

# AK TRAIL DATA STANDARD

Alaska Region GIS Team



NTSGIS  
August 2019

# AK TRAIL DATA STANDARD OVERVIEW

- A data standard is an agreed upon “container” for common data

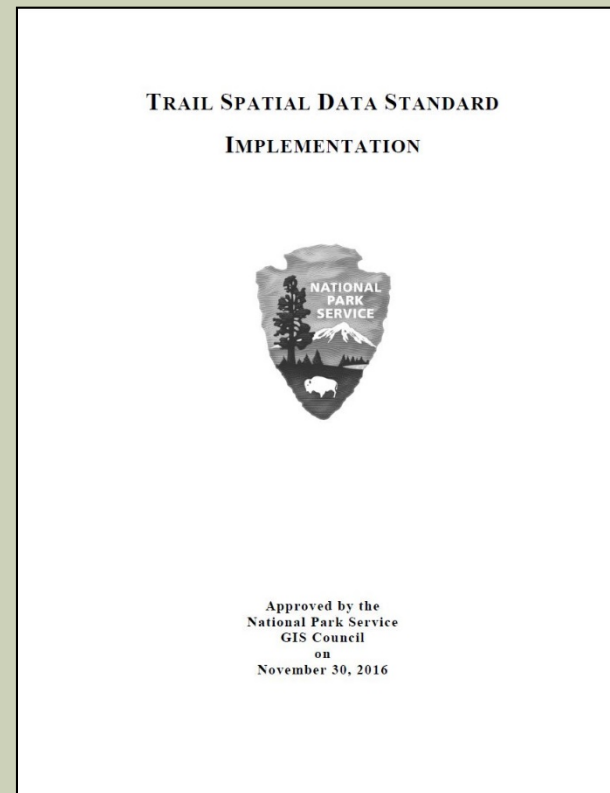


- Why?
  - Trail mapping has not been consistent
  - Inventory of trail features was incomplete
  - Need data for representation on TOPOS!
  - Improve connection between GIS and FMSS
    - Easier access to GIS by Maintenance staff



# 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

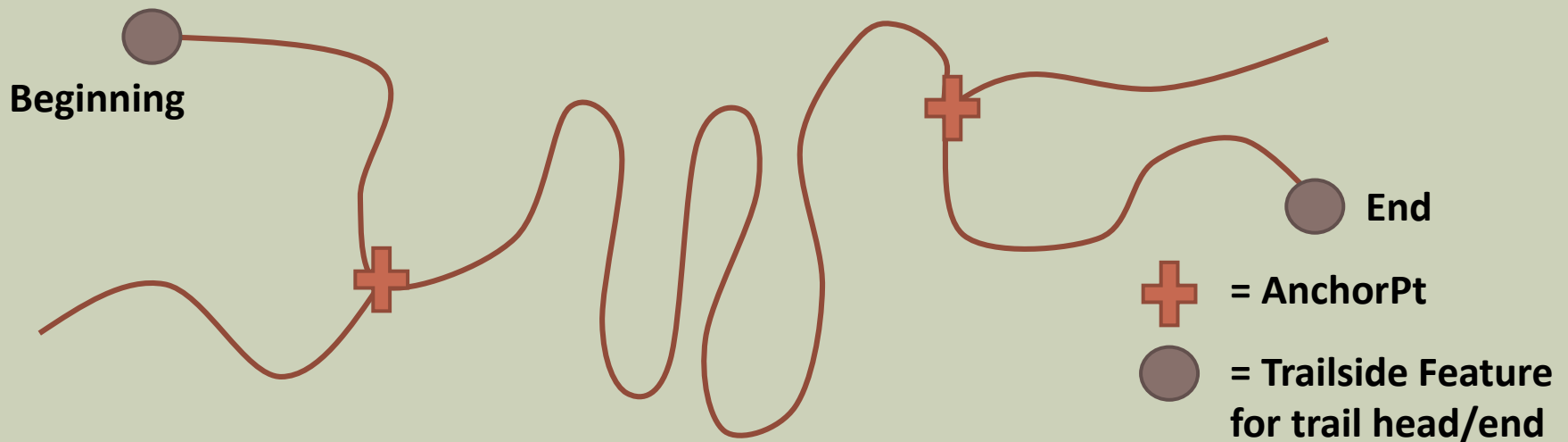
Trail Attributes and Trailside Features

Action required to address the deficiency and description

\*Point Features linked to digital photography using GeoJot+



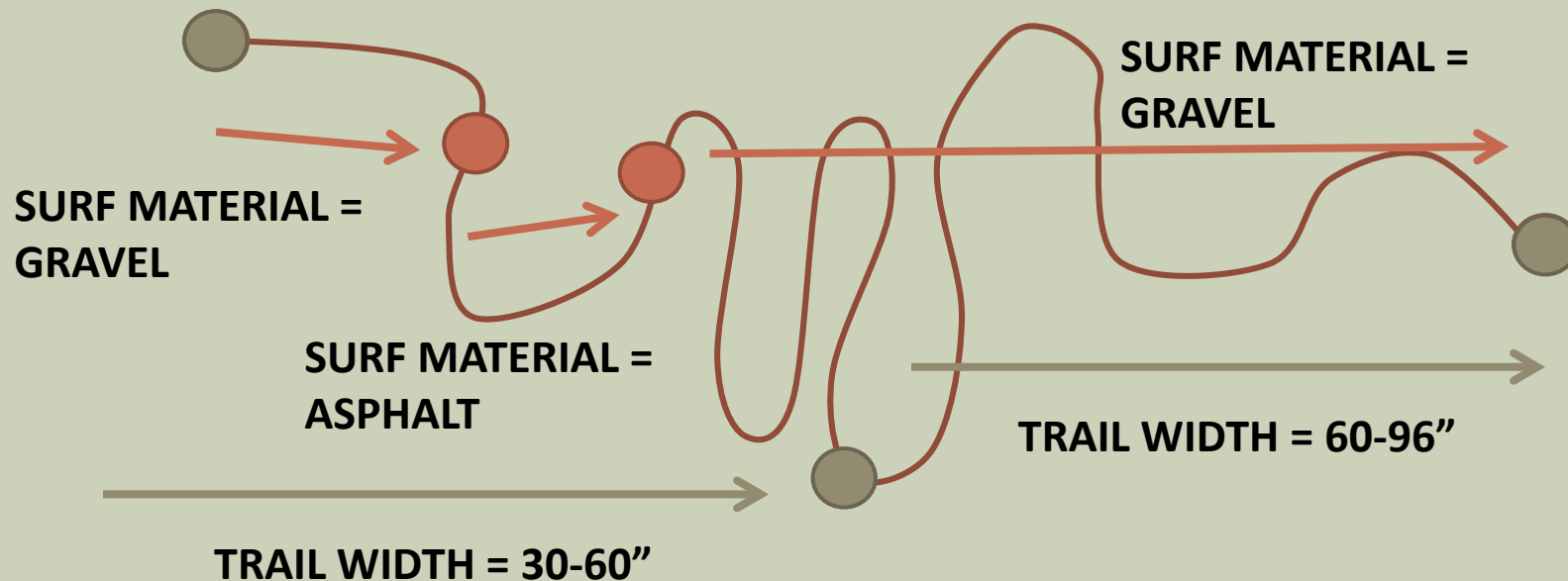
# TRAIL CENTERLINE MAPPING PROCESS OVERVIEW



- 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/GPS (2D line length)



# TRAIL ATTRIBUTE POINT MAPPING PROCESS OVERVIEW



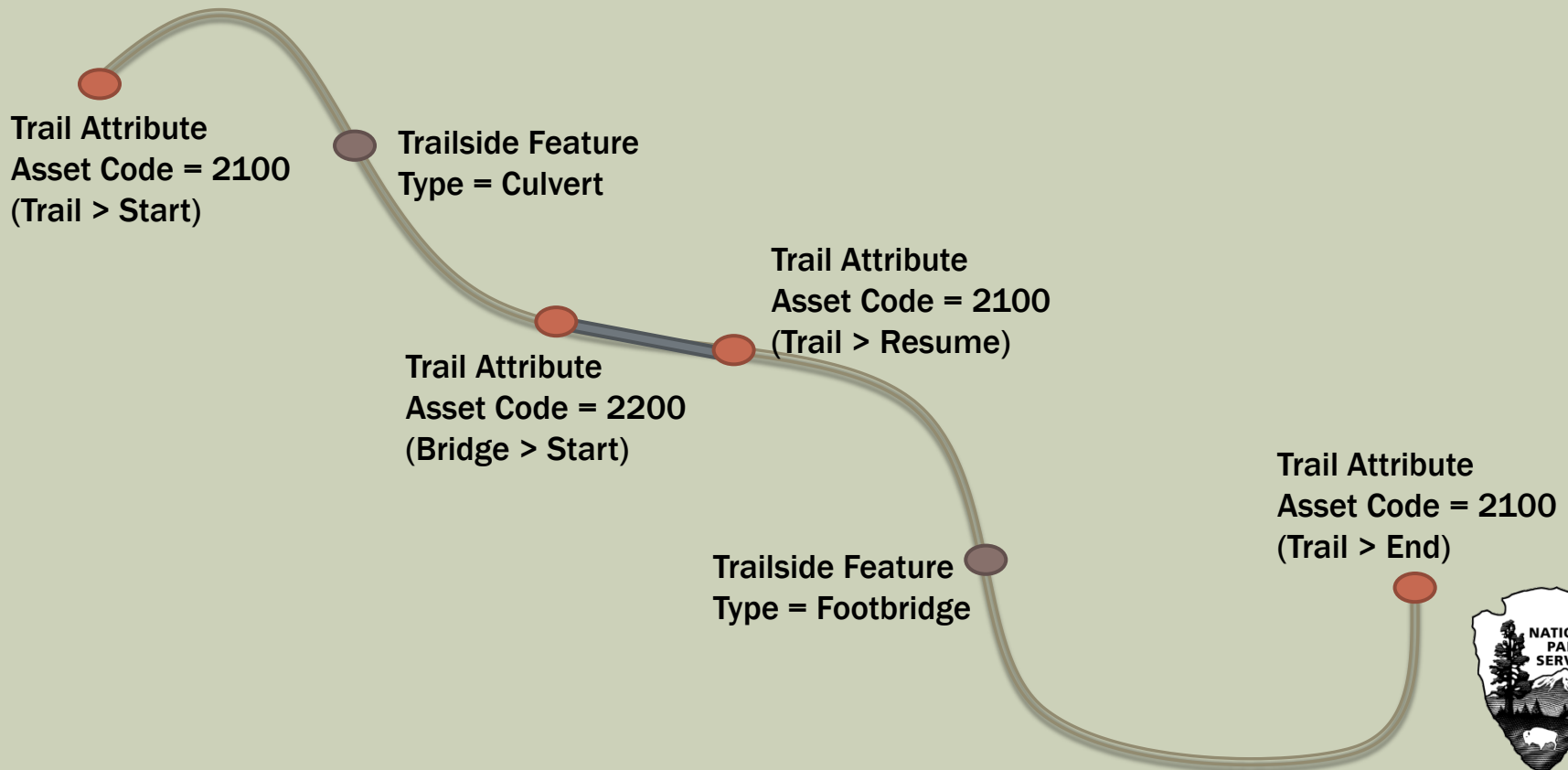
- These points mark changes in continuous trail characteristics
  - Tracked attributes are determined by park/project
- Use photos to visually document details
- Snap points to Trail Centerline during post-processing



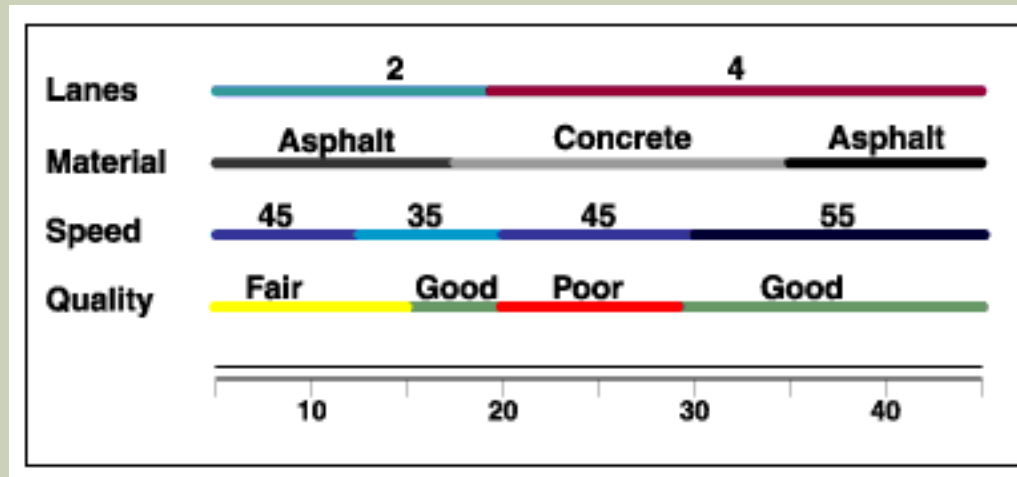


# TRAIL ATTRIBUTE POINT MAPPING PROCESS OVERVIEW

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



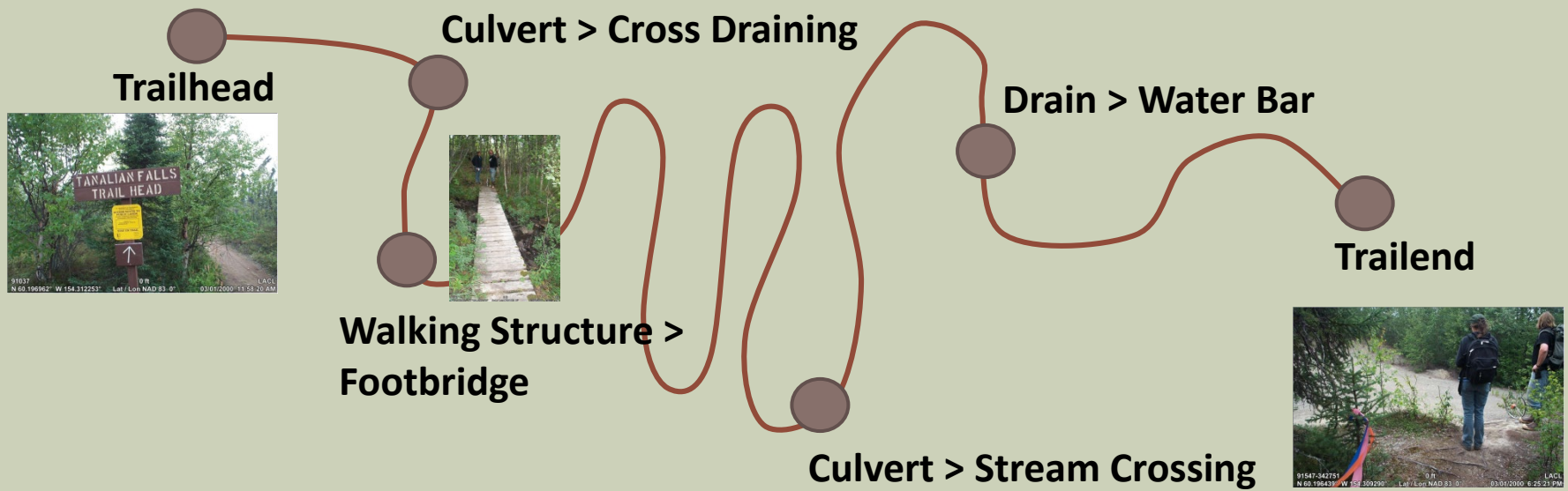
# LINEAR REFERENCING SCENARIO



- 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



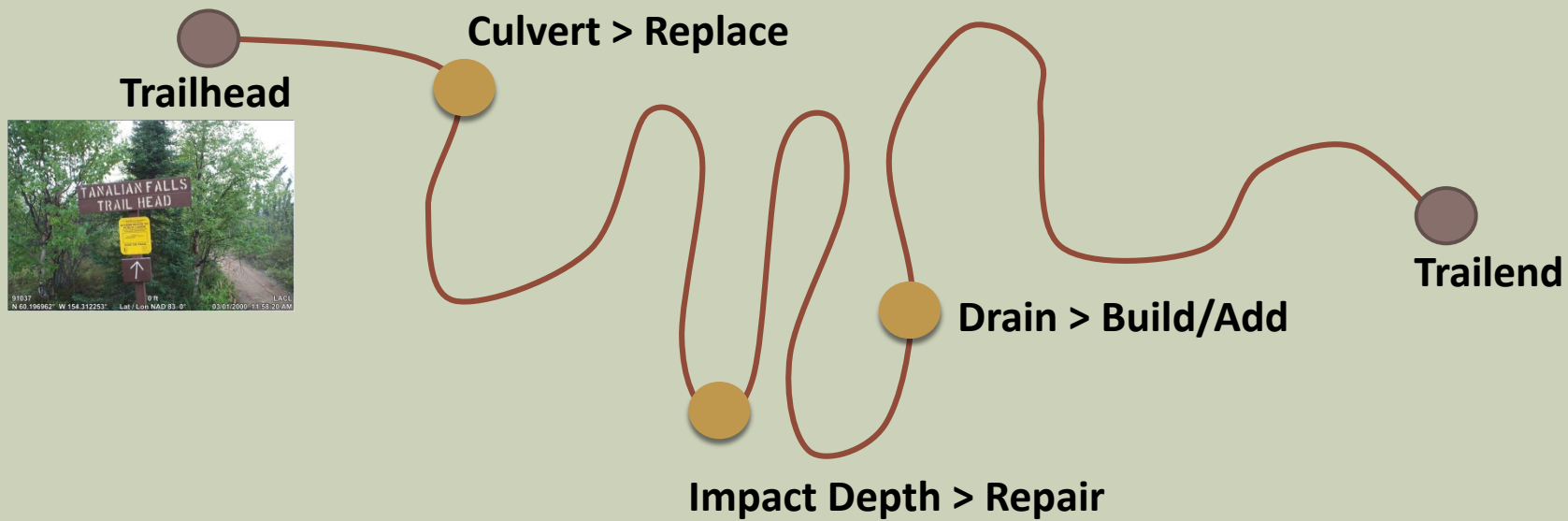
# TRAILSIDE FEATURE POINT MAPPING PROCESS OVERVIEW



- 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

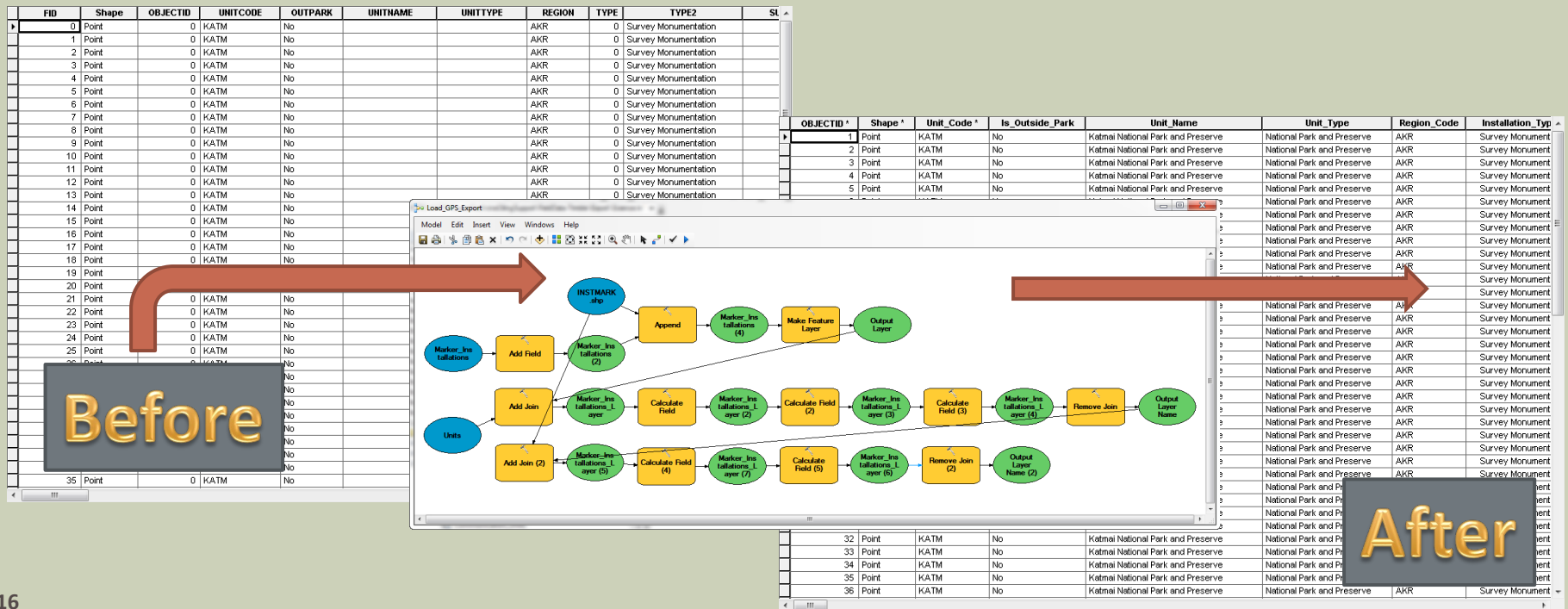
## ■ AKR Winter Route

- 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





# PHOTO PROCESS

- 1. 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

After



91547-342751

N 60.196439° W 154.309290°

0 ft

Lat / Lon NAD 83 0°

LACL

03/01/2000 6:25:21 PM

# 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 Southwold, 907-644-3556
- Reference Links:
  - [NPS Trails GIS Standard](#) (National)
  - AK Park Trails Spatial Data Standard (Regional)
    - [Trimble Data Dictionary](#)
    - Data Model (coming soon)

