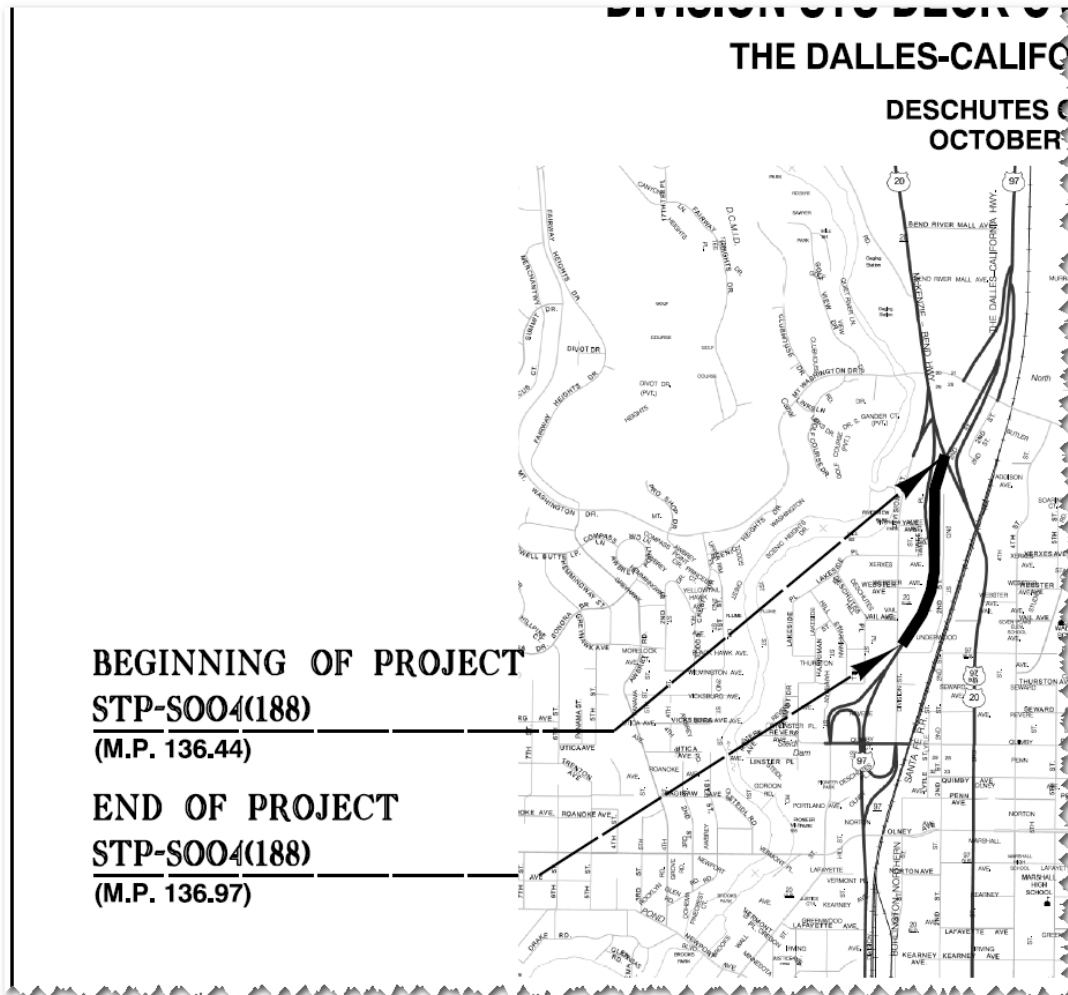# A Method to Create a Project Location or Vicinity Map

Several ODOT disciplines have a need to create a plan view location or vicinity map. This document provides a method of using city or county PDF maps that are created and updated annually by the ODOT Transportation Data GIS Unit as the basis of a location map shown in a MicroStation design file. Tools are provided within the ODOT workspace for adding to the information already displayed on the PDF map. This method is acceptable for use by ODOT in creating contract plan title sheet project location sketches. The FHWA guidelines for the project location sketch being placed on the title sheet "with sufficient identifying information so that the project may easily be located on a county or State map" can be fulfilled using this method. The workflow covers a typical project on a State highway using a county PDF map. Smaller areas with more detail and larger areas for longer projects are covered in their own section near the end. Please read through the Printing section at the very end to avoid producing a color PDF or a color grayscaled vicinity map on a black and white sheet.

Workflow Outline (typical)

1. Work in a new MicroStation design file created from ~~seed_tse.dgn~~ seed file. (This seed file no longer exists, replaced with use of MicroStation_Seed2D.dgn and referencing cache_tse.dgn)
2. Download the county PDF file and save to C:\Work.
3. Attach the PDF file as a raster reference to a DGN file and clip.
4. Adjust the raster layer display.
5. Draw the project location linestring.
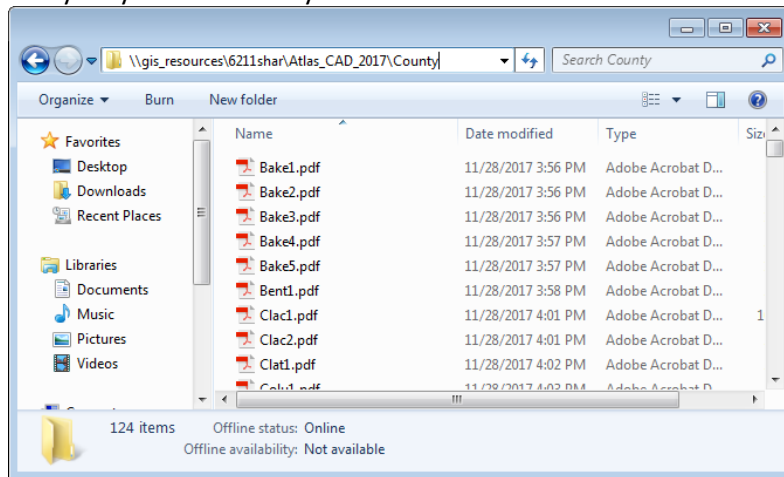6. Place cells and add text as necessary.

Workflow Details (typical)

1. **Work in a new MicroStation design file created from ~~seed_tse.dgn~~ seed file. (This seed file no longer exists, replaced with use of MicroStation_Seed2D.dgn and referencing cache_tse.dgn)**
   The rest of the typical workflow is designed for use in a 1"=100' annotation scale drawing. ~~Files created from a title sheet seed will already have the cache_tse.dgn attached as a reference.~~

2. **Copy the county PDF file**
   County PDFs with layers that may be turned off and on may be copied from the County folder in the annual Atlas_CAD_YYYY folder in \\gis_resources\6211shar. Save a copy of the required PDF to the C:\Work folder structure on your computer. You may use the index of the county sheets on the ODOT Data & Maps web page, but do not download those sheets as they may not contain layers.

3. **Attach the county PDF file as a raster reference and clip**
   Open the Raster Manager in MicroStation and use **File>Attach>Raster…** to *interactively* attach the county PDF – check the box to "Place Interactively" on the Attach Raster Reference dialog. When prompted to enter diagonal corners of the map, place the points 2800' horizontally and 3600' vertically apart **. This will attach the map so that the text will be legible when the title sheet is printed using the 1"=100' drawing scale.

   To clip the map to fit in the project sketch location, choose the Raster Manager command **Edit>Clip**, and place and accept a fence. Move the clipped raster into the title sheet with the Raster Manager command **Edit>Move**.
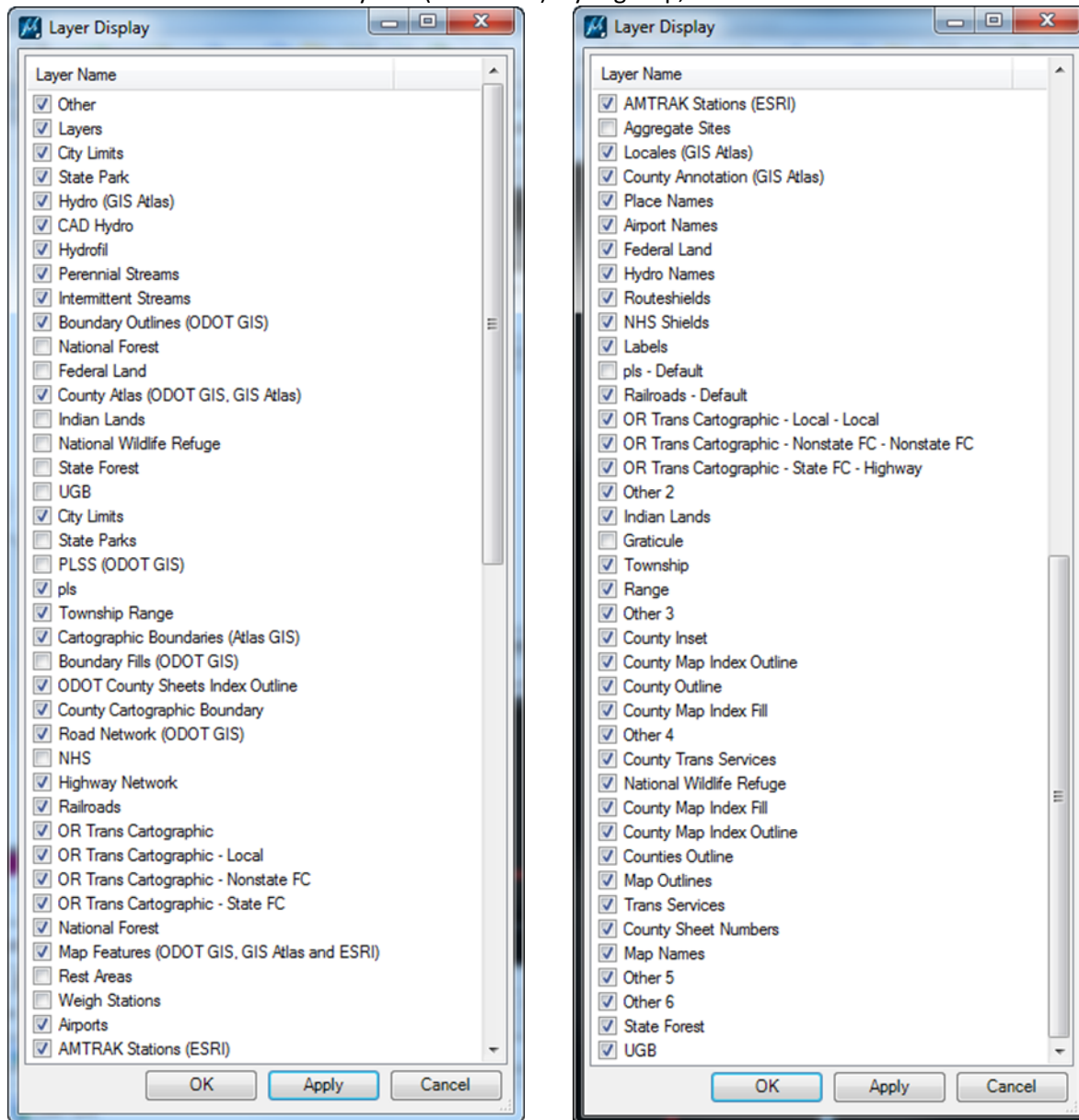
4. **Adjust the raster layer display**
   To turn off the display of features that detract from the map, use the Properties of the Raster Attachment. In MicroStation's Raster Manager, right-click the raster attachment and choose **Layers…**.

   On the Layer Display dialog, deselect (turn off) the following PDF layers and click [Apply]:
   National Forest
   Federal Land
   Indian Lands
   National Wildlife Refuge
   State Forest
   UGB
   State Parks
   PLSS (ODOT GIS)
   NHS
   Boundary Fills (ODOT GIS)
   Rest Areas
   Weigh Stations
   Aggregate Sites
   pls-Deflaut

Graticule

You will notice that some layer names appear to be repeated and are left toggled on. If a layer is a member of a parent group that is turned off, it is not necessary to turn off the child layer. Several layer names lower in the layer list are members of the Boundary Fills (ODOT GIS) layer group, which is turned off.

The PDF layers listed below may need to be turned off if the label for an important feature is clipped. Note that the feature annotation will have to be manually placed in the MicroStation design file if the label is not displayed. Route shield cells and text labels are provided in ODOT.cel and cache_tse.dgn cache file.

PDF Layer	Description
Labels	Group - highway, road, and RR name text
OR Trans Cartographic - State FC - Highway	highway name
OR Trans Cartographic - Nonstate FC - Nonstate FC	city/county street name
OR Trans Cartographic - Local – Local	minor road name
Railroads - Default	railroad name
County Annotation (GIS Atlas)	Group – names and symbols
Place Names	city name, state park name
Routeshields	route shield symbol
NHS Shields	NHS symbol

Hydro Names   river names

5. Draw the project location linestring

Set the active attributes for line weight to 25 and use **Place Smartline** with a rounded vertex. Draw the linestring indicating the affected highway directly over the top of the highway shown on the attached map.

6. Place cells and add text as necessary

In clipping the raster attachment or in turning off layers, you may clip or turn off important annotation, like highway route shields or street name labels. You can manually place editable route shields and text already sized to be legible on your final product from the Vicinity Map Tools group in the ODOT General Tasks and Workflows, from the ODOT.cel library, or from the standard reference, cache_tse.dgn.

Location sketches for smaller area (more detail) or larger area (longer project)

To produce a location sketch of a smaller area that shows more detail within a city, use the City Maps. City PDFs with layers that may be turned off and on may be copied from the City folder in the annual Atlas_CAD_YYYY folder in \\gis_resources\6211shar. Save a copy of the required PDF to the C:\Work folder structure on your computer. City maps should also be attached interactively and when prompted to enter diagonal corners of the map, place the points 3600' horizontally and 4700' vertically apart **. Clip and move the map as instructed above and adjust the displayed layers. Layer names may be slightly different in the city PDFs. Please note that boundary fills (background color) in the city PDFs are controlled by the Boundaries (ODOT GIS) layer group.

For larger areas, download all required county PDFs to cover the length of the project. After attaching all county PDFs at the same size (2800' x 3600') **, see step #3 above, align the PDFs together using **Edit>Move** and clip each to form a contiguous map. Use the **Edit>Scale** command to scale the PDFs down by a factor of 0.5. Turn off the annotation layer groups (Labels and County Annotation (GIS Atlas)) because those annotations will be too small to be legible. Place text and cells to legibly annotate the location sketch using the Vicinity Map Tools. Annotation cells and text placed with the Annotation Scale Lock On will be of a size that is legible in your final product.

Printing the sheet with a vicinity map

The county maps are color rasters and will produce a color vicinity map when a PDF is created. When the PDF is printed to a black and white printer, the color map will be grayscaled. In order to produce a black and white PDF with a grayscaled location sketch, the properties of the print definition (if using Print Organizer) will need to be modified to turn on "Print raster in grayscale" on the Advanced properties tab. If using regular MicroStation Print, the toggle is on the Print dialog under **Settings>Raster Options** in the Raster Color section.

** The county PDFs have a document page size of 28.00 x 36.00 inches; the city PDFs have a document page size of 36.00 x 47.00 inches and the text is designed to be legible when printed. The values you are instructed to use for diagonal corner placement of the PDFs in the workflows are chosen for 1"=100' annotation, drawing, and print scale and just as on the maps, the text will be legible when printed from MicroStation. If you use 1"=200' annotation scale, the values for the diagonal points defining the corners of the PDFs should be multiplied by two, in order to print legible text.