

# IBR Field Guide



## Inventory-based Rating System™ for Gravel Roads

The Inventory-Based Rating System™ for unpaved roads functions by defining a baseline condition for each of the three inventory features: Surface Width, Drainage Adequacy and Structural Adequacy. These features do not change rapidly and are apparent enough to be evaluated from a moving vehicle without the need for fine measurement. The resulting 1 through 10 IBR number can be found in the *Rating Lookup Chart* on the back or it will be generated automatically when using the Roadsoft® Laptop Data Collector.

	<b>GOOD</b>	<b>FAIR</b>	<b>POOR</b>
<b>Width</b>	<p><b>22 feet or greater in surface width</b></p> <p>Vehicles have sufficient room to pass by each other when approaching in the opposite direction. Reduction of speed is unnecessary.</p> <p>Remedy/Action: None</p>	<p><b>16 to 21 feet in surface width</b></p> <p>Vehicles should reduce speed to pass by each other when traveling in the opposite direction.</p> <p>Remedy/Action: 1' to 6' of widening</p>	<p><b>15 feet or less in surface width</b></p> <p>One vehicle should slow down and pull over and the other should reduce speed to pass by when traveling in the opposite direction.</p> <p>Remedy/Action: 7' to 15' of widening</p>

Quick Tip: When driving at 20 mph, does the driver feel they need to slow down when approaching another vehicle in the opposite lane?  
(see additional guides on back)

	<b>GOOD</b>	<b>FAIR</b>	<b>POOR</b>
<b>Drainage Adequacy</b>	<p><b>Distance X</b> is the difference in elevation from the ditch flow line (or any standing water, whichever is less) to the top edge of the shoulder.</p>		
	<p><b>Distance X is 2 feet or more, and:</b></p> <p>No secondary ditches* are present.</p> <p>Remedy/Action: None</p>	<p><b>Distance X is 0.5 to &lt; 2 feet, or:</b></p> <p><b>Distance X is two feet or more, with secondary ditches* present.</b></p> <p>Remedy/Action: Vertical separation from runoff water is present but more is needed and/or remove secondary ditches*.</p>	<p><b>Distance X is less than 0.5 feet</b></p> <p>Remedy/Action: Vertical separation from runoff water needs to be created.</p>

\*Secondary ditches should only be considered if they are over six inches tall.

	<b>GOOD</b>	<b>FAIR</b>	<b>POOR</b>
<b>Structural Adequacy</b>	<p><b>Existing gravel thickness is:</b></p> <p><b>greater than 7 inches</b></p>	<p><b>4 to 7 inches</b></p>	<p><b>less than 4 inches</b></p>
	<p>Alternatively, If thickness is not known then rate by <b>Historical Measure:</b></p> <p><b>1 inch ruts or 3 foot potholes</b></p> <p><b>Emergency maintenance to make road passable was</b></p>	<p>did not develop throughout the year</p> <p>not required, leaving the road passable throughout the year (when plowed)</p>	<p>developed during the thaw or very wet periods</p> <p>necessary to make the road passable during wet periods</p> <p>required to make the road passable throughout the year</p>
	<p>Remedy/Action:</p> <p>None</p>	<p>Placement of 1 to 4 inches of good quality gravel would be recommended as a fix assuming drainage is good**</p>	<p>Placement of 5 to 8 inches of good quality gravel would be recommended as a fix assuming drainage is good**</p>

\*\*Look into what is causing structural problems because more gravel is not a good remedy for bad cross slope drainage.

**Rating Lookup Chart**

Width	Drainage	Structure	Rating
Good	Good	Good	10***
Good	Good	Good	9
Good	Good	Fair	8
Good	Good	Poor	7
Good	Fair	Good	9
Good	Fair	Fair	8
Good	Fair	Poor	6
Good	Poor	Good	7
Good	Poor	Fair	6
Good	Poor	Poor	5
Fair	Good	Good	8
Fair	Good	Fair	7
Fair	Good	Poor	6
Fair	Fair	Good	7
Fair	Fair	Fair	6
Fair	Fair	Poor	5
Fair	Poor	Good	6
Fair	Poor	Fair	5
Fair	Poor	Poor	4
Poor	Good	Good	5
Poor	Good	Fair	4
Poor	Good	Poor	3
Poor	Fair	Good	4
Poor	Fair	Fair	3
Poor	Fair	Poor	2
Poor	Poor	Good	3
Poor	Poor	Fair	2
Poor	Poor	Poor	1

\*\*\*Segment is less than one year old

**Feature Assessment Summary**

**Surface Width** is assessed by estimating the approximate width of the traveled portion of the road which includes travel lanes and any shoulder that is suitable for travel.

**Drainage Adequacy** is assessed by determining the presence or absence of a secondary ditch (6 inch high shoulder) that has the capacity to retain surface water, and by estimating the difference in elevation between the ditch flow line or level of standing water in the ditch and the top of the edge of the shoulder.

**Structural Adequacy** is assessed by estimating the existing gravel thickness. It is not the intent of this inventory feature to require involved testing or exploration of existing conditions. Ratings are to be made based on local institutional knowledge. If the thickness is not known this assessment can be conducted using the presence or lack of structural distresses (rutting over 1 inch or potholes greater than 3 feet in width) during the previous year that required emergency maintenance to keep the road passable.

**For more info see:**

**<https://ctt.mtu.edu/inventory-based-rating-system>**

**Width Rating Guides:**

- Include any shoulder in the width that is suitable for travel
- Calibrate yourself by measuring the actual width until you are comfortable estimating accurately from your vehicle
- Be aware of trees and slopes influencing your width perception

**Drainage Rating Guides:**

- Rate the worst side for drainage
- Rate the condition that is typical of the entire segment
- Calibrate yourself by measuring the actual ditch depth until you are comfortable estimating accurately from your vehicle
- If driveway culverts are needed, then the drainage is most likely poor
- Be aware of tall grass hiding ditches
- Be aware of being influenced by conditions that would not warrant ditching i.e., ditches are usually not needed on the top of hills

**Structural Rating Guides:**

- When rating by *Historical Measure*, if you do not know the history of a segment ask someone who does, otherwise rate during thaw or very wet periods and during dry periods to access when the road is not passable, and when ruts and potholes are present.