Session 3: WRTM Control and Treatment Strategies

Overview
WRTM Control and Treatment Strategies

• Control Strategies
  – Speed management strategies
  – Vehicle restriction strategies
  – Road restriction strategies
  – Traffic signal control strategies
  – Traffic incident management

• Treatment
  – Host of maintenance activities including snow plow operations, roadway treatments (e.g., salt spraying and other anti-icing material applications), debris removal, recovery efforts
Speed Management

• Strategies
  – Speed Advisories
  – Variable Speed Limits

• Use
  – Increasing. Number of agencies are looking at applications

• Challenges
  – Identifying thresholds for Wx
  – Communication issues
  – Enforcement challenges
Vehicle Restrictions

• Strategies
  – Size/Height/Weight/Profile Restrictions
  – Tire Chains/Alternate Traction Devices

• Use
  – Fairly common across states
  – Coupled with other information systems and speed management

• Challenges
  – Enforcement
  – Activation criteria
Route Restrictions

• Strategies
  – Lane Use Restrictions
  – Parking Restrictions
  – Access Control/Facility Closures
  – Reversible Lane Operations

• Use
  – All states have the authority for public safety but as systematic control, use in mid-western states

• Challenges
  – Concern about mobility impacts
  – Communication challenges
  – Lack of alternate options
Traffic Signal Coordination

• Strategies
  – Changing detector configuration
  – Changing interval and phase duration settings
  – Weather-specific coordination plans
  – Weather-specific ramp metering plans

• Use
  – Most of the strategies have been suggested in research
  – Limited use in states

• Challenges
  – Liability
  – Uncertainty about impacts
  – Equipment and communication challenges
  – Lack of guidance on acceptable changes/best practices
Traffic Incident Management

• Strategies
  – Prepositioning, Increasing Full Function Patrols/Courtesy Patrols during weather
  – Wrecker Response Contracts
  – Quick Clearance Policies

• Use
  – Difficult to judge weather-related actions but in general accepted as good practices and key element in TMC toolbox

• Challenges
  – Personnel/Asset Management Challenges
  – Agency coordination challenges
  – Resource issues
Tying it all together

• Active Traffic Management for Weather Events

• Active Traffic Management implies an approach for dynamically managing and controlling traffic demand and available capacity of transportation facilities, based on prevailing traffic conditions, using one or a combination of real-time and predictive operational strategies.

• Developed an high-level Conops
ATM in Puget Sound

- Washington State DOT Active Traffic Management:
- Part of Moving Washington program to address congestion
- Employing ATM on I-5, I-405 and SR 520
- Includes:
  - Overhead gantries
  - Variable speed limits
  - Queue warning
  - Junction control
  - Hard shoulder running
  - Dynamic rerouting
  - Travel time signs

Source: WSDOT
ATM for Weather Events

- Weather Monitoring Subsystem
- Traffic Sensor Subsystem
- Incident Management Subsystem
- Video Surveillance Subsystem
- Surface Transportation Weather Information
- Weather Forecasts/Alerts
- Weather Monitoring Decision Support System
- Weather & Roadway Conditions
- ATM Decision Support Subsystem
- Traffic Performance Measures
- Incident Location
- TMC Operator
- Video Images
- Dynamic Message Sign Control Subsystem
- ATDM Deployment Strategy
- Sign Message
- Side-Mounted DMSs (Small)
- Side-Mounted DMSs (Large)
- Over-the-Lane DMSs
Potential Implementation

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