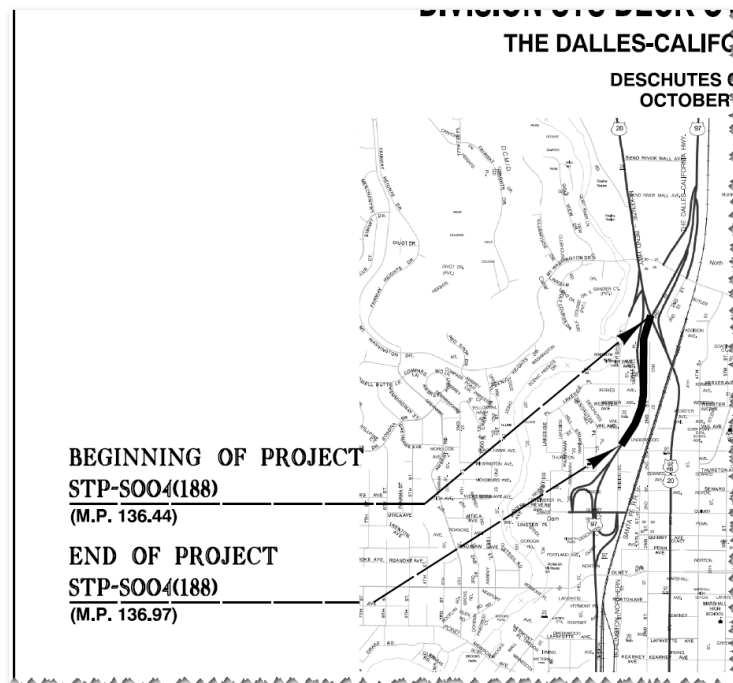


Workflow to Create a Title Sheet with Vicinity Map using MicroStation

Several ODOT disciplines have a need to create a plan view location or vicinity map. This document provides a method of using data (PDF or DGN) from the ODOT Transportation Data GIS Unit as the basis of a location sketch shown on a contract plans title sheet. Tools are provided within the OregonDOT WorkSpace for adding annotations. The FHWA requirements for the project location on the title sheet is to provide a location sketch “with sufficient identifying information so that the project may easily be located on a county or State map”. The workflow covers a typical project on a state highway using a county PDF map.

A [Vicinity Maps](#) document describes four sources of data for a location sketch and provides links to those sources. This workflow will use a County PDF downloaded from ODOT’s [Maps and GIS](#) web page. Please read through the Printing section at the very end of this document to avoid producing a color PDF or a color grayscaled vicinity map on a black and white sheet.



Workflow Outline

1. Create or download a PDF map and save to C:\Work.
2. Work in the Default model of a new MicroStation design file created from MicroStation_Seed2D.dgn seed file.
3. Attach the PDF file as a raster reference and clip.
4. Adjust the raster layer display.
5. Create the A01 sheet and attach cache_tse.dgn as reference.
6. Draw the project location linestring.
7. Place cells and add text as necessary.
8. Attach project information file.
9. Create model for A02 and attach cache_tse.dgn as reference.

Workflow Details

1. Create a PDF map or download (Save) the County PDF file

Because fewer layers increases the performance in MicroStation, the recommendation is to use the [ArcGIS Online Map Application](#) to create your own PDF of a basemap from the gallery. An alternative is to download a county map from ODOT’s [Maps and GIS](#) web page that does not have layers. Larger size 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 your PDF to the C:\Work folder structure on your computer. Import the PDF into ProjectWise using the Advanced Wizard. The Roadway folder contains a document description of “Sketches <add additional data>” that can be used to name the document.

2. Create a title sheet DGN from the MicroStation_Seed2D.dgn seed file.

Create a new document in the 2_Plan_Sheets folder in ProjectWise using the Advanced Wizard. Select MicroStation_Seed2D.dgn from the CAD_Resources\Seed\MicroStation folder as the template to use for title sheets. In the ProjectWise naming tool, the document is described as “<Sheet-No> - Title Sheets”. Open R_K#####_ts_01.dgn with MicroStation.

3. Attach the PDF file as a raster reference and clip

To provide an idea of how large to interactively place the PDF, place a “Clip Shape Full Sheet” border from the ODOT Plan Sheet Creation>Sheet Tools ribbon tab, anywhere in the Default model. Open the Raster Manager in MicroStation and use **File>Attach>Raster...** and select the sketch PDF from the Roadway folder. On the Raster Attachment Options dialog, toggle “Place Interactively” to Yes and set any other general attributes, then click [Attach]. When prompted to enter the origin and corner of the map, place the points such that your PDF occupies the central area of the clip shape. The attached raster may be moved or resized by selecting the border element and manipulating the corner vertices.

To clip the map to fit in the project sketch location, choose the Raster Manager command **Edit>Clip**, and place and accept a fence.

4. Adjust the raster layer display

To turn off any PDF layers, use the Properties of the Raster Attachment. In MicroStation’s Raster Manager, right-click the raster attachment and choose **Layers...** Uncheck layers you don’t wish to see, such as “ODOT Streets Vector Tile Basemap – Reference”, then click [OK] to apply the change and close the dialog.

5. Create the A01 Sheet using Place Named Boundary and Create Drawing

Working in the Default model, set the active level to S_NamedBoundary and run Place Named Boundary from the Drawing>View tab, set the Drawing Boundary to “_DetailFull_SheetOnly, name it A01 and set the Detail Scale to 1”=100’; check the box for “Create Drawing”. Place a single named boundary by snapping to the line that runs horizontally across the middle of the clip shape. Click [OK] on the Create Drawing dialog that opens to create the sheet.

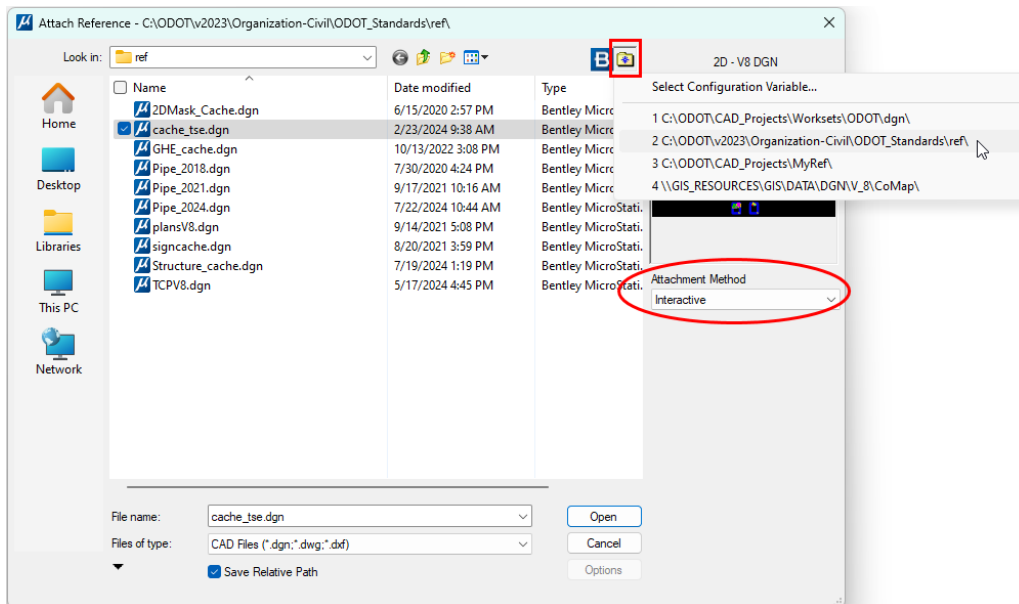
Build out the A01 sheet from the Title Sheet Cache

6. Attach reference to title sheet cache

The sheet is created with cells that are useful for general construction plan sheets, but not for title sheets; select and delete all the cells in the A01 model except the border cell: Title block, sheet number, clip shape. In the sheet you will see the following displayed from the reference to the Default model: the PDF, the named boundary, and the clip shape. The named boundary and clip shape are construction class elements and will not print, and their levels can be toggled off for display.

Attach a reference to the title sheet cache file, cache_tse.dgn (no nesting); use the Directory History button and select the shortcut to C:\ODOT\v2023\Organization-civil\ODOT_Standards\ref\ and attach cache_tse.dgn Interactive, then Coincident – World (the default). Because the origin of the cache file is close to 0,0 – it will appear immediately to the right of your sheet border. If the cache file is not immediately visible next to your sheet, open the reference attachment properties of cache_tse.dgn and set the Detail Scale to 1”=100’ – this will correct the scale and bring the cells in the cache into close proximity to your sheet.

Copy all the cells that you require from the EXAMPLE A01 area and place into the sheet, using the corners of the border cell as location points. Place the “Project Location Arrow” from the Small State Map Tools section on the ODOT Title Sheets>11x17 Plan Sheets ribbon tab. Place BEGIN and ENDPROJ cells from the TitleSheet.cel cell library.



7. 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 your attached PDF.

Match element attributes to the horizontal line in BEGIN or ENDPROJ and draw the leader lines to the beginning and end of the project location linestring. Place the arrow heads on the leader lines by selecting **ODOT Plan Sheet Creation>Sheet Tools>General Arrows>Terminators>Project Limit Arrow**.

8. 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 Maps** tab on the **ODOT Title Sheets** ribbon workflow, from the ODOT.cel library, or from the standard reference, cache_tse.dgn.

9. Attach Project Information

Attach the A_Sheets model in the project information file as a reference (Live Nesting, depth = 1). Adjust the level display from the project information reference to toggle off all used levels except P_ODOT_PLAN_TBProjectInfo. Adjust the level display of the A01 active model to toggle off only P_ODOT_PLAN_TBProjectInfo.

Build out the A02 sheet from the Title Sheet Cache

10. Create the A02 Sheet using New Model

In the Models dialog, create a new model, Type = Sheet From Seed, using the "2D Sheet" seed model. Name the model A02 and set the Sheet Number to A02.

Attach a reference to the title sheet cache file, cache_tse.dgn (no nesting); use the Directory History button and select the shortcut to C:\ODOT\V10\Organization-civil\ODOT_Standards\ref\ and attach cache_tse.dgn as described above in step 6.

Copy all the cells that you require from the EXAMPLE A02 area and place into the sheet, using the corners of the border cell and the corners of the sheet border as location points.

Create Model

Type: Sheet From Seed 2D

Seed Model: Seed2D - Sheet.dgn, 2D Sheet ...

Name: A02

Description:

Ref Logical:

Line Style Scale: Annotation Scale

☒ Auto-Update Fields

Annotation Scale

Full Size 1=1

☒ Propagate

Sheet Properties

☐ Add To Sheet Index

Sheet Number: A02

Sequence Number: 0

☒ Show Sheet Boundary

Border Attachment: (none)

Size: ANSI B

Origin: X: 0.000000 Y: 0.000000

Rotation: 0°0'0"

Cell Properties

Ability to Place: ☐ As Cell

☐ As Annotation Cell

Cell Type: Graphic

☒ Create a View Group

OK Cancel

11. Attach Project Information

Attach the A_Sheets model in the project information file as a reference (Live Nesting, depth = 1). Adjust the level display from the project information reference to toggle off all used levels except P_ODOT_PLAN_TBProjectInfo. Adjust the level display of the A02 active model to toggle off only P_ODOT_PLAN_TBProjectInfo.

Printing the sheet with a vicinity map

Because the title sheets are built out in sheet-type models – when printing, select the Sheet_11x17 print style.

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. 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.