



CAR POOLS, BUSES
MOTORCYCLES & 
6AM-10AM ↓ MON-FRI

EXIT 8

82nd St
1 MILE

90th St



50
MPH

50
MPH

Active Traffic Management

Brian Kary

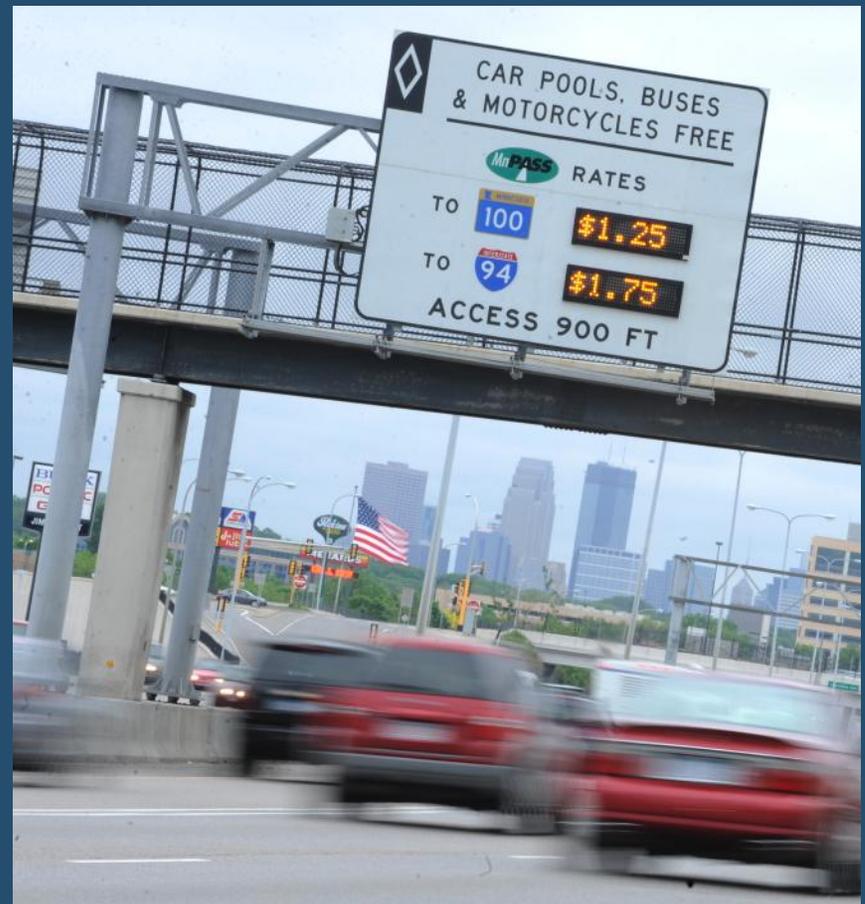
Minnesota Department of Transportation





MnPASS System

- High Occupancy Toll Lanes
- Provide for faster, safer and more reliable travel options
- Travel benefits for transit, carpoolers, motorcycles and MnPASS customers
- Dynamic Pricing
 - Price adjusted every 3 minutes based on demand and speed levels in the MnPASS lane.





Types of MnPASS Lanes

- Reversible Lane Section
 - Permanent Physical Barrier
 - Gate Arms Software Controlled
 - 3 Miles of I-394
- Concurrent Lane Section
 - Painted Barrier
 - 7 Miles of I-394 – Limited Access
 - 18 Miles of I-35W – Mostly Continuous Access





Regional Transportation Management Center

- Shared Operations Center
 - MnDOT Traffic Operations
 - MnDOT Maintenance Dispatch
 - State Patrol Dispatch
- 400 miles of freeway management system
 - Cameras
 - Changeable Message Signs
 - Freeway Service Patrol
 - MnPASS Operations





Traffic Incident Management Program

- Freeway Incident Response Safety Team - FIRST
- Incident Management Steering Committee
 - MnDOT Freeway Operations
 - MnDOT Maintenance
 - Minnesota State Patrol
- Open Roads Agreement between MnDOT and MSP
- Quick Clearance Legislation





TIM in Managed Lanes

- Managed Lanes are operated by MnDOT RTMC
 - MnDOT responsible for tolling operations and general traffic operations
- Dedicated Enforcement
 - MnPASS revenues used to fund additional MSP Enforcement
 - Dedicated MSP trooper also available for responding to incidents
- Open Roads Agreement
 - Makes the clearing of any traffic lane a priority
 - No special priority for MnPASS lanes
- Diversions
 - MnDOT can direct general purpose traffic into MnPASS lane and waive tolls if necessary



I-35W and I-94 Smart Lanes

- Intelligent Lane Control Signals (ILCS) located every ½ mile over every lane.
- A total of 297 ILCS.
 - 187 ILCS on I-35W
 - 110 ILCS 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



Lane Closed Ahead



Merge Left



Merge Right



Merge Both



Speed Limit



White Diamond





Variable Speed Limits



- Advisory Only
- Detection measures traffic speeds downstream
- Speeds are posted up to 1 ½ miles upstream



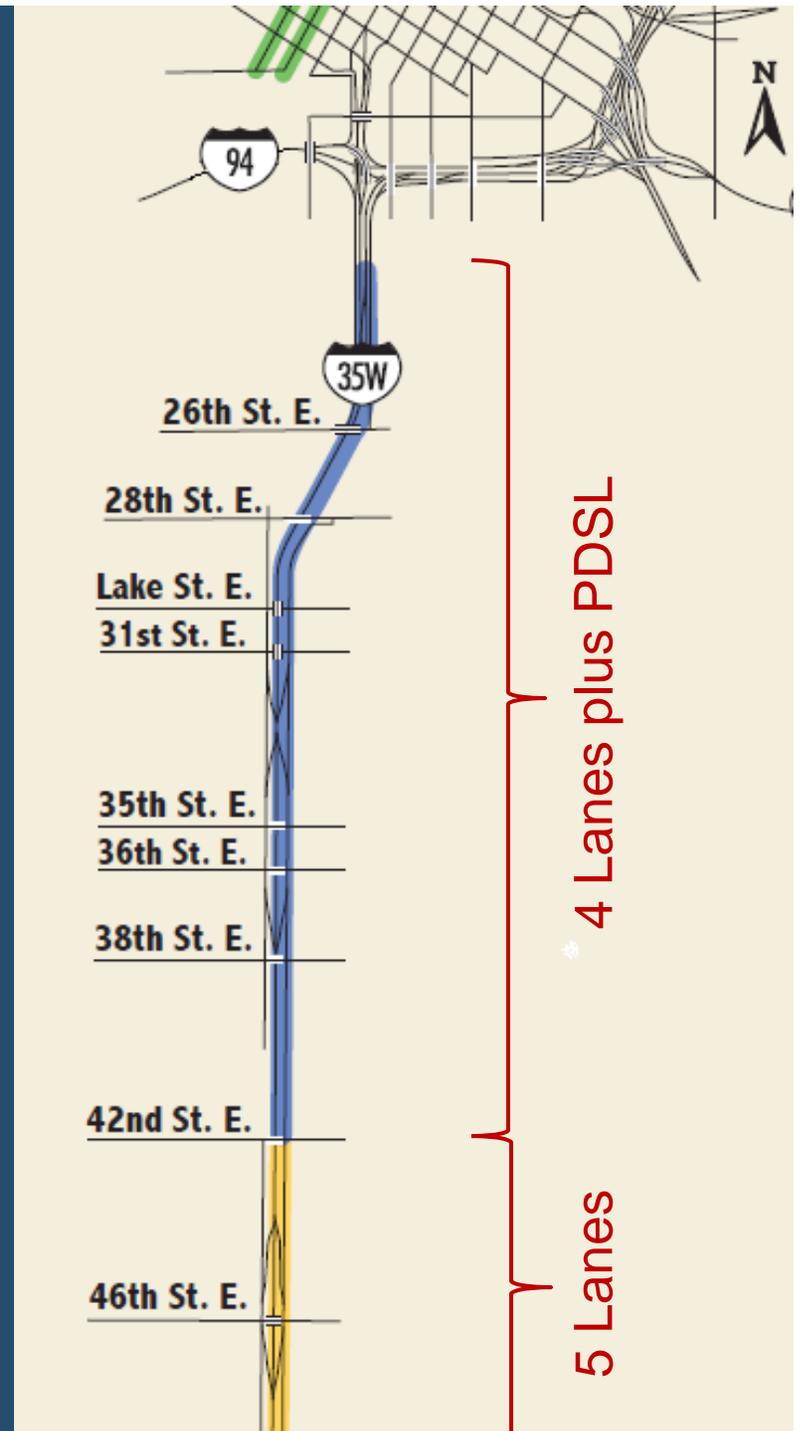
I-35W Early Results



- Lane Control Messages
 - Human factors study and surveys has shown understanding of ILCS messages
 - Message compliance still an issue
- Variable Speed Limits
 - Minimal improvements to mobility
 - Improvements in speed differential approaching congestion
 - Reduced shockwaves
 - Too early for crash data results but preliminary results are not showing measurable improvements

Priced Dynamic Shoulder Lane (PDSL)

- 3 Mile Segment on NB 35W
- Maintains existing 4 lanes with an added PDSL Lane
- Effectively extends the MnPASS lane to downtown Minneapolis using existing road space
- Total Cost = \$17 M





I-35W PDSL Operations

- Monday – Friday
 - 6:00 AM to 7:00 PM
 - Expanded Mid-day hours due to high violation rates
- Can be open on weekends or evenings for special events, weather or incidents.
 - Regular Saturday hours from 11:00 AM to 7:00 PM





Operations Challenges

- ILCS requires more precision to deploy than overhead CMS.
 - Distance to incident is closer
 - Lane specific
 - Need precise location of incident
 - Requires more operator actions
 - Multiple ILCS to deploy for a single incident
 - Every changing incident scene
- Requires highly skilled and detail oriented staff



Maintenance Staffing

- MnPASS Revenues on I-35W paid for one FTE to maintain ILCS.
 - No additional funding for I-94
- Maintenance Agreements for ILCS
 - I-35W - approximately \$280,000 a year
 - I-94 - approximately \$200,000 a year
- Utilities Costs
 - I-35W - approximately \$60,000 a year
 - I-94 – approximately \$40,000 a year



Future of ATM in MnDOT

- Dynamic Shoulders
 - Nothing planned, but still in the toolbox
- I-35W ATM
 - Some removal as part of future construction projects
 - Replace with more frequent DMS rather than ILCS
 - PDSL will be a permanent lane



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Questions?

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