

# Mapping the Chugiak Dog Musher's Trail System - Ruff Ruff, Bow Wow

National Park Service /Alaska  
Regional Office,  
Alaska Arc User Group  
Chugiak Dog Musher's Club  
Muni of Anc. Parks& Rec



Joel Cusick - Coordinator  
Jon Swanson (ATV / Snowmachine)  
Aaron Richens (Snowmachine)  
Bryan Thomas (Ground Team)  
Gary Greenburg (Ground Team)  
Lexi Hall – CDMA President  
Phillip Walters – CDMA Driver

# Outline

- GPS Project Overview
- GPS Issues
- Equipment/Software/Workflow
- Results



# Chugiak Dog Musher's Trail System

## – Beach Lake

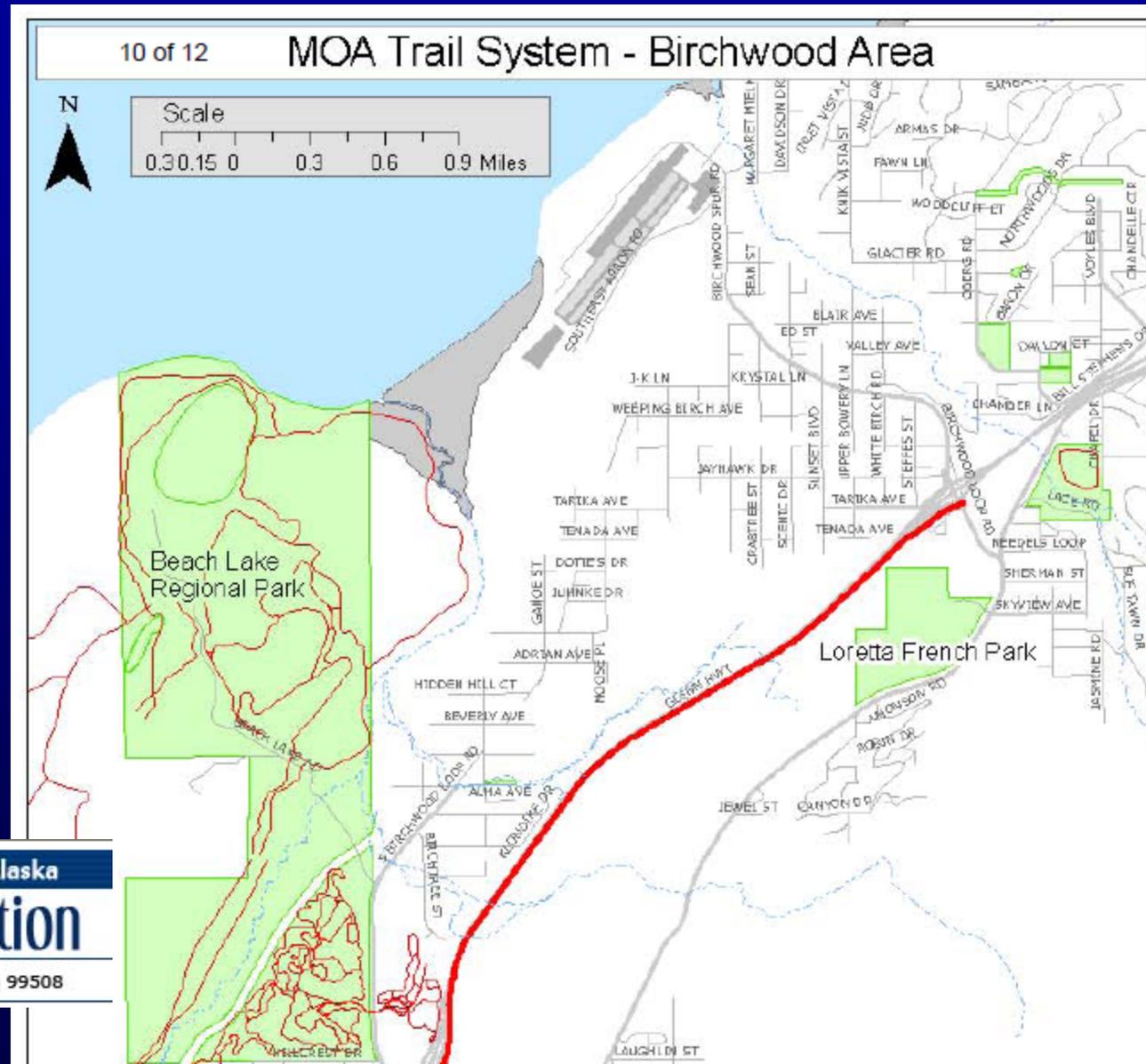
- Map trail centerlines and associated trailside features using GPS
- Provide GPS data for map production for club wall
- Utilize Interagency Trail Data Standards (ITDS)
- Rely on AAUG / CDMA volunteers
- Skill practice session





# Beach Lake – Muni Map

- Muni Trail Data Exists



Municipality of Anchorage, Alaska

**Parks & Recreation**

120 S. Bragaw St., Anchorage, Alaska 99508

# Beach Lake – Trail Mapper

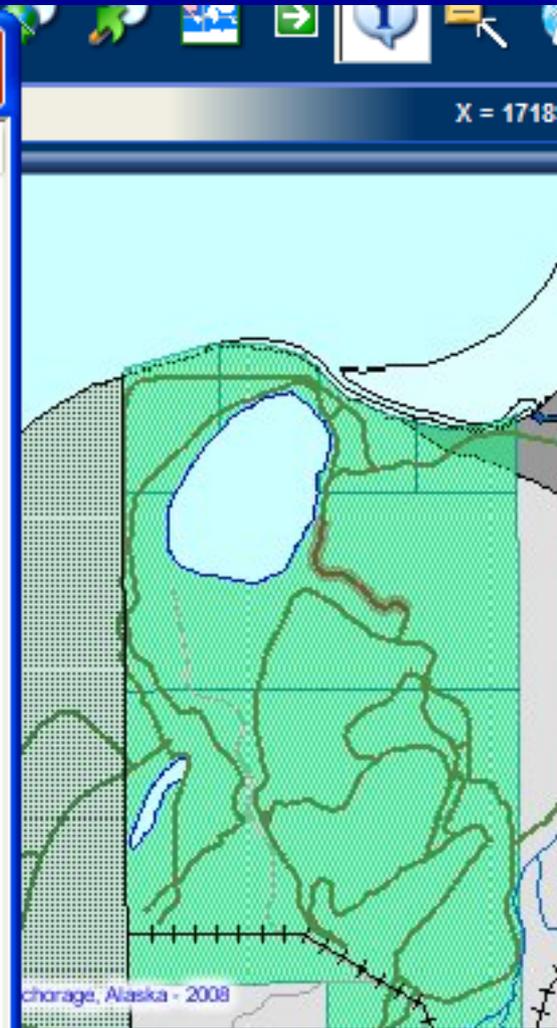
- Lineage?

http://munim...

### Identify Results

Trail Segments

TRAIL_NAME	Unnamed
SYSTEM_NAME	Beech Lake Dog Trails
LIGHTING	No
MANAGEMENT	
SURFACE	Earth
SUMMERUSETYPE	Multi-Use Non-Motorized
WINTERUSETYPE	Sled Dog Mushing



# GPS Issues

- Forested (Spruce/Birch)
- Limited time due to coordination
  - Minimize interaction with sled dog teams
  - Snow on ground for ready access
- ITDS data standards required conversion

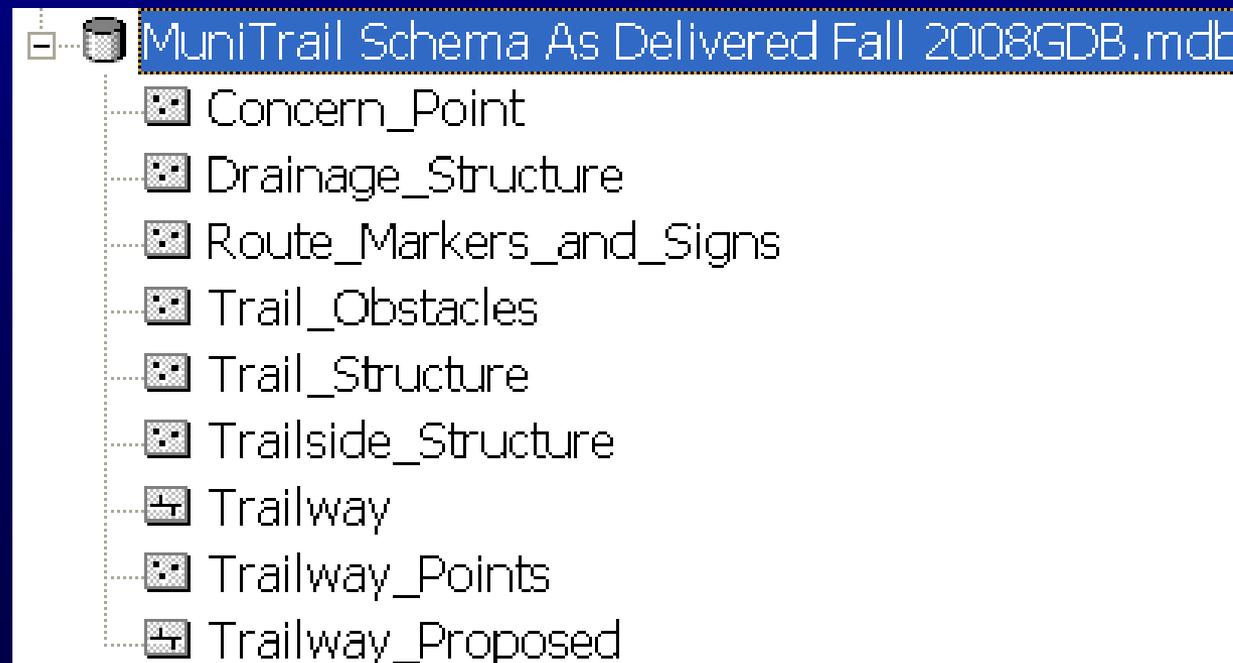


# GPS Issues - Software

- TerraSync field software running on mobile devices
- Data Dictionary developed *from* Muni's geodatabase
- Post-process with Pathfinder Office
- Load data back into Geodatabase

# GIS Issues – The Data Model

- Received GDB schema from Heather
  - Used in May 2008 – Far North mapping
  - MuniTrail Schema As Delivered Fall 2008GDB.mdb
- Demo



# GIS Issues – The Data Model

- Joel converted / edited for TerraSync-based collection
  - Code conversion
  - Standardized using USFS data model



# GIS Issues – The Data Model

- Data Dictionary – DDF
  - Compare Trailway - Surface

The screenshot shows the 'CDMA\_v4.ddf - Data Dictionary Editor' window. The title bar includes standard window controls (minimize, maximize, close). The menu bar contains 'File', 'Edit', 'Options', and 'Help'. Below the menu bar is a toolbar with icons for file operations (open, save, print, search, undo, redo, copy, paste, delete, insert, help) and a question mark icon.

The main interface is divided into several sections:

- Name:** CDMA\_v4
- Comment:** Chugiak dog mushing DDF using ITDS
- Features:** A list of feature classes with expand/collapse icons:
  - Trailway (expanded)
  - AnchorPt
  - Route\_Markers\_Signs
  - Trailside\_Structure
  - Trail\_Obstacles
  - Concern\_Point
  - Other\_Trails
  - Roads
  - Fences
  - Drain\_Structure
  - Area\_Features
  - BuildEdg
- Attributes:** A list of attributes for the selected 'Trailway' feature:
  - SURFACE
  - TREAD\_WIDTH
  - CLEARED\_WIDTH
  - CLEARED\_HEIGHT
  - TYP\_TR\_GRADE
  - TRAIL\_NAME (with 'Abs' icon)
  - TRAIL\_NUMBER (with 'Abs' icon)
  - COMMENTS (with 'Abs' icon)
  - TRAIL\_SYSTEM
  - TYP\_SOIL\_TYPE
  - TYP\_SIDE\_SLOPE
  - CROSS\_SLOPE
  - TYP\_VEG\_BRUSH\_TYPE
  - TYP\_VEG\_TMB\_TYPE
  - TRAIL\_CLASS
  - DESIGNED\_USE
  - MANAGED\_USE
  - SOURCE\_DATE
  - DATA\_SOURCE
- Menu:** A list of menu items:
  - Native material\*
  - Imp Compacgtd Aggre
  - Imp Uncompact Mat
  - Asphalt
  - Shred wood or bark
  - Concrete
  - Other

\* = Default Value

# GPS - The Hardware

- GeoXT with Hurricane
- ProXRS w/ Ranger with Beacon Antenna
- ProXR w/ Ranger with Beacon
- ProXT w/ Recon with Hurricane
- Garmin Map76CSX



# GPS - The Mappers

- Bryan  
Thomas
- Gary  
Greenburg
- Aaron  
Richens
- Jon Swanson

# Oh and Handwarmers

- Heat, heat, heat



# The WorkFlow – GPS Data

- 5 Rover files
- PostProcessed with Ted Stevens COOP CORS (ITRF00) (epoch 1997.0)
- Edited COR data
  - Remove redundant out-backs, some minor cleanup of positions
- 6 COR files exported to Shape
  - State Plane Zone 4, Units Feet, NAD 1983 (CORS96).

# The WorkFlow – Camera Data

- 4 camera systems
  - Ricoh Capilio SE
  - Canon Elphi Sureshots
- Internal GPS(Ricoh only) or Combined with Garmin Track data
- Post-processed with GPS PhotoLink
- Team GeoTagged data merged together

Beach Lake Sled Dog Trails



351° 194 ft

N 61° 23.202' W 149° 32.934'

Lat / Lon NAD 83

12/06/2008 1:58:05 PM

Beach Lake Sled Dog Trails



120° 129 ft

N 61° 23.647' W 149° 32.621'

Lat / Lon NAD 83

12/06/2008 3:57:05 PM

# Stats

- 25.4 miles trailway
  - GeoXT – 0.8 miles
  - ProXR – 8.9 miles
  - ProXRS – 14.3 miles
  - ProXT – 1.3 miles
- 24 signs mapped (est. 50% of signs)
- 2 Structures mapped
- 112 Tie-up posts!

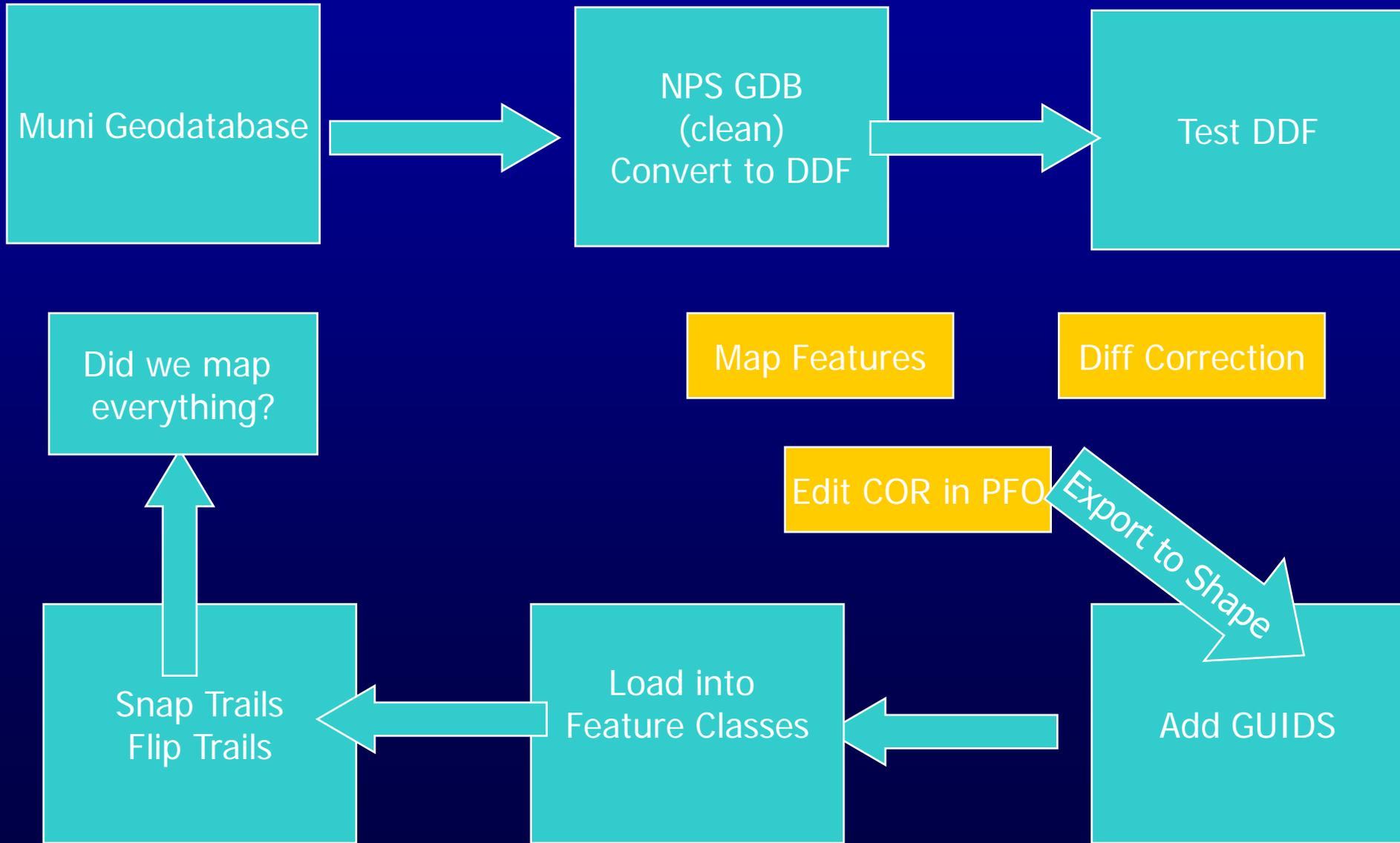
# Lessons Learned

- Coded values - are they really worth it?

Coded Values:

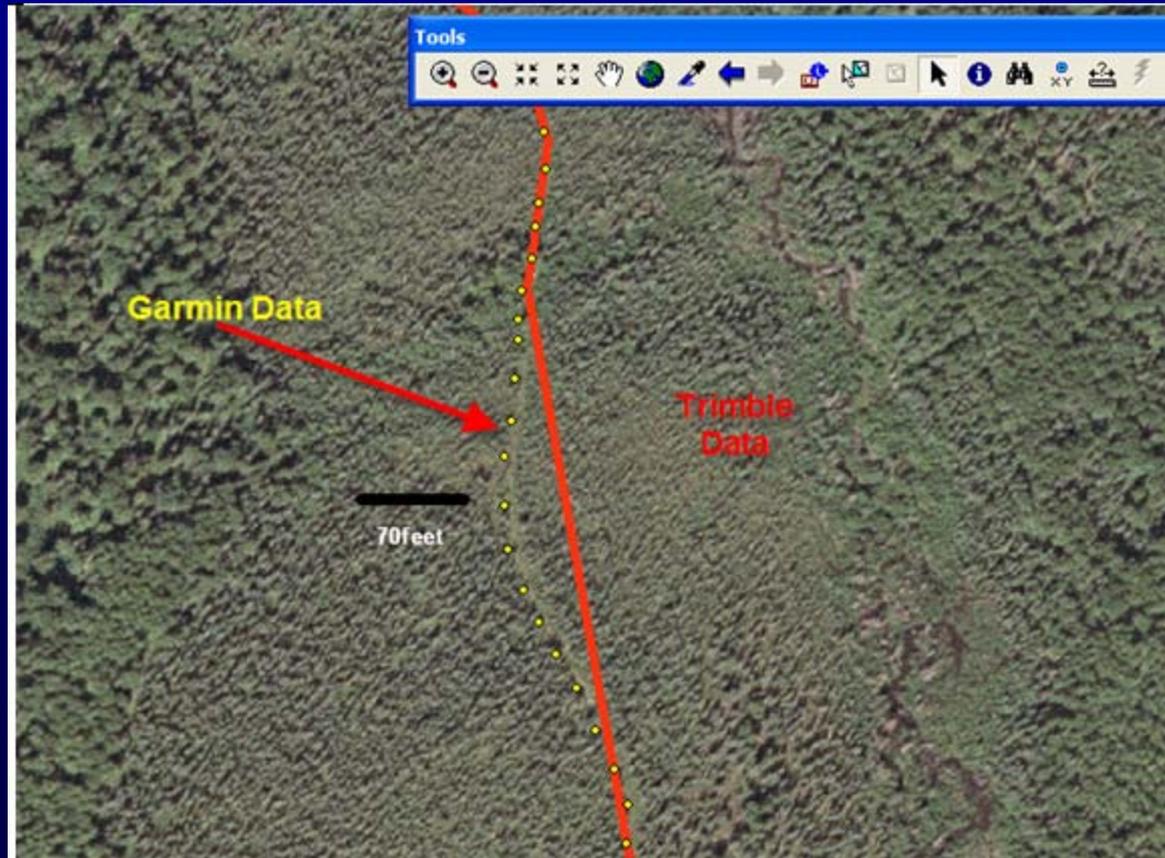
	Code	Description	
<input type="checkbox"/>	GUIDE	Guide or Destination	
<input type="checkbox"/>	BOUND	Boundary	
<input type="checkbox"/>	REGULA	Regulatory	
<input type="checkbox"/>	INFORM	Informational	
<input type="checkbox"/>	INTERP	Interpretive	
<input type="checkbox"/>	OTHER	Other	

# Lessons Learned



# Lessons Learned

- Garmin's (more sensitive receivers) play a vital role in filling in gaps



# Lessons Learned

- Data collection – 5 hours
- Prep – 16 hours
- Post- 16 hours
- No map yet!



# Summary

- 4 mappers with 2 drivers mapped majority of trails under 5 hours.

# Acknowledgements

- Lexi Hill
- Phillip Walters
- Aaron Richens
- Jon Swanson
- Bryan Thomas
- Gary Greenburg

