Introduction to the Federal Trail GIS Schema
A Unified Strategy
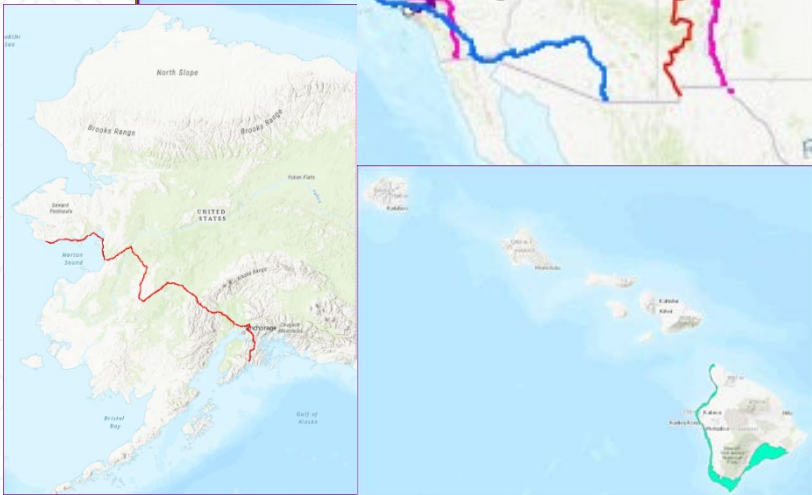
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Agenda

- **Background History**
- **Purpose**
- **Explore the Schema**
- **Use Cases**

- **Next Steps**
- **Summary**
- **Questions**

Kerry's Background & History

- 1994, Surveyed Trails, Beaverhead National Forest, MT, Continental Divide National Scenic Trail (CDT)

- 1997, Surveyed Trails, Tongass National Forest, Alaska

- 2005-2018, GIS Data Manager, Continental Divide Trail National Scenic Trail (3100-miles!)

- 2012 – 2018, Co-Founded and Board Member for Continental Divide Trail Coalition, 6yrs

- 2014 – Current, National Park Service as a Geographic Information Specialist (GIS) specializing in GIS data management and GIS data standards

- 2018- Started grassroot meetings to implement Federal Trail Data Standard

- 2023 – January Federal Trail GIS Schema (FTGS) went live (5yrs in the making)
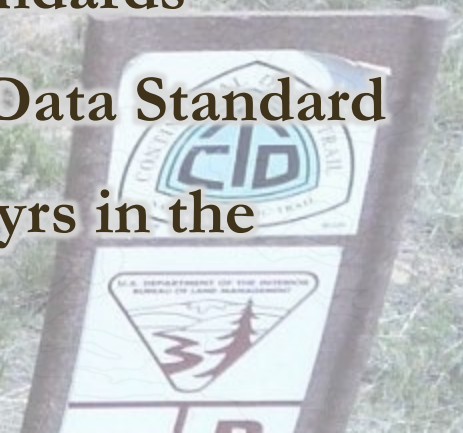
Purpose of the Federal Trail GIS Schema

- **Provide a nation-wide GIS trail data schema template from the <u>Federal Trail Data Standard</u>**(FTDS, 2011) that can be utilized by all agencies and partners to establish a unifying and common trail GIS data structure. The Federal Trail GIS Schema allows for national aggregation of publicly facing trail data from multiple agencies and partners into a common schema GIS database.

- <u>**Federal Trail GIS Schema (FTGS)**</u> **-** Flexible to include <u>all</u> trails, local and National Trails (FTDS)

- **FTGS provides efficient GIS coordination and collaboration between agencies and partners for**:
    - Sharing of authoritative trail data with the public and across management
    - GIS decision making support for trail projects

- FTGS template utilization is highly encouraged, but not required

Explore the Federal Trail GIS Schema

Materials Provided:

- Implementation Plan

- Table of Federal Trail GIS Schema Attributes

- Table of Federal Trail GIS Schema Domains

- Trail Use Hierarchy Flow Chart and Domain Examples

- Federal Trail GIS Schema Template - Esri File Geodatabase:
  - <u>Core</u> line feature class
  - <u>Extended Core</u> line feature class
  - <u>National Historic Trail Sites</u> point feature class
  - Domain tables

- Federal Trail GIS Schema Attributes2022v1.pdf
- Federal Trail GIS Schema Domains2022v1.pdf
- FTGS_ImplementationPlan_2022v1.pdf
- FederalTrailGISSchemaTemplate2022v1.zip
- FTGS_TrailUseFlowChart_DomainExamples.zip

<u>Change Log Form</u>
suggest updates to improve schema

Explore the Federal Trail GIS Schema

Core Line Feature Class:

- **Minimum Fields for All Trails**
  – focused on publicly facing data
- **Add Local Level Managed Fields**
  – stays local
- **Includes Feature Level Metadata**
  - Edit date tracking: EDITDATE
  - Data creation method tracking MAPMETHOD
  - Accuracy tracking: XYACCURACY

Field list:
TRNAME, TRALTNAME, MAPLABEL, TRNUMBER, TRTYPE, TRSURFACE, TRCLASS, TRUSE, TYPEOFROUTE, MAINTAINER, ADMINORG, MANAGINGORG, AGENCYDATASOURCE

Domain Name	Code	Description	Domain Description	Examples
XYACCURACY _FTGS2022	Unknown	Unknown	Data of unknown origin, spatial accuracy, unknown scale or resolution where a minimum mapping unit or scale of reference cannot be statistically determined (qualitative accuracy assessment).	Legacy data with little or no spatial attribute information.
	<5cm	<5cm	Survey-grade mapping with a dual-frequency carrier phase GPS/GNSS receiver used for survey monumentation, vertical assessments, boundary surveys, and SET positions. Often a result of a Real-time Kinematic (RTK), Real-time Network (RTN), Static GNSS surveys or traditional survey methods.	Trimble R10, R8, R6 RTK Systems; Javad Triumph 1, 2 RTK Systems; EOS Arrow Gold with Real-time Network; Total Stations at 1"- 5".
	>=5cm and <50cm	>=5cm and <50cm	Resource-grade mapping with a dual- frequency GPS/GNSS receiver likely combined with a dual-frequency antenna using differential corrections. Some Lidar data.	Trimble Geo6000/7x/2008 with TerraSync and post processing; EOS Arrow 100/200.
	>=50cm and <1m	>=50cm and <1m	Resource-grade mapping with a differential- capable GPS/GNSS receiver using differential corrections.	Any mid-grade WAAS receiver such as Trimble, EOS, Leica, etc..
	>=1m and <5m	>=1m and <5m	Recreational-grade mapping with any GPS/GNSS satellite real- time receiver likely corrected with WAAS.	Garmin handheld w/ WAAS; Trimble Juno handheld; EOS Arrow Lite.
	>=5m and <14m	>=5m and <14m	Recreational-grade mapping with an autonomous GPS/GNSS or location-based services (LBS) receiver designed for recreational or consumer use. Data that are heads-up digitized from sources such as 1:24,000.	Handheld cellular device with GPS/GNSS chip; GPS/GNSS watch; Samsung Tab Active2.
	>=14m	>=14m	At greater (coarser) than 1:24,000 scale, the National Standard for Spatial Data Accuracy (NSSDA) is 13.9 meters with 95% accuracy (ASPRS, 2005).	Heads up digitizing using an old 1:100000 scale NAD 27 map; GPS/GNSS collected point under heavy canopy

Explore the Federal Trail GIS Schema

Extended Core Line Feature Class:

• Core minimal fields + **National Trail Minimum Fields**

National Historic Trail Sites Point Feature Class:

• Specific to NHT's

• "Intended for heritage sites associated with the National Historic Trails including National Register of Historic Places (NRHP), high potential sites, certified sites, and public use sites."

Field Name
MANAGINGORG
NATTRDESIGNATION
NHTNSTNUMBER
NHTNSTADMINISTRATOR
HISTSIGNIFICANCE
NHTCERTSTATUS
NHTCONDCATEGORY
NHTHIGHPOTENTIALSEGMENT
NHTPUBLICUSESEGMENT
NRHPCRITERIA
SHAREDSYSTEM
ROADSYSTEM
STATE

Extended Core above.
NHT Site below.

NATTRDESIGNATION
HISTORICSIGNIFICANCE
NHTCERTSTATUS
NRHPCRITERIA
NRHPPROPERTYCATEGORY
NHTPUBLICUSESITE
NHTHIGHPOTENTIALSITE
TYPEOFSITE
NHTSITENAME
NHTSITENUMBER

Explore the Federal Trail GIS Schema

- **Core** line feature class attribute fields:
  - TRNAME/TRNUMBER = <u>Local</u> trail identifiers
- **Extended Core** line feature class attribute fields:
  - NATTRDESIGNATION/NSTNHTNUMBER
  = <u>National Trail</u> identifiers
- **Appendix C – Trail Class Matrix & NHT Definitions**
- **Appendix D – Data Stewardship** - data sharing and authoritative sources for trail information
  - Trail Administrator
  - Land Manager
  - Partner Organization
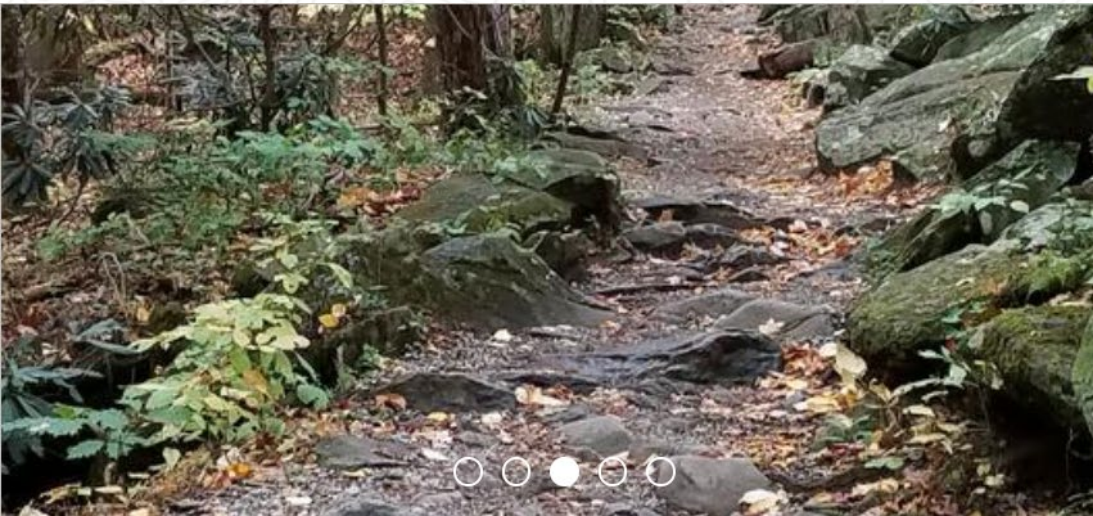
Explore the Federal Trail GIS Schema

Key Takeaways:

- **FTGS Minimum Fields** – focused on publicly facing data

- **Add Local Level Managed Fields** – stays local

- **FTGS Template Uses**
  - Transfer Standard (for aggregation)
  - Standardizing Trail Data (locally)
  - Collecting Trail Data in the Field (locally)

Use Cases for the Federal Trail GIS Schema

USGS National Digital

Trails Project

FWS HQ Trails Cycle 3 Public View

This feature service contains lines representing public trails on U.S. Fish and Wildlife Service lands.

Public

Feature Layer from U.S. Fish & Wildlife Service
Managed by richard_easterbrook@fws.gov_fws

Item created: May 17, 2022   Item updated: Jun 7, 2022   View count: 21,079

⊘ Authoritative

Description

This feature service contains lines representing public trails on U.S. Fish and Wildlife Service lands, collected for the National Trails Inventory Program by the American Conservation Experience (ACE). The inventory uses a core set of questions and data attributes identified in the Federal Trail Data Standards (FTDS) and further developed by the Federal Trail GIS Schema (FTGS) Working Group. The Cycle 3 inventory began in 2019 and will be completed in 2022. This dataset may contain older, Cycle 2 trail information for stations until the inventory is complete.

National Digital Trails

Connecting trails to expand recreational opportunities on the Nation's public lands.

U.S. Fish and Wildlife
National Trails Inventory Program

Use Cases for the Federal Trail GIS Schema

- **Iditarod NHT – Managed by BLM** - Implemented

- **Potomac Heritage NST – Managed by NPS** - Implemented

- **National Park Service** – Implement during next NPS Trail Standard revision 2023

- **U.S. Census** – Use trails in Alaska to reach remote villages

- **Federal Highway Administration transportation aggregation** – trails as transportation

- **American Trails – National Recreation Trails**

  - **NRT Ambassador Program**

- **PNTS/Trust for Public Lands** – **Gap Analysis of National Trails**

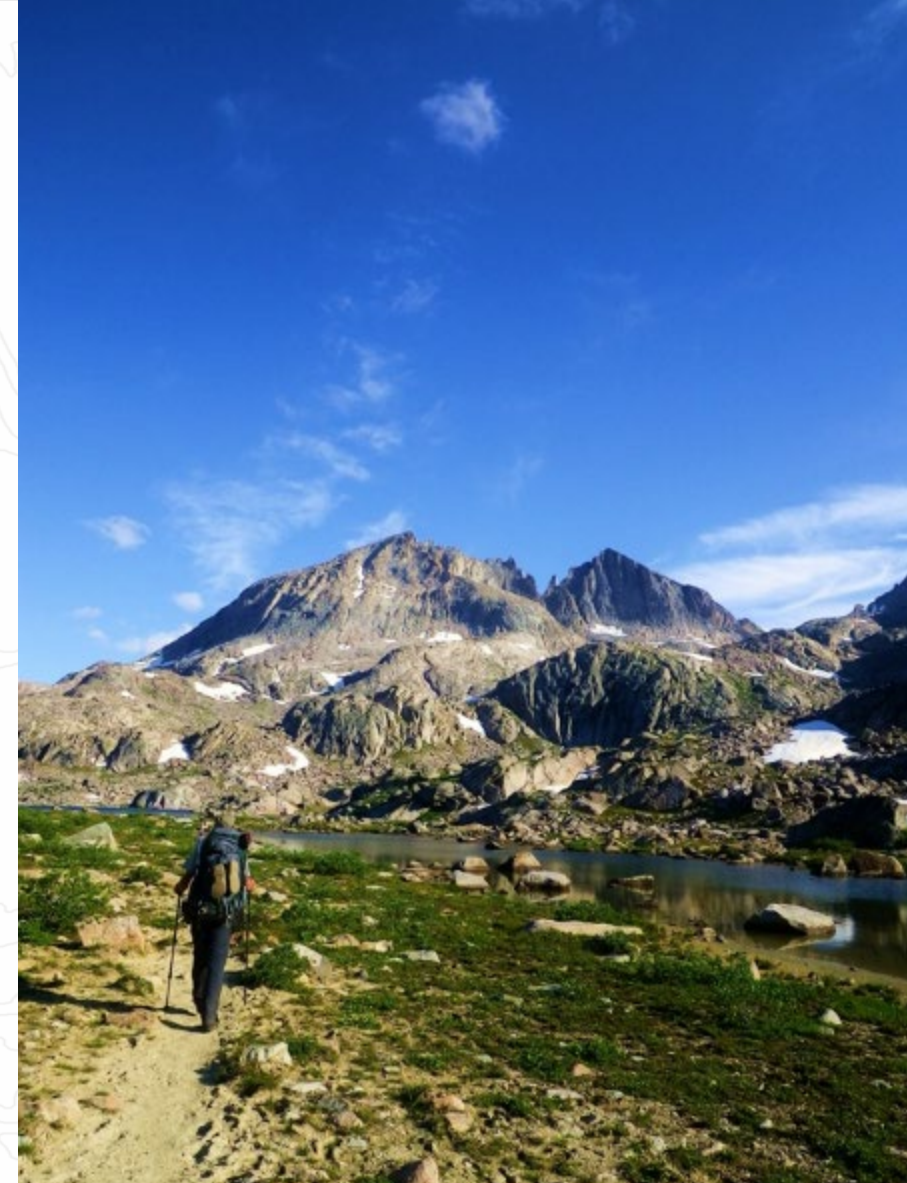- **National Trails (Scenic/Historic)** – **single database of all National Trails**

Next Steps

- **Update GeoPlatform.gov website**
  - Add Use Cases – *Let us know if you have a use case!*
  - Monitor the Change Log for suggestions

- **Update for MAPLand Act**

  - Types of Allowed Uses
  - Open/Closure status
  - Seasonal closure dates

Summary

Benefits of Adopting

- **Unifies GIS trail data** between agencies and partners by establishing a common trail GIS data structure (local and National Trails).

- **Better GIS coordination and collaboration between agencies and partners for:**

  - Trail projects
  - Efficient sharing of authoritative trail data with the public and across management
  - GIS decision making support for trails

Questions ?

Federal Trail GIS Schema Working Group
Contact: ntds@doimspp.onmicrosoft.com