

NTSGIS August 2019

AK TRAIL DATA STANDARD

Alaska Region GIS Team

AK TRAIL DATA STANDARD OVERVIEW

A data standard is an agreed upon "container" for common data

Trail Data Standards

Why?

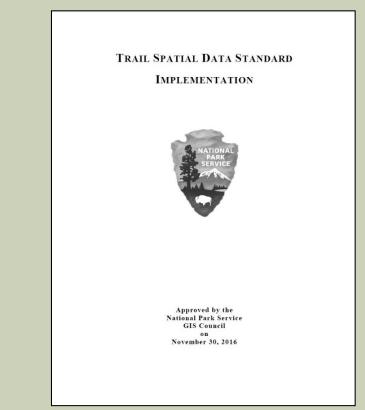
- Trail mapping has not been consistent
- Inventory of trail features was incomplete
- Need data for representation on TOPOS!
- Improve connection between GIS and FMSSEasier access to GIS by Maintenance staff



AK TRAIL DATA STANDARD OVERVIEW

Trails for GIS and FMSS

- Align with the national NPS Trails
 GIS Standard
- Align with FMSS for more efficient data collection





AK TRAIL DATA STANDARD FEATURES

AK Park Trails

Trail Centerline Trail Attribute Point Trailside Feature Point

Trail Deficiency Point



AK TRAIL DATA STANDARD FEATURES

Trail Centerline

Trails managed and maintained by NPS or on NPS owned land

Park Trails plus Routes, Non-NPS Trails, and Unofficial Trails

Minimal descriptive (FMSS) information

Trail Attribute Point*

Marks location where continuous trail characteristics change

Dynamic based on park/project needs

Used to segment line during post-processing

*Point Features linked to digital photography using GeoJot+



AK TRAIL DATA STANDARD FEATURES

Trailside Feature Point*

Marks location where discrete features occur along the trail

FMSS Trail Assets (critical systems)

Data dictionary will provide FMSS attributes to assist with collection

Trail Deficiency Point*

Marks location where deficiencies occur along the trail

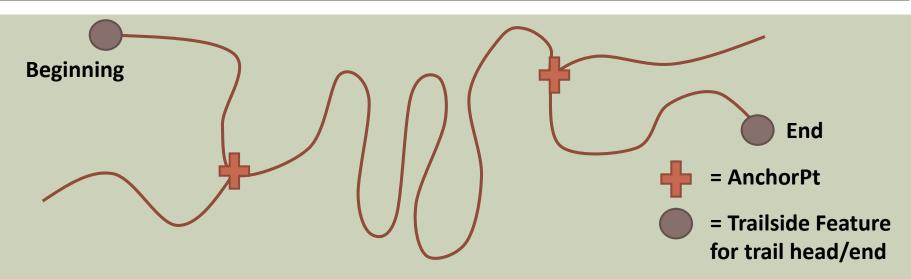
Trail Attributes and Trailside Features

Action required to address the deficiency and description

*Point Features linked to digital photography using GeoJot+



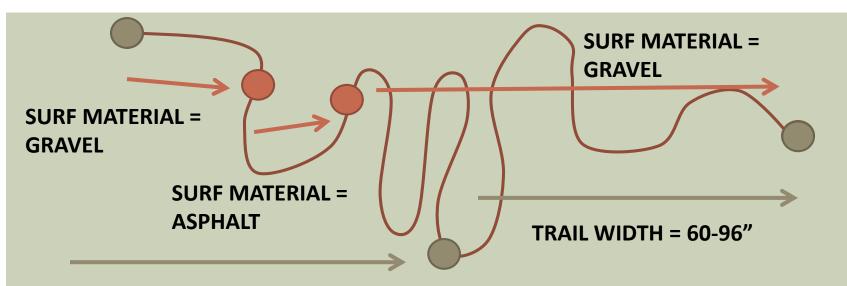
TRAIL CENTERLINE MAPPING PROCESS OVERVIEW



- Map trail or route continuously from trailhead to end
 - Segment line and collect Anchor Point at all junction points and where new FMSS trail segments or Asset IDs occur
 - At a minimum, collect Trailside Feature point for the trailhead
- Minimal attributes regarding description and trail condition
 - Trail Type, Trail Status, Trail Class, Trail Use
 - Trail length stored by wheeled distance and calculated by GIS/G (2D line length)



TRAIL ATTRIBUTE POINT MAPPING PROCESS OVERVIEW



TRAIL WIDTH = 30-60"

These points mark changes in continuous trail characteristics

- Tracked attributes are determined by park/project
- Use photos to visually document details
- Snap points to Trail Centerline during post-processing



TRAIL ATTRIBUTE POINT MAPPING PROCESS OVERVIEW

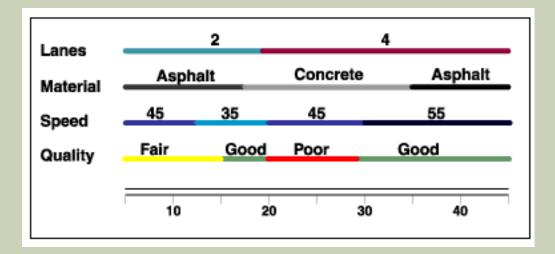
Use change in Trail Attribute Asset Code to map Bridges (2200) and Tunnels (2300)

Trail Attribute Asset Code = 2100 (Trail > Start) Trailside Feature Type = Culvert Trail Attribute Asset Code = 2100 (Trail > Resume) Trailside Feature Trailside Feature Type = Footbridge

Trail Attribute Asset Code = 2100 (Trail > End)



LINEAR REFERENCING SCENARIO

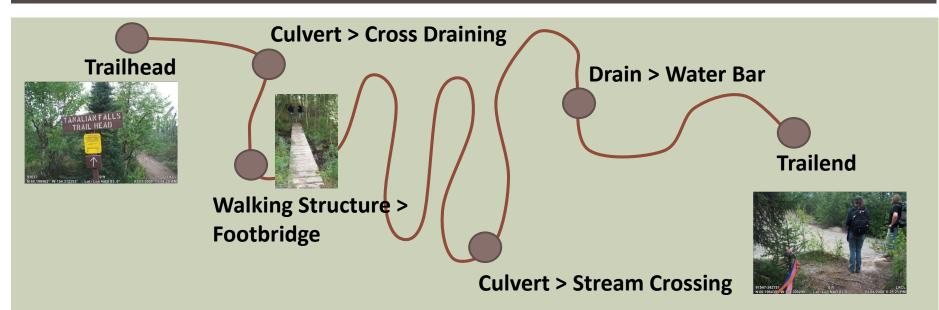


Trail Attribute points mark changes along the trail

- During post processing, trail lines can be segmented at these points (by a single characteristic or a combination of many)
- Allows Trail Attributes to be recorded without having to split Trail Centerlines into tiny segments each time a change in value occurs



TRAILSIDE FEATURE POINT MAPPING PROCESS OVERVIEW

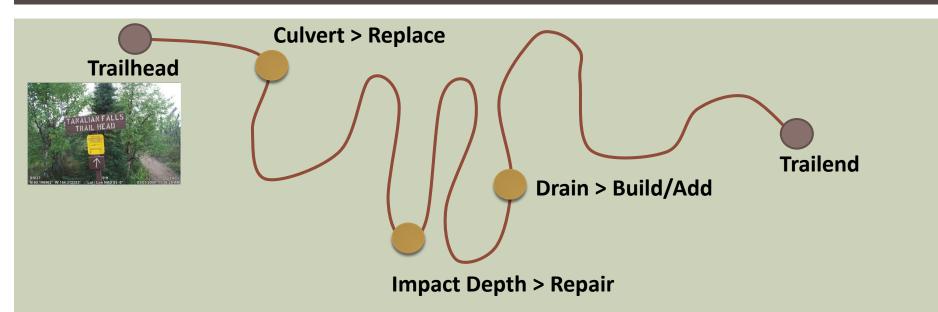


These points mark locations of discrete features along the trail

- Trailhead/Trailend
- FMSS trail asset identified by Location Record ID and Asset ID
- Use data dictionary to collect FMSS attributes
- Use photos to visually document details



TRAIL DEFICIENCY POINT MAPPING PROCESS OVERVIEW



- These points mark locations of deficiency in the trail or features along the trail
 - FMSS trail asset identified by Location Record ID and Asset ID
 - Actions: Build/Add, Remove, Repair, Replace
- Use photos to visually document details



TRIMBLE DATA DICTIONARY

- Data Dictionaries are developed to minimize data processing between field collection and data standard population
- Driven by FMSS
 - Primary attributes based on required FMSS attributes for each defined asset type
 - Exported data allows for easy data entry to FMSS
- GIS will keep attributes tracking the feature level metadata
- 2019 Park Trails Mapping Template DDF



TRIMBLE DATA DICTIONARY PRESETS

- AKR Park Hiking Trail
 - Feature Type = Park Trail
 - Status = Existing
 - Trail Type = Standard Terra
 - Trail Use = Hiker/Pedestrian
 - Is Social Trail = No
 - Has Animal Use = No
 - Is Admin Use Only = No
 - Is Bridge = No
 - Maintainer = NPS
- AKR Park OHV Trail
 - Same as above except Trails Use = Hiker/Pedestrian and All-Terrain Vehicle

- AKR Park Hiking Route
 - Feature Type = Route
 - Status = Existing
 - Trail Type = Standard Terra
 - Trail Class = N/A
 - Trail Use = Hiker/Pedestrian
 - Is Social Trail = No
 - Has Animal Use = No
 - Is Admin Use Only = N/A
 - Is Bridge = No
 - Maintainer = N/A



TRIMBLE DATA DICTIONARY PRESETS

- AKR Social Trail
 - Feature Type = Unofficial Trail
 - Status = N/A
 - Trail Type = Standard Terra
 - Trail Track = Other
 - Trail Class = N/A
 - Trail Use = Human Use (Social)
 - Is Social Trail = Yes
 - Has Animal Use = No
 - Is Admin Use Only = N/A
 - Is Bridge = No
 - Maintainer = N/A

- AKR Winter Route
 - Feature Type = Route
 - Status = Existing
 - Trail Type = Snow Trail
 - Trail Class = N/A
 - Trail Use = Snowmobile
 - Is Social Trail = No
 - Has Animal Use = No
 - Is Admin Use Only = N/A
 - Trail Surface = Snow
 - Is Bridge = No
 - Maintainer = N/A



TRIMBLE DATA DICTIONARY EXPORT

- 1. Export data using Pathfinder Office
- 2. Run through data standard processing tool

3. Import to data standard in SDE

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PHOTO PROCESS

- I. Take photos with a Trail Attribute, Trailside Feature, and Trail Deficiency points
- 2. Process points with photos using GeoJot+ (GPS Photolink) and standard regional techniques
- 3. Metadata attributes are automatically associated w/ photos



Before

DATA STANDARD STATUS

Progress made since initial implementation

- 100% of operational trails have been added to our regional enterprise dataset
 - 700 Miles Park Trails and 4000 Miles Routes
 - 7300 Trail Segments total
- Developed and documented regional data editing rules and guidelines for collecting trail centerlines
- Worked individually with parks to customize data collection protocols that best fit data collection effort
- Integrated updated NPS Trail Spatial Data Standard
- Developed regional QA/QC automation tool
- Updated data dictionary with preset trail types
- Developing Facilities Management Portal



QUESTIONS?

For more information:Angie Southwould, 907-644-3556

Reference Links:

- NPS Trails GIS Standard (National)
- AK Park Trails Spatial Data Standard (Regional)
 - Trimble Data Dictionary
 - Data Model (coming soon)

