

US-23 Active Traffic Management 2016 Proposed Project

M-14 to M-36

**Livingston & Washtenaw Counties
University Region**

US-23 Existing Corridor



- M-14 – I-96 (15 Miles)
- US-23 two lanes in each direction
- ADT 66,000
- Existing LOS D/E/F
- 4 incidents per day
- No funding to add a third lane

Traffic Information - Level of Service

- Defining Level of Service
 - Level of Service A-B
 - Low Delay
 - No Congestion
 - Level of Service C-D
 - Moderate Delay
 - Reasonable Congestion
 - Level of Service E-F
 - High Delay
 - Significant Congestion



US-23 Existing Conditions

US-23 Congestion Video

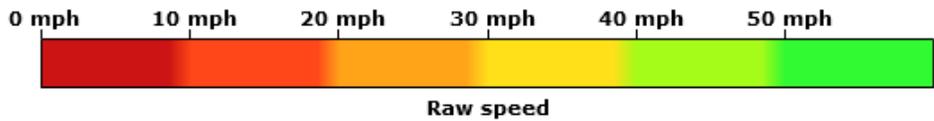
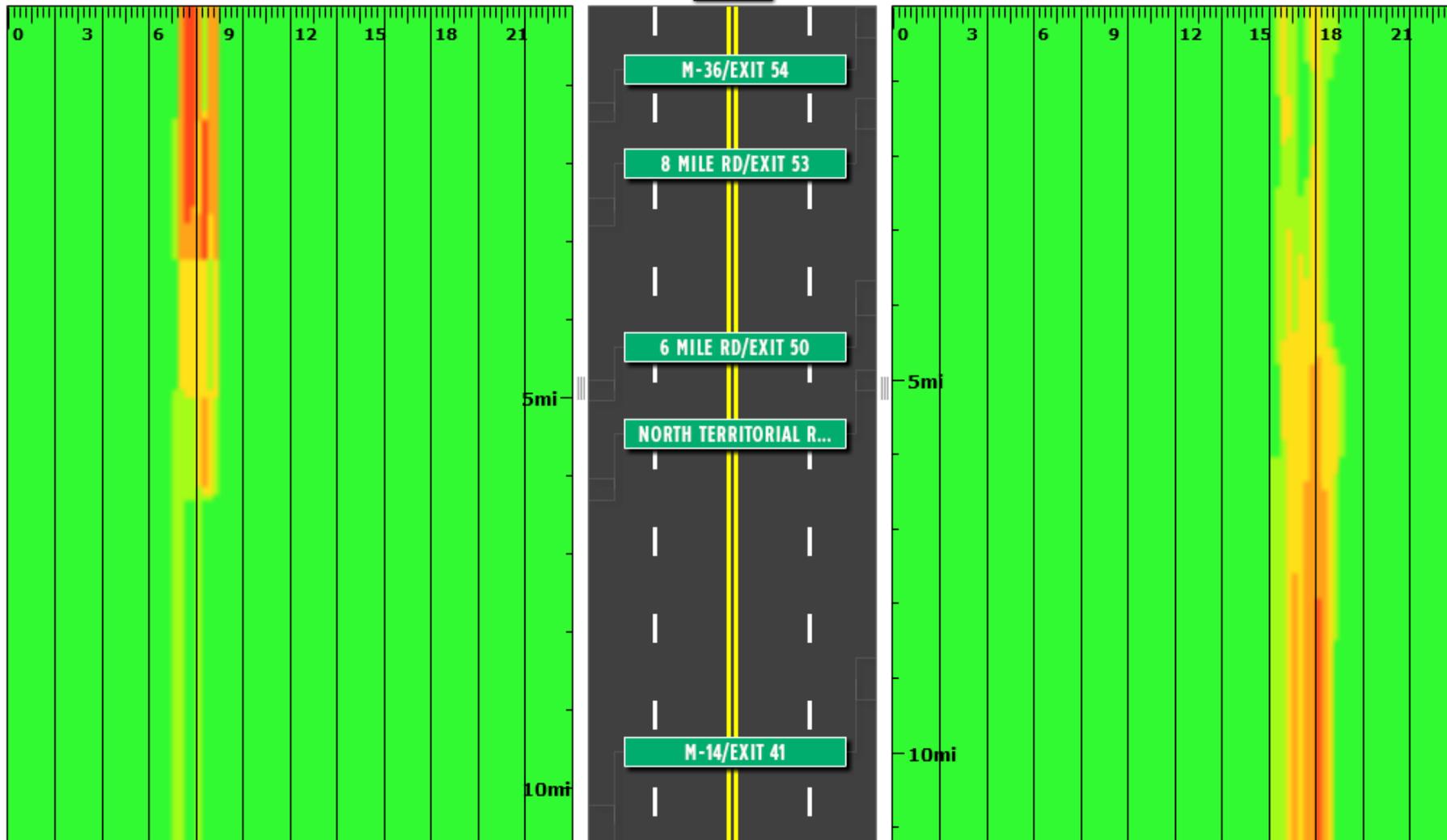
Speed on US-23 between M-14/Exit 41 and M-36/Exit 54

Data shown is averaged on Tuesday Sep 24, 2013 at 15 minute intervals.

↓ Southbound ↓



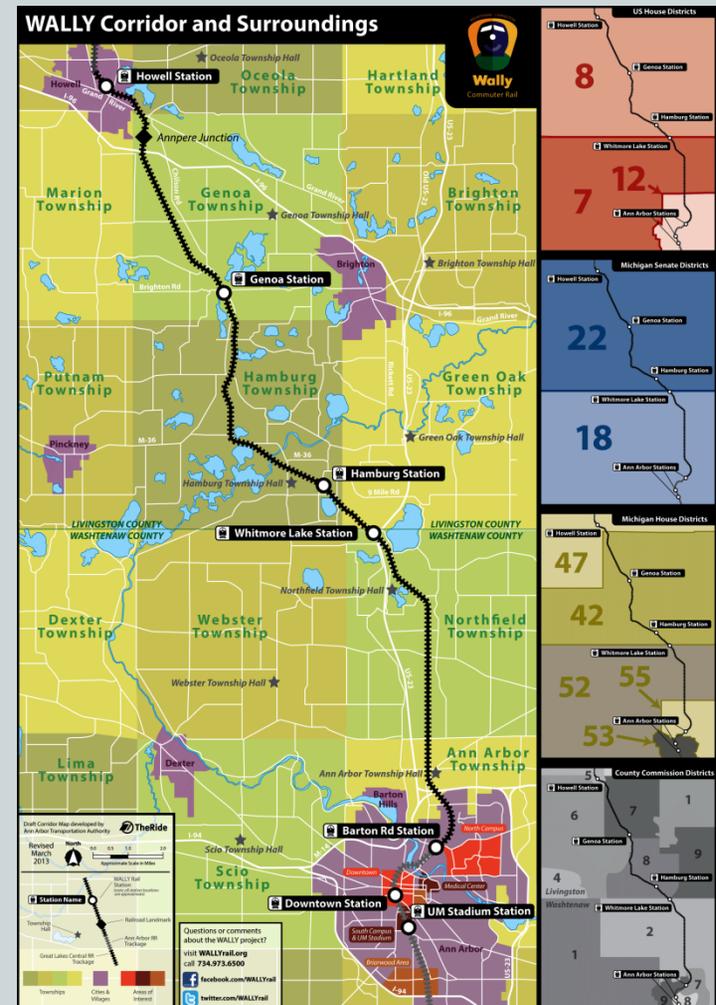
↑ Northbound ↑



CONCURRENT WALLY DEVELOPMENT

Howell to Ann Arbor Proposed Commuter Rail

- *Separate Funding Sources*
- AAATA acting as Lead Agency
- MDOT fully supports Local Initiatives
- Development continues with or without work on US-23
- Estimated \$40M Capital Start-up
- Estimated \$5M-\$7M Annual Operating



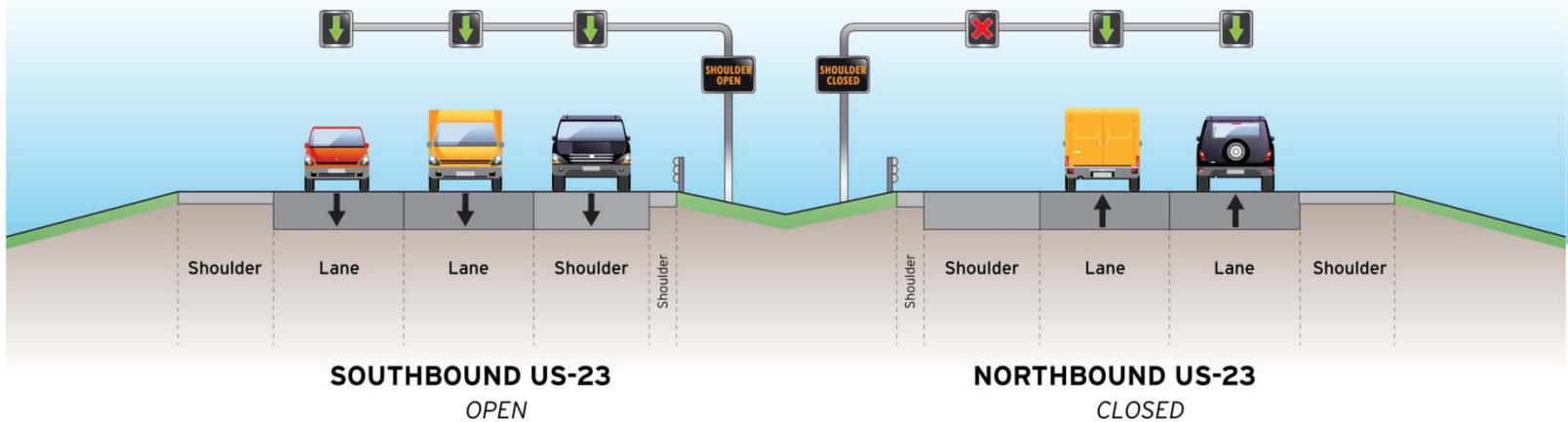
Corridor Traffic Management Strategies

- Intelligent Transportation Systems (ITS) – CCTV cameras, Detection, Dynamic Message Signs – Existing System
- Freeway Courtesy Patrol – In Operation
- **Active Traffic Management (ATM)**
- **Crash Investigation Sites**
- *AAATA Park-n-Ride Service (The Ride) – Future (TBD)*
- *Long term WALLY concept – Daily commuter Train Service between Howell and Ann Arbor – Future (TBD)*

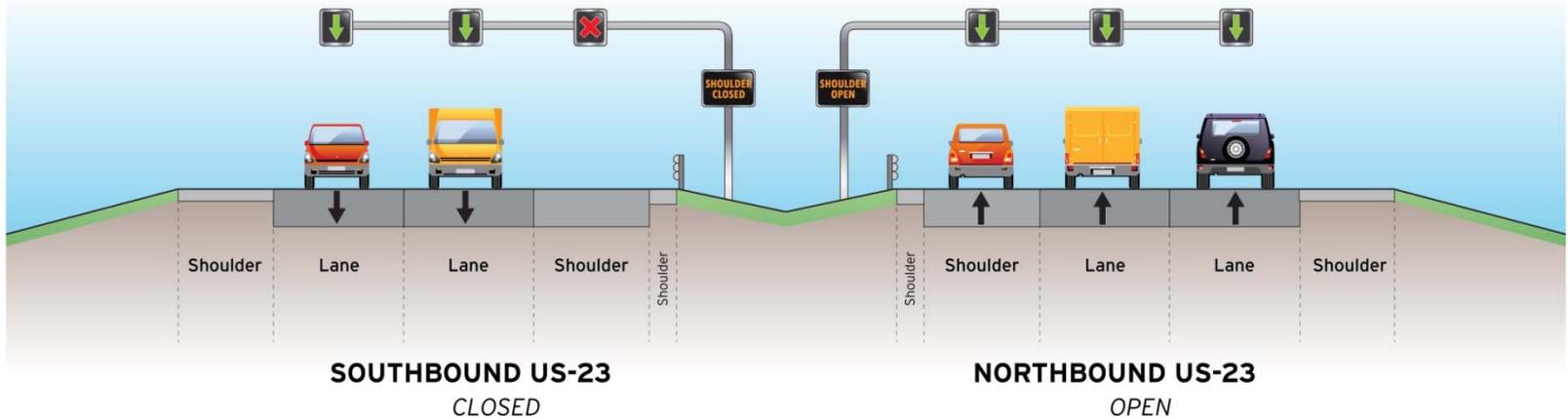
Active Traffic Management

Full Lane Control - Mast Arm Concept

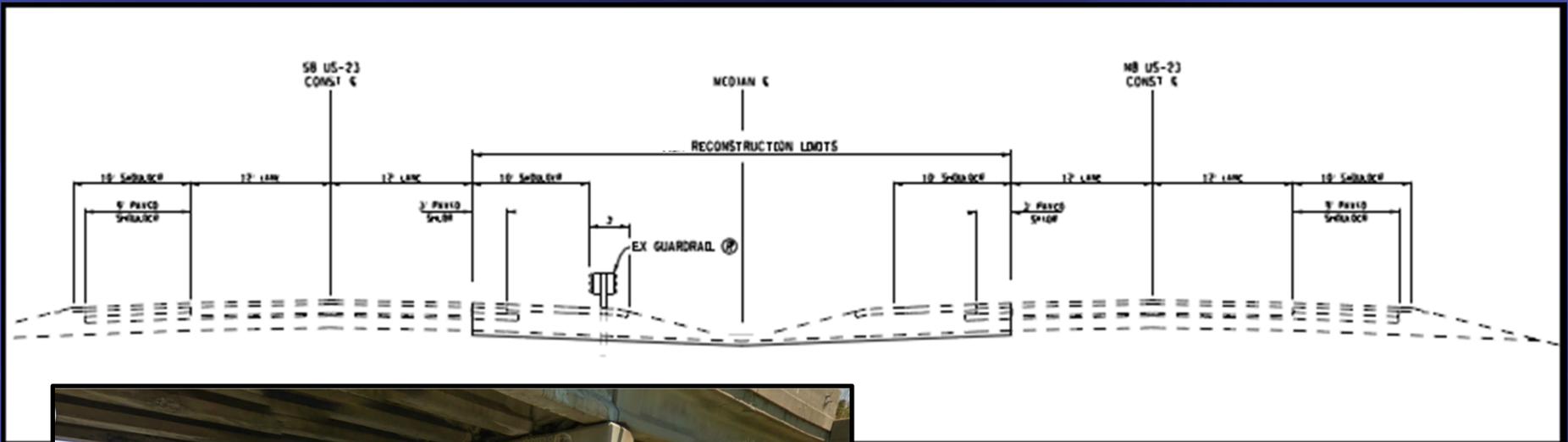
AM
OPERATION



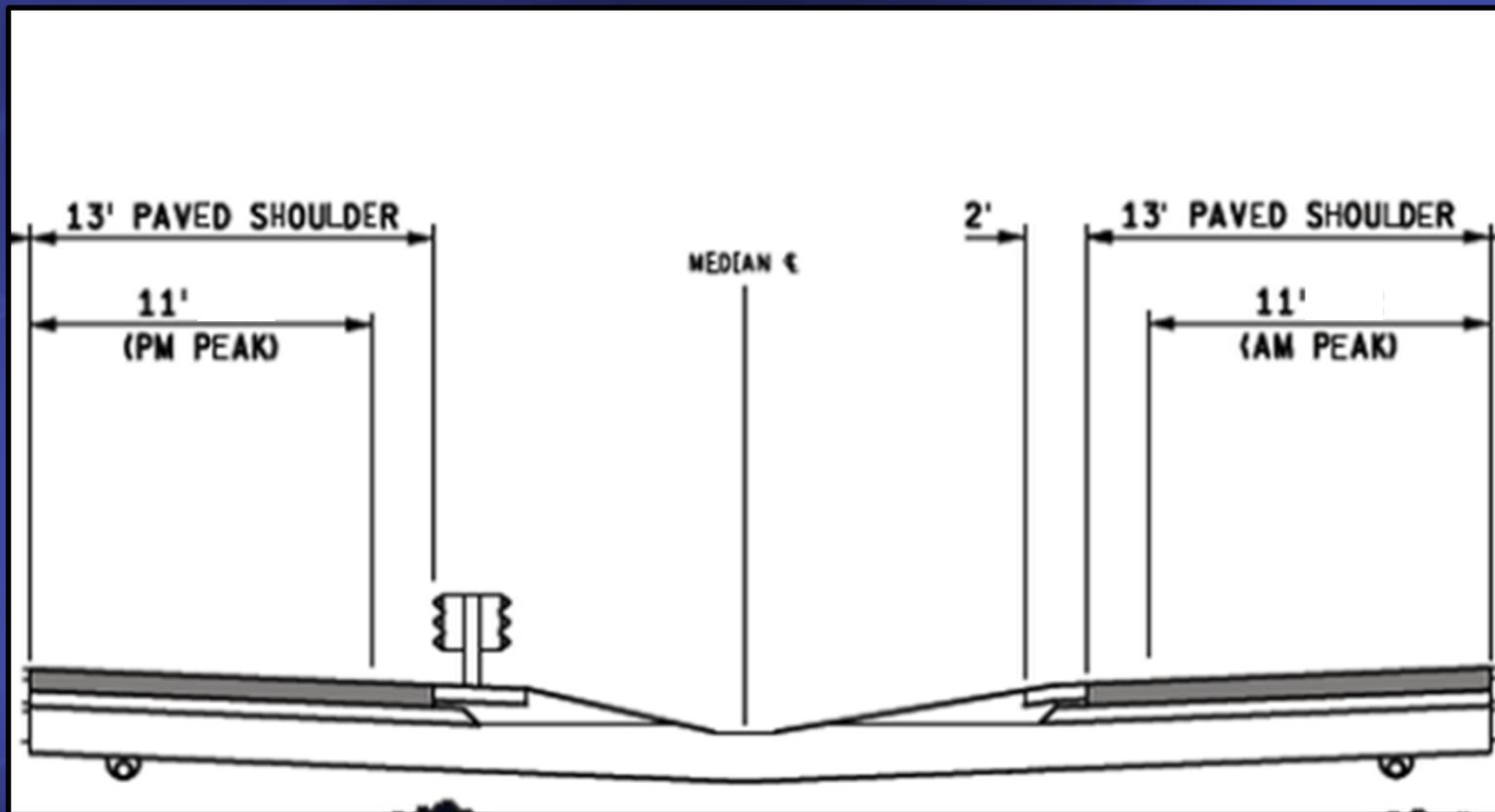
PM
OPERATION



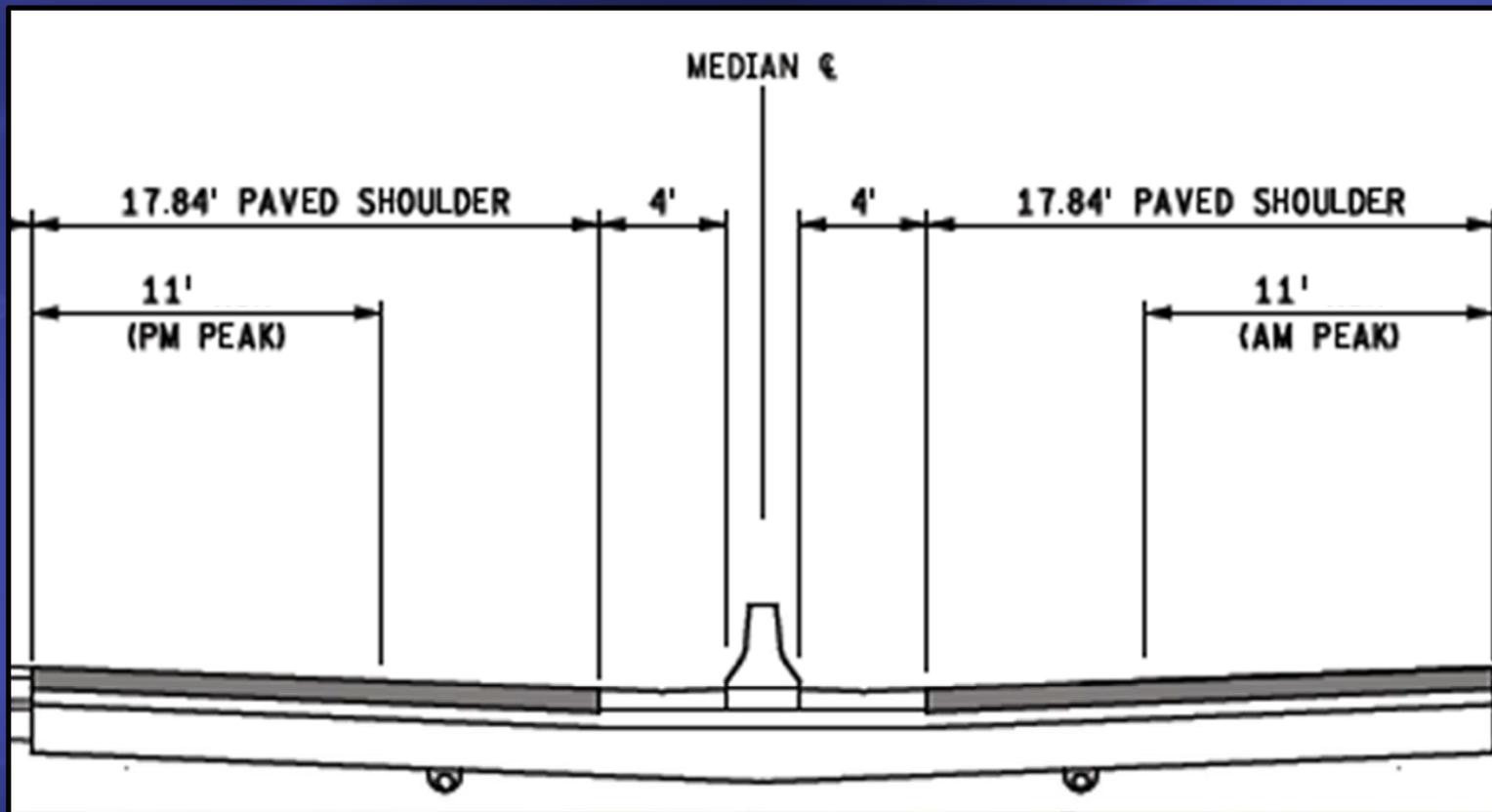
US-23 Existing Conditions



Active Traffic Management Concept

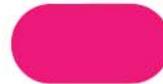


Active Traffic Management Concept





Active Traffic Management and ITS Projects



Phase 2

From I-96 to 9 Mile Road/M-36



Phase 1

From 9 Mile Road/M-36 to M-14

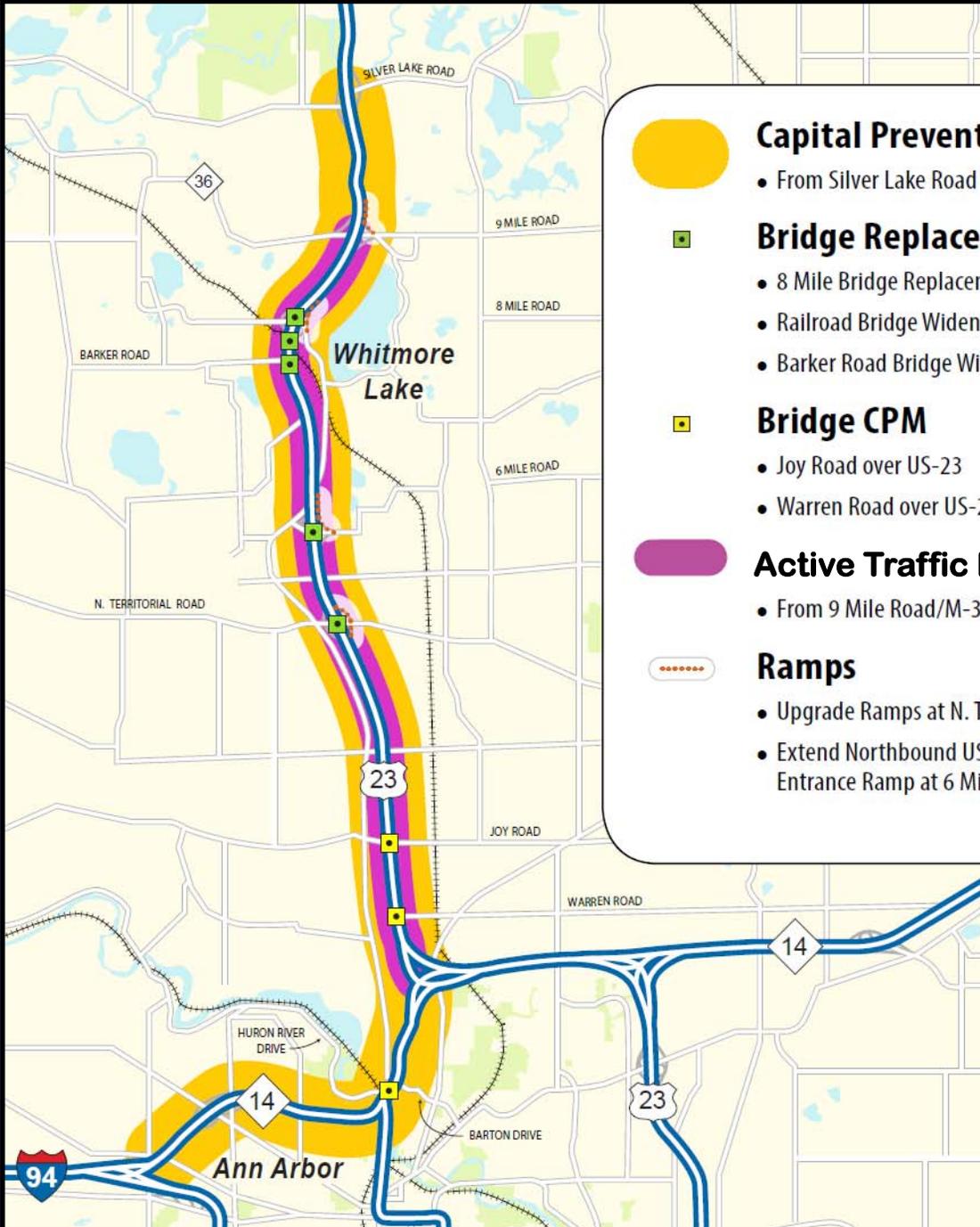
2016 Active Traffic Management

- US-23 from M-14 to M-36
- Improvements needed
 - Upgrade median shoulder
 - Widen Barker and RR bridge
 - Install ITS equipment
 - Construct crash investigation sites
- Monitor/control with ITS dynamic signing
- General operation - peak hours (SB-AM, NB-PM)
- Cost: \$38 million (vs \$175 million to widen to 3 lanes)



Implementation Plan- Why Now?

- Coordinate with existing projects in Ann Arbor area in 2016
- Pavement needs repair (CPM)
- Bridges need replacement (6 Mile, 8 Mile, N. Territorial)
- Bridges need repair (Joy, Warren over US-23, M-14 over Huron River)
- Coordinated effort to minimize traffic impacts
- Utilize existing funding from available other sources



Capital Preventative Maintenance (CPM) Jobs

- From Silver Lake Road to I-94



Bridge Replacement/Widen

- 8 Mile Bridge Replacement
- Railroad Bridge Widening
- Barker Road Bridge Widening
- 6 Mile Bridge Replacement
- N. Territorial Bridge Replacement



Bridge CPM

- Joy Road over US-23
- Warren Road over US-23
- M-14 over Railroad, Huron River and Barton Drive



Active Traffic Management and ITS Projects

- From 9 Mile Road/M-36 to M-14



Ramps

- Upgrade Ramps at N. Territorial Road
- Extend Northbound US-23 Entrance Ramp at 8 Mile Road
- Extend Northbound US-23 Entrance Ramp at 6 Mile Road
- Extend Northbound US-23 Entrance Ramp at M-36

Next Steps

- Submit formal request to FHWA – done
- Receive FHWA Approval to Proceed – done
- Establish design guidelines – done
- Establish NEPA Environmental Classification and Clearance – in process (currently assuming a Categorical Exclusion)
- Coordinate with Emergency Management personnel – initiated contact with MSP
- Reach out to local stakeholders – in progress
- Public Information Meeting – December 2013

Active Traffic Management

- Lane control signals
 - ½ mile spacing
 - Peak hour congestion management
 - Incident management
- Full camera coverage
- Monitored and controlled by Statewide Transportation Operations Center (STOC)
- Assisted by Freeway Courtesy Patrol (FCP)

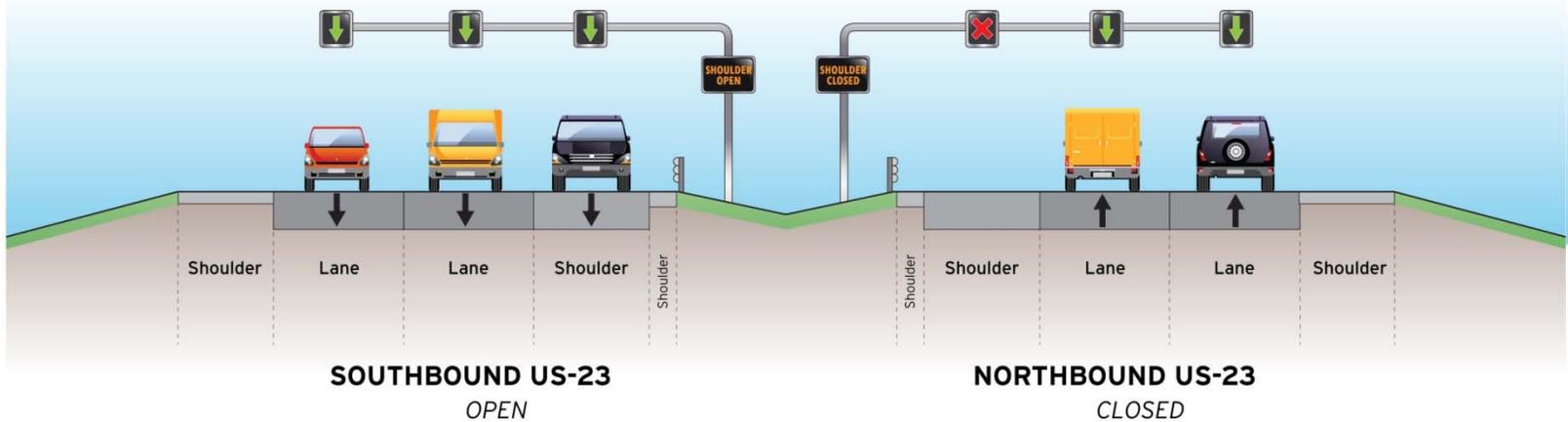
Active Traffic Management

- Video demonstration of Active Traffic Management in Seattle

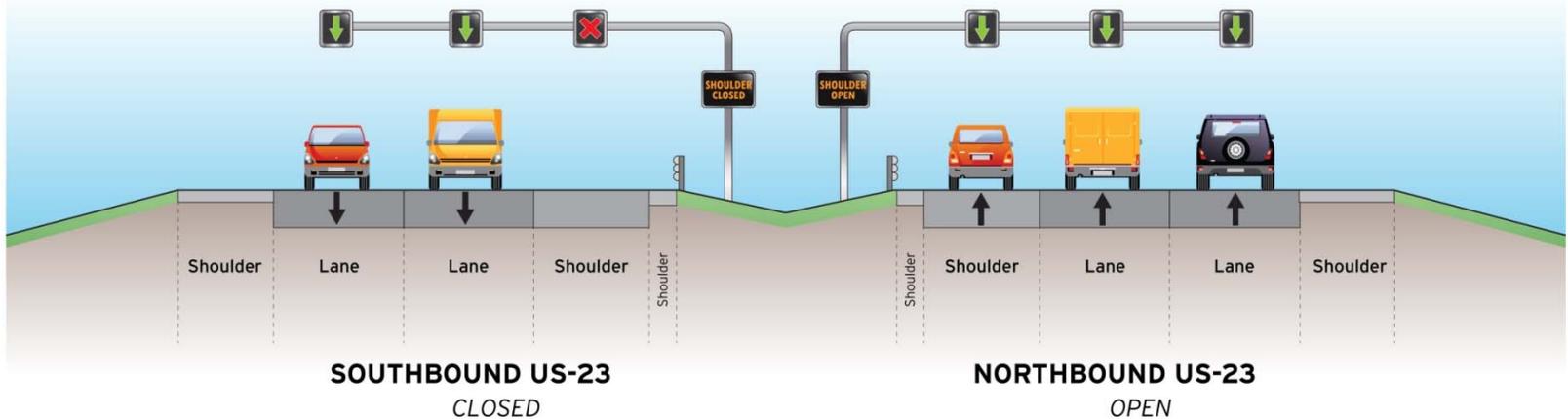
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Full Lane Control - Mast Arm Concept

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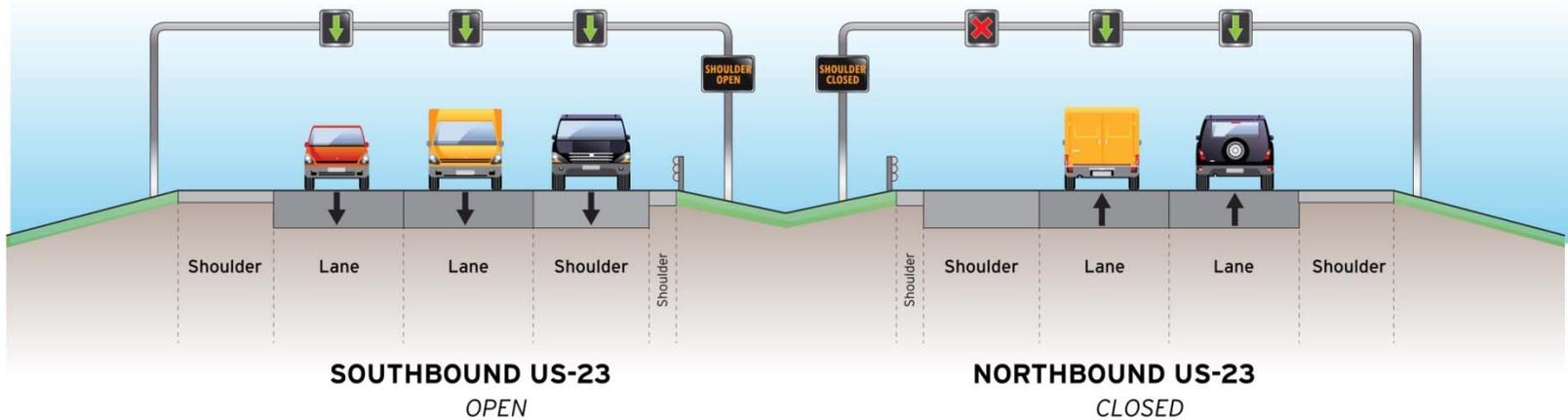
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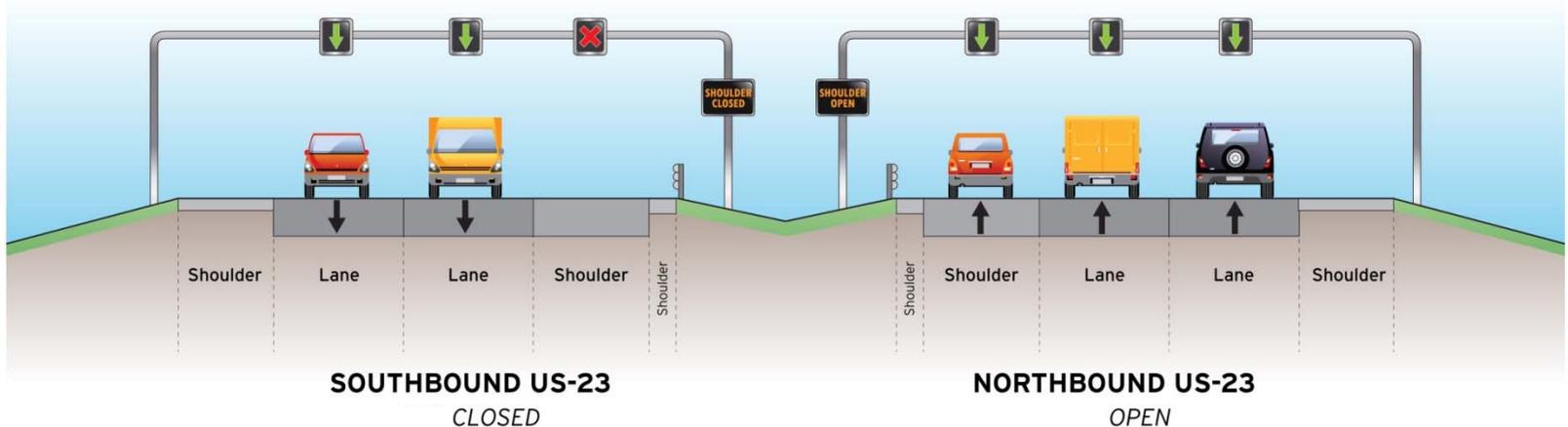
Active Traffic Management

Full Lane Control - Truss Concept

AM
OPERATION



PM
OPERATION



Traffic Analysis

- Existing Traffic Operations:
 - Morning- SB stop and go traffic from M-36 to M-14
 - Afternoon-NB bottlenecks at M-14 interchange
- Modeled using VISSIM traffic simulation model
 - Traffic volumes exceed capacity at several locations
 - 4 incidents per day in this segment
 - Results of traffic model are conservative



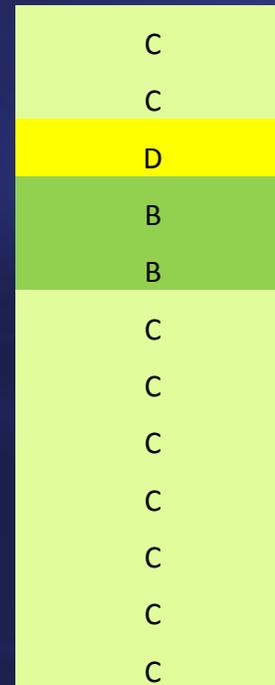
2015 Southbound US-23 AM Peak L.O.S Results

Existing



S. of Silver Lake Road
at M-36
S. of M-36
Proposed Start/End of ATM
at 8 Mile
S. of 8 Mile
S. of Barker
at 6 Mile
S. of 6 Mile
at N. Territorial
S. of N. Territorial
at West Tri Level

Proposed



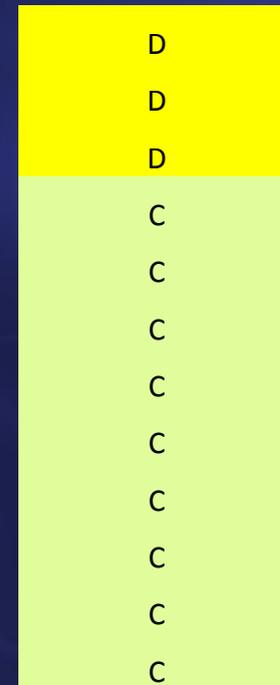
2035 Southbound US-23 AM Peak L.O.S Results

Existing



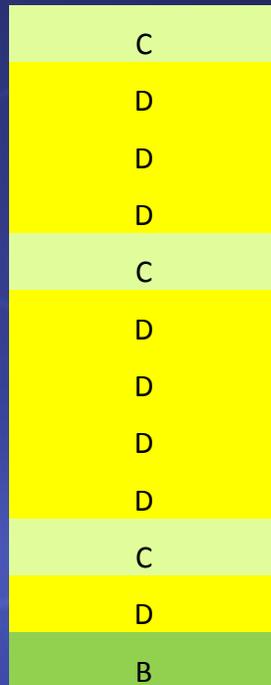
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2015 Northbound US-23 PM Peak L.O.S Results

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at M-36

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Proposed Start/End of ATM

at 8 Mile

S. of 8 Mile

S. of Barker

at 6 Mile

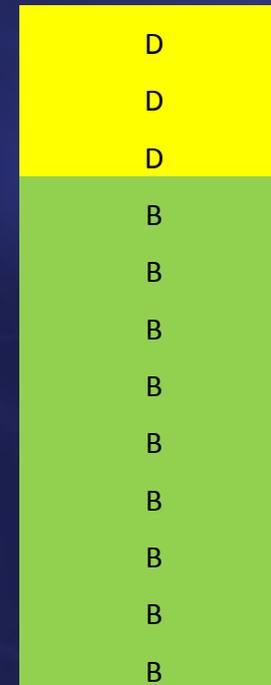
S. of 6 Mile

at N. Territorial

S. of N. Territorial

at West Tri Level

Proposed



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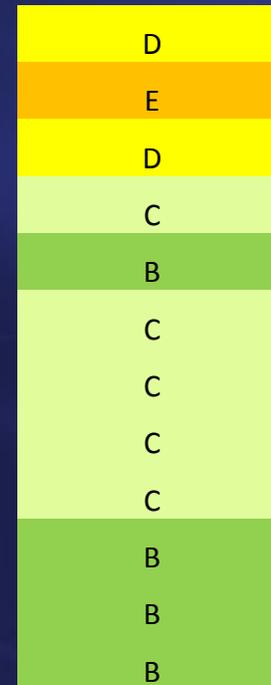
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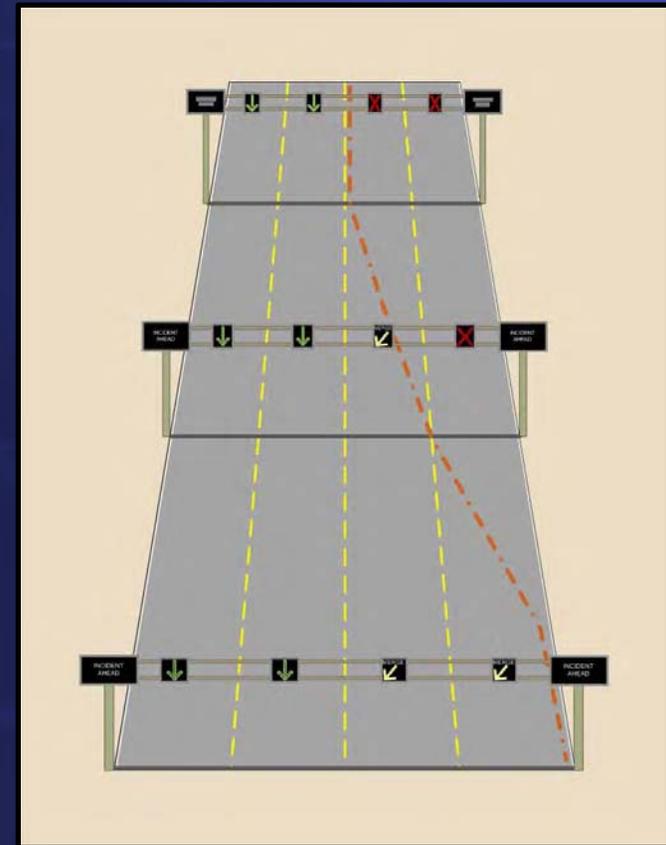
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Proposed



US-23 Active Traffic Management System Benefits

- Effectively communicate existing traffic conditions to users
- Uses innovative technology to manage the existing roadway capacity
- Improves the predictability of travel time
- Potential to improve safety by reducing “secondary crashes”



US-23 Active Traffic Management System Benefits

- Manages peak hour congestion without the cost & environmental impacts of adding a lane
- Incident management tool
- Reduces emissions



Questions

