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Study Corridor Information

Segment Name	Dist (miles)	No_signals	Pspeed
Walden Rd. to Buck Lake Rd.	3.3	5	45
Buck Lake Rd. to Capital Circle NE	0.8	3	45
Capital Circle NE to Riggins Rd.	0.6	0	45
Riggins Rd. to Blair Stone Rd.	0.8	1	45
Blair Stone Rd. to Magnolia Dr.	0.9	0	45
Magnolia Dr. to Franklin Blvd.	0.6	1	35
Franklin Blvd. to Monroe St.	0.5	3	30
Monroe St. to Macomb St.	0.5	2	30

Travel Time Reliability Indicators

Percentile-Based Travel Time Reliability
Planning Time Index (PTI): Compares the 95th percentile travel time and the travel time at a base free-flow speed. This indicator was estimated as follows:

$$PTI = \frac{\text{95th Perc of Travel Time}}{TTf}$$

where, TTf represents travel at a base free-flow speed Buffer Time Index (BTI): Reflects the amount of the time that travelers experience beyond the average travel time to reach the destination on schedule

$$BTI = \frac{\text{95th Perc of Travel Time - Aver Travel Time}}{\text{Aver Travel Time}}$$

Travel Time Index (TTI): Is an indicator that show how long a driver takes to transverse a segment on avaerage as compared to free-flowing travel time limit in the study

$$TTI = \frac{\text{Average Travel Time}}{TTf}$$

Percentile-Based Travel Time Reliability
The coefficient of variation, standard deviation, average, median values of travel speed and travel time are estimated based on the selected period of analusis on a dashboard.

Average Delay Indicators

Average Delay per Trip (minutes):

$$d_{trip} = \text{TTf x (TTI - 1)}$$

Average Delay per Mile (minutes/mile):

$$d_{mile} = \frac{d_{trip}}{\text{Segment distance}}$$

Average Delay per Signal (minutes/signal):

$$d_{signal} = \frac{d_{trip}}{\text{Number of traffic signal}}$$

The coefficient of variation (CV): is another type of travel time reliability indicator that estimates the stability of operation. Large value of CV indicates that a highway is unreliabl

$$CV\% = \frac{\text{Std. of the Travel Time}}{\text{Average Travel Time}} \text{ x } 100\%$$

where, Std. represents the standard deviation metric

Level of Service

Furthermore, level of service (LOS) of each segment was estimated. The estimation of the LOS metric followed the procedures recommended in the Highway Capacity Manual 6th edition (HCM-6). In particular, guidelines contained in Chapter 16, 17, and 36 were followed in the analysis. It is worth noting that the majority of the traffic operation measures discussed above require the base free-flow speed as an input parameter in the analysis. Consistent with the previous studies, the base free-flow speed used in the analysis was set at 5 mph above the posted speed limit

Consistent with the previous studies, the base free-flow speed used in the analysis was set at 5 mph above the posted speed limit

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Operational Analysis of Mahan Corridor

Travel Time Reliability, Delay Indicator and Level of Service

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Period of Analysis

1-day ✕ ▼

Corridor Information

Segment Name	Dist (miles)	No_signals	Pspeed	Origin Coordinates	Destination Coordinates
Walden Rd. to Buck Lake Rd.	3.3	5	45	30.444650, -84.288245	30.444655, -84.280792
Buck Lake Rd. to Capital Circle NE	0.8	3	45	30.444663, -84.280598	30.444623, -84.272556
Capital Circle NE to Riggins Rd.	0.6	0	45	30.444645, -84.272076	30.447537, -84.262534
Riggins Rd. to Blair Stone Rd.	0.8	1	45	30.447576, -84.262433	30.452482, -84.248828
Blair Stone Rd. to Magnolia Dr.	0.9	0	45	30.452549, -84.248654	30.456869, -84.236665
Magnolia Dr. to Franklin Blvd.	0.6	1	35	30.456871, -84.236664	30.459999, -84.227981
Franklin Blvd. to Monroe St.	0.5	3	30	30.459999, -84.227980	30.464754, -84.214854
Monroe St. to Macomb St.	0.5	2	30	30.464751, -84.214823	30.483481, -84.163101

Travel Time Reliability

Planning Time Index
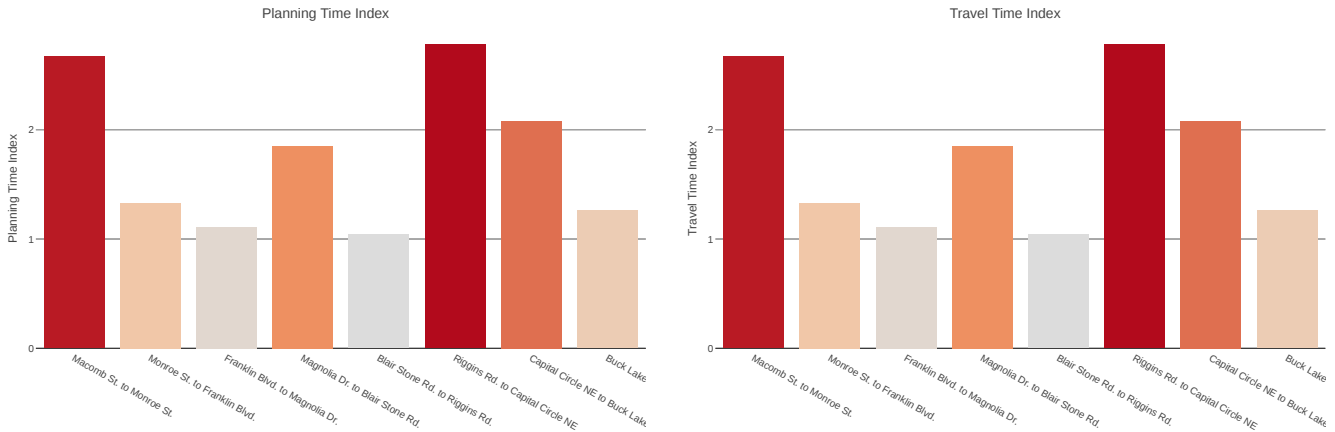
Travel Time Index

Travel Time Reliability Summaries

Travel Time Reliability Indicators

Segment Name	AverSpeed	MedianSpeed	PTindex	Bufferindex	CoefVaria%	Speedstd
Macomb St. to Monroe St.	15	15	2.67	0	0	0
Monroe St. to Franklin Blvd.	30	30	1.33	0	0	0
Franklin Blvd. to Magnolia Dr.	36	36	1.11	0	0	0
Magnolia Dr. to Blair Stone Rd.	27	27	1.85	0	0	0
Blair Stone Rd. to Riggins Rd.	48	48	1.04	0	0	0
Riggins Rd. to Capital Circle NE	18	18	2.78	0	0	0
Capital Circle NE to Buck Lake Rd.	24	24	2.08	0	0	0
Buck Lake Rd to Walden Rd	39.6	39.6	1.26	0	0	0

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Operational Analysis of Mahan Corridor

Travel Time Reliability, Delay Indicator and Level of Service

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A Weekly Report Update

Period of Analysis

1-day ✕ ▼

Corridor Information

Segment Name	Dist (miles)	No_signals	Pspeed	Origin Coordinates	Destination Coordinates
Walden Rd. to Buck Lake Rd.	3.3	5	45	30.444650, -84.288245	30.444655, -84.280792
Buck Lake Rd. to Capital Circle NE	0.8	3	45	30.444663, -84.280598	30.444623, -84.272556
Capital Circle NE to Riggins Rd.	0.6	0	45	30.444645, -84.272076	30.447537, -84.262534
Riggins Rd. to Blair Stone Rd.	0.8	1	45	30.447576, -84.262433	30.452482, -84.248828
Blair Stone Rd. to Magnolia Dr.	0.9	0	45	30.452549, -84.248654	30.456869, -84.236665
Magnolia Dr. to Franklin Blvd.	0.6	1	35	30.456871, -84.236664	30.459999, -84.227981
Franklin Blvd. to Monroe St.	0.5	3	30	30.459999, -84.227980	30.464754, -84.214854
Monroe St. to Macomb St.	0.5	2	30	30.464751, -84.214823	30.483481, -84.163101

Average Delays

Average Delay per Trip (min.)
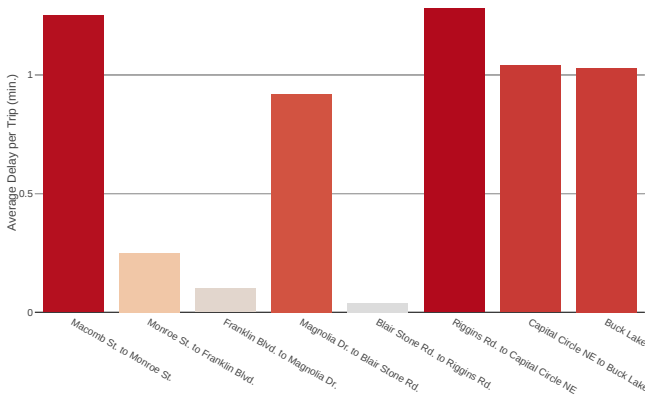
Average Delay per Mile (min./mile)
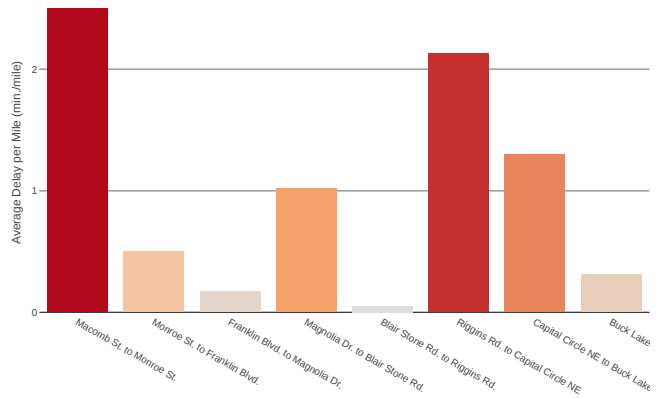
Summary of Average Delay Indicators

Average Delay per Trip, Average Delay per Mile, Average Delay per Signal

Segment Name	Avdelay(min)	Avdelay(min/mile)	Avdelay(min/signal)
Macomb St. to Monroe St.	1.25	2.5	0.62
Monroe St. to Franklin Blvd.	0.25	0.5	0.08
Franklin Blvd. to Magnolia Dr.	0.1	0.17	0.1
Magnolia Dr. to Blair Stone Rd.	0.92	1.02	
Blair Stone Rd. to Riggins Rd.	0.04	0.05	0.04
Riggins Rd. to Capital Circle NE	1.28	2.13	
Capital Circle NE to Buck Lake Rd.	1.04	1.3	0.35
Buck Lake Rd to Walden Rd	1.03	0.31	0.21

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Period of Analysis

1-day ✕ ▼

Source: Exhibit 16-3 HCM-6

LOS	Travel Speed Threshold by Base Free-Flow Speed (mi/h)							Volume-to-Capacity Ratio[a]
	55	50	45	40	35	30	25	
A	>44	>40	>36	>32	>28	>24	>20	≤ 1.0
B	>37	>34	>30	>27	>23	>20	>17	
C	>28	>25	>23	>20	>18	>15	>13	
D	>22	>20	>18	>16	>14	>12	>10	
E	>17	>15	>14	>12	>11	>9	>8	
F	≤17	≤15	≤14	≤12	≤11	≤9	≤8	
F	Any							> 1.0

Level of Service

Level of Service
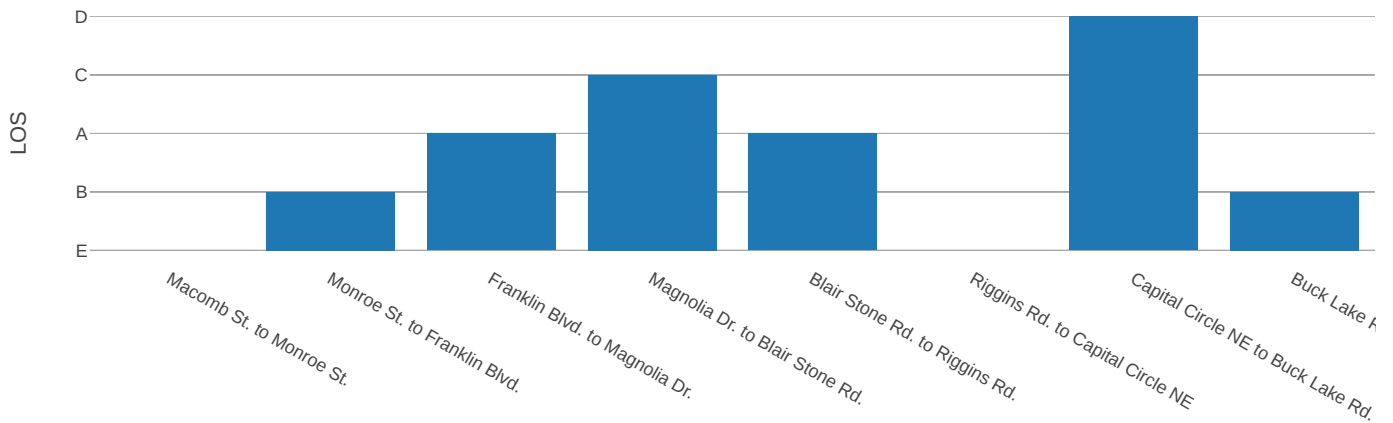
Level of Sevice Table

Level of Service (LOS)

Segment Name	Average speed (mph)	Median speed (mph)	LOS
Macomb St. to Monroe St.	15	15	E
Monroe St. to Franklin Blvd.	30	30	B
Franklin Blvd. to Magnolia Dr.	36	36	A
Magnolia Dr. to Blair Stone Rd.	27	27	C
Blair Stone Rd. to Riggins Rd.	48	48	A
Riggins Rd. to Capital Circle NE	18	18	E
Capital Circle NE to Buck Lake Rd.	24	24	D
Buck Lake Rd to Walden Rd	39.6	39.6	B

↺
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