ArcGIS Enterprise for a Small Water Utility in Mountainous Colorado

Esri UC 2019

Today’s Presentation

- Introductions
  - Presenters
  - Geography
  - Eagle River Water & Sanitation District Esri/ArcGIS
- GIS at Eagle River Water & Sanitation District
  - Desktop
  - Enterprise/Web
  - Mobile
- Challenges and Future Activities
- Successful ArcGIS at ERWSD

Presenters

- **Larry Rector** (Eagle River Water & Sanitation District)
- Construction & Mining background
- Aurora Water GIS ~ 14 years
- Eagle River Water GIS ~ 3 years (2 staff)
- lrector@erwsd.org

- **Dirk Vandervoort** (POWER Engineers)
- 2,500 person employee-owned
- Geospatial and Asset Management (~60)
- Mutual success
- Booth 312 in UC Vendor Pavilion
- dirk.vandervoort@powereng.com

- Cityworks consulting since 2010
- GIS consulting since 2010
- POWER supports integration between ArcGIS and Cityworks
  - GIS can focus on GIS
  - Cityworks can focus on Cityworks

ERWSD & POWER Engineers relationship with ESRI

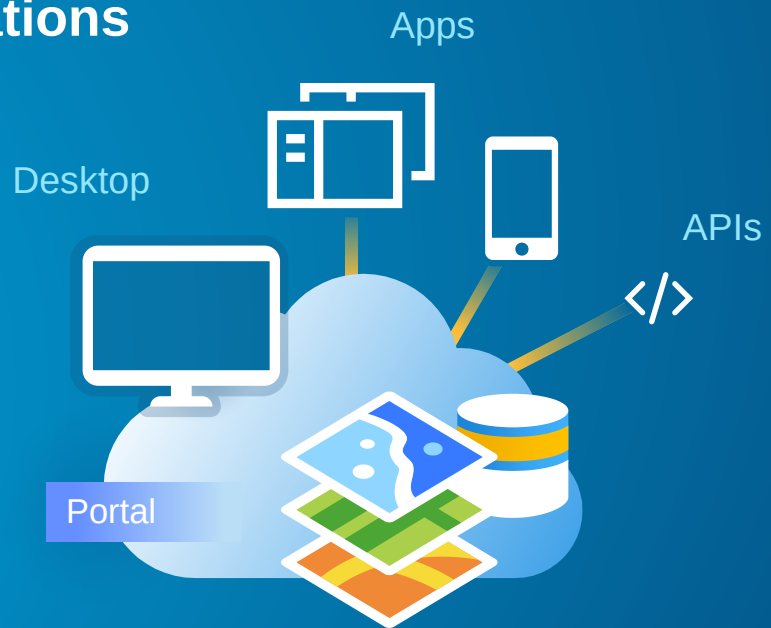
ERWSD

- Customer #269669
- Small Utility License (10k – 50k accts)
- 200 (Level 1) & 50 (Level 2) named users
- 50 ArcGIS Pro licenses
- 4 ArcGIS Desktop installations
- 2 ArcGIS Enterprise installations
- Enterprise Geodatabases

POWER Engineers

- Gold Business Partner
- Customer #244
- Vendor-neutral
  - Deep ESRI and Cityworks expertise
  - Strategic consulting
  - Trusted advisor role

esri Partner Network Gold

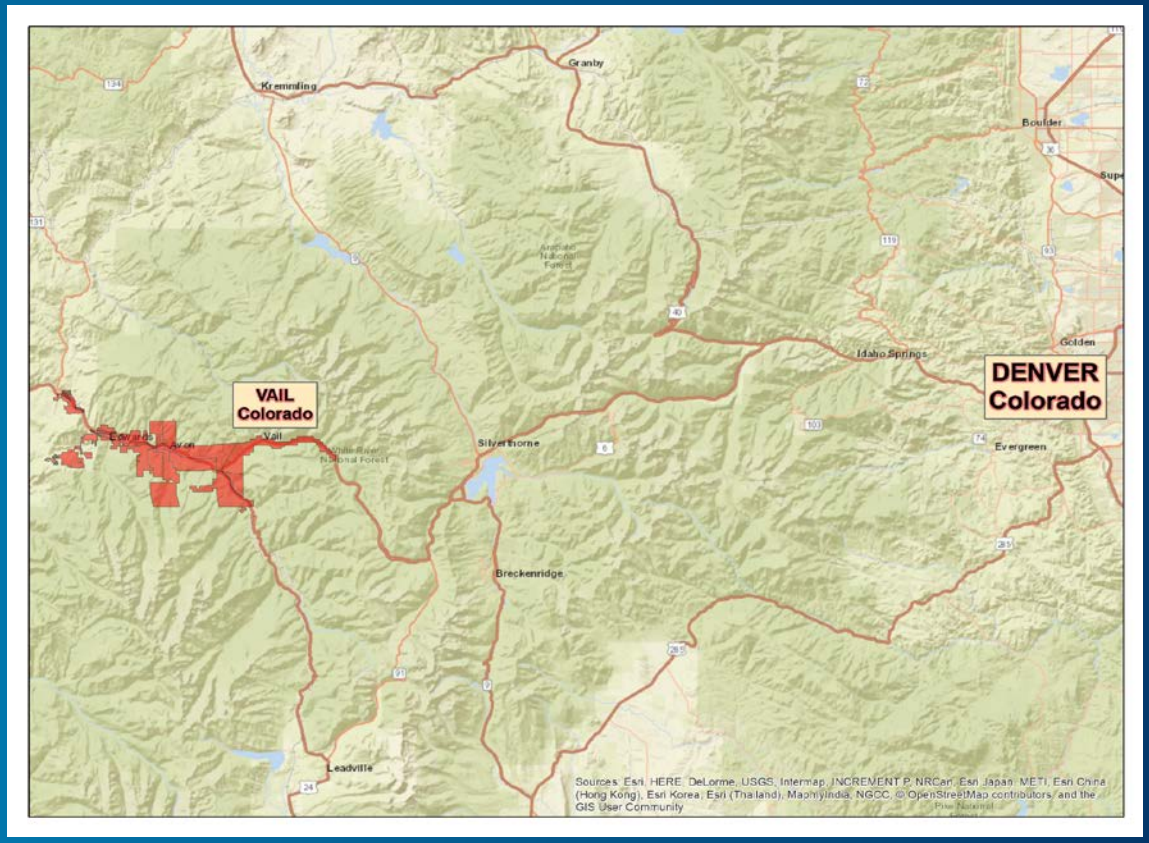


ERWSD: Mission Statement

The Eagle River Water & Sanitation District is a local government that provides efficient, reliable water and wastewater service to its customers from east Vail to Wolcott, Colorado. The District conducts its operations in an environmentally sound manner, ensuring regulatory requirements are met while also forging strong partnerships within the recreation and tourism-based community.

Eagle River Water and Sanitation District in Vail, Colorado, resort community 100 miles west of Denver, Colorado

photo by Brian Tracy



Eagle River Water and Sanitation District

WATER ASSETS

Upper Eagle Regional Water Authority

Drinking Water Treatment Facilities	3
Storage Tanks	47
Water Wells	19
Booster Pump Stations	45
Maximum Elevation Lift	~2000ft
Water Pressure Zones	83
Fire Hydrants	1949
Potable Water Pipelines	1,303,728 feet (247 miles)
Raw Water Pipelines	67,847 feet (13 miles)

EAGLE RIVER WATER & SANITATION DISTRICT

UPPER EAGLE REGIONAL WATER AUTHORITY

Eagle River Water and Sanitation District

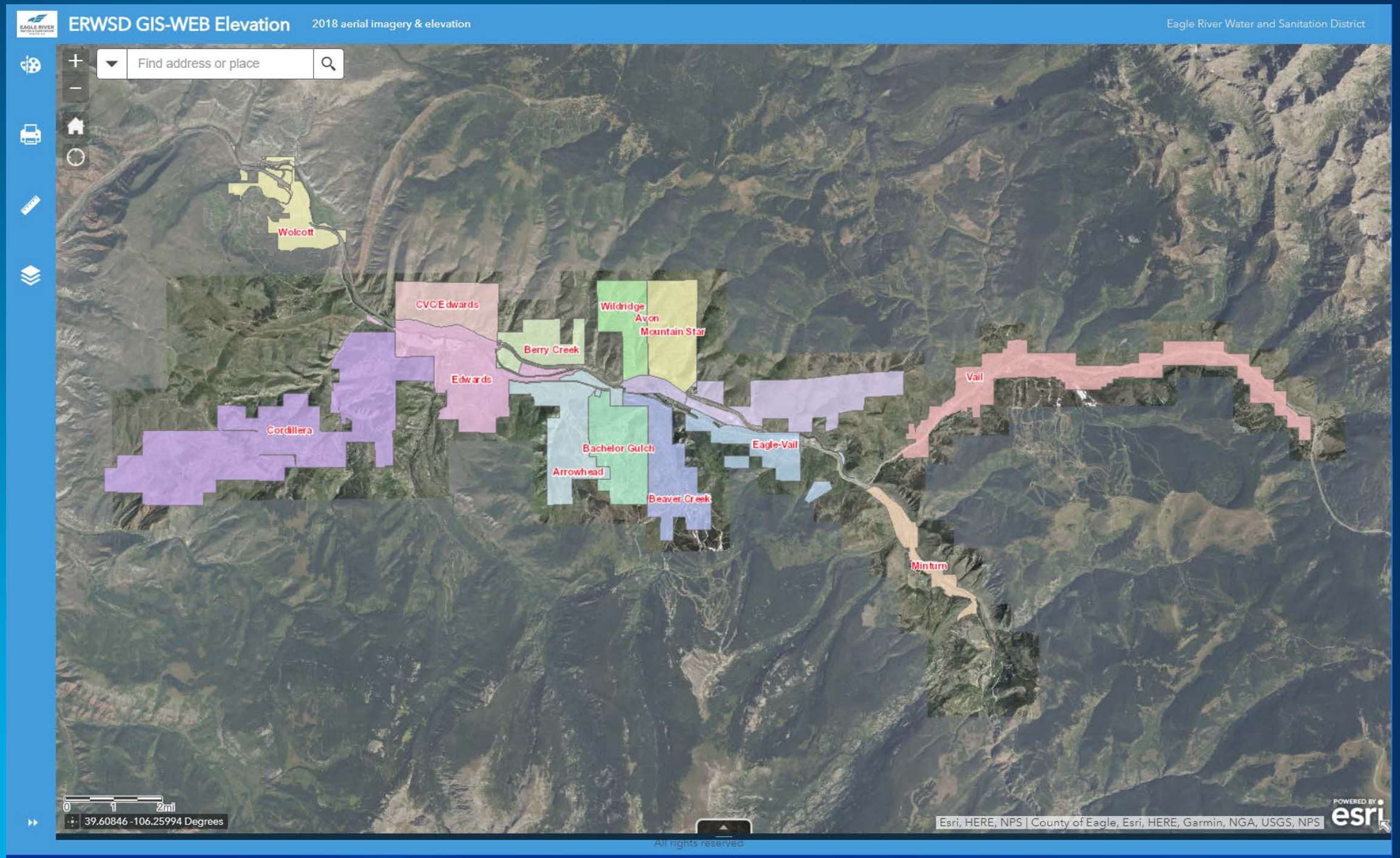
WASTEWATER ASSETS

Vail WWTP	2.7 MGD
Avon WWTP	4.3 MGD
Edwards WWTP	2.95 MGD
Sanitary Gravity Pipes	1,091,305 feet (207 miles)
Sanitary Force Main Pipes	4,673 feet
Sanitary Lift Stations	9
Sanitary Manholes	7,565

EAGLE RIVER
WATER & SANITATION
DISTRICT

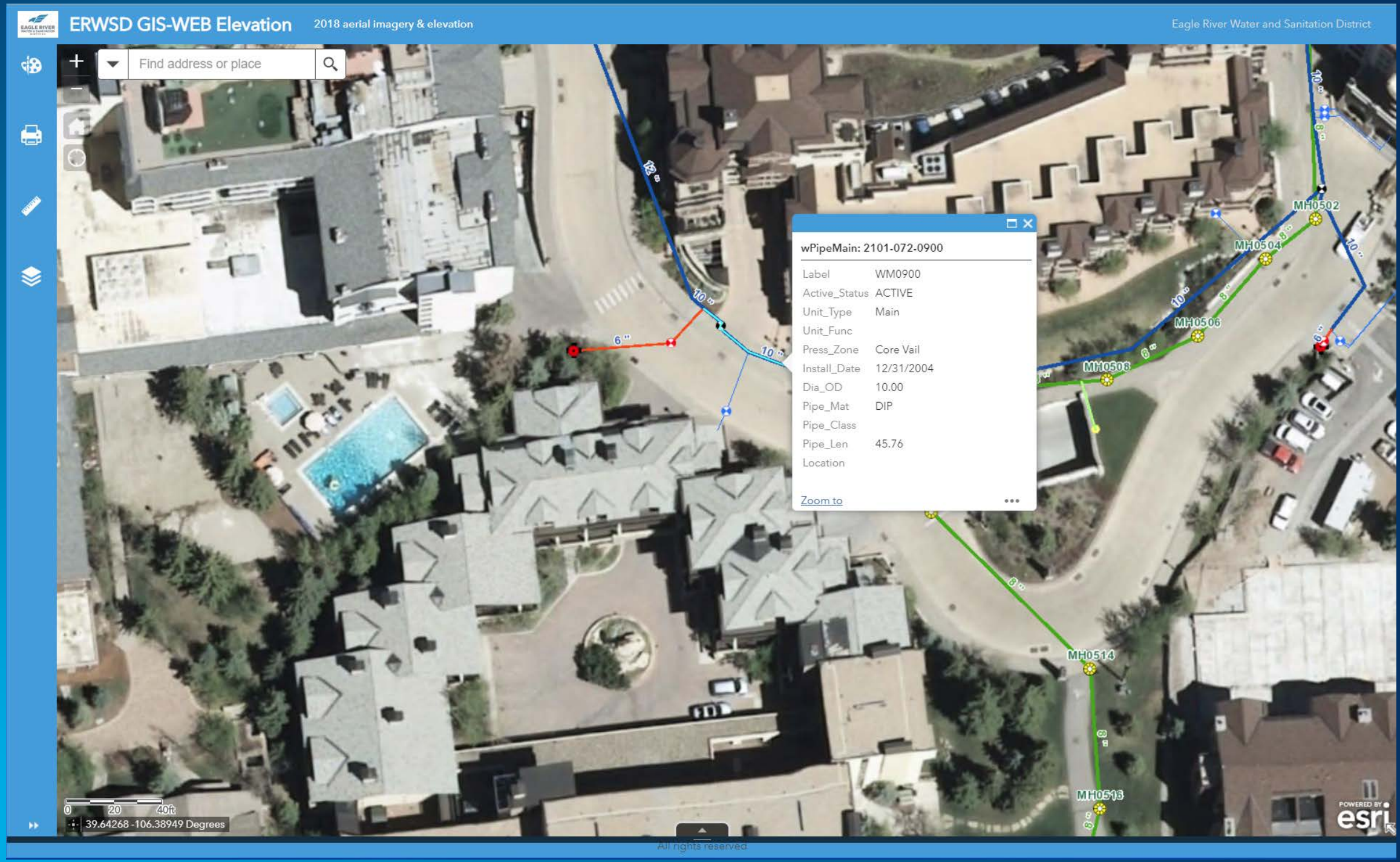
System View

Webmap

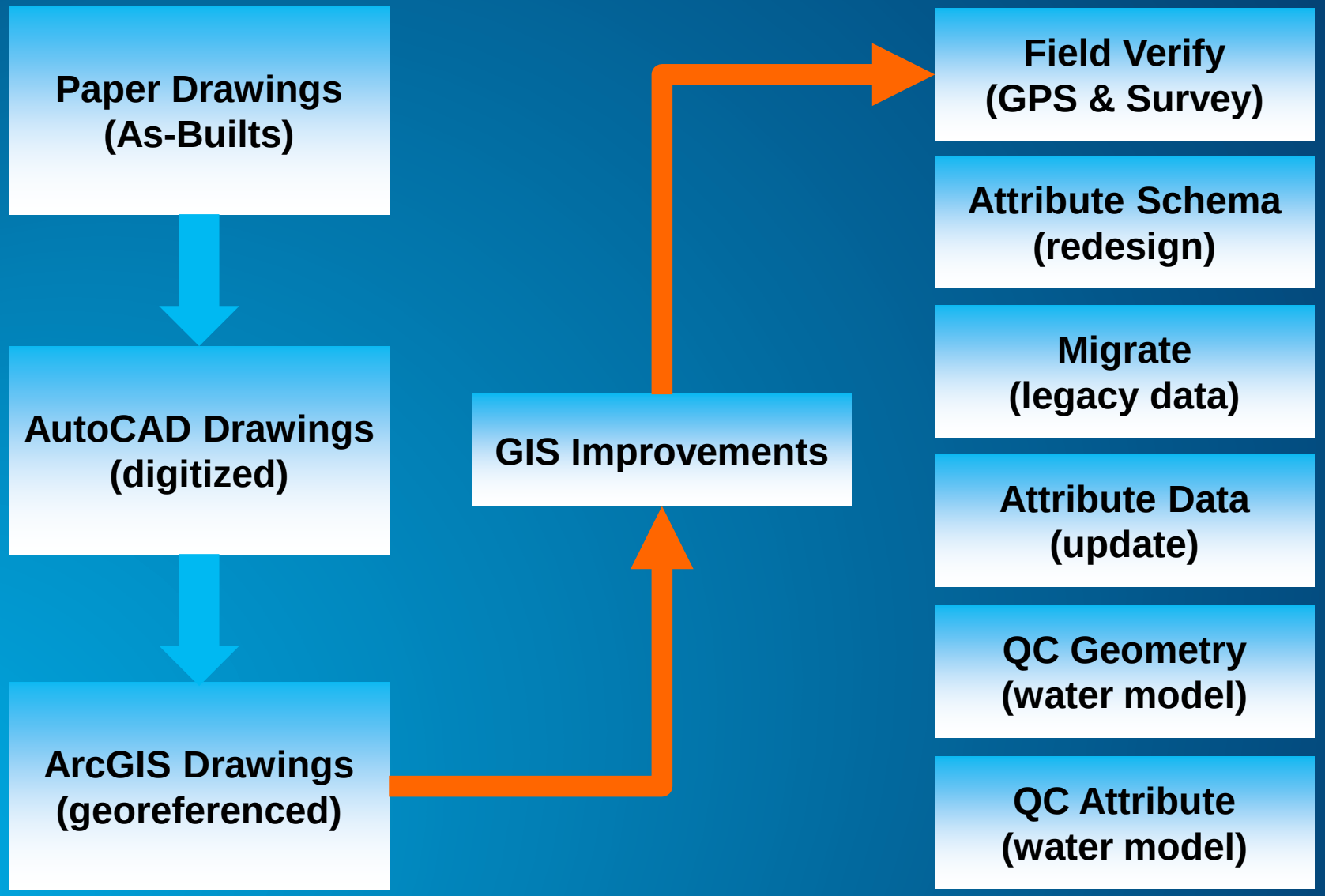


Street View

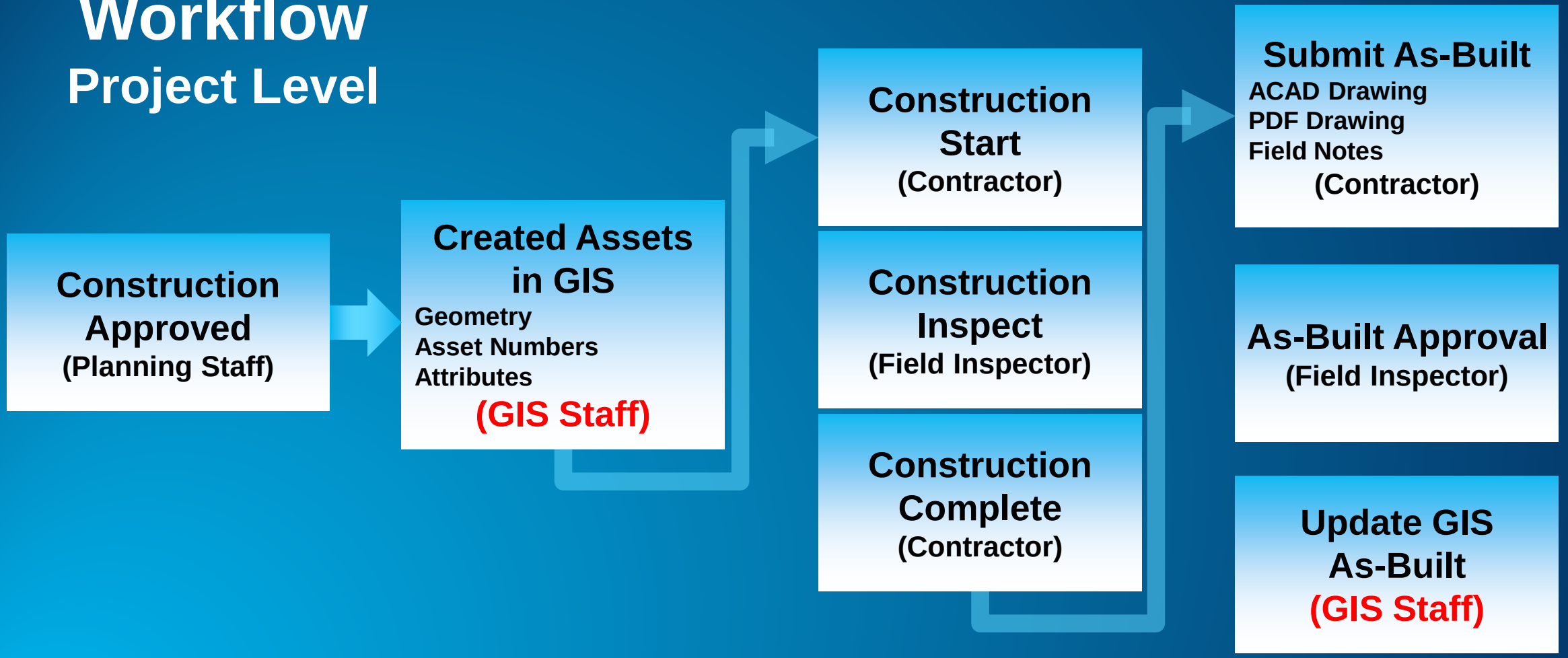
Webmap



Generalized History of GIS at ERWSD



ArcGIS Workflow
Project Level



GIS Edits for Water Model

Rules:

Split wPipeMain at intersection with Fire Hydrant Lateral

Split wPipeMain at main line TEE and CROSS

Split wPipeMain at PRV

Split wPipeMain at REDUCER

Split wPipeMain at ZONE VALVE

Adjust geometry to fit above rules and connectivity

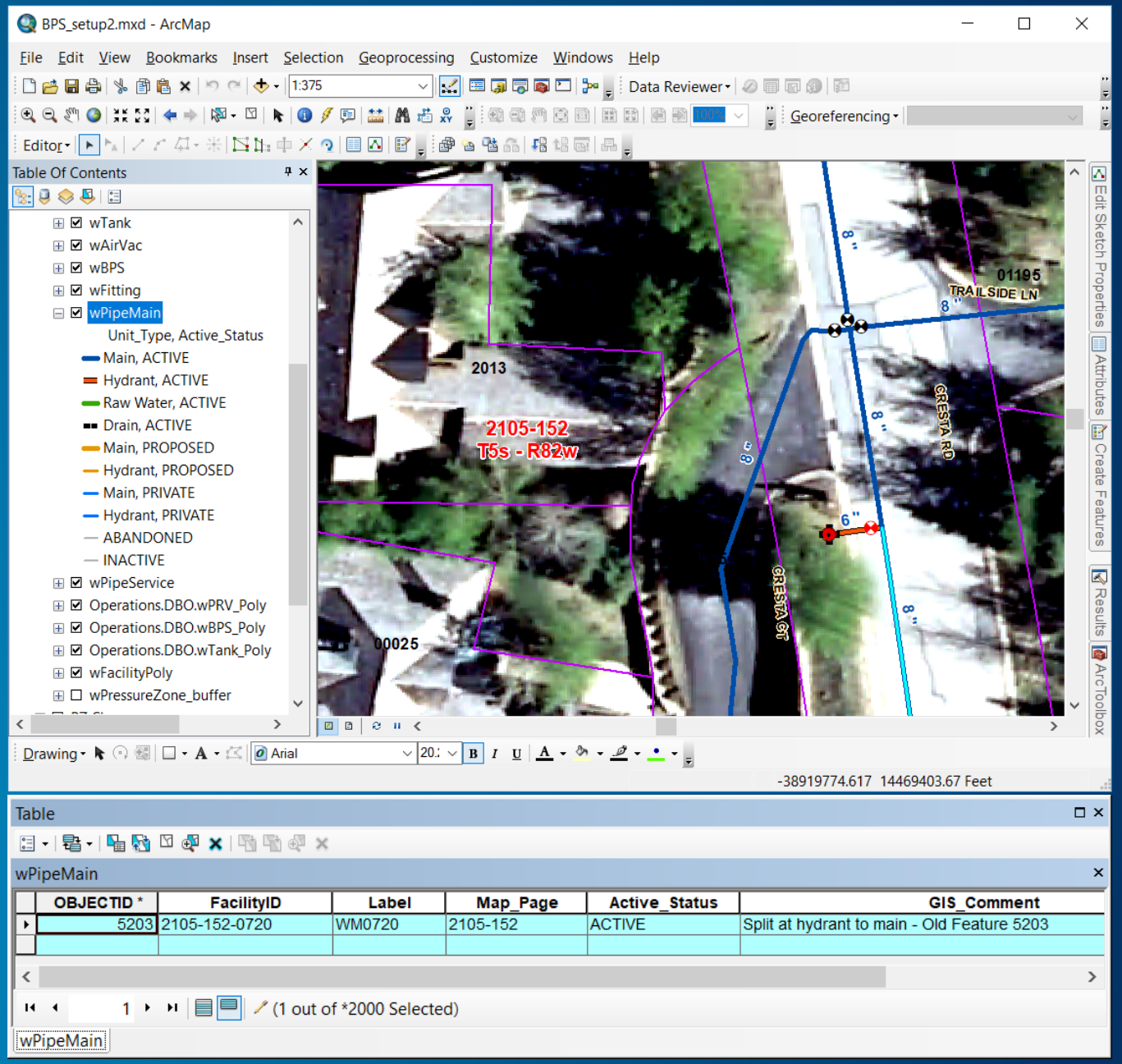
Process:

Use ArcMap [Split Tool] to split wPipeMain

Create new FacilityID for new pipe segment

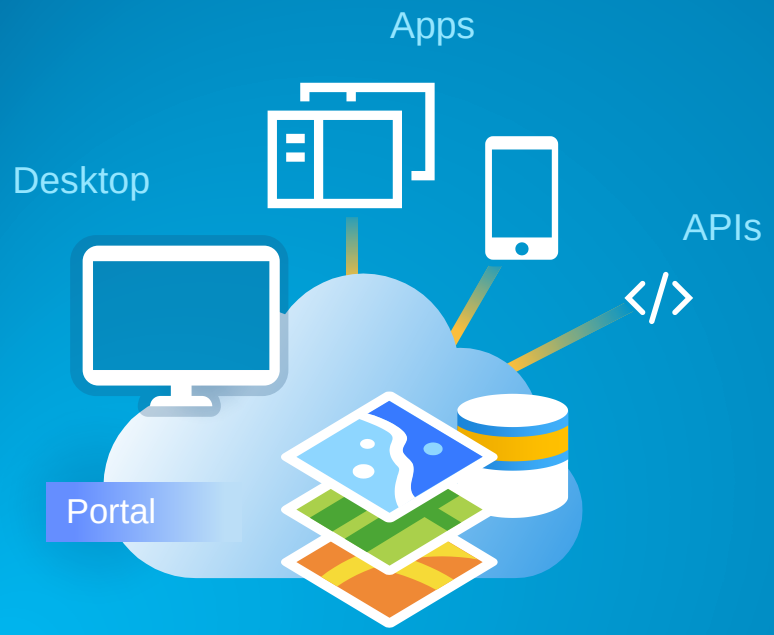
Update pipe segment length

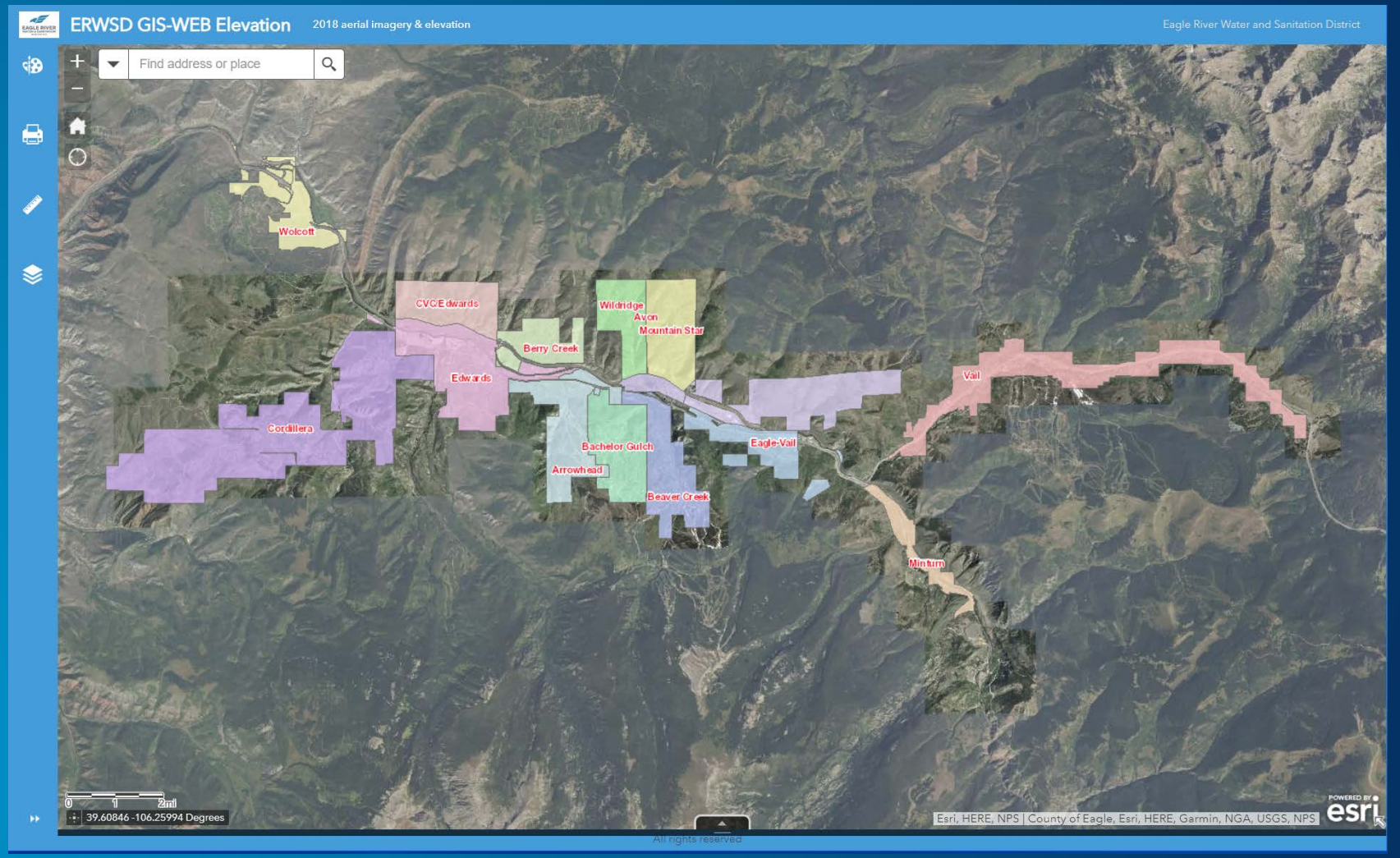
GIS Comment that pipe segment was split from original



Publishing and Sharing GIS Content with the Enterprise

- **Geodatabase**
- **ArcGIS Server**
- **Portal for ArcGIS**
- **ArcGIS Web Adaptor**
- **Web Application Builder**
- **Cityworks**



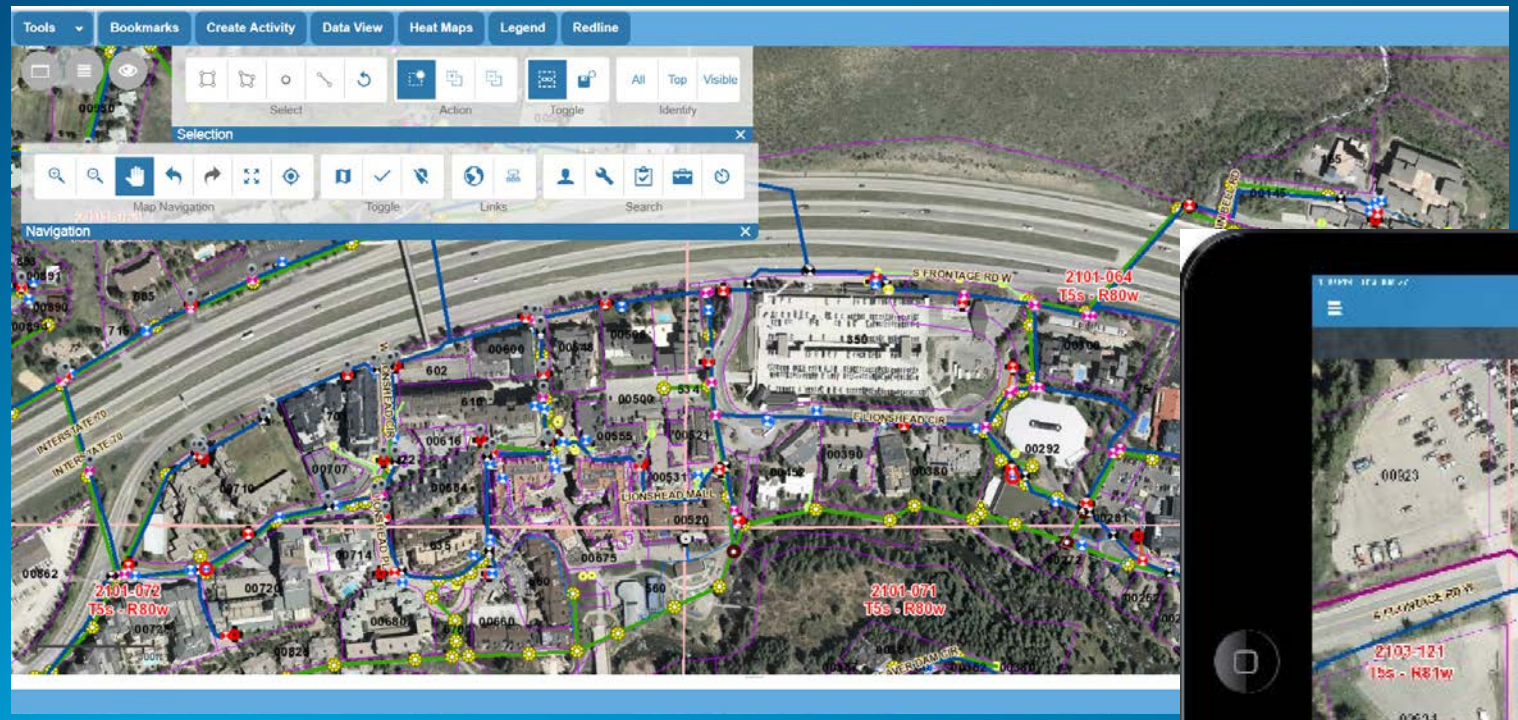


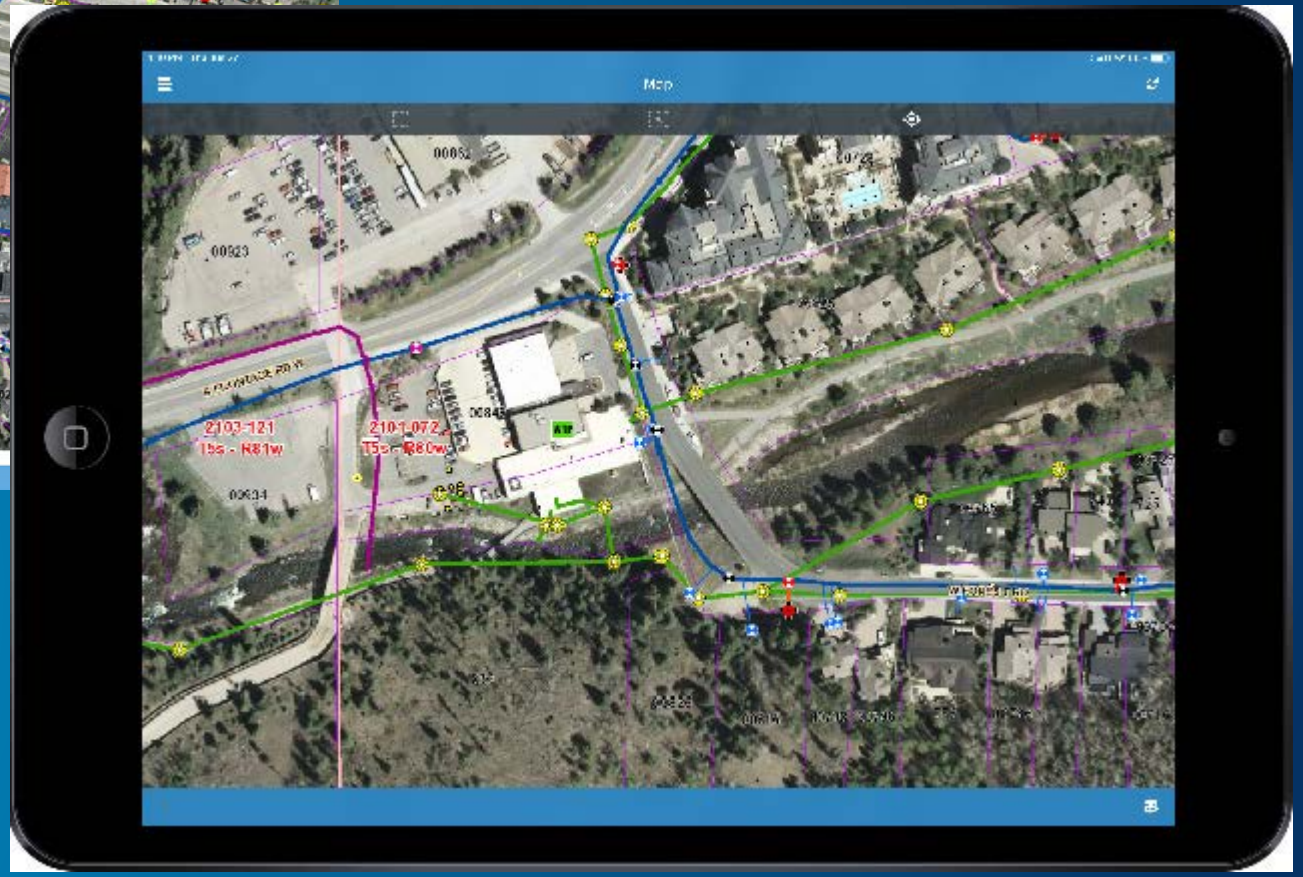
What is Cityworks?

- Cityworks® is the leading GIS-centric asset management system built exclusively on Esri's ArcGIS®. The platform is designed to help local governments and utilities manage public assets and their associated data, work activities, and business processes.
- Platinum Esri Business Partner
- Booth 1127
- Cityworks is ERWSD’s asset management system of record
- *And how does it talk to ArcGIS?*
  - Quality geodata
    - Geodatabases
    - Imagery
    - Geocoding and geolocation
  - ArcGIS Enterprise Services
  - Mobile geodata (TPKs, MMPKs)

Cityworks®
Empowering GIS

Using Maps in Cityworks





Challenges

- Geography – 2,000 feet of elevation change
  - Requires 45 Booster Pump Stations & 83 Water Pressure Zones
- Application Support
  - Cityworks, Mobile, CIS, and Innovyze
- GIS Functional Requirements
  - Asset Management / Field Operations / Customer Service / Administration
- Organizational (roles and responsibilities)
  - IT Department – Cityworks Group – GIS Group – Modeling Group

Future Activities

- Mobile Map Packages to replace Tile Packages in CW Mobile
  - Better performance
  - Smaller footprint
- ArcGIS Pro
  - New editing environment

Release Ready
Specialty

Future Activities

- ArcGIS Utility Network for Water
  - Need to coordinate with Cityworks and Innovyze
- Emerging trends in Asset Management for Water
  - POWER consulting
  - Leading edge, not bleeding edge

Best Practice for utilizing ArcGIS at a small utility

- Eagle River Water utilizes ArcGIS Enterprise, Cityworks, and Webmaps to support Field Operation Asset Management.
- Field Crews use Cityworks Mobile to collect Work Order and Inspection information on tablets linked to Cityworks database and associated GIS asset data.
- Supervisors can review and manage field operations from the office or field.

Best Practice for utilizing ArcGIS at a small utility

- Cityworks and Webmaps use same GIS Published Service for Real Time GIS updates.
  - Common look and feel

- GIS edits are immediately posted as Selectable Assets.
  - Data is current

Conclusions

- **Eagle River Water has improved mapping and information service in support of our Water and Wastewater Utility.**
- **GIS (reference databases) expanded to include needed asset information.**
- **Cityworks (transaction databases) expanded to collect Work Orders and Inspections.**

Conclusions

- Customer Service, Field Operations, Asset Management, and other departments have immediate access to information through Cityworks and Webmaps.
- Innovyze Water Model implemented to improve Water System Operations.
- Microsoft SharePoint implemented for Document Control and link to GIS.
- ArcGIS Enterprise provides the platform to support Business Partner applications.
  - Cityworks, Innovyze Water, CIS, and WaterSmart

Questions

Esri UC 2019