# I-5 Ramp Metering & Active Traffic Management

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# Practical Solutions

- "Practical Solutions is our approach to achieving the WSDOT mission – how we plan, design, build, **operate and maintain** the state's transportation system. Our goal is to identify and solve problems as **quickly** and **inexpensively** as possible".

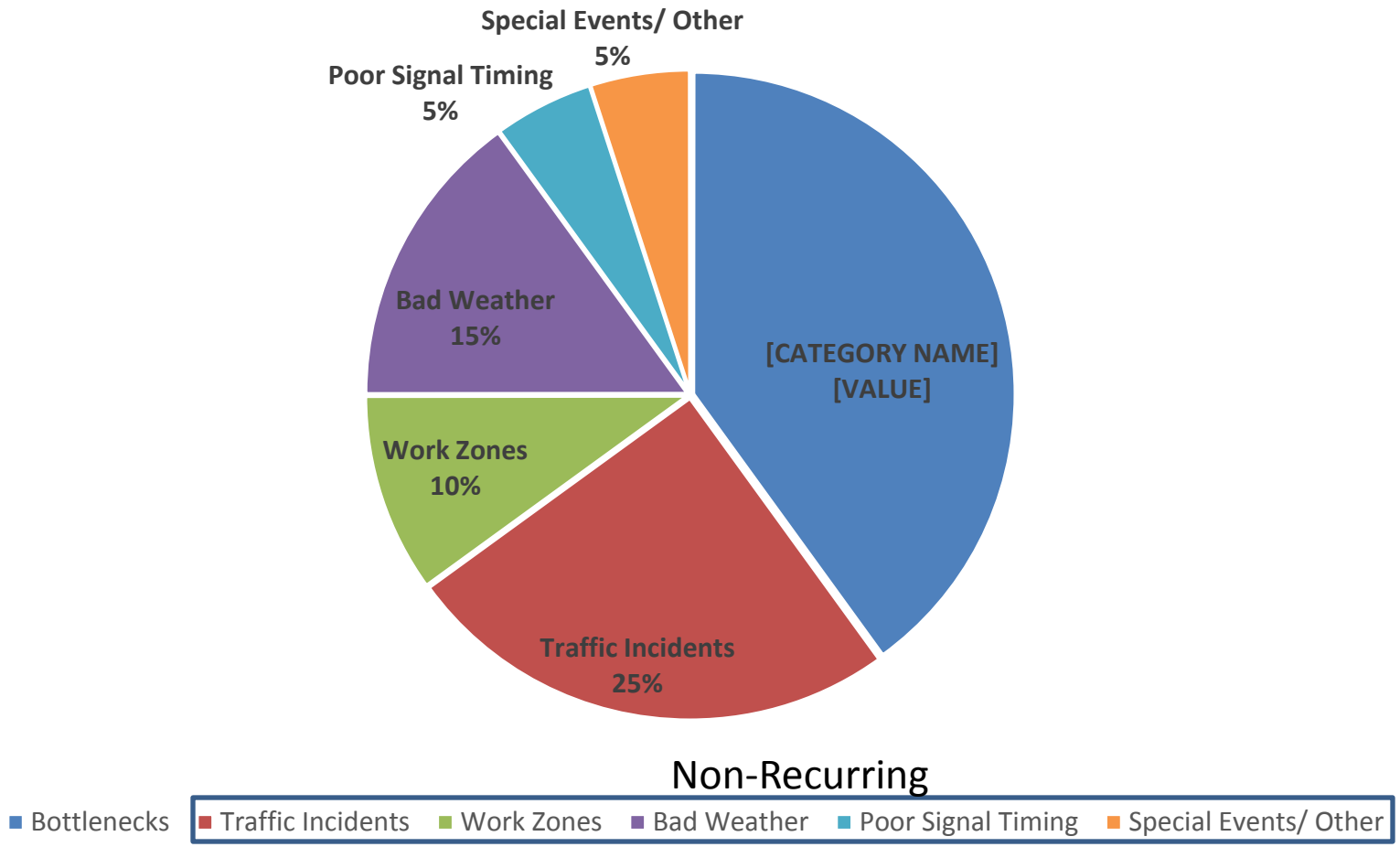
# Practical Solutions

"This approach uses **performance-based**, **data-driven** decision making"

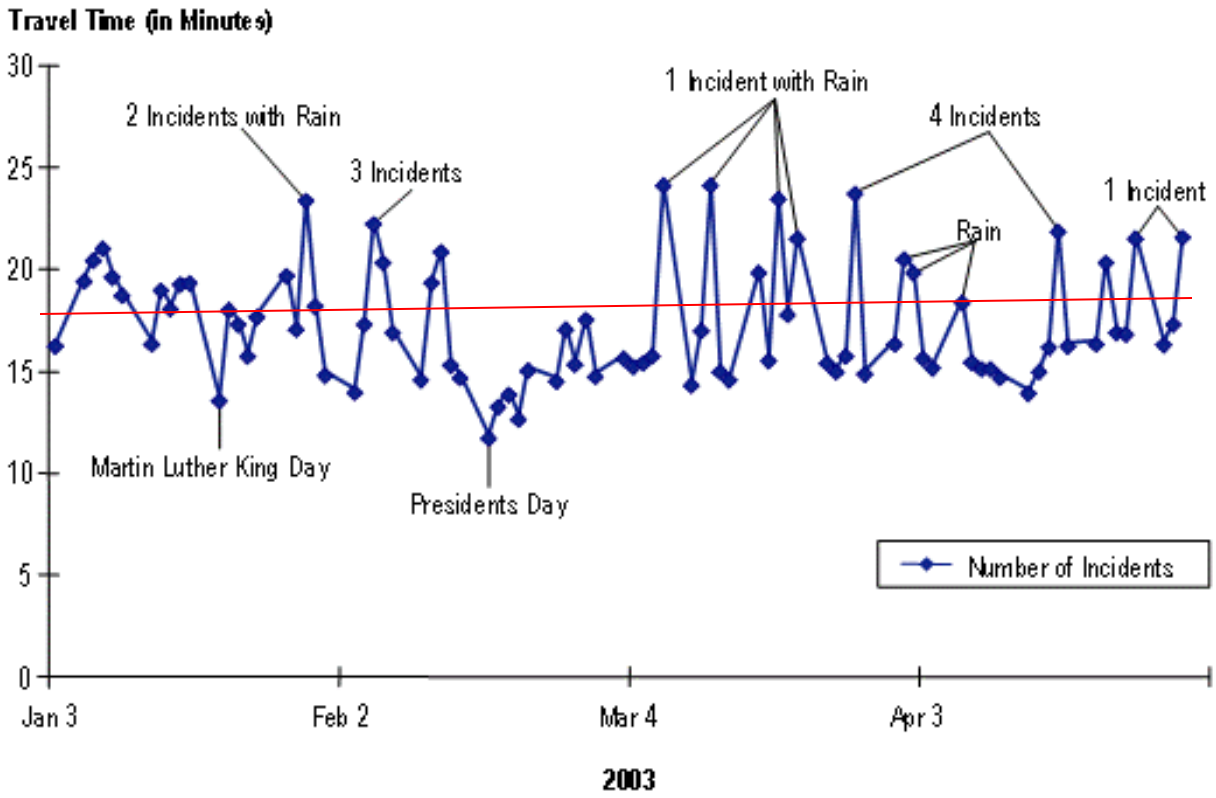
# Practical Solutions

- State of good repair
- **Safety-Target Zero**
- **Transportation system management & Operations (TSMO)**
- Demand management
- Capital project investment

# Causes of Congestion



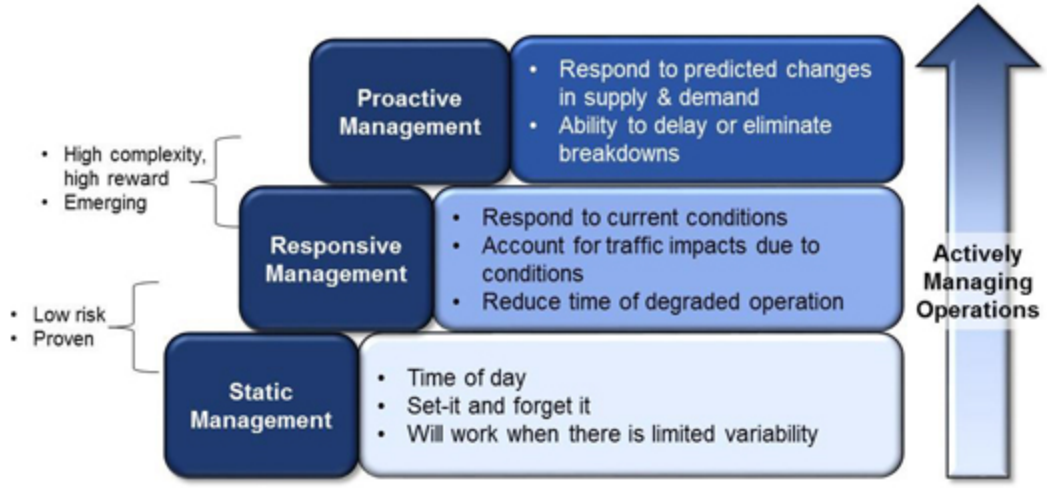
# Reliability



# Reliability

# Active Traffic Demand Management (ATDM)

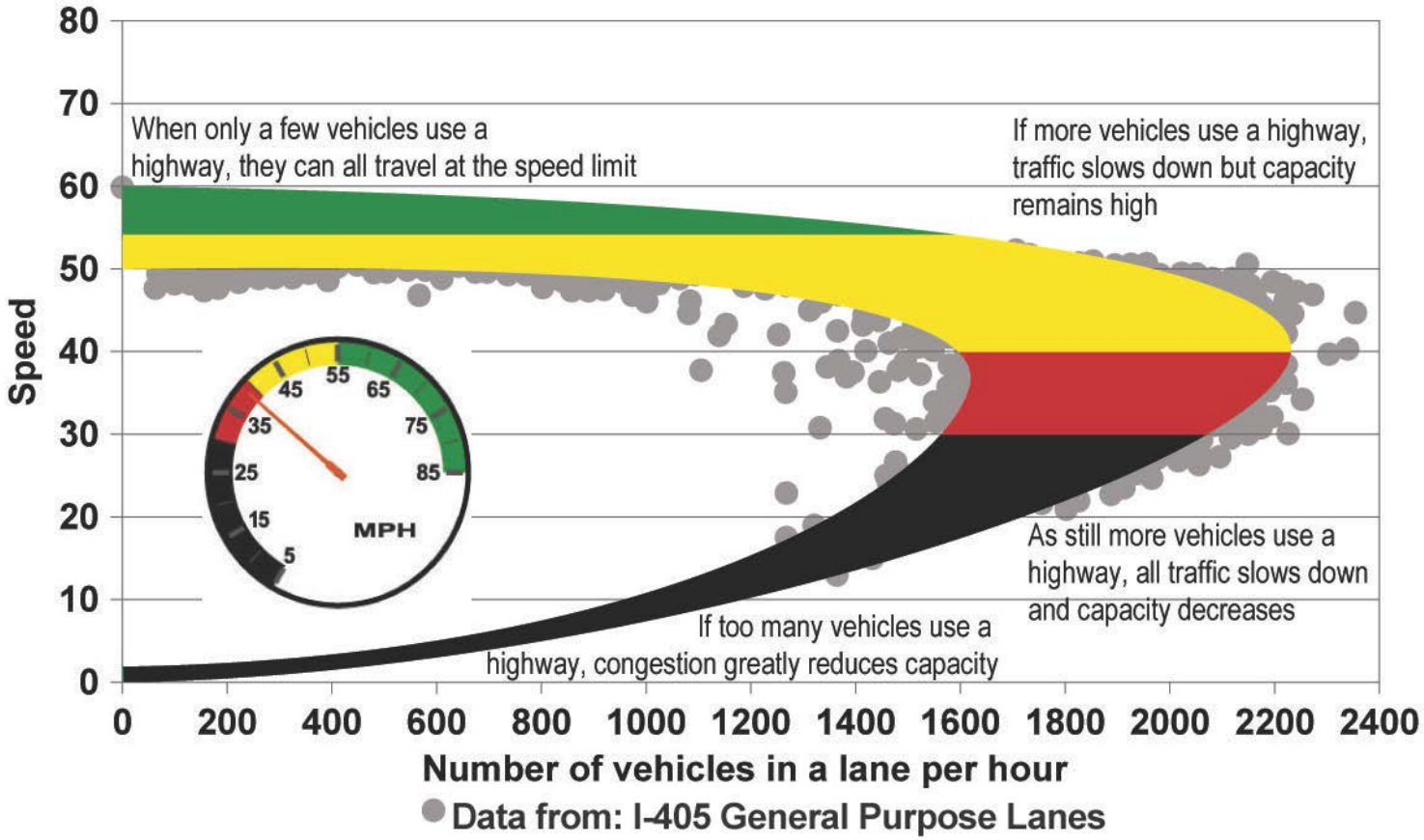
- Dynamically Manage System
  - Recurring and Non-Recurring Congestion
  - Reliability
  - Maximize System Efficiency



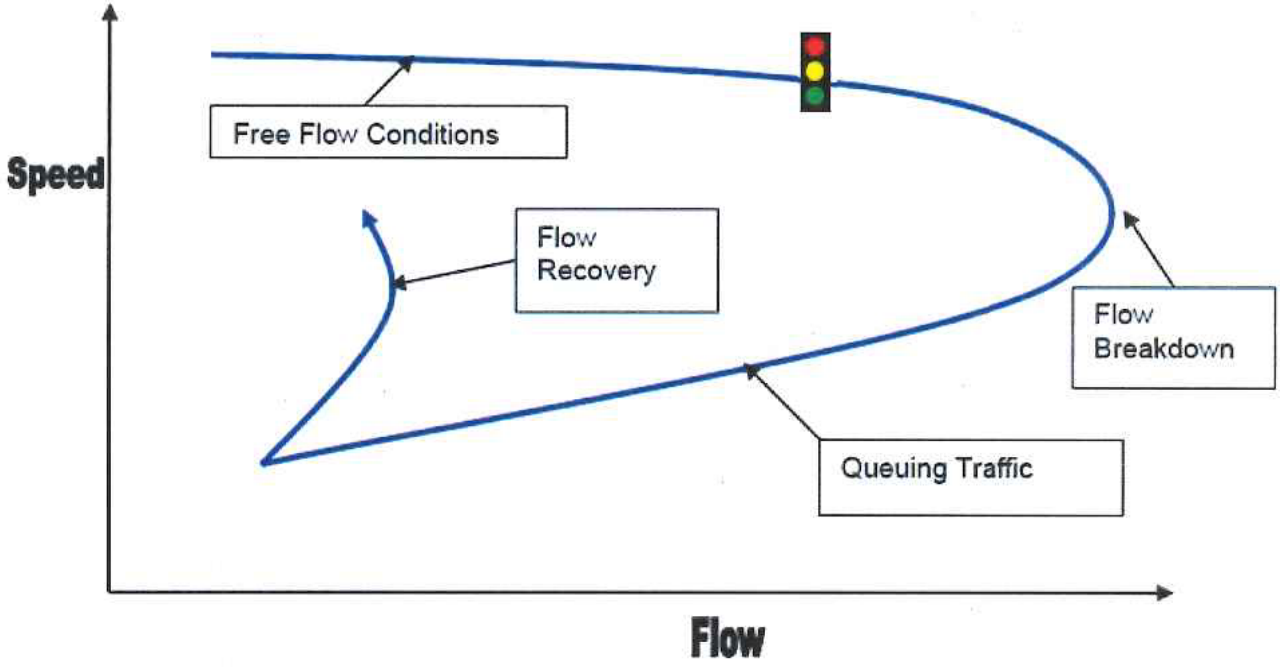
# ATDM Strategies
# FHWA

- **Adaptive Ramp Metering**
- Adaptive Traffic Signal Control
- Dynamic Junction Control
- Dynamic Lane Reversal
- **Dynamic Lane Use Control**
- Dynamic Merge Control
- Dynamic Shoulder Lanes
- **Dynamic Speed Limits**
- Queue Warning
- Transit Signal Priority

# Adaptive Ramp Metering



# Why Ramp Meters



# MNDOT Case Study

- Minneapolis St. Paul Metro
  - Turned off all meters for 6 weeks
    - 26% increase in crashes
    - 91% decrease in reliability
    - 22% increase in travel time
    - 14% decline in throughput

# Dynamic Lane Control

- Provides drivers advance notice of lane closures
  - First responder safety
- Prevents Secondary Crashes due to unexpected closure

# Dynamic Lane Control

# Dynamic Speed Limits

- Warn drivers of slowed traffic ahead

# Dynamic Advisory Speed

# ODOT 217 Result

## ODOT 217 ATMS results

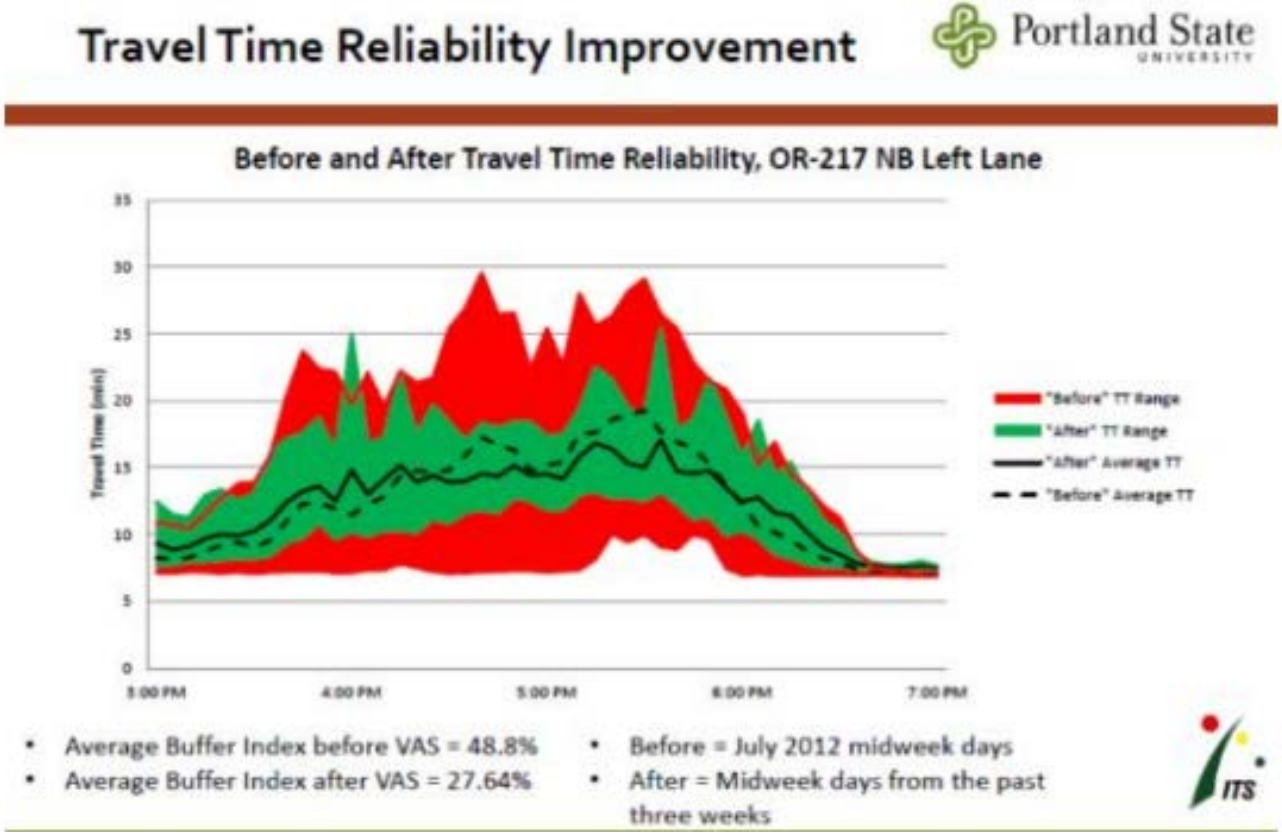
**9%**
*Reduction in travel times during morning and evening peaks*

**8% to 18%**
*Reduction in midday travel times*

**50%**
*Reduction in travel time variability*

**Speeds**
*Increased during peak periods*

**25%**
*Reduction in crash-related incidents in November 2014*



# Benefit Cost

- Traditional Roadway Building
  - 3:1 Societal Benefit
- Ramp Meters-Dynamic Lane Control-Dynamic Advisory Speed
  - 12:1 Societal Benefit

# I-205 NB @ SR500

- Install 1 Ramp Meter
- Tentative turn on early December


Photo Source: Google Maps

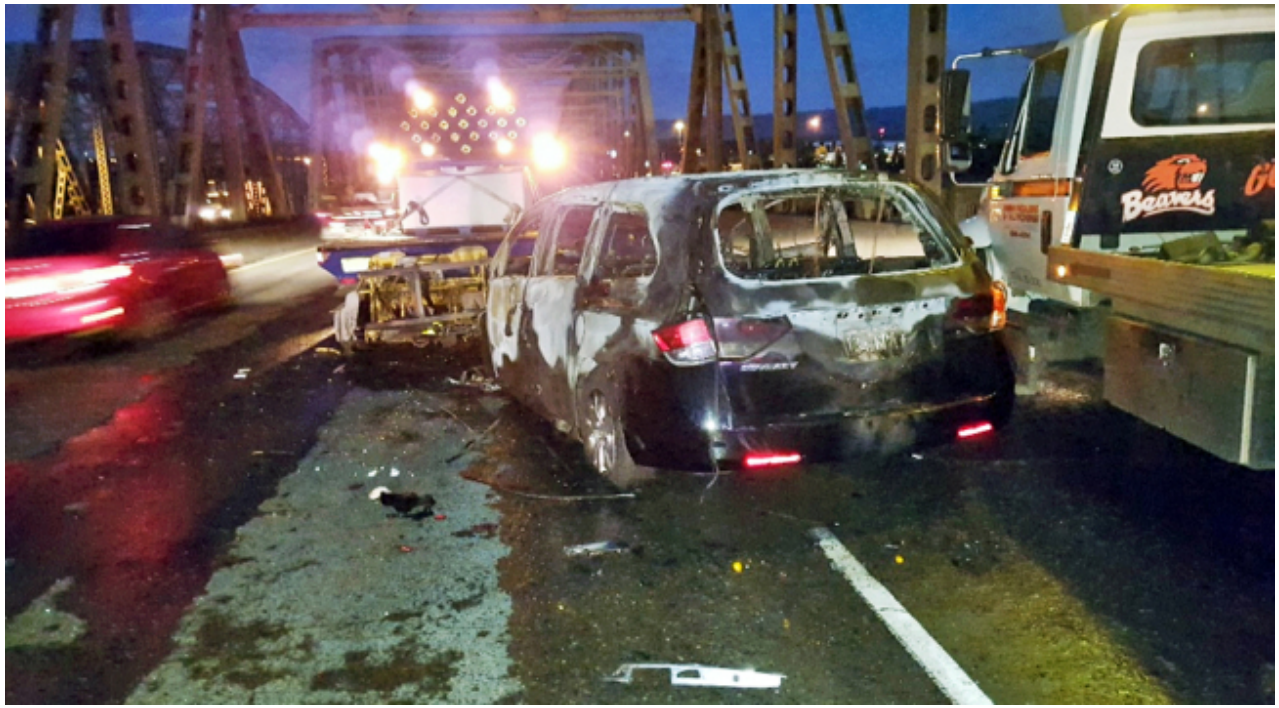
# I-5 Corridor
# 99th Street to River

# Crash Summary

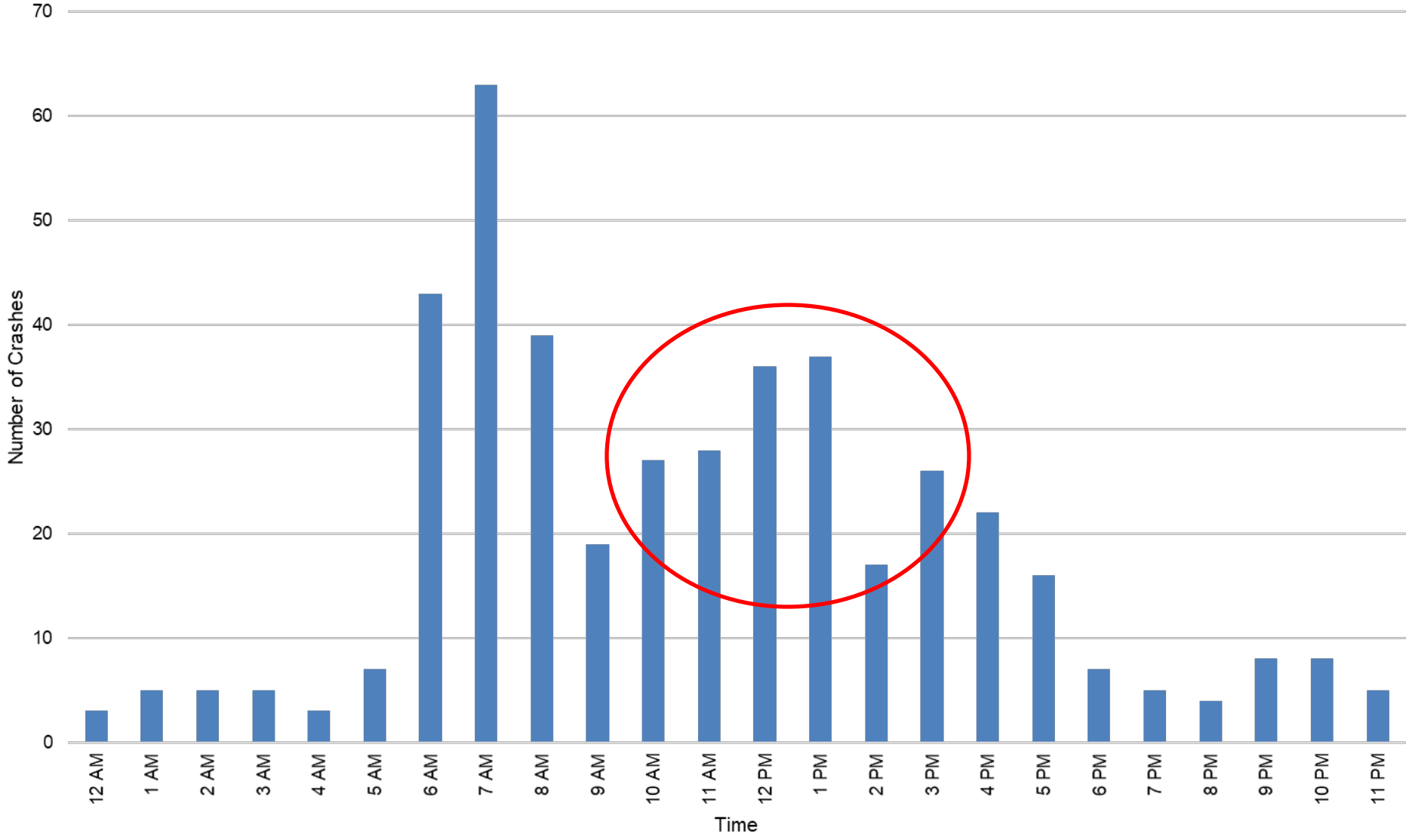
- 442 mainline crashes from 2009 – 2013
  - 313 PDO, 104 possible injury, 22 suspected minor injury, 3 suspected serious injury
- 273 rear ends
- 78 sideswipes

# Crash Summary

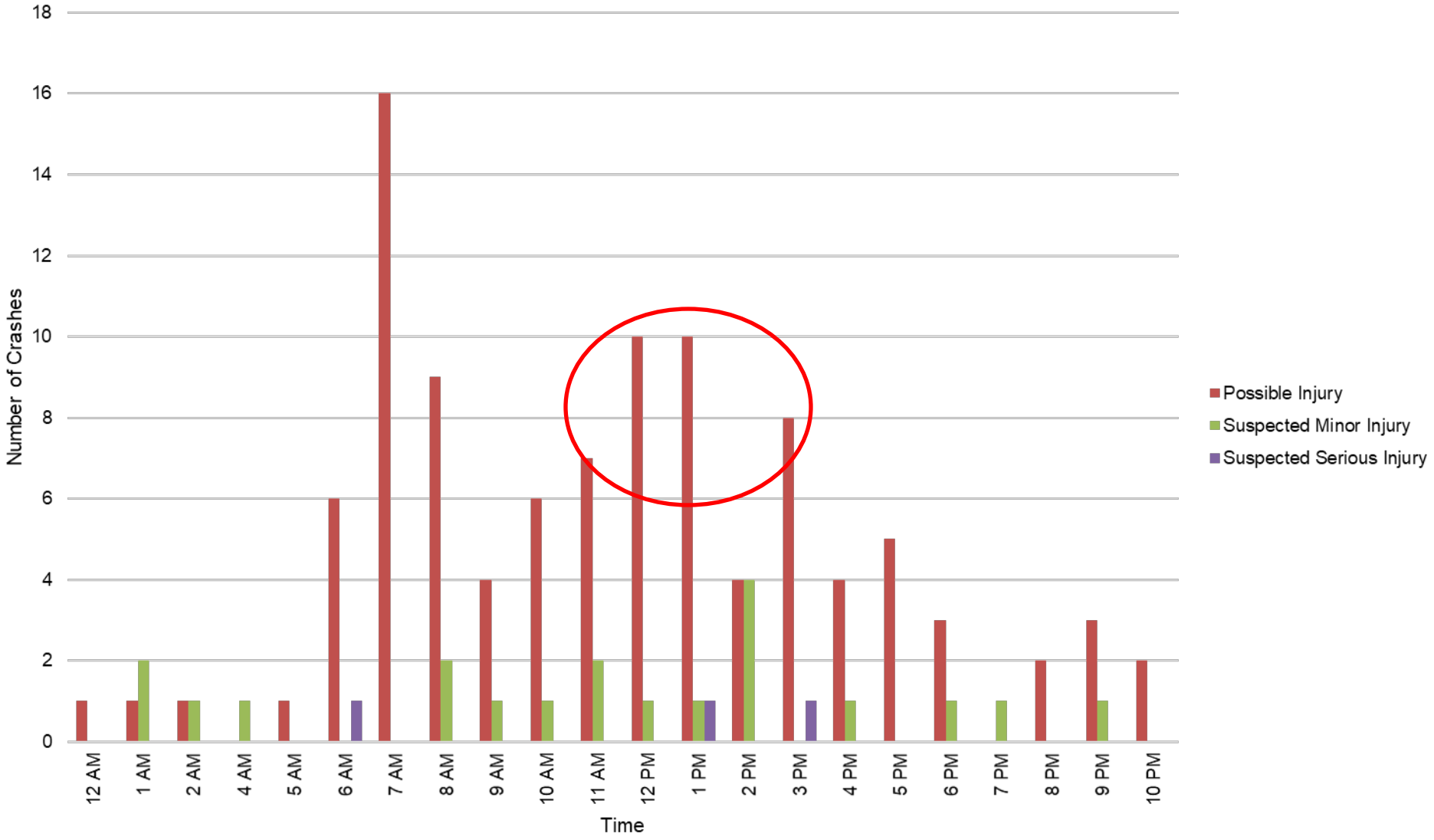
- 43 merging & ramp-related crashes
- Over 120 crashes on Interstate Bridge



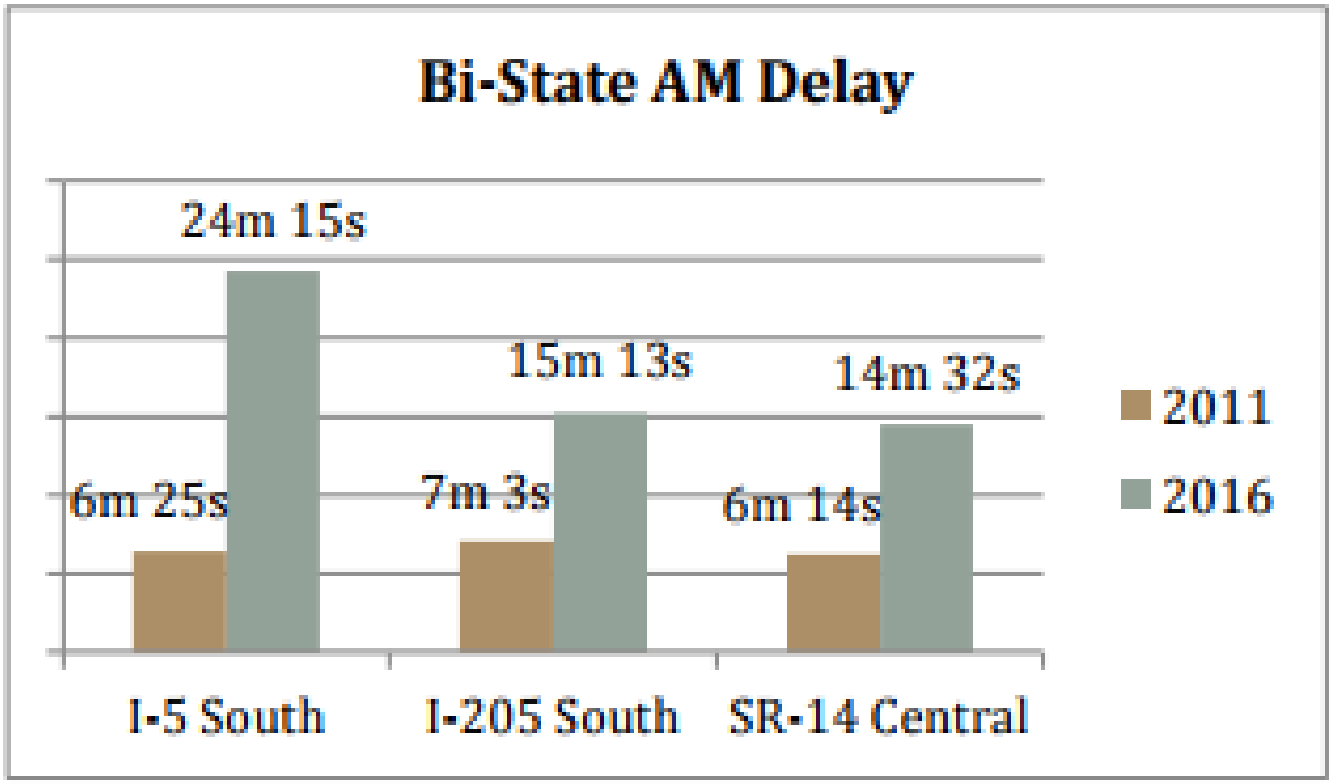
# Crashes by Time of Day



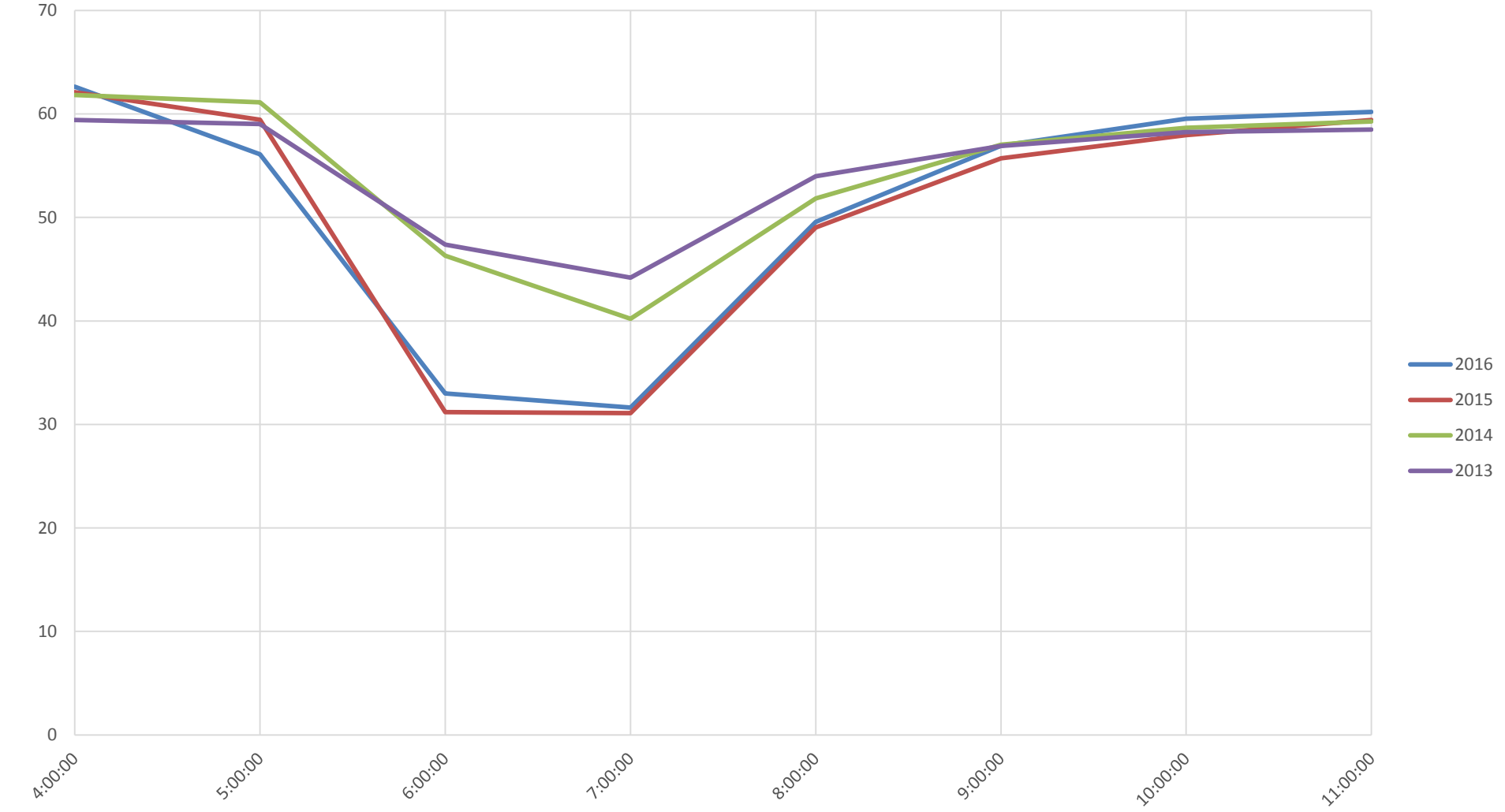
# Crash Severity: Injury Only



# What Happened?

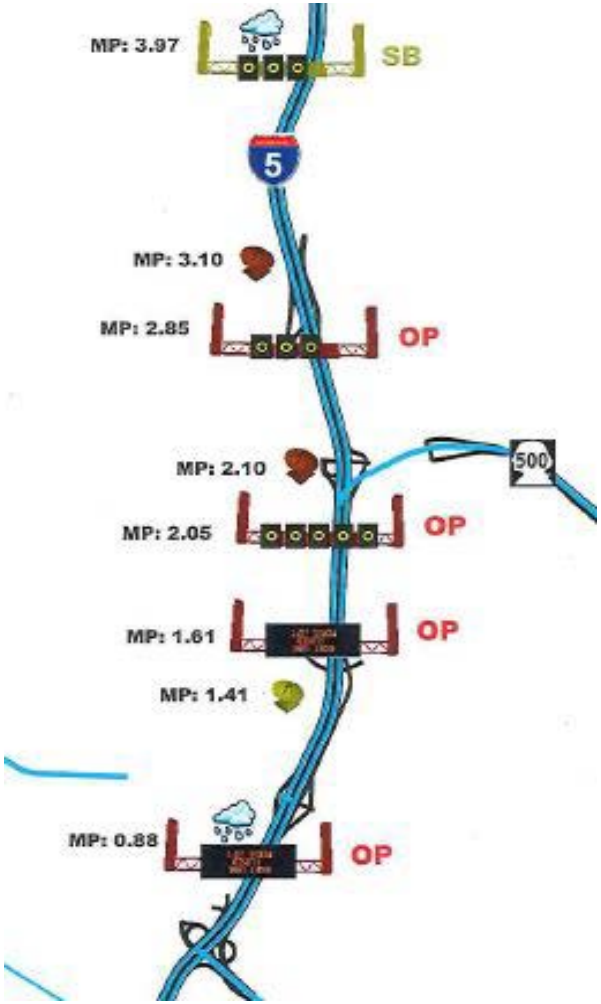


# Speeds by Time of Day



# Ramp Meter Proposal

# ATM Proposal





Oregon

# Tenative Timeline

- Currently in Design
- Complete Prior to Trunion Work in Fall of 2020

# Questions?