



Investment in Rural Roads:

Willingness-to-Pay for Improved Road Services in Freight Transportation



Tamara VanWechel
Upper Great Plains Transportation Institute
North Dakota State University

Transportation Research
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[Introduction & Background]

- Agricultural-based states depend on rural roads
- Farm-to-Market grain flow is important
- Surrounding roads are susceptible to damage
 - Increasing farm and truck sizes
 - Higher traffic flow – shift from rail to road
- Routine maintenance?
- Limited funding for rural roads

[Objective]

- To ascertain information about user:
 - willingness-to-pay for road improvements
 - perceptions of rural road services
 - perceptions of funding methods
- What are producers willing to pay for local road service improvements and what methods would they be most agreeable to?
- Profile of users' opinions of roads

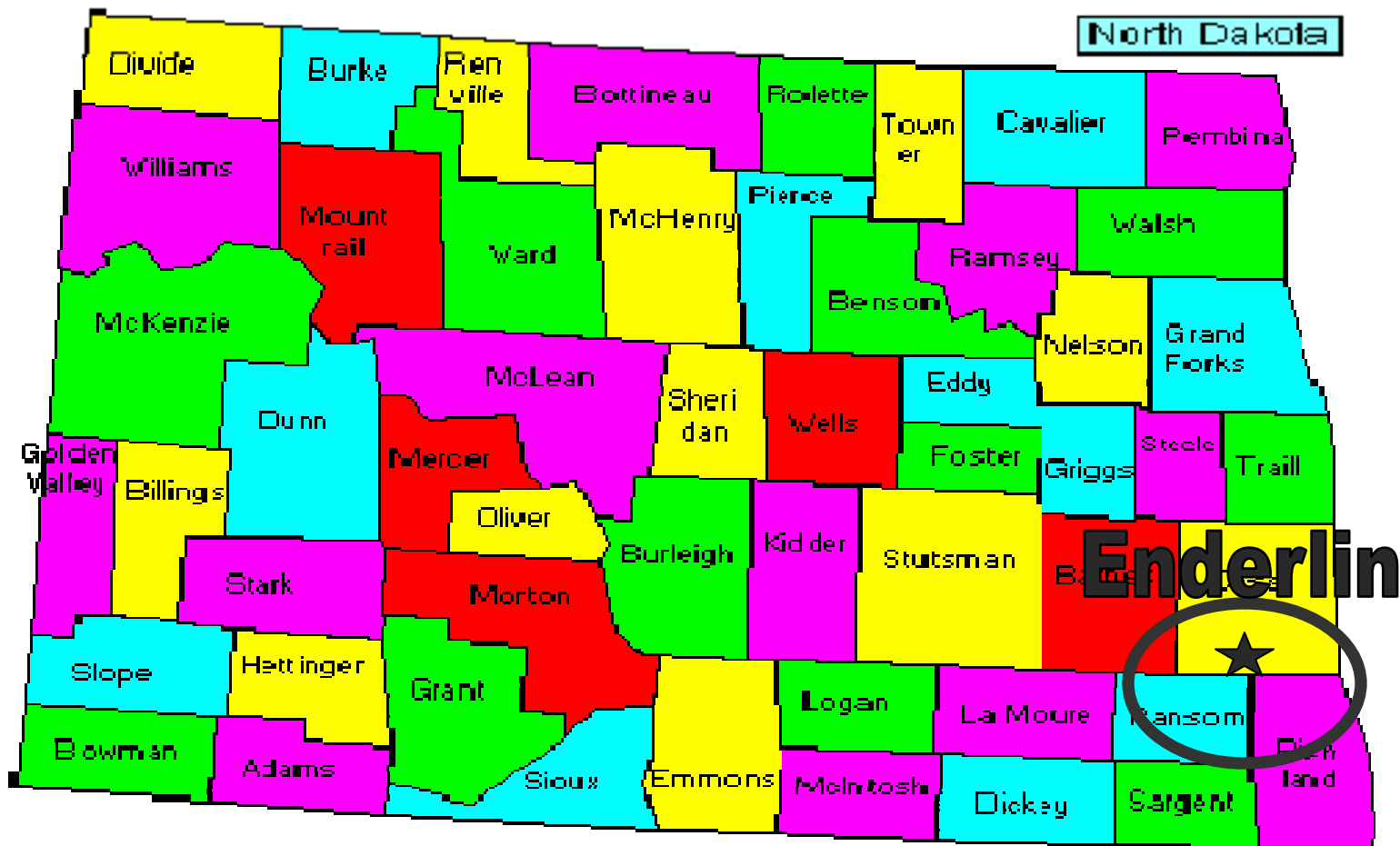
[Why this research?]

- Improvement needs – from road users
- Insider's perspective
 - Better freight transportation
 - More efficient freight transportation
- User WTP data: if and how
- Time and money is spent debating allocation
- Potentially helpful:
 - Local governments, state DOT, economic development
 - Determine most needed options
 - Benefit the user

[The Survey]

- Questions
 - Based on specific farm-to-market network
 - Enderlin, North Dakota market
- Mailed to customers
 - Plains, Grain & Agronomy
 - Northern Sun, ADM
- Participants haul commodities to destinations regularly

Case Study Location Base



[Survey Responses]

- 2 mailings
 - 1900 producers
 - 789 producers
- 193 completed surveys
- 10% response rate

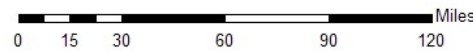
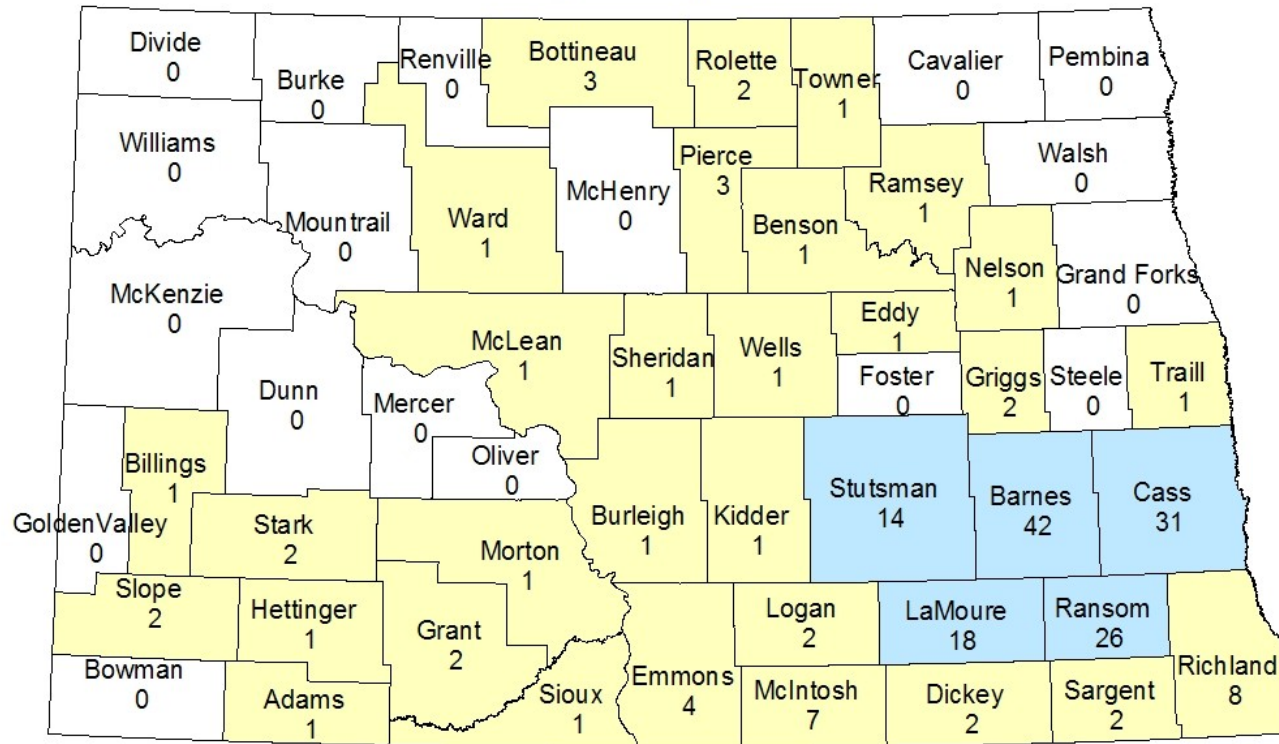
Producer Profile

White=0

Yellow=1 to 10

Blue=11 +

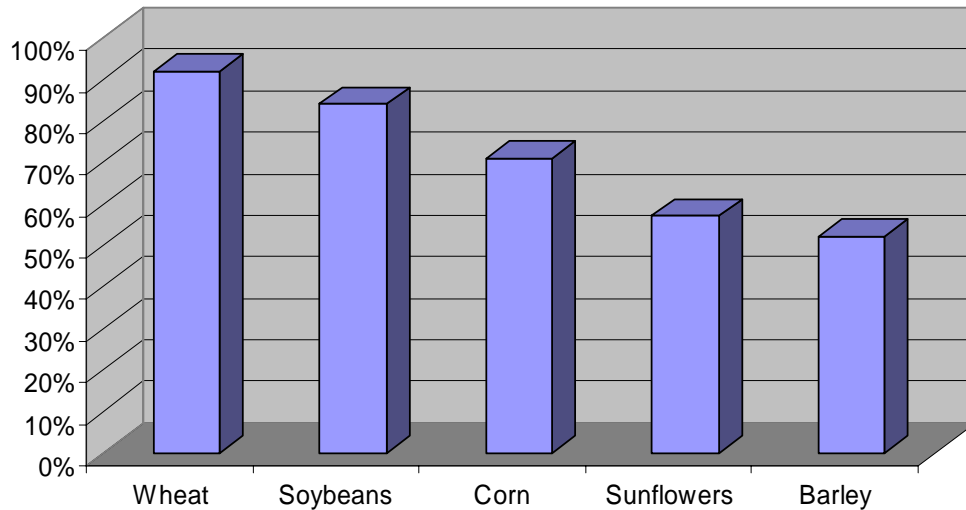
Survey Respondents



[Producer Profile Continued...]

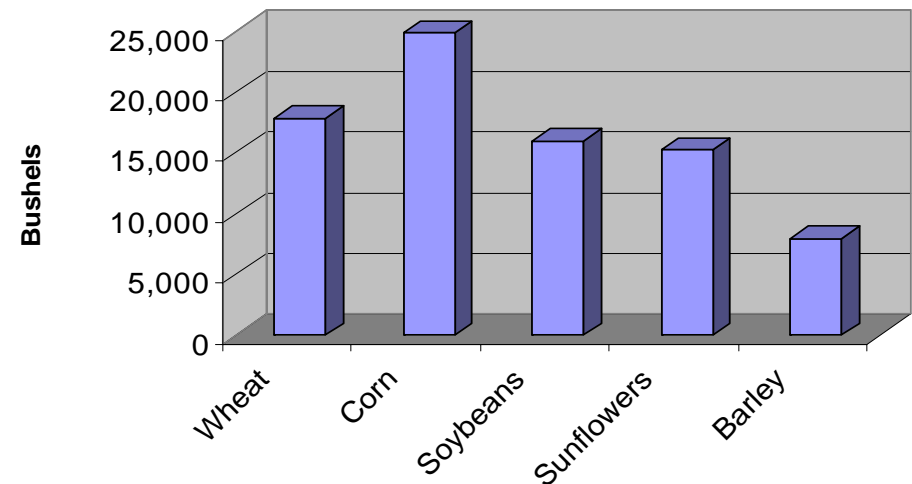
- Farm a range of 2 - 66 years
- Average farm size - 2807 acres
- Range of 160 - 11,000 acres
- Average distance - 76 miles
- Range of 2 - 350 miles
- 18 percent use custom truckers

Commodities via Rural Roads



- Wheat hauled by greatest # of respondents

- Corn had the greatest ave. # of bushels hauled



[Vehicle Weight Limits]

- 86 percent of respondents agreed fine level adequate
 - 89% of bushels
- 90 percent agreed that current enforcement of truck weight limits is adequate
 - 98% of bushels

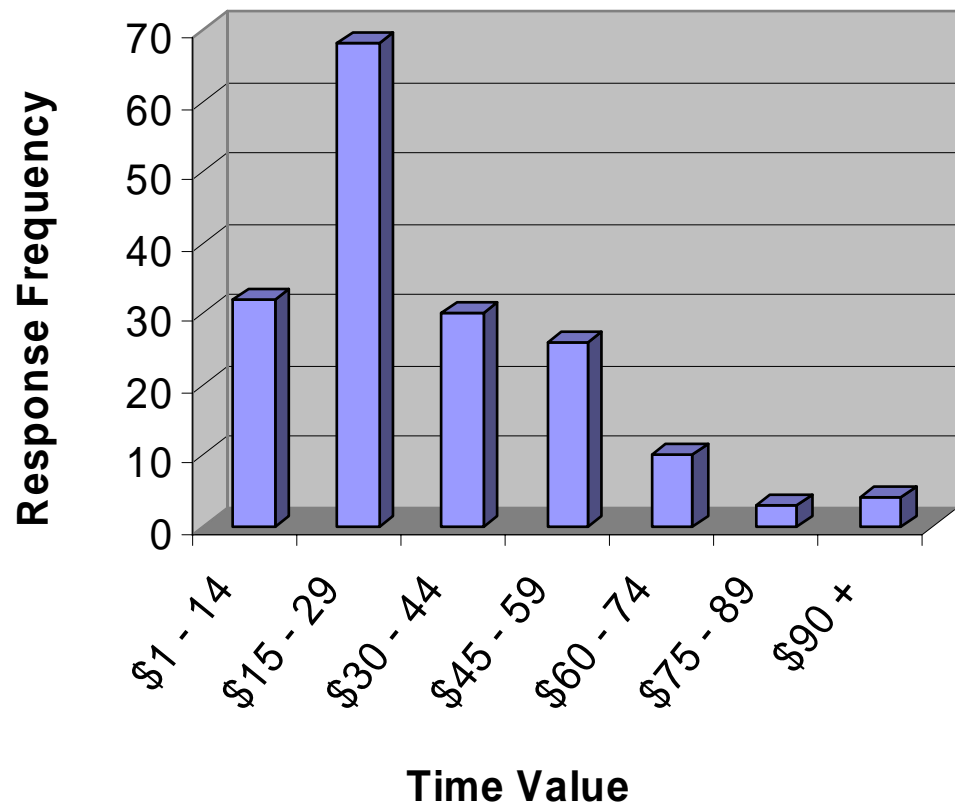
[Willing to]

- 68 are willing to stop for a truck weigh scale
 - 20% of bushels
- 58 are willing to pay for improvement of rural road services
 - 32% of bushels
- 90 are willing to drive farther if the roads were better and faster for freight transportation
 - 46% of bushels

Reason	Frequency	Percent	Percent of total volume
To use a road with higher speed limits	30	15.7	17.1
To avoid traffic	42	22.0	23.9
To avoid broken up road surfaces	49	25.7	35.9
To avoid a narrow road	28	14.7	22.8
To use paved roads	73	38.2	41.7
To take a shorter, more direct route	58	30.4	35.1
To avoid bridges	7	3.7	11.1
To avoid roads with dust and rideability problems	25	13.1	15.9

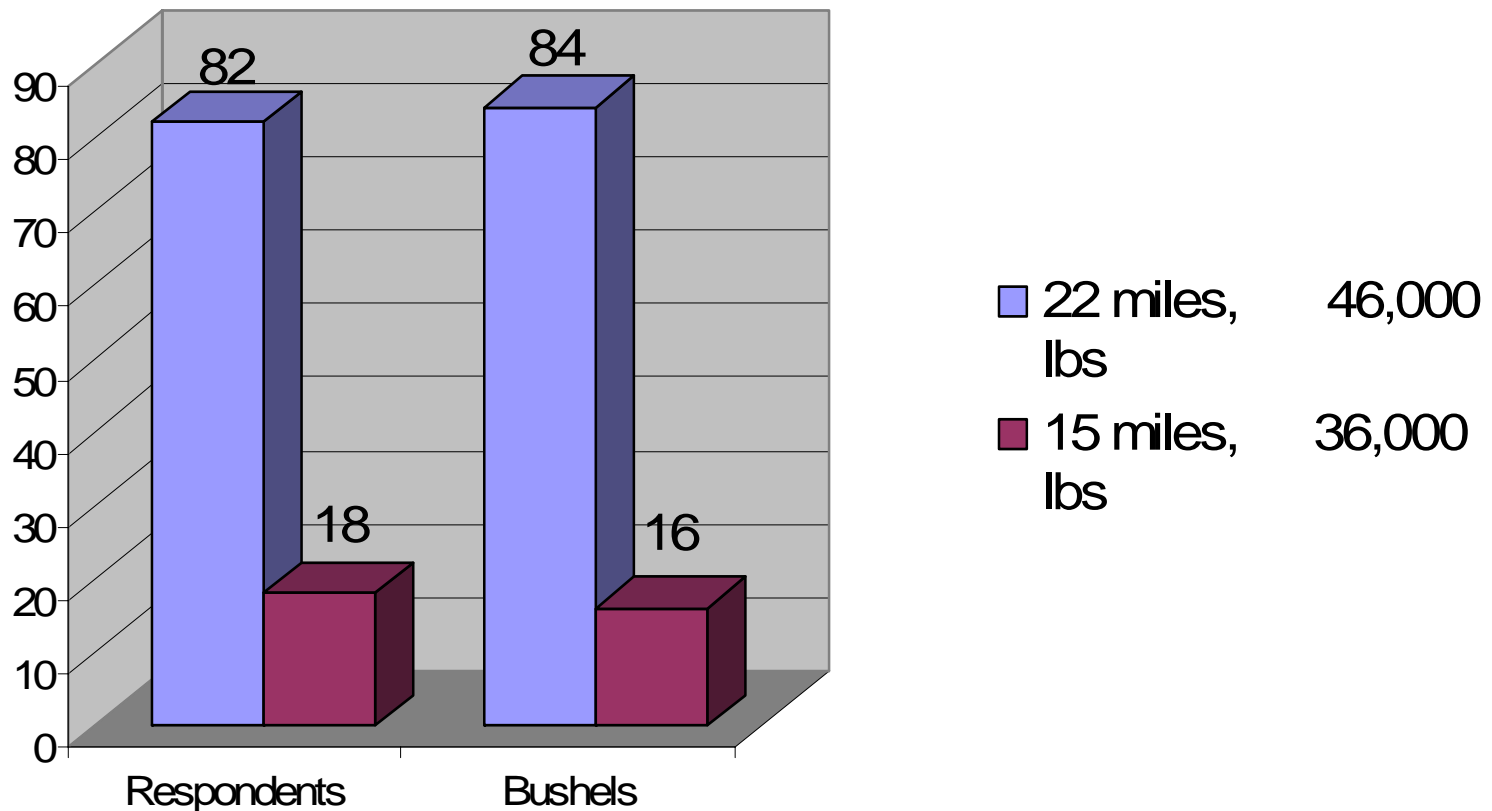
Time value for operating a truck

- Mode – \$15 to \$29/hour
- 39% of respondents
- 33% of bushels



Travel distance vs. Load limits

- Load limits are critical to producers' decisions regarding freight movement



[Pavement of Roads]

Would you be willing to pay more for the pavement of gravel roads that you use for farm-related transportation?

# Yes	% Bushels Hauled	Average by volume	Range
37	18	\$346	\$50-5,000

Improved Signing

Would you be willing to pay more for improved signing on rural roads that you use for farm-related transportation?

# Yes	% Bushels Hauled	Average by volume	Range
21	12	\$67	\$5-500

Shorter Driving Distances

Would you be willing to pay more for improved road surfaces of rural roads that you use for farm-related transportation if it meant driving shorter distances to market?

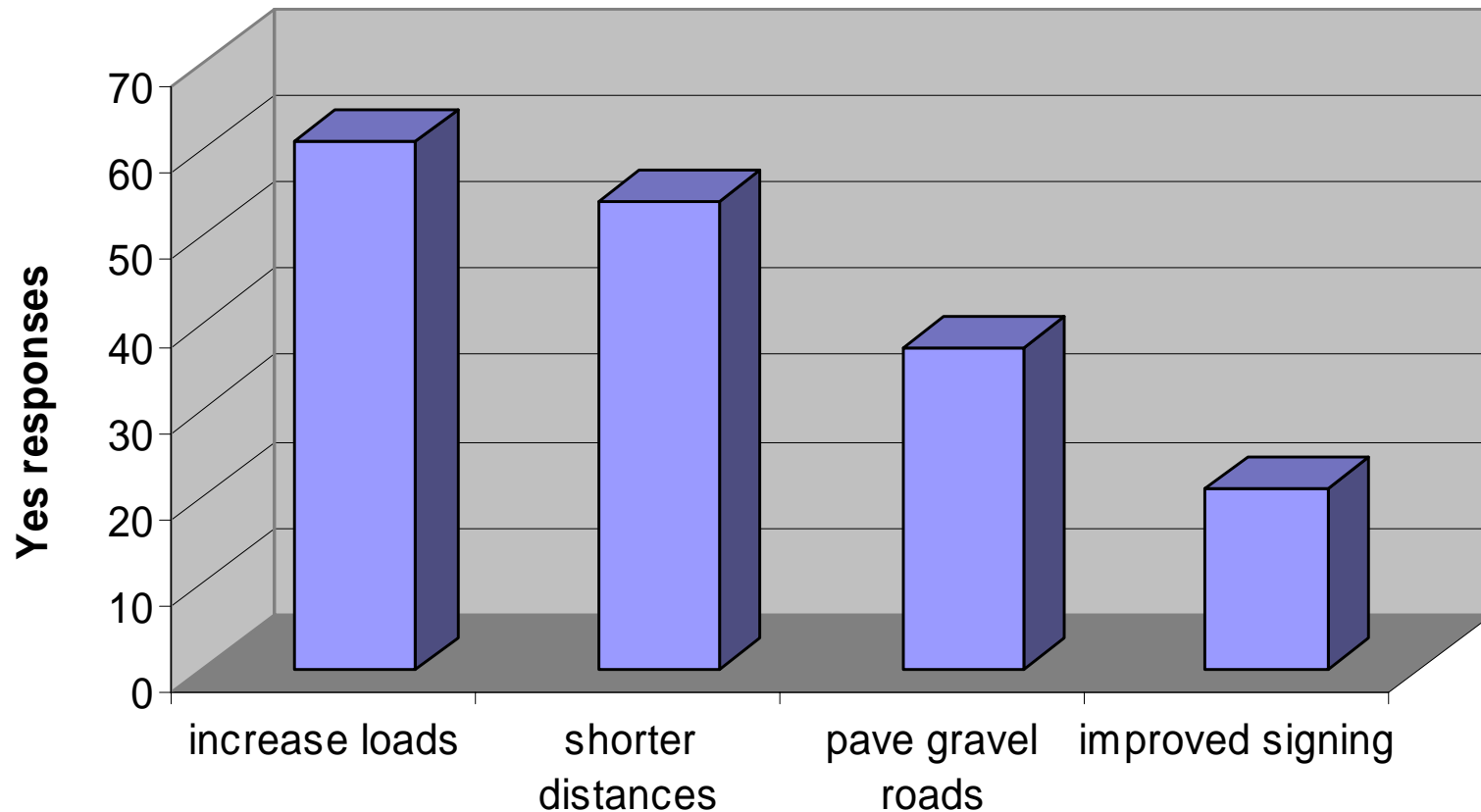
# Yes	% Bushels Hauled	Average by volume	Range
54	31	\$353	\$5-1,000

Increased Load Limits

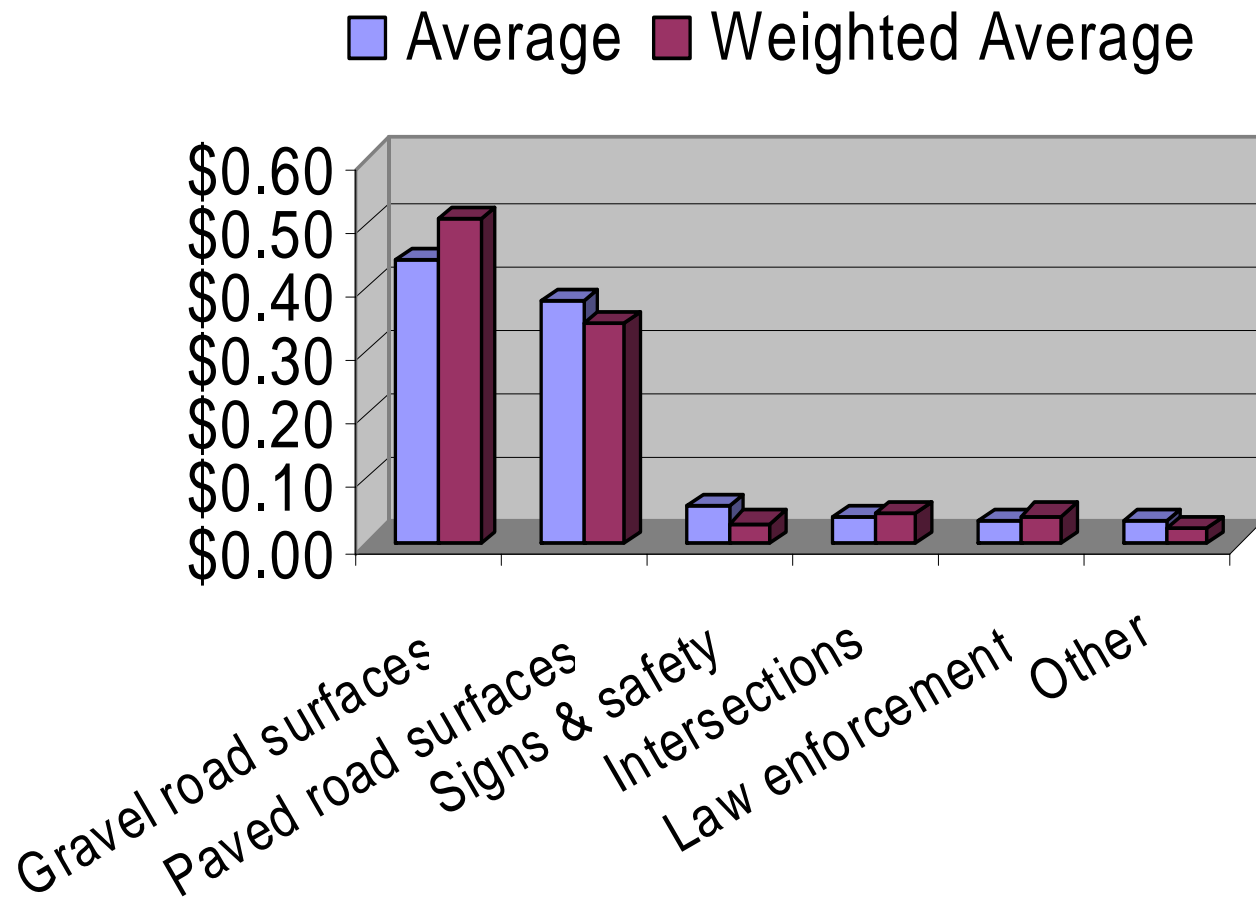
Would you be willing to pay more for improved gravel road surfaces if it meant an increase in allowable vehicle weight limits on roads that you use for farm-related transportation?

# Yes	% Bushels Hauled	Average by volume	Range
61	35	\$391	\$2-1,000

Number of Respondents Willing to Pay for Improvements



Amount assigned to various rural road service improvements



[Innovative Financing Methods]

- Cost participation - Adopting projects where other agencies assist with the work and costs
- Severance tax - Based mineral extraction to compensate for extra wear and tear on roads
- Fines - Use money from overland fines for county road improvements
- Sales tax - Use of county sales tax for road funding

[In Summary]

- Key road issues
 - Rural road surfaces
 - Load limits
- Limited budgets
- Information: A Valuable Tool
 - Users' opinions
 - Willingness-to-pay