Module 7

Operations & Maintenance

Operations & Maintenance

User Needs

- Infrastructure Management
- Roadway Condition Monitoring
- Safety Management
- Resource Management
- Security
- Public Fleet Management
- Data Collection & Sharing

Source: Rural ITS User Needs, 1999

Stakeholder Partners

Who are they?

Applicable Technologies

- Road Weather Information System
- Inter-Agency Coordination
- Automated Vehicle Location
- Computer Aided Dispatch
- Collision Warning Devices
- Lane Positioning Devices
- Automated Deicing System

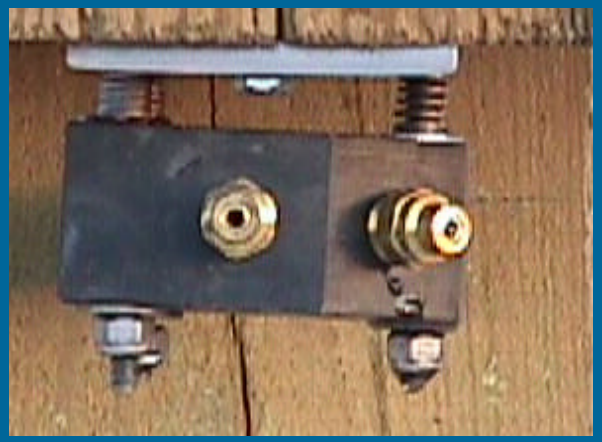
Projects

- Bridge Deicing
- Advanced Snowplow
- Advanced Rotary Blower
- Telerobotic Trash Collector
- Automated Litter Bag/Debris Collector
- Highway Cone Placement & Retrieval Vehicle
- Teleoperated Maintenance
- Frontier Lighting Monitoring System

Bridge Deicing

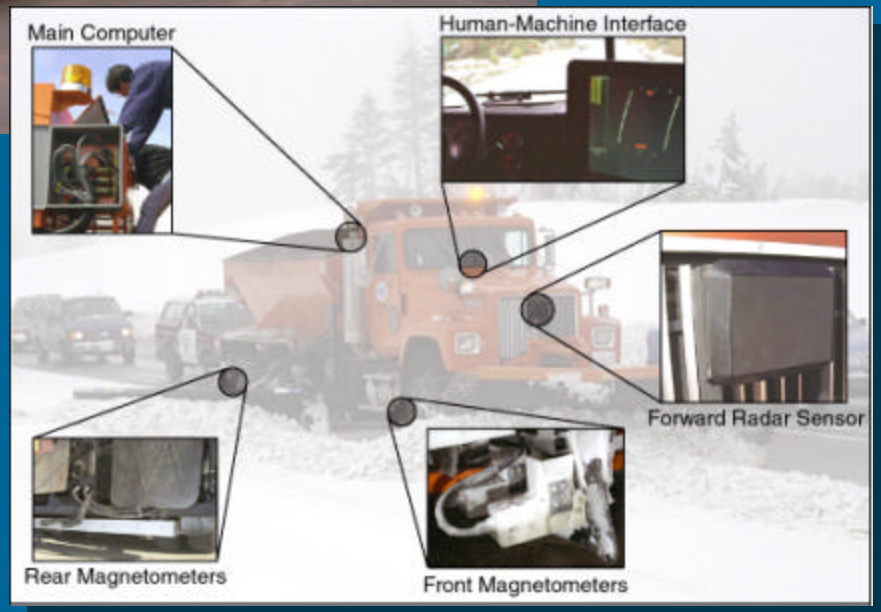
Curb & Wall

Flush in Pavement



Guard Rail

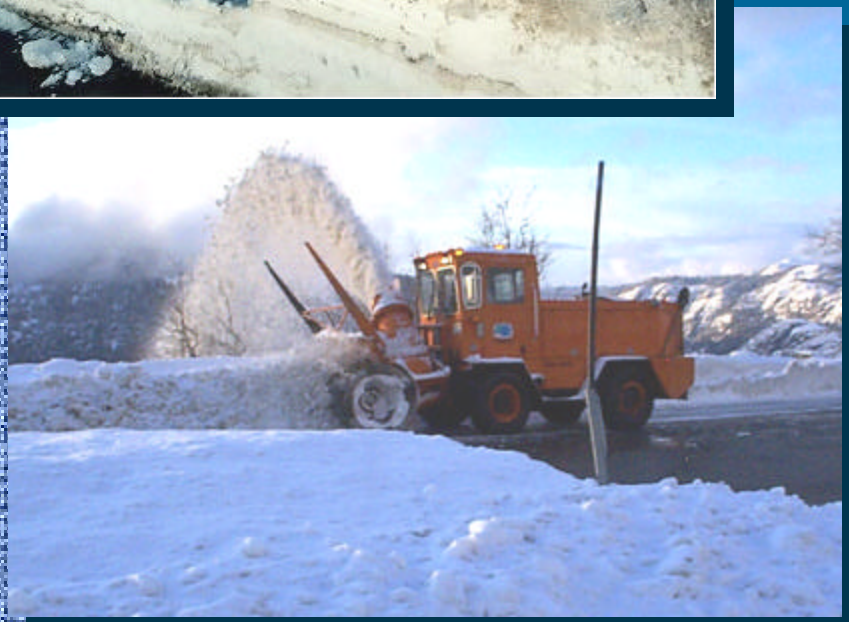
Advanced Snowplow



- Lane Positioning
  - Tolerance Edge
  - Current lateral position
  - Prediction marker
- Collision Warning
  - Forward
- Partners
  - Caltrans
  - ADOT
  - UC - Berkeley
  - UC - Davis
  - WTI/MSU

Source: http://www.coe.montana.edu/wti/wti.htm

Advanced Rotary Blower



- Full Automation
  - Steering
  - Throttle
  - Brake
- Forward Collision Warning
- Current Partners
  - Caltrans
  - AHMCT, UC - Davis
  - PATH, UC - Berkeley

Source: http://www.ahmct.ucdavis.edu

Telerobotic Trash Collection

Courtesy of MadVac

- Collect trash telerobotically using vacuum nozzle system
- Advanced human interface
- High-capacity trash collector
- Customizable for commercially available machines
- Rural/freeway/urban capabilities

Source: http://www.ahmct.ucdavis.edu

Automated Litter Bag/Debris Collector

- Pickup litter bags and large debris, such as tires, from roadside.
- Hydraulic clam shell operated with joy stick using preset locations and automatic return.

Source: http://www.ahmct.ucdavis.edu

Highway Cone Placement and Retrieval Vehicle

- One person, in-vehicle, totally automated placement and retrieval of highway cones
- Multiple stacking system extends range up to five miles

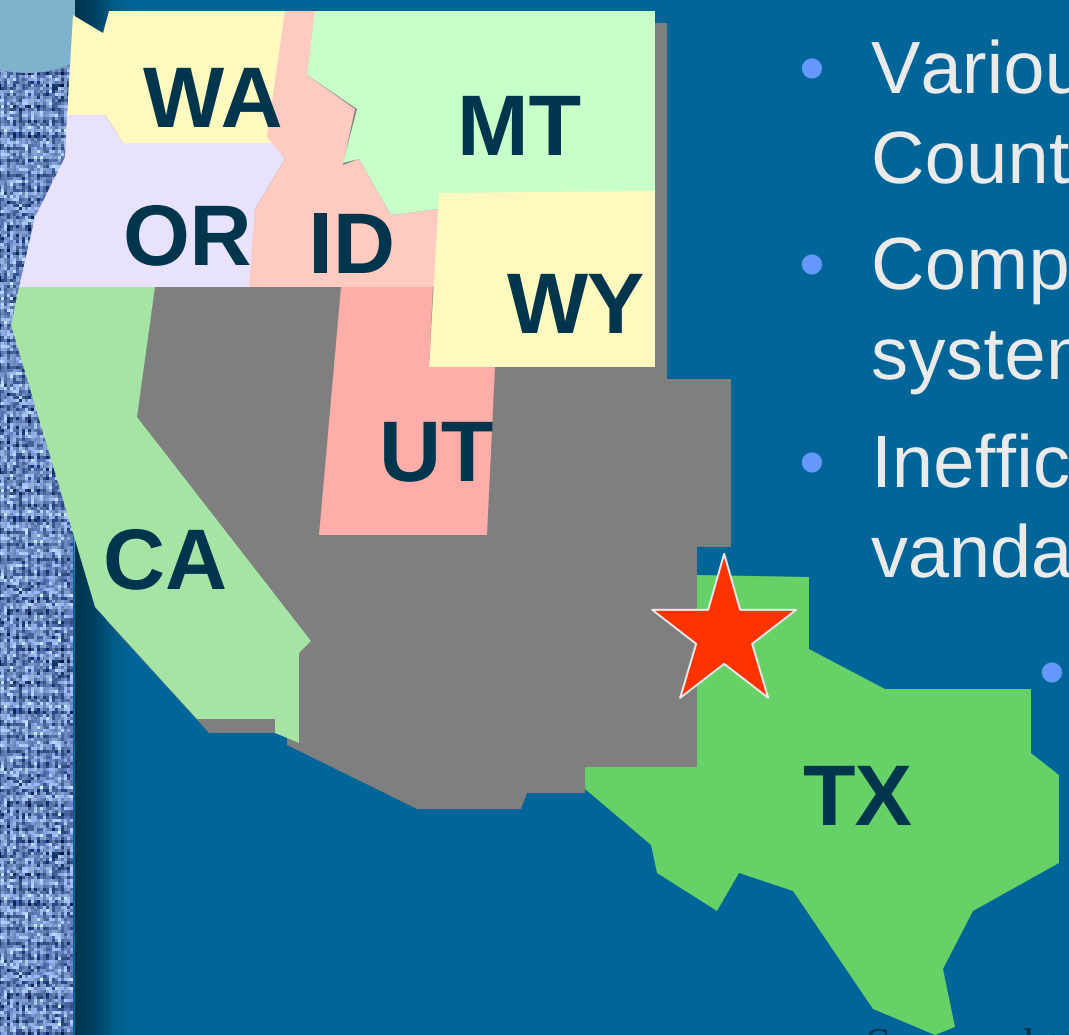
Source: http://www.ahmct.ucdavis.edu

Teleoperated Maintenance

- Normal or remote operation of maintenance equipment of all types.
- Uses either backpack or truck-mounted control system.
- Suitable for dangerous situations, such as mudslides and hazardous material spills.

Source: http://www.ahmct.ucdavis.edu

Frontier Lighting Monitoring System



- Various sites, Oldham County
- Component failure causes system failure
- Inefficiency, safety, vandalism
- Intelligent Outdoor Lighting Control System

Source: http://www.coe.montana.edu/wti/wti.htm