SHRP2 3D Database

- Reliable and accurate data on the location and depth of utilities, and a storage system from which to retrieve the data, is necessary for efficient and cost-effective project delivery. Utility data is frequently not stored in accessible formats so that it can be saved and reused for future projects, causing agencies to recreate the data. A system is needed to store and retrieve utility data using enterprise technology that works with existing agency databases and systems.

- Goal is to get company submitted data, SUE locates, utilities from surveys and field verification all into a GIS environment that can be easily viewed in multiple sources (Webmap, ArcMap, MicroStation)

- SHRP2 Utility Database
- Requires ArcGIS Online account
- Convert MicroStation surveys to GIS format. Web Viewer
- Allows for field collection via the Collector app
- Survey grade x,y,z still being worked on. Testing Emlid RS2

What's Next?

- Acquire Emlid RS2 as a cost effective ($2,000) method of collecting survey quality data through Collector.

- Get some regulations and requirements in place when facilities go in our right of way. Currently we have very little idea what resides on our own property.

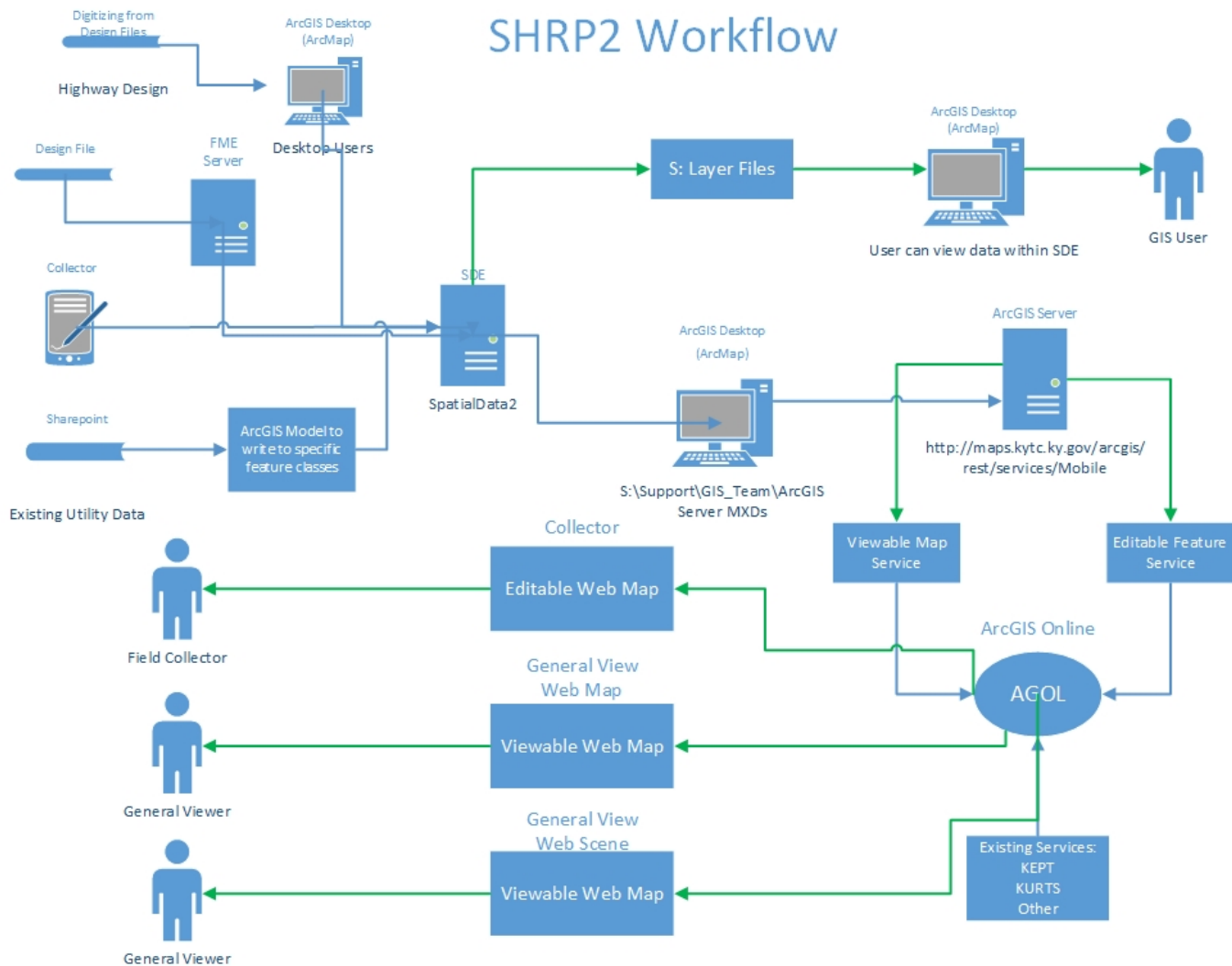# SHRP2 3D Workflow Architecture

Mitchell Masarik

Software Products Used

- ArcSDE (ESRI)
- ArcGIS Server (ESRI)
- ArcGIS Online (ESRI)
- Collector for ArcGIS (ESRI)
- Web App Builder (ESRI)
- Web Scene Viewer (ESRI)
- FME (Safe Software)

SHRP2 Workflow

ArcSDE

- Single SQL Server Database that contains a 1-1 match between CADD levels and SDE feature classes

- Points, lines, polygons

- Z Values enabled

- Attachment Enabled

- Editor Tracking Enabled

File   Edit   View   Go   Geoprocessing   Customize   Windows   Help

S:\Support\GIS_Team\SDE_DNS_Connections\03-SD2\ArcGISServer\PRD-SD2-KYTCDynamic_RC

Catalog Tree

PRD-SD2-KYTCDynamic_ROWUtil_SHRP2@ArcGISServerEdit.sde
- KYTCDynamic_ROWUtil_SHRP2.DBO.ANCHOR_POLE
- KYTCDynamic_ROWUtil_SHRP2.DBO.ANCHOR_POLE__ATTACH
- KYTCDynamic_ROWUtil_SHRP2.DBO.ANCHOR_POLE__ATTACHREL
- KYTCDynamic_ROWUtil_SHRP2.DBO.ANCHOR_POLE_ANNOTATION
- KYTCDynamic_ROWUtil_SHRP2.DBO.BENCHMARK
- KYTCDynamic_ROWUtil_SHRP2.DBO.BENCHMARK__ATTACH
- KYTCDynamic_ROWUtil_SHRP2.DBO.BENCHMARK__ATTACHREL
- KYTCDynamic_ROWUtil_SHRP2.DBO.BENCHMARK_ANNOTATION
- KYTCDynamic_ROWUtil_SHRP2.DBO.BRACE_CABLE_OH
- KYTCDynamic_ROWUtil_SHRP2.DBO.BRACE_CABLE_OH__ATTACH
- KYTCDynamic_ROWUtil_SHRP2.DBO.BRACE_CABLE_OH__ATTACHREL
- KYTCDynamic_ROWUtil_SHRP2.DBO.BRIDGE_RAILROAD
- KYTCDynamic_ROWUtil_SHRP2.DBO.BRIDGE_RAILROAD__ATTACH
- KYTCDynamic_ROWUtil_SHRP2.DBO.BRIDGE_RAILROAD__ATTACHREL
- KYTCDynamic_ROWUtil_SHRP2.DBO.BRIDGE_ROADWAY
- KYTCDynamic_ROWUtil_SHRP2.DBO.BRIDGE_ROADWAY__ATTACH
- KYTCDynamic_ROWUtil_SHRP2.DBO.BRIDGE_ROADWAY__ATTACHREL
- KYTCDynamic_ROWUtil_SHRP2.DBO.BUILDING
- KYTCDynamic_ROWUtil_SHRP2.DBO.BUILDING__ATTACH
- KYTCDynamic_ROWUtil_SHRP2.DBO.BUILDING__ATTACHREL
- KYTCDynamic_ROWUtil_SHRP2.DBO.CABLE_JUNCTION_BOX
- KYTCDynamic_ROWUtil_SHRP2.DBO.CABLE_JUNCTION_BOX__ATTACH
- KYTCDynamic_ROWUtil_SHRP2.DBO.CABLE_JUNCTION_BOX__ATTACHREL
- KYTCDynamic_ROWUtil_SHRP2.DBO.CABLE_JUNCTION_BOX_ANNOTATION
- KYTCDynamic_ROWUtil_SHRP2.DBO.CENTERLINE_ROAD
- KYTCDynamic_ROWUtil_SHRP2.DBO.CENTERLINE_ROAD__ATTACH
- KYTCDynamic_ROWUtil_SHRP2.DBO.CENTERLINE_ROAD__ATTACHREL
- KYTCDynamic_ROWUtil_SHRP2.DBO.CISTERN
- KYTCDynamic_ROWUtil_SHRP2.DBO.CISTERN__ATTACH
- KYTCDynamic_ROWUtil_SHRP2.DBO.CISTERN__ATTACHREL
- KYTCDynamic_ROWUtil_SHRP2.DBO.CONTROL_POINT
- KYTCDynamic_ROWUtil_SHRP2.DBO.CONTROL_POINT__ATTACH

SDE Feature Class selected

Contents   **Preview**   **Description**

Print   Edit   Validate   Export   Import

Metadata:

- [Spatial Data Organization Information](#)
- [Entity and Attribute Information](#)

Spatial Data Organization Information:
  Point and Vector Object Information:
  Back to Top

  Entity and Attribute Information:
    Detailed Description:
      Entity Type:
        Entity Type Label:
          KYTCDynamic_ROWUtil_SHRP2.DBO.ANCHOR_POLE
        Entity Type Definition:
          FC Name
        Entity Type Definition Source:
          KYTC
      Attribute:
        Attribute Label: SHAPE
        Attribute Definition:
          Feature geometry.
        Attribute Definition Source:
          Esri

ArcGIS Server

- Single secured service for accessing all assets within the database

- Uses REST API to view and edits layers that are stored within the SQL Server database

Help | API Reference

JSON | SOAP

Mobile/SHRP2_Ext_Mob_Prd (FeatureServer)

View In: ArcGIS Online map viewer

View Footprint In: ArcGIS Online map viewer

Service Description: SHRP2 3D database for collecting utility information

All Layers and Tables

Has Versioned Data: true

MaxRecordCount: 1000

Supported Query Formats: JSON, AMF

Supports Query Data Elements:

Layers:

- WL - Water Line (0)
- WT - Water Tower (1)
- WW - Water Well (2)
- WM - Water Meter (3)
- WS - Water Spigot (4)
- WV - Water Valve (5)
- CIST - Cistern (6)
- CBI - Curb Box Inlet (7)
- FH - Fire Hydrant (8)

ArcGIS Online (AGOL)

- ESRI's cloud environment

- Allows for easy hosting of data and applications

- Contains many simple out of the box tools to create effective workflow

Content

Add Item   Create

Search SHRP2

Table   Date Modified   Filter

Folders

Filter folders

- SAFE Patrol Reports
- SBMPP
- Service Source
- SHRP2
- SHRP2 - Collection
- SHRP2 - Collection Service Definitions
- SHRP2 - Test

Filters

	Title					Modified
☐	SHRP2 Basemap	Map Image Layer		☆	⋯	Oct 17, 2018
☐	SHRP2 - Scene	Web Mapping Application		☆	⋯	May 10, 2019
☐	SHRP2 - DGN	Feature Layer		☆	⋯	May 10, 2019
☐	SHRP2 - Scene	Web Scene		☆	⋯	May 14, 2019
☐	SHRP2 - Coordinator	Web Mapping Application		☆	⋯	May 17, 2019
☐	SHRP2 - Coordinator	Web Map		☆	⋯	May 20, 2019
☐	SHRP2 - Coordinator New	Web Map		☆	⋯	May 20, 2019

1 - 10 of 10 in SHRP2

Collector for ArcGIS

- Mobile data collection / editing tool designed to be used in the field
- Allows for online and offline use
- Allows users to view reference information along with asset information

Collect

GPS accuracy 16.4 ft

🔍 Filter

WL - WATER LINE

✏️ WL - Water Line

WT - WATER TOWER

🟦 WT - Water Tower

WM - WATER METER

🔷 WM - Water Meter

MH - MANHOLE

◉ MH - Manhole

PIPE - DRAINAGE PIPE

⋰ PIPE - Drainage Pipe

SL - SEWER LINE

✏️ SL - Sewer Line

SSFM - SEWER SANITARY FORCE MAIN

✏️ SSFM - Sewer Sanitary Force Main

SANCO - SANITARY CLEANOUT

⬠ SANCO - Sanitary Cleanout

STC - SEPTIC TANK CLEANOUT

◆ STC - Septic Tank Cleanout

TANK - TANK
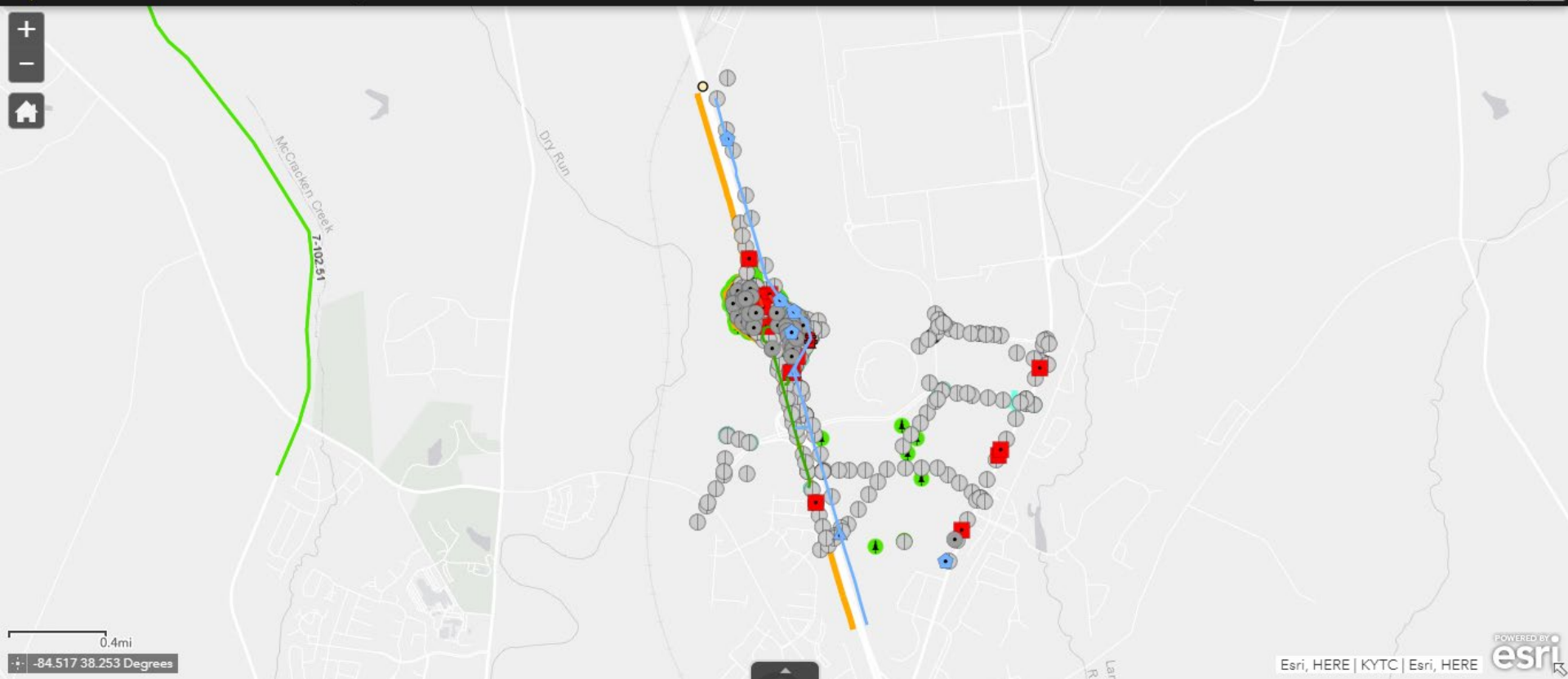
Web App Builder

- ESRI's platform for building interactive maps

- Helps streamline workflows in an easy to use online format

- Access all data through a web browser (No local client install)

Find address or place

McCracken Creek

7-102.5'

Dry Run

0.4mi

-84.517 38.253 Degrees

Web Scene Viewer

- A cloud based 3D viewer

- Access all data through a web browser (No client install)

FME

- Software that handles the data conversion from CADD to GIS

- Allows authorized users to input DGN design files into the database through a simple website
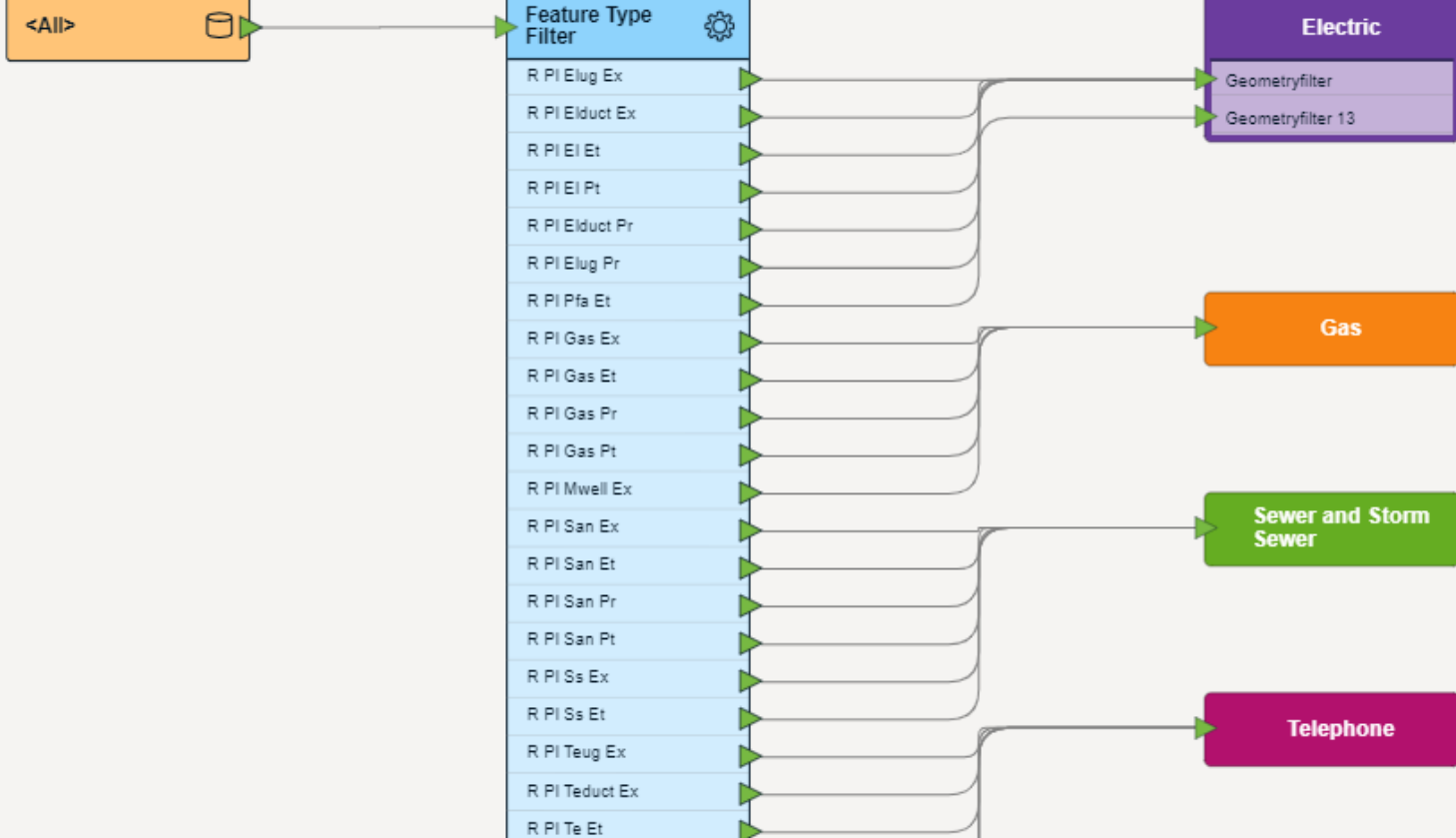
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