Benefits of 2-D Motor Grader Machine Grade Control?

- Simple to run
- Easy setup (no survey control or 3D model)
- Upgradeable to 3DMC

Benefits of 2-D Motor Grader Machine Grade Control?

- Been around for a long time
- Save project costs, speed job completion and improve quality of work
Add Elevation

Laying Gravel Off Curb And Gutter
Finishing Subgrade Off Stringline

Road Widening Off Existing Road

John Deere GP Cross Slope

• John Deere first to integrate cross slope
• Standard on all GP-Series Graders
• All cross-slope controls, buttons and screens are integrated into existing components
Questions

Jason Pearson, Regional Sales Manager, Bismarck ND
701-730-2052
jppearson@rdoic.com

Philip Melmer, Construction Technology Sales Specialist
605-214-7246
philipMelmer@buttermachinery.com
**Spink County Objectives**

Quantify the benefits of using an automated blade control system in the governmental sector, on a non-paved county road

**Potential benefits**
- Accuracy to the targeted road specifications
- Fuel savings
- Material Savings
- Time Savings

**Accuracy Improvement**

- **Desired Cross Slope = 4.5**
  - W/O CGC Cross Slope = 2.0% to 4.2% range (average deviation from desired slope of 1.3% or 28% off target)
  - With CGC Cross Slope = 4.2% to 4.5% range (average deviation from desired slope of 0.10% or only 2% off target)
Fuel Savings
- Resulted from increased accuracy, fewer passes required to complete
  - $1,464 or 422 gallons less over 8 months
  - $10,980 or 3,165 gallons less projected over 5 years for a single machine or...
  - $54,900 or 15,825 gallons less projected for other 5 fleet graders over 5 years
  \> Note: Avg. fuel price = $3.47/gal

Potential Material Savings
- Resulted from consistent road crown, cross slope and equal shoulder elevations.

<table>
<thead>
<tr>
<th></th>
<th>Desired Target</th>
<th>Non-CGC Section</th>
<th>CGC Section</th>
</tr>
</thead>
<tbody>
<tr>
<td>Road Width (avg)</td>
<td>24 ft</td>
<td>28 ft</td>
<td>27 ft</td>
</tr>
<tr>
<td>Cross Slope</td>
<td>4.5%</td>
<td>4.5%</td>
<td>4.5%</td>
</tr>
<tr>
<td>Road Cap</td>
<td>2 in</td>
<td>2 in</td>
<td>2 in</td>
</tr>
<tr>
<td>Required Material</td>
<td>978 cu. yds/mile</td>
<td>2,039 cu. yds/mile</td>
<td>1,203 cu. yds/mile</td>
</tr>
<tr>
<td>Cost Per Mile</td>
<td>$313,141</td>
<td>$277,498</td>
<td>$16,270</td>
</tr>
<tr>
<td>Add’l Cost Per Mile</td>
<td>--</td>
<td>$14,287</td>
<td>$3,099</td>
</tr>
<tr>
<td>% More</td>
<td>--</td>
<td>108%</td>
<td>23%</td>
</tr>
</tbody>
</table>

Questions?
Philip Melmer, Construction Technology Sales Specialist
605-214-7246
philipMelmer@butlermachinery.com

Spink County, SD
Benefits of Grade Control
Jeff Haessig
Spink County Highway Superintendent
Benefits of 2-D Motor Grader Machine Grade Control?

- Reduced fuel consumption by approximately 20%

Safety
- Reduced corrugation
- Better cross section

Cutting Edge Efficiencies
- Wearing on the entire 16' of the moldboard
- Reduced cutting edge wear
- Reduction in crowning of the blade
- Reduces rural curb and gutter

A good example of the screen in a grader cab showing automatic slope control being used to control crown.
Road Maintenance Improvements

- Reduction in blade maintenance cycles
- More uniform roadway
- Reduces cutting and filling each cycle
- Able to enhance finish blading
- Material savings by placing a uniform thickness

Looking Into the Future

- Looking forward to advancement in technology
- Lack of experience in today's operators

Example Illustration of Cross Section

Note: 4% crown is equivalent to 1/2 inch per foot drop on the cross slope.

Questions?

Jeff Haessig
Spink County Highway Superintendent