






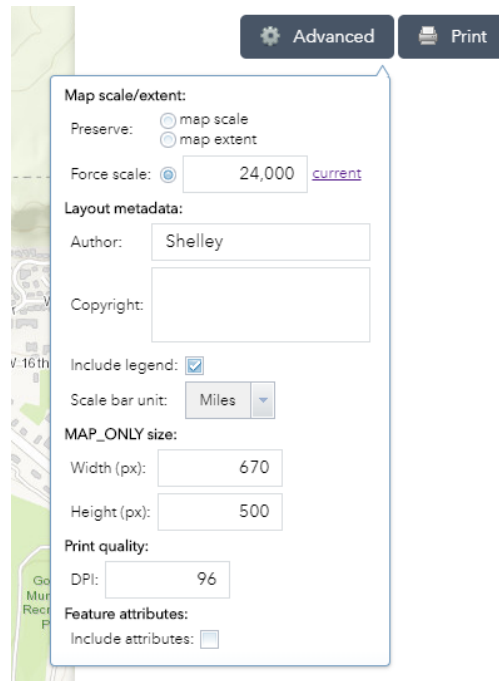
## Exercise 1

 15 minutes

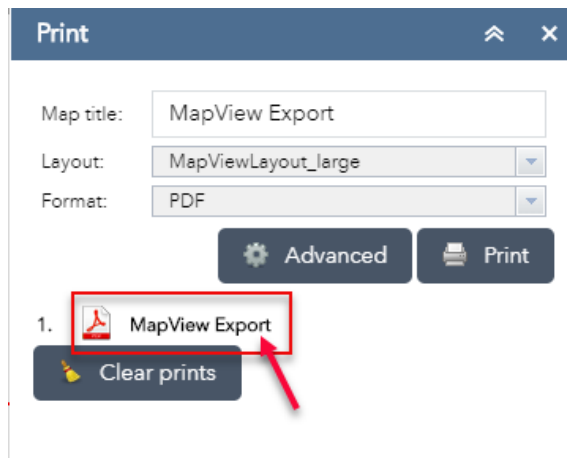
You have a project on **Hwy 006G between MM 272 and 274**. You need to show Noxious Weeds and markup specific areas on the map to show species type. You will then print out a hardcopy to take out to the field.

- 1) Open the Find Route tool 
  - a. Select Route from dropdown
  - b. Select Begin Ref and End Ref
  - c. Click Execute
- 2) Turn on the Noxious Weeds – 2017 layer using the left hand “Operational layers” list.  
*Hint: Expand Environmental then the Biological layer group*
- 3) Open the Identify tool  and click on the Noxious Weeds line within the project boundary (MM 272-274). You will markup with labels a few lines using the **PRIMARY\_WD** field.  
*Note: Closing the Identify tool, clears the selection. Reopen the Identify tool to bring back your last selection.*
- 4) Open the Draw tool  and use the Line and Text draw modes to create labels for the species of Noxious Weed (**PRIMARY\_WD** field). You can make the lines and text any color/width you like.  
  
*Note: The “Undo” button will remove your most recent drawing. The “Clear” will remove all of your drawings.*
- 5) Open the Print tool 
  - a. From the Layout dropdown menu, choose “MapViewLayout\_Large”
  - b. Give your map a title.
  - c. Format, choose PDF
  - d. Click the “Advanced” button
    - i. Select “Force scale” option and type in “24,000” in the text box

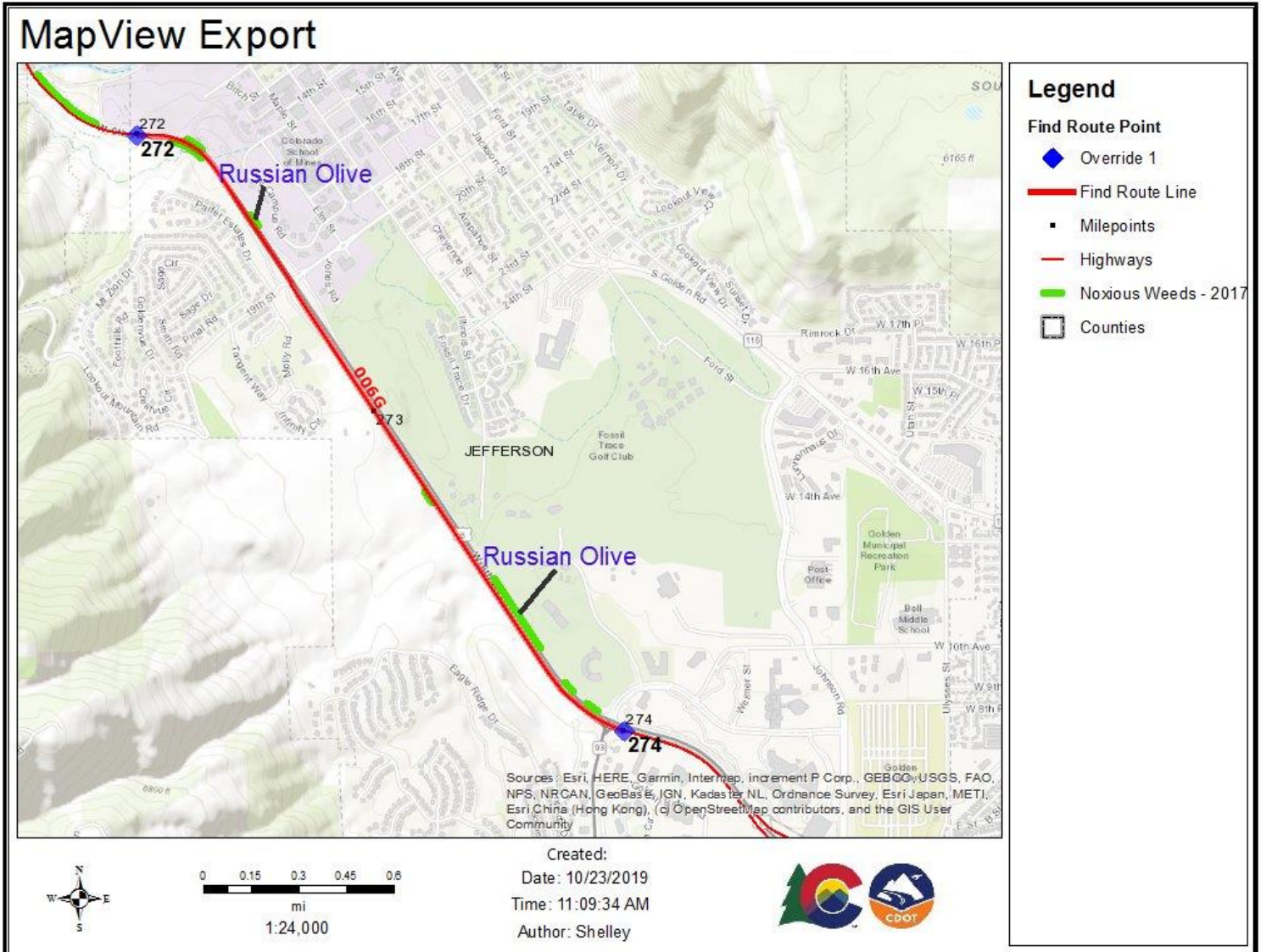
- ii. In the "Author" text box, type your name



- e. Click the "Print" button
- f. Once, the tool is finished running click the PDF export.




g. You should end up with a map similar to:



Note: Printing with the default Esri Topo basemap only shows the hillshade, not the topo map.

## Exercise 2


 10 minutes

The City of Pueblo would like to inspect all the culverts within one mile of the city. They are asking you for a table of all these features.

1. Zoom to your area of interest (Pueblo).
  - a. Turn on the “Cities” boundary layer using the “Operational layers” list on the left  
*Hint: Expand the Boundaries group*
  - b. Click the “...” to the right of the layer name and click “View in Attribute Table” from the dropdown menu
  - c. Select “Pueblo” in the table using the selector box at the far left of the table row and then “Zoom to”.

*Note: You may need to turn off “Filter by Map Extent” if you don’t see Pueblo in the list.*



Click to turn off



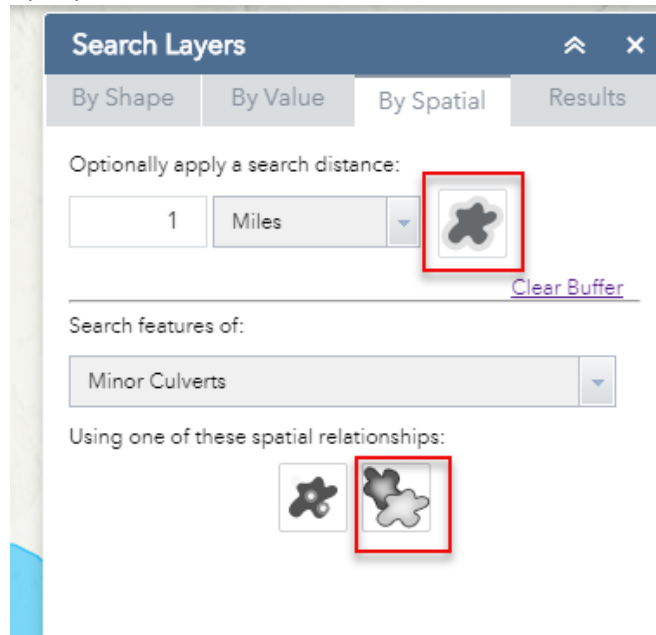
Click to select record

OBJECTID_1	CITY_FIPS	CITY_NAME	NAME
473	59830	PITKIN	Pokin
474	60160	PLATTEVILLE	Platteville
475	60600	PONCHA SPRINGS	Poncha Springs
476	61315	PRITCHETT	Pritchett
477	62000	PUEBLO	Pueblo
478	62660	RAMAH	Ramah
479	62880	RANGELY	Rangely
480	63045	RAYMER	Raymer

270 features 1 selected


2. Open the Search Layers tool 
  - a. Select the “By Value” tab and Choose “Cities” as the Search layer.
  - b. Select CITY\_NAME is “PUEBLO”
  - c. Click Search button. This will select and zoom to the city of Pueblo.
  - d. Next, click on the “By Spatial” tab and set the Search Distance to 1 Miles.
  - e. Click the Apply Buffer button. 

- f. In “Search features of” dropdown, choose “Minor Culverts” and click the “Intersected by” option:





- g. A dialogue box will appear asking you if you want to use the Buffer graphics or the Selection graphics? Choose “Buffer”.
3. How many minor culverts are within one mile of the City of Pueblo? **(51)**
4. Finally, export these results to a CSV.
  - a. Click the “...” in the top right corner of the tool and select “Export to CSV file” from the dropdown.

### Exercise 3


 10 minutes

#### Find the AADT for Bridge B-17-DJ


1. Turn on the Bridges and Major Culverts layer.  
*Hint: Expand the Assets layer group*
2. Zoom in to see the features.
3. Click the “...” to the right of the layer name and click “View in Attribute Table” from the dropdown menu
4. In the table, Click Options (top left) to open up a dropdown menu and Choose “Filter”
5. Click “Add Expression” and set BRIDGE\_ID(String) is B-17-DJ and Click OK.  
*Note: You can also use the Gear icon to set the input type to “Unique”. This will create a dropdown of unique values (Bridge IDs) to choose from.*

6. Back in the table, Zoom to the feature.  
*Note: If you don't see the selected bridge in the table, you may need to turn off "Filter by Map Extent" if that button is on.*
7. Turn on the Highways: Traffic Counts layer
8. Use the Identify tool  on the Highways: Traffic Counts layer to figure out the AADT for bridge B-17-DJ (**20000**)
9. Examine the other fields in the Bridges layer using either the Attribute table or Identify tool. You can follow the hyperlinks to Bridge photos and to Staff Bridge's structural information site (Briar).
10. Switch the basemap to "Imagery with labels" using the Basemap Gallery tool 

## Exercise 4


 10 minutes

### View Outdoor Advertising and Berthoud Falls Maintenance Shed on US 40

1. Add Outdoor Advertising and CDOT Buildings and Facilities layers
2. Open the Attribute Table of CDOT Buildings and Facilities and Filter on "Building" is "Berthoud Falls Mtce. Shed"
3. Zoom to feature (or double click the record in the table)
4. Open the Find Route tool  and use the Activate button to select a Route location near the maintenance shed
5. Click the Windshield button to view the facility in Windshield
6. Repeat the activity using Outdoor Advertising and Filter on Status is Non-Conforming

*Note: Click the "..." next to the layer name and choose Metadata to view information about the "Status" field. Which category/letter represents "non-conforming" features? (N)*

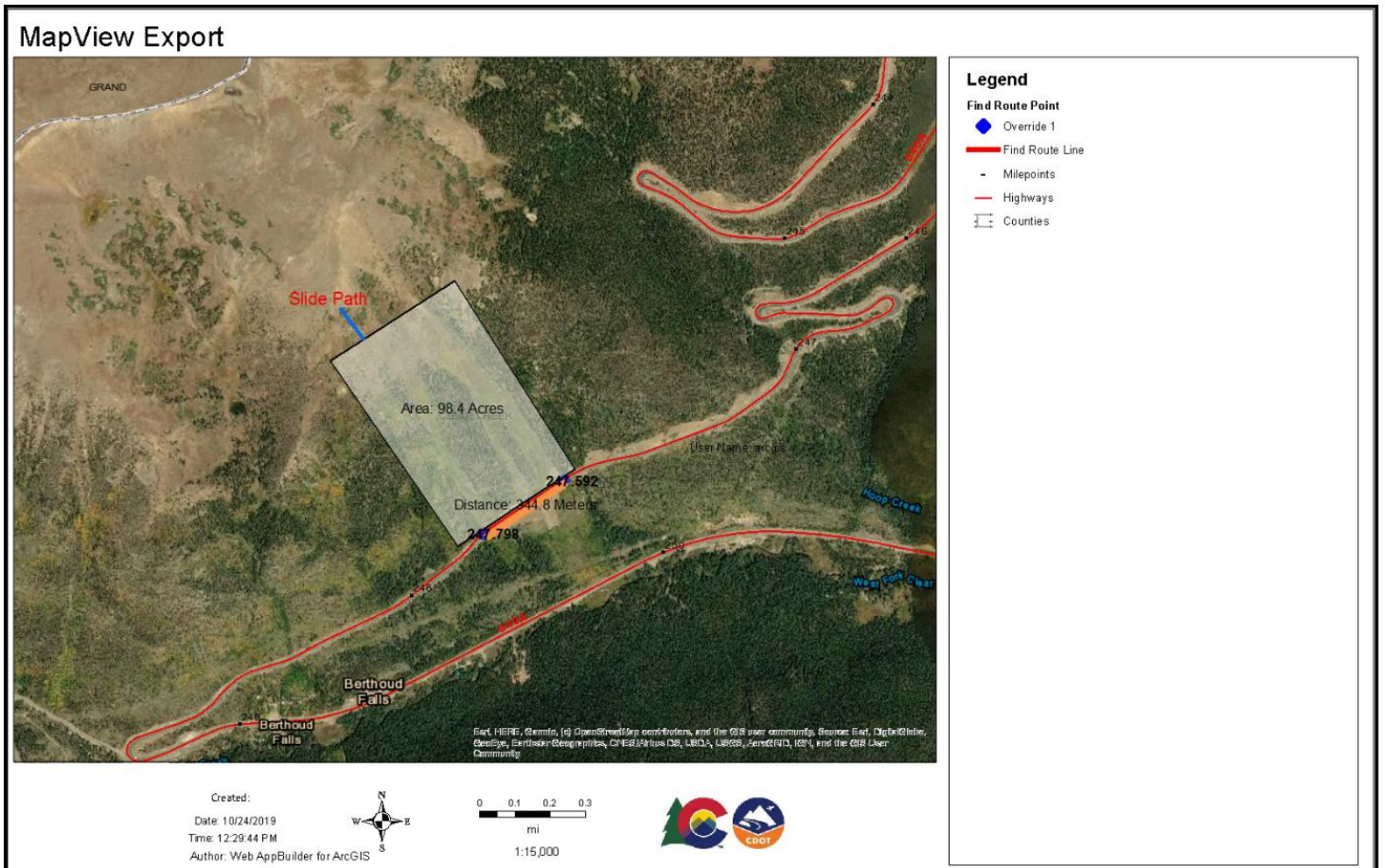
## Exercise 5

 15 minutes

Make a map of high avalanche danger on Berthoud Pass (040A)

1. **Find Route Tool:** Locate the specific slide path.
  - Route = 040A
  - Begin = 247.592
  - End = 247.798
  - **Execute**
2. **Use the Basemap Gallery tool** to change the basemap to Imagery
3. Use the **Drawing Tools** (*see map below as an example for drawings*)
  - Add a Polygon (for slide path)
    - Color = Gray
    - Transparency = 50%

- Outline = Black
- Outline width = 2
- Show area measurement = ON
- Unit = Acres
- activity
- Add a Label (for slide path)
  - Text = Stanley path
  - Font color = Red
  - Font size = 20
- Add a Leader line (for label)
  - Outline = Blue
  - Width = 4
- Add a Line (for road damage area)
  - Color = Orange
  - Width = 9
  - Show distance measurement = ON
  - Unit = Meters



4. Make a PDF of the map using the **Print tool** at a scale of **1:15000**