Planning Transportation for Recreational Areas

Anne Dunning
University of Kansas

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Transportation Planning for Recreational Areas

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Columbia River Gorge

Mount Hood Skibowl

Enchanted Forest
About Your Speaker

• Formative experiences
  – Transportation Scholar of the National Park Foundation, serving Glacier National Park, 2001
  – Contributor to the National Park Service’s Alternative Vehicle Design Workshop, 2002
  – Dissertation funded by the National Park Service, National Park Foundation, and Ford Motor Company, 2002-2005

• Major publications
  – “Helping Gateway Communities Support Alternative Transportation,” *Sustainable Transportation in Natural and Protected Areas*, 2015.
Outline

• Unique qualities of recreational areas
• Recreational travel characteristics
• Planning for recreational transportation
• The underestimated importance of communication

Crater Lake, Oregon
Examples of Areas

- Natural
  - Oceans
  - Mountains
  - Gorges
  - Deserts

- Activity-oriented
  - Amusement rides
  - Festivals
  - Gambling
  - Skiing
  - Snorkeling

- Historic and cultural
  - World Trade Center site, New York City
  - Independence Hall, Philadelphia
  - Mount Rushmore, South Dakota
Typical Recreational Communities

- Economic base in tourism
- Little economic activity beyond tourism
- Small or medium population
- Polarized incomes
  - Wealthy visitors and permanent residents
  - Minimum-wage seasonal service workers
- Seasonal activity and employment
- Permanent population (and tax base) overwhelmed by visiting population

Jackson Hole, Wyoming, 2015
Population: 9,577
Visitors: 10.5 million

Springdale, Utah, 2015
Population: 529
Visitors: 3.7 million
A Problem of Scale
Why plan transportation?

• Rural road traffic mimicking metropolitan peak congestion
• Stress on natural ecology and cultural resources
• Air and noise pollution from vehicles
• Diminished tourist appeal

Image source:
RECREATIONAL TRAVEL CHARACTERISTICS
Recreational Travelers

• Travelers
  – Rural permanent residents
  – Seasonal workforce commuters
  – Metropolitan visitors
• Commonly >50% of travelers visiting the area for the first time
• Expectation of vacation-quality service
• Fascination with spectacles
  – Wildlife
  – Waterfalls
  – Fireworks
• Unusual peak activity depending on location and resource
  – Summer (or winter)
  – Weekends
  – Meal times
  – Sunset
Area Resources Characterizing Seasonal Peaks

Source: Data from U.S. National Park Service Traffic Counts, 2013.
Daily Traffic Peaking
Going-to-the-Sun Road
Glacier National Park, 2001
Atypical Destinations

• Destination: cruise ship
• Leaf watching
• Tethering 500’ from the road with informal parking
• Destined for another mode
  – River floating
  – Train
  – Horse
  – Boat
  – Ski
  – Parachute

Bottom image source: Gail Frederick via Flickr Creative Commons 2.0
Informal Parking
## Travel Demand Management: Strategies for Mount Hood, Oregon

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>Develop a Transportation Management Association or other organization to coordinate transit and TDM programs</td>
<td>High</td>
</tr>
<tr>
<td>Transportation System Management and Intelligent Transportation Systems</td>
<td>High</td>
</tr>
<tr>
<td>Increase and extend existing public transit</td>
<td>High</td>
</tr>
<tr>
<td>Increase and extend existing private transit</td>
<td>Medium/Low</td>
</tr>
<tr>
<td>Advertise and improve carpooling information sites</td>
<td>High/Medium</td>
</tr>
<tr>
<td>Create a “one stop” Mt. Hood traveler webpage with dynamic information on parking, weather, road conditions, travel time, and available transit</td>
<td>High</td>
</tr>
<tr>
<td>Increase cell phone coverage on the mountain</td>
<td>High</td>
</tr>
</tbody>
</table>
SERVICE PROVISION
What are the National Park Service systems?

**Transit systems** = bus, trolley, tram, rail transportation; stops; loading areas; routes; maintenance facilities

**Water systems** = waterways, boat transportation, loading areas, maintenance facilities

**On-road systems** = roads, bridges, parking lots, lighting, signage, traveler information, entry gates, etc.

**Aviation** = air transport, runways, maintenance facilities, loading areas, air tour management

**Non-motorized systems** = trails, pedestrians, bicycles, horses, pack animals, way-finding, etc.
Vehicles Adapted to
Area Resources and Tourism Demand

Early Example: 1937 Fleet
Glacier National Park
Considerations
• Purpose of transit
• Use requirements
  – Terrain
    • Mountainous
    • Moderate
    • Coastal
    • Desert and valley
    • Urban and public roads
  – Propulsion
    • Requirements
    • Considerations
    • Options
• User requirements
  – Driver's components
  – Passenger requirements
    • Seating
    • Amenities
    • Equipment
• Park resource objectives
• Vehicle procurement requirements

Design elements
• Physical components
  – Vehicle dynamics
  – Interior panels and finishes
  – Interior features
  – Exterior features
  – Passenger seating
  – Wheelchair accessibility
  – Windows
  – Heating, ventilation, and air conditioning (HVAC)
• Fare collection
• System requirements
  – Security
  – Safety
• Signing and communication
• Intelligent transportation systems
A Bus Designed by a Committee
In Tangible Form
PLANNING FOR RECREATIONAL TRANSPORTATION
Best Practice – Performance Measures

Pikes Peak Area Council of Governments Performance-Based MPO Long-Range Transportation Planning Process

• SMART Goals
  - **Specific**
  - **Measurable**
  - **Achievable**
  - **Realistic**
  - **Timely**

• Benefit-Cost Analysis Component

• Specific short-term, interim and long-range goals (e.g. percent reduction in GHG)
## Policies Affecting Recreational Transportation

<table>
<thead>
<tr>
<th>Agency</th>
<th>Policy</th>
</tr>
</thead>
<tbody>
<tr>
<td>State or local departments of</td>
<td>• Parking policies</td>
</tr>
<tr>
<td>transportation</td>
<td>• Modal infrastructure development</td>
</tr>
<tr>
<td></td>
<td>• Traffic signal preference for buses</td>
</tr>
<tr>
<td></td>
<td>• Communications policies</td>
</tr>
<tr>
<td>Chambers of commerce or</td>
<td>• Discounted membership for businesses advertising or encouraging</td>
</tr>
<tr>
<td>visitors’ bureaus</td>
<td>recommended transportation options</td>
</tr>
<tr>
<td></td>
<td>• Training and education programs for seasonal workers</td>
</tr>
<tr>
<td></td>
<td>• Transportation information dissemination</td>
</tr>
<tr>
<td></td>
<td>• Communication policies</td>
</tr>
<tr>
<td>Transit operators</td>
<td>• Route design</td>
</tr>
<tr>
<td></td>
<td>• Fare policies</td>
</tr>
<tr>
<td></td>
<td>• Communication policies</td>
</tr>
<tr>
<td>Localities</td>
<td>• Zoning</td>
</tr>
<tr>
<td></td>
<td>• Parking guidelines for businesses</td>
</tr>
<tr>
<td></td>
<td>• Communications policies</td>
</tr>
</tbody>
</table>
Transit Planning Process

1. Identify partners and stakeholders.
2. Design a strategy for community engagement and public involvement.
3. Gather planning resources.
4. Define goals according to stakeholder interest.
5. Anticipate externalities.
6. Identify measures for tracking progress toward goals.
7. Identify measures for tracking the effects of externalities.
8. Design the transit system and communication program.
9. Design the performance monitoring program.
10. Consider available resources.
12. Review the design in context of the baseline data.
13. Implement transit operations.
14. Test and implement the performance monitoring program.
15. Integrate results into transit decision-making.
16. Review and update the program.
Define goals according to stakeholder interest.

Identify measures for tracking progress toward goals.

Design the transit system and communication program.

Consider available resources.

Gather baseline data for performance monitoring.

Review the design in context of the baseline data.

Implement transit initiatives.

Test and implement the performance monitoring program.

Integrate results into transit initiatives.

Review and update the transit system and communication program.

Anticipate externalities.

Identify measures for tracking the effects of externalities.

Design the performance monitoring program.
Identify partners and stakeholders.

Design a strategy for community engagement and public involvement.

Gather planning resources.

- Define goals according to stakeholder interest.
- Anticipate externalities.

- Identify measures for tracking progress toward goals.
- Identify measures for tracking the effects of externalities.

- Design the transit system and communication program.
- Design the performance monitoring program.

Consider available resources.

Implement transit operations.

Test and implement the performance monitoring program.

Integrate results into transit decision-making.

Review and update the program.
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16. Review and update the program.
The most underestimated aspect of planning:

COMMUNICATION
Choosing the in-Town Route

Front-line seasonal workers shape traveler decisions.
Sense of Direction:

Stop

Orientation

Stops that pointed buses in the direction of travel guided and comforted visitors.

The loop at the visitor center confused and stressed visitors.
Sense of Direction: Route Orientation

Routes that went in two directions confused visitors.

Ending all routes at the hub solved the problem.
Intelligent Transportation Systems (ITS)

- ITS helped 80% of surveyed riders decide to ride.
- ITS information saved time for 80% of surveyed riders.
- ITS users stayed longer than non-users (causality unclear).

Needed Public Education: Impacts of Congestion Mitigation

Averting a traffic increase 1995-2001 by introducing transit (Acadia)

Displacing traffic problems by introducing transit (pedestrian fatalities outside Denali)
Conclusion

• Recreational travelers are:
  – Distracted by attractions (a.k.a. attracted by distractions)
  – Unfamiliar with local geography and transportation systems
  – Traveling according to leisure peak demand
  – Expecting vacation-quality transportation experiences

• Recreational areas face:
  – Metropolitan-scale traffic congestion out of scale with resources available from the local permanent population
  – Modes options and mode characteristics with quirks suitable to local character
  – Heightened consideration for protecting natural and cultural resources

• Planning processes need to engage (educate and listen to) stakeholders. Many already feel heavily invested in local stewardship and want to help.

• Communication is quintessential, yet vastly underestimated and under-attended.