Montana’s Transportation Future
Opportunities Around the Next Curve

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WTI Facts and Figures

- Founded in 1994 by Caltrans, MDT and MSU
- Part of the College of Engineering, MSU
- National University Transportation Center (UTC) since 1998
- About 80 staff, affiliated faculty and students
- Approximately $8 million annual funding
  - 4% Montana,
  - 20% California
  - 14% other states
  - 6% Foundation, industry, and other
  - 15% other federal
  - 41% University Transportation Center (USDOT)
- Projects with 35 states and the Federal government
- “Conducting Research to Solve Everyday Challenges”
Overview

• Transportation and the Economy

• Key Factors Driving Transportation Demand

• Challenges We Face

• Opportunities for Future
Transportation History

Roman roads
The Roman road Via Egnatia, built between 146 and 120 B.C., stretches 535 miles from the modern Albania's Adriatic sea coast to modern Turkey. Romans drove on the left side of the road, to avoid whipping other drivers. Central partition protected travelers from oncoming traffic. Barrier kept chariots on the road.
Inns were located every 30-40 miles and stations with animals supplied every 17-14 miles.

Source: The Mainframe Weblog

Source: www.wilsonsalmanac.com

www.wilsonsalmanac.com

Source: www.modot.org

Western Transportation Institute

Montana State University | College of Engineering
America’s Oil Trends

Source: www.eia.doe.gov/
Transportation and Economics

• Economic Activity
  Support 27 jobs per million dollar investment

• Economic Productivity
  Vehicle manufacturing, freight movement
  *Approx. $44 millions worth of goods move on Montana Roads

• Household economy and mobility
  Provide mobility to access economic resources, tourism, economic development
  * In 2007, non-resident travelers pumped $ 4.3 billion into Montana’s economy
Travel Cost

Cost Per Vehicle Mile For Average Car
(Rural Travel)

Transportation Cost Variables

Data Source: Victoria Transportation Institute
Note: A cost value is converted from 1996 dollar to 2007.
Key Factors Driving Transportation

- Aging Population 25% by 2030
- 42 million more people (cars) by 2030
- Total domestic US freight projected to increase 67% by 2020
Challenges
Wildlife Collision Economy

- Cost $8,000 to 30,000 per crash
• WVCs represent 5% of the total motor vehicle collisions
Rural Roads comprise 80% of national miles (3.1 million rural roads miles)
• Carry 40% of vehicle miles traveled.
• 80% of rural roads are 2-lanes or less
• Over 45,000 rural bridges
### Rural America Travel Behavior

<table>
<thead>
<tr>
<th></th>
<th>Rural Areas</th>
<th>Urban Areas</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Trip Frequency</strong></td>
<td>3.8 trips per day per person</td>
<td>4.0 trips per day per person</td>
</tr>
<tr>
<td><strong>Trip Distance</strong></td>
<td>37.1 miles per day per person</td>
<td>26.9 miles per day per person</td>
</tr>
<tr>
<td></td>
<td>9.8 average miles per trip</td>
<td>6.8 average miles per trip</td>
</tr>
<tr>
<td><strong>Vehicle Ownership</strong></td>
<td>74.4% of households with two or more cars</td>
<td>58.5% of households with two or more cars</td>
</tr>
<tr>
<td></td>
<td>3.3% of households without automobiles</td>
<td>8.3% of households without automobiles</td>
</tr>
<tr>
<td><strong>Mode Choice</strong></td>
<td>91% of all trips are by automobile</td>
<td>86% of all trips are by automobile</td>
</tr>
<tr>
<td></td>
<td>0.1% of all trips are by transit</td>
<td>1.7% of all trips by transit</td>
</tr>
<tr>
<td></td>
<td>6.1% of all trips are non-motorized</td>
<td>10.4% of all trips are non-motorized</td>
</tr>
</tbody>
</table>

Freight Movement in Montana

69 % to state, 32 % from the state, 89 % within the state
Strategies for Montana’s Future
Vehicle Infrastructure Integration and System Management

http://w1.siemens.com/
OR Road User Fee Pilot Program

- One year pilot spring ‘06
- Replaced fuel tax with per-mile charge, paid at gas pump by short range radio frequency
- Proved concept is feasible alternative for revenue collection

Source: Oregon Department of Transportation Powerpoint
Percentage of Accidents in which Component is a Definite or Probable Cause

- Driver
- Environment
- Vehicle

Bar chart shows the percentage of accidents where the component is a definite or probable cause, categorized by 'On Site' and 'In Depth' investigations.
Dynamic Message Signs
Montana Tourism
($4.3 billion Industry)

Montana Non-resident Visitors

Source: ITRR, University of Montana, Missoula
Rideshare Program
Idaho Statewide

- Attracts 5-15% Commuter Trips
- May attracts 10-30% commuter trips if financial incentives are provided
- Reduce VMT by 50%
- Reduces congestion, road & parking facility costs, crash risk & pollution emissions

Source: www.rideshareonline.com
Rideshare

Estimated Monthly Commuting Cost and Travel Mode

<table>
<thead>
<tr>
<th>Round Trip Miles</th>
<th>Drive Alone</th>
<th>3-Rider Car Pool</th>
<th>10-Rider Van Pool</th>
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<tbody>
<tr>
<td>30</td>
<td>$193</td>
<td>$64</td>
<td>$31</td>
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<tr>
<td>40</td>
<td>$257</td>
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<td>50</td>
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<td>70</td>
<td>$450</td>
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<td>$56</td>
</tr>
<tr>
<td>80</td>
<td>$514</td>
<td>$171</td>
<td>$63</td>
</tr>
</tbody>
</table>

Source: Victoria Transportation Ins.
Public Transportation in MT

PUBLIC TRANSPORTATION IN MONTANA - 2007

Map Legend:
- Existing Non-Urbanized General Public Transit Systems
- Urbanized General Public Transit Systems
- New Non Urbanized General Public Transit Systems
Redding Rural Traffic Management Center

- **Caltrans rural district**
  - 4 rooms in district office
  - 5 staff with hours 6 am to 6:30 pm

- **Functions include**
  - Traveler info
  - Road reporting
  - Winter operations
  - Radio dispatch
  - Incident management
  - Oversee RWIS, CCTV, HAR, & DMS
Summary

• Transportation critical catalyst to our Economy
• Transportation management needs systems approach
• Key opportunities - driver behavior and safety, freight movement, user fees, travel and tourism information, transit, traffic management
Questions and Discussion