

# Schematic Mapping for Railroads

Jim Barry

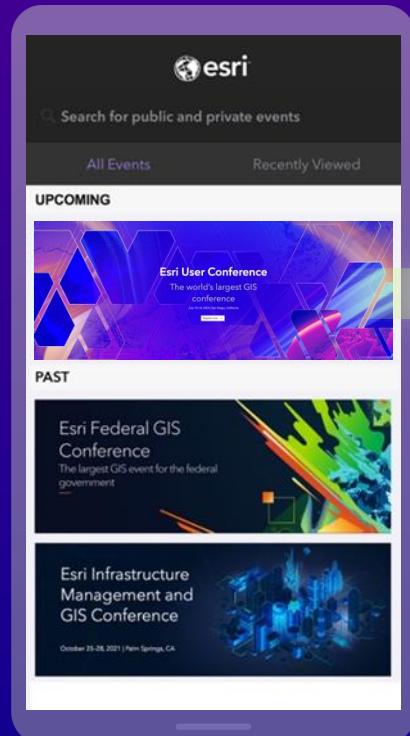
 @JimBarry

2023 ESRI USER CONFERENCE

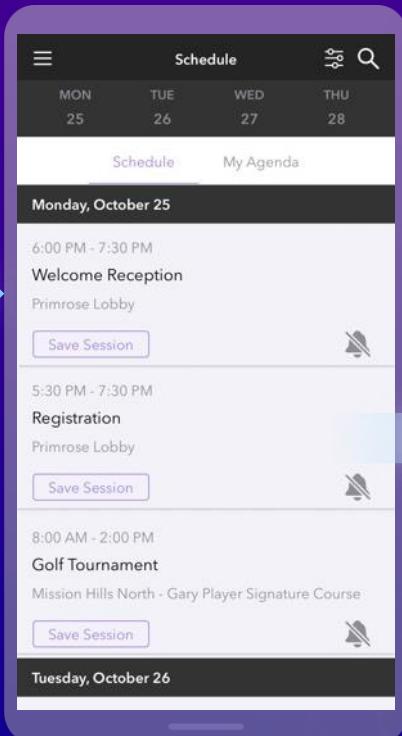


# Please Share Your Feedback in the App

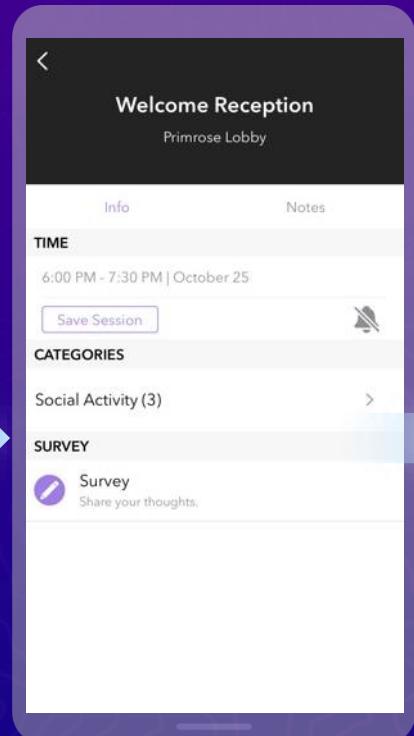
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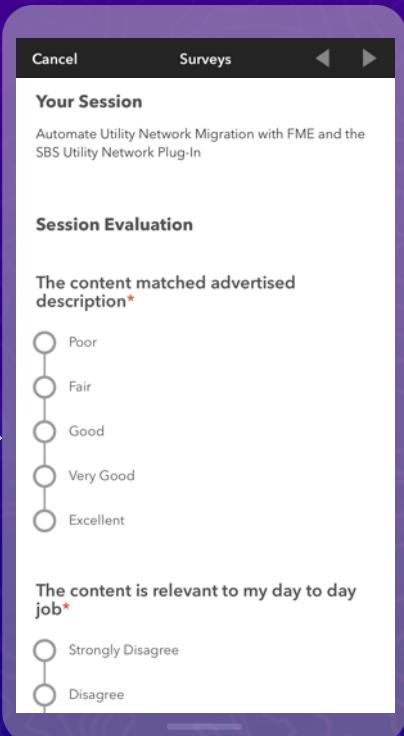
Select the session you attended



Scroll down to "Survey"



Log in to access the survey

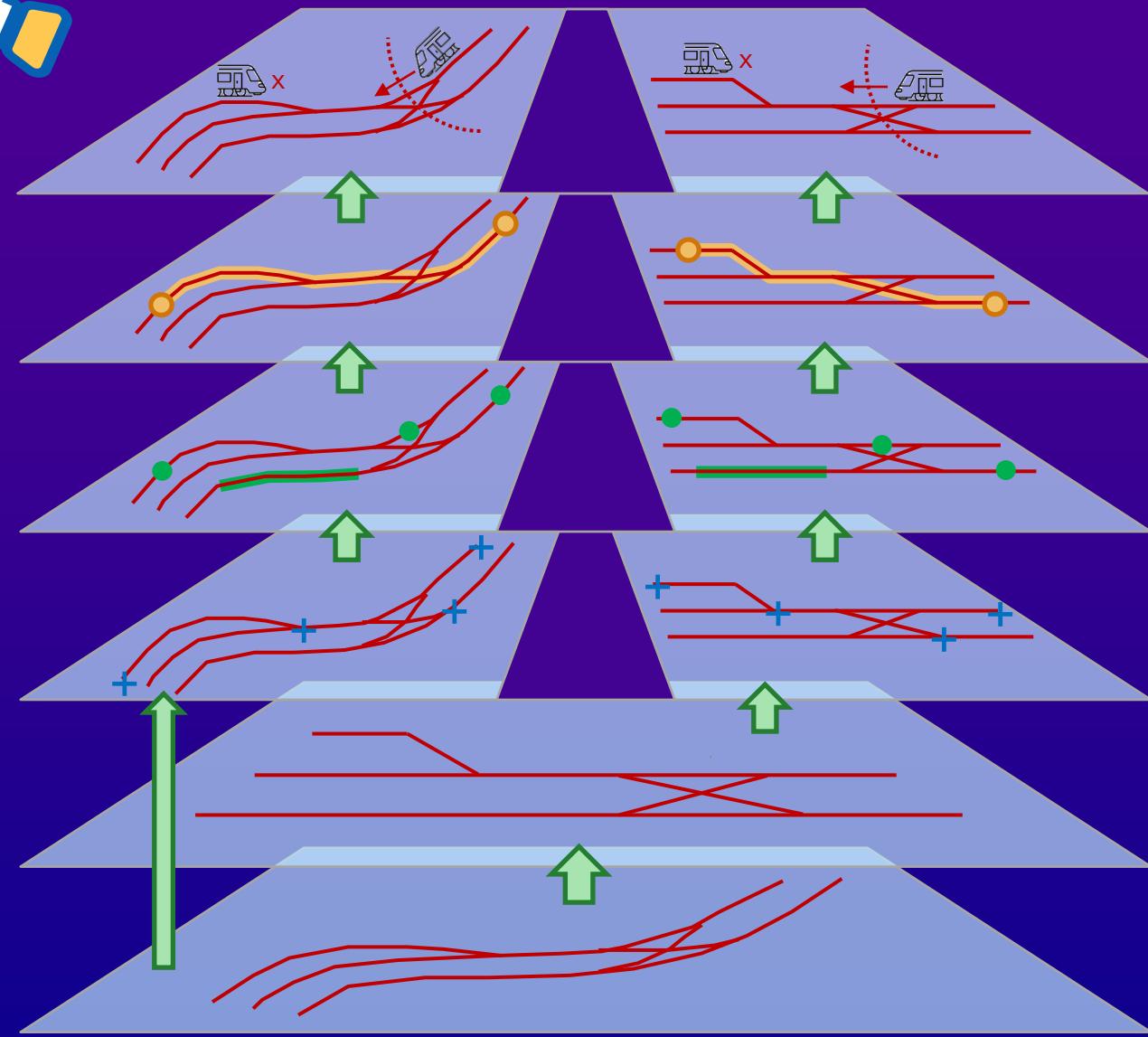


# Schematic Mapping for Railroads

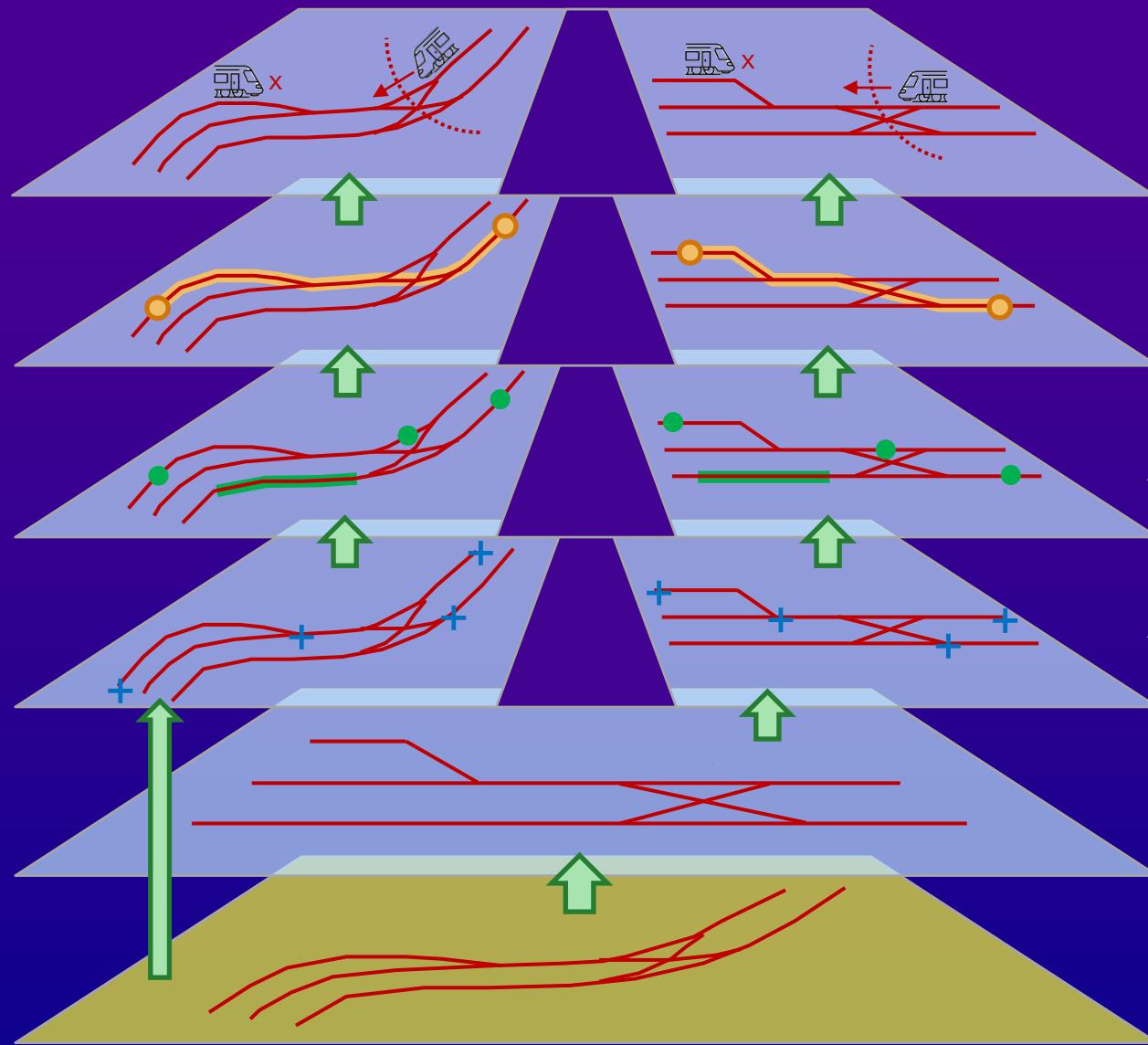
## Agenda

- Why schematic maps for rail?
- Track Charts
- Trace Networks
- Network Diagram Layout tools
- Editing schematic maps
- Linear Referencing
- Resources for your success

# Railroads and ArcGIS



# Railroads and ArcGIS



Live train movement and geofences

Routing and tracing using Utility Network

Add and manage point and linear events on the LRS

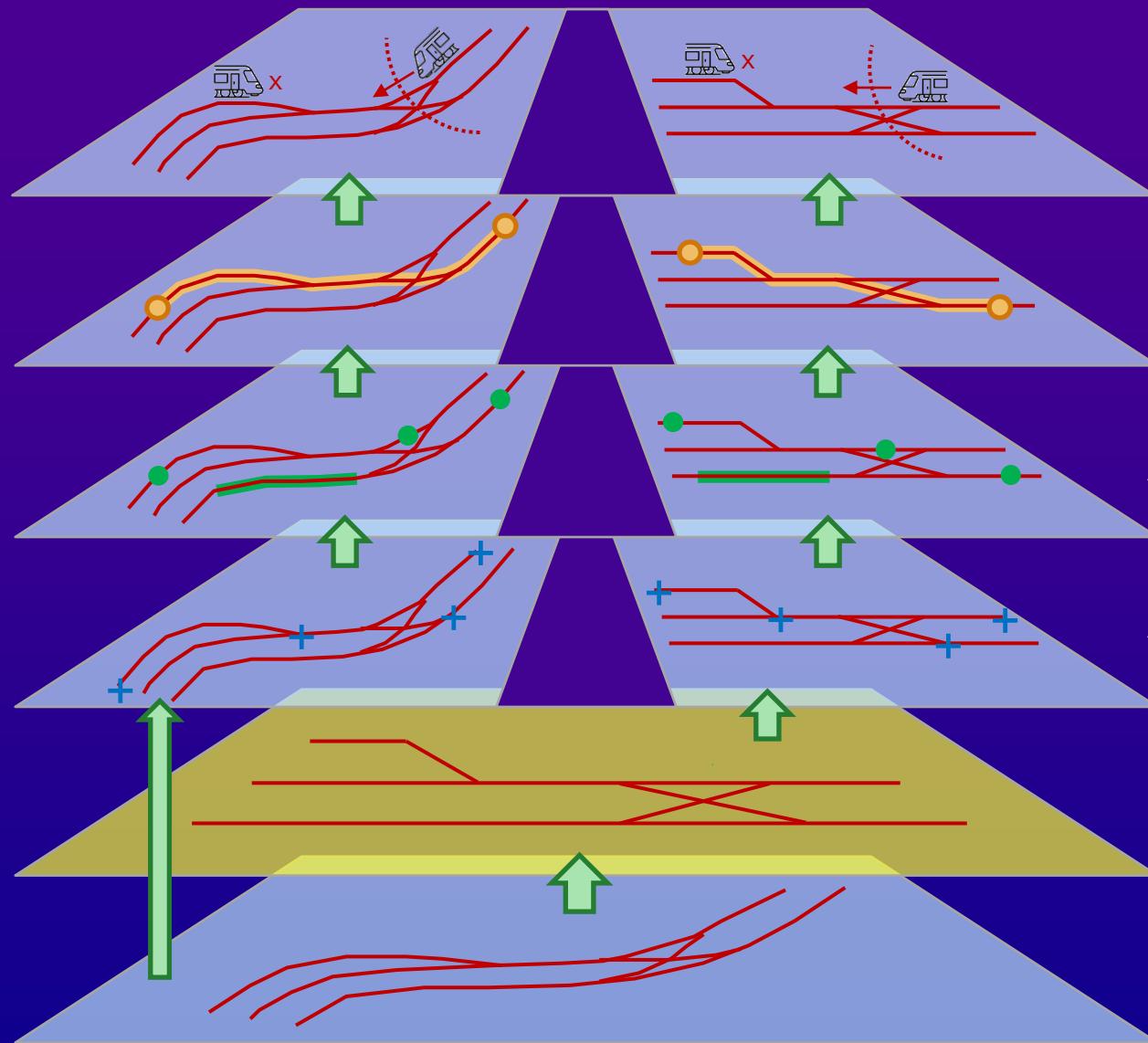
Apply and update LRS onto the Geographic and Schematic

Generate schematic diagram, using network attributes, templates

Geographic data, edit, visualize, analyze



# Railroads and ArcGIS



Live train movement and geofences

Routing and tracing using Utility Network

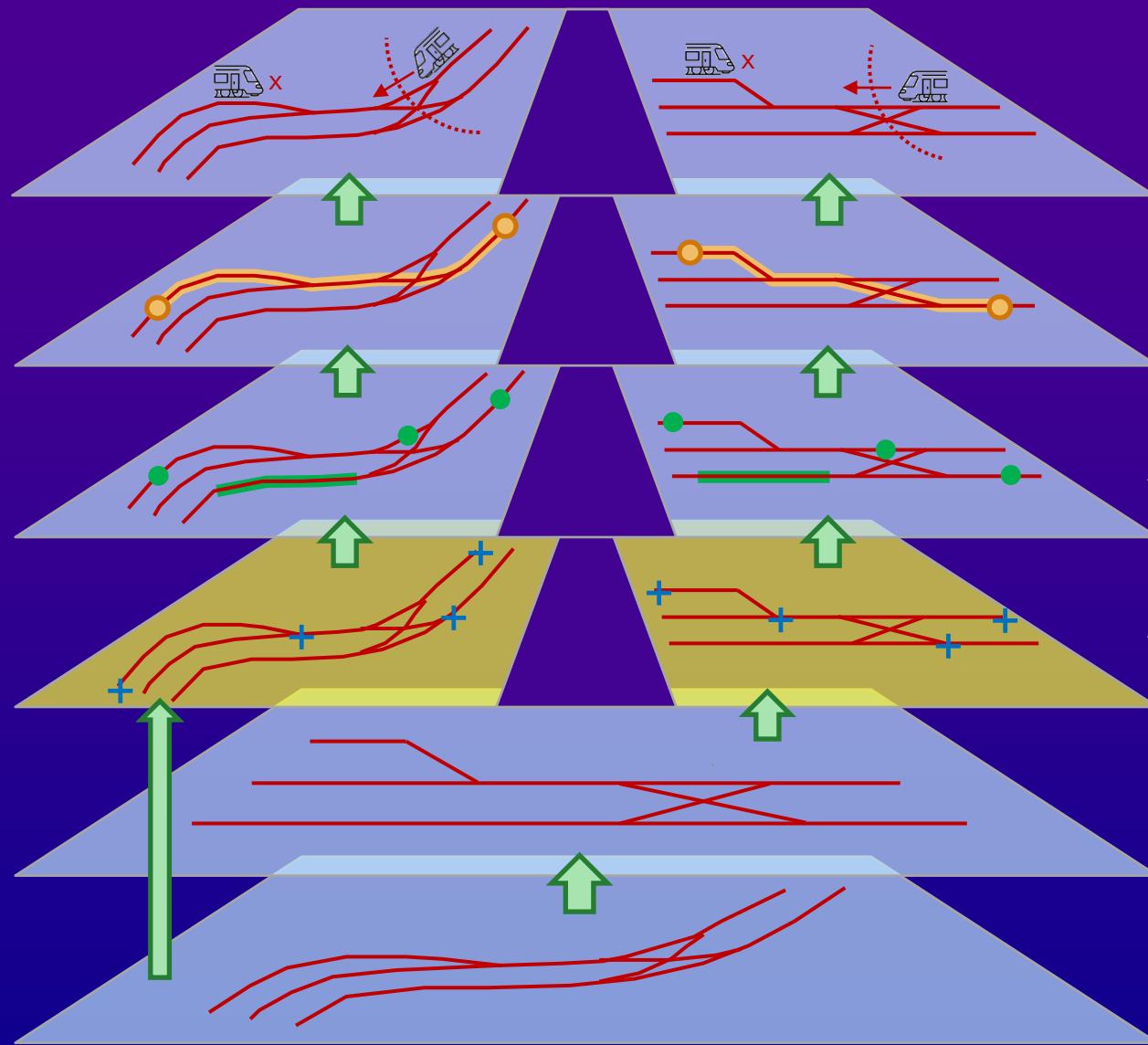
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# Railroads and ArcGIS



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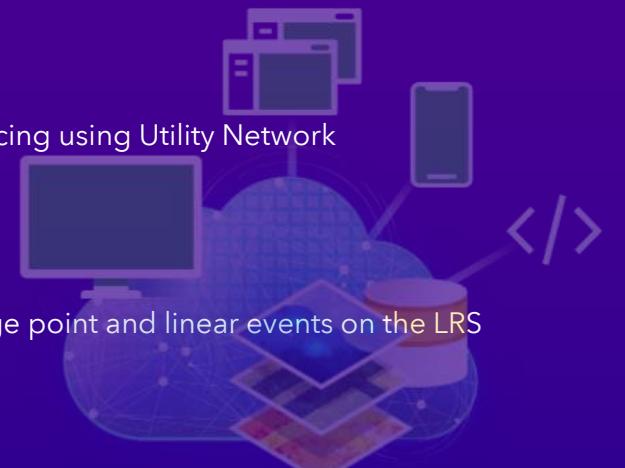
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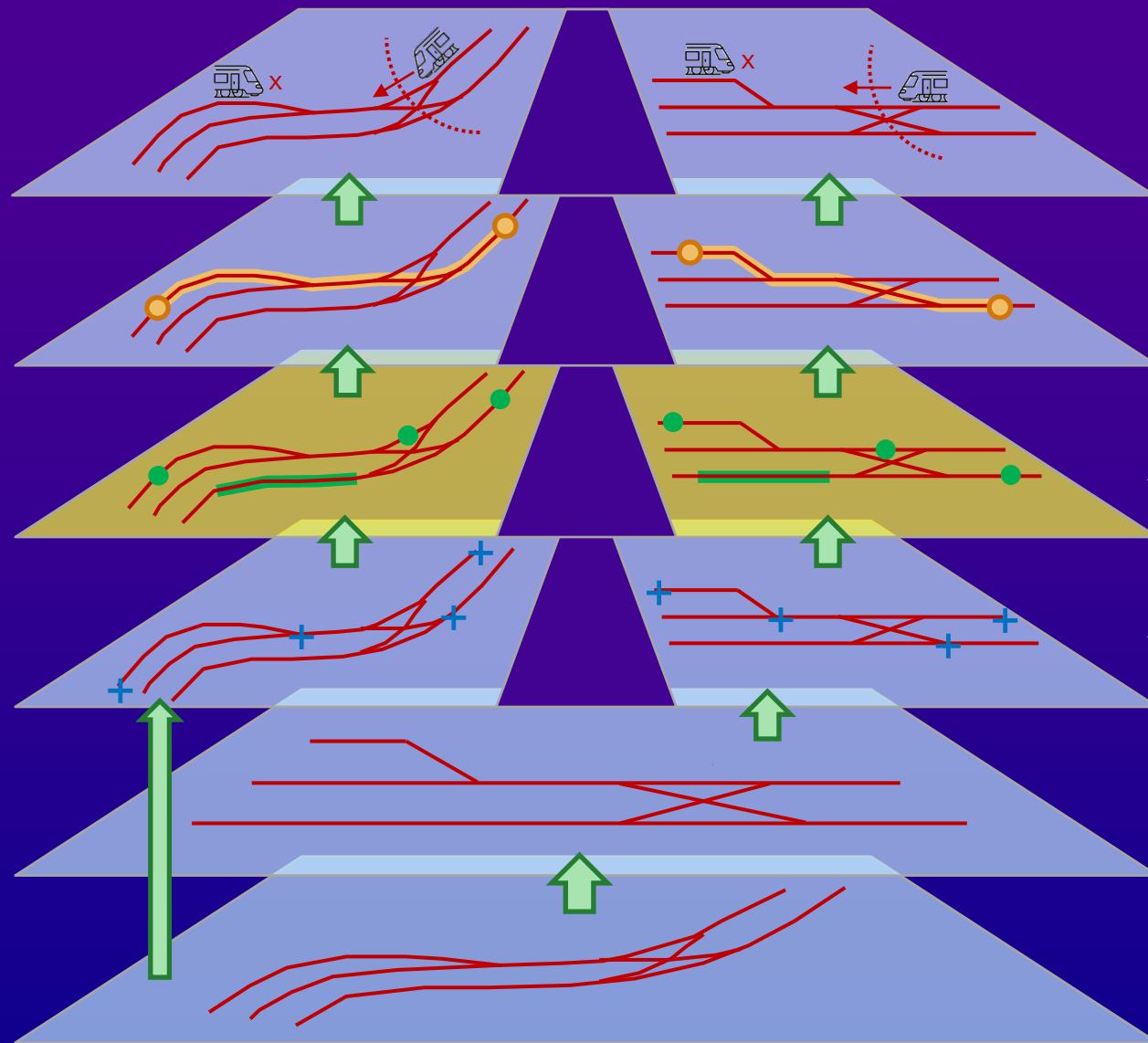
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# Railroads and ArcGIS



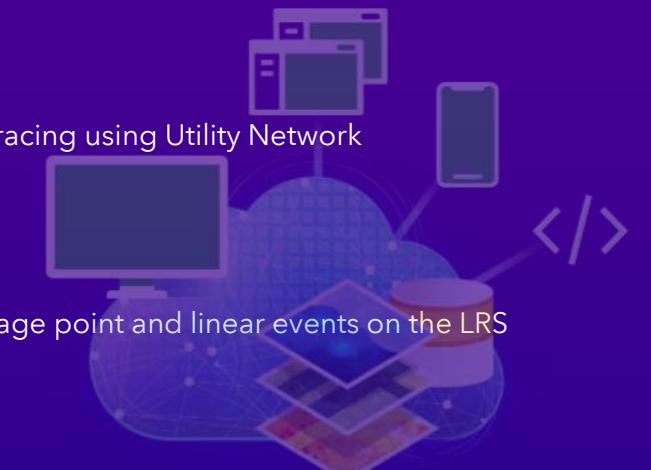
Geographic data, edit, visualize, analyze

Generate schematic diagram, using network attributes, templates

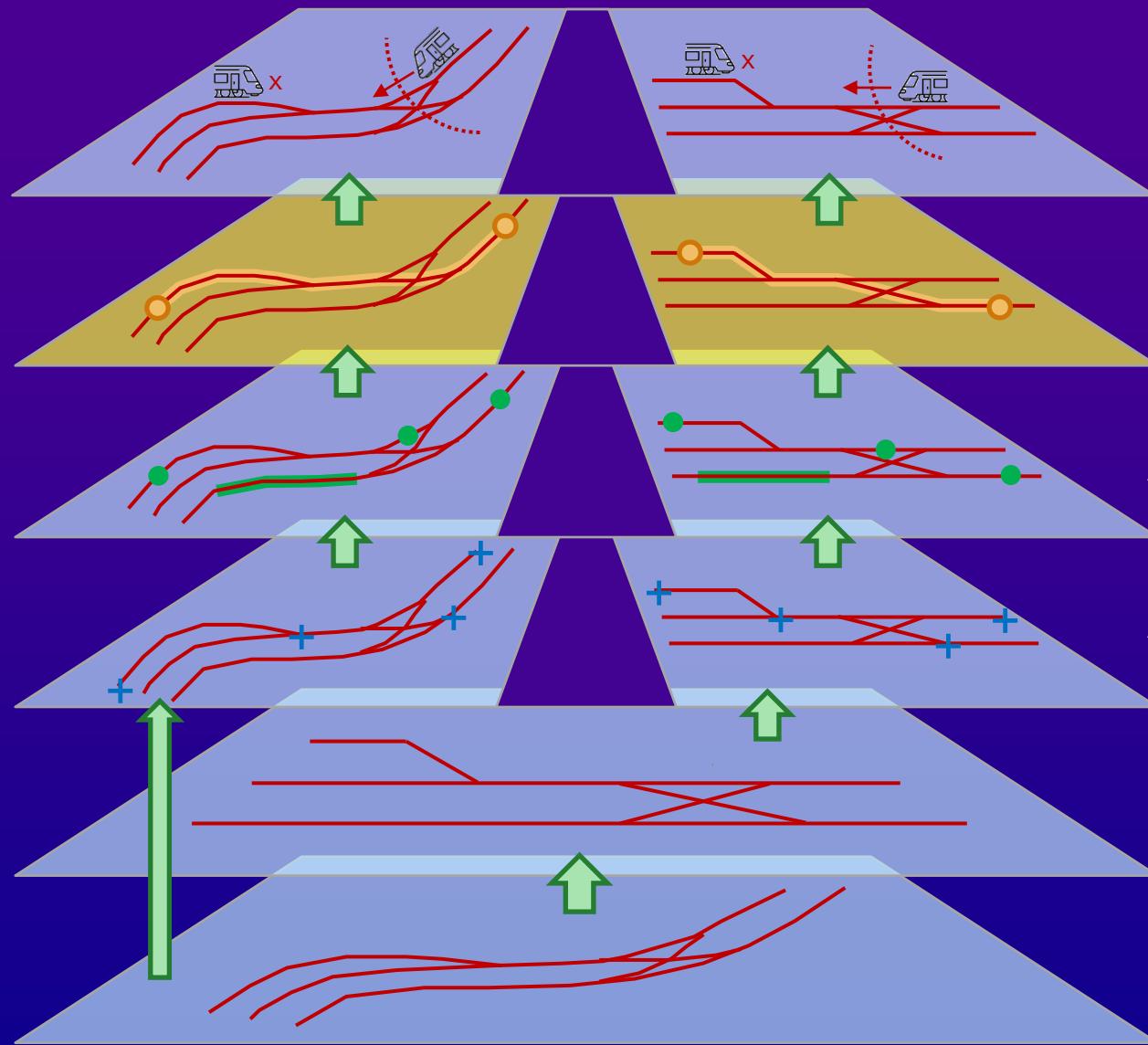
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Add and manage point and linear events on the LRS

Routing and tracing using Utility Network



# Railroads and ArcGIS



Live train movement and geofences

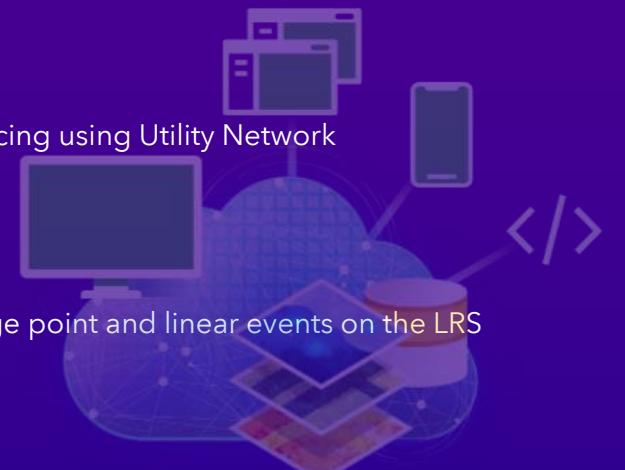
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Add and manage point and linear events on the LRS

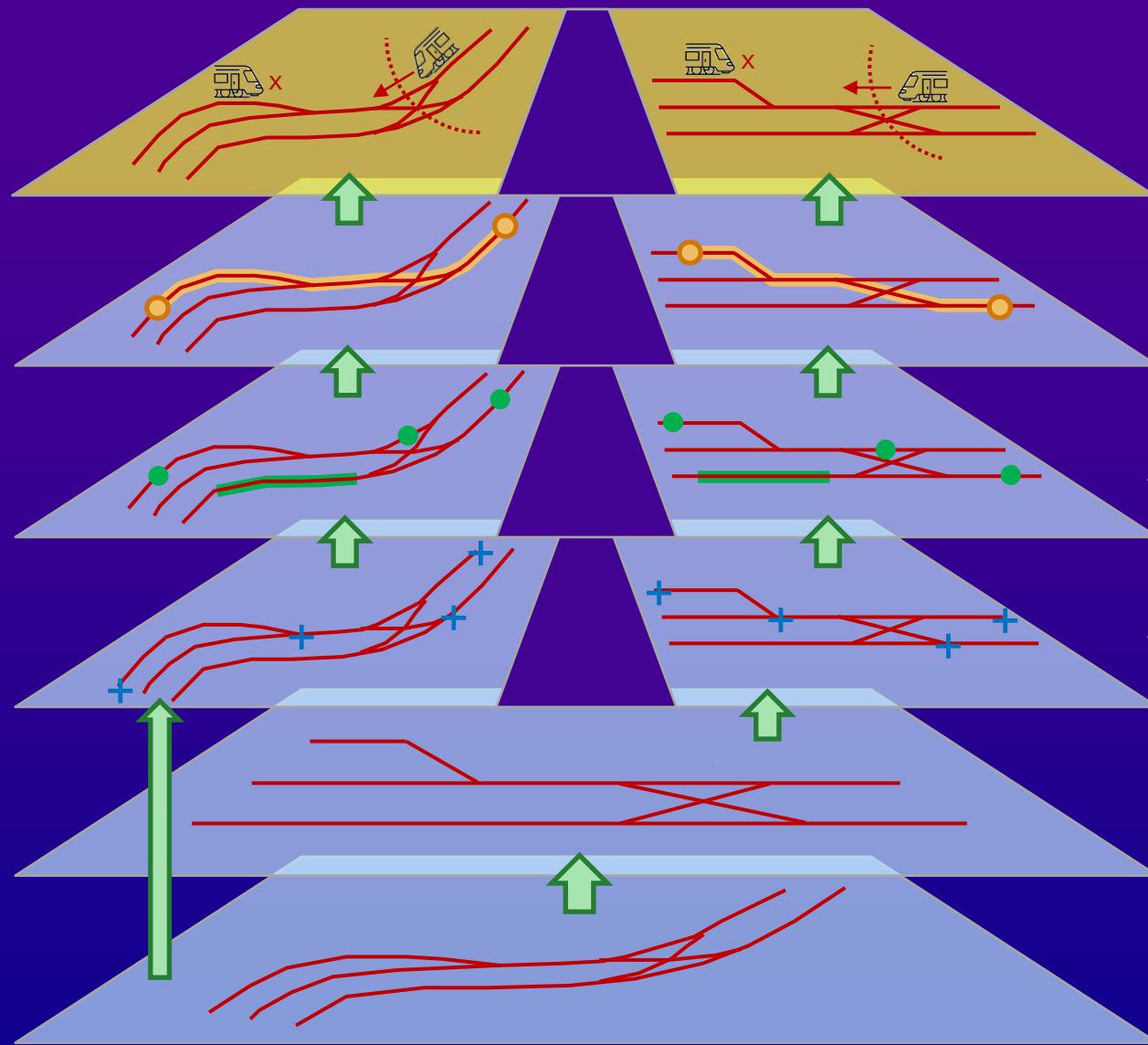
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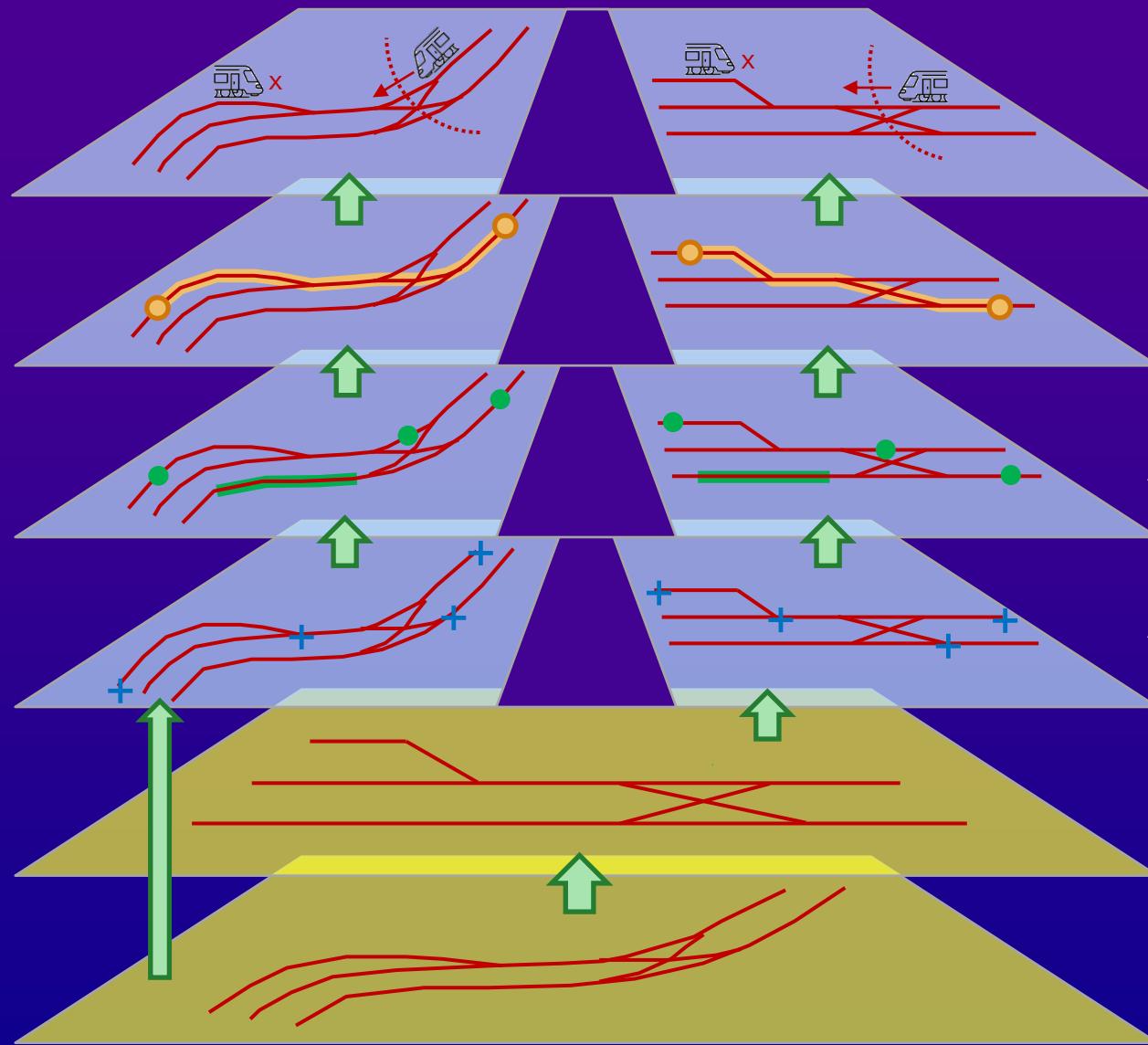
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# Railroads and ArcGIS



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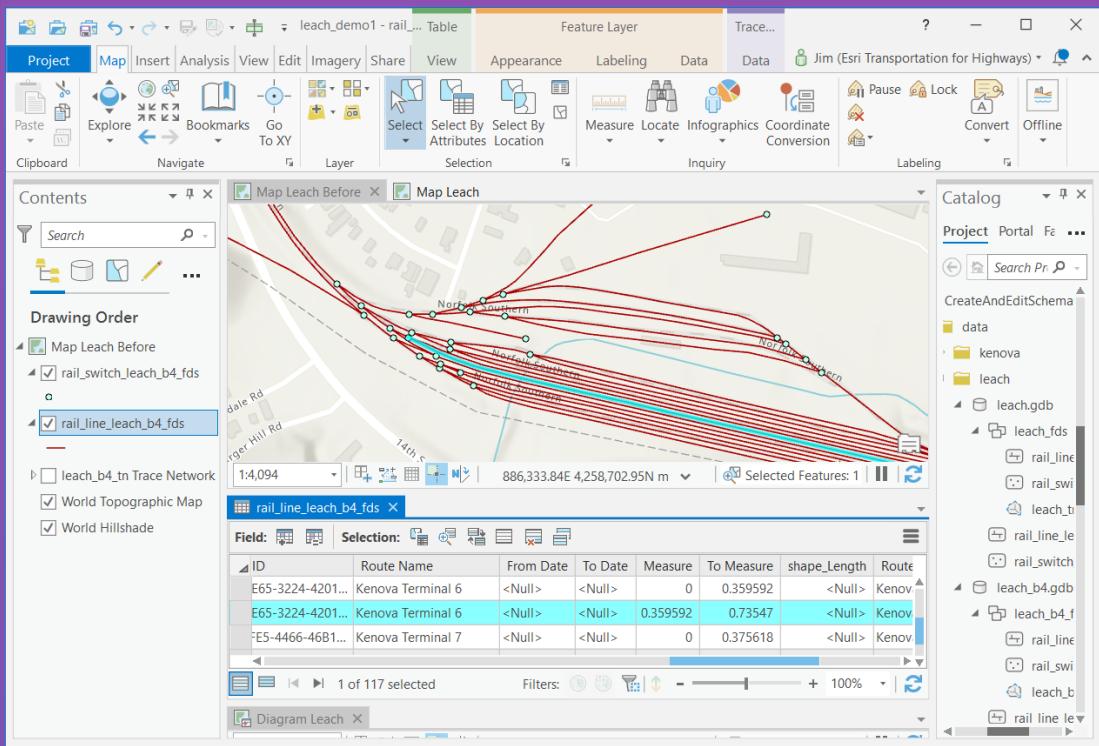
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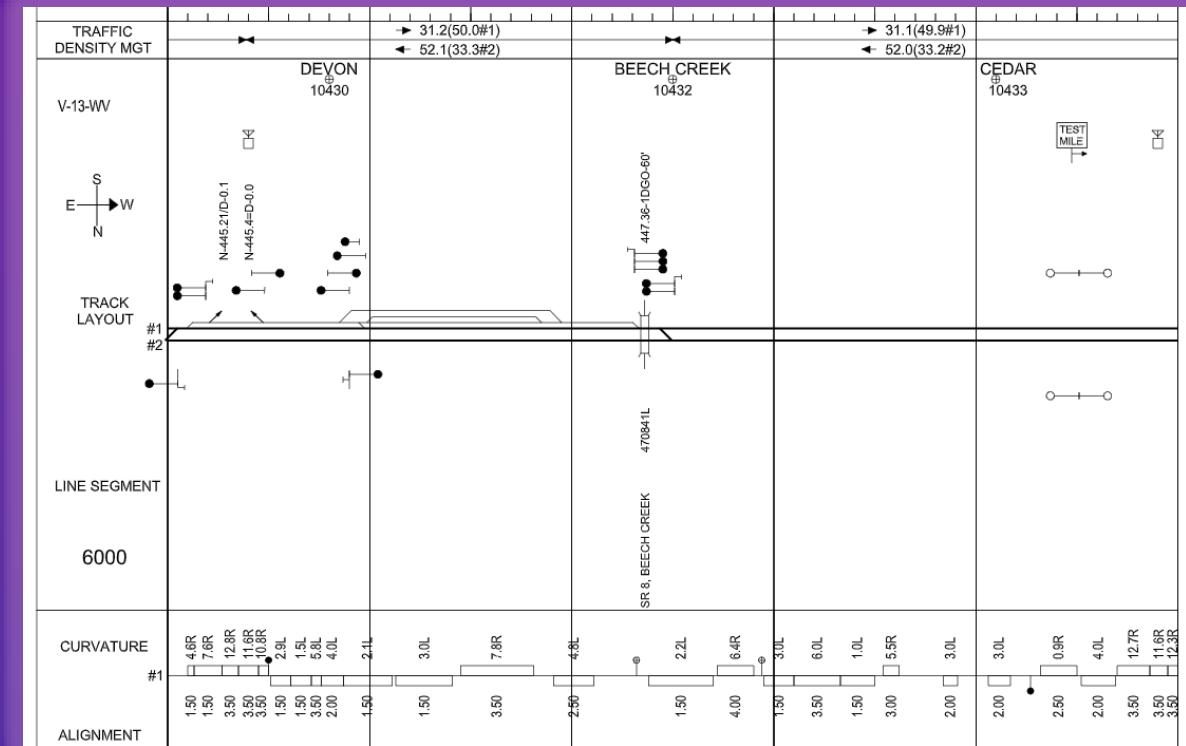


# Geographic



*ArcGIS Pro*

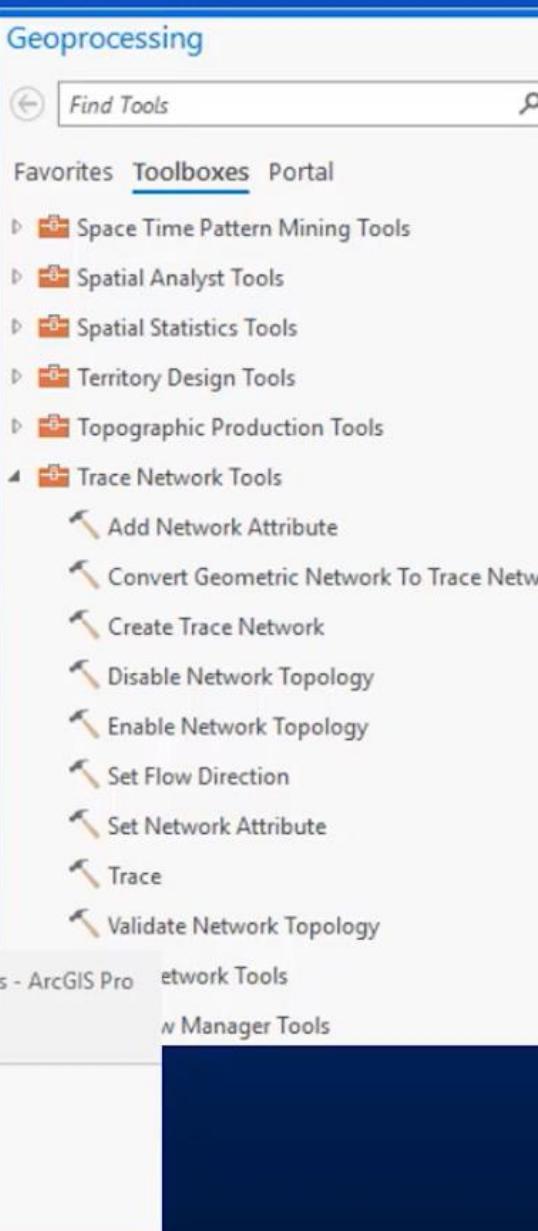
# Schematic



*Track Charts*

# Trace Network

- Simplified network experience for non-utility customers
  - Beta tested with USGS and other government agencies for hydrology
  - Also applicable for rail, social network models, and other non-utility disciplines
- Path forward for geometric network users looking to move to ArcGIS Pro
  - Designed to address the most common geometric network workflows while also providing additional capabilities



Trace Network

leach\_demo1 - Map Leach Before - ArcGIS Pro

Project Map Insert Analysis View Edit Imagery Share Data Selection Inquiry Labeling Offline

Cut Copy Paste Copy Path Clipboard Explore Bookmarks Go To XY Basemap Add Preset Add Graphics Layer Select By Attributes Select By Location Attributes Clear Measure Locate Infographics Coordinate Conversion Pause Lock View Unplaced More Convert Download Map Sync Remove

Contents Search Drawing Order

Map Leach Before Light Gray Reference rail\_switch\_leach\_b4\_fds rail\_line\_leach\_b4\_fds Light Gray Base

Map Leach

Geoprocessing Find Tools Favorites Toolboxes Portal Update Diagram Parcel Tools Server Tools Space Time Pattern Mining Tools Spatial Analyst Tools Spatial Statistics Tools Territory Design Tools Topographic Production Tools Trace Network Tools Trace Configuration Add Network Attribute Convert Geometric Network To Trace Create Trace Network Disable Network Topology Enable Network Topology Set Flow Direction Set Network Attribute Trace Validate Network Topology Utility Network Tools Workflow Manager Tools

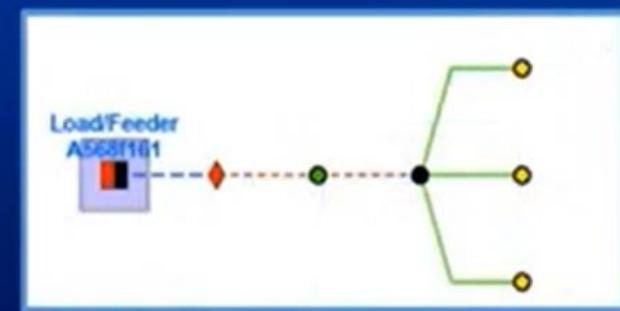
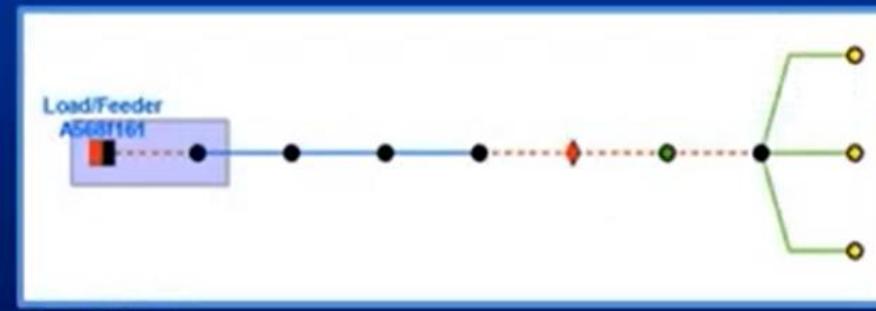
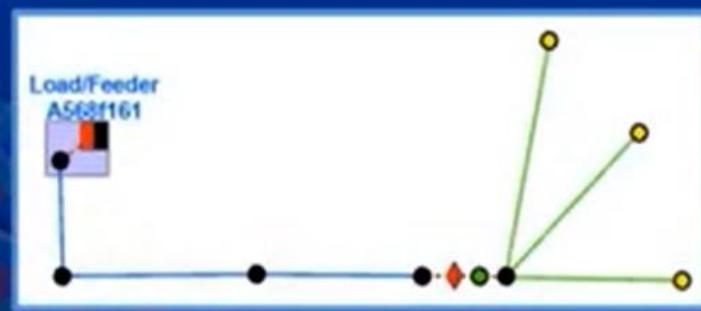
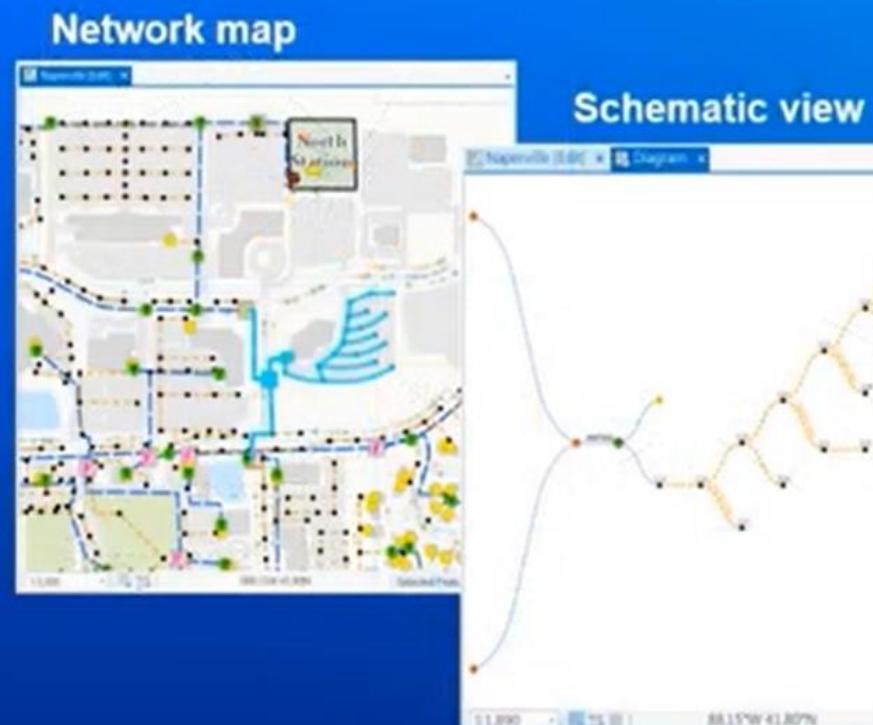
Leach Schematic

1:4,889 82.5941617°W 38.3477280°N Selected Features: 0 Catalog Geoprocessing

A large red 'X' is drawn across the central map area and both the 'Geoprocessing' and 'Toolboxes' toolbars, indicating they are not functional or available.

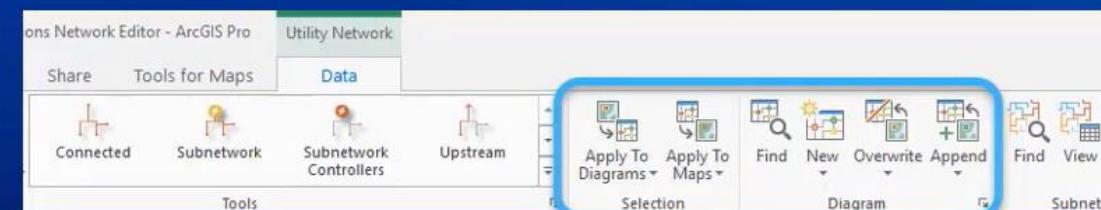
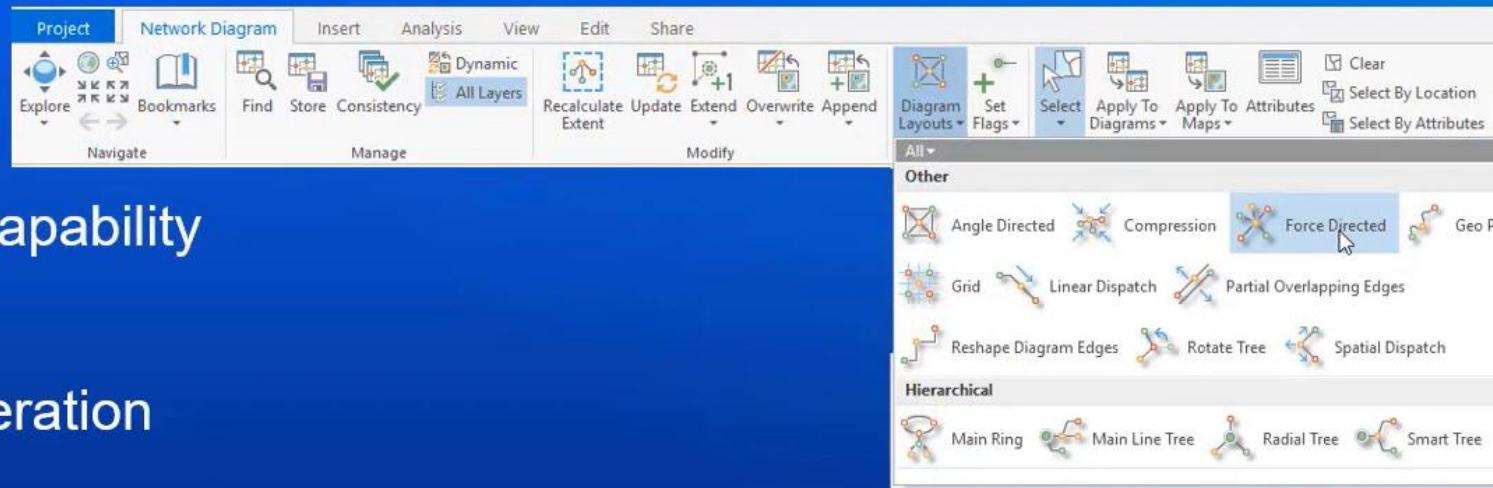
# About Network Diagrams

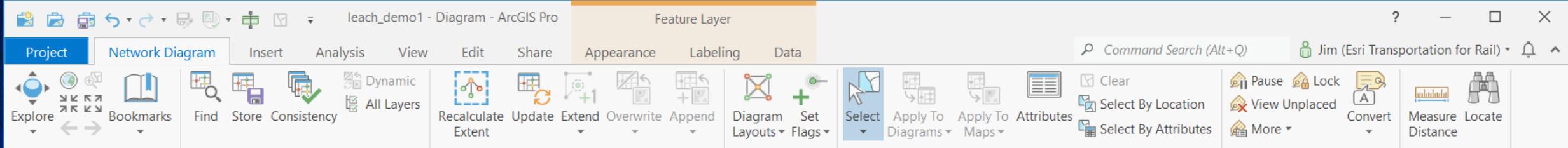
- Allows users to easily create simplified views of the network
- Available as part of the Utility Network and Trace Network
- Consumes the network topology



# Network Diagrams in Utility Networks and Trace Networks

- Use layout algorithms
- Allow manual editing
- Use layer appearance and labelling capability
- Stored in the database
- Created from traces executed at generation and update
- Updated based on the data changes while preserving layout





Contents Map Leach Before Map Leach Diagram X

Search

Drawing Order

- Diagram
- Temporary Diagram
  - rail\_switch\_leach\_fds
  - 
  - rail\_line\_leach\_fds

Map Leach Before

Map Leach

Diagram X

1:19,640 | | 82.6037471°W 38.3615337°N | Selected Features: 0 | Catalog Geoprocessing Symbology

**Apply Relative Mainline Layout**

Schematic diagram mapping tool designed specifically for railroads.

Geoprocessing

Find Tools

Favorites Toolboxes Portal Configuration

Layout

- Apply Angle Directed Layout
- Apply Compression Layout
- Apply Force Directed Layout
- Apply Geo Positions Layout
- Apply Grid Layout
- Apply Linear Dispatch Layout
- Apply Main Ring Layout
- Apply Mainline Tree Layout
- Apply Partial Overlapping Edges Layout
- Apply Radial Tree Layout
- Apply Relative Mainline Layout**
- Apply Rotate Tree Layout
- Apply Smart Tree Layout
- Apply Spatial Dispatch Layout
- Apply Template Layouts
- Reshape Diagram Edges Layout
- Alter Diagram Properties
- Append To Diagram
- Change Diagrams Owner
- Create Diagram

Trace Network

leach\_demo1 - Map Leach Before - ArcGIS Pro

Project Map Insert Analysis View Edit Imagery Share Data Selection Inquiry Labeling Offline

Cut Copy Paste Copy Path Clipboard Navigate Layer

Add Preset Add Graphics Layer Basemap Go To XY Bookmarks Explore Select By Attributes Select By Location Clear Measure Locate Infographics Coordinate Conversion Pause Lock View Unplaced More Convert Download Map Sync Remove

Contents Search Drawing Order

- Map Leach Before
- Light Gray Reference
- rail\_switch\_leach\_b4\_fds
- rail\_line\_leach\_b4\_fds
- Light Gray Base

Map Leach Before X Map Leach

Window Snip

DEM

1:29,065 82.5505620°W 38.3658134°N Selected Features: 0

Leach Schematic X

Catalog Project Portal Favorites

Search Project

- Maps
- Toolboxes
- Databases
- Styles
- Folders
  - demo1
  - CreateAndEditSchematic2
    - data
      - json\_exports
      - kenova
      - leach
        - leach.gdb
          - leach\_fds
            - leach\_tn
            - rail\_line\_leach\_fds
            - rail\_switch\_leach\_fds
          - leach\_lines\_exported
          - leach\_switch\_exported
          - rail\_line\_leach\_base
          - rail\_switch\_leach\_base
        - leach\_b4.gdb
      - restore
    - projects

Catalog Geoprocessing

The screenshot shows a map titled "Map Leach Before" in ArcGIS Pro. The map displays a network of roads and railroads. A prominent red line represents a rail route, with several green circular markers along its path, likely indicating specific locations of interest or data points. A large red text overlay "DEMO" is centered on the map. The ArcGIS Pro ribbon menu is visible at the top, with tabs for Project, Map, Insert, Analysis, View, Edit, Imagery, Share, Data, Selection, Inquiry, Labeling, and Offline. The Data tab is selected. On the left, the Contents pane shows layers like "Map Leach Before", "Light Gray Reference", and "rail\_switch\_leach\_b4\_fds". The Catalog pane on the right lists various project components such as maps, toolboxes, databases, styles, and specific folders like "CreateAndEditSchematic2" and "leach". The bottom status bar shows a scale of 1:29,065 and coordinates of 82.5505620°W 38.3658134°N.

leach\_demo1 - rail\_line\_leach\_b4\_fds - ArcGIS Pro

Project Map Insert Analysis View Edit Imagery Share View Data Trace Network

Cut Copy Paste Copy Path Clipboard Explore Bookmarks Go To XY Basemap Add Preset Add Graphics Layer Select By Attributes Select By Location Select Clear Measure Locate Infographics Coordinate Conversion Pause Lock View Unplaced More Convert Download Map Sync Remove Offline

Contents Search Drawing Order Map Leach Before rail\_switch\_leach\_b4\_fds rail\_line\_leach\_b4\_fds Light Gray Base

Map Leach Before Map Leach

1:5,000 82.5928836°W 38.3476206°N Selected Features: 0

Field: Add Calculate Selection: Select By Attributes Zoom To Switch Clear Delete Copy

| id | To Measure | shape_Length | RouteName2                | NetAttribs | Flow direction | Flow direction | Flow direction | Shape_Length   | Flow direction | Flow direction |                |
|----|------------|--------------|---------------------------|------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
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| 6  | 0.241964   | <Null>       | NS62 Main 1 7.97 Spur 5   |            | 7              | With digitized | With digitized | With digitized | 319.676249     | With digitized | With digitized |
| 4  | 0.428237   | <Null>       | NS62 Main 1 7.97 Spur 5   |            | 7              | With digitized | With digitized | With digitized | 299.778517     | With digitized | With digitized |
| 0  | 0.015886   | <Null>       | Braskem PP Spur Cross...  |            | 8              | With digitized | With digitized | With digitized | 25.565921      | With digitized | With digitized |
| 8  | 0.214466   | <Null>       | NS62 Main 1 7.97 Spur 6   |            | 9              | With digitized | With digitized | With digitized | 319.484103     | With digitized | With digitized |
| 6  | 0.386057   | <Null>       | NS62 Main 1 7.97 Spur 6   |            | 9              | With digitized | With digitized | With digitized | 276.149175     | With digitized | With digitized |
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| 0  | 0.040387   | <Null>       | Braskem PP Spur Cross...  |            | 10             | With digitized | With digitized | With digitized | 64.996232      | With digitized | With digitized |
| 0  | 0.024146   | <Null>       | Braskem PP Spur Cross...  |            | 12             | With digitized | With digitized | With digitized | 38.858707      | With digitized | With digitized |
| 1  | 0.25642    | <Null>       | NS62 Main 1 7.97 Spur 8   |            | 11             | With digitized | With digitized | With digitized | 216.729108     | With digitized | With digitized |
| 2  | 0.452953   | <Null>       | NS62 Main 1 7.97 Spur 8   |            | 11             | With digitized | With digitized | With digitized | 316.290115     | With digitized | With digitized |
| 0  | 0.019002   | <Null>       | Braskem Spur Crossover... |            | 12             | With digitized | With digitized | With digitized | 30.580328      | With digitized | With digitized |
| 5  | 0.436875   | <Null>       | NS62 Main 1 7.97 Spur 9   |            | 13             | With digitized | With digitized | With digitized | 288.265514     | With digitized | With digitized |

0 of 117 selected Filters: - + 100% |

Leach Schematic

Catalog Project Portal Favorites Search Project Maps Toolboxes Databases Styles Folders demo1 CreateAndEditSchematic2 data json\_exports kenova leach leach.gdb leach\_b4.gdb leach\_b4\_fds rail\_line\_leach\_b4\_base rail\_switch\_leach\_b4\_base restore projects mapdata Locators Catalog Create F... Geopro... Modify...

Trace Network

leach\_demo1 - Map Leach Before - ArcGIS Pro

Project Map Insert Analysis View Edit Imagery Share Data Selection Inquiry Labeling Offline

Cut Copy Paste Copy Path Clipboard Explore Bookmarks Go To XY Basemap Add Preset Add Graphics Layer Select By Attributes Select By Location Attributes Clear Measure Locate Infographics Coordinate Conversion Pause Lock View Unplaced More Convert Download Map Sync Remove

Contents Search Drawing Order

Map Leach Before Light Gray Reference rail\_switch\_leach\_b4\_fds rail\_line\_leach\_b4\_fds Light Gray Base

Map Leach

Geoprocessing Find Tools Favorites Toolboxes Portal Update Diagram Parcel Tools Server Tools Space Time Pattern Mining Tools Spatial Analyst Tools Spatial Statistics Tools Territory Design Tools Topographic Production Tools Trace Network Tools Trace Configuration Add Network Attribute Convert Geometric Network To Trace Create Trace Network Disable Network Topology Enable Network Topology Set Flow Direction Set Network Attribute Trace Validate Network Topology Utility Network Tools Workflow Manager Tools

Leach Schematic

1:4,889 82.5941617°W 38.3477280°N Selected Features: 0 Catalog Geoprocessing

A screenshot of the ArcGIS Pro application interface. The title bar reads "leach\_demo1 - Map Leach Before - ArcGIS Pro". The ribbon menu includes "Project", "Map", "Insert", "Analysis", "View", "Edit", "Imagery", "Share", "Data", "Selection", "Inquiry", "Labeling", and "Offline". The "Data" tab is active, showing various tools like "Select", "Select By Attributes", "Select By Location", "Attributes", "Clear", "Measure", "Locate", "Infographics", "Coordinate Conversion", "Pause", "Lock", "View Unplaced", "More", "Convert", "Download Map", and "Sync". The "Selection" group is highlighted. The "Inquiry" group is also visible. The "Labeling" group is partially visible. The "Offline" group is partially visible. On the left, the "Contents" pane shows layers: "Map Leach Before" (checked), "Light Gray Reference" (unchecked), "rail\_switch\_leach\_b4\_fds" (checked), "rail\_line\_leach\_b4\_fds" (checked), and "Light Gray Base" (checked). The main map view shows a network of red lines on a light gray background. A red 'X' is drawn across the entire interface. In the center, a modal window titled "Trace Network Tools" lists nine tools: "Trace Configuration", "Add Network Attribute", "Convert Geometric Network To Trace", "Create Trace Network", "Disable Network Topology", "Enable Network Topology", "Set Flow Direction", "Set Network Attribute", and "Trace". To the right of the modal, another red 'X' is drawn across the "Geoprocessing" pane. The "Geoprocessing" pane itself lists several toolboxes: "Favorites", "Toolboxes", "Portal", "Update Diagram", "Parcel Tools", "Server Tools", "Space Time Pattern Mining Tools", "Spatial Analyst Tools", "Spatial Statistics Tools", "Territory Design Tools", "Topographic Production Tools", "Trace Network Tools", "Utility Network Tools", and "Workflow Manager Tools". Under "Trace Network Tools", the same nine tools are listed again. At the bottom, there are buttons for "Catalog" and "Geoprocessing". The status bar at the bottom shows "1:4,889", "82.5941617°W 38.3477280°N", and "Selected Features: 0".

leach\_demo1 - Map Leach - ArcGIS Pro

Project Map Insert Analysis View Edit Imagery Share Appearance Labeling Data Data

Cut Copy Paste Copy Path Clipboard Explore Bookmarks Go To XY Basemap Add Preset Add Graphics Layer Select Select By Attributes Select By Location Attributes Clear Measure Locate Infographics Coordinate Conversion Pause Lock View Unplaced More Convert Download Map Sync Remove

Contents Map Leach Before Map Leach X

Search Drawing Order NetAttrs

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

leach\_tn Trace Network

Point Errors

Line Errors

System Junctions

Dirty Areas

Point Errors

Line Errors

System Junctions

Dirty Areas

Map Leach Before

Map Leach X

Geoprocessing

Find Tools

Favorites Toolboxes Portal

- Update Diagram
- Parcel Tools
- Server Tools
- Space Time Pattern Mining Tools
- Spatial Analyst Tools
- Spatial Statistics Tools
- Territory Design Tools
- Topographic Production Tools
- Trace Network Tools
  - Trace Configuration
  - Add Network Attribute
  - Convert Geometric Network To Trace
  - Create Trace Network
  - Disable Network Topology
  - Enable Network Topology
  - Set Flow Direction
  - Set Network Attribute
  - Trace
  - Validate Network Topology
- Utility Network Tools
- Workflow Manager Tools

Selected Features: 0

1:5,000 884,884.85E 4,253,363.39N m

Leach Schematic X

Catalog Geoprocessing

A screenshot of the ArcGIS Pro application interface. The main window displays a map titled 'Map Leach' with several network layers shown as colored lines (blue, green, orange, pink) and nodes. A red arrow points from the 'Point Errors' section in the legend on the left to a specific location on the map where a blue line segment has a red dot indicating an error. The 'Trace Network' tools section in the geoprocessing pane is also circled in red.

leach\_demo1 - Map Leach - ArcGIS Pro

Project Map Insert Analysis View Edit Imagery Share Appearance Labeling Data Data

Cut Copy Paste Copy Path Clipboard Explore Bookmarks Go To XY Basemap Add Preset Add Graphics Layer Select Select By Attributes Select By Location Attributes Clear Measure Locate Infographics Coordinate Conversion Pause Lock View Unplaced More Convert Download Map Sync Remove

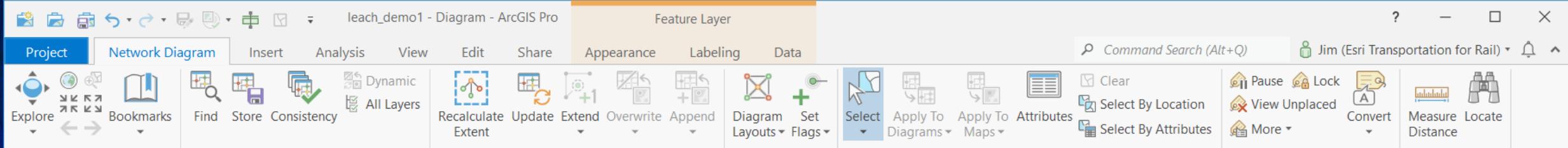
Contents Drawing Order NetAttrs 1 2 3 4 5 6 7 8 9 10 11 12 13 14 leach\_tn Trace Network Point Errors Line Errors System Junctions Dirty Areas World Topographic M...

Map Leach Before Map Leach Leach Schematic

Map Leach Before Map Leach Leach Schematic

Navigation Dr. Buckeye Industrial Dr. ROUTE 522 ROUTE 522 Sandy River Rd 546 543 Leach Station KENTUCKY ROUTE 23 1:5,000 Selected Features: 55

Geoprocessing Find Tools Favorites Toolboxes Portal Update Diagram Parcel Tools Server Tools Space Time Pattern Mining Tools Spatial Analyst Tools Spatial Statistics Tools Territory Design Tools Topographic Production Tools Trace Network Tools Trace Configuration Add Network Attribute Convert Geometric Network To Trace Create Trace Network Disable Network Topology Enable Network Topology Set Flow Direction Set Network Attribute Trace Validate Network Topology Utility Network Tools Workflow Manager Tools Catalog Geoprocessing



Contents Map Leach Before Map Leach Diagram X

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- Diagram
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  - 
  - rail\_line\_leach\_fds

Map Leach Before

Map Leach

Diagram X

1:19,640 | | 82.6037471°W 38.3615337°N | Selected Features: 0 | Catalog Geoprocessing Symbology

**Apply Relative Mainline Layout**

Schematic diagram mapping tool designed specifically for railroads.

Geoprocessing

Find Tools

Favorites Toolboxes Portal Configuration

Layout

- Apply Angle Directed Layout
- Apply Compression Layout
- Apply Force Directed Layout
- Apply Geo Positions Layout
- Apply Grid Layout
- Apply Linear Dispatch Layout
- Apply Main Ring Layout
- Apply Mainline Tree Layout
- Apply Partial Overlapping Edges Layout
- Apply Radial Tree Layout
- Apply Relative Mainline Layout**
- Apply Rotate Tree Layout
- Apply Smart Tree Layout
- Apply Spatial Dispatch Layout
- Apply Template Layouts
- Reshape Diagram Edges Layout
- Alter Diagram Properties
- Append To Diagram
- Change Diagrams Owner
- Create Diagram

Project Map Insert Analysis View Imagery Share Data

Cut Copy Paste Copy Path

Clipboard

Explore Basemap Add Preset Add Graphics Layer

Add Data

Select By Attributes Select By Location

Select By Measure Locate Infographics Coordinate Conversion

Clear Pause Lock View Unplaced Convert Download Map

More

Navigate Layer Selection Inquiry Labeling Offline

Contents

Search

Drawing Order

HUC\_12

NHDPoint

NHDLINE

NHDflowline

FType

- Connector
- CanalDitch
- Underground Conduit
- Pipeline
- StreamsRiver
- ArtificialPath
- Coastline
- <all other values>

NHDWaterbody

NHDArea

HYDRO\_NET Trace Network

Live Stream Gauges (Flooding)

Watershed Boundaries

USGS National Map

World Topographic Map

HUC\_12 X

1:14,400

538,102.70E 4,890,179.90N m

Selected Features

**Network attributes in the trace network**

- Associated with feature attributes in your network and stored in the network topology.
- Used to model cost and traversability.

ArcGIS Pro interface showing a map and a table view.

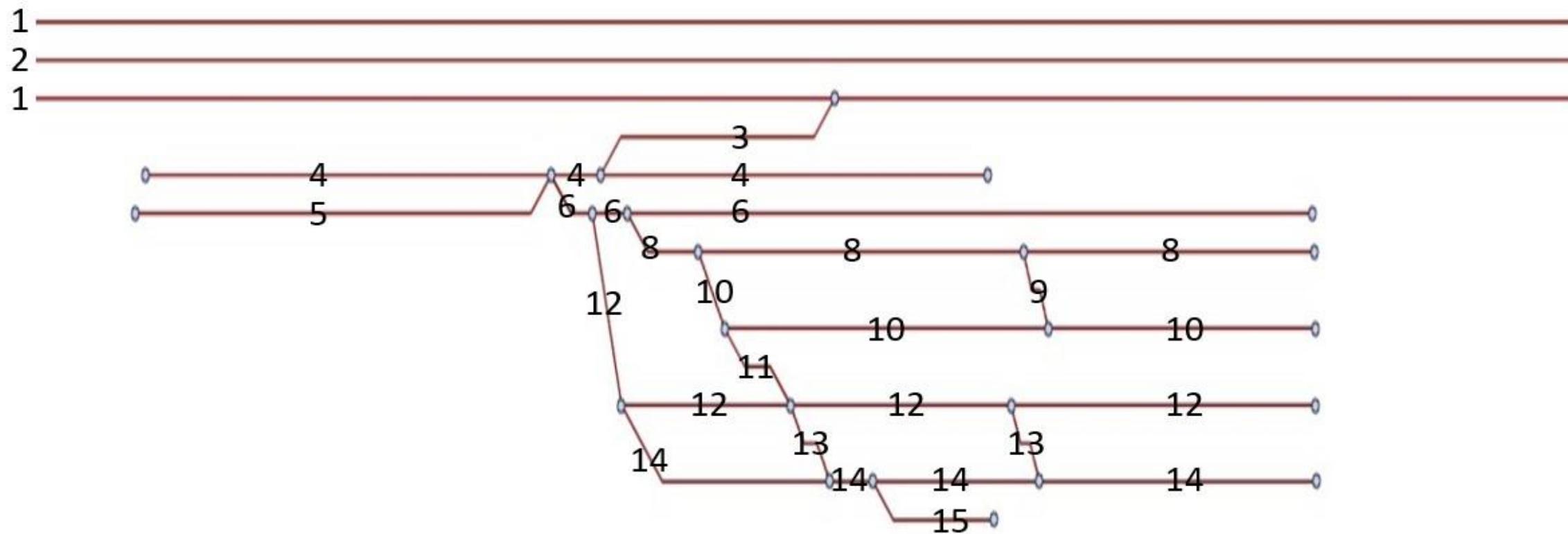
**Map View:** Displays a map titled "Map Leach Before" and "Map Leach". The map shows red rail lines and green dots representing specific locations. The map includes a scale bar (1:5,000), coordinates (82.5928836°W 38.3476206°N), and a legend.

**Table View:** Shows a table titled "rail\_line\_leach\_b4\_fds" with the following columns:

| Index | To Measure | shape_Length | RouteName2               | NetAttribs | Flow direction | Flow direction | Flow direction | Shape_Length   | Flow direction | Flow direction |                |
|-------|------------|--------------|--------------------------|------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| 0     | 0.043326   | <Null>       | NS62 Main 1 7.97 Spur 5  |            | 6              | With digitized | With digitized | With digitized | 69.727166      | With digitized | With digitized |
| 6     | 0.241964   | <Null>       | NS62 Main 1 7.97 Spur 5  |            | 7              | With digitized | With digitized | With digitized | 319.676249     | With digitized | With digitized |
| 4     | 0.428237   | <Null>       | NS62 Main 1 7.97 Spur 5  |            | 7              | With digitized | With digitized | With digitized | 299.778517     | With digitized | With digitized |
| 0     | 0.015886   | <Null>       | Braskem PP Spur Cross... |            | 8              | With digitized | With digitized | With digitized | 25.565921      | With digitized | With digitized |
| 8     | 0.214466   | <Null>       | NS62 Main 1 7.97 Spur 6  |            | 9              | With digitized | With digitized | With digitized | 319.484103     | With digitized | With digitized |
| 6     | 0.386057   | <Null>       | NS62 Main 1 7.97 Spur 6  |            | 9              | With digitized | With digitized | With digitized | 276.149175     | With digitized | With digitized |
| 0     | 0.015948   | <Null>       | NS62 Main 1 7.97 Spur 6  |            | 8              | With digitized | With digitized | With digitized | 25.665955      | With digitized | With digitized |
| 0     | 0.040387   | <Null>       | Braskem PP Spur Cross... |            | 10             | With digitized | With digitized | With digitized | 64.996232      | With digitized | With digitized |
| 0     | 0.024146   | <Null>       | Braskem PP Spur Cross... |            | 12             | With digitized | With digitized | With digitized | 38.858707      | With digitized | With digitized |
| 1     | 0.25642    | <Null>       | NS62 Main 1 7.97 Spur 8  |            | 11             | With digitized | With digitized | With digitized | 216.729108     | With digitized | With digitized |
| 2     | 0.452953   | <Null>       | NS62 Main 1 7.97 Spur 8  |            | 11             | With digitized | With digitized | With digitized | 316.290115     | With digitized | With digitized |
| 0     | 0.019002   | <Null>       | Braskem Spur Crossin...  |            | 12             | With digitized | With digitized | With digitized | 30.580328      | With digitized | With digitized |
| 5     | 0.436875   | <Null>       | NS62 Main 1 7.97 Spur 9  |            | 13             | With digitized | With digitized | With digitized | 288.265514     | With digitized | With digitized |

**Selection:** The "Selection" tab is highlighted in the table header, showing 0 of 117 selected features.

**Catalog:** The Catalog pane shows the project structure, including Folders, Maps, Toolboxes, Databases, Styles, and Projects.



Trace Network leach\_demo1 - Map Leach - ArcGIS Pro

Project Map Insert Analysis View Edit Imagery Share Data

Cut Copy Paste Copy Path Clipboard Explore Bookmarks Go To XY Basemap Add Preset Add Graphics Layer Select By Attributes Select By Location Clear Measure Locate Infographics Coordinate Conversion Pause Lock View Unplaced More Convert Download Map Remove Offline

Jim (Esri Transportation Portal)

Contents Search Drawing Order

- Map Leach
- Light Gray Reference
- Leach Exported
- leach\_fds
  - rail\_switch\_leach\_fds
  -
- rail\_line\_leach\_fds

NetAttrs

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

leach\_tn Trace Network

Light Gray Base

Map Leach Before Map Leach Leach Schematic

1:5,000 884,904.96E 4,253,622.68N m Selected Features: 0

1:5,000 82.5805814°W 38.3524753°N Selected Features: 0

Catalog Project Portal Favorites

Search Project

- Maps
- Toolboxes
- Databases
- Styles
- Folders
  - demo1
  - CreateAndEditSchematic2
    - data
      - json\_exports
      - kenova
      - leach
        - leach.gdb
          - leach\_fds
            - rail\_line\_leach\_fds
            - rail\_switch\_leach\_fds
            - leach\_tn
          - leach\_lines\_export
          - leach\_switch\_export
          - rail\_line\_leach\_base
          - rail\_switch\_leach\_base
        - leach\_b4.gdb
      - restore

Create F... Geopro... Modify...

leach\_demo1 - Map Leach - ArcGIS Pro

Project Map Insert Analysis View Edit Imagery Share Layer Trace Network Appearance Data

In Beyond <None> Transparency 60.7% Swipe  
Out Beyond <None> Layer Blend Normal  
Clear Limits Feature Blend Normal

Visibility Range Effects Compare Drawing Symbology

Contents Search Drawing Order

Map Leach Before Map Leach

Map Leach  
Leach Exported  
leach\_fds  
rail\_switch\_leach\_fds  
rail\_line\_leach\_fds

NetAttributes

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

leach\_tn Trace Network  
World Topographic Map

1:6,000 884,991.11E 4,253,175.01N m Selected Features: 0

Catalog Project Portal Favorites

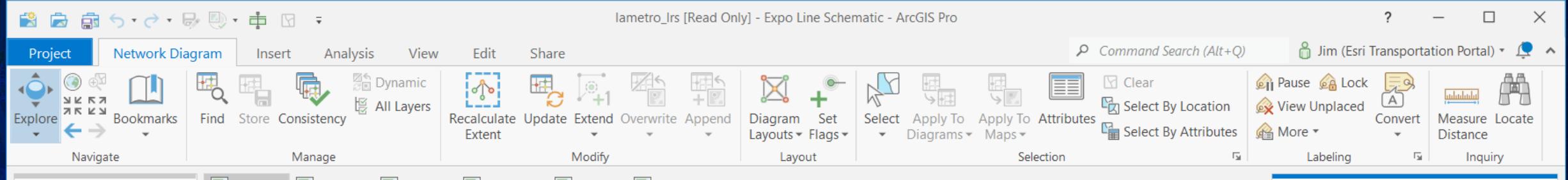
Search Project Maps Toolboxes Databases Styles Folders demo1 CreateAndEditSchematic2 data json\_exports kenova leach leach\_fds rail\_line\_leach\_fc rail\_switch\_leach leach\_tn leach\_lines\_export leach\_switch\_export rail\_line\_leach\_base rail\_switch\_leach\_base leach\_b4.gdb restore

Leach Schematic

Jim (Esri Transportation Portal)

Leach Schematic X

The screenshot displays a complex rail network analysis in ArcGIS Pro. The main map view shows several rail lines (represented by colored lines with green circular endpoints) originating from a 'Leach Station' in Kentucky and extending into West Virginia. One prominent line runs along the Ohio River. A blue shaded area indicates a water body. The map also features contour lines and state boundaries for Kentucky and West Virginia. The 'Drawing Order' panel on the left shows the layers being displayed, with 'Map Leach' at the top. The 'NetAttributes' legend provides a key for the rail line colors. The 'Catalog' pane on the right lists various project components, including 'Maps', 'Toolboxes', 'Databases', 'Styles', and specific folder structures like 'demo1' and 'CreateAndEditSchematic2'. The 'data' folder under 'CreateAndEditSchematic2' contains sub-items such as 'json\_exports', 'kenova', 'leach', 'leach\_fds', 'leach\_b4.gdb', and 'restore'.



**Contents** Search

**Drawing Order**

- Expo Line Schematic
- Expo Line Schematic
  - expo\_switches\_lrs\_infds
  - expo\_tracks\_lrs\_infds

**NetAttrs**

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

**Geoprocessing** Find Tools

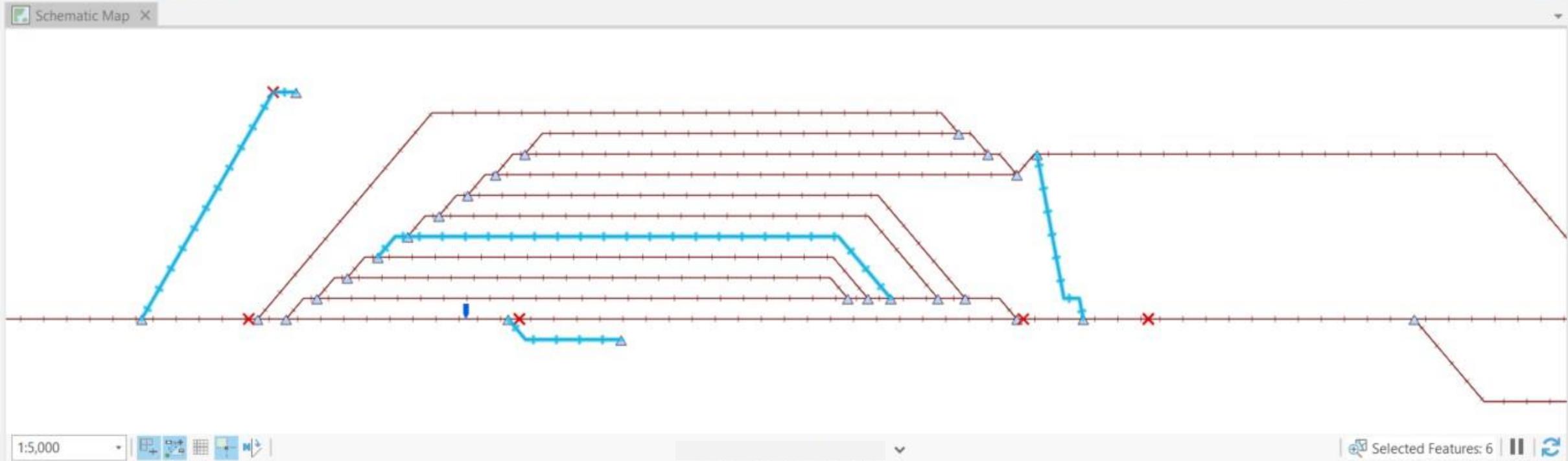
Favorites Toolboxes Portal

- Add Network Attribute (Trace Network)
- Create Trace Network (Trace Network)
- Disable Network Topology (Trace Network)
- Enable Network Topology (Trace Network)
- Set Network Attribute (Trace Network)
- Validate Network Topology (Trace Network)
- Apply Relative Mainline Layout (Network Analyst)
- Feature Class To Feature Class (Conversion)
- Project (Data Management Tools)

Recent

- Generate Routes (Location Referencing)
- Generate Calibration Points (Location Referencing)
- Append Routes (Location Referencing)
- Remove Join (Data Management Tools)
- Calculate Field (Data Management Tools)
- Add Join (Data Management Tools)
- Summary Statistics (Analysis Tools)
- Create LRS Event (Location Referencing)
- Create LRS Network (Location Referencing)
- Create LRS (Location Referencing Tools)

1:5,000 6,422,943.41E 1,834,045.83N ftUS | Selected Features: 0 | Catalog Geoproc... Trace Loca... History



Feature Layer Linear Referencing

Project Layout Insert Analysis View Share Appearance Labeling Data Data

Cut Copy Paste Navigate Select All Clear Selection Delete Elements

Orientation Map Series Activate Zoom To Map View Bookmarks Check Spelling

Clipboard Navigate Page Setup Show Map Review

Contents

Search

Drawing Order

Map Frame 2  
Text 9  
Map Frame 1  
Map Frame 4  
Text 8  
Text 6  
Text 1  
Text  
MP\_5  
MP\_4  
MP\_3  
MP\_2  
MP\_1  
MP\_0  
Line 62  
Line 61  
Map Frame  
Line 7  
Line 6  
Line 5  
Line 4

Map2 Diagram4 Layout5 TrackChartTest\_1 Diagram15 TrackChartTest\_1\_Layout ESRI\_Test

-1 0 1 2 3 4 5 6 7 8 9 10 11 12

RAILROAD Track Chart PAGE: 8 of 8 Last Revised Date: 10/20/2022 SUBDIVISION MP 45 to 47

L Rail R Rail Traffic MGT Speed Method of Operation

110RE 4.065 10 mph OTM

45 46 47

MAIN LINE

DEGREE OF CURVE 3.07 R

HORIZONTAL ALIGNMENT 2.8 L

SUPERELEVATION 0.81 0.03

GRADE (%) -0.92

KODIAK - GARDEN RD KODIAK - LANE ST KODIAK - GARDEN RD KODIAK - LANE ST KODIAK - CENTRE ST KODIAK - GARDEN ST KODIAK - PORT

\*For General Reference Only - Not for Operational Purposes

1:36,000 68% 5.653, 5.408

Export Layout

Properties Security Accessibility Map Series

Name <Charts\TrackChartTest\TrackChartTest>

Clip to graphics extent

Compression

Output as image

Image compression Adaptive

Quality Low Ma

Compress vector graphics

Resolution

Vector resolution 300 DPI

Raster resample Best Normal Fast

Ratio 1: 1 300 DPI

Fonts

Embed fonts

Export

Export Completed View exported file

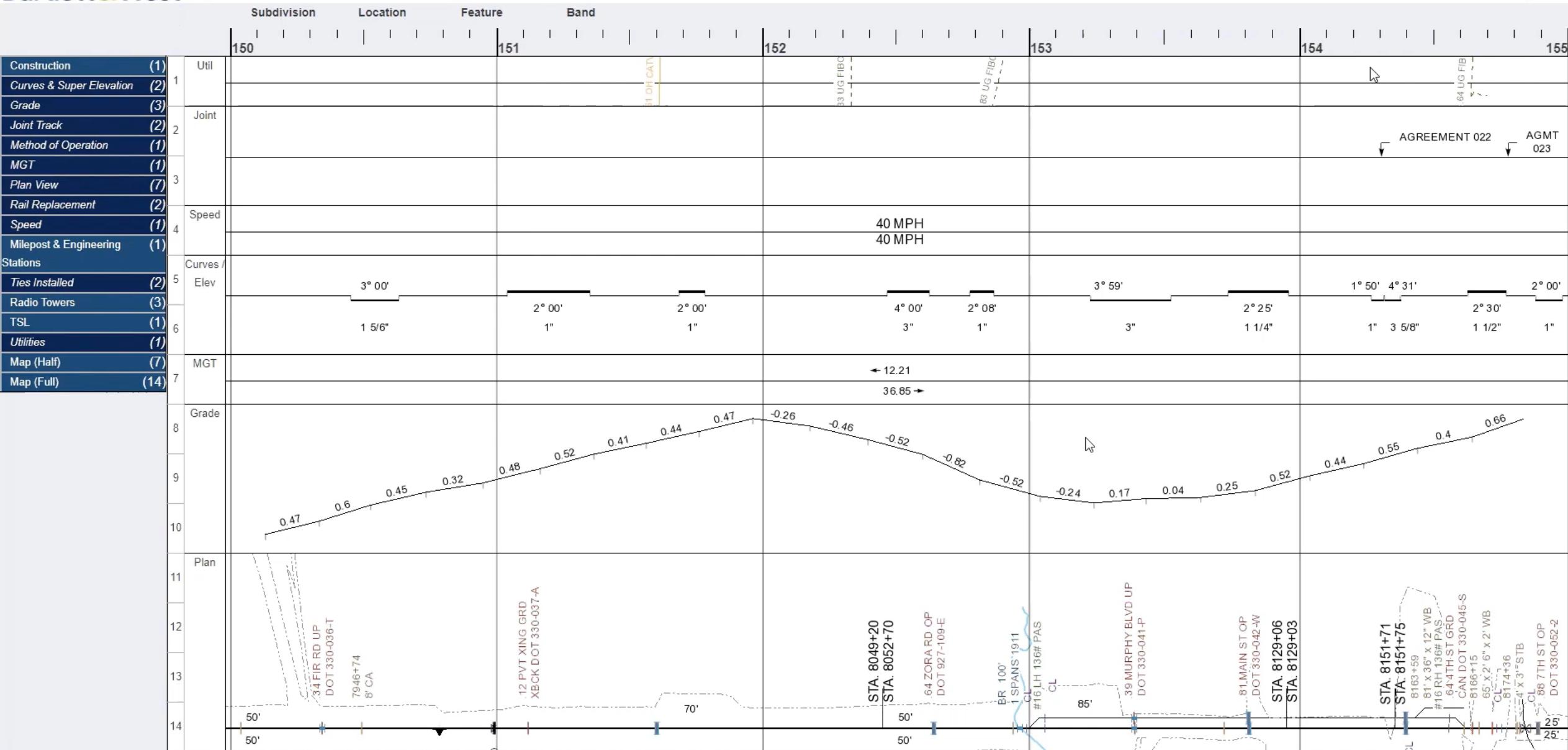
C... At... Sy... M... Cr... La... El... Ex... G...

Type here to search

9:12 AM 6/7/2022

# Bartlett & West Dynamic Track Charts

Abbreviations Legend Help



NorfolkSouthern\_DataLoadingPublishing - Intermediate - Editing - ArcGIS Pro

Utility Network

Project Map Insert Analysis ... Location Referencing Share Data

Global Local Convert Map View Link Views ... Reset Panes Catalog Pane Catalog Contents Geoprocessing Python window Tasks Reviewer Rules Workflow Manager Aviation Indoors Add Remove Enable Location Depth Priority Drawing Mode Mode Distance ...

Windows Animation Device Location Scene View Clipping Navigation

Rail (Esri Transportation Portal) ...

Contents Terminal\_NetworkDiagram Intermediate - Editing

Search ...

Drawing Order

- Redline
- Timber Surface
- Max Speed
  - 10 mph
  - 15 mph
  - 30 mph
  - 35 mph
  - 40 mph
  - 45 mph
  - 50 mph
- Control
- Curvature
- Rail Network
- Rail Centerline
  - Unknown
  - Main Line
  - Secondary

Catalog

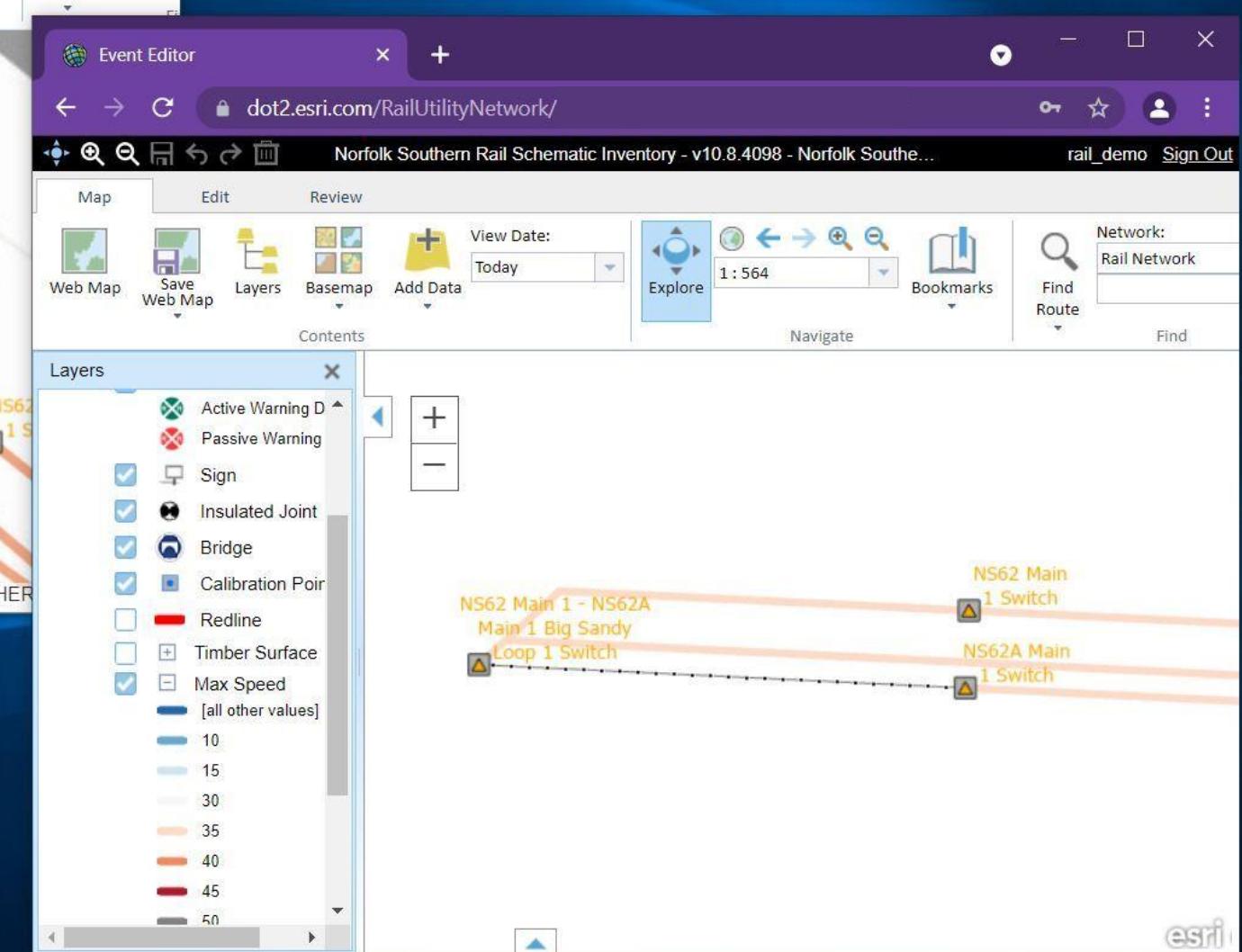
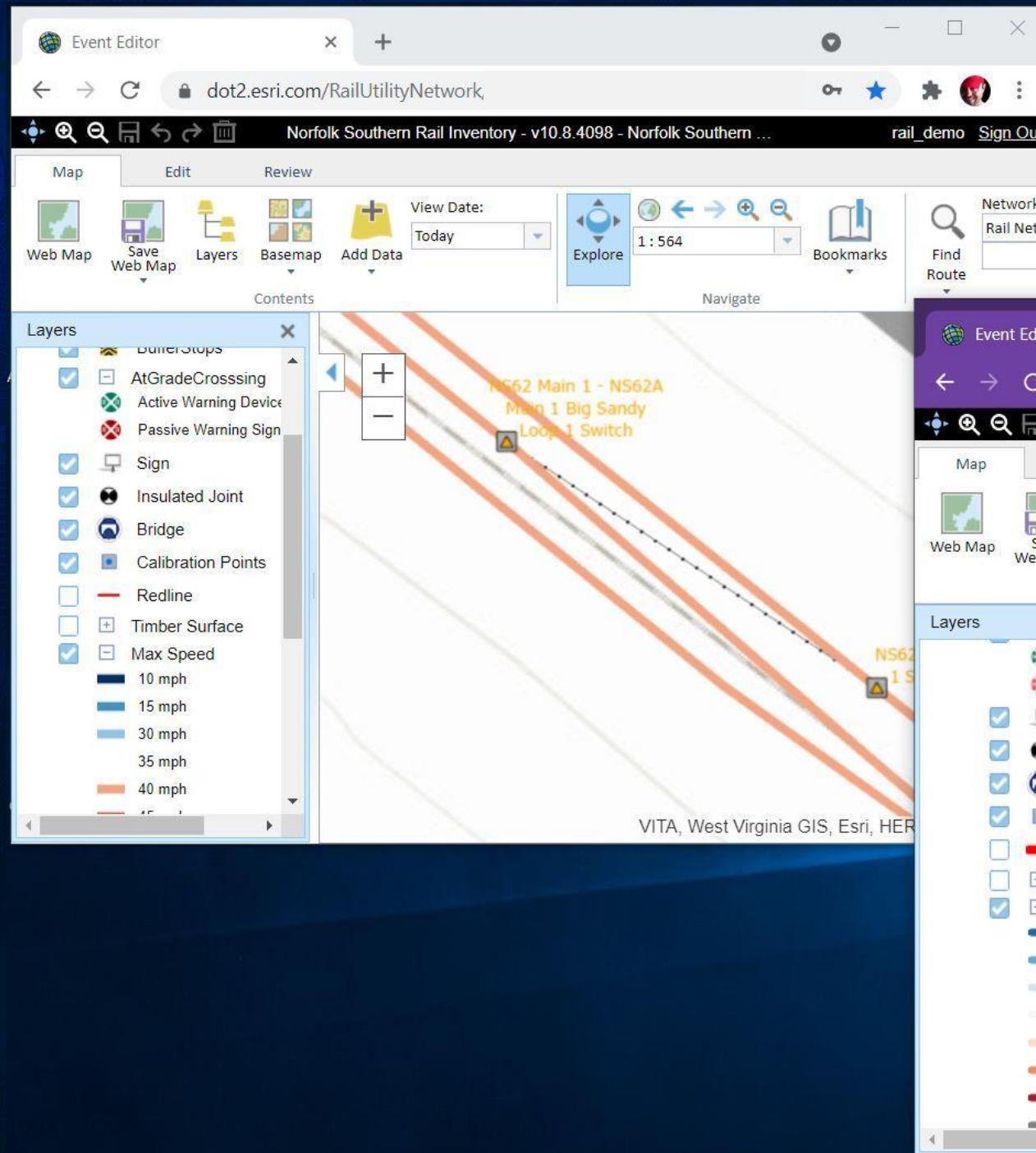
Project Portal Favorites

Search Project ...

- Maps
- Toolboxes
- Notebooks
- Databases
- Styles
- Folders
- Locators

1:716 | ... | Selected Features: 0 | Trace Loca... Geoproc... Modify Ter... Catalog

82.5887424°W 38.3420441°N



Event Editor

dot2.esri.com/RailUtilityNetwork/NorfolkSouthernSchematicInventory/

Norfolk Southern Rail Schema

Southern Schematic LRS E...

rail\_demo Sign Out

Map Edit Review

Web Map Save Web Map Layers Basemap Add Data View Date: Today Explore 1:564 Bookmarks Find Route Network: Rail Network Find Identify

Layers

- Insulated Joint
- Bridge
- Calibration Point
- Redline
- Timber Surface
- Max Speed [all other values]
- 10
- 15
- 30
- 35
- 40
- 45
- 50
- Control
- Curvature
- Rail Network
- Centerline
- Blank White Vector Base

NS62 Main 1 - NS62A  
Main 1 Big Sandy  
Loop 1 Switch

NS62 Main 1 Switch

NS62A Main 1 Switch

POWERED BY esri

The screenshot shows a detailed rail schematic map from the Esri Event Editor. The map displays a network of rail lines, switches, and specific locations. Key features labeled include 'NS62 Main 1 - NS62A', 'Main 1 Big Sandy', 'Loop 1 Switch', 'NS62 Main 1 Switch', and 'NS62A Main 1 Switch'. The map is overlaid with a legend on the left side, which includes icons for insulated joints, bridges, calibration points, redlines, timber surfaces, max speed values (10, 15, 30, 35, 40, 45, 50), control, curvature, rail networks, centerlines, and blank white vector bases. The interface also includes a toolbar with various map-related tools and a network selection dropdown set to 'Rail Network'.

Event Editor

dot2.esri.com/RailUtilityNetwork/NorfolkSouthernSchematicInventory/ rail\_demo Sign Out

Norfolk Southern Rail Schematic Inv

Rail Schematic LRS Event Editing

Map Edit Review

Save Edits Undo Redo Discard Edits

Version: sde.DEFAULT

Select Rectangle Layer: Max Speed

Return attribute set

Point Events Line Events Event Replacement

Attribute Set: NS Schematic Route Edging

Manage Edits Versioning Selection Edit Events

Layers

Add Linear Events

New Edit Next Edit

Network: Rail Network

Route Name: NS62A Main 1 Ke▼

From

Method: Rail Network

Measure: 0 Miles

To

Method: Rail Network

Measure: 0.355631 Miles

Dates

Start Date: 7/2/2021 Use route start date

End Date: Use route end date

NS62 Main 1 - NS62A Main 1 Big Sandy Loop 1 Switch

NS62 Main 1 Switch

NS62A Main 1 Switch

POWERED BY esri

Event Editor

dot2.esri.com/RailUtilityNetwork/NorfolkSouthernSchematicInventory/ rail\_demo Sign Out

Norfolk Southern Rail Schematic Inv

Rail Schematic LRS Event Editing

Map Edit Review

Save Edits Undo Redo Discard Edits Versioning

Layer: Max Speed

Point Events Line Events Event Replacement

Attribute Set: NS Schematic Route Edging

Manage Edits Selection Edit Events

Layers

Add Linear Events

|   | Orientation          | Shape              |
|---|----------------------|--------------------|
|   | Elevation            | <null>             |
|   | Status               | <null>             |
| <input checked="" type="checkbox"/> Max Speed | D Curve Function     | Tangent (Straight) |
|   | D Track              | 001                |
|   | Speed                | 45 mph             |
|   | Status               | <null>             |
| <input type="checkbox"/> Timber Surface       | Status               | <null>             |
|   | Surface Month        | <null>             |
|   | Surface Year         | <null>             |
|   | Timber Surface Month | <null>             |

Show network names

NS62 Main 1 Switch  
Main 1 Big Sandy Loop 1 Switch  
NS62A Main 1 Switch

POWERED BY esri

Event Editor

dot2.esri.com/RailUtilityNetwork/NorfolkSouthernSchematicInventory/ rail\_demo Sign Out

Norfolk Southern Rail Schematic Inv

Rail Schematic LRS Event Editing

Map Edit Review

Save Edits Undo Redo Discard Edits

Version: sde.DEFAULT

Select Rectangle Layer: Max Speed

Return attribute set

Point Events Line Events Event Replacement

Attribute Set: NS Schematic Route Edging

Manage Edits Versioning Selection Edit Events

Layers

- Active Warning Device
- Passive Warning Sign
- Sign
- Insulated Joint
- Bridge
- Calibration Points
- Redline
- Timber Surface
- Max Speed
- [all other values]
- 10
- 15
- 30
- 35
- 40
- 45
- 50
- Control

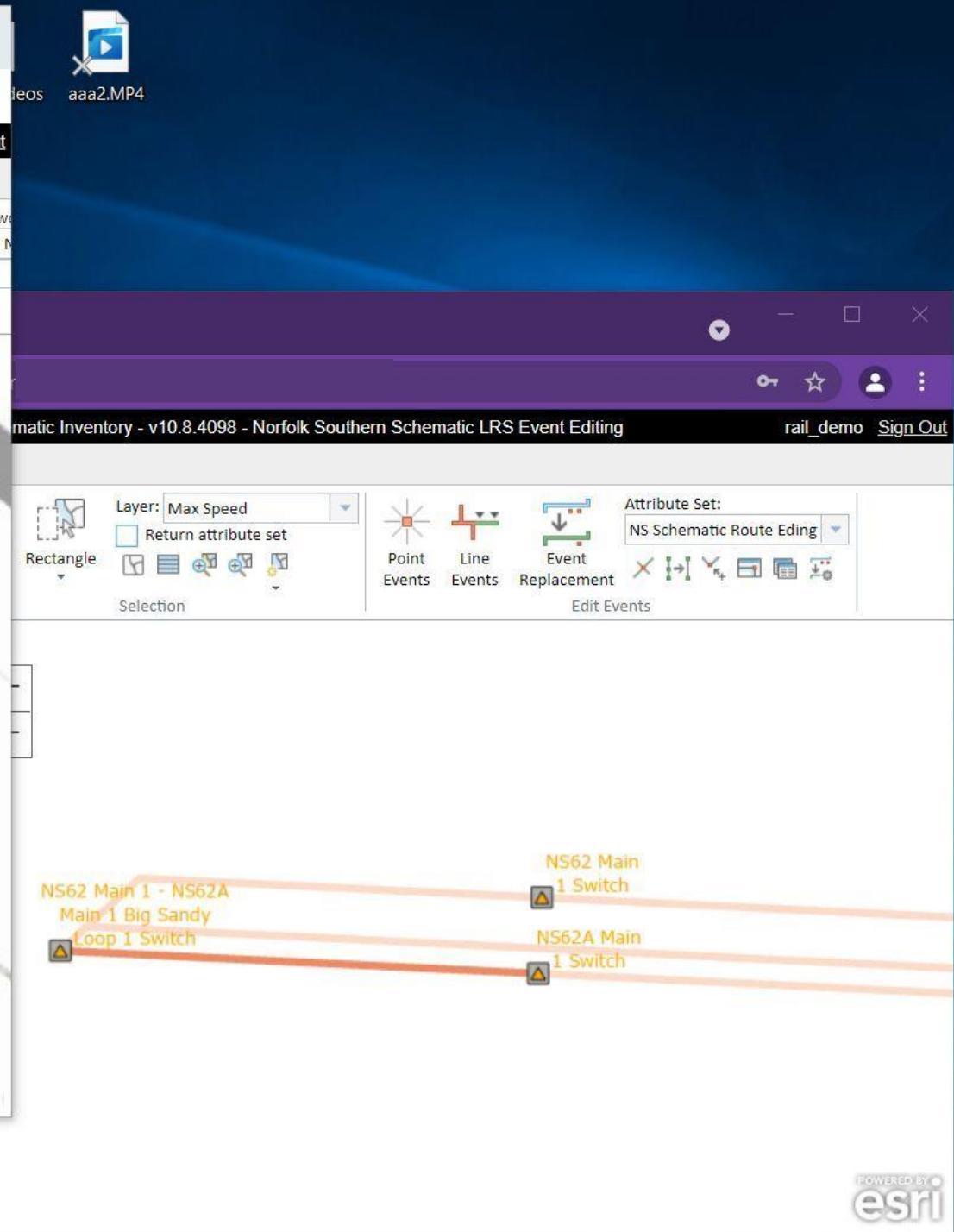
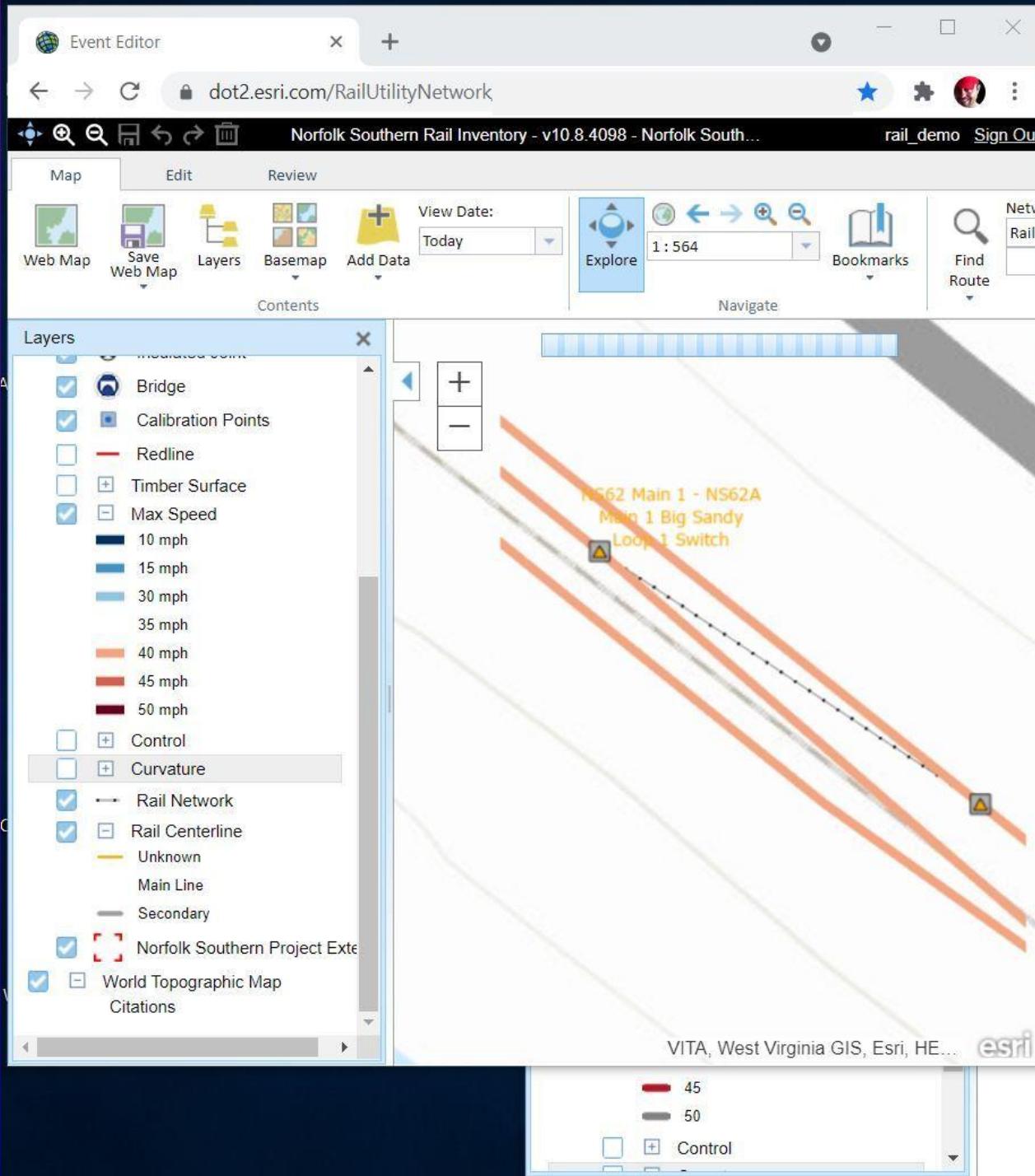
NS62 Main 1 - NS62A  
Main 1 Big Sandy  
Loop 1 Switch

NS62 Main 1 Switch

NS62A Main 1 Switch

POWERED BY esri

The screenshot shows the Esri Event Editor interface for a rail schematic inventory. The top navigation bar includes a back/forward button, a lock icon, a search icon, and a user sign-in for 'rail\_demo'. The main title is 'Norfolk Southern Rail Schematic Inv' and the sub-section is 'Rail Schematic LRS Event Editing'. The toolbar at the top has tabs for 'Map', 'Edit' (which is selected), and 'Review'. Below the toolbar are several edit tools: 'Save Edits', 'Undo', 'Redo', 'Discard Edits', 'Versioning' (with 'sde.DEFAULT' selected), 'Select', 'Rectangle', 'Layer' (set to 'Max Speed'), 'Return attribute set', 'Point Events', 'Line Events', 'Event Replacement', and 'Edit Events'. On the left, a 'Layers' panel lists various rail features with checkboxes: Active Warning Device, Passive Warning Sign, Sign, Insulated Joint, Bridge, Calibration Points, Redline, Timber Surface, Max Speed (selected), [all other values], 10, 15, 30, 35, 40, 45, 50, and Control. The main map area shows rail lines in different colors (orange, red, grey) with labels like 'NS62 Main 1 - NS62A', 'Main 1 Big Sandy', 'Loop 1 Switch', 'NS62 Main 1 Switch', and 'NS62A Main 1 Switch'. The bottom right corner features the Esri logo.





Code



## Synchronize Geographic LRS from Schematic LRS

This Python script automates the process of synchronizing the Geographic LRS from the schematic LRS using the Append Events operation. The script executes a select query on the input feature service and checks for all features edited within the last 5 minutes using Editor tracking timestamps and it also check to make sure the LRS managed "ToDate" field is null and the "LocError" field is reporting no errors.

In [1]:

```
1 #Import Arcpy Module
2 import arcpy
3
4 #Clear data in memory from previous runs
5 arcpy.env.overwriteOutput = True
6
7 # Target event is in a feature service. Sign in to portal is required to access the feature service.
8 arcpy.SignInToPortal('https://dot.esri.com/portal', 'rail_demo', 'ArtcIsGr3at!')
9
10 def syncEvents(inputEvents, targetEvents, fldMapping, operation):
11     #Check out a location Referencing License
12     arcpy.CheckOutExtension("LocationReferencing")
13
14     if (operation == 'ADD'):
15         arcpy.CalculateField_management(inputEvents,'SYNC_STATUS', 1, 'PYTHON3')
16     else:
17         arcpy.CalculateField_management(inputEvents,'SYNC_STATUS', 2, 'PYTHON3')
18     arcpy.locref.AppendEvents(inputEvents, targetEvents, fldMapping, operation)
19
20     # Check in license
21     arcpy.CheckInExtension('LocationReferencing')
```

## SyncGeographicLRS\_from\_SchematicLRS

Edit View Insert Cell Help

ArcGISPro O |



Begin Synchronizing Geographic LRS from Schematic LRS

Begin Append Events Routine.

Updating <https://dot2.esri.com/arcgis/rest/services/Geo2Schematic/> /FeatureServer/2

No records to append, moving to the next feature service.

Updating <https://dot2.esri.com/arcgis/rest/services/Geo2Schematic/> /FeatureServer/3

No records to append, moving to the next feature service.

Updating <https://dot2.esri.com/arcgis/rest/services/Geo2Schematic/> /FeatureServer/4

No records to append, moving to the next feature service.

Updating <https://dot2.esri.com/arcgis/rest/services/Geo2Schematic/> /FeatureServer/5

No records to append, moving to the next feature service.

Updating <https://dot2.esri.com/arcgis/rest/services/Geo2Schematic/> /FeatureServer/6

No records to append, moving to the next feature service.

Updating <https://dot2.esri.com/arcgis/rest/services/Geo2Schematic/> /FeatureServer/9

No records to append, moving to the next feature service.

Updating <https://dot2.esri.com/arcgis/rest/services/Geo2Schematic/> /FeatureServer/10

Appending 1 records.

Updating <https://dot2.esri.com/arcgis/rest/services/Geo2Schematic/NorfolkSouthern/FeatureServer/11>

No records to append, moving to the next feature service.

Event Editor

dot2.esri.com/RailUtilityNetwork

Norfolk Southern Rail Inventory - v10.8.4098 - Norfolk South...

Map Edit Review

Web Map Save Web Map Layers Basemap Add Data View Date: Today Explore Bookmarks Find Route

Layers

- Bridge
- Calibration Points
- Redline
- Timber Surface
- Max Speed
  - 10 mph
  - 15 mph
  - 30 mph
  - 35 mph
  - 40 mph
  - 45 mph
  - 50 mph
- Control
- Curvature
- Rail Network
- Rail Centerline
- Unknown
- Main Line
- Secondary
- Norfolk Southern Project Extent
- World Topographic Map
- Citations

1:564

Explore

Find Route

NS62 Main 1 - NS62A  
Main 1 Big Sandy  
Loop 1 Switch

NS62A Main 1 Switch

NS62 Main 1 - NS62A  
Main 1 Big Sandy  
Loop 1 Switch

NS62A Main 1 Switch

VITA, West Virginia GIS, Esri, H...

esri

45

50

Control

Automatic Inventory - v10.8.4098 - Norfolk Southern Schematic LRS Event Editing

rail\_demo Sign Out

Layer: Max Speed

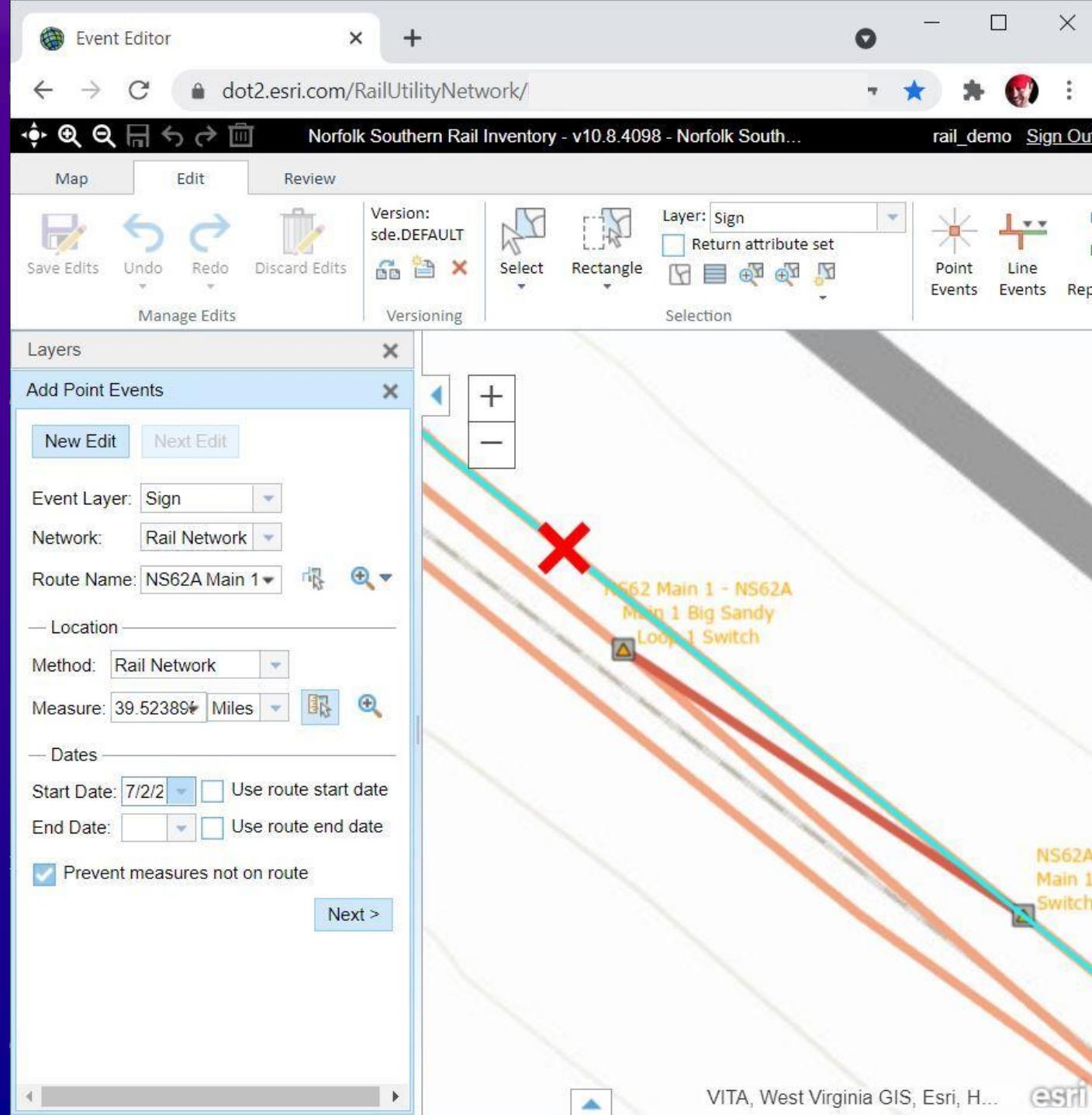
Rectangle Selection

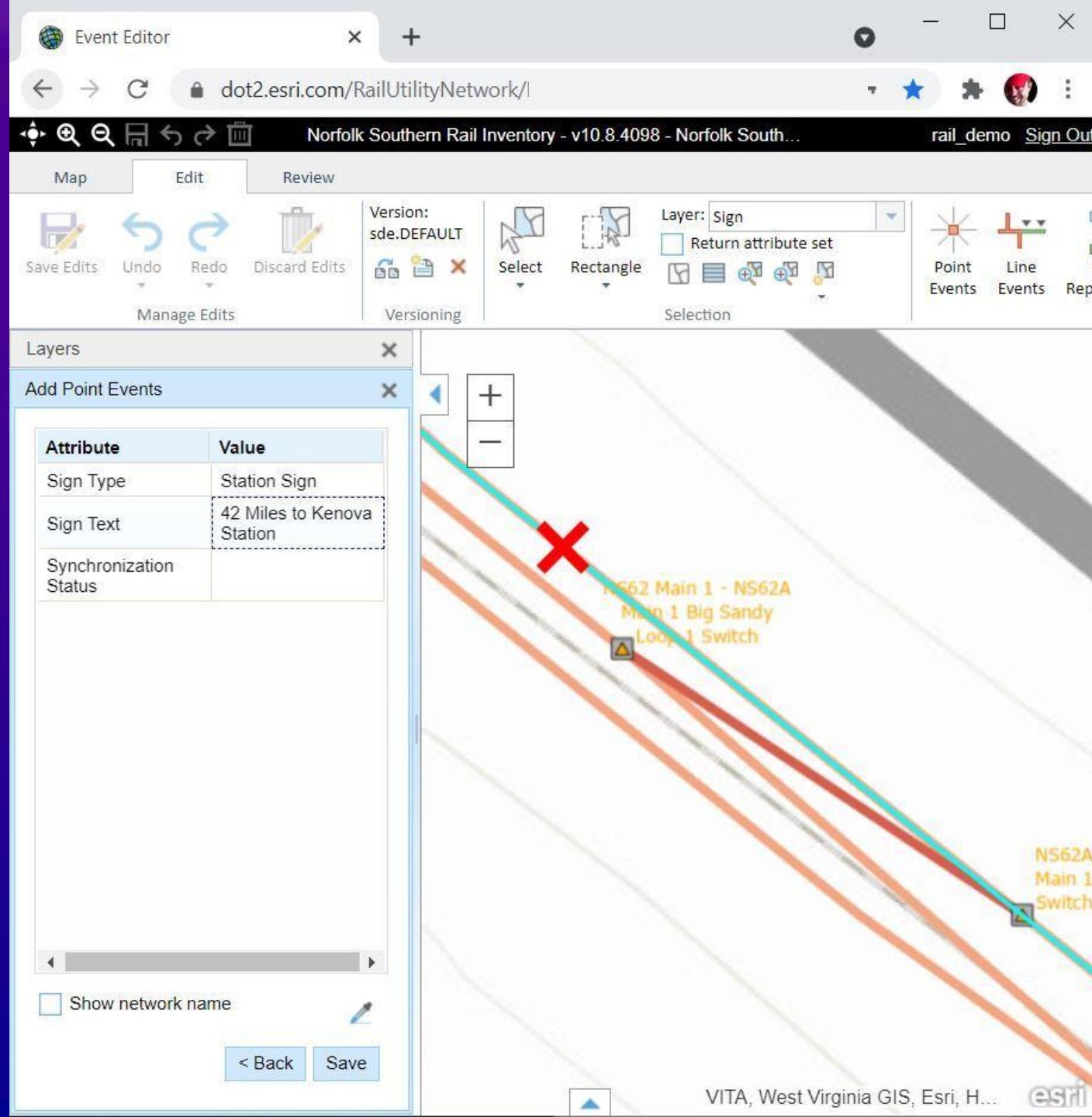
Point Events Line Events Event Replacement Edit Events

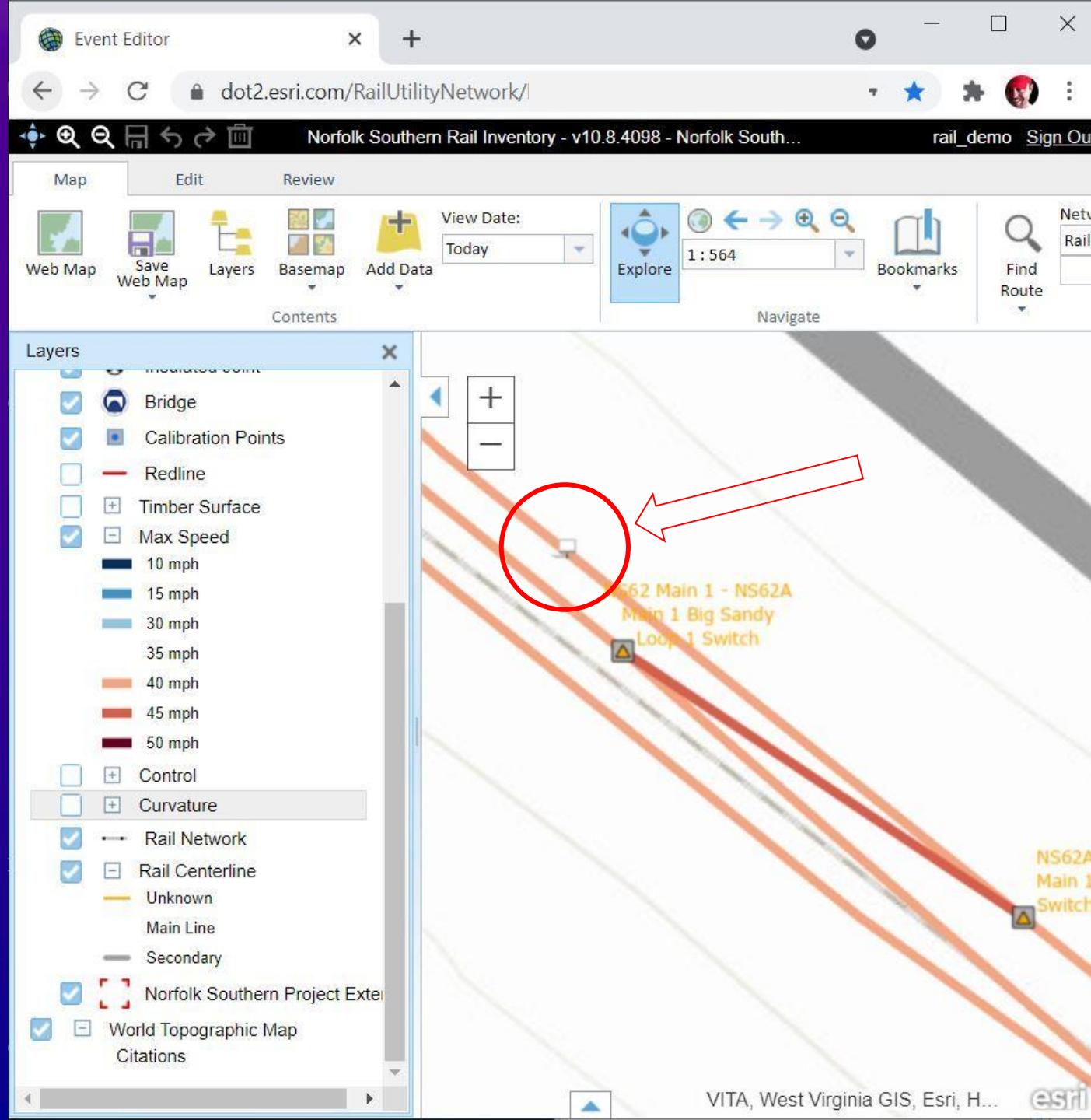
Attribute Set: NS Schematic Route Edging

POWERED BY esri

The image shows a dual-pane GIS application interface for rail network management. The left pane is a map view titled 'Norfolk Southern Rail Inventory' showing a complex rail network with multiple tracks and junctions. The map includes a legend for speed limits (45, 50 mph) and control points. The right pane is a schematic event editor titled 'Automatic Inventory' showing a simplified diagram of the same rail junction. It highlights specific events such as 'Loop 1 Switch' and '1 Switch'. The top of the screen features a navigation bar with tabs for 'Map', 'Edit', and 'Review', along with various tool icons. A video player window for 'aaa2.MP4' is visible in the top right corner.







The screenshot displays two overlapping windows of the Esri Event Editor interface, version v10.8.4098, for the Norfolk Southern Rail Inventory.

**Top Window (Left):**

- Toolbar:** Map, Edit, Review, Web Map, Save Web Map, Layers, Basemap, Add Data, View Date: Today, Explore, Bookmarks, Find Route.
- Layers Panel:** Shows checked layers: Bridge, Calibration Points, Redline, Timber Surface, Max Speed (10 mph, 15 mph, 30 mph, 35 mph, 40 mph, 45 mph, 50 mph), Control, Curvature, Rail Network, Rail Centerline, Unknown, Main Line, Secondary, Norfolk Southern Project Extent, and World Topographic Map Citations.
- Map View:** Displays a rail network with several tracks. A specific track segment is highlighted in orange and labeled "NS62 Main 1 - NS62A Main 1 Big Sandy Loop 1 Switch".
- Bottom Legend:** 45, 50, Control.

**Bottom Window (Right):**

- Toolbar:** Explore, Bookmarks, Find Route, Network: Rail Network, Identify.
- Map View:** Shows the same rail network segment, but the highlighted track is now orange and labeled "NS62 Main 1 Switch", "NS62 Main 1 Big Sandy Loop 1 Switch", and "NS62A Main 1 Switch".

**Common Elements:** Both windows share a top navigation bar with back, forward, search, and refresh icons, and a user sign-in area for "rail\_demo". The interface includes standard window controls (minimize, maximize, close) and a title bar indicating the application name and version.

SyncGeographicLRS\_from\_SchematicLRS X

Edit View Insert Cell Help

+ % Run Code

## Synchronize Geographic LRS from Schematic LRS

This Python script automates the process of synchronizing the Geographic LRS from the schematic LRS using the Append Events operation. The script executes a select query on the input feature service and checks for all features edited within the last 5 minutes using Editor tracking timestamps and it also check to make sure the LRS managed "ToDate" field is null and the "LocError" field is reporting no errors.

In [1]:

```
1 #Import Arcpy Module
2 import arcpy
3
4 #Clear data in memory from previous runs
5 arcpy.env.overwriteOutput = True
6
7 # Target event is in a feature service. Sign in to portal is required to access the feature service.
8 arcpy.SignInToPortal('https://dot.esri.com/portal', 'rail_demo', 'ArtcIsGr3at!')
9
10 def syncEvents(inputEvents, targetEvents, fldMapping, operation):
11     #Check out a Location Referencing License
12     arcpy.CheckOutExtension("LocationReferencing")
13
14     if (operation == 'ADD'):
15         arcpy.CalculateField_management(inputEvents, 'SYNC_STATUS')
16     else:
17         arcpy.CalculateField_management(inputEvents, 'SYNC_STATUS')
18     arcpy.locref.AppendEvents(inputEvents, targetEvents, fldMapping)
19
20     # Check in License
21     arcpy.CheckInExtension('LocationReferencing')
```

ArcGISPro O |

SyncGeographicLRS\_from\_SchematicLRS X

Edit View Insert Cell Help

+ % Run Code

Begin Synchronizing Geographic LRS from Schematic LRS

Begin Append Events Routine.

Updating https://dot2.esri.com/arcgis/rest/services/Geo2Schematic/NorfolkSouthern/FeatureServer/2  
No records to append, moving to the next feature service.

Updating https://dot2.esri.com/arcgis/rest/services/Geo2Schematic/NorfolkSouthern/FeatureServer/3  
No records to append, moving to the next feature service.

Updating https://dot2.esri.com/arcgis/rest/services/Geo2Schematic/NorfolkSouthern/FeatureServer/4  
No records to append, moving to the next feature service.

Updating https://dot2.esri.com/arcgis/rest/services/Geo2Schematic/NorfolkSouthern/FeatureServer/5  
No records to append, moving to the next feature service.

Updating https://dot2.esri.com/arcgis/rest/services/Geo2Schematic/NorfolkSouthern/FeatureServer/6  
No records to append, moving to the next feature service.

Updating https://dot2.esri.com/arcgis/rest/services/Geo2Schematic/NorfolkSouthern/FeatureServer/9  
No records to append, moving to the next feature service.

Updating https://dot2.esri.com/arcgis/rest/services/Geo2Schematic/NorfolkSouthern/FeatureServer/10  
Appending 1 records.

Updating https://dot2.esri.com/arcgis/rest/services/Geo2Schematic/NorfolkSouthern/FeatureServer/11  
No records to append, moving to the next feature service.

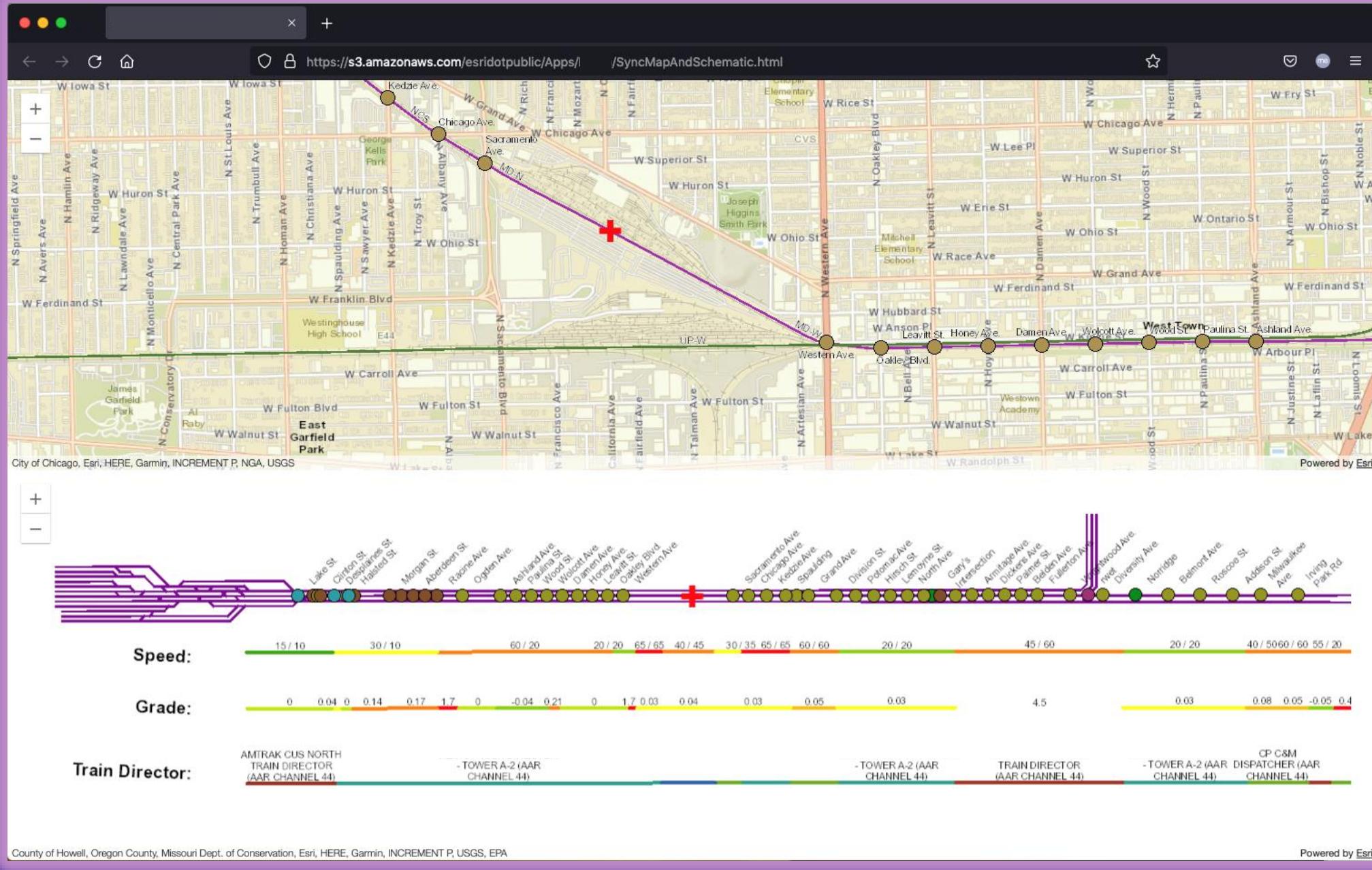
The screenshot displays two overlapping windows from the Norfolk Southern Rail Inventory application.

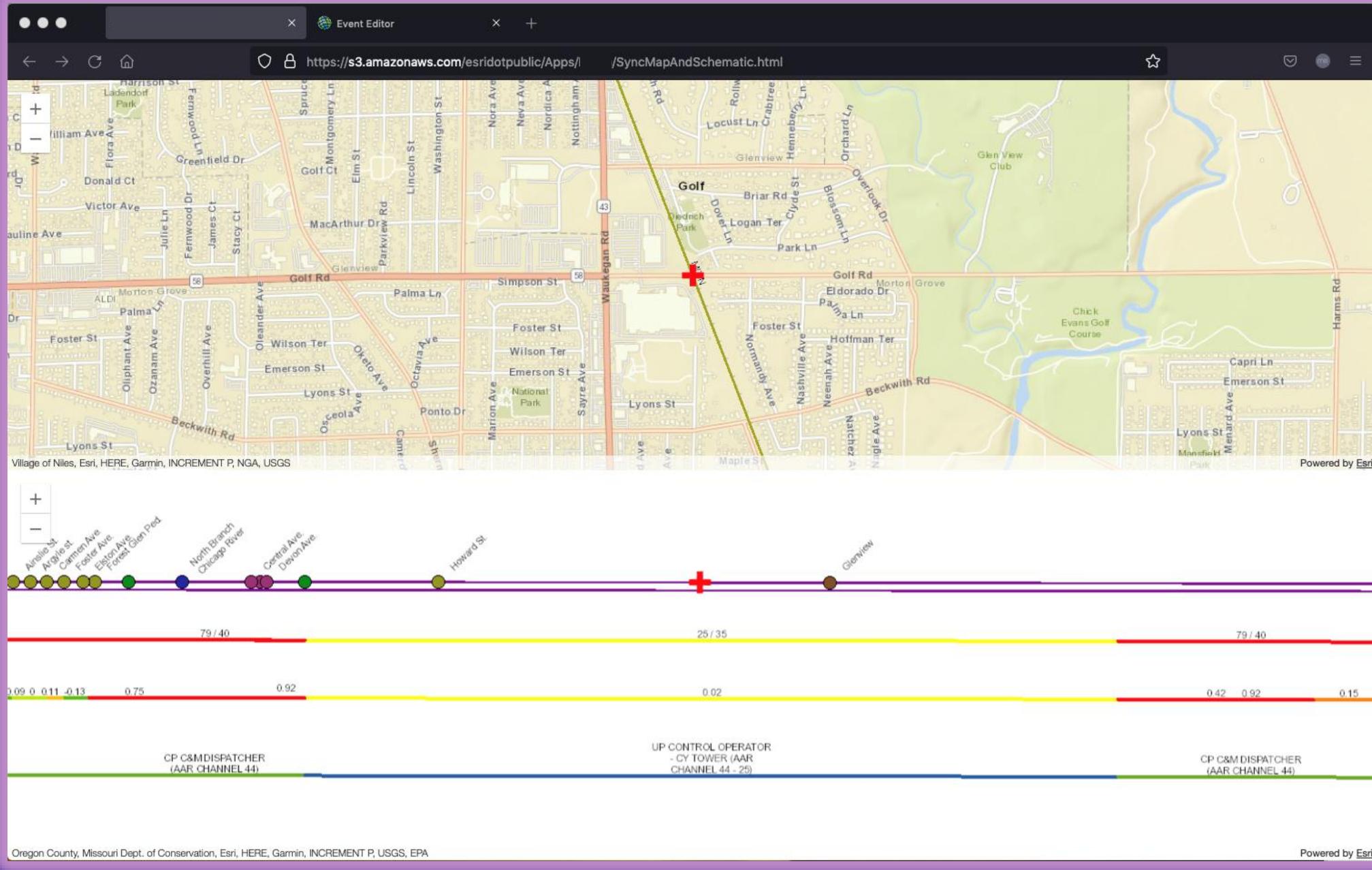
**Left Window (Event Editor):**

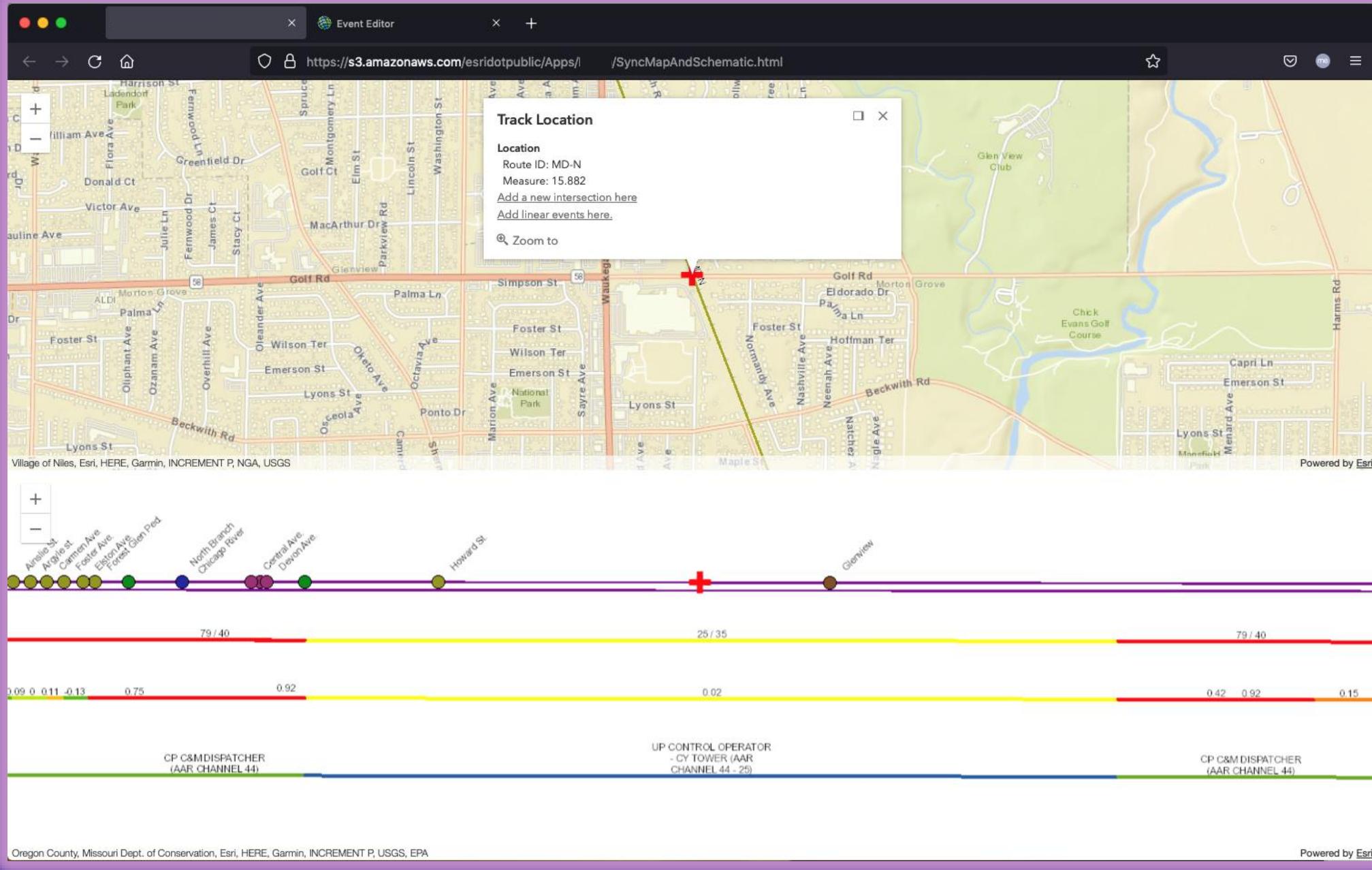
- Toolbar:** Map, Edit, Review, Web Map, Save Web Map, Layers, Basemap, Add Data, View Date: Today, Explore, Bookmarks, Find Route.
- Layers Panel:** Mediated Point, Bridge, Calibration Points, Redline, Timber Surface, Max Speed (with sub-options: 10 mph, 15 mph, 30 mph, 35 mph, 40 mph, 45 mph, 50 mph), Control, Curvature, Rail Network, Rail Centerline, Unknown, Main Line, Secondary, Norfolk Southern Project Extension, World Topographic Map, Citations.
- Map View:** Shows a rail network with several tracks. A red circle highlights a point on a track, with a red arrow pointing to the same location in the right window.
- Legend:** 45, 50, Control.

**Right Window (Rail Network Editor):**

- Toolbar:** Layer: Max Speed, Selection, Edit Events.
- Tool Buttons:** Rectangle, Return attribute set, Point Events, Line Events, Event Replacement.
- Attribute Set:** NS Schematic Route Edging.
- Map View:** Shows the rail network with highlighted segments labeled "NS62 Main 1 - NS62A Main 1 Big Sandy Loop 1 Switch". A red circle highlights a point on a track, with a red arrow pointing to the same location in the left window.







Event Editor

https://dot2.esri.com/ /rce/?tab=2&widget=2&attributeSet=Default&networkId=4&routId=MD-N&measure=15.882466632644487

Rail Event Editor - v10.7.1.3052 - Metra LRS Event Editor Map

jimba@esri.com Sign Out

Map Edit Review

Version: Grade Layer: Grade Attribute Set: Default

Reconcile Select Rectangle Point Events Line Events Event Replacement

Versioning Selection Edit Events

Add Point Events

| Attribute         | Value    |
|-------------------|----------|
| IntersectionType  | Road     |
| IntersectionGrade | At-grade |
| CrossingName      | Golf Rd  |

Show network name

< Back Save

Illinois

Spring Grove

Antioch

Lindenhurst

Zion

Waukegan

Woodstock

McHenry

Grayslake

Marengo

Crystal Lake

Wauconda

Mundelein

Vernon Hills

Barrington

Huntley

Carpentersville

Hoffman Estates

Elgin

South Elgin

Elburn

St. Charles

Batavia

Wheaton

Chicago

Highland Park

Northbrook

Winnetka

Glenview

Des Plaines

Skokie

Evanston

Elmhurst

West Chicago

Plainfield

Franklin Park

Bellwood

Westchester

Norridge

Esco

UP-N

MD-W

SO

UP-W

BNSF

HC

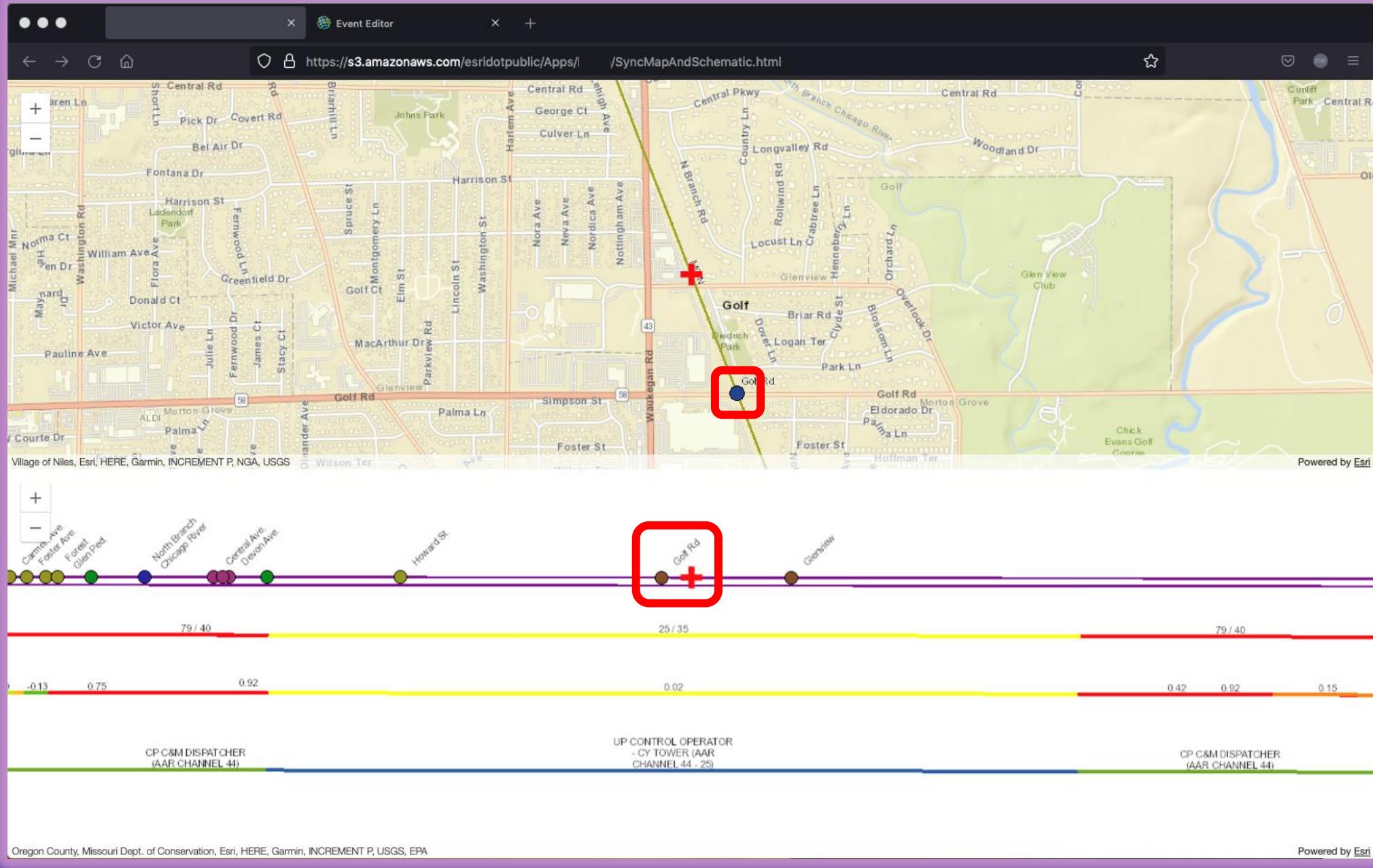
SWS

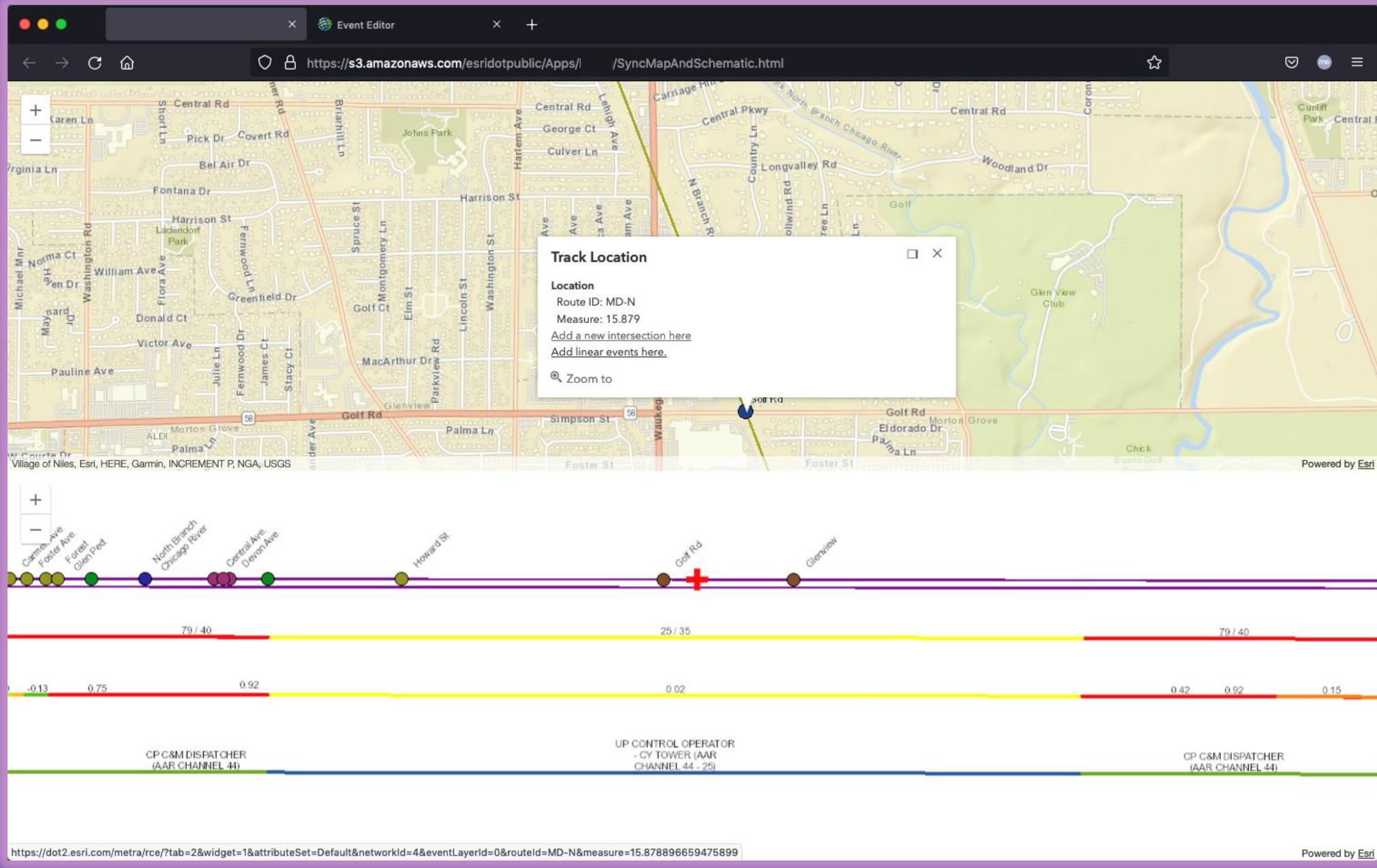
RD

ME

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Rail Event Editor - v10.7.1.3052 - Metra LRS Event Editor Map

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Map Edit Review

Versioning Selection

Add Linear Events

All Attributes

| Attribute       | Value            |
|-----------------|------------------|
| Grade           | 0.9              |
| Speed_Other     | 50               |
| Speed_Passenger | 40               |
| Train_Director  | AMTRAK CUS NORTH |

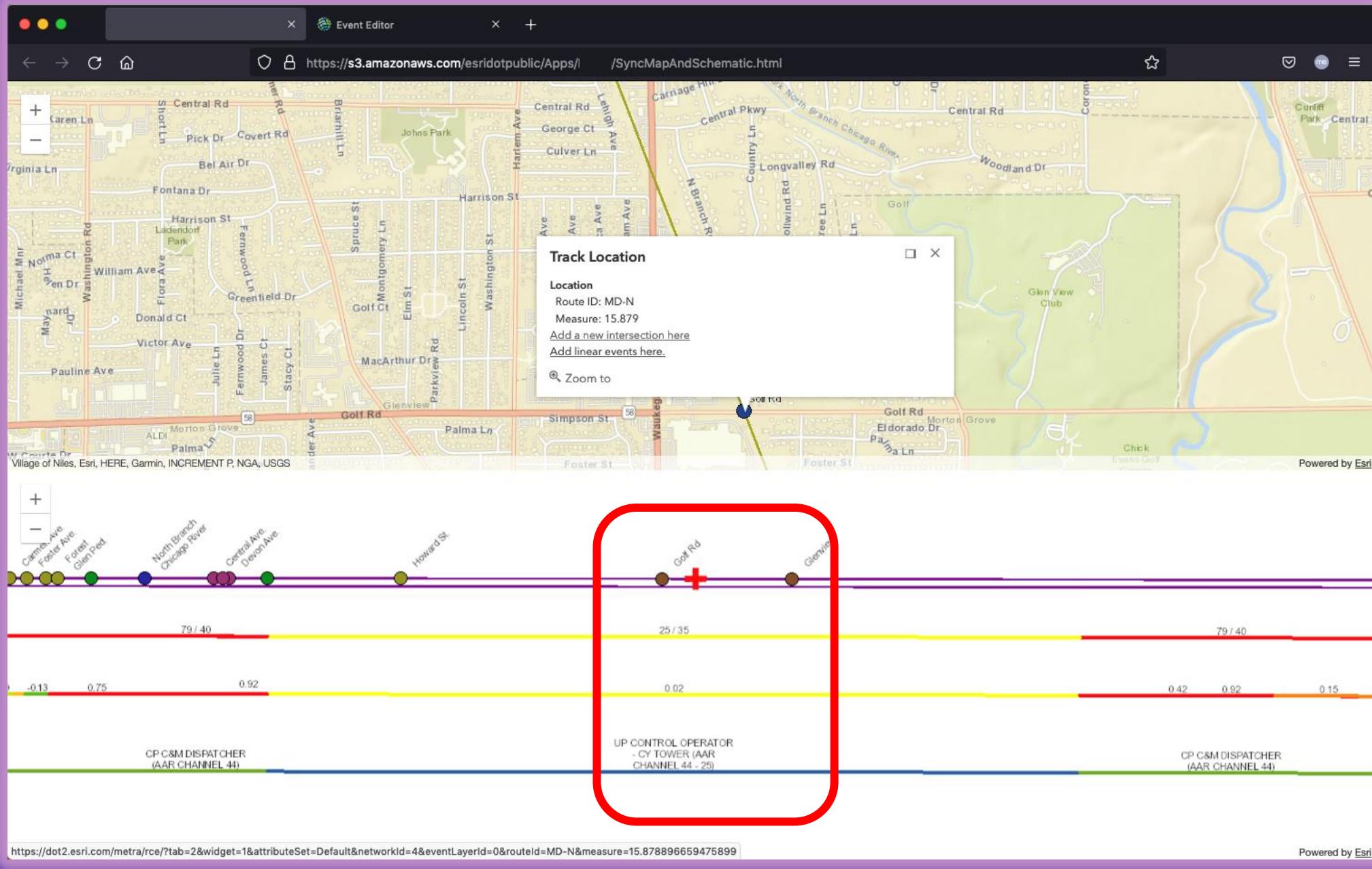
Show network names  Show layer names  Go to next measure upon save

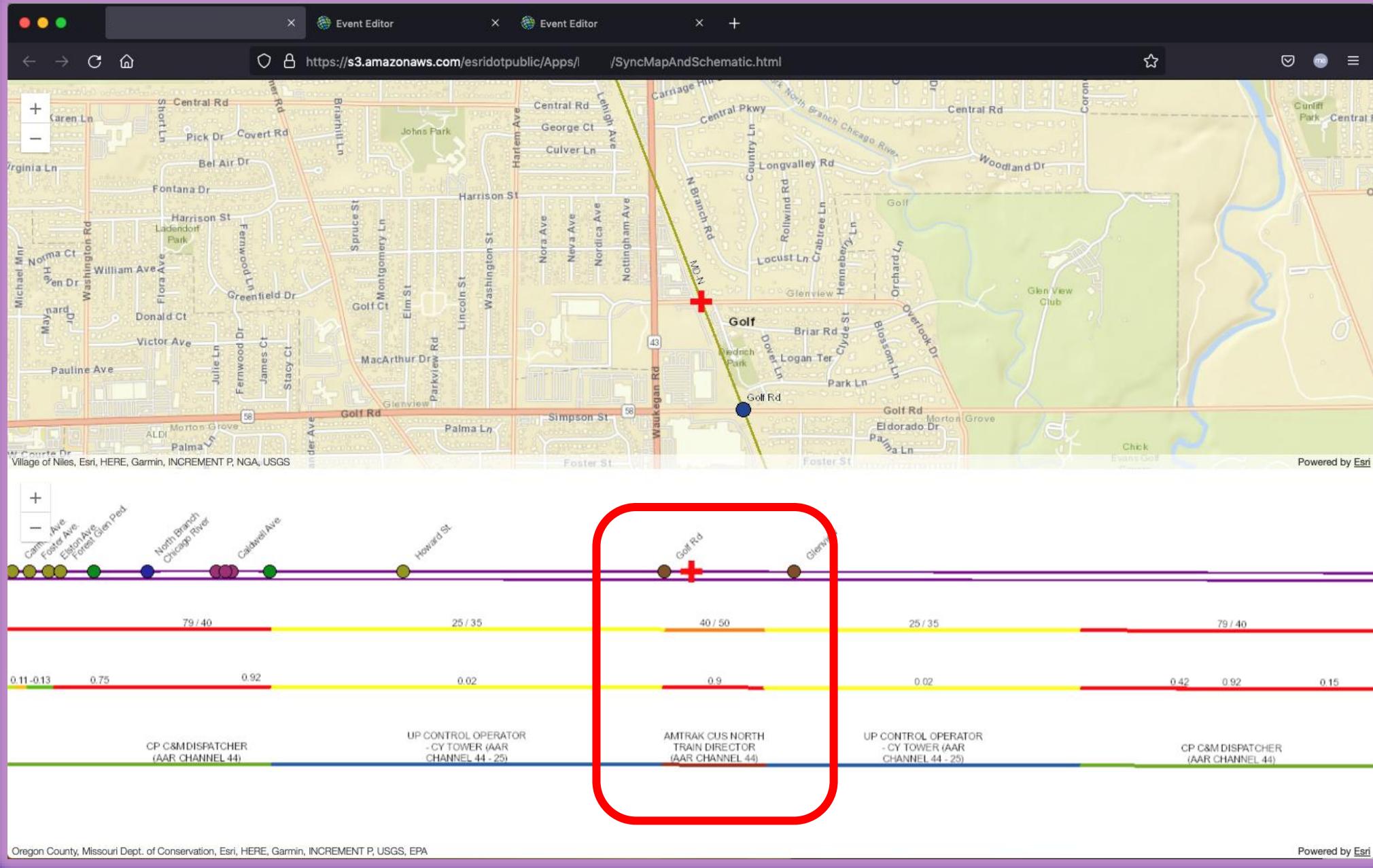
< Back Save

Reconcile Select Rectangle Layer: Grade Return attribute set Attribute Set: Default

Point Events Line Events Event Replacement

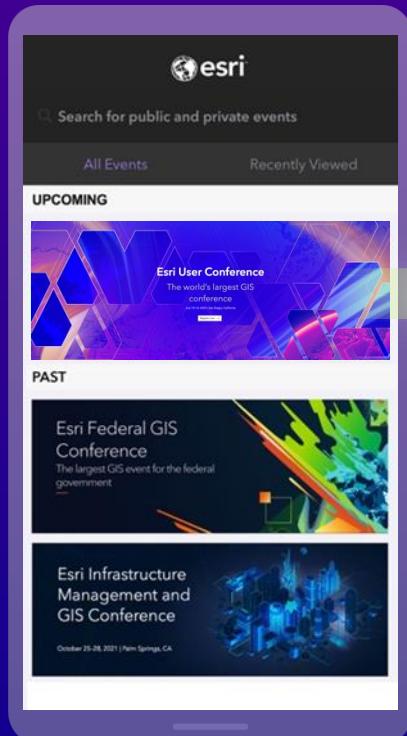
Powered by esri, HERE, Garmin, NGA, USGS, NPS



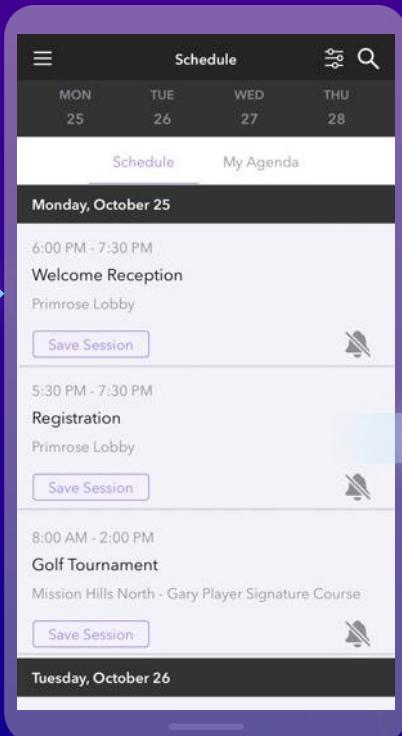


# Please Share Your Feedback in the App

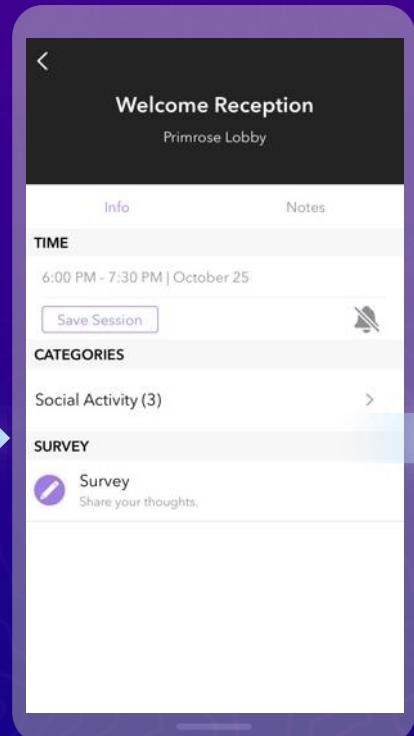
Download the Esri Events app and find your event



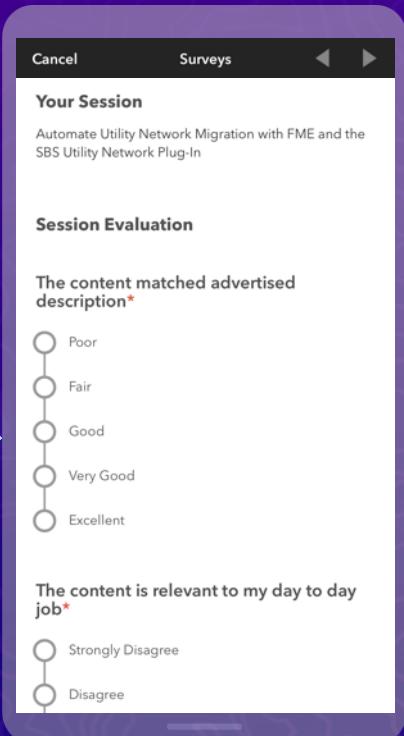
Select the session you attended



Scroll down to "Survey"



Log in to access the survey



*Thanks!!*

*resources*

Questions?





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WHERE<sup>®</sup>**