



Alaska Department of Transportation & Public Facilities Right of Way Engineering & ArcGIS Online

Ryan Quigley PLS, CFedS



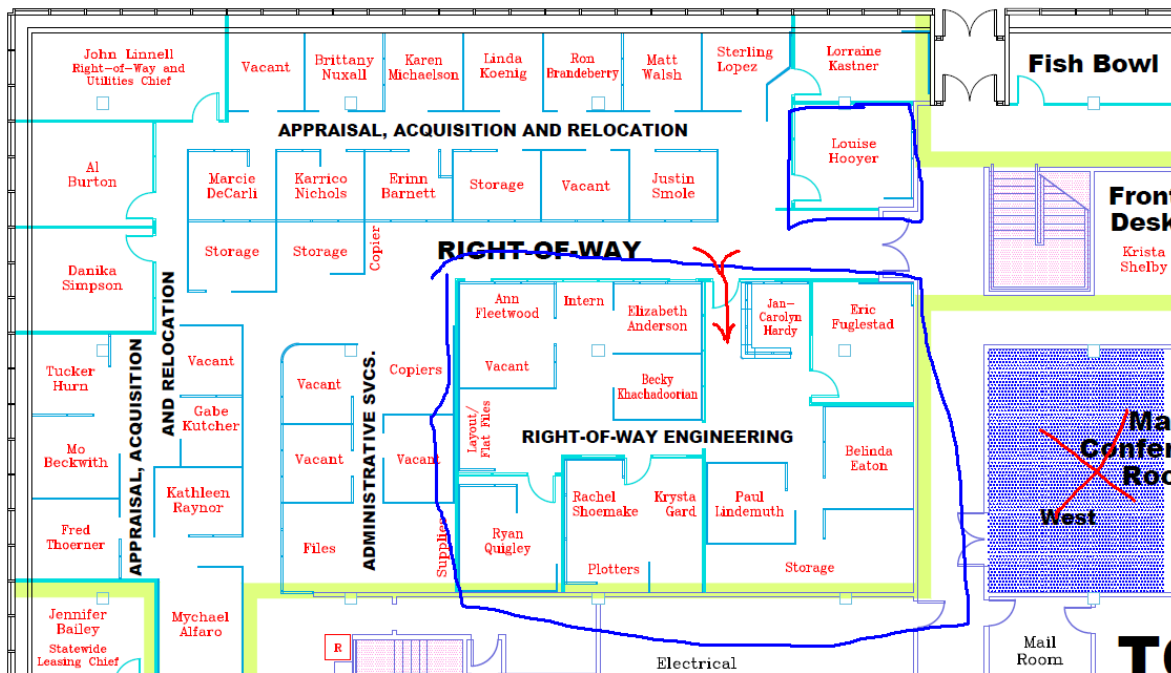
OUTLINE

- Introduction
- Right of Way Engineering
- Three Mapping Products
- Boundary Determinations
- ArcGIS Online Maps
- AutoCAD to ArcGIS Online
- ArcGIS Online Mobile Apps



Right of Way Engineering

- 7 PLS's, ROW Researcher, Drafter, Title Person, Plan Reviewer
- Where are we located?
- What do we do?





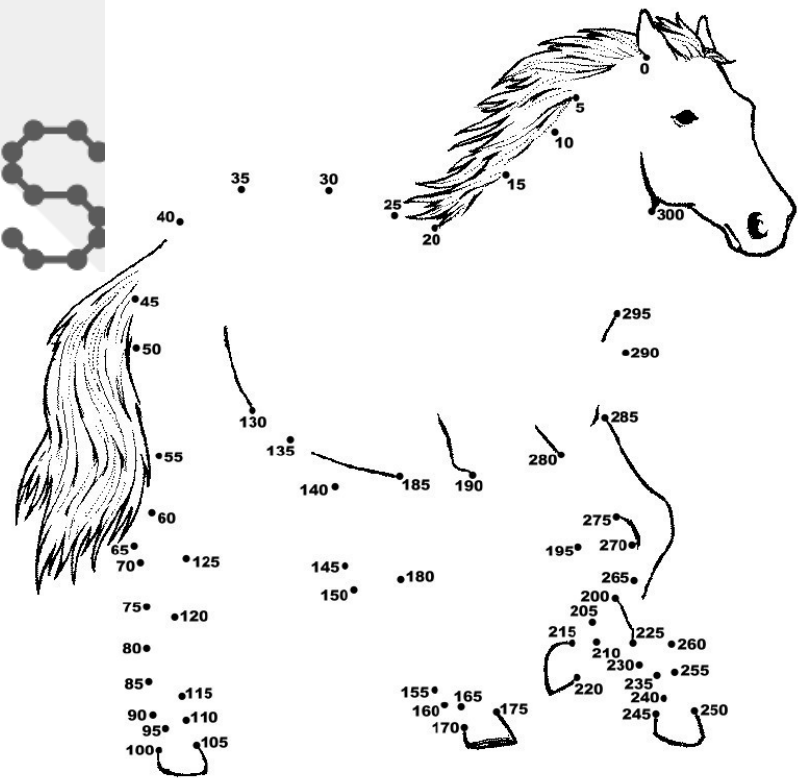
What does ROW Engineering do?





What does ROW Engineering do?

CONNECT
THE DOTS





What, Where, How Wide, Who & Why

- What, where, how wide is the Right of Way?
- Who wants to know?
 - Project managers scoping projects
 - Utility companies
 - Subdividing Surveyors
 - Property Owners
 - Real Estate Agents
- Why? Investing infrastructure or improvements. Need to get it right.



Three Types of Maps

- **Right of Way Base Map:** “Existing Ground” for property interest and it identifies:
 - Public ROW
 - Utility Easements
 - Legal descriptions and locations of adjoining properties
- **Right of Way Plans:** Base map plus design info
 - Design Centerline, Cut-Fill Slopes & Acquisition Parcels
 - Submitted to FHWA and Platting Authority for opening of Phase III Authority to Appraise and Acquire
- **Parcel Plats:** Exhibit attached to deeds for negotiating with property owners. Blow up of parcel from ROW Plans, negotiate and attach to deed.



Boundary Determinations

- Two types of Evidence
 - **Physical:** Mark boundaries, property corners, boundary fences, documented by field surveyors. Physical manifestation of the intentions of the two parties to a boundary.
 - **Written:** Create boundaries, deeds, easements, subdivision plats, Federal, State, Local laws, executive orders, public land orders etc.
 - Compare and connect



Boundary Determination Example

2009 Palmer-Wasilla Highway

What is the Right of Way?

Looking for the Right of Way plan set

- Network Folders
- DNR Records Office Highway Deed, “S-0572(1) Wasilla to Palmer”



Right of Way Plans: Evidence

What is so important about the ROW plans?

Right of Way plans contain references to both the Written and the Physical evidence.

- Document numbers (recorded deeds)
- Monuments
 - Recovered
 - To be set: Centerline, Reference & Edge of ROW



Coordinate Systems

Familiar Coordinate Systems

- Geodetic coordinates-Latitude Longitude
- State Plane Coordinates Northing/Easting
- Local”, “Ground” based coordinates
 - Plans and Ground measurements match
- State Plane Distortion
 - Sphere & Orange Peel



ArcGIS Online Advantages

- Location information is back, How?
 - Maps indexed and uploaded to eDocs, created webpage
- Extract data and send it to other webpages: BLM Patents, Master Title plats, Rectangular Surveys etc.
- Import data from other GIS's: MSB, KPB, MOA, DNR, BLM, Working in one familiar environment.
- Example map MSB ROW Research map



ArcGIS Online Elements

- Base maps
- Layers
- Sharing/Printing tools (Share a view)
- Measure Tools: Distance, Area, Coordinates
- Search bar: Similar to Google maps search, enable search on GIS layers



AutoCad to ArcGIS Online

AutoCAD to GIS:

- Export AutoCAD (.dwg) to Shapefile (.shp)
- Import to ArcGIS online
- Add as a layer

Cad to GIS compatibility issues: (Not using desktop GIS)

- No Civil 3D objects-Explode alignments down to lines and text
- Cad drawings must have a local coordinate system setup or you have to convert to State Plane
- Project map demo



Summary

- DOT RWE answers the question What is the Right of Way by Analyzing written and unwritten evidence.
- ROW plans contain reference to those two pieces of evidence.
- By adding the location elements back to our maps with ArcGIS online we're able to research the ROW more thoroughly and accurately.
- Able to perform our research in a location based map environment using DOT and other agency data
- Able to format that data and send it to other webpages.
- Able to import Cad line work and take it with us to the field using the mobile app.



Questions?

Ryan Quigley PLS, CFedS
AKDOT&PF ROW Engineering
Ryan.Quigley@Alaska.gov

269-0561

Thank You!

MSB ROW Research

<http://akdot.maps.arcgis.com/apps/View/index.html?appid=f39ba7aedd9c425db41f6f7bf0d385bc>

PWHCLTLW

<https://akdot.maps.arcgis.com/apps/View/index.html?appid=bc91afbb61f04bd28ae1f2e2f8a94c85>

KPB

<http://akdot.maps.arcgis.com/apps/View/index.html?appid=7a1da08ac9fa49d38b0c4d6b8a37214c>

MOA

<http://akdot.maps.arcgis.com/apps/View/index.html?appid=2413ec6ca68e448d8f5a325c06e48bd5>