Active Traffic Management

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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
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
Questions?

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