



# Travel Time Reliability and Delay Report

## Travel Time Reliability

The Wisconsin Department of Transportation wants travelers to arrive safely and on-time at their destinations. Having a high level of confidence and certainty of on-time arrival are measures of the reliability of the transportation system.

### How do we measure travel reliability?

**GOAL:**  
**Improve the reliability of highway travel**

Because system reliability is important to so many individuals and businesses, WisDOT developed a travel time reliability performance measure as part of its MAPSS Performance Improvement Program.

The statewide travel time reliability performance (PTI) measure: tracks the reliability of the nine Interstate corridors and 28 urban freeway and highway segments and provides a precise way to budget travel time and measure system performance.

### Planning Time Index (PTI) value



To calculate reliability, the department developed a Planning Time Index that gives a numerical value for travel reliability.

WisDOT tracks nine Interstate corridors and 28 urban freeway and highway segments

### Sample travel scenario



$$20 \text{ minutes} \times 1.5 \text{ PTI} = 30 \text{ minutes}$$

A PTI of 1.5 means travel is moderately unreliable. A traveler going for a 20 minute trip during a peak period would be assured of completing the trip in 30 minutes or less at least 95 percent of the time.



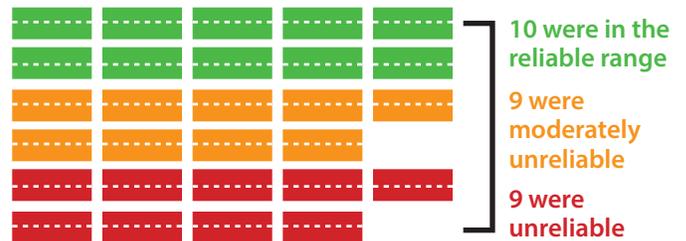
### 2013 Spring Quarter

For 24 urban freeway and highway segments:



### 2014 Spring Quarter

For 28 urban freeway and highway segments:

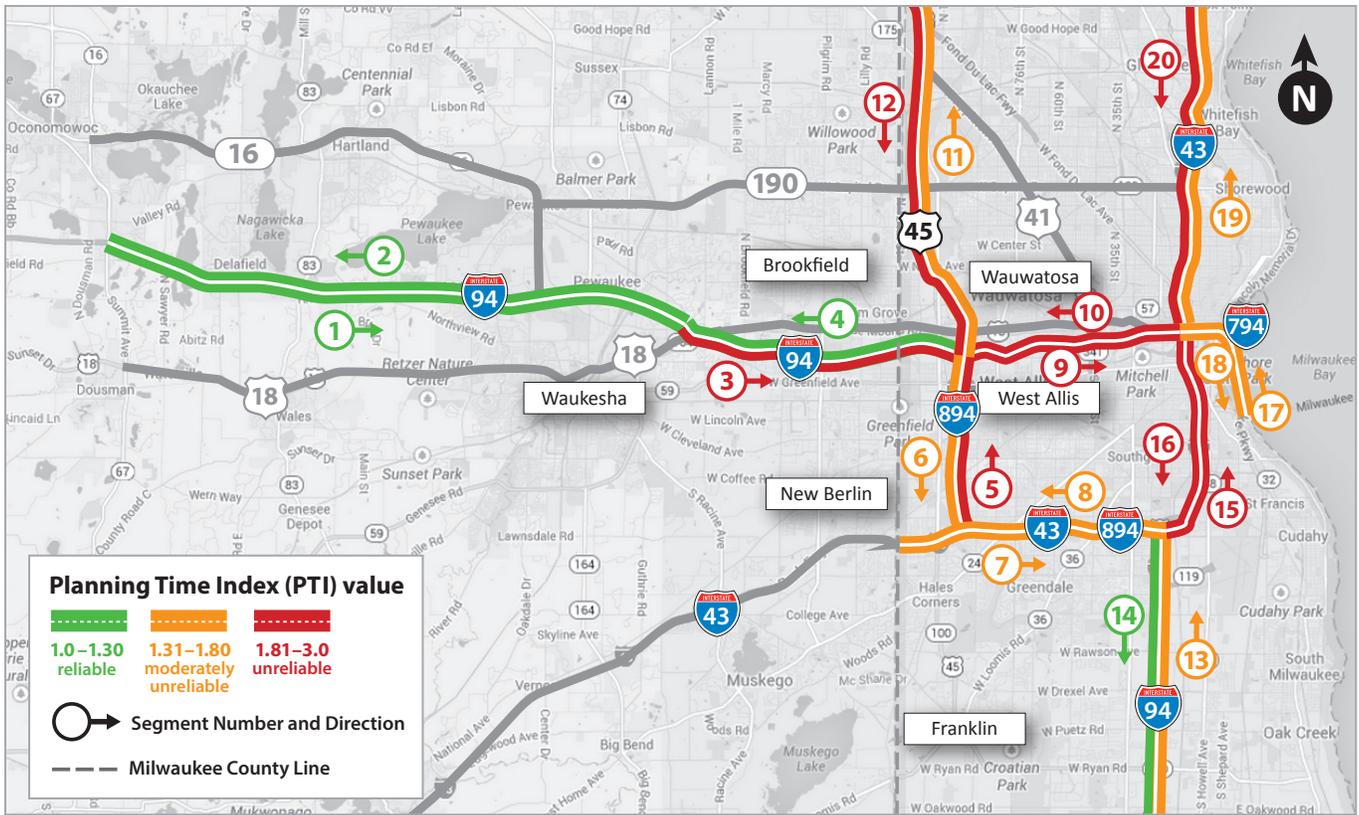


## Efforts to improve

Many things can adversely affect travel time reliability, including traffic incidents, weather, special events, holiday traffic and work zones. Reducing or mitigating the impact of these factors serves to improve travel time reliability.

The department is working to improve traffic signal systems, ramp meters, maintenance and work zone management to reduce traffic congestion. As part of the Zoo Interchange reconstruction in southeast Wisconsin, an integrated corridor management system is in place to improve traffic flow during construction. Travelers can also get real-time traffic information from the 511 Traveler Information System and choose to avoid congested routes. Some travelers are willing to accept delay as long as reliable information is available about the length of the delay.

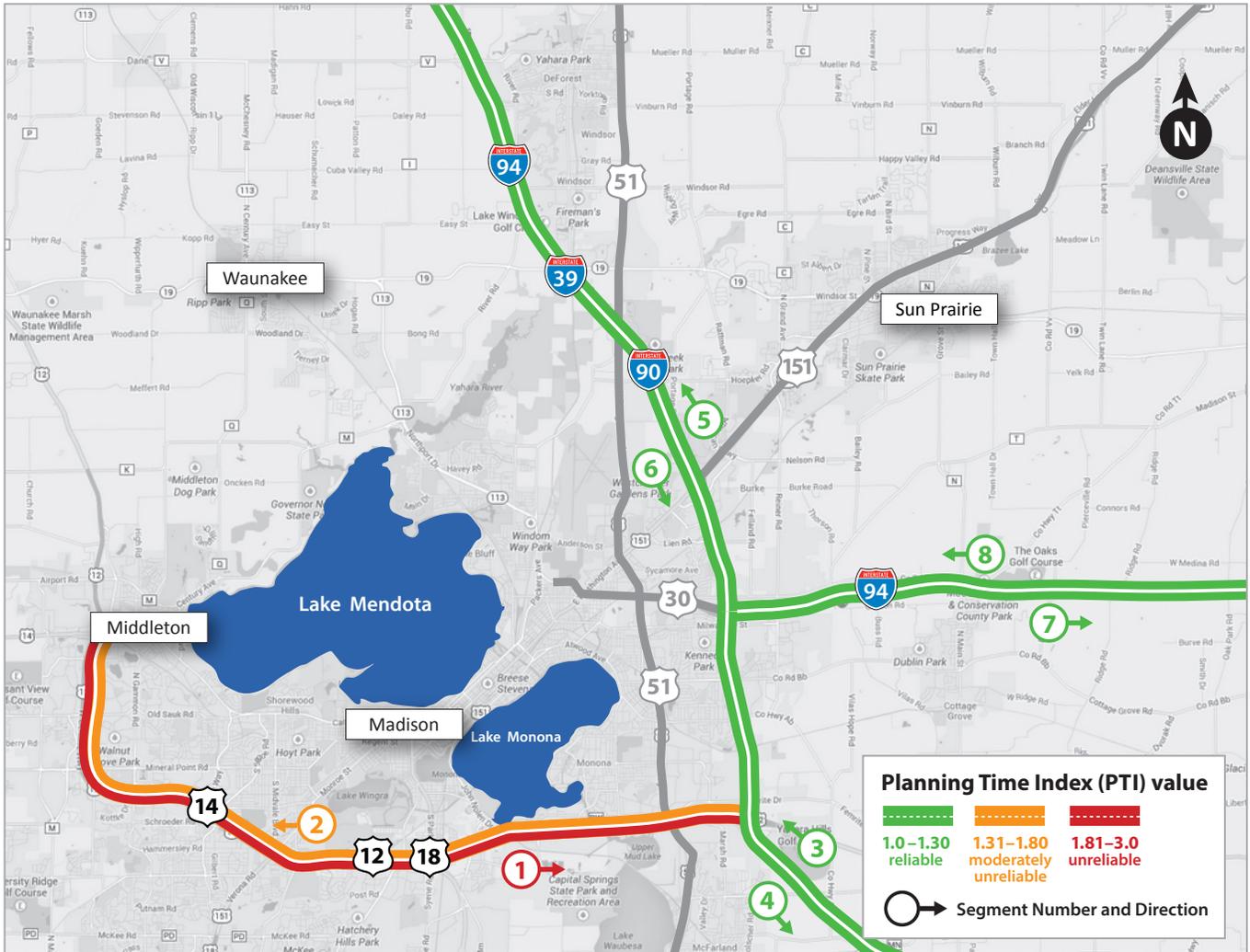
# Milwaukee Area Travel Time Reliability



## Milwaukee Freeway Peak Travel Times: 2014 Spring Quarter

Map Link	Planning Time Index (PTI)	Highway	From	To	Distance Miles	Normal Travel Time Minutes	Worst Peak Travel Time Minutes	Worst Peak
1	1.18	I-94 EB	WIS 67	US 18	15.3	14.2	16.7	AM
2	1.20	I-94 WB	US 18	WIS 67	15.4	14.2	17.1	PM
3	2.36	I-94 EB	US 18	Zoo interchange	7.4	8.0	18.9	PM
4	1.26	I-94 WB	Zoo interchange	US 18	7.4	7.5	9.4	PM
5	2.45	I-894 WB	Hale interchange	Zoo interchange	6.2	6.8	16.7	AM
6	1.75	I-894 EB	Zoo interchange	Hale interchange	5.5	6.0	10.5	PM
7	1.39	I-43NB/894EB	Waukesha County Line	Mitchell interchange	9.1	9.9	13.8	AM
8	1.41	I-43SB/894WB	Mitchell interchange	Waukesha County Line	7.5	8.2	11.5	PM
9	2.19	I-94 EB	Zoo interchange	Marquette interchange	5.2	6.0	13.1	AM
10	2.14	I-94 WB	Marquette interchange	Zoo interchange	5.9	6.7	14.4	PM
11	1.49	US 45 NB	Zoo interchange	Waukesha County Line	8.3	9.1	13.5	PM
12	2.38	US 45 SB	Waukesha County Line	Zoo interchange	8.5	9.2	22.0	PM
13	1.36	I-94 WB	Racine County Line	Mitchell interchange	8.9	8.8	11.9	AM
14	1.11	I-94 EB	Mitchell interchange	Racine County Line	9.3	9.1	10.1	PM
15	2.00	I-94 WB	Mitchell interchange	Marquette interchange	5.5	6.0	12.1	AM
16	1.82	I-94 EB	Marquette interchange	Mitchell interchange	6.3	6.9	12.6	PM
17	1.57	I-794 WB	Carferry Dr	Marquette interchange	3.7	4.4	7.0	AM
18	1.34	I-794 EB	Marquette interchange	Carferry Dr	3.7	4.4	5.9	AM
19	1.71	I-43 NB	Marquette interchange	Ozaukee County Line	11.1	12.3	21.0	PM
20	1.92	I-43 SB	Ozaukee County Line	Marquette interchange	10.8	12.1	23.2	PM

# Madison Area Travel Time Reliability



## Madison Freeway Peak Travel Times: 2014 Spring Quarter

Map Link	Planning Time Index (PTI)	Highway	From	To	Distance Miles	Normal Travel Time Minutes	Worst Peak Travel Time Minutes	Worst Peak
1	1.93	US 12 EB	US 14 West	I-90	16.1	17.5	33.8	PM
2	1.73	US 12 WB	I-90	US 14 West	15.9	17.4	30.0	AM
3	1.13	I-90 WB	County N	Badger interchange	8.8	8.2	9.2	AM
4	1.11	I-90 EB	Badger interchange	County N	9.0	8.3	9.2	AM
5	1.10	I-90 WB	Badger interchange	County V	11.5	10.6	11.7	PM
6	1.09	I-90 EB	County V	Badger interchange	10.8	10.0	10.9	AM
7	1.07	I-94 EB	Badger interchange	WIS 73	10.1	9.3	9.9	AM
8	1.07	I-94 WB	WIS 73	Badger interchange	9.6	8.9	9.5	AM

# Travel Time Delay

Highway congestion occurs when traffic demand exceeds the available capacity of the highway system. Congestion can be recurring (regular peak periods) or unexpected (incidents and bad weather). Whatever the cause, congestion results in slower speeds, longer trip times, higher levels of harmful emissions and increased costs for auto, bus and freight.

Reducing the annual total hours of vehicle delay and user delay cost improves the highway's efficiency and supports regional economic productivity and development.

## How do we measure travel delay?

**GOAL:** Reduce vehicle delay and user delay cost  
The Department of Transportation has established a travel delay mobility performance measure as part of its MAPSS Performance Improvement Program.

### Delay

Defined as the extra time spent driving in congested road conditions as compared to free flowing travel conditions.

### Hours of delay

Calculated by measuring the number of vehicles on a corridor and then comparing actual travel times to the amount of time it would take to travel the same corridor at the posted speed limit.

### User delay cost

Calculated by multiplying user value of time, vehicle delay and vehicle occupancy rates.



Travel delay is reported on the state's nine Interstate corridors

## How are we doing?

TOTAL HOURS OF DELAY during a one year period

7.4 million

TOTAL USER DELAY COST during a one year period

\$226.5 million



Hours decreased by 395,513



Statewide hours of vehicle delay decreased by 395,513 hours during the 2014 spring quarter compared to the 2013 spring quarter

## Efforts to improve

Any interference of the normal flow of traffic because of special events, peak period traffic, crashes, construction or poor weather adversely affect actual travel time. The department uses a variety of traffic management strategies that include efforts to:

- Deploy more advanced Intelligent Transportation System technologies
- Maximize existing roadway space to match peak period demands
- Share information through electronic message boards and 511 Traveler Information System
- Clear disabled vehicles more quickly
- Encourage drivers to select alternative routes
- Provide efficient and timely winter weather management
- Expand highway capacity through highway improvement projects



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Performance Improvement



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[www.mapss.wi.gov](http://www.mapss.wi.gov)

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