Intelligent Transportation Systems in National Parks & DOI Public Lands

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Presentation Overview

1. Report Purpose and Procedure
2. Report Findings
3. Potential Action Items
Public lands units involve intelligent transportation systems (ITS) to:

- Help visitors make travel plans
- Facilitate visitor use of alternative transportation systems
- Alleviate entrance station and parking congestion
- Alert visitors to traffic situations and incidents
- Monitor and manage park traffic and transit operations
Report Purpose

• Update 2005 inventory of ITS deployments on public lands

• Reviewed ITS architectures and other related material

• Identify costs & benefits of ITS to public land units
  – Interview PL Units with ITS involvement
Only 19 of 92 ITS architectures cited public lands

**NPS Units Cited**
1. Acadia National Park (Maine statewide)
2. Baltimore-Washington Parkway (Washington, DC regional)
3. Cape Cod National Seashore (Barnstable, MA regional)
4. Glacier National Park (Montana statewide)
5. Golden Gate National Recreation Area (San Francisco regional)
6. Harper’s Ferry National Historical Park (West Virginia statewide)
7. Kings Canyon National Park (Fresno regional)
8. Natchez Trace Parkway (Jackson, MS regional)
9. New River Gorge National Park (West VA statewide)
10. Sequoia National Park (Fresno regional)
11. Yellowstone National Park (Montana statewide)
12. Yosemite National Park (Fresno regional)
13. Zion National Park (St. George, UT regional)

**USFS Units Cited**
1. Humboldt National Forest (Las Vegas regional)
2. Toiyabe National Forest (Las Vegas regional)
3. Jackson, MS (NPS)
4. Knoxville, TN (NPS)
5. Trenton, NJ (NPS)
6. Washington, DC (NPS)
7. California (National Parks & Forests)
8. Idaho (USFS/BLM)
9. Illinois (National/State Park & Recreation Areas)
10. Maryland (undefined)
11. New Jersey (NPS)
12. West Virginia (USFS)

**Regional Units Cited with Broad Parent Agency Involvement**
1. United States National Park Service
2. United States Forest Service
3. California (National Parks & Forests)
4. Idaho (USFS/BLM)
5. Illinois (National/State Park & Recreation Areas)
6. Maryland (undefined)
7. New Jersey (NPS)
8. West Virginia (USFS)
Integrate ITS with local DOTs

ITS Needs Assessment
Reservation Systems
In-Vehicle Electronic Information
Fleet Management
Construction Management/Information
Automated Entry System

Variable/Changeable Message Signs
Trip Planning tools
Travel Information Kiosks
Travel Information—unspecified
Interpretive Signage
Highway Advisory Radio
511 System Integration
Parking Management/Availability
Weather/Road Condition Information
Traffic Monitoring System
Incident Management System

Parking

Road Management

Transit Management

Vehicle Operations

Parking Management

Traffic Monitoring System

Weather/Road Condition Information

Variable/Changeable Message Signs

General Management

Congestion Management

U.S. Department of Transportation
Research and Innovative Technology Administration

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Park Units Interviewed

1. Gateway NRA
2. Acadia NP
3. Shenandoah NP
4. Great Smoky Mountains NP
5. Grand Teton NP
6. Golden Gate NRA
7. Yosemite NP
8. Arches NP
9. Humboldt-Toiyabe NF
10. Mount Rainier NP
11. Grand Canyon NP
12. Zion NP
13. Yellowstone NP
14. Bryce Canyon NP

• Conversations carried out throughout fall 2010
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Overview of Current Status

- Little expansion of ITS technologies in recent years
  - Systems with greatest utility continue to grow
  - Costs of more complex systems outweigh benefits
  - Units desire technologies which are easier to manage
Approaches to ITS Among Units

• Small-scale solutions offer most utility to units
  – Straightforward and cost-effective
  – Examples include dynamic message signs (DMS) and traffic counters
• Outside contractors can assist with deployment and ongoing operation
Approaches to ITS Among Units

- Systems engineering processes ensure projects are carried forward most efficiently
Approaches to ITS Among Units

• Transportation issues may be tolerable when ITS interventions are costly and complex
Technologies with Most Utility

- Dynamic message signs
- Highway advisory radio
- 511 traveler information systems
- Traffic counters and loop detectors
- Social media applications
Social Media Applications

• Permit units to share interpretive and traveler-related information to visitors at off-site locations
  – Traffic delays
  – Detours
  – Alternative transportation options
  – Parking information
• Valuable if information needed on short notice
  – Mobile devices increasingly used for social networking
• Staff and expertise issues among units
  – Some lean on friends groups for social media presence
Social Media Applications

Saint-Gaudens National Historic Site

Venues

Users select a venue at the park by simply tapping a designated number tab. They can view the entire park from the aerial view in the palm of their hand, choosing the path that appeals most to them.

SaguaroNPS SaguaroNationalPark

Due to the fire danger, the high-country trails and sites in the Rincon District will be closed. However, the... http://fb.me/WfQan3VL

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Social Media Applications
Common Issues of ITS Technologies

• Power and connectivity issues plague successful operation of many ITS technologies
  – Lack of infrastructure due to rural setting of many units
  – Poor climate conditions
  – Rugged terrain

• Many technologies require manual input from staff
Common Issues of ITS Technologies

- Advanced traveler information systems (ATIS) offer opportunities to efficiently distribute time-sensitive information without tying up staff

![Diagram showing data sources and dissemination methods for various topics such as weather, traffic, parking updates, etc.]

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Potential Action Items

• ITS strategic plan to enable:
  – Systematic planning
  – Procurements
  – Implementation
  – Operation
  – Maintenance
  – Evaluation

• Would allow FLMAs to focus on those technologies that produce the greatest results for individual units and regions
Potential Action Items

• Efforts needed to improve procurement processes
  – Coordinate multi-device procurement
  – Utilizing GSA-approved product lists

• Offer more training opportunities to public lands staff
  – Professional capacity building
  – Peer exchanges
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