CDOT Workflow IR 21 - Using Descartes in InRoads SS4 for Aerial Imagery Editing

Once a DRAPP or NAIP aerial image has been downloaded from the CDOT servers and saved to your project folder, the Descartes product add-in, available in InRoads SS4, can be used to cut out only the project area from the image, so a more manageable image size can be used in MicroStation.

> ***Note***: refer to [Workflow MS 12 – Accessing Aerial Imagery Files](#) to learn how to download aerial imagery from the CDOT servers.

The following will guide you through the process of activating the Descartes add-in in InRoads SS4 and the tools to clip out a portion of an image in order to create a smaller file.

Open Aerial Imagery File for Editing

Before an image can be edited, it must first be added to a design file with a GeoCoordinate system assigned to it.

> ***Note***: refer to [Workflow MS 25 - Creating a File for Aerial Imagery](#) to learn how to create a MicroStation file that can be used specifically to store an aerial image and then be referenced into other design files.

The steps below are performed in the DGN file with the aerial photo attached using the above referenced workflow.

Once the imagery DGN file has been created, it must be opened with InRoads SS4, which contains the Descartes tools. To set a file to open with InRoads SS4 from ProjectWise:

1. Open ProjectWise and navigate to the folder containing the DGN file to be worked on.

2. In the document list, Right Click on the desired DGN file and select **Properties** from the fly-out menu.
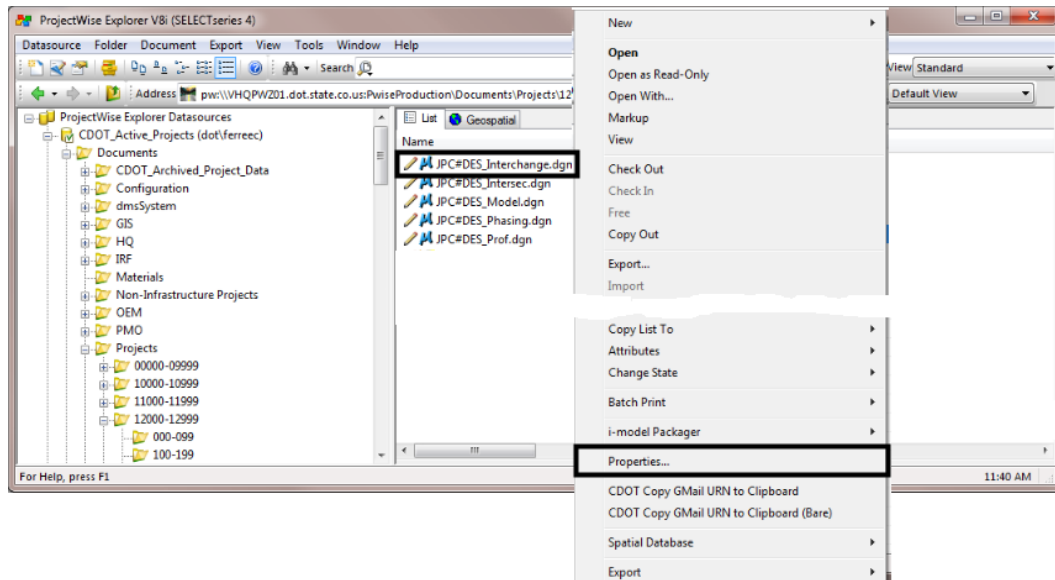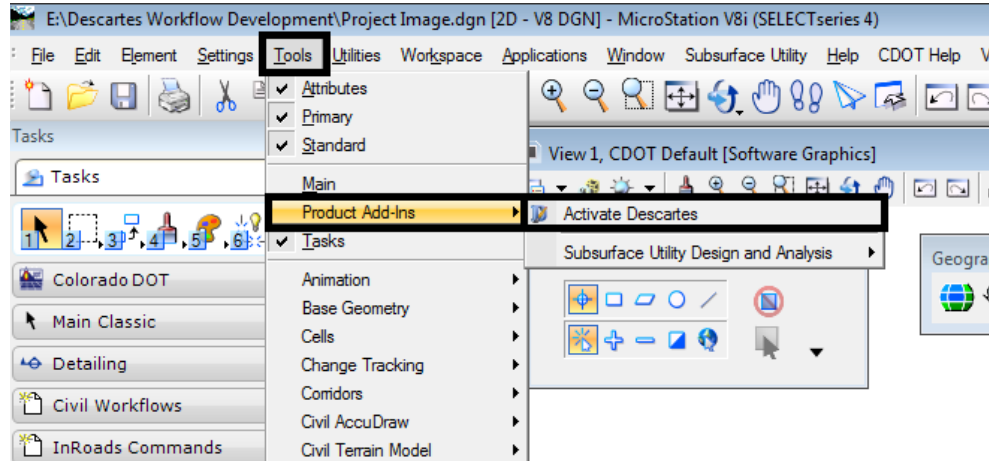

3. In the *Properties* dialog box, use the *Application* drop down menu to select **InRoads SS4**
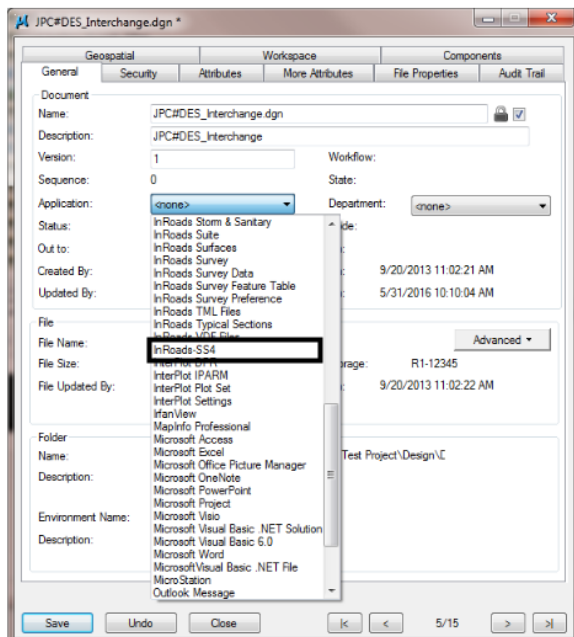
4. Left click **Save** then **Close** to complete the process.

5. Using ***InRoads SS4***, open the aerial image DGN file. (Note: Descartes is only available when InRoads SS4 is used.)

6. From the MicroStation ***Tools*** pulldown, select **Product Add-Ins** > **Activate Descartes**.

7. An Alert message will appear. Click the **Yes** button to continue. This launches Descartes. The Descartes commands are added to the ***Raster Manager*** dialog box.
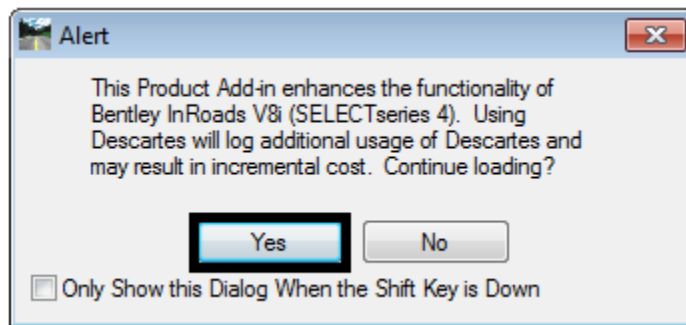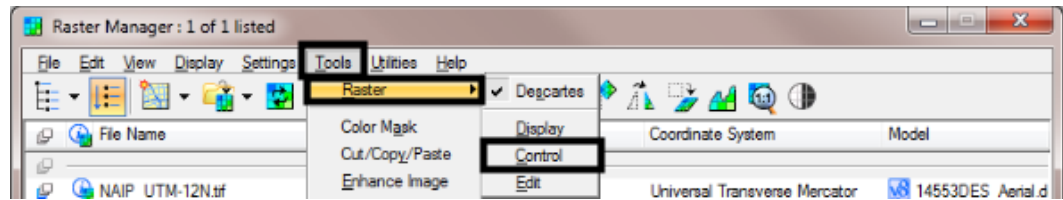
8. Using the **Place Fence** command, place a fence defining the area for the new image.
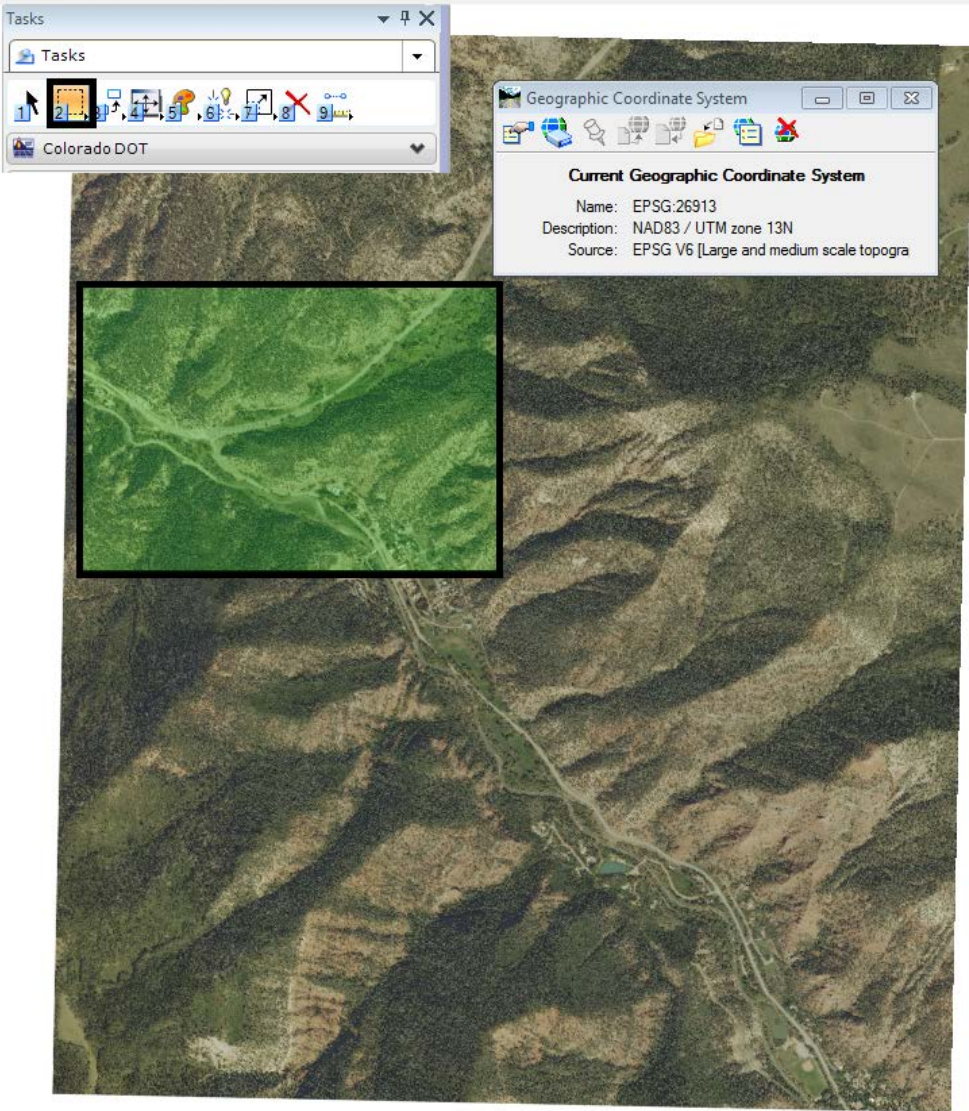
9. From the MicroStation ***Primary Tools*** toolbar, left click the **Raster Manager** button.
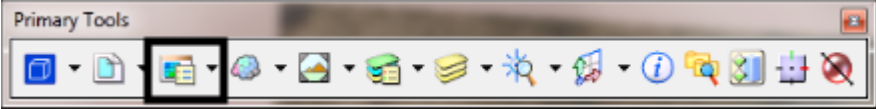
10. From the **Tools** pulldown in the **Raster Manager** dialog box, select **Raster > Descartes > Control**. This will bring up the **Descartes Raster Control** tool bar.


This tool bar includes several tools that can be used to manipulate images. The tool used in this example is the **Merge** tool.

Note: In this example a MicroStation fence is used to define the area of the new image. This fence was placed before the Descartes **Merge** command was selected.

11. Select the **Merge** tool. This tool is used to copy and merge images and rasterize the vectors into an output file. Here, it is used to copy a portion of the large aerial photo to make a smaller, more manageable image.

12. The **Merge** command can also be opened by selecting the **Edit** pulldown in **Raster Manager** and selecting **Merge**.
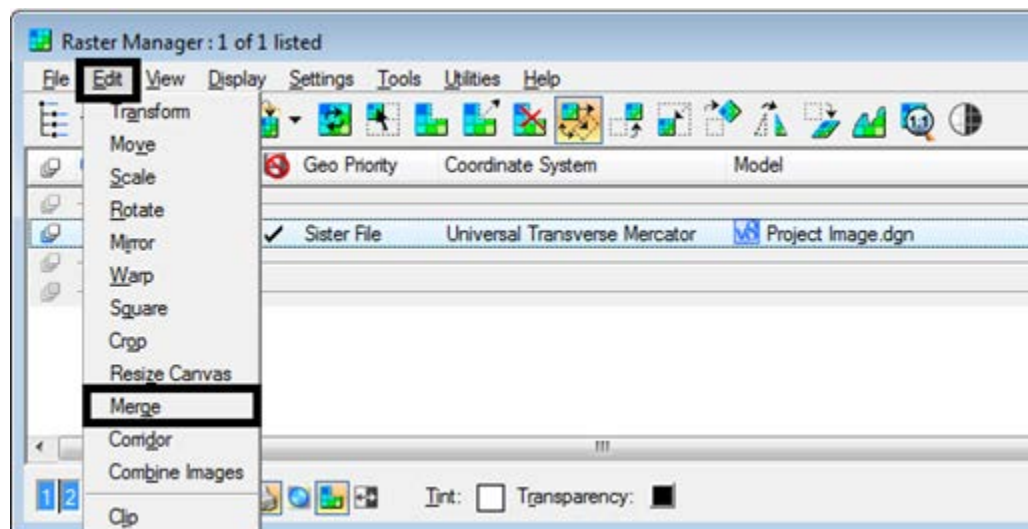
In the Merge tool settings dialog box, the ***Area*** pulldown menu has a number of options that can be used to define the area of the new image.
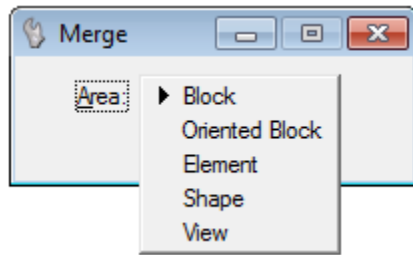

- **Block** – A rectangular area is defined by two points. Left click at the first corner, then move the cursor to the opposite corner and left click again.
- **Oriented Block** - A rectangular area is defined by three points. Left click at the first corner. Move the cursor to define the angle of the area and the adjacent corner. Finally, move the cursor to the opposite corner from the first and left click again.
- **Element** – Select an existing MicroStation Closed Shape element to define area.
- **Shape** – An irregular area is defined by three or more data points (left clicks). After the last left click, right click to complete the area.
- **View** – A rectangular area is defined by the selected view window. First zoom in on the desired area of the image, then left click in the view to identify the area.

The ***Use Fence*** option is available if a MicroStation fence has been placed before the Merge command is selected. In this example, a fence is used to define the area of the new image.

13. After selecting the **Merge** command, toggle on **Use Fence** in the dialog box.
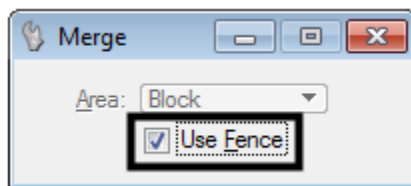
14. In the bottom, left corner of MicroStation you will be asked to **Accept/Reject** your area definition.
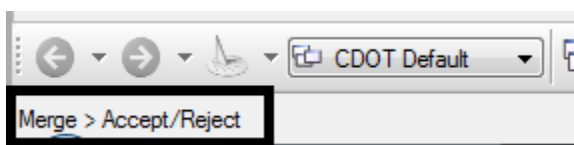
15. Select the **data** button on your mouse (left button) to accept. This will bring up the *Merge Options* dialog box.
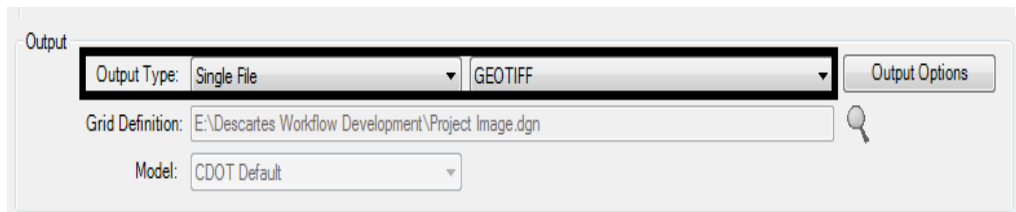
There are three sections to the Merge Options dialog box: *Options*, *Resolution*, and *Output*.
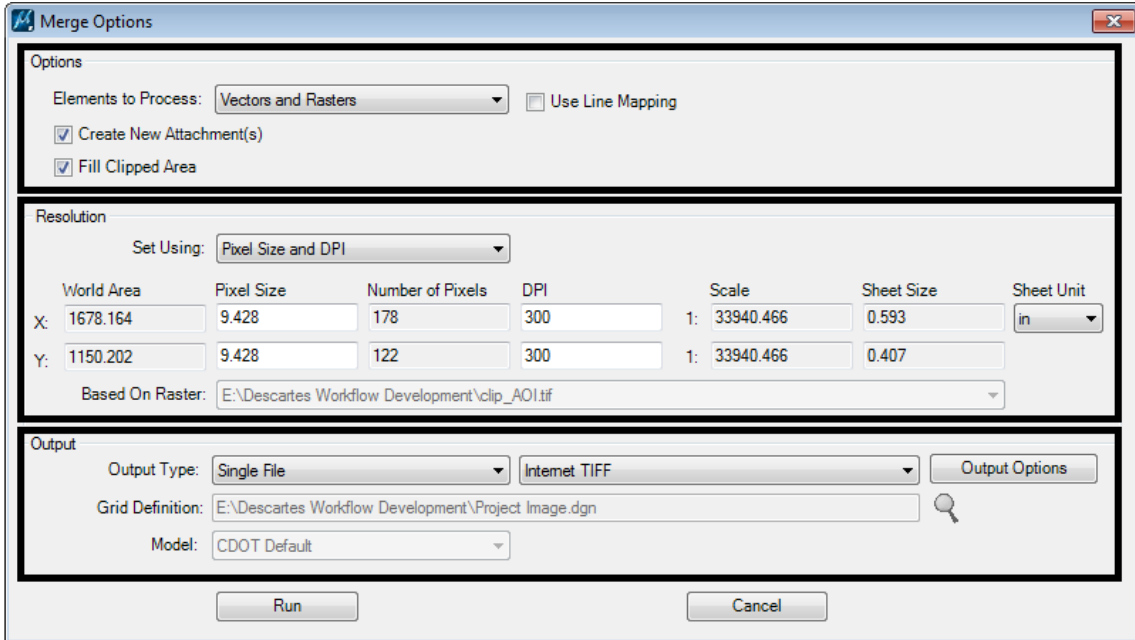
16. In the *Options* section, set **Element to Process**: to **Rasters Only**.

17. In the Resolution section, for Set Using; select **Existing Raster**.
18. In the *Output* section, set the **Output Type** to **Single File**.
19. Set the type to **GEOTIFF**.

20. Click **Run** to create the new image.

21. The *Save Merge Output as* dialog box will appear. Navigate to a directory to store the new file and give the file a name. Click the **Save** button to continue.
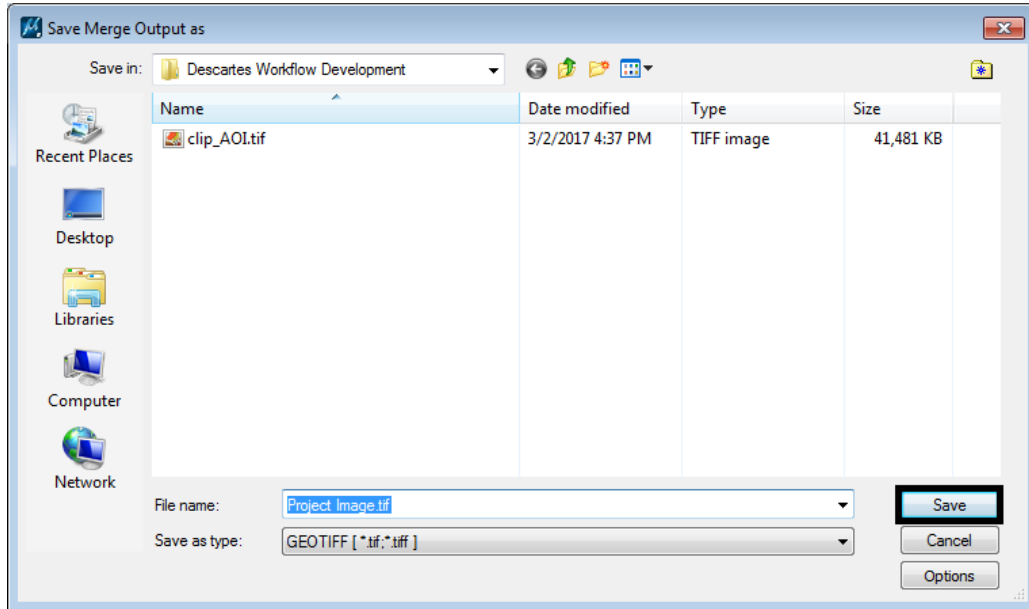

22. The new image will be added to the Raster Manager and the new file will be added to the selected folder.
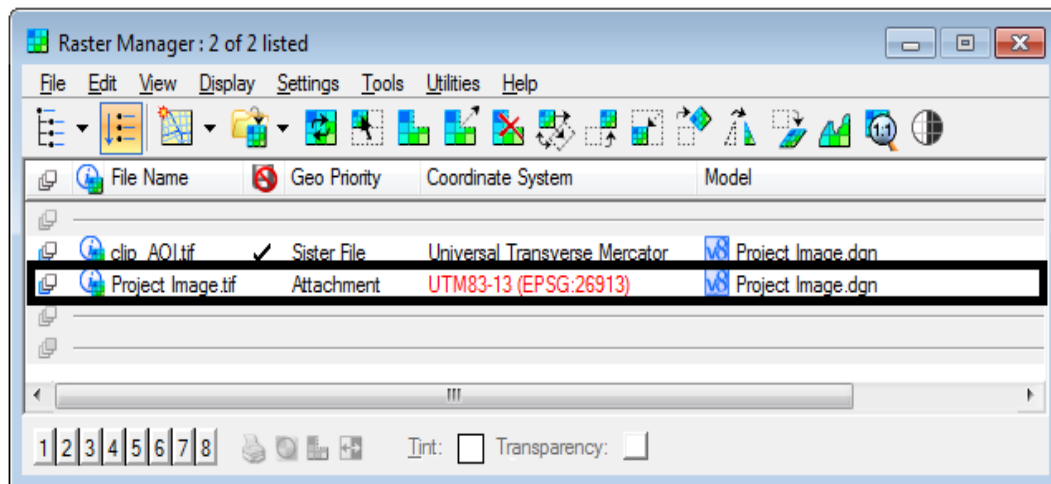
23. Place the cursor over the column bar and right click. This will allow you to select different columns to view. Be sure to turn on the *Coordinate System*.
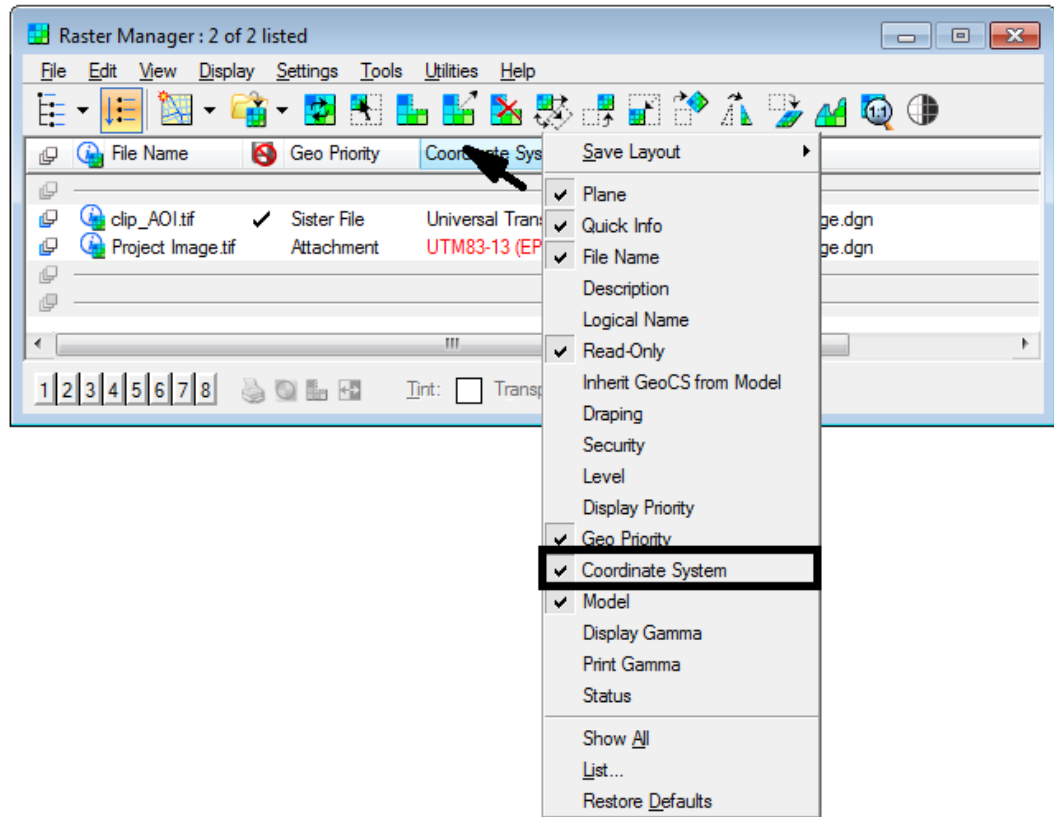
24. If the Coordinate System for the new file is in **RED**, right click the red lettering and select **Coordinate System** > **Select From Library**.
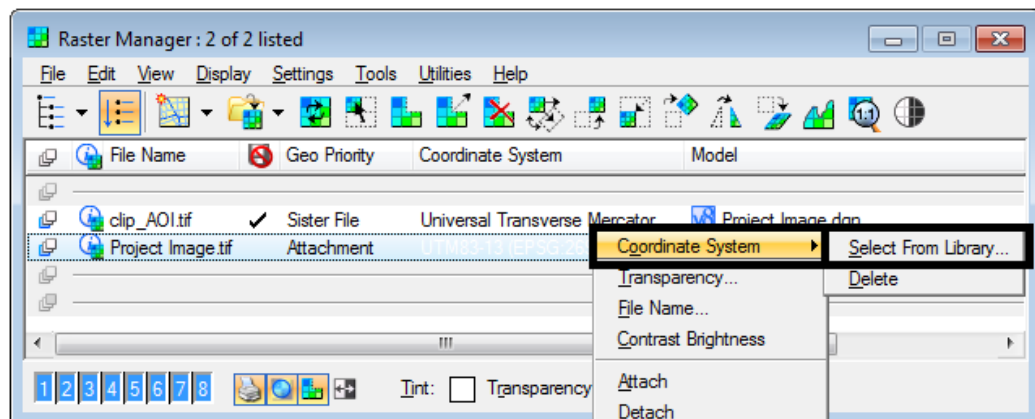
25. In the Select Geographic Coordinate System dialog box, in the Favorites folder, navigate to DRAP & NAIP Systems and pick the appropriate system.
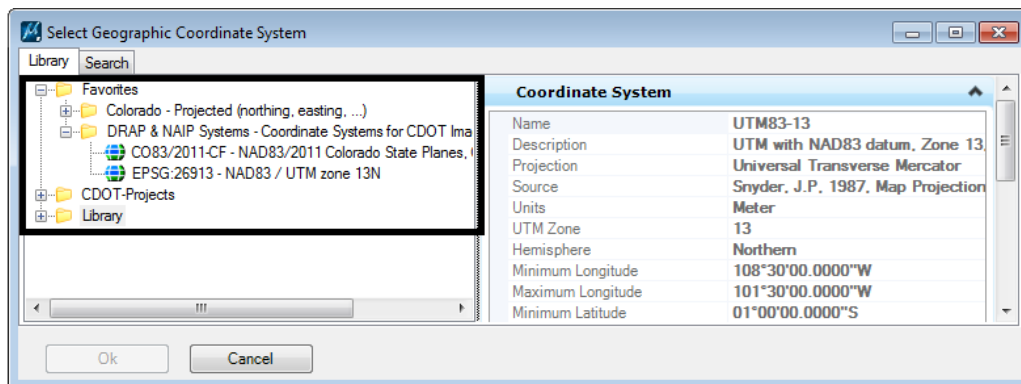
26. Click **OK** to set the Geographic System.
27. You can now *detach* the original document.

The illustration below shows the clipped image for the project area.