

# Module 3



Crash  
Prevention  
& Security

# Crash Prevention & Security

## User Needs

- Collision Avoidance
- Roadway Geometrics
- Highway-Rail Intersection Crossings
- Vehicle Preemption
- Roadway Weather Information Systems
- Work Zone Control/Advisory System
- Security
- Data Sharing

# Stakeholder Partners

## Who are they?



# Applicable Technologies

- Mayday
- Roadway Weather Information Systems
- Dynamic Warning Variable Message Signs
- Highway Advisory Radio
- Emergency Vehicle Preemption
- Animal Detection/Deterrence

# Projects

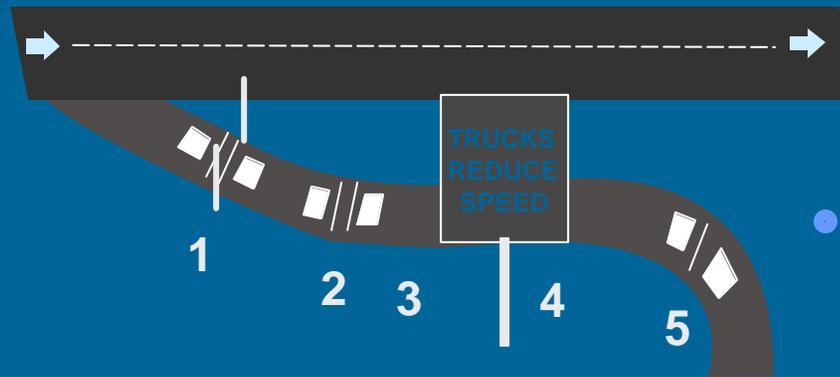
- California Dynamic Speed Warning
- Automated Truck Rollover Warning System
- Dynamic Downhill Speed Warning System
- North Dakota State University ATWIS -- #SAFE
- URGENCY
- Intersection Collision Avoidance
- Animal Vehicle Crash Mitigation Using Advanced Technologies

# California Dynamic Speed Warning

- 10' X 7' full LED matrix
- Radar Unit
  - 18 Degrees
  - 15-120 mph and 2500 feet away
- 2 Fixed Closed Circuit Television Cameras
- Video Vehicle Detection System
- Controller and Phone Line



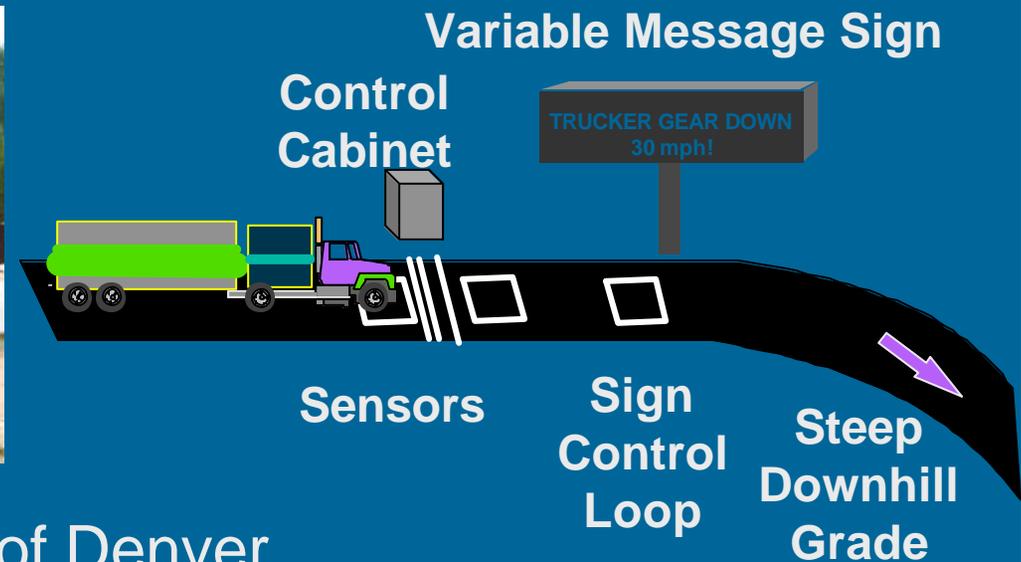
# Automated Truck Rollover Warning System



- 1 Advance WIM
- 2 Tracking WIM
- 3 Calculations
- 4 Sign activation (if required)
- 5 Monitoring WIM (optional)

- Based on real information:
  - vehicle
  - road
  - driver
- Roadside warning signs illuminate for specific trucks

# Dynamic Downhill Speed Warning System



- I-70 Westbound, west of Denver
  - Eisenhower tunnel leads into Straight Canyon
  - 10 miles at 7% grade
- Annual traffic count approaching 5 million
- About 20 runaways & 15 truck related crashes per year

# University of North Dakota ATWIS -- #SAFE

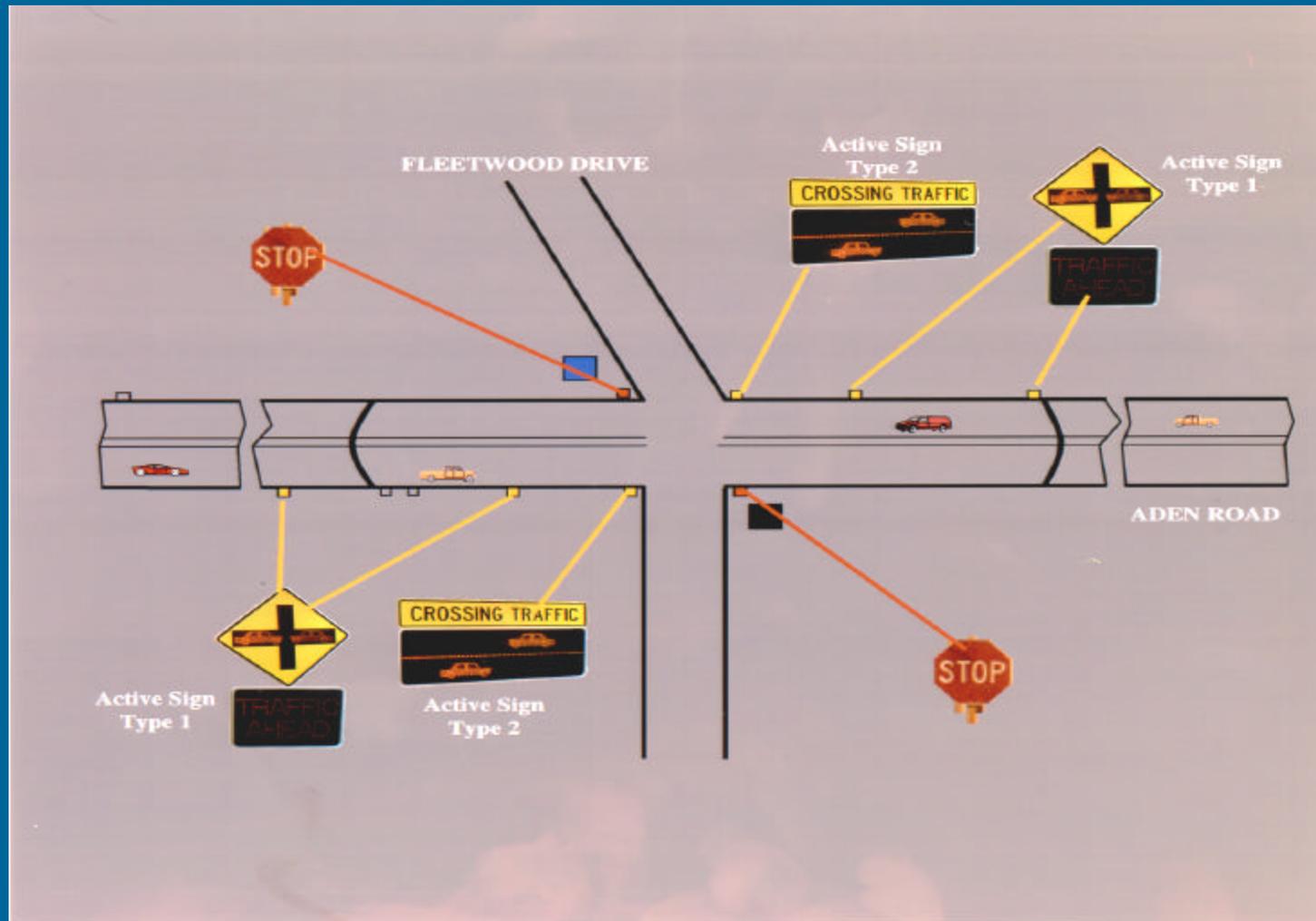


- Forecasts weather for six hours into the future
- Forecasts weather for 60 miles in direction traveling
- 94.3% believe that they will benefit from #SAFE in the future

Source: Mark Owens, Regional Weather Information Center



# Intersection Collision Avoidance



# Animal Vehicle Crash Mitigation Using Advanced Technologies



- System will
  - detect animal presence
  - alert driver through dynamic signing
- Demonstrate 2-4 sites
- 12 state pooled fund study
- 3 year project starting FY99-00