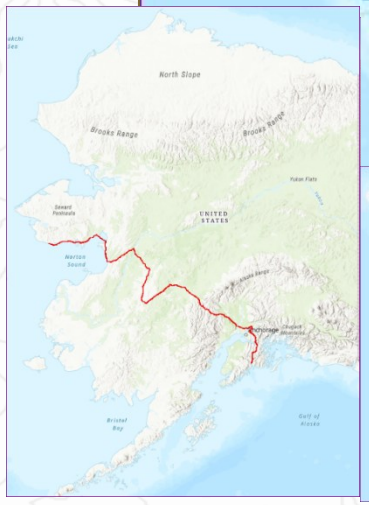
Introduction to the Federal Trail GIS Schema

A Unified Strategy



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Agenda

- Background History
- Purpose
- Explore the Schema
- Use Cases
- Next Steps
- Summary
- Questions

Kerry's Trail Background

- 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 National Scenic Trail (3,100 miles!)
- 2012 – 2018, Co-Founded and Board Member of 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 – Federal Trail GIS Schema (FTGS) publicly available for dissemination (5yrs)

Workgroup History and Timeline

- **2017 Continental Divide NST/Arizona NST -** Utilizing Federal Trail Data Standard (FTDS)
- **2018 Workgroup started monthly meetings** - CDNST (FS), AZNST (FS), Lewis and Clark NHT (NPS), NPS, USFS, some BLM interest
- **2019 USGS National Digital Trails joined effort**
- **2019 Federal Geographic Data Committee (FGDC) - Transportation Theme Chair and Co-chairs joined effort** (DOT and FAA)
- **2020** – BLM/USACE joined workgroup
- **2021** – Public Review of draft March 1-30, 2021 (USFWS joined workgroup)
- **2022** - Census and Open Street Map joined workgroup
- **2023** – Federal Trail GIS Schema (FTGS) publicly available for dissemination (5yrs)

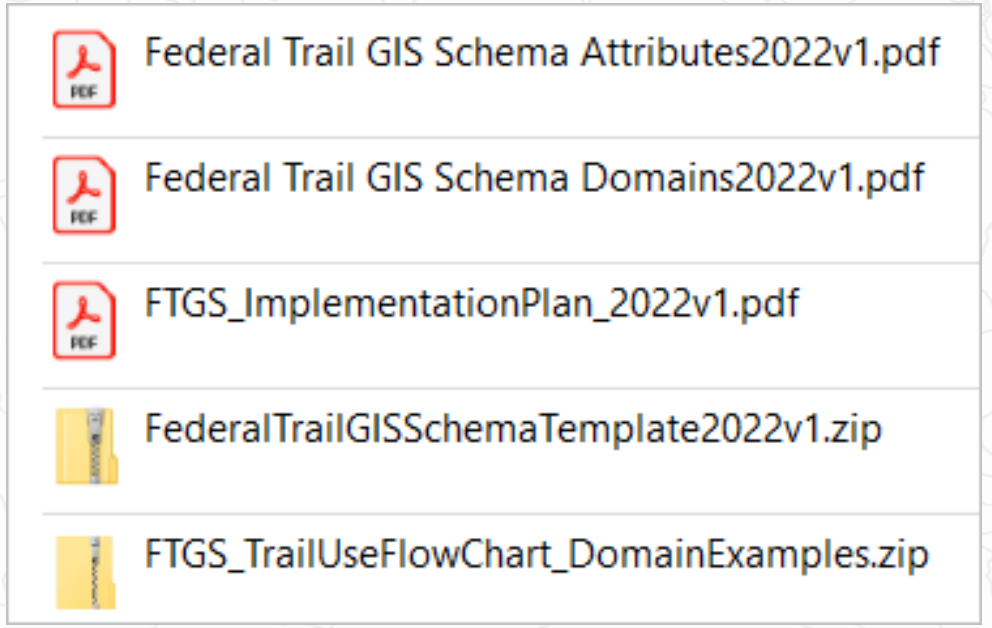
Purpose of the Federal Trail GIS Schema

- **Provide a nation-wide GIS trail data schema template from the Federal Trail Data Standard**(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.
- **Federal Trail GIS Schema (FTGS) -** Flexible to include all 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:
  - Core line feature class
  - Extended Core line feature class
  - National Historic Trail Sites point feature class
  - Domain tables



Change Log Form

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

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 + Optional Attributes:**
  - Designed Use, Managed Use, Shared System, Road System, State, Feature ID

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."

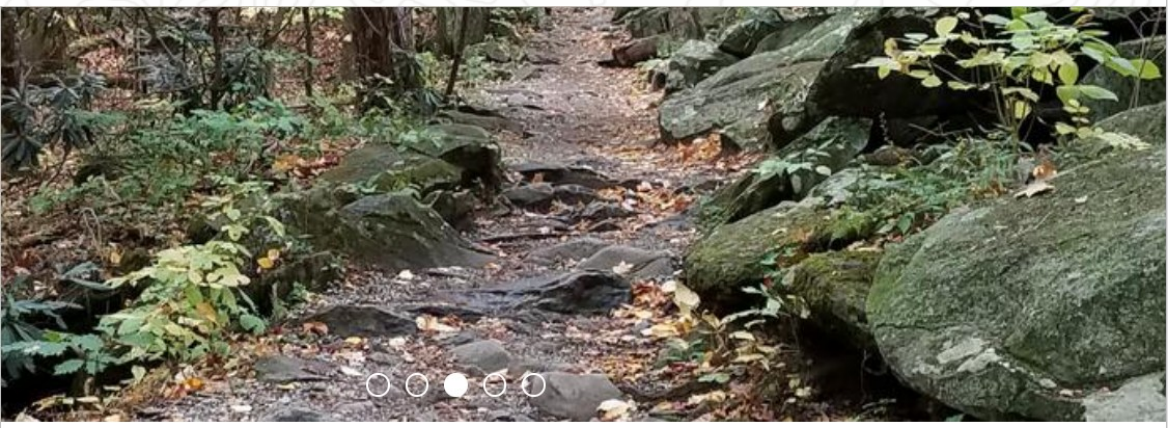
Field Name
MANAGINGORG
NATTRDESIGNATION
NHTNSTNUMBER
NHTNSTADMINISTRATOR
HISTSIGNIFICANCE
NHTCERTSTATUS
NHTCONDCATEGORY
NHTHIGHPOTENTIALSEGMENT
NHTPUBLICUSESEGMENT
NRHPCRITERIA
SHAREDSYSTEM
ROADSYSTEM
STATE

Extended Core above.
NHT Site below.

NATTRDESIGNATION
HISTORICSIGNIFICANCE
NHTCERTSTATUS
NRHPCRITERIA
NRHPPROPERTYCATEGORY
NHTPUBLICUSESITE
NHTHIGHPOTENTIALSITE
TYPEOFSITE
NHTSITENAME
NHTSITENUMBER

Use Cases for the Federal Trail GIS Schema

USGS National Digital Trails Project



National Digital Trails

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

U.S. Fish and Wildlife National Trails Inventory Program

FWS HQ Trails Cycle 3 Public View

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

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

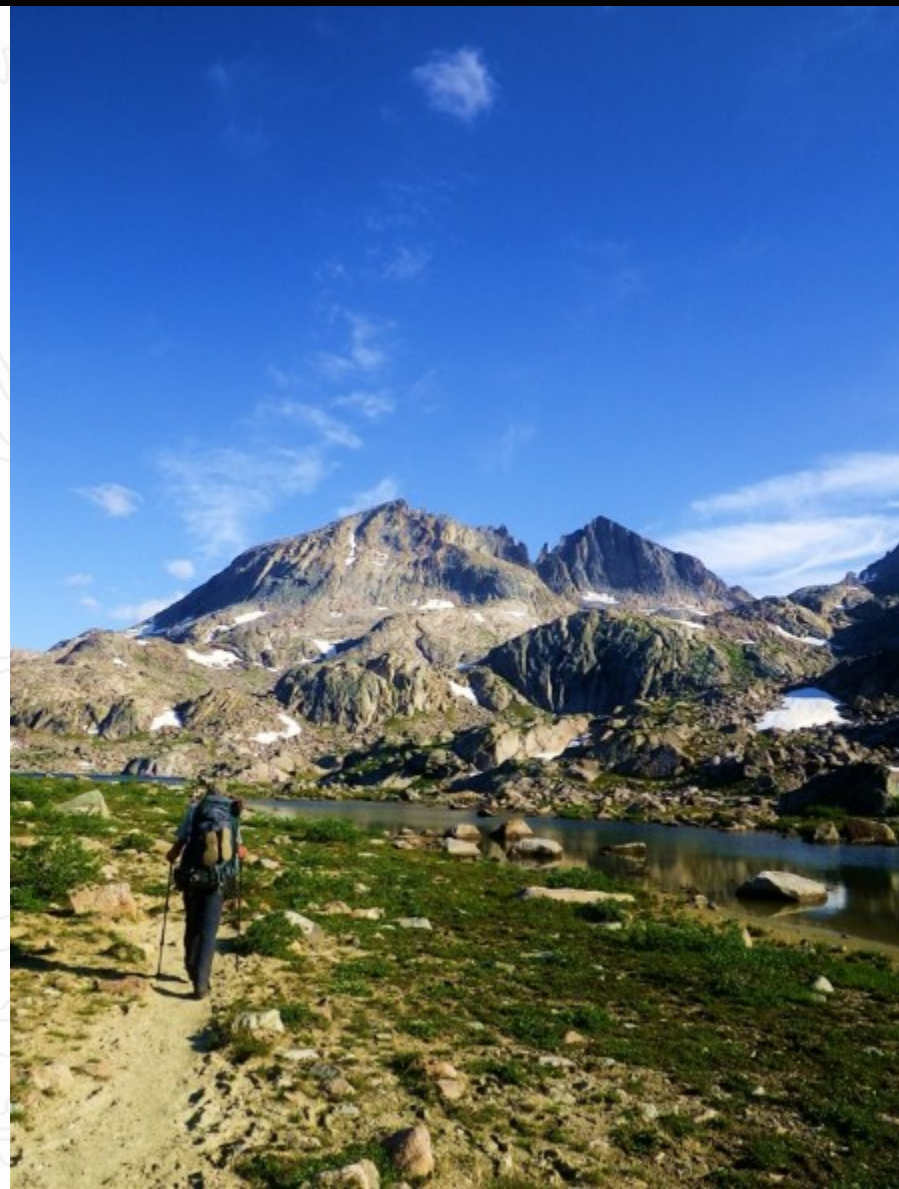
This feature service contains lines representing public trails on U.S. Fish and Wildlife Service lands, collected for the National Trails Inventory Program by the American Conservation Experience (ACE). The inventory uses a core set of questions and data attributes identified in the Federal Trail Data 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.

Use Cases for the Federal Trail GIS Schema

- National Park Service – 2025 NPS Trail Standard revision - Implementing
- Arizona National Scenic Trail – **Managed by USFS** - Implemented
- Potomac Heritage National Scenic Trail – **Managed by NPS** - Implemented
- **Iditarod National Historic Trail – Managed by BLM** – Implementing
- **2024 USGS Trail Aggregation Seminar for States:**
  - Massachusetts, Oregon, Oklahoma – Implemented
  - Rhode Island, Missouri – Considering Implementing
  - New Hampshire 911– Considering Implementing
- **U.S. Census** – Alaska winter trails to remote villages - Considering Implementing

Next Steps

- **Modernizing Access to Our Public Land Act**
  MAPLand Act
  - Trail & Road - Allowed Modes of Travel = FTGS Trail Use
  - Season Open Dates – FTGS update
  - FTGS is MAPLand compatible - has more attributes than MAPLand for managing trails and roads (that overlap trails)
- **Update GeoPlatform.gov website**
  - Add Use Cases – ***Let us know if you have a use case!***
  - Monitor the Change Log for suggestions



Summary

Benefits of Adopting

- Unifies GIS trail data between agencies and partners by establishing a common trail GIS data structure (local and National Trails).
- FTGS Template Uses
  - Transfer Standard (for aggregation)
  - Standardizing Trail Data (locally)
  - Collecting Trail Data in the Field (locally)
- 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
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