Washington State Department of Transportation
Advanced Snowplow Project

Presented by: Jennene Ring, Traffic and Assistant Engineer
Debbi Achord, Maintenance and Operations
Why Change......

- Reduce Collisions and Tort Liability
  - Efficiently dispatch resources to the most critical locations
  - Documentation of snow and ice control measures including
  - Location and times of snowplowing activities
  - What chemicals we are placing, where and when
Development....

- Communication Strategies
  - Limited cellular network coverage
  - Radio Network possibilities
- Equipment Interfaces
  - Utilize existing precision application controllers
  - Operator Inputs
- Statewide Mapping
  - Data stewardship (WSDOT wanted ownership of its data)
Cellular Coverage Limitations
Development....

- Communication Strategies
  - Limited cellular network coverage
  - Radio Network possibilities

- Equipment Interfaces
  - Utilize existing precision application controllers
  - Operator Inputs
  - Statewide Mapping
    - Data stewardship (WSDOT wanted ownership of its data)
Equipment Interfaces.....
Precision Application Controllers.....

Granular rate
Salt
500 Lbs/mile

Control mode
Auto OL

Joystick
Plow

Liquid rate
Pre-wet 1
20 Gal/ton

Road temp.: 50 F

Air temp.: 211 F

Lane width
3 Lanes

Est. liquid level (gal): 1600

Warnings

Joystick
Cumulatives
Set-up
Calibration

10/20/10 Ops
14:11:44
### Equipment Interfaces

**Operator Input Devices**

<table>
<thead>
<tr>
<th>Weather conditions:</th>
<th>Clear</th>
</tr>
</thead>
<tbody>
<tr>
<td>Road conditions:</td>
<td>Bare &amp; Dry</td>
</tr>
<tr>
<td>Work operations #1:</td>
<td>Snow blower</td>
</tr>
<tr>
<td>Work operations #2:</td>
<td>Outer shoulder</td>
</tr>
<tr>
<td>Accumulation</td>
<td>0 inches</td>
</tr>
<tr>
<td>Selection</td>
<td>Load liquid</td>
</tr>
<tr>
<td>Material</td>
<td>CMA</td>
</tr>
<tr>
<td>Action</td>
<td>Route #</td>
</tr>
<tr>
<td>Selection</td>
<td>Selection</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Operator</th>
<th>Logged OUT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work codes</td>
<td>Selection #1</td>
</tr>
<tr>
<td>Work codes</td>
<td>Selection #2</td>
</tr>
<tr>
<td>Weather Selection</td>
<td>Selection</td>
</tr>
<tr>
<td>Road cond. Selection</td>
<td>Next</td>
</tr>
</tbody>
</table>
Equipment Interfaces.....

Road and Ambient Temperature Data.....
Development....

- Communication Strategies
  - Limited cellular network coverage
  - Radio Network possibilities

- Equipment Interfaces
  - Utilize existing precision application controllers
  - Operator Inputs

- Statewide Mapping
  - Data stewardship (WSDOT wanted ownership of its data)
Statewide Mapping...
Statewide Mapping

**Statewide Treatment Goal**

**LEVEL 2:**
1. Maintain the same as Level 1 roadways to the extent that resources allow.
2. Apply continuous treatment and monitoring as resources are available.
3. Prioritize resources to Level 2 roadways as soon as Level 1 roadway treatment goals are met. Return pavement to bare and wet condition as soon as practical.
Challenges –

- Finding a vendor who could meet our requirements
- Agency Purchasing Rules
  - IT vs ITS components
  - IT related contract requirements
- Employee Acceptance
- Lines of Demarcation
  - Maintenance
  - Mechanics
  - IT Services
Finding a vendor who could meet our requirements
Intelligent Transportation System or Information Technology
Employee Acceptance

Lines of Demarcation
Moving Forward

- Public Access to Map technologies
- Trucks as wireless hotspots to transfer information from remote sites
- Utilizing technology for other operations
- Expand wireless system infrastructure
Questions........