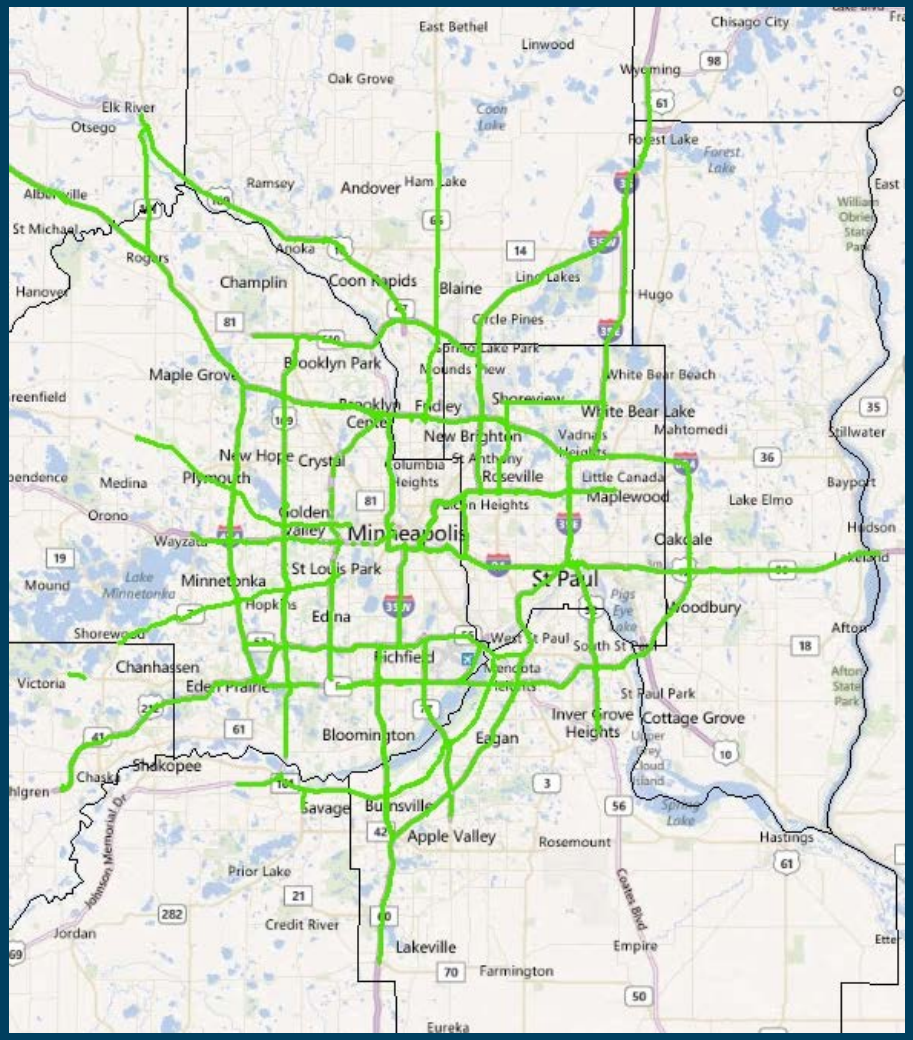
Use of ITS in Traffic Incident Management

Brian Kary – Freeway Operations Engineer
Minnesota Department of Transportation

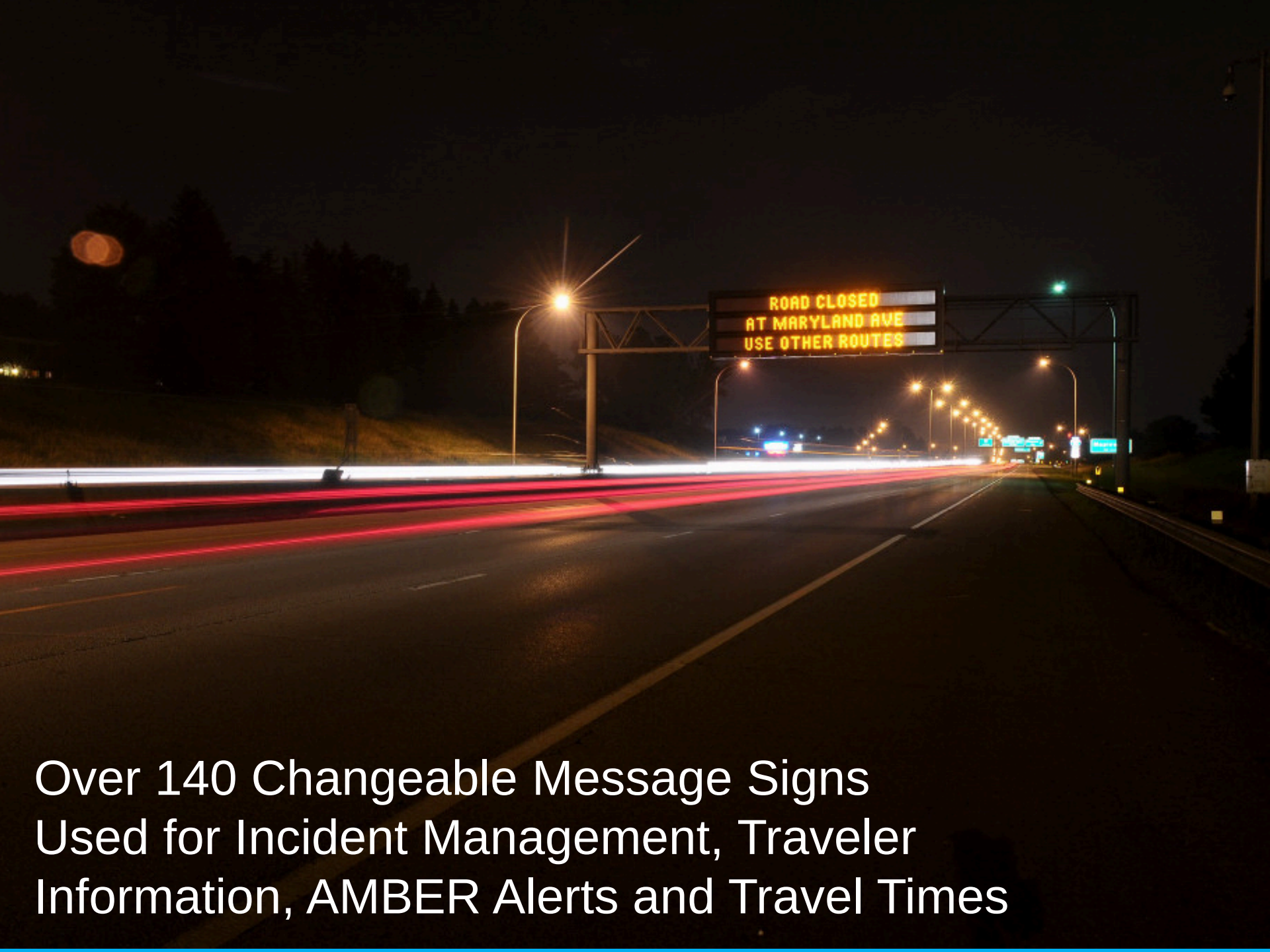
Freeway Management System

- 400 miles of freeway management system
  - Cameras
  - Dynamic Message Signs
  - Lane Control Signals
  - Ramp Meters
  - Traffic Detection



Cameras

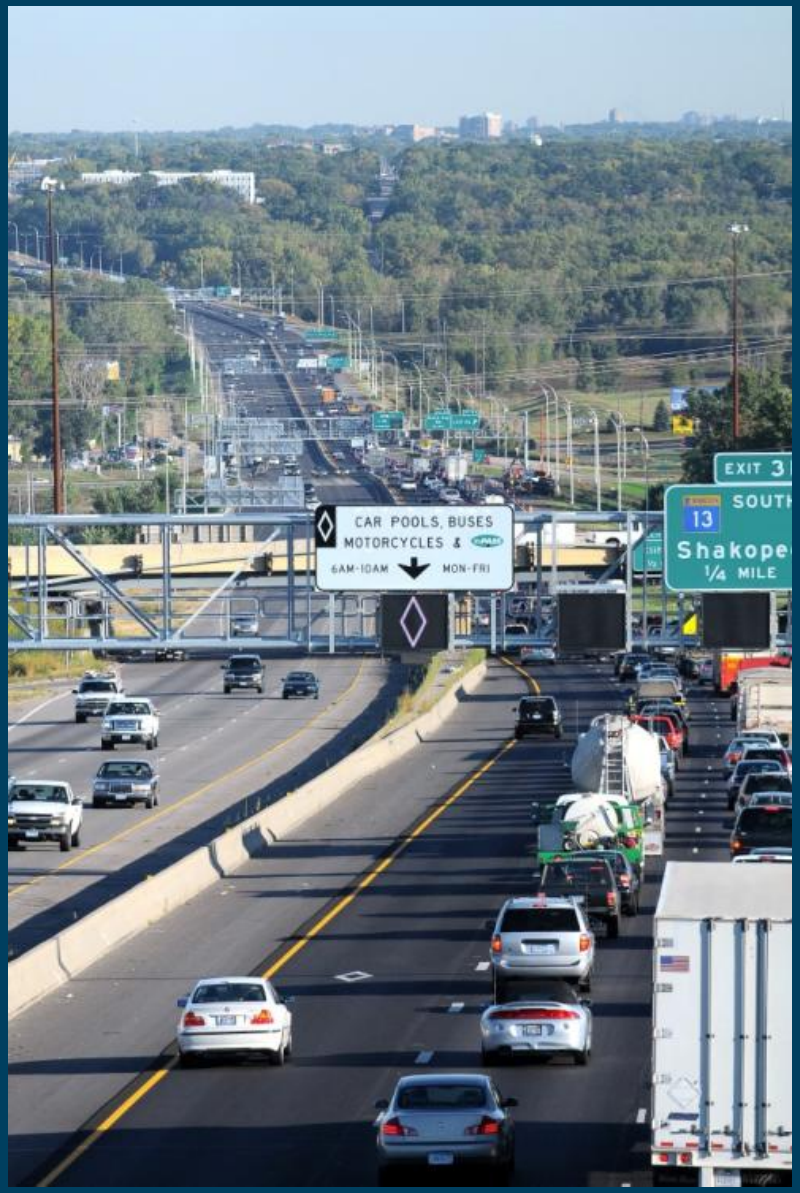
- 550 Cameras
- Shared Control with Minnesota State Patrol
- Video Recording
  - Buffered Video 3-5 days
  - Responder Training
  - State Patrol Use
  - External Requests



Over 140 Changeable Message Signs Used for Incident Management, Traveler Information, AMBER Alerts and Travel Times

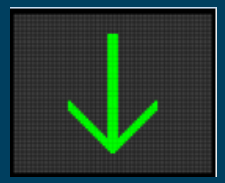
I-35W Smart Lanes

- Intelligent Lane Control Signals (ILCS) located every ½ mile over every lane.
- A total of 187 ILCS on I-35W and 110 on I-94
- ILCS are a 4ft x 5ft full color matrix signs.
- Use of the ILCS is for incident management , variable speeds and priced dynamic shoulder lane.



ILCS Sign Options

Blank – default



Green – Lane Open

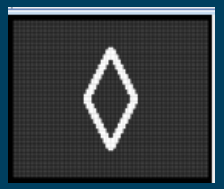
Flashing Yellow – Caution

Red X – Closed

Yellow X – Closed Ahead

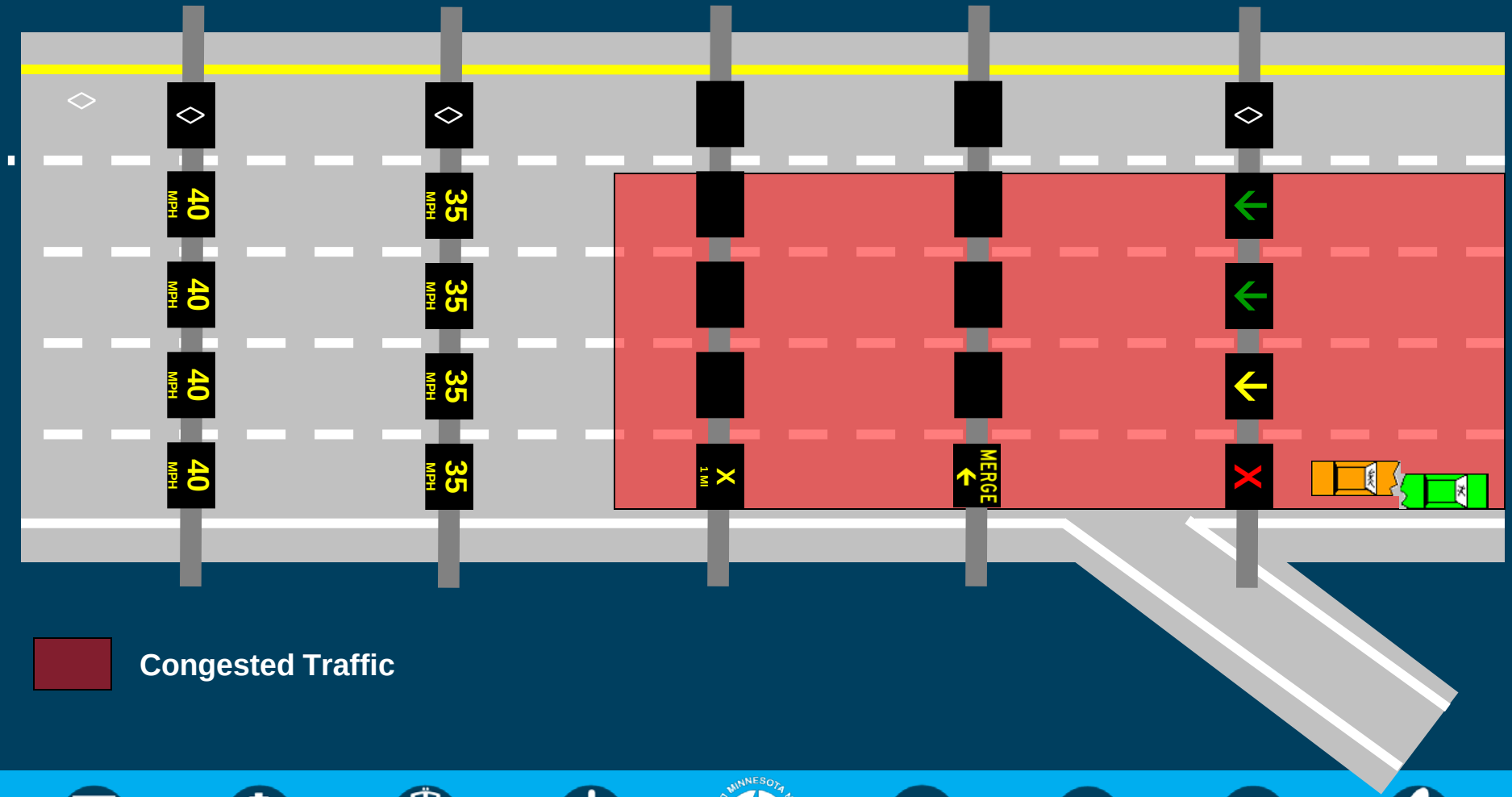
Merge

Speed Limit



White Diamond

Use of ILCS During Incidents
Right Lane Closed



Congested Traffic

Preliminary Results

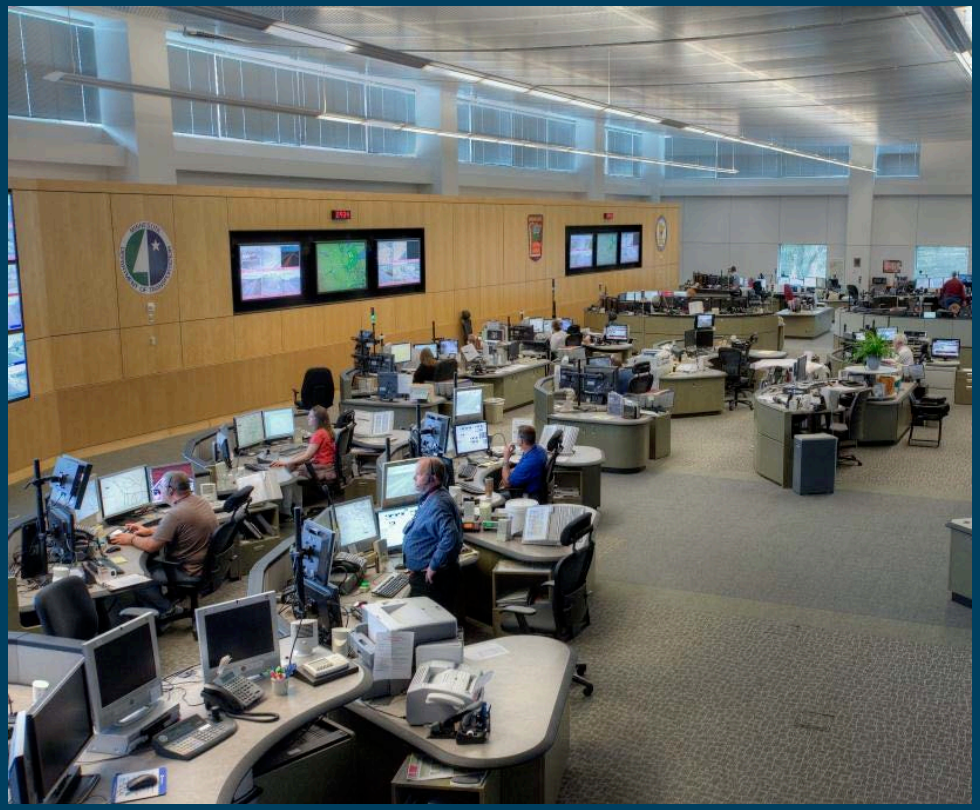
- Human factors study and survey showed that overall, the messages are well understood.
- Further study needed to determine how motorists use this information in the real world with other factors at play
  - Gap acceptance in traffic
  - Queue jumping
  - Disbelief in sign message

Freeway Incident Response Safety Team

- 8-11 routes
- 250 freeway miles *

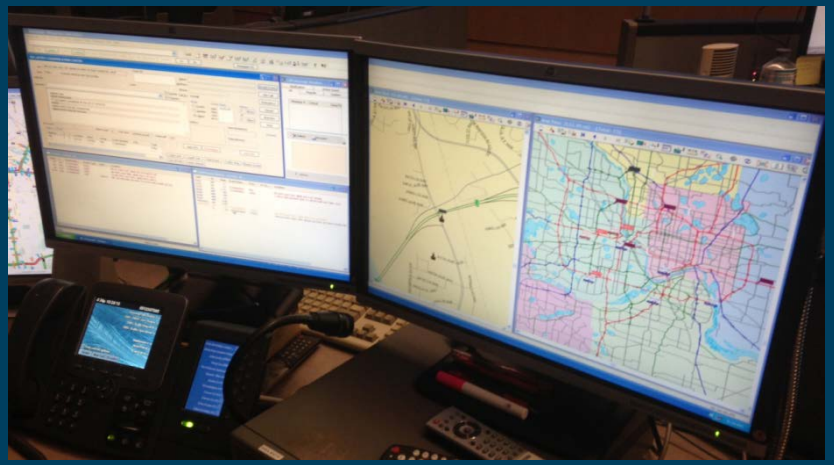
Regional Transportation Management Center

- Shared Operations Center
  - MnDOT Traffic Operations
  - MnDOT Maintenance Dispatch
  - State Patrol Dispatch



Computer Aided Dispatch

- Originally purchased for State Patrol through MnDOT ITS Funds
- MnDOT had one read-only CAD terminal
- Now MnDOT FIRST Program on same CAD system
- MnDOT Maintenance coming soon



ARMER 800 MHz Radio

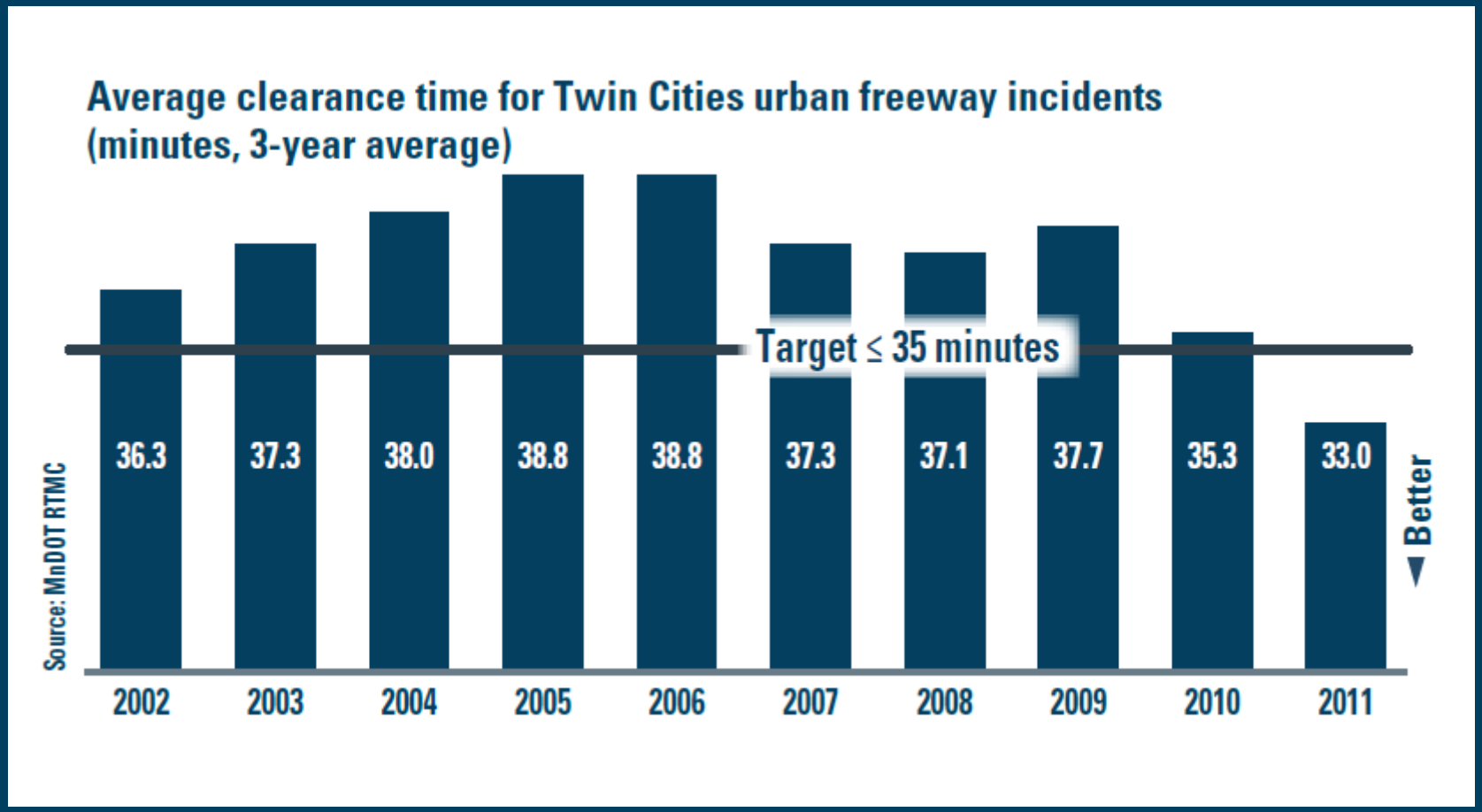
- Trunked Radio System
- Shared Radio Channels
- Redundant Communications on RTMC Fiber Network

Not So High Tech Tools

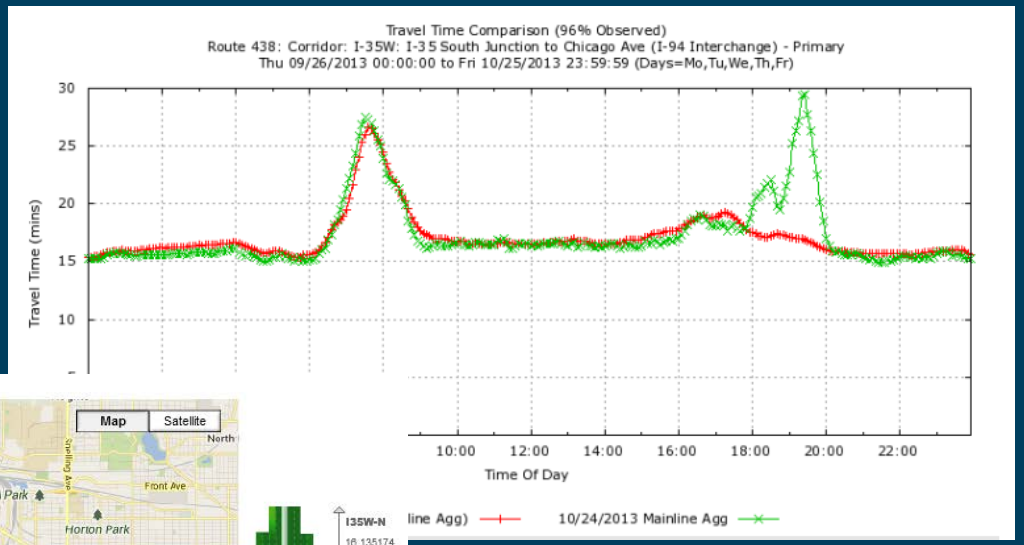
- Direct Dial Lines between State Patrol, Maintenance, and Freeway Operations

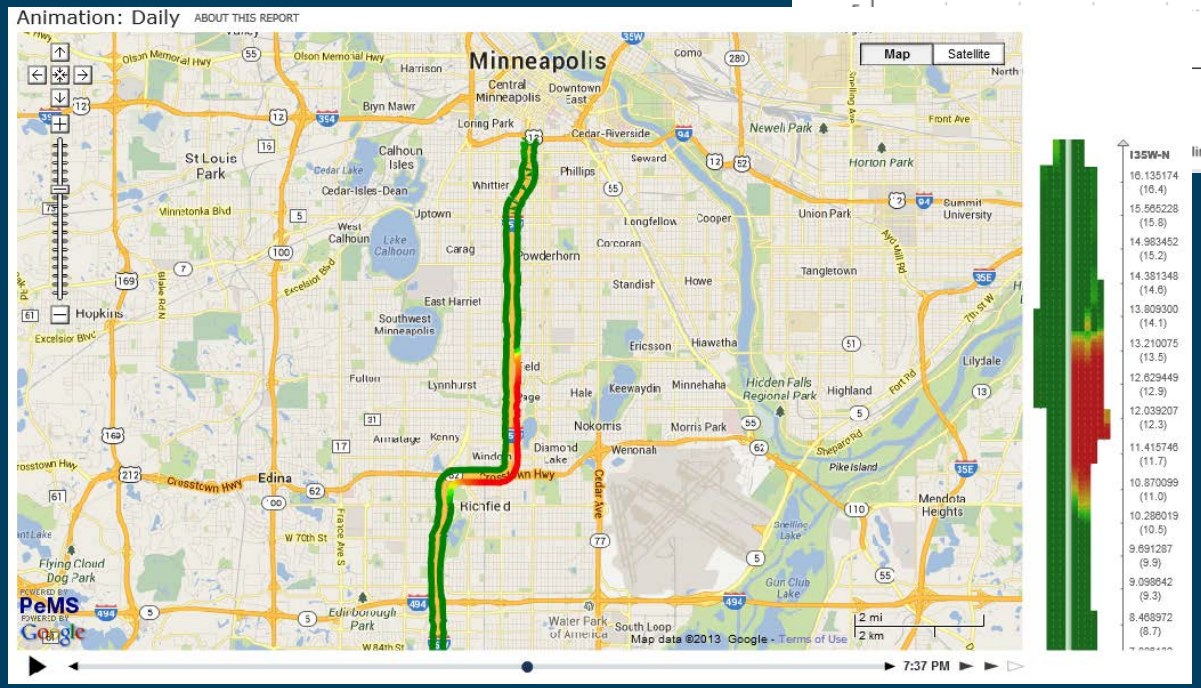
- Radio Scanners
  - Monitoring of Local Police and Fire Channels
  - Exploring systems that collect incident data from multiple CAD systems

Performance Measures
Incident Clearance Time



Performance Measurement System (PeMS)





Thank You

Brian Kary – Freeway Operations Engineer
Minnesota Department of Transportation