# Coordinating National Park Management with GIS:

## Facilities Management GIS

66174

N 18.46633° W 066.13625° NAD 83

SAJU

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# The Situation:

## Over 60,000 National Park Service assets in 389 units!



Water System
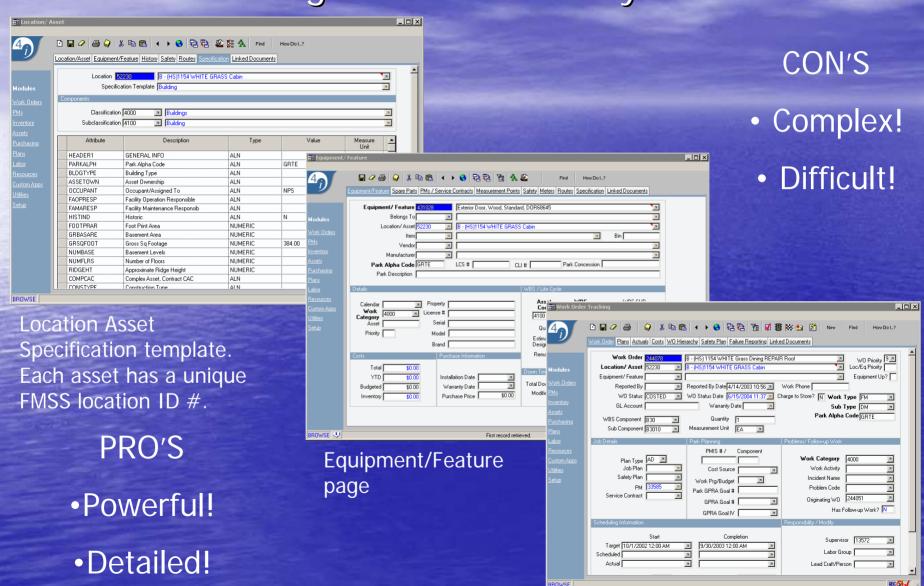
Asset Code: 5100

# The Situation:

Over 425,000 Equipment/Features associated with those assets!

- Every asset has is own unique Location ID # (aka. FMSS #).
- An equipment/feature is some thing that is associated with a larger asset or system . equipment/feature has it own unique # as well.

* This 1,000,000 gallon water tank is an example of a feature of the water system at Mesa Verde National Park.

# Current Management Methods:
## Facilities Management Software System or FMSS



CON'S

- Complex!

- Difficult!

Location Asset
Specification template.
Each asset has a unique
FMSS location ID #.

PRO'S

- Powerful!

- Detailed!

Equipment/Feature
page

Work Order

# Enhancing Management Software:

## How Could FMSS be improved?

- Move away from just a tabular database and increase the visualization of the assets both individually and as a whole making it more intuitive.
- This is done by merging the capabilities of GIS with the value of a picture (1000 words!).
- GPS-PhotoLink and ArcGIS!

# Facilities Management GIS:
## Getting Started with Data Collection Procedures!

- Considering the amount of data to be collected and the varying levels of GIS expertise among the personnel collecting the data, correct procedures need to be documented. Each one provides proper GPS collection techniques and how to use GPS-PhotoLink.



ArcPad 7 Data Collection
for Facilities Management GIS

Setup and Operations

July 19, 2006

With a custom forms application ArcPad is an easy and robust data collector. GPL uses a shapefile in processing.



Garmin GPS Camera
Equipment
for Facilities Management GIS

Setup and Operations

July 19, 2006

Garmin camera equipment pack are most commonly used with 60 pack provided by the Park Service for use nationwide.



Facilities Management GPS Data
Collection With Trimble Geo XT and
Geo XM Units

November 3, 2005

# Waypoint Collection Positions for each Park Asset

| | |
|---|---|
| Roads | Record the GPS coordinates at the beginning and end of each route. |
| Parking Areas | Record GPS coordinates at the approximate center. |
| Bridges | Record the GPS coordinates at the beginning and end of the Bridge. |
| Tunnels | Record the GPS coordinates at the beginning and end of each Tunnel |
| Trails | Record the GPS coordinates at the beginning and end of each Trail. |
| Maintained Landscapes | Record GPS coordinates at the approximate center. |
| Campground | Record GPS coordinates at the approximate center. |
| Picnic Area | Record GPS coordinates at the approximate center. |
| Buildings | Record GPS coordinates near the primary entrance. |
| Water / Waste Water Systems | Record GPS coordinates at the approximate center. |
| Heating & Cooling Plants | Record GPS coordinates at the approximate center. |
| Electrical, Radio, Phone, Computer Systems | Record GPS coordinates near the primary entrance. |
| Fuel Systems | Record GPS coordinates at the approximate center. |
| Dams | Record GPS coordinates at the approximate center. |
| Constructed Waterways | Record the GPS coordinates at the beginning and end of each. |
| Marina/Waterfront System | Record GPS coordinates near the primary entrance. |
| Tower/Missile Silo | Record GPS coordinates near the primary entrance. |
| Outdoor Sculptures/Monuments/Plaques | Record GPS coordinates near the approximate center of this unique asset. |
| Ruins | Record GPS coordinates near the primary entrance. |
| Fortification | Record GPS coordinates near the primary entrance |
| Lighthouse | Record GPS coordinates near the primary entrance |
| Railroad System | Record the GPS coordinates at the beginning and end of each track. |
| Aviation System | Record the GPS coordinates at the approximate center. |
| Amphitheater | Record GPS coordinates near the primary entrance |

# Facilities Management GIS:
## How GPS-PhotoLink Works!



*Important: Take a picture of the GPS unit. Make sure that your camera time and you GPS time are as close as possible.
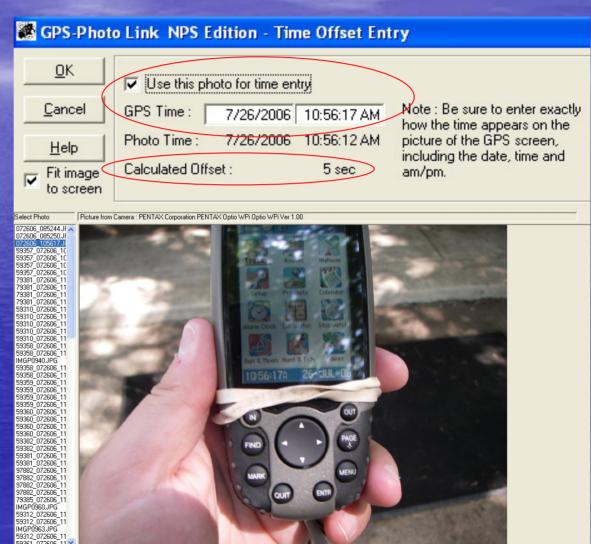
Take an averaged GPS waypoint. Name the waypoint the FMSS location ID#.

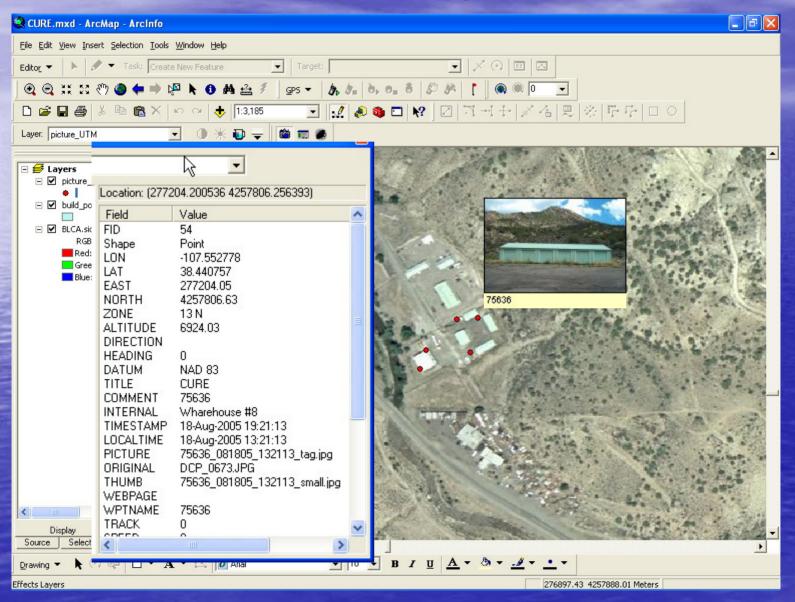Following the waypoint, take a photograph. You can take as many photographs as you need to.

# Facilities Management GIS:
## How GPS-PhotoLink Works!

Within the GPS-PhotoLink software select the photo of the GPS receiver.
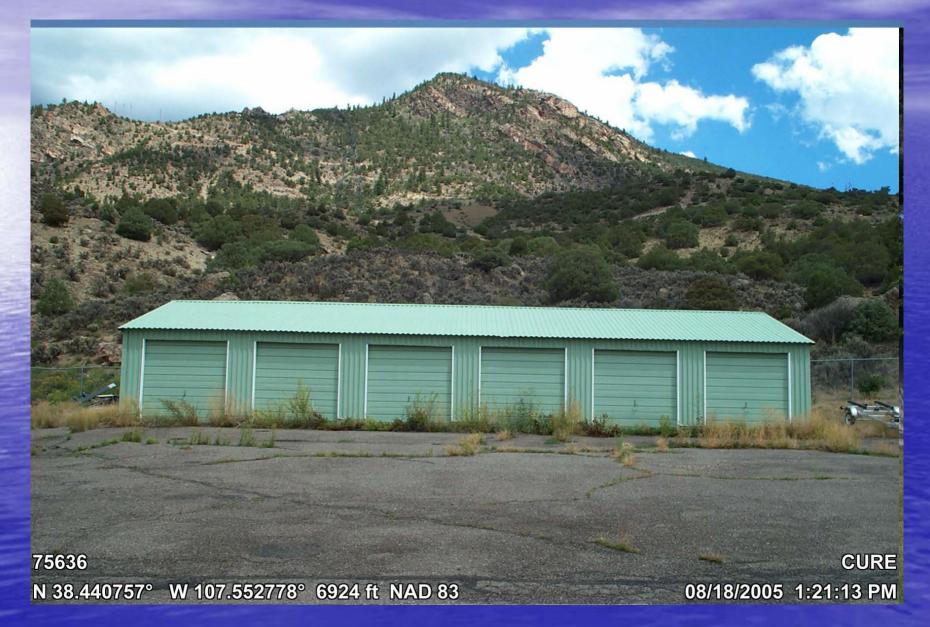
Check the Use this Photo for time entry option and enter in the GPS time that is on the GPS receiver. The software will calculate the time offset between the camera and the GPS receiver.
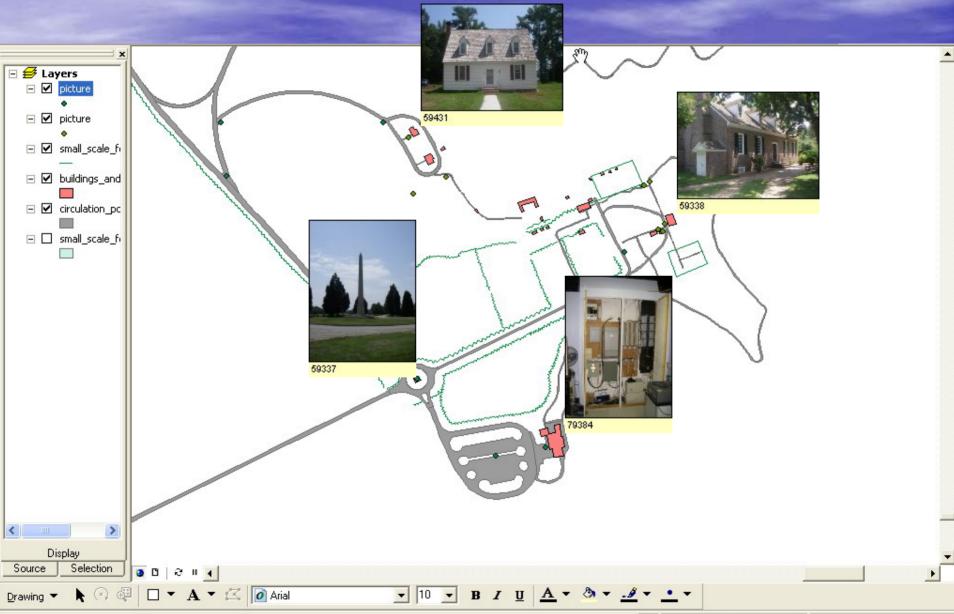
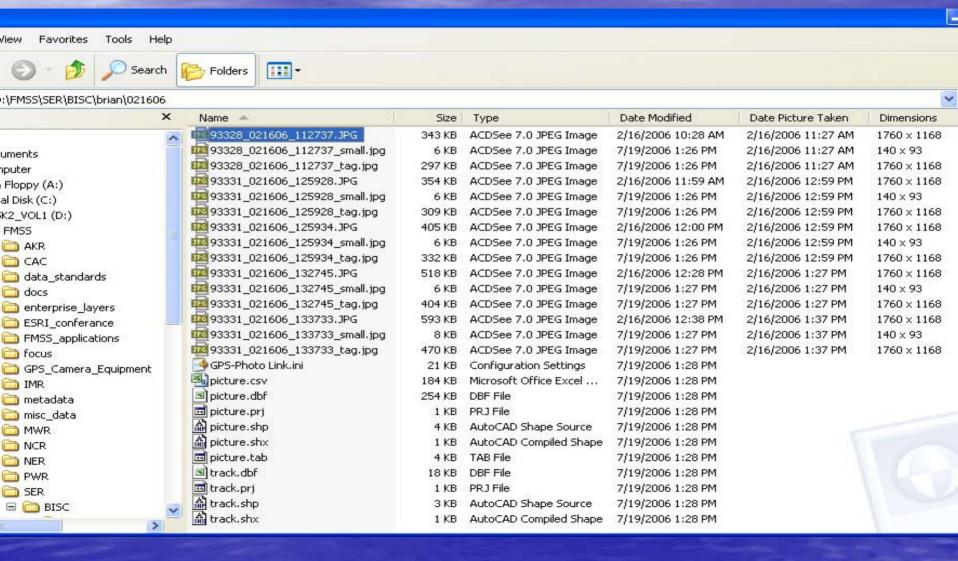# Facilities Management GIS:
## GPS-PhotoLink Spatial Data

# Facilities Management GIS:
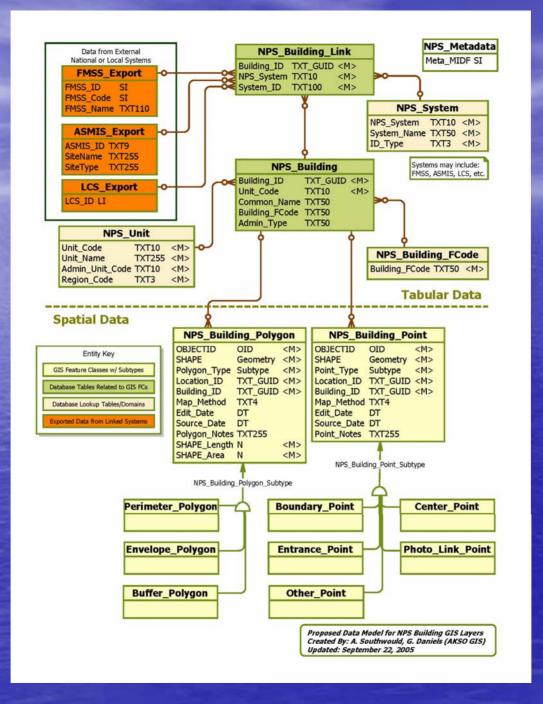## GPS-PhotoLink Watermaked Photos



75636
N 38.440757°   W 107.552778°   6924 ft   NAD 83

CURE
08/18/2005  1:21:13 PM

Facilities Management GIS:
Asset Visualization and Data Creation

# Facilities Management GIS:
## Image File Management

Proposed Data Model for NPS Building GIS Layers
Created By: A. Southwould, G. Daniels (AKSO GIS)
Updated: September 22, 2005

# Facilities Management GIS:
## Implementation

# Facilities Management GIS:
## Contact Information

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