Mapping Out CDT Project Work

NTS GIS Meeting, November 2019

Introduction

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- MSc in GIS, University of Edinburgh (2018)

- CDT Resource Assistant – Southwest Conservation Corps (Oct. 2018 – Aug. 2019),
  - Supervised by Brenda Yankoviak, Continental Divide Trail Administrator (USFS Region 2 Office – Denver)

- CDT & Geospatial Resource Assistant - MobilizeGreen (Sept. 2019 – present)
  - 50% time with Resource Information in Region 2 – supervised by Victoria Smith-Campbell, GIS Coordinator

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Overview

Share a new spatially-enabled system for tracking project proposals along the Continental Divide Trail, and demonstrate how it is supporting funding and management decisions

- Context: how CDT is funded, original project proposal process, need for new system

- Development process: constraints and considerations

- End result: overview and demo

- Takeaway points: results and benefits

- Discussion/Questions

CDT Funding

- USDA Forest Service is administering agency

- CDT program receives a $1.67M WO earmark

- Trail Administrator manages that budget allocation

- Bulk of the funding is distributed to the 20 CDT forests across Regions 1-4 based on a competitive project proposal process

- Interagency, multi-regional team evaluates and identifies priority projects for funding

- Occasionally funding is spent on NPS and BLM projects when units unable to secure funding through their own budget allocations

- Fund a few partnerships off the top (CDTC, CTF, MWA, etc.)

- Trail Administrator salary, GIS support, travel, and training

Original Workflow

- Early spring timeframe to submit projects for next fiscal year

- FS Recreation staff at the Forest or District level submit project proposal details such as:
  - Amount of funding requested
  - Volunteer and partnership opportunities
  - Detailed description of proposed activity

- Based entirely within SharePoint Lists; tabular data only
  - Optional spatial data submission as an attachment; used rarely, many submission errors (missing shapefile components, etc.), various data types

- Trail Administrator and an interagency team meet to decide which projects will be funded and how much to allocate

The Challenge

- The need: ability to visualize distribution of project proposals for better decision making and tracking through time.

- Brenda's vision: a web map displaying all submitted project proposals along with associated information.
  - Spatial, interactive, intuitive, informative

- Working as much as possible within the existing project proposal workflow, develop a way to submit spatial data for project locations alongside tabular data, and display the submissions in a web map.

Constraints/Considerations

- Keep the process simple and easy for non-technical users (Recreation staff) while minimizing back-end QC/processing

- Continuing to use SharePoint in workflow was highly encouraged
  - Maintain ability to set permission levels for record submission and editing, record user metadata (created by, modified by, dates)

- USFS does not have enterprise login for ArcGIS Online

- Type of geometry – lines or points
  - Lines reflect real-world geometry of trail sections
  - More barriers to submission of line data for non-technical users
  - Points are easier to visualize on small-scale map

- What tools to use?

- How to integrate multiple tools/steps into a single workflow?
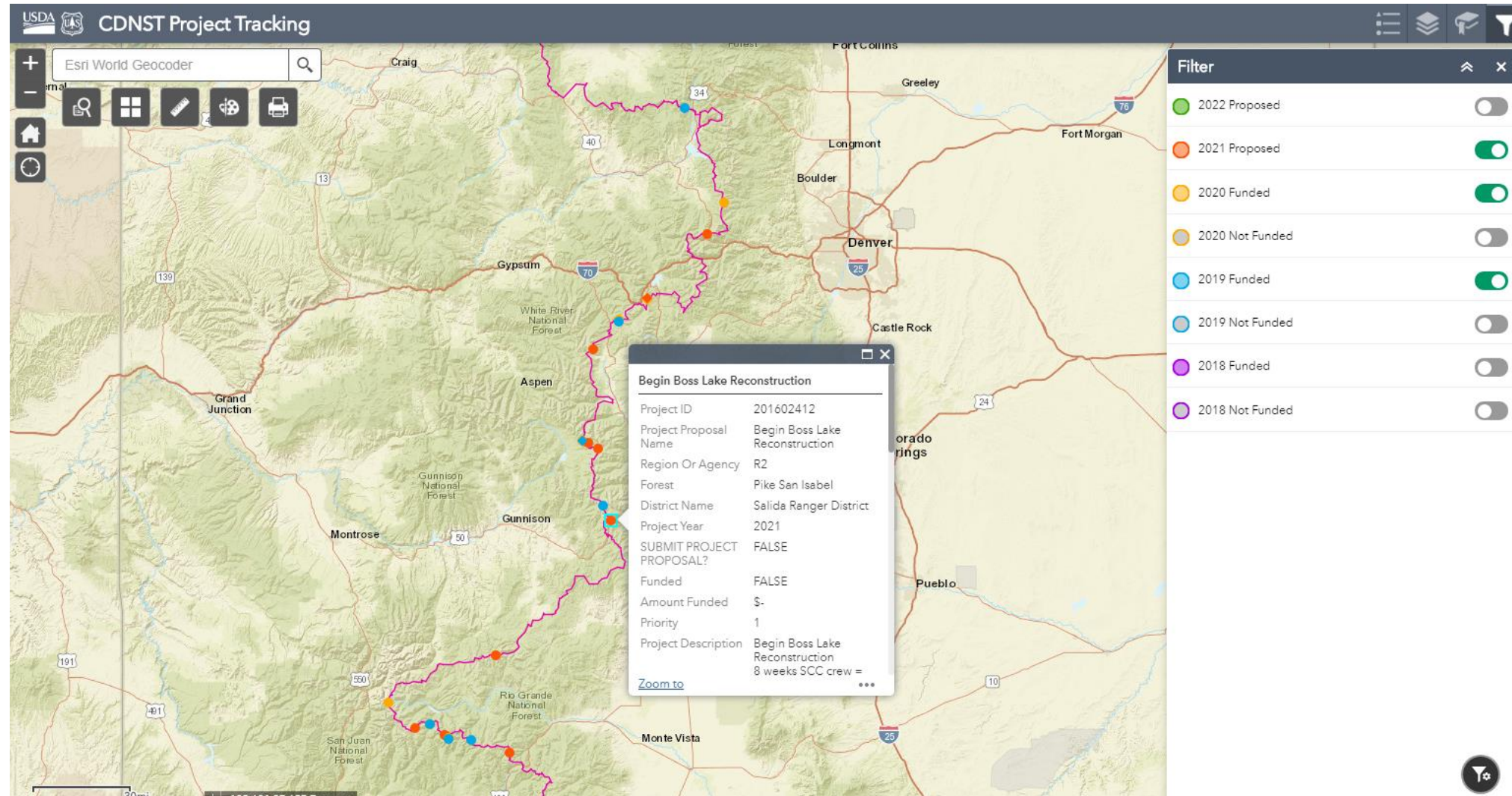
The New System

- SharePoint site hosts embedded Survey123 and AGOL widgets for one-stop project proposal submission

- SharePoint list: entry of tabular data
  - SharePoint workflow automatically generates a unique Project ID for each project proposal

- Survey123: entry of point location for project
  - User defines a point on the map and enters the Project ID – primary key
  - For long trail segments or forest-wide projects, an approximate midpoint or endpoint is accepted.

- ArcGIS Online web app: data display and analysis

- Back end – QC submissions (Project ID or location entry errors), join tabular and spatial data, add to AGOL web app, configure custom filters

Demonstration

Results and Benefits

- Transition to new system has been smooth, with very little user confusion and high data entry success rate

- See distribution of current year's proposals

- Track funding patterns over time (will become more robust after years of use)

- Better accountability for funding decisions

- Takeaway message: adding a spatial component to project proposals uniquely supports management decisions and reveals patterns through time

Questions & Discussion