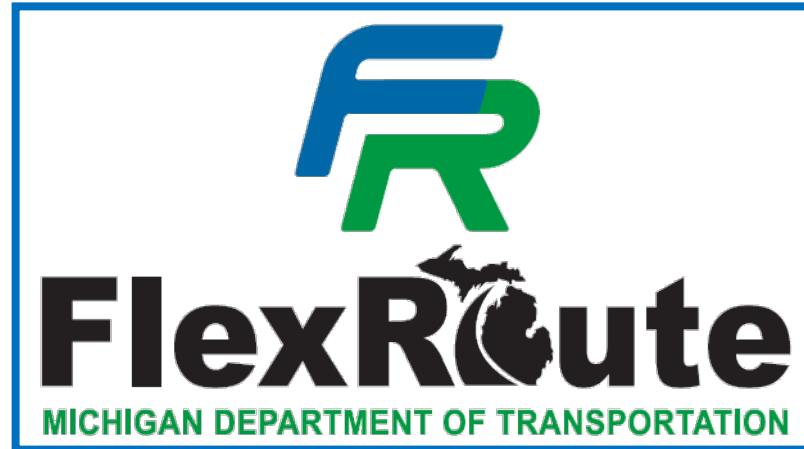


# Increasing Lane Capacity within Existing ROW

## US-23 Flex Route



Jennifer Foley  
University Region Traffic & Operations Engineer  
Michigan Department of Transportation



# US-23 Background



- Located North of Ann Arbor
- Rural between two urban areas
- Recurring Directional Peak Hour Congestion
- Non-Recurring Congestion
  - Incidents
  - Special events
- Interchange and Mainline Operational Issues
- Road and bridge improvements already planned

# 23

## Understanding Maintenance

- Requirements for system reliability
  - Goal of 97 percent system reliability
- Preventative maintenance plans
- ITS maintenance efficiencies used to improve response times
  - Allowable work hours
    - Originally only planned on night work
  - Currently performing Force Account Work
    - New Contracting Method





# Maintenance Efficiencies

- Modifications made to LCS
  - Controllers removed from sign and placed in cabinet
  - Increased cabinet size to accommodate additional controllers
  - Wire- Copper versus Aluminum
- Maintenance Efficiencies
  - Installed Iboot bars in each cabinet in order to remotely re-boot equipment to decrease maintenance response times
  - Installed environmentally controlled laptops at the two nodes to reduce response time for maintenance



# 23

# Winter Maintenance Procedures

- During winter operations (snow storms) Michigan State Police (MSP) have special request
  - Contacting MDOT asking for maximum speed to be set to 40 mph
  - Reducing traffic speed during snow storms
  - Developed categories to assist operators what to post on LCS
  - When difficult to determine speeds or road conditions, post SLOW



Flex Route  
QRG 11 – ATM SYSTEM USE DURING  
WINTER MAINTENANCE



### When to Use

- Using the ATM system during winter maintenance events.

### Winter Maintenance Event Categories

1. Winter maintenance events are defined by the following three categories:
  - Mild – light snow, winter maintenance is monitoring and potentially plowing
  - Moderate – snowing, winter maintenance plowing and using salt
  - Severe – heavy snow / white out conditions, winter maintenance plowing and using salt plus chemicals

### VSL Advisory Speed

2. The VSL Advisory Speed System can be used during winter maintenance based on the following three event categories:
  - Mild – Allow the VSL Advisory Speed System to run as ATMS software recommends.
  - Moderate – Manually set maximum advisory speed due to weather at the direction of MDOT or MSP.
  - Severe – Override the VSL Advisory Speed message with "SLOW".

**Note:** See QRG 02 – Variable Speed Advisory for instruction on operating and overriding the VSL Advisory Speed.

3. Priority for Small DMS messaging:
  - 1) Queue Warning messages (automated response).
  - 2) Winter Weather Message (manual override).
  - 3) Shoulder Open/Closed to Traffic (automated response).
4. TOC Operator to maintain contact with winter maintenance personnel to determine when winter maintenance event is over and remove VSL Advisory Speed overrides.

### Contacts

5. If median shoulder roadway conditions appear to be snow/ice covered, contact the Brighton Maintenance Garage or Washtenaw County Road Commission to inquire if they plan to plow again. If conditions warrant, the median shoulder may be closed at the direction of MDOT, MSP, or Washtenaw County Road Commission.

# Questions?



Jennifer Foley  
foleyj3@Michigan.gov