Web-Based Mapping Initiatives For Nine National Historic Trails

14th National Scenic and Historic Trails Conference
Tucson, AZ
November 3, 2013
Overview...

- Background...Office...Trails...Maps...

- Three Current Web Mapping Initiatives:
  1.) Public Interactive Map Viewers
  2.) Embedded Web Maps Update
  3.) Collaborative Sign Planning Project
We Work in Teams...

- Administration
- Interpretation
- Planning
- Tribal Outreach
- Design & Development
- Cultural Resource Management
- Resource Information Management

History/GIS/Database
We Work with Partners...
1. Public Interactive Map Viewer

http://imgis.nps.gov/#Trails
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http://imgis.nps.gov/#Trails
A. Silverlight Viewer

- Suite of tools for exploring and generating maps
- Requires plug-in
- Challenges for mobile devices
B. HTML5 Viewer

- Developing suite of tools for exploring and generating maps
- No plug-ins
- Accessible on mobile devices
2. Embedded Web Maps Update

- Develop at least one interactive map per trail that can be embedded into websites
- One map that can be shared multiple times
- Starting with ‘Places to Go’
Example: Places to Go

- Where is the trail?
- Where are the sites?
- Where can I go?
http://www.nps.gov/npmap
Current Development Map

- Seeded with existing trail website ‘Places to Go’ content
- Toggle among place types
- Zoom and pan capabilities
- Popups with contact information
Next Steps

- Modifying popups (ex: adding thumbnail images)
- Reconsidering types of sites and labels
- Additional review/input outreach soon
3. Collaborative Sign Planning Project

1) Web-Based Map Viewer
   - Two-way communication
   - One data set
   - Targeted and ephemeral

2) Sign Plan Report Tool
   - Automated based on locations and data
   - Generates end product
NHT Family of Road Signs

Santa Fe National Historic Trail

- Santa Fe Trail Auto Tour Route
- Santa Fe Trail Local Tour Route
- Santa Fe Trail Original Route
- Santa Fe Trail Crossing
- Santa Fe Trail Historic Site Name

Site Identification

- Entrance Sign
- Santa Fe National Historic Trail

family of roadway signs
Partner Driven Planning Process
pope county original route conceptual sign plan

Original Route Segment
3.3 MILES

Signs A & B (with correct distance and dir. arrows)
Signs 2-8 & 2b-8b
Signs 1 & 9b
Signs 1b & 8b
Signs 2, 2b, & 9b

Hwy 146 & Trail of Tears Auto Tour Route
(abandoned original Trail of Tears segment)
Sign Planning Map Viewer

- 3rd generation collaborative tool, replaces previous viewer and KMZ-file based system
- HTML5 viewer
User interface

- Fillable fields, limited options
- Elicits specific information from users
- Simplified icons for signs and other notes
Data structure

- Sign Plan Name
- Sign Type
- Road Name
- Travel Direction
- Nearest Intersection
- Site Name
- Road Jurisdiction
- Notes
- Sign Status
- County
- State
- Create Date
- Created By
- Edit Date
- Editor
- [9 NHT fields]
- GIS Notes
- Sign Cost
- Reflectivity
- Custom Sign Type
Data structure: project management

- Sign Plan Name
- Sign Type
- Road Name
- Travel Direction
- Nearest Intersection
- Site Name
- Road Jurisdiction
- Notes
- **Sign Status**
  - Installed
  - Proposed
- County
- State
- Create Date
- Created By
- Edit Date
- Editor
- [9 NHT fields]
- GIS Notes
- Sign Cost
- Reflectivity
- Custom Sign Type

Feature Attributes:

- Sign Status
- County
- State
- Create Date
- Created By
Data structure: purpose and location

- Sign Plan Name
- Sign Type
- Road Name
- Travel Direction
- Nearest Intersection
- Site Name
- Road Jurisdiction
- Notes
- Sign Status
- County
- State
- Create Date
- Created By
- Edit Date
- Editor
- [9 NHT fields]
- GIS Notes
- Sign Cost
- Reflectivity
- Custom Sign Type
Data structure: sign specifications

- Sign Plan Name
- Sign Type
- Road Name
- Travel Direction
- Nearest Intersection
- Site Name
- Road Jurisdiction
- Notes
- Sign Status
- County
- State
- Create Date
- Created By
- Edit Date
- Editor
- [9 NHT fields]
- GIS Notes
- Sign Cost
- Reflectivity
- Custom Sign Type
- Santa Fe Trail
- Fort Larned Trail Ruts
Data structure: tracking edits

- Sign Plan Name
- Sign Type
- Road Name
- Travel Direction
- Nearest Intersection
- Site Name
- Road Jurisdiction
- Notes
- Sign Status
- County
- State
- Create Date
- Created By
- Edit Date
- Editor
- [9 NHT fields]
- GIS Notes
- Sign Cost
- Reflectivity
- Custom Sign Type
Data structure: multi-trail situations

- Sign Plan Name
- Sign Type
- Road Name
- Travel Direction
- Nearest Intersection
- Site Name
- Road Jurisdiction
- Notes
- Sign Status
- County
- State
- Create Date
- Created By
- Edit Date
- Editor
- [9 NHT fields]
- GIS Notes
- Sign Cost
- Reflectivity
- Custom Sign Type
Data structure: reporting tool

- Sign Plan Name
- Sign Type
- Road Name
- Travel Direction
- Nearest Intersection
- Site Name
- Road Jurisdiction
- Notes
- Sign Status
- County
- State
- Create Date
- Created By
- Edit Date
- Editor
- [9 NHT fields]
- GIS Notes
- Sign Cost
- Reflectivity
- Custom Sign Type
Sign Plan Generation Tool

- For tool to work properly:
  - **Software:**
    - ESRI ArcGIS for Desktop 10.1 (w/ Production Mapping Extension)
    - PythonWin 2.7 (used to save final report on user’s desktop)
  - **Templates:**
    - Logos for title page
    - Geo-database for required features
    - Holder PDFs for trail specification sheets
    - Report templates
    - Map Documents which are used to create title, map index, and map series pages
Sign Plan Generation Tool

- Two different options based on user’s needs:
  - Option 1: **ALL** signs are included in report.
  - Option 2: **SELECTED** signs are included in report.

- Different initial steps based on option (ArcMap vs. ArcCatalog).

- Both options use simplified user interface for input of tool parameters.
Sign Plan Generation Tool

User Interface

- Input “Signs” Feature
- Sign Plan Name
- Trails in AOI
- Sign ID Number Sort
- Map Scale (Resolution)
- Folder holding templates
- Temporary workspace
- Partner Preparers
- NPS Preparers
Sign Plan Generation Tool

Sign Plan Report
- Title Page
- Table of Contents
- Map Sheet Reference Index
- Sign Plan Map Series
- Reports
  - Sign Summary
  - County/State Sign Summary
  - Road Jurisdiction Sign Summary
  - Cost Estimate Summary
  - County/State Cost Summary
  - Road Jurisdiction Cost Summary
  - Sign Status Cost Summary
- Sign Plan Specification Sheets
Sign Plan Generation Tool

Sign Plan Report

<table>
<thead>
<tr>
<th>Sign ID</th>
<th>Sign Type</th>
<th>Site Name</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Original_Route_Begin</td>
<td>SLC Route 15</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Original_Route_End</td>
<td>Redwood Camp</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Auto Turn Route_Left_Arc</td>
<td>SLC Route 18</td>
<td></td>
</tr>
</tbody>
</table>
Sign Plan Generation Tool

Benefits of Tool

- **Efficiency:** ~ 5 minutes vs. hours.
- **Consistency:** All reports have similar look and feel regardless of area/signs.
- **Extensive:** Tool can perform tasks that user may not be familiar with.
- **User-Friendly:** Designed for easy use by all types of users (documentation).
Challenges and Future Needs

- Simplifying process to get started
- Automation of edit tracking
- Bringing past plans into the current data structure
- Pedestrian signs
Thank You...

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