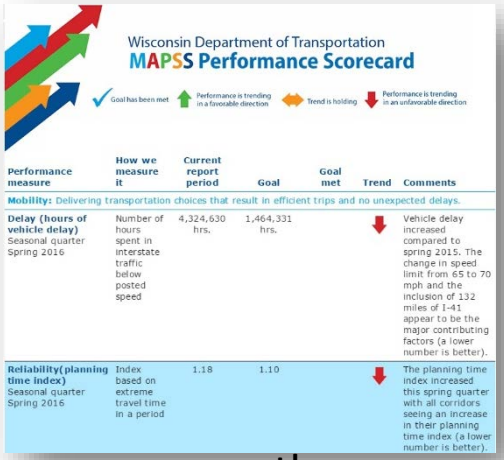
# Session 3: Performance Measurement/Management


Wisconsin Department of Transportation
MAPSS Performance Scorecard

Goal has been met | Performance is trending in a favorable direction | Trend is holding | Performance is trending in an unfavorable direction

| Performance measure | How we measure it | Current report period | Goal | Goal met | Trend | Comments |
|---|---|---|---|---|---|---|
| **Mobility:** Delivering transportation choices that result in efficient trips and no unexpected delays. | | | | | | |
| **Delay (hours of vehicle delay)** Seasonal quarter Spring 2016 | Number of hours spent in interstate traffic below posted speed | 4,324,630 hrs. | 1,464,331 hrs. | | ↓ | Vehicle delay increased compared to spring 2015. The change in speed limit from 65 to 70 mph and the inclusion of 132 miles of I-41 appear to be the major contributing factors (a lower number is better). |
| **Reliability(planning time index)** Seasonal quarter Spring 2016 | Index based on extreme travel time in a period | 1.18 | 1.10 | | ↓ | The planning time index increased this spring quarter with all corridors seeing an increase in their planning time index (a lower number is better). |

- Which of the following automated technologies does your agency currently use for collecting data on the operational performance?
  - Probe vehicle data (Tom Tom)
  - Vehicle re-identification (Bluetooth readers)
  - Vehicle detector data (loop, ATR's, SDS')
  - National Performance Measures Research Data Set (NPMRDS)
- Are the measures used by your agency to track system performance currently available to the general public? If so, is this via a web-accessible interface?
  - MAPSS - http://wisconsindot.gov/Pages/about-wisdot/performance/mapss/default.aspx
- Does your agency currently utilize any performance measures or management tools that consider multiple modes of transportation? If so, which modes are considered?
  - Transit availability
  - Bicycling conditions on rural highways
  - State-owned rail line condition
  - Airport pavement condition

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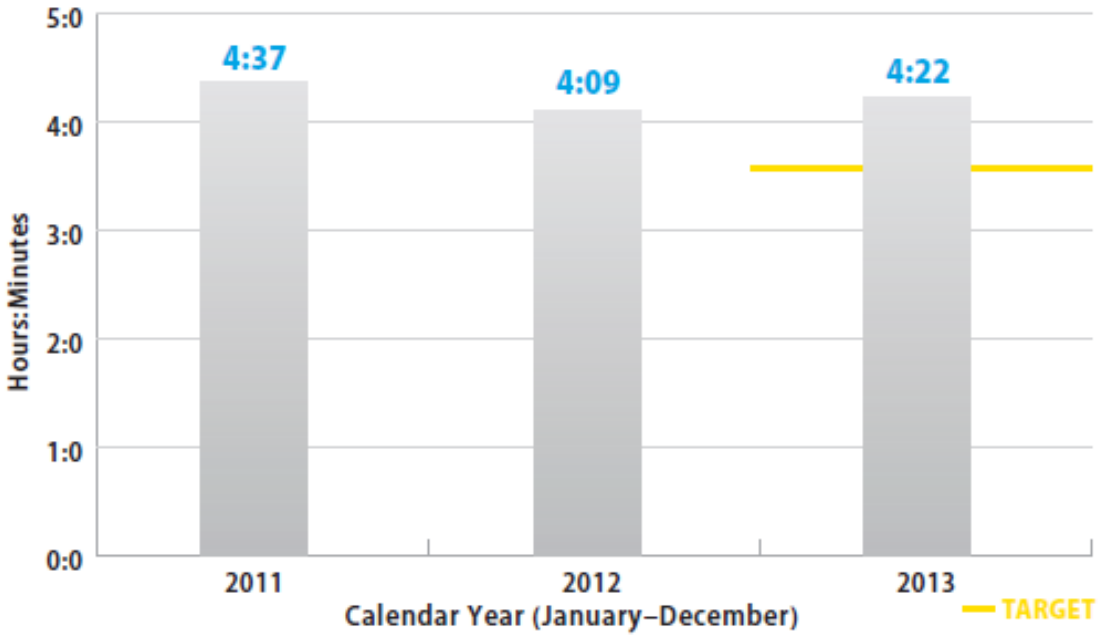
- Do you have any formal agreements with surrounding states on sharing performance measures or data? Documented partnership statement for Great Lakes Regional Traffic Operations Coalition (GLRTOC).
- Which of the following performance areas does your agency currently measure? Which specific measure(s) are utilized for each area?
  - Travel time reliability (TTR) on Interstate segments (Planning Time Index; Statewide corridors and urban segments)
  - TTR on non-Interstate NHS segments (not currently)
  - Peak-hour travel times on Interstate and non-Interstate NHS segments Truck [commercial vehicle] TTR (TTTR) (not currently)
  - Levels of congestion on Interstate segments for general purpose and truck traffic – Urban freeway congestion for Milwaukee and Madison (retired/not currently))
  - Excessive user delay (Hours of Delay and User Delay Costs)

# Extended Duration Incidents (EDI's)

- Reduce long-term closures of major freeways
- Crashes > 2 hrs in one direction or > 30 min in both directions
- Approximately 50 annually and required After Action Review

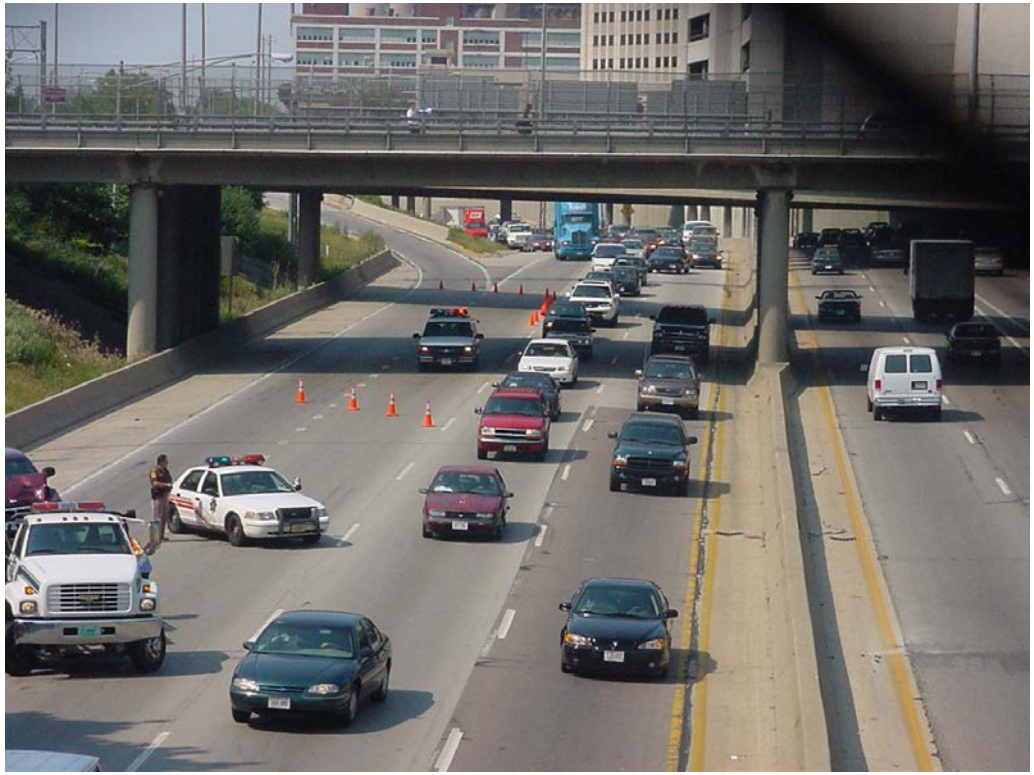
# Extended Duration Incidents (EDI's)

**Figure:** Average Time to Clear Interstate Highway Incident



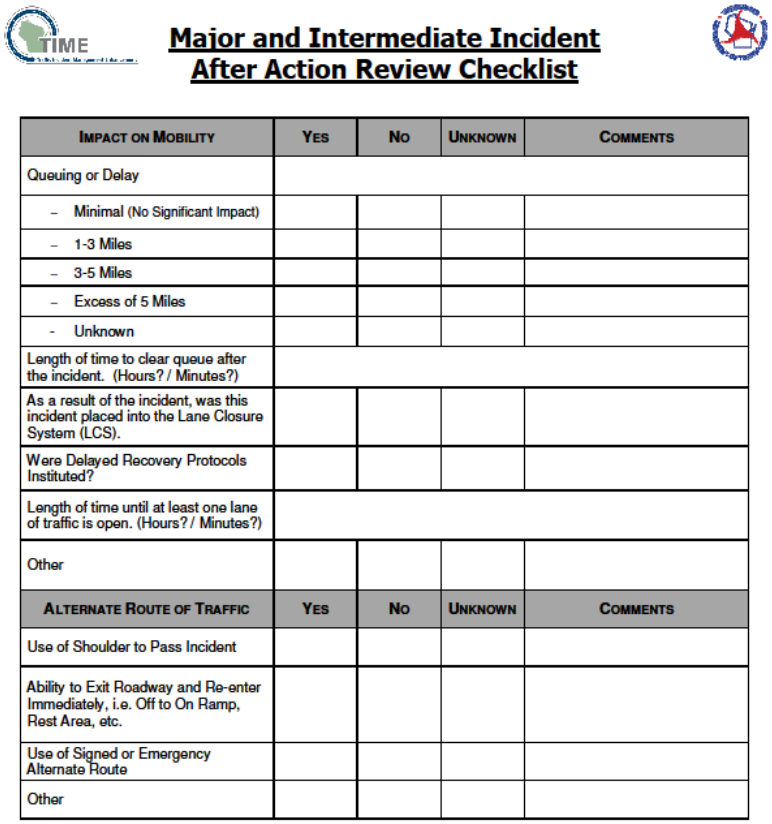

- Small subset of incidents and performance
- Incentivizes 2-hour mark
- Missed opportunities

# Incident Response



- Clearance Goals – 90% of intermediate incidents < 2 hours 80% of major incidents < 4 hours.
- Includes all incidents reported into STOC

# Incident Response – And….?



**Major and Intermediate Incident After Action Review Checklist**

| Impact on Mobility | Yes | No | Unknown | Comments |
|---|---|---|---|---|
| Queuing or Delay | | | | |
| – Minimal (No Significant Impact) | | | | |
| – 1-3 Miles | | | | |
| – 3-5 Miles | | | | |
| – Excess of 5 Miles | | | | |
| - Unknown | | | | |
| Length of time to clear queue after the incident. (Hours? / Minutes?) | | | | |
| As a result of the incident, was this incident placed into the Lane Closure System (LCS). | | | | |
| Were Delayed Recovery Protocols Instituted? | | | | |
| Length of time until at least one lane of traffic is open. (Hours? / Minutes?) | | | | |
| Other | | | | |
| **Alternate Route of Traffic** | **Yes** | **No** | **Unknown** | **Comments** |
| Use of Shoulder to Pass Incident | | | | |
| Ability to Exit Roadway and Re-enter Immediately, i.e. Off to On Ramp, Rest Area, etc. | | | | |
| Use of Signed or Emergency Alternate Route | | | | |
| Other | | | | |

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Rev. 11/23/2015

- Decision Making on and Justification for After Action Review Refined
- Kept focus on duration, but afforded better discussion on “What do we need to improve?”

# User Delay – And…..?

## 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 are we doing?

| TOTAL HOURS OF DELAY during a one year period | TOTAL USER DELAY COST during a one year period |
|---|---|
| 7.4 million | $226.5 million |

2013 SPRING QUARTER — Hours decreased by 395,513 — 2014 SPRING QUARTER

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

MAPSS Performance Improvement

Mobility
Accountability
Preservation
Safety
Service

Complete details on all measures are on the web:
www.mapss.wi.gov

## 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

## 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

511

**Know before you go! For details on Wisconsin travel, go to www.511wi.gov or dial 511.**

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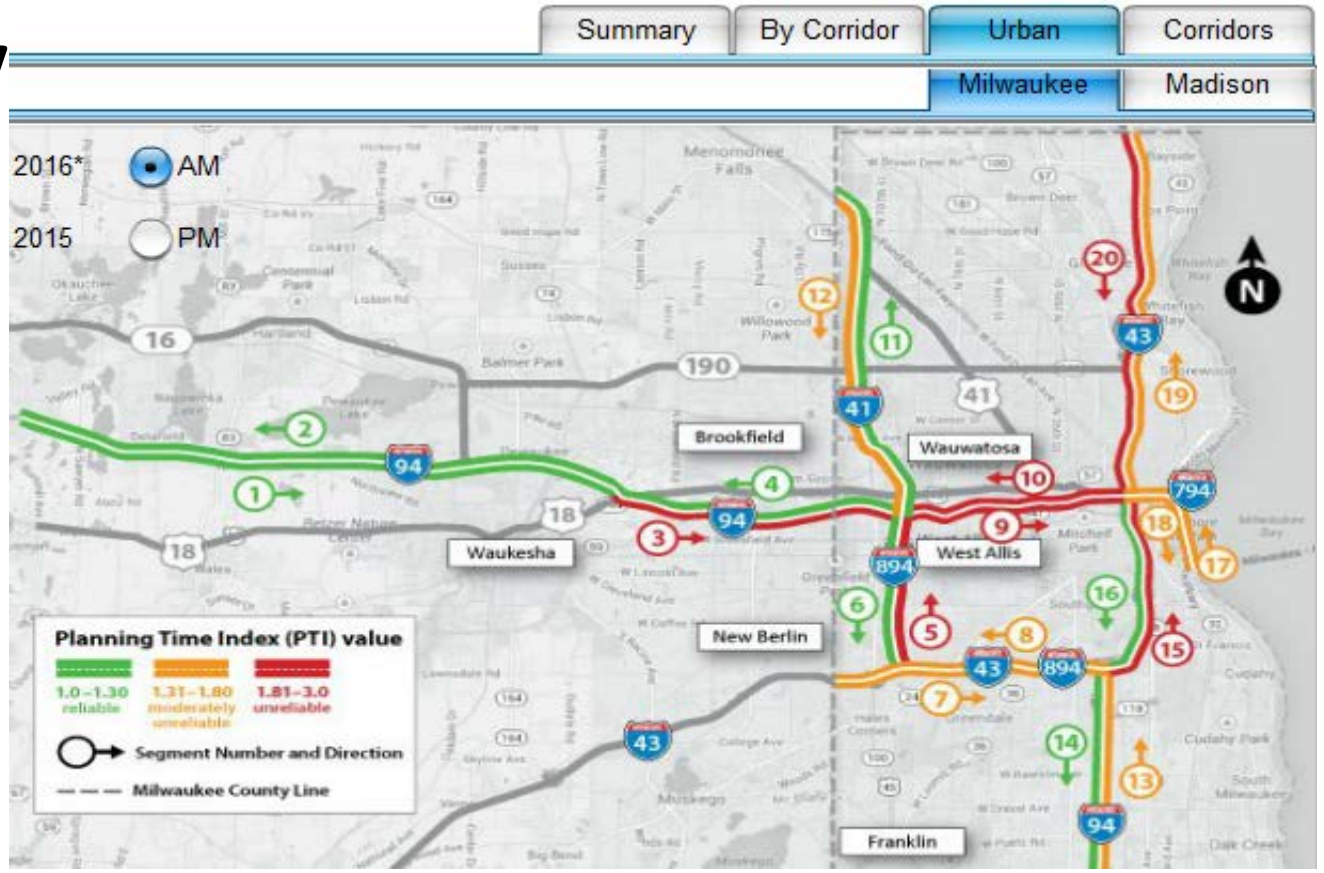
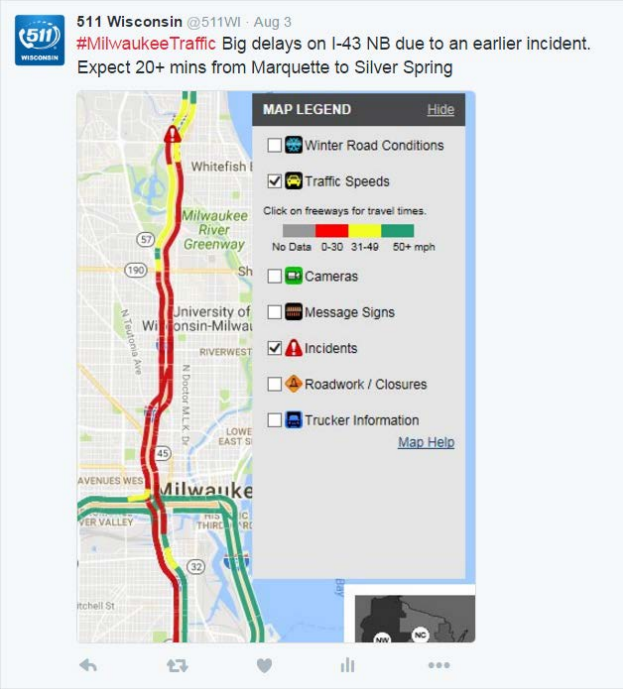
# Reliability

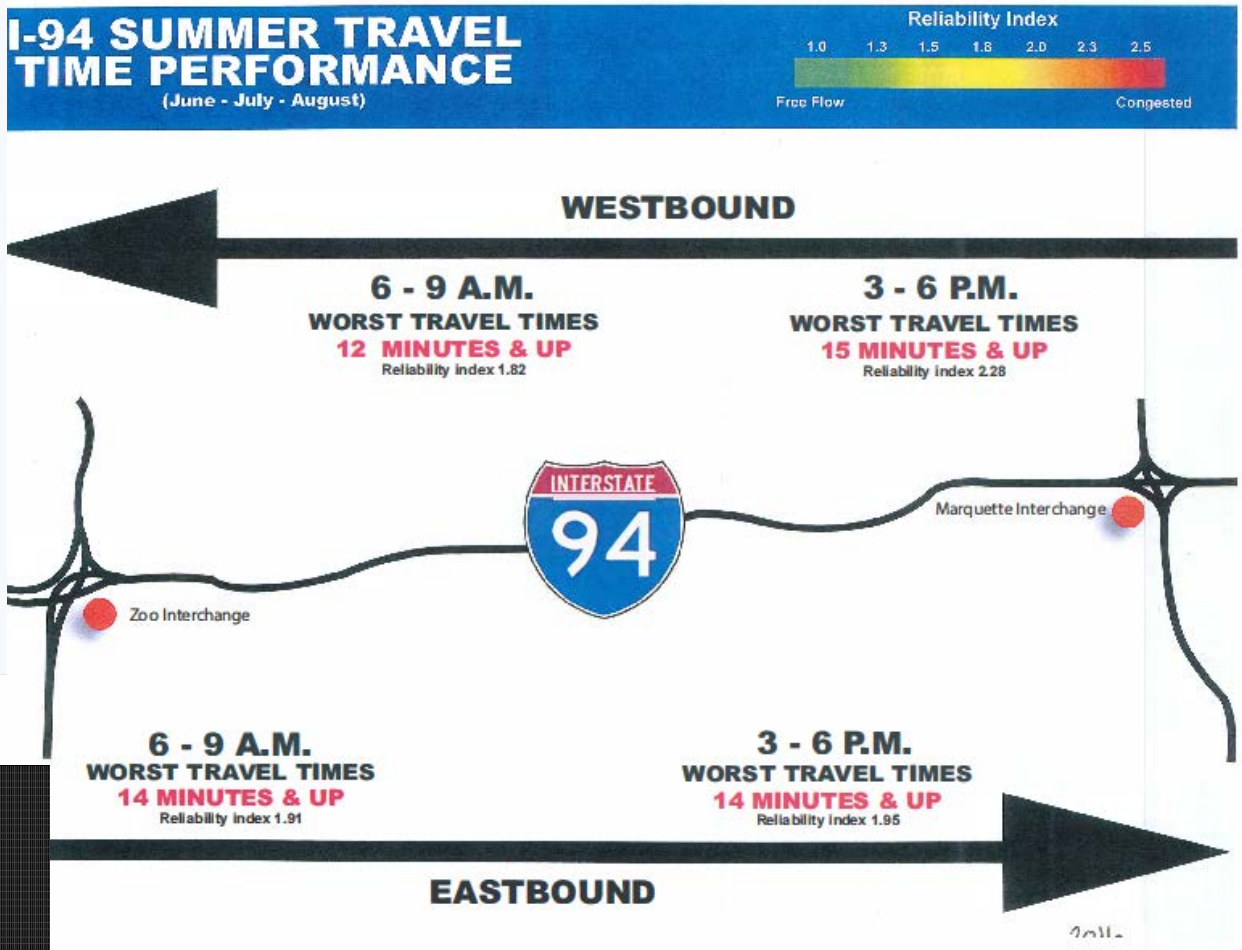



- Categories tied to LOS

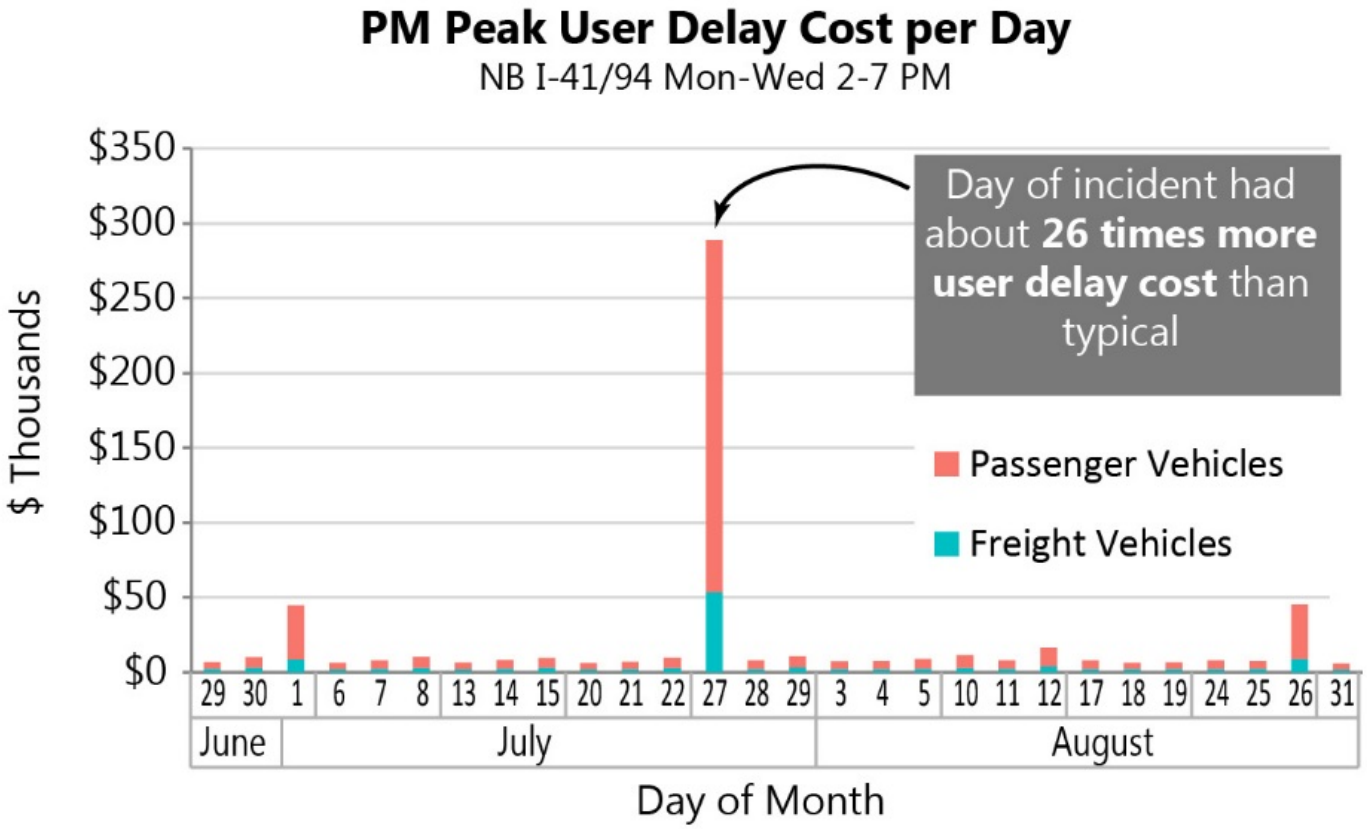
- Provides visualizations of changes in travel time reliability; time of day, by corridor in urban areas

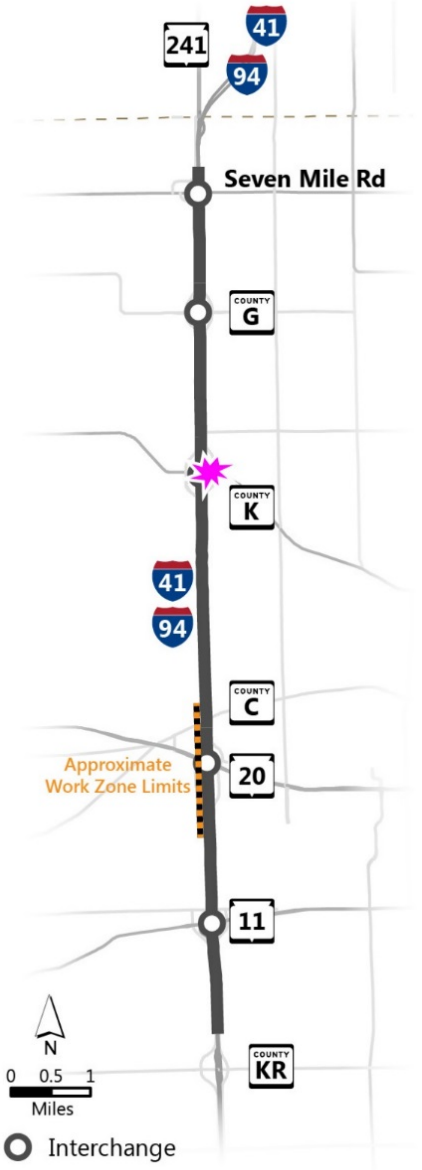
# Reliability – And……?




# Mobility – Important Goals!




- Inform operations decisions