Generating Public Involvement in Transportation

Current Conditions, Economic Impacts of Transportation, and Cost Trends
Overview

- Currently, what is the condition of North Dakota’s roads?
- How does road condition impact user costs?
- How do user costs relate to the economy?
- How does inflation affect road condition?
Current System Condition

• International Roughness Index (IRI) - measurement of the “bumpiness” of the road.

• Low values (0-94) indicate a very smooth riding quality, while higher values, (above 220), indicate a rougher riding road.

• In 2005, the statewide average IRI was 114
  – Concrete pavements – IRI = 95
  – Flexible pavements – IRI = 128
State Highway Conditions

- **Flexible Pavements**
  - Very Good – 6%
  - Good – 35%
  - Fair – 22%
  - Mediocre – 39%
  - Poor – < 1%

- **Concrete Pavements**
  - Very Good – 22%
  - Good – 38%
  - Fair – 20%
  - Mediocre – 18%
  - Poor – < 1%

Pavement smoothness based upon IRI measurements
(Source: NDDOT)
## Current County Conditions

<table>
<thead>
<tr>
<th>County Major Collectors</th>
<th>Local Road Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>24% Good</td>
<td>12% Good</td>
</tr>
<tr>
<td>43% Fair</td>
<td>48% Fair</td>
</tr>
<tr>
<td>33% Poor</td>
<td>32% Poor</td>
</tr>
<tr>
<td></td>
<td>8% Not Rated</td>
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</tbody>
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*Good = Some Signs of Wear*

*Fair = Noticeable Signs of Wear Throughout*

*Poor = Significant Wear Throughout*

(Source: Survey of County Engineers)
How does road condition impact user costs?
Highway User Costs

- Pavement Roughness
- Congestion
- User Costs
  - Travel Time Costs
    - Travel Speed
      - Pavement Quality
      - Congestion
  - Operating Costs
    - Travel Speed
    - Input Costs
Transportation Cost Impact on the Economy

- Commuter Costs - Consumer Spending
- Intermediate Input Costs - Production Costs
- Delivery Costs - Prices Received
- Construction Spending
What are the impacts of inflation on road conditions?
National Highway Construction and Maintenance Cost Indices*
(Source: FHWA)

*These indices have been scaled to equal 100 in 1987.
FHWA Cost Study

- A dollar will have lost between 37 and 60 percent of its value between 2005 and 2009, if highway project inflation continues at its 2006 pace.

- 2009 SAFETEA-LU $42 billion
  - 2005 value between $16.8 and $26.6 billion
Growth in Commodity Input Costs for Highway Construction in Washington State  (Source: FHWA)
Bituminous Paving Overall Cost Index

- Bituminous Index
- Linear (Bituminous Index)
FHWA Cost Study

- Cost increases differed greatly from state to state
  - Variations in cost a result of transportation costs

- Main factor in cost increases is fuel prices

- Commodity costs are expected to remain elevated, if not escalate in the near future.
Highway System Implications

- Nominal Disbursements and Revenues increased by 18 percent from 2001-2005

- Producer Price index has increased by 32 percent over the same time frame

- The same funding level “buys” fewer improvements it did five years ago
Timeliness of Improvements

- 75% Time
- 40% Quality Drop
- 40% Quality Drop
- 12% Time
- Each $1 of Renovation Cost Here
- Will Cost $4 to $8 if Delayed to Here

Road Quality:
- Very Good
- Good
- Fair
- Poor
- Very Poor

Years:
- 5
- 10
- 15
- 20
- 25
Highway System Implications

• Construction and maintenance cost increases in relation to pavement quality and user costs

  – Selective improvements

  – Improvement backlog