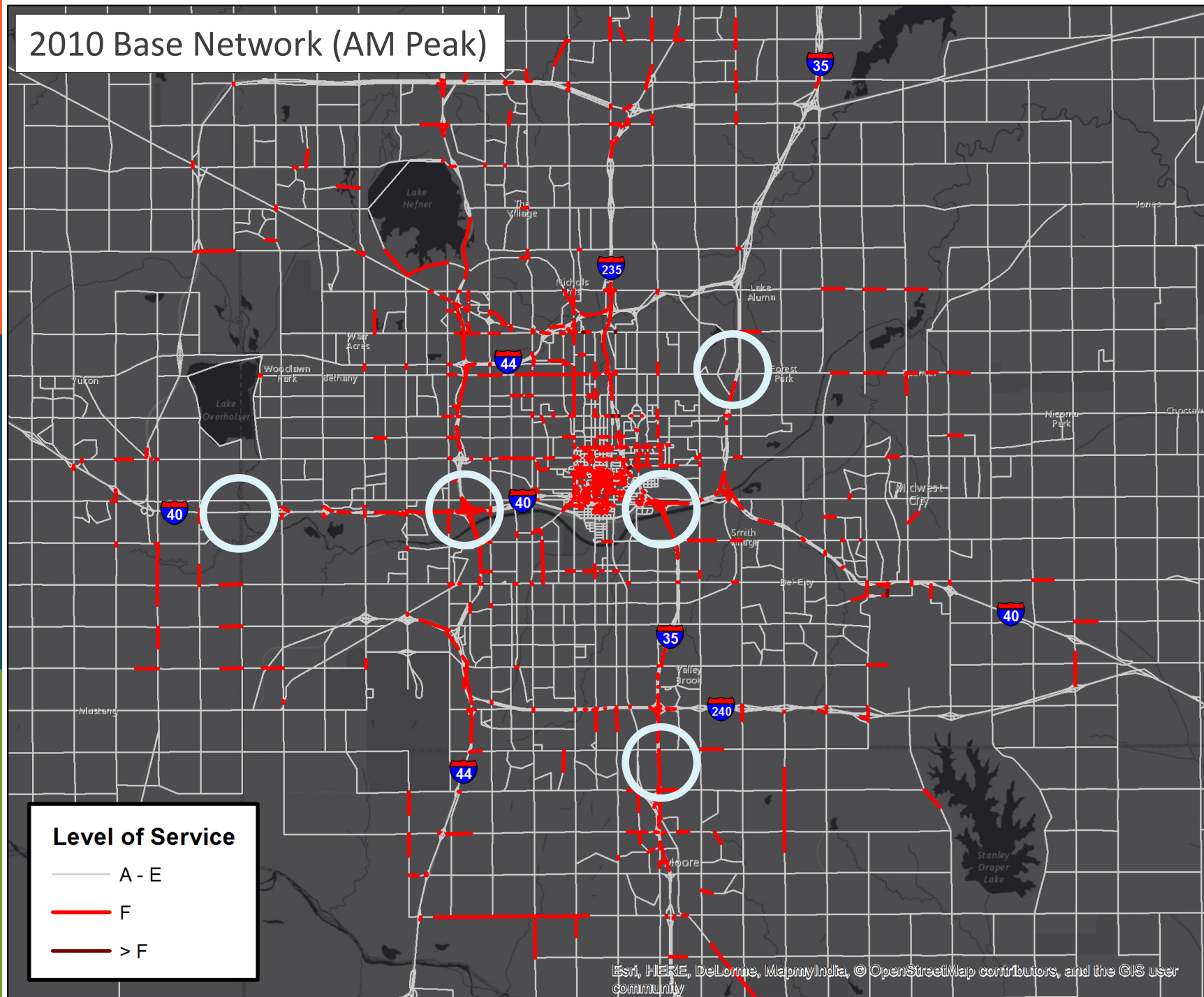


TDM (Travel Demand Model) Network Evaluation: Scenario 1	2010 Base Network	Scenario 1	
		Alternate 1	Alternate 2
Demographic Data			
Population	1,142,338	1,595,168	1,595,168
Employment	601,839	875,402	875,402
Daily Transportation Demand			
Vehicle Miles of Travel	30,266,000	45,299,000	46,550,000
Vehicle Hours of Travel	853,000	1,503,000	1,415,000
Vehicle Trips	4,165,000	5,973,000	5,973,000
Transit Ridership	15,700	22,800	22,900
System Performance			
Congested Road Miles	289	647	382
Average Overall Speed (mph)	35	30	33
Average Freeway Speed (mph)	45	40	44
Average Arterial Speed (mph)	35	25	29
Average Trip Length (miles)	7.27	7.58	7.79
Average Trip Length (minutes)	12.29	15.1	14.21
Daily Hours of Delay	138,000	454,000	366,000
Delay per Trip (minutes)	1.99	4.56	3.68

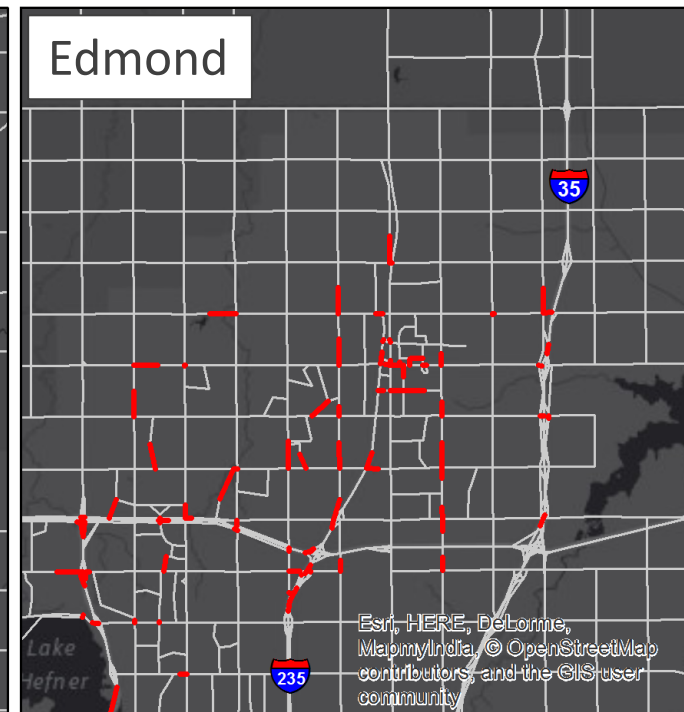
TDM Network Evaluation: Percent Change vs Base	2010 Base Network	Scenario 1	
		Alternate 1	Alternate 2
Demographic Data			
Population	1,142,338	40%	40%
Employment	601,839	45%	45%
Daily Transportation Demand			
Vehicle Miles of Travel	30,266,000	50%	54%
Vehicle Hours of Travel	853,000	76%	66%
Vehicle Trips	4,165,000	43%	43%
Transit Ridership	15,700	45%	46%
System Performance			
Congested Road Miles	289	124%	32%
Average Overall Speed (mph)	35	-14%	-6%
Average Freeway Speed (mph)	45	-11%	-2%
Average Arterial Speed (mph)	35	-29%	-17%
Average Trip Length (miles)	7.27	4%	7%
Average Trip Length (minutes)	12.29	23%	16%
Daily Hours of Delay	138,000	229%	165%
Delay per Trip (minutes)	1.99	129%	85%



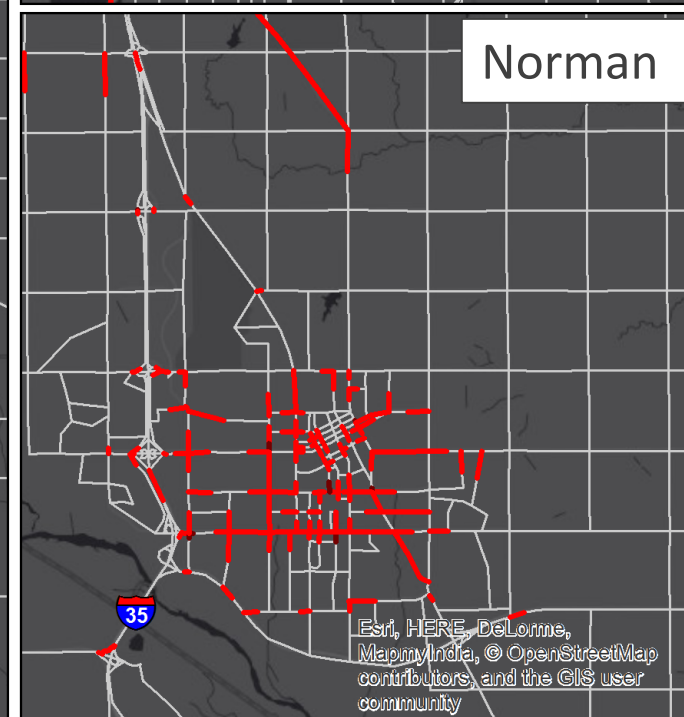
2010 Base Network (AM Peak)



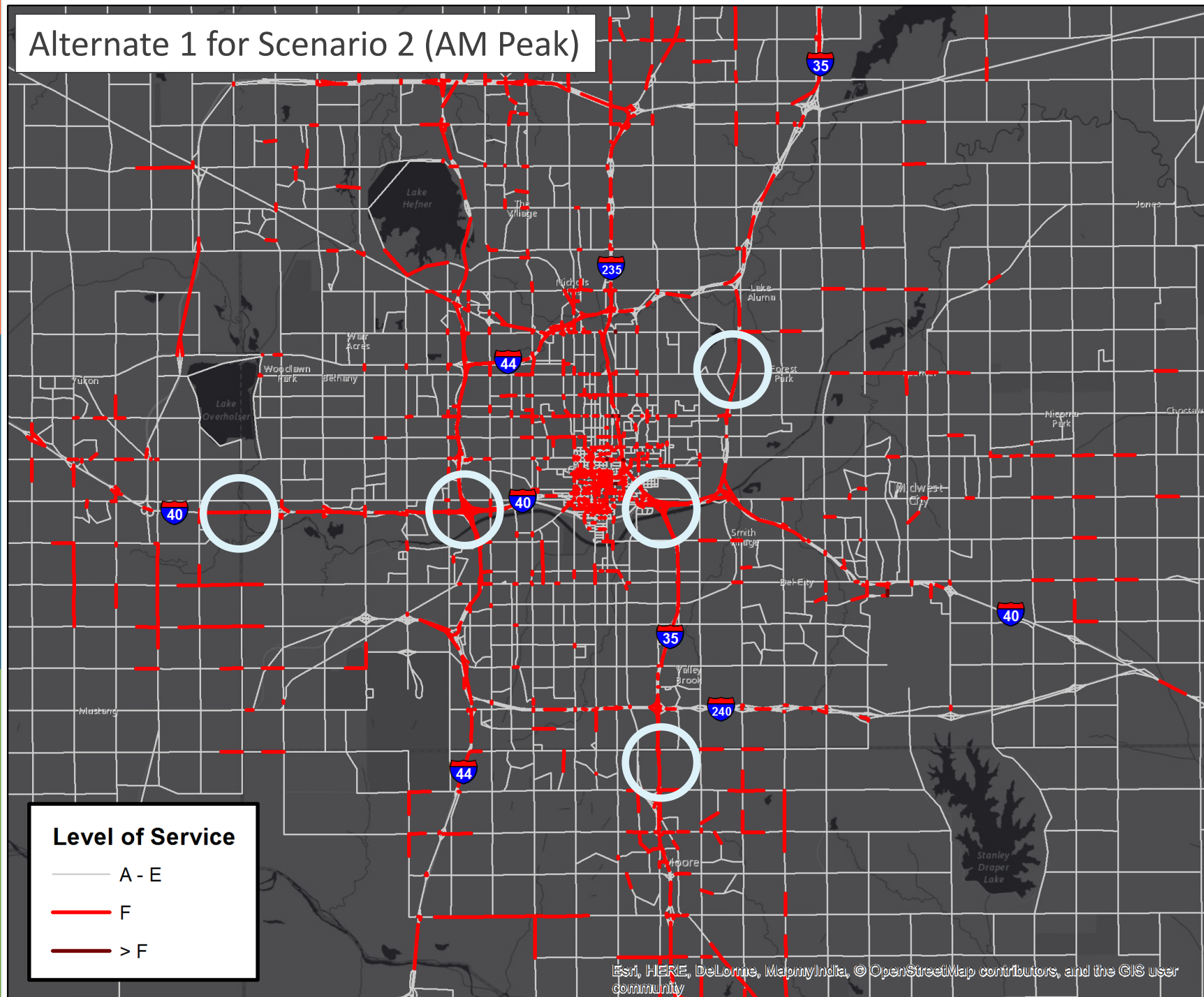
Edmond



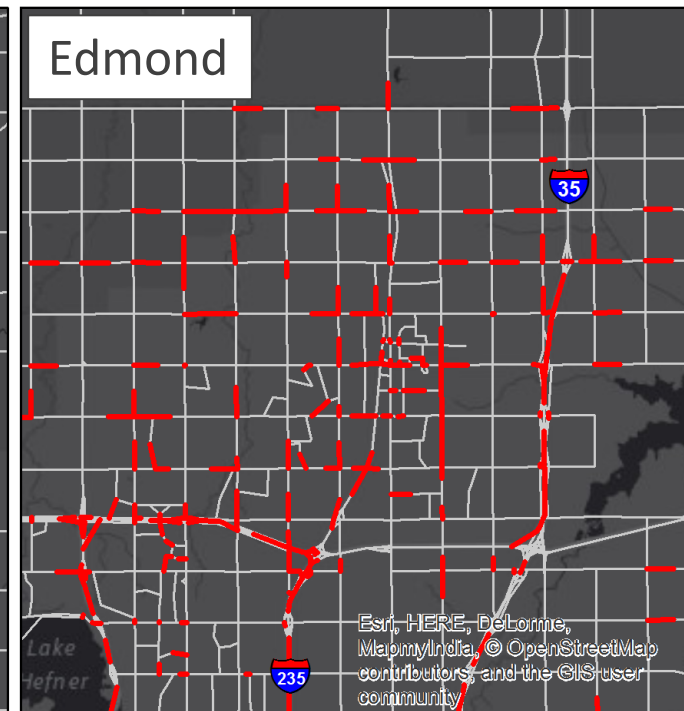
Norman



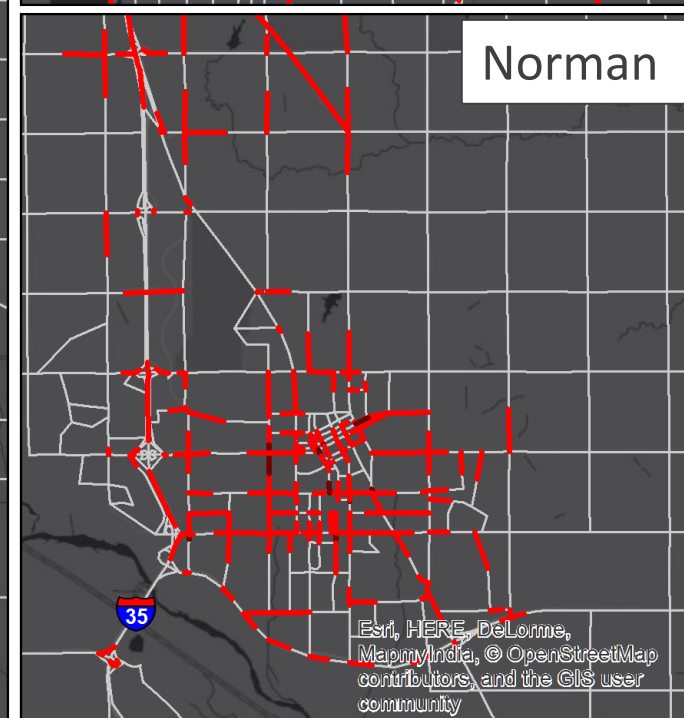
Alternate 1 for Scenario 2 (AM Peak)



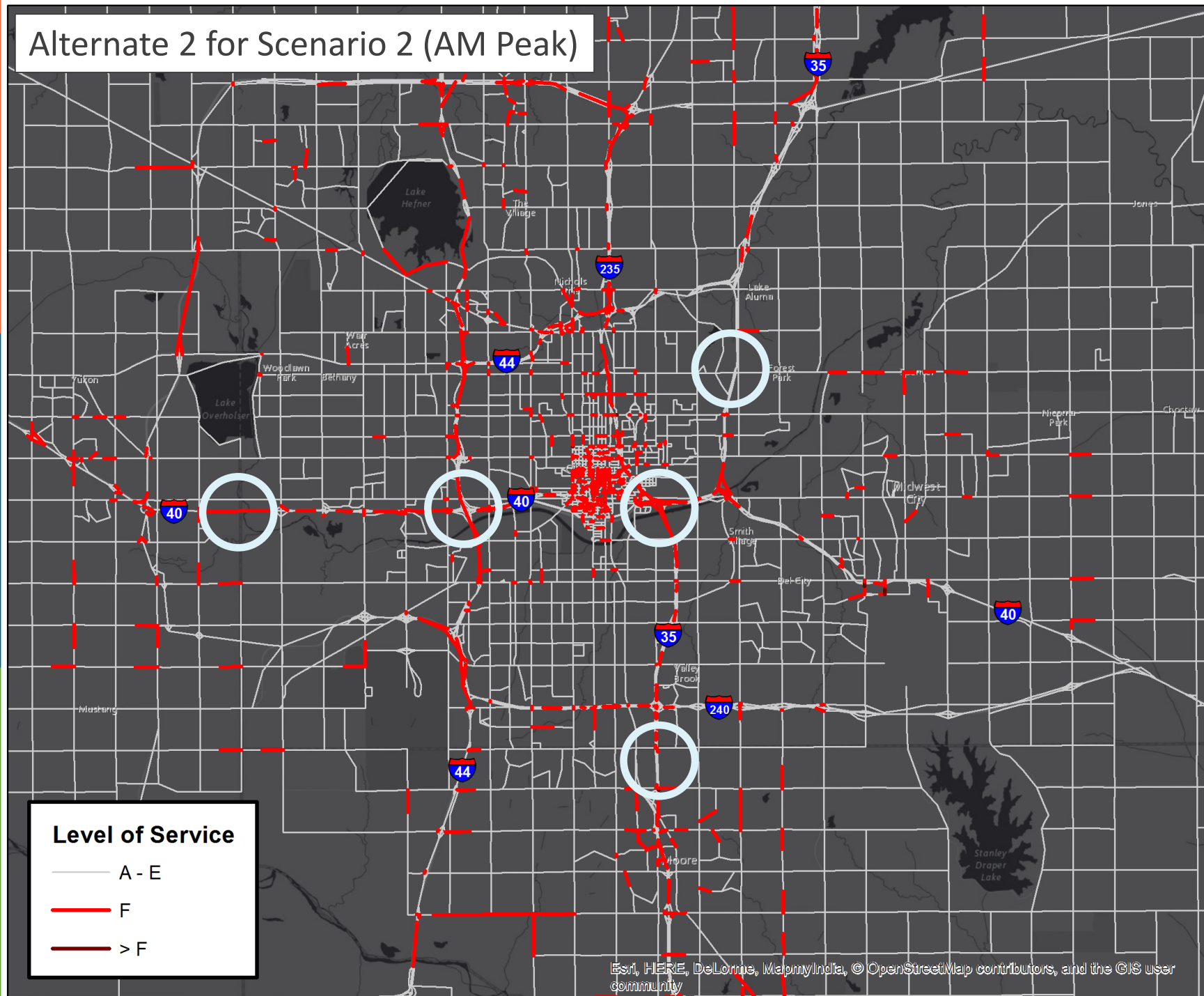
Edmond



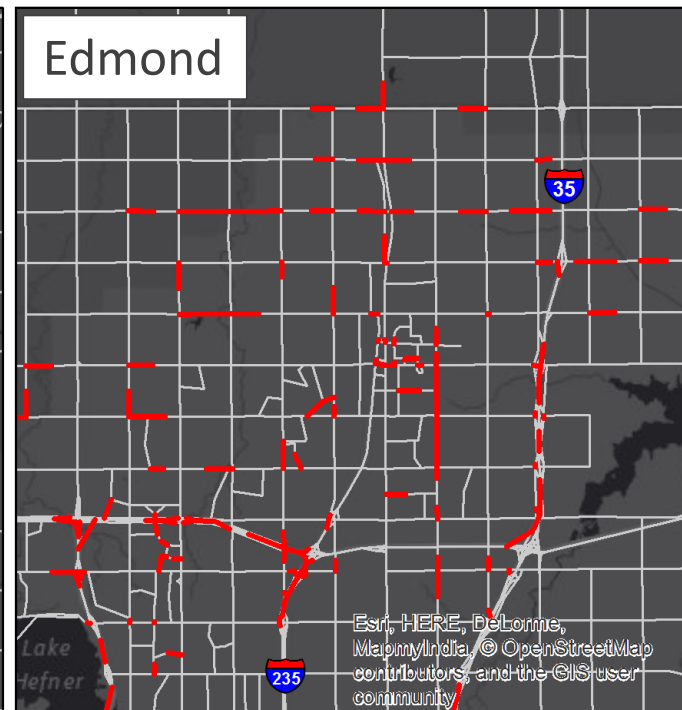
Norman



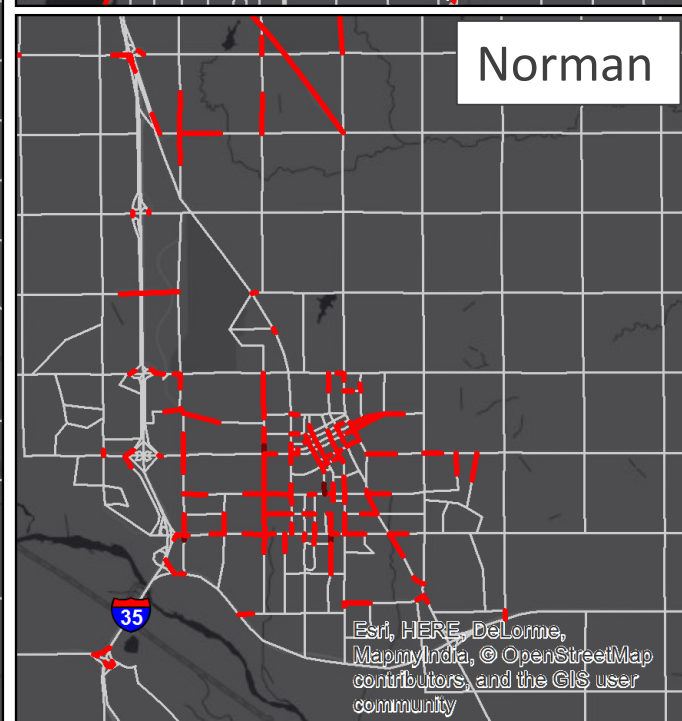
Alternate 2 for Scenario 2 (AM Peak)



Edmond



Norman



TDM Network Evaluation: Scenario 2	2010 Base Network	Scenario 2	
		Alternate 1	Alternate 2
Demographic Data			
Population	1,142,338	1,595,168	1,595,168
Employment	601,839	875,402	875,402
Daily Transportation Demand			
Vehicle Miles of Travel	30,266,000	44,321,000	45,517,000
Vehicle Hours of Travel	853,000	1,474,000	1,389,000
Vehicle Trips	4,165,000	5,996,000	5,996,000
Transit Ridership	15,700	26,200	26,600
System Performance			
Congested Road Miles	289	626	356
Average Overall Speed (mph)	35	30	33
Average Freeway Speed (mph)	45	40	44
Average Arterial Speed (mph)	35	25	29
Average Trip Length (miles)	7.27	7.39	7.59
Average Trip Length (minutes)	12.29	14.75	13.90
Daily Hours of Delay	138,000	425,000	340,000
Delay per Trip (minutes)	1.99	4.25	3.41

TDM Network Evaluation: Percent Change vs Base	2010 Base Network	Scenario 2	
		Alternate 1	Alternate 2
Demographic Data			
Population	1,142,338	40%	40%
Employment	601,839	45%	45%
Daily Transportation Demand			
Vehicle Miles of Travel	30,266,000	46%	50%
Vehicle Hours of Travel	853,000	73%	63%
Vehicle Trips	4,165,000	44%	44%
Transit Ridership	15,700	67%	69%
System Performance			
Congested Road Miles	289	117%	23%
Average Overall Speed (mph)	35	-14%	-6%
Average Freeway Speed (mph)	45	-11%	-2%
Average Arterial Speed (mph)	35	-29%	-17%
Average Trip Length (miles)	7.27	2%	4%
Average Trip Length (minutes)	12.29	20%	13%
Daily Hours of Delay	138,000	208%	146%
Delay per Trip (minutes)	1.99	114%	71%

Alternate 2 Comparison	Scenario 1 (S1)	Scenario 2 (S2)	S2 vs S1
Demographic Data			
Population	1,595,168	1,595,168	0%
Employment	875,402	875,402	0%
Daily Transportation Demand			
Vehicle Miles of Travel	46,550,000	45,517,000	-2%
Vehicle Hours of Travel	1,415,000	1,389,000	-2%
Vehicle Trips	5,973,000	5,996,000	0%
Transit Ridership	22,900	26,600	16%
System Performance			
Congested Road Miles	382	356	-7%
Average Overall Speed (mph)	33	33	0%
Average Freeway Speed (mph)	44	44	0%
Average Arterial Speed (mph)	29	29	0%
Average Trip Length (miles)	7.79	7.59	-3%
Average Trip Length (minutes)	14.21	13.90	-2%
Daily Hours of Delay	366,000	340,000	-7%
Delay per Trip (minutes)	3.68	3.41	-7%

Conclusions

- Future Transportation Improvements Option (Alternate 2):
 - Versus No Build Option (Alternate 1):
 - Significantly decreases congested lane miles
 - Less delay
 - Less speed reduction
- More compact regional footprint (Scenario 2: Nodal):
 - More transit ridership
 - Fewer congested lane miles
 - Less delay
- Next Steps:
 - Alternates 3
 - Future regional transit projects

QUESTIONS?

ASSOCIATION of CENTRAL OKLAHOMA GOVERNMENTS
acogok.org | jsebesta@acogok.org | 405.234.2264

