Gravel (Unsealed) Roads Management

George Huntington
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Rapid City, South Dakota
Why a ‘program’ to manage unsealed roads?

- More efficient operations
- Better communications
State-of-the-Practice

What we’re doing...
What are you doing?
What can you do?
What gravel roads problems do you have?

• Frequent complaints?
  ▫ Easy way to pull up a road’s recent history
  ▫ Readily available work schedule

• Insufficient maintenance forces and equipment?
  ▫ More cost effective maintenance

• Lack of good gravel

• Dust
  ▫ Track dust suppression to learn how effective it is, for maintenance deferment as well as dust control.
What information do politicians expect you to have? How about the public?

- How do you decide which roads to maintain next?
- How do you decide where to get your gravel?
- Why are our roads so dusty?
What should they expect?

- Efficient management
- Are our roads getting better? Worse?
- Dust suppression where it’s cost-effective
- Economically sound decision-making
- Accurate information
What we’ve been up to...

- Final Report to WYDOT
  - Available on our website
    - Google “Wyoming LTAP”
    - Go to ‘Special Projects’
- Implementation Guide
- Programming Guide
- Ride Quality Rating Guide
What did our group of experts conclude?

- Limited resources is the challenge
  - Simple and transparent
- Condition is hard to measure
  - Surface condition/ride quality
  - Gravel thickness
- Maintenance Scheduling
- Cost Tracking
  - Blading
  - Regravel
Fundamental Information

- Inventory
- Road section history
  - Blading
  - Regravel
    - Tons/mile/year
    - Source
    - Properties
  - Dust suppression
  - Drainage maintenance
- Road section condition
  - Ride quality
  - Gravel thickness
It’s a long process...

- History of each road section
  - Cost histories
  - Performance histories
- History of maintenance practices
  - Blading
  - Regraveling
  - Dust control
  - Drainage
What we’re doing next:

You are here

Goshen County

Albany County
What information do you have?

- D-ware? ND-LTAP software?
  - I googled ‘south dakota transportation gis’
What other information is available?

- History?
- Condition or performance data?
- How can you pull information you need from your cost tracking system?
- Traffic counts?
- Soil types?
What could you be doing?

- Where is your gravel going?
  - **Regravel:** Tons/mile/year
    - Network, Class, Road, Section
    - Source, Properties, Treatment
  - **Spot Repairs and Patching**

- What are your motor graders doing?
  - **Blading:** Hours/mile/year or $/mile/year
    - Network, Class, Road, Section
  - **Pull Shoulders, Clean Ditches, Restore Crown**

- How are your roads performing?
  - **Ride Quality**
  - **Gravel Thickness**
  - **Traffic Volumes and Speeds**
What changes should be made?

• Know the short-term history (and eventually the long-term history) of each road section.
  ▫ Divide the road network into ‘maintenance management sections.’
  ▫ Properly define and track your maintenance tasks.
• Have some way of assessing performance.
  ▫ Visual ratings, during ‘check roads’ and when maintainers blade the road.
  ▫ Gravel thickness
Additional Resources
## Ride Quality Rating Guide

<table>
<thead>
<tr>
<th>Rating</th>
<th>Speed, mph*</th>
<th>Distresses**</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>Excellent</td>
<td>65+</td>
</tr>
<tr>
<td>9</td>
<td>Very Good</td>
<td>55 - 65</td>
</tr>
<tr>
<td>8</td>
<td>Good</td>
<td>50 - 55</td>
</tr>
<tr>
<td></td>
<td>Dust under dry conditions; Moderate loose aggregate; Slight washboarding</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Good</td>
<td>45 - 50</td>
</tr>
<tr>
<td>6</td>
<td>Fair</td>
<td>35 - 45</td>
</tr>
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<td></td>
<td>Moderate washboarding (1&quot; - 2&quot; deep) over 10% - 25% of area; Moderate dust, partial obstruction of vision; None or slight rutting (less than 1&quot; deep); An occasional small pothole (less than 2&quot; deep); Some loose aggregate (2&quot; deep)</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Fair</td>
<td>25 - 35</td>
</tr>
<tr>
<td>4</td>
<td>Poor</td>
<td>17 - 25</td>
</tr>
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<td></td>
<td>Moderate to severe washboarding (over 3&quot; deep) over 25% of area; Moderate rutting (1&quot; - 3&quot;) over 10% - 25% of area; Moderate potholes (2&quot; - 4&quot; deep) over 10% - 25% of area; Severe loose aggregate (over 4&quot;)</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Poor</td>
<td>10 - 17</td>
</tr>
<tr>
<td></td>
<td>Severe rutting (over 3&quot; deep) over 25% of area; Severe potholes (over 4&quot; deep) over 25% of area; Many areas (over 25%) with little or no aggregate</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Very Poor</td>
<td>5 - 10</td>
</tr>
<tr>
<td></td>
<td>Severe rutting (over 3&quot; deep) over 25% of area; Severe potholes (over 4&quot; deep) over 25% of area; Many areas (over 25%) with little or no aggregate</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Failed</td>
<td>0 - 5</td>
</tr>
</tbody>
</table>

*Passenger car speeds based on surface condition allowing for rider comfort and minimal vehicle wear and tear, assuming no safety or geometric constraints force slower travel. Doesn't spill your coffee!*

**Individual roadways may not have all of the types of distress listed for any particular rating. They may have only one or two types.
Questions? Comments?