

CONNECT **DDE GUIDE**



CONNECTICUT DEPARTMENT OF TRANSPORTATION

DIGITAL DESIGN ENVIRONMENT GUIDE

CONNECT EDITION

Volume 6 – OpenRoads Designer Traffic Engineering Base Modeling

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Table of Contents

Table of Contents	1
Course Overview	2
Exercise 1 - Base Model Creation	6
1.1 Startup	6
1.2 Creating a New File	9
1.3 Referencing	11
Exercise 2 - Signal Base Modeling.....	13
2.1 Traffic Signal Ribbon Tools.....	13
2.1.1 Signal Features	14
2.1.2 Liner and Shape Item Type Assignments:	15
2.2 Basic Workflow	16
2.3 Item Type Property Definitions	20
Exercise 3 - Pavement Marking Base Modeling.....	22
3.1 Basic Workflow	22
3.2 Item Type Assignments	24
3.2.1 PAY ITEM - Pavement Marking Symbol.....	24
3.2.2 PAY ITEM - Pavement Marking Line.....	24
Exercise 4 - Sign Base Modeling	26
4.1 Basic Workflow	26

Course Overview

In these exercises you will learn how to place signal features, Pavement Markings, Signs in base model design files.

Skills Taught

- Selecting the proper seed file to create a Base Model
- Aligning a file so it's in the proper geospatial location
- Using the Traffic Toolbar
- Creating Signal Base Models
- Creating Signing Base Models
- Creating Pavement Marking Base Models
- Placing cells, shapes and lines
- Using Item Types for Pay Items and Asset Information

Introduction

Item Types Overview

An Item Type is a user defined set of properties used to describe graphical and non-graphical information of an object or element. Item Types are set up and managed by the CTDOT CAD administrators as part of the delivered workspace. The workspace has been set up for certain Cells to have Item Types attached upon placement. Item Types will be attached after placement for elements such as lines and shapes. The properties of an Item Type can be edited by the user in the Properties dialog box along with the other properties of an element. These properties can be used to label and report.

CTDOT Item Types are connected to the Department's Master Bid List that contains pay item numbers, descriptions and units. Users can search for bid items by entering pay item numbers or descriptions and the search results will filter enabling the user to select the proper bid item. After selection the pay unit field will auto-populate with data pulled from the look up table.

Signal Equipment comes with both Asset and Pay Items Attached.

Some user input fields are pick lists and others are strictly manual input.

A Controller cell has multiple pay items attached to it, the controller box, a foundation, sidewalk, time clock, sidewalk and excavation.

The look up information is grayed out and the user input is not. The greyed-out properties are getting auto-populated by other Item Type property fields or other attributes on the file itself.

Properties

Elements (1)

- Cell: TS-CONTROLLER - WITH PAD
 - Items
 - Line
 - Line
 - Shape

General

CONTROL BOXES

Status	NEW
Description	TRAFFIC CONTROLLER
Cabinet_Type	8 PHASE
Battery_Backup	Yes
GPS_Installed	No
Auxiliary Equipment Cabinet	No
Auxiliary Termination Cabinet	(None)
Video_Monitor	Yes
Processor	1
Project_Number	CE00-EHR0
Intersection_ID	132-01

PAY ITEM - Traffic Signal

Description	TRAFFIC CONTROLLER
PAY ITEM[0]	
SEARCH	1108115 FULL ACTUATED CONTROLLER 8 PHASE
Item_Description	FULL ACTUATED CONTROLLER 8 PHASE
Item_Number	1108115
Unit	ea.
Complete_Quantity_Override	No
Manually_Added_Quantity	0.0000
Quantity	1.0000
Notes	
PAY ITEM[1]	
SEARCH	1002208 TRAFFIC CONTROL FOUNDATION - CONTROLLE
Item_Description	TRAFFIC CONTROL FOUNDATION - CONTROLLER - TYPE
Item_Number	1002208
Unit	ea.
Complete_Quantity_Override	No
Manually_Added_Quantity	0.0000
Quantity	1.0000
Notes	
PAY ITEM[2]	
SEARCH	1111470 TIME CLOCK
Item_Description	TIME CLOCK
Item_Number	1111470
Unit	ea.
Complete_Quantity_Override	No
Manually_Added_Quantity	0.0000
Quantity	1.0000
Notes	
PAY ITEM[3]	
SEARCH	1002015 ROCK IN FOUNDATION EXCAVATION
Item_Description	ROCK IN FOUNDATION EXCAVATION
Item_Number	1002015
Unit	v.f.
Complete_Quantity_Override	Yes
Manually_Added_Quantity	4.0000
Quantity	4.0000
Notes	
PAY ITEM[4]	
SEARCH	0921001 CONCRETE SIDEWALK
Item_Description	CONCRETE SIDEWALK
Item_Number	0921001
Unit	s.f.
Complete_Quantity_Override	Yes
Manually_Added_Quantity	12.0000
Quantity	12.0000
Notes	

Raw Data

Figure 1 – Signal Control Box Item Types

3

Placement Tools and Item Types

The Traffic tab on the CTDOT workflow will be used to place the Signs, Pavement Markings and Signal Features. These tools place 2D lines, shapes and cells. Most of the Cells available on this ribbon will get automatically placed with Item Types already attached.

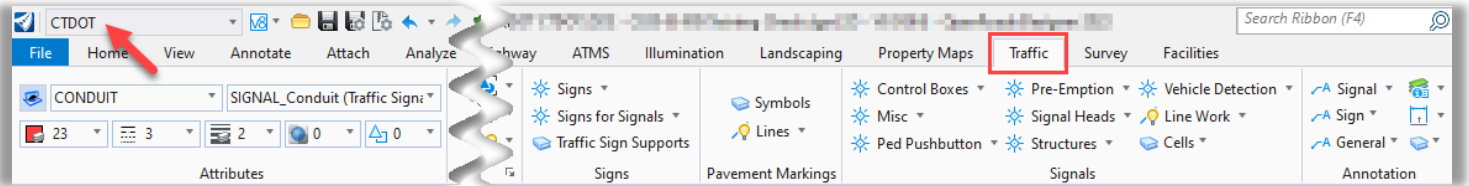


Figure 2 - CTDOT Custom Workflow Traffic Tools

Placement tools in the **Signals \ Line Work** and the **Pavement Marking \ Lines** pull down menus do not automatically attach Item Types like the Cell tools. Item Types will be attached after placement by assigning the proper Element Template on a complexed line or shape using the Properties Dialog Box. Traffic Pay Item Element Templates can be found in the following folders:

- **Traffic Signals \ Line Work \ PAY ITEMS**
- **Pavement Markings \ Lines \ PAY ITEMS**

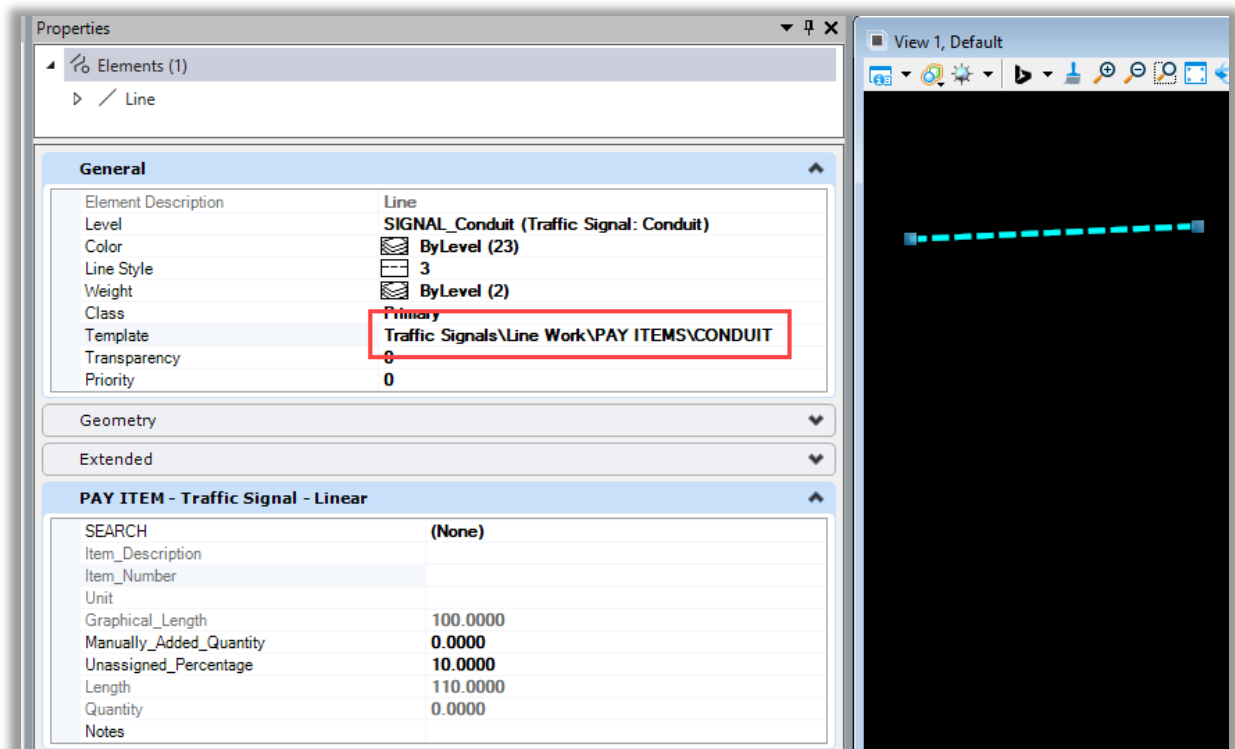


Figure 3 - Attach Item Types

Traffic Assets

The following CTDOT assets will be tracked moving forward so all Property fields in the Item Types below should be fully populated and filled out for each item placed in a signal\project.

Traffic Signal Equipment

- AREAS – CONTROL AREA
- AREAS – PRE-EMPTION
- AREAS – SIGNAL COMMUNICATIONS
- CONTROL BOXES
- PEDESTRIAN SIGNAL
- PUSH BUTTON
- SIGNAL HEAD
- SIGNALFACES
- SUPPORT STRUCTURES
- VEHICLE DETECTION

Traffic Signs

- SIGN – Assembly
- SIGN – Panel 1
- SIGN – Panel 2
- SIGN – Panel 3
- SIGN – Panel 4
- SIGN – Panel 5
- SIGN – Panel 6
- SIGN – Panel 7
- SIGN – Panel 8
- SIGN – Panel 9

Exercise 1 – Base Model Creation

1.1 Startup

Before attempting to open or create DGN files users should make sure the following is in place:

1. CTDOT users should have the CTDOT CONNECT DDE synced through SharePoint with the COMPASS Project Synced along with the CAD Configuration.
2. Consultants should have CTDOT DDE properly installed or be syncing to the CTDOT DDE SharePoint/COMPASS system.
3. Make note of the **Coordinate System** you will be working in. If you have existing survey data, you will need to find out what system is being used (**NAD 83/NAVD 88 or NAD 27/NAVD 29**).
4. Log on to the CONNECTION Client. Bentley Connect licensing requires users to log into their Bentley account to secure a software license. CTDOT users should log in using your CTDOT email address and Bentley password. If you do not see the dialog box, select the ^ icon on the bottom Windows Screen. Click on the Connection Client Icon and select **Open**.

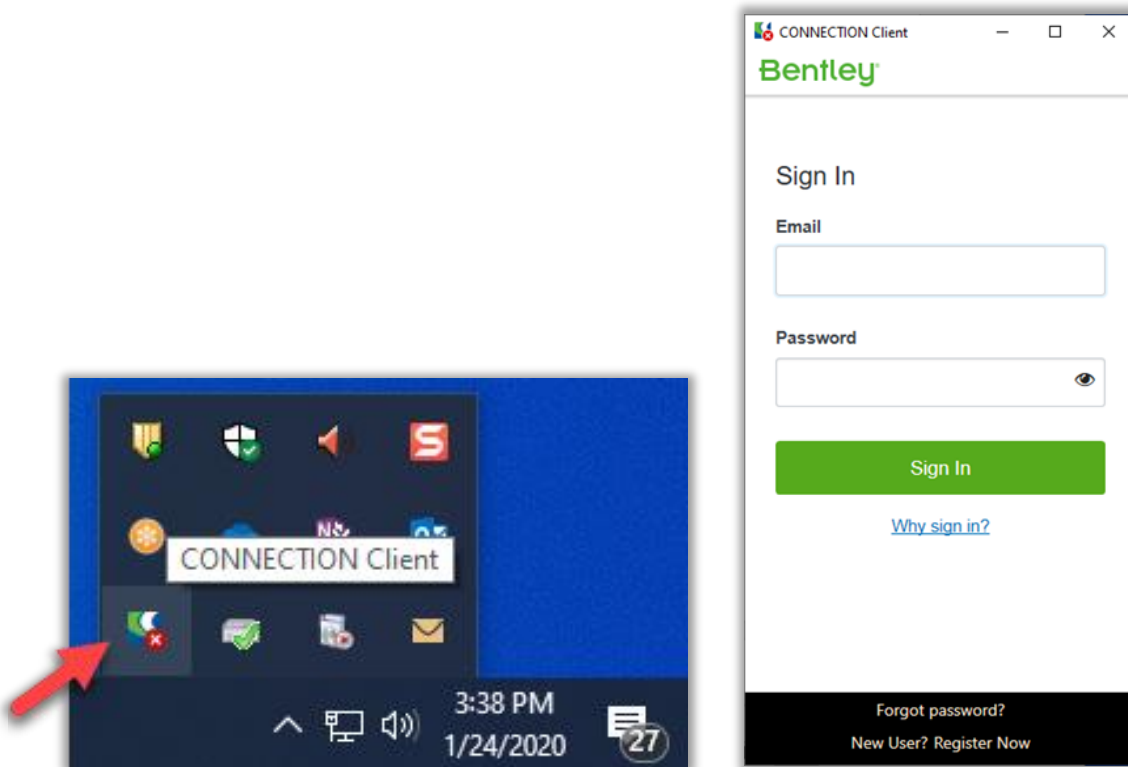


Figure 4 – CONNECTION Client System tray

Volume 6 – OpenRoads Designer Traffic Engineering Base Modeling

5. Launch the Application.

- **Consultants**

Start the software via an appropriate **CTDOT DDE** icon

- **CTDOT employees**

On your desktop double click on the **CAD Accounting** icon.

6. On the CT DOT Accounting Menu there will be select **Compass OpenRoads CE**

In the **Run Program** field select the needed program, the **Available Account** (funding source) and **Resource Type**. Click on the **Start** button to load the program.

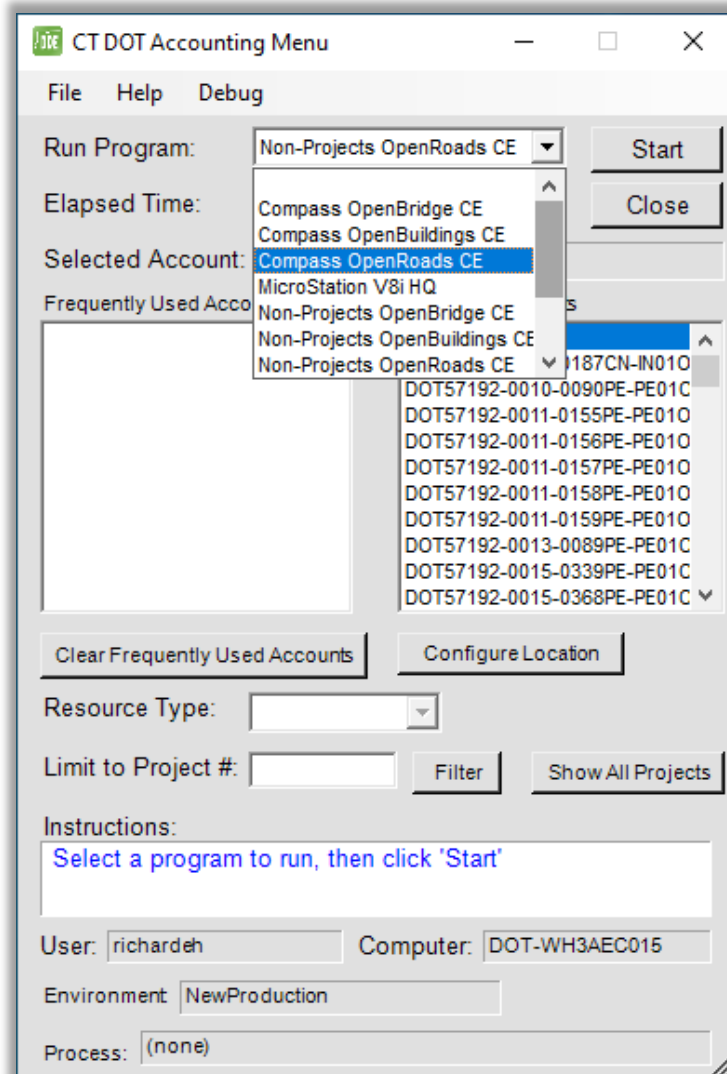


Figure 5 – CAD Accounting dialog box

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- After launching the program, a Welcome Screen for **OpenRoads Designer** will appear.
- Select **Custom Configuration**, using the small drop-down arrows select the Workspace **CT_Workspace**, the needed **WorkSet** and **Role**.

Note: If you do not see the Project Number listed, please request a Compass/CAD Setup using this link [New CAD Project Request](#)

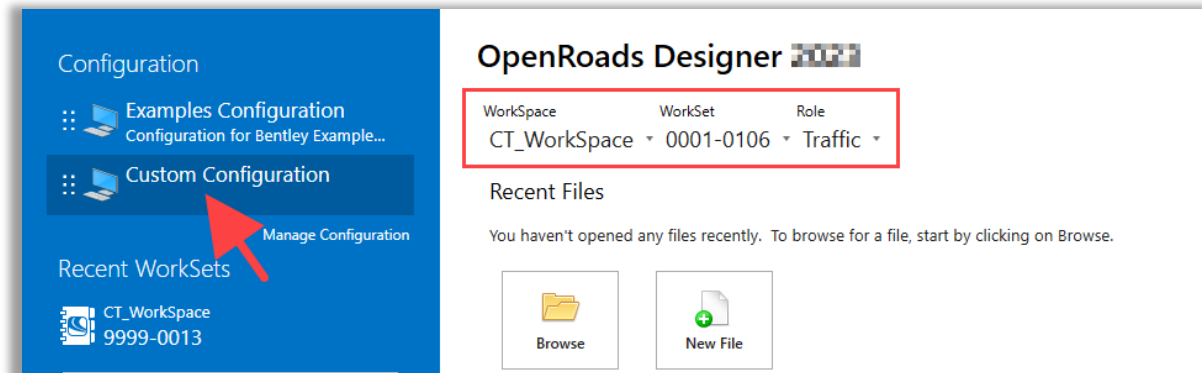


Figure 6 – OpenRoads Splash Screen

1.2 Creating a New File

1. Select the **New File** icon.

Warning: Do not copy DGN files created with V8i SELECTseries or InRoads SS2, SS3, SS4, or SS10 to the new CTDOT CONNECT Project/WorkSet folders.

From the New dialog box, browse to the proper discipline folder and enter the proper file name in the **File name:** field using

Examples:

- Traffic Control Signal **TR_CB_1234_1234_TCS**
- Pavement Markings **TR_CB_1234_1234_PVT**
- Signs **TR_CB_1234_1234_SGN**

2. On the New dialog box click the **Browse** button to select the proper seed file.
...CT_Configuration|Organization|Seed|Road

If the survey was done in an old Datum, use the 2D Seed Files in this folder

...CT_Configuration|Organization|Seed|GCS|

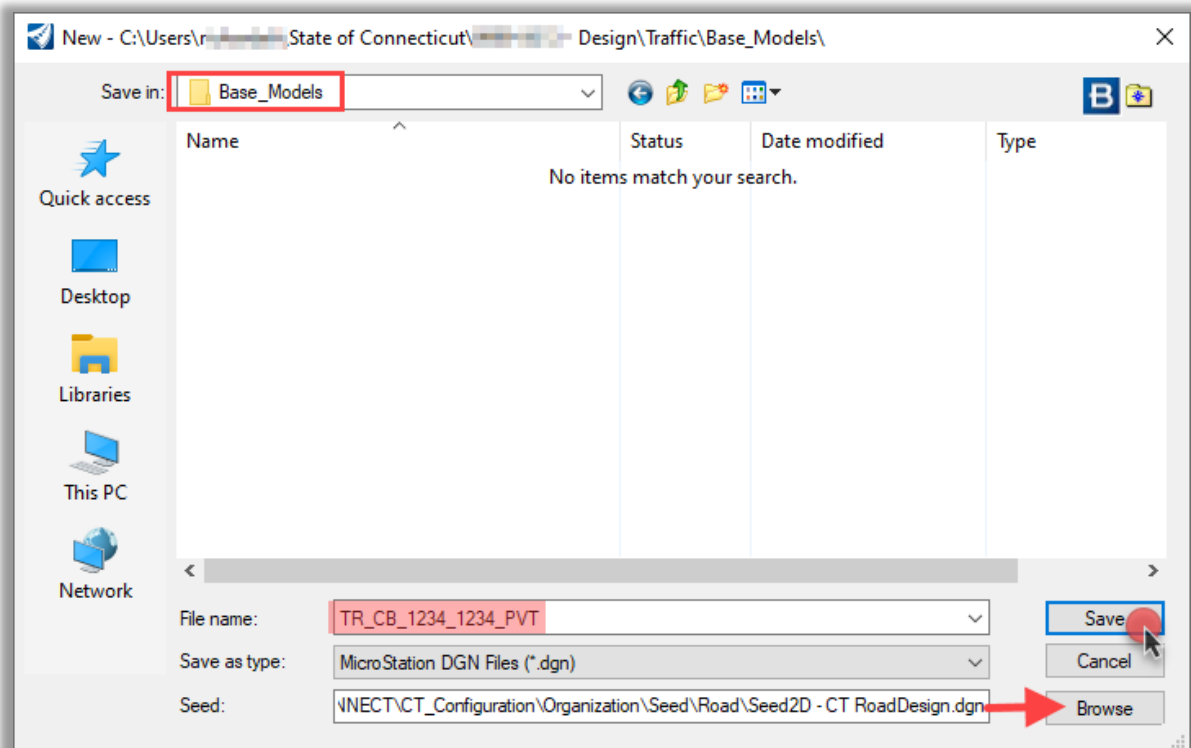


Figure 7 – New File

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- After the DGN file is created open File Explorer and browse to the file, **right click** and select **View online**.

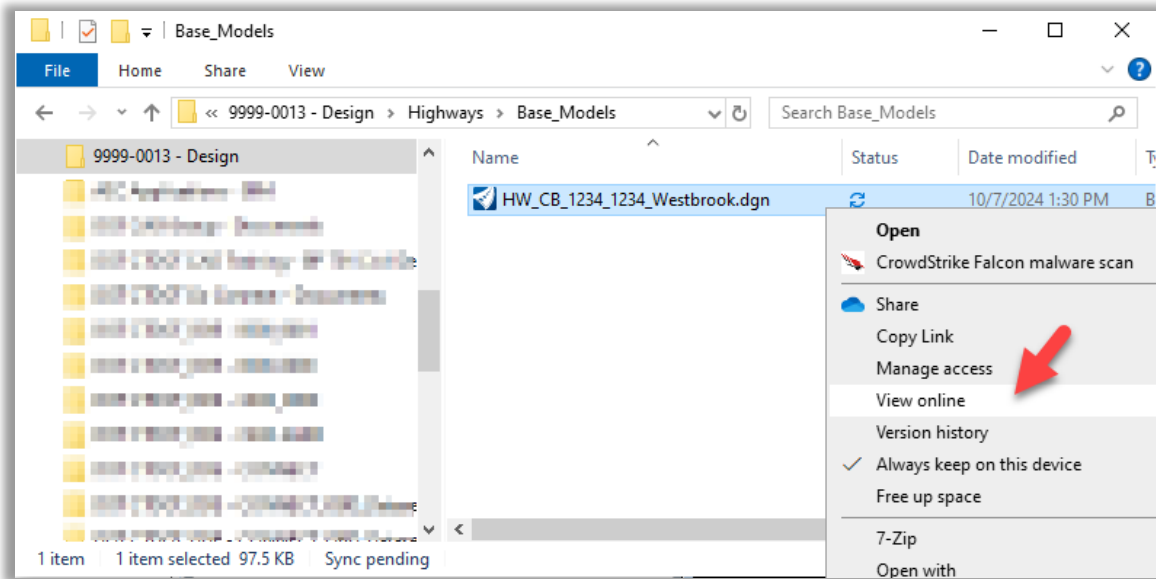


Figure 8 – File Explorer View online tool

- The Projects SharePoint site will open, sort by **Date**, click on the **three dots**, select **More >** **Check Out**

Note: When you are done working on the DGN file, exit the program and go back to the SharePoint Site and **Check In** the file.

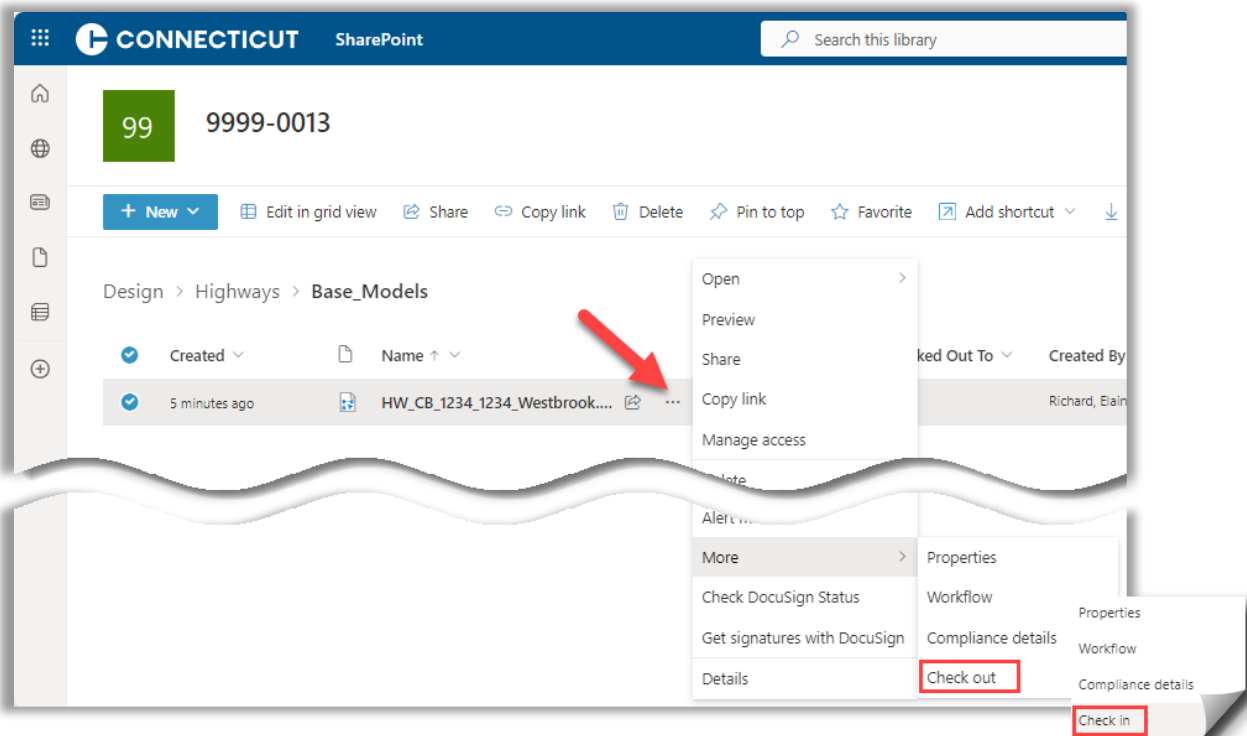


Figure 9 – SharePoint Check out

1.3 Referencing

Reference in other Design Unit's DGN files. This could include but not limited to Highway, Illumination, Signal, Signing, Pavement Markings and Existing Survey.

1. Select the **CTDOT** workflow and click on the **Attach** Tab, in the **References** section click on **Attach Reference**.
2. Navigate to the **Highways|Base_Models** folder and reference the Highway Design Base Model files. Choose the needed Models (most likely its "Default") and use **No Nesting**.

Note: Highway Design may elect to have several DGN files which could include Alignment dgns, Modeling dgns, and Drainage dgns. Highway Design.

3. Navigate to the **Active_Survey** folder and reference the Survey *.dgn file. This may include 2 files a Terrain DGN and a Ground Topo (grn) DGN

Note: Older DGN Files will need to be referenced in with certain settings to get them to line up in the correct Geospatial location.

4. For older reference files turn **True Scale** off and set the Scale to **1:1**.

Note: Always do a check by clicking on the Survey's Northing and Easting Grid Marks to compare the files read out. If they do not match you did not properly align the file Geospatially.

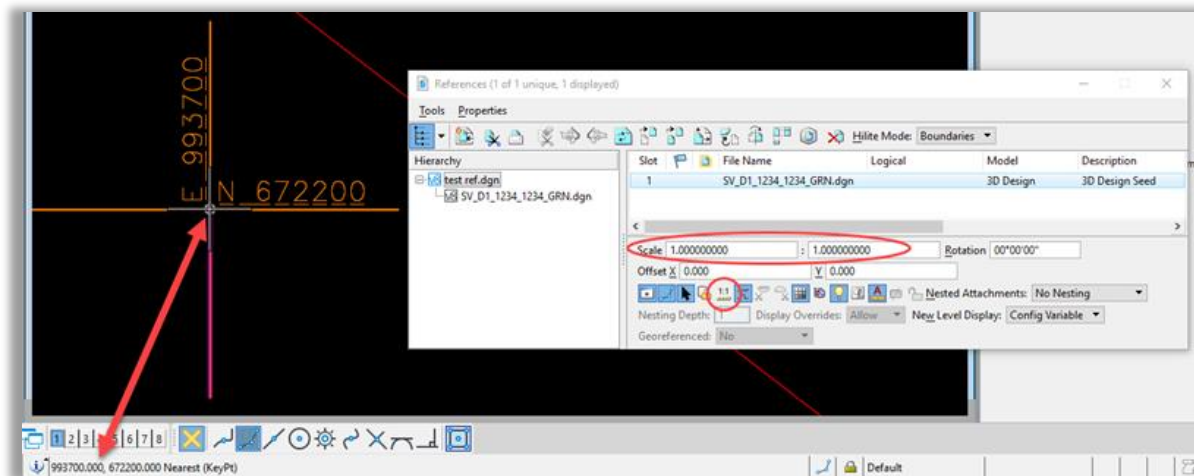


Figure 10 – Reference Coordinates

5. Select **Level Display** and turn off the desired levels in the reference files.
6. Activate the terrain by clicking on the terrain boundary, hover over the boundary and from the pop-up menu select the **Set Terrain Active** tool.
7. Click again on the terrain boundary and set the override symbology to **Yes**. Then to help with the horizontal alignment creation, you can turn on the contours.



Figure 11 - Override Terrain Symbology

8. Select **Save Settings**.

Exercise 2 – Signal Base Modeling

2.1 Traffic Signal Ribbon Tools

1. In the **TR_CB_1234_1234_TCS.dgn** select the **CTDOT** workflow and click on the **Traffic** tab to access the integrated CTDOT standard tools on the Ribbon. Below will highlight all the options in the Signal Area.

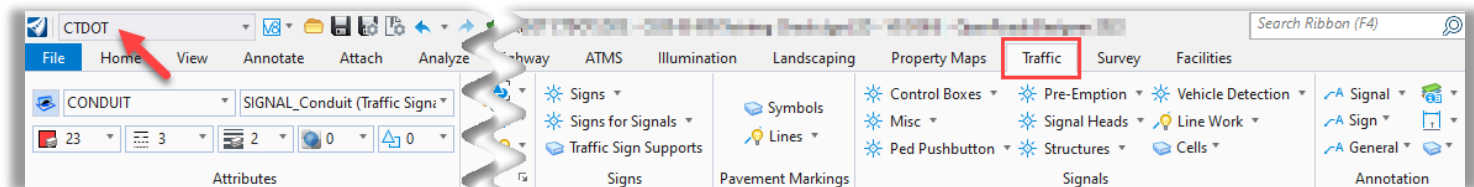


Figure 12 – CTDOT Custom Workflow Traffic Tools

2. Select each Pull Down menu in the Signals section and get familiar with the choices under each.

Note: After placement Cells should not be broken. If the **Drop Element** tool is used on cells, they lose any pre-assigned Item Type Information. This will make the element unsuitable for quantity and asset management. Lines and Shapes shall be **continuous** (not broken or in pieces) to ensure pay items get calculated and assigned properly.

2.1.1 Signal Features

Control Boxes:

Controllers – New Controller cells get placed with two Item Types attached (asset and pay item), while existing Controller cells do not include pay items. The asset information fields should be completely filled out and the pay item information should be modified as needed.

Auxiliary Cabinets – These cells will need to be placed adjacent to a Controller Cell. The pay item information should be modified as needed. *Note: The AUXILIARY TERMINATION CABINET cell will come with an additional pay item to account for 5 feet of Conduit needed for the install.*

Misc: The pay item information should be modified as needed.

Ped Pushbutton: The asset information should be modified as needed.

Pre-Emption: The pay item information should be modified as needed. Each item will pick up a quantity of 1, unless additional quantities are added to the Manually_Added_Quantity field.

Signal Heads:

Signal Head Attachment – These Cells should be added along a Span Wire or Mast Arm. The pay item and asset information should be modified as needed.

Signal Face – Faces will be attached to a Signal Head or a Support Structure such as a Pedestal and the asset information should be modified as needed.

Structures: New Cells get placed with two Item Types attached, while existing Cells do not include pay items. The asset information fields should be completely filled out and the pay item information should be modified as needed. Additional Pay Items can be assigned to the array if required.

Vehicle Detection: New cells get placed with two Item Types attached, while existing Cells do not include pay items. The asset information fields should be completely filled out and the pay item information should be modified as needed. **Note:** *For LOOP DETECTOR please refer to the line work section below.*

Line Work: Line work is placed using the ribbon tools, then when pay items are ready to be assigned the user will select the **Attach Item** tool and assign the proper Item Types. The pay item descriptions will need to be selected and the quantity will pick up the length of the line or area and any added user defined quantity added to the Manually_Added_Quantity field.

2.1.2 Liner and Shape Item Type Assignments:

Placement tools in the **Signals \ Line Work** pull down menu does not automatically attach Item Types like the Cell tools. Item Types will be attached after placement by assigning the proper Element Template on a complexed line or shape using the Properties Dialog Box. Traffic Pay Item Element Templates can be found in the **Traffic Signals \Line Work \PAY ITEMS** folder.

After selection the proper element template you will notice the following Item Types attach.

Conduit: PAY ITEM – Traffic Signal – Linear

CABLE: PAY ITEM – Traffic Signal – Linear

SAWCUT: PAY ITEM – Traffic Signal – Linear

SPAN WIRE: PAY ITEM – Traffic Signal – Linear

SIDEWALK: PAY ITEM –Sidewalk

SIDEWALK RAMP: PAY ITEM –Sidewalk Ramp

DETECTABLE WARNING SURFACE: DETECTABLE WARNING SURFACE

LOOP DETECTORS:

- PAY ITEM – Traffic Signal
- VEHICLE DETECTION

CONTROL AREA – This shape shall be placed as a closed shape around the entire signal area. The Item Types attach to this shape pertain to asset information only. Line work is placed using the ribbon tools, then when asset information is ready to be assigned the user will select the shape and then the proper Element Template in the General section of the Properties dialog box. These can be found under **Traffic Signals \Control Area \CONTROL AREA ASSET**. The asset information should be modified as needed.

2.2 Basic Workflow

Note: After placement Cells should not be broken. If the **Drop Element** tool is used on cells, they lose any pre-assigned Item Type Information. This will make the element unsuitable for quantity and asset management. Lines and Shapes shall be **continuous** (not broken or placed in pieces) to ensure they get calculated and assigned properly.

1. In the **Models** dialog box click in the **Description** column and add the **Signal Intersection ID number**. **Note:** Every signal on the State system has an Intersection ID associated to it, if you are unsure of the number, please reach out to the Project Manager.
2. In the **Signals** section use the Cell pull down menus and select the desired equipment. Follow the prompts to place. After placement select the cell, then select the required information in the **Properties** dialog box. The Item Description uses a pull-down menu, select the down arrow, start entering the Item Description and select as needed. **Note:** you can enter any word in the description, and it will filter regardless of the order.

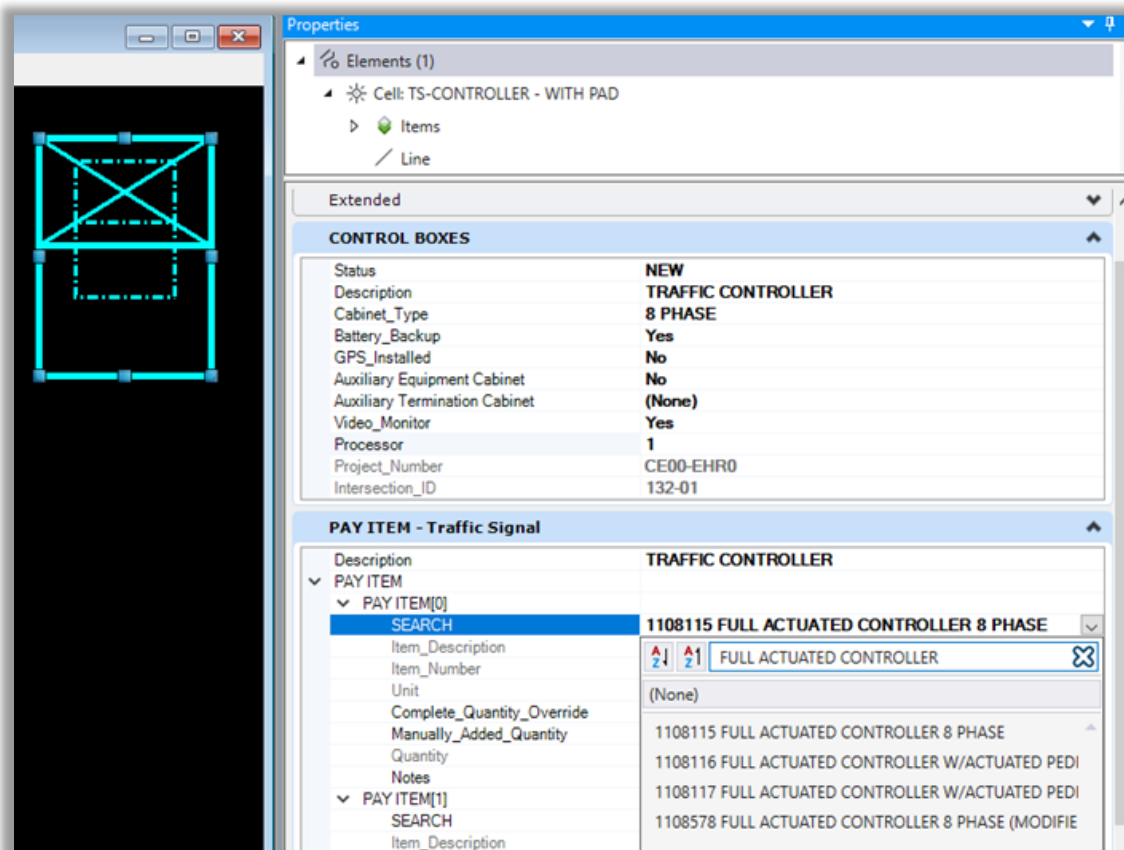


Figure 13 – Signal Control Box Pay Item– Item Type

3. The Structures and Vehicle Detection pull down will place Parametric Cells. In the Place Parametric Cell Dialog Box select **Interactive** and follow the prompts to place the cell. After placement select the cell and in the **Properties** dialog box select the required information.

Volume 6 – OpenRoads Designer Traffic Engineering Base Modeling

4. **Note:** There are also special inputs required for various Cells. Black text is fillable and gray text is not. Gray text gets populated from look up tables that are preconfigured. Some fields will also alter the size of the cells.
5. **Combination Mast Arm Example:**
6. Adjust the Arm Length(s) and Angles as needs, fill out all the Asset information and adjust the pay Item as need to correspond to the asset properties.

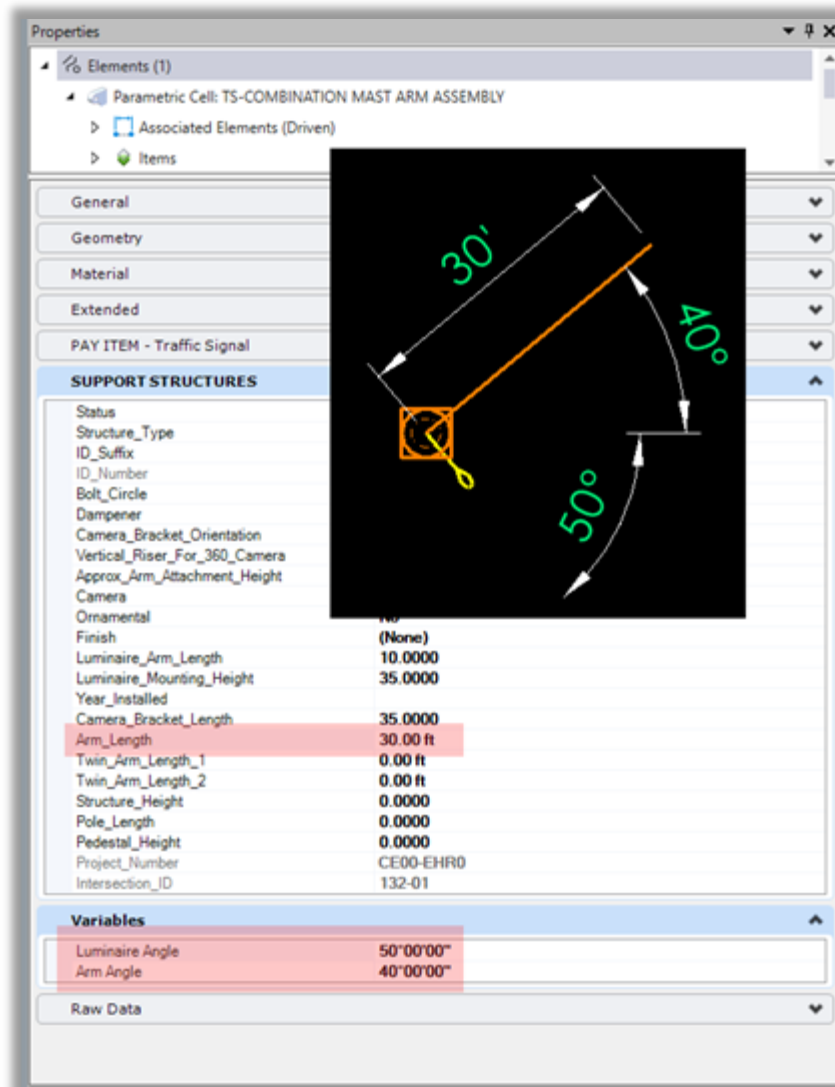


Figure 14 – Signal Mast Arm Pay Item – Item Type

7. In the **Signals** section click on the **Line Work** pull down menu and select the **Conduit** tool. Place a line to represent the conduit.
8. Use the **Create Complex Chain** tool to connect separate lines that need to make up a pay Item.

Volume 6 – OpenRoads Designer Traffic Engineering Base Modeling

9. Select the Line and in the General Section of the Properties Dialog Box select proper Template **Traffic Signals\Line Work\PAY ITEMS\CONDUIT**.

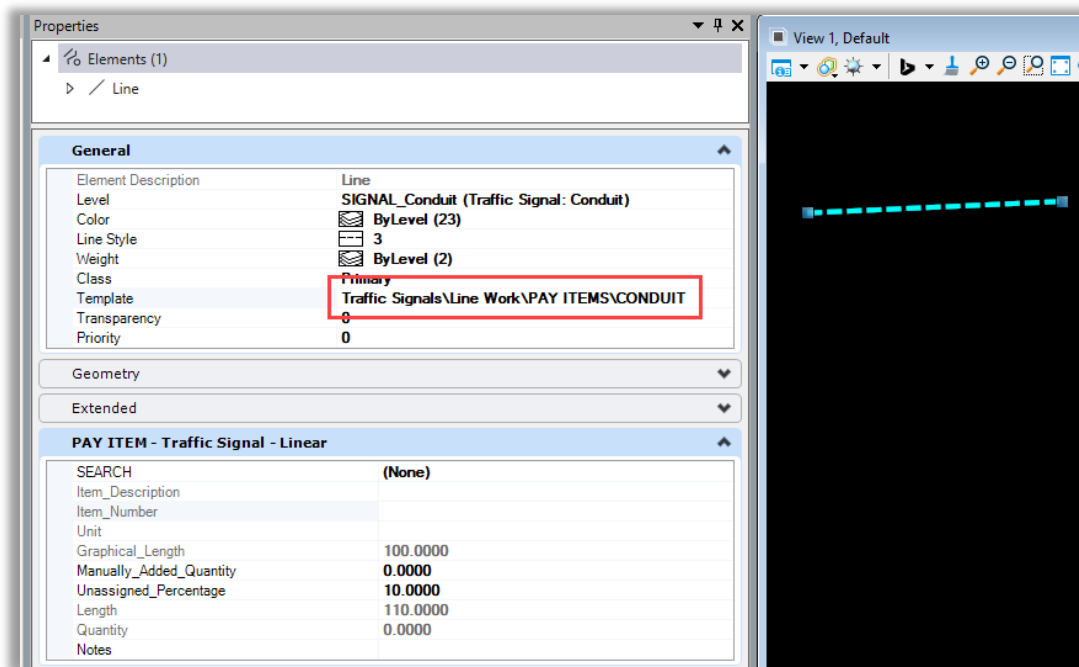


Figure 15 – Attach Item Type

10. Scroll down to the bottom of the **Properties** dialog box and update the pay item as needed. Users can filter by entering either the Pay Item Description or Pay Item Number in the **SEARCH** field.

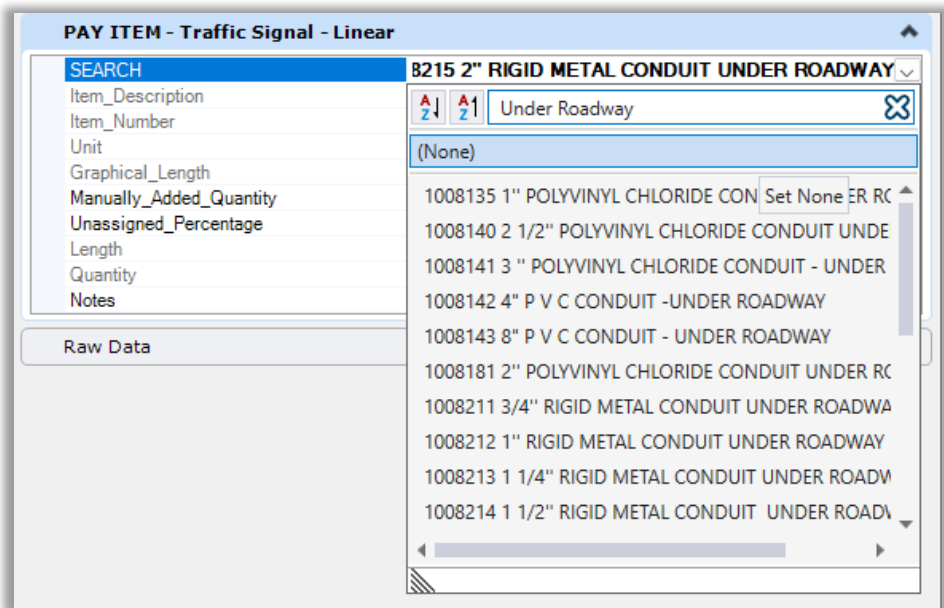


Figure 16 – Search for Pay Item

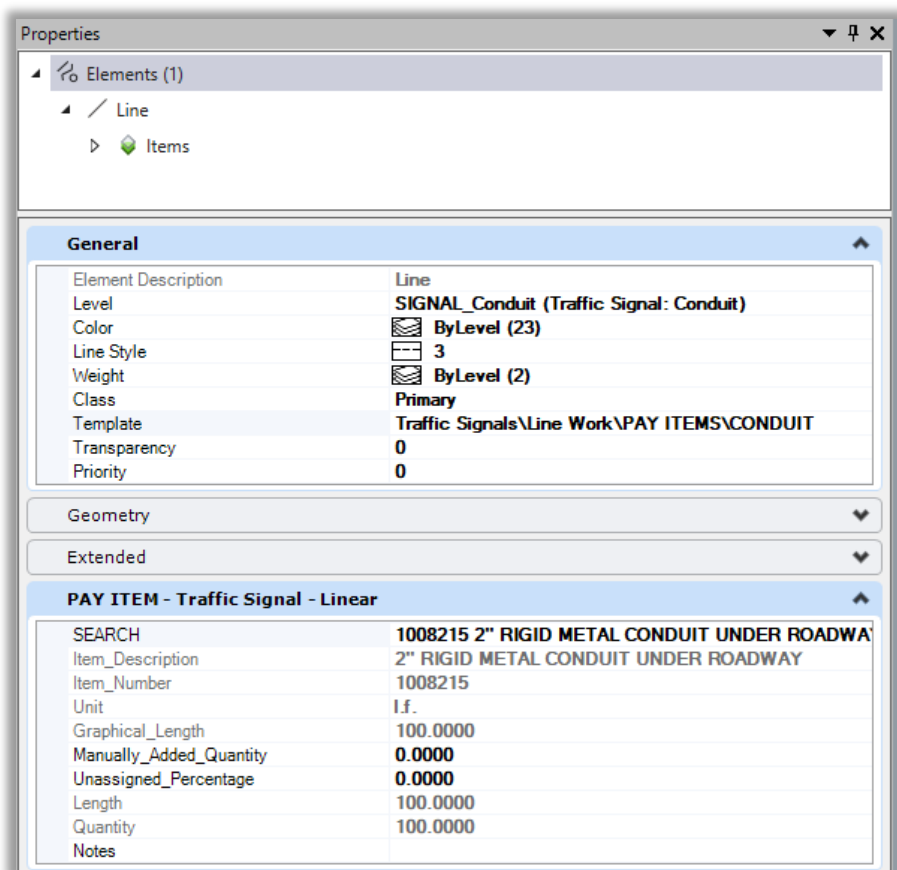


Figure 17 – Conduit Pay Item – Item Type

2.3 Item Type Property Definitions

All bold Property Definition fields can be edited after placement in the Properties dialog box. Gray Property Definition fields are auto populated and cannot be adjusted in the Properties dialog box.

Intersection_ID – The signal intersection ID is added to the Model Description which populates the Intersection_ID Property Definition. Notice it is grey in the Properties dialog box as it can only be edited in the Models dialog box.

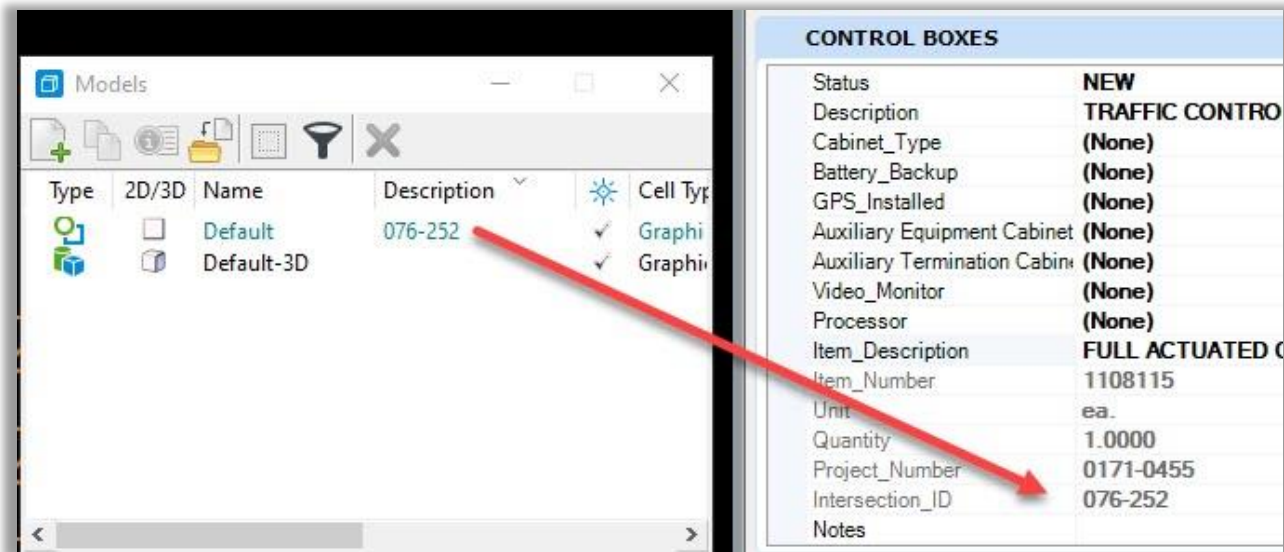


Figure 18 – Intersection ID

Project_Number – The Project Number comes from the WorkSet that was selected when opening the CAD Program.

Bid Item Descriptions – The Item Description uses a pull-down menu, by selecting the down arrow in the Property Definition, and entering part of an Item Description a selection pick list will appear. **Note:** you can enter any word in the description, and it will filter regardless of the order. All the Traffic Signal Equipment Item Types with an Item_Description field uses this method except for the “SUPPORT STRUCTURES”. When editing a support structure, the Item_Description field is auto picked from the Size_Description pick list.

Quantity Overrides – The Quantity Property Definition picks up the attribute of the graphic it is placed on, and the Unit Property Definition depicts how it acts.

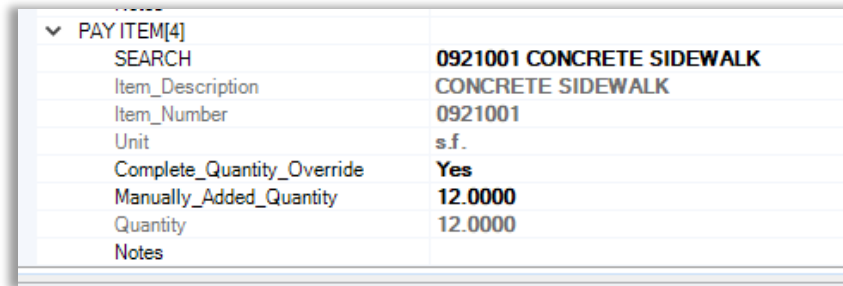
- l.f. – Length
- s.f. – Area
- each – Count

There are three options for populating the [Quantity](#) field:

Volume 6 – OpenRoads Designer Traffic Engineering Base Modeling

1. Totally override the graphic quantity and manually add a user defined quantity.
To do this set the **Complete_Quantity_Override** to **Yes** and add the desired quantity to the **Manually_Added_Quantity** field.

The image below shows the Quantity that gets added to a Traffic Controller's Cell for the Pad's item CONCRETE SIDEWALK. 12 s.f. of Sidewalk gets manually added to each Controller that has a pad.



▼ PAY ITEM[4]	
SEARCH	0921001 CONCRETE SIDEWALK
Item_Description	CONCRETE SIDEWALK
Item_Number	0921001
Unit	s.f.
Complete_Quantity_Override	Yes
Manually_Added_Quantity	12.0000
Quantity	12.0000
Notes	

Figure 19 – Pay Item Properties

2. Use the graphic assigned quantity and add an additional amount.
To do this set the **Complete_Quantity_Override** to **No** and add the desired additional quantity in to the **Manually_Added_Quantity** field.
3. Use the graphic assigned Quantity as is.
To do this set the **Complete_Quantity_Override** to **No** and input **0** in the **Manually_Added_Quantity** field.
4. The **Unsigned_Percentage** field allows for a percentage increase to the total Quantity.

Item Type Arrays – The "pay item" Item Types come in as an Arrays, meaning you can add instances to the Item Type.

After attachment or placement select the **Properties** dialog box and right click over the Array field and select **Add entry**. Add the desired number of entries, entries can also be deleted and hidden.

Status – Each Asset Item Type comes with a status pick list:

- REMOVE
- NEW
- TO REMAIN
- RESET
- RELOCATE

Most items will be set to new, and a bid item should be selected. On the occasion one of the other selections are needed make sure the bid item matches. There are bid items for removals, resets, and relocations. There is a bid item N/A which will be used for most "To Remain items".

Exercise 3 – Pavement Marking Base Modeling

3.1 Basic Workflow

1. In the **TR_CB_1234_1234_PVT.dgn** select the **CTDOT** workflow and click on the **Traffic** tab to access the integrated CTDOT standard tools on the Ribbon.

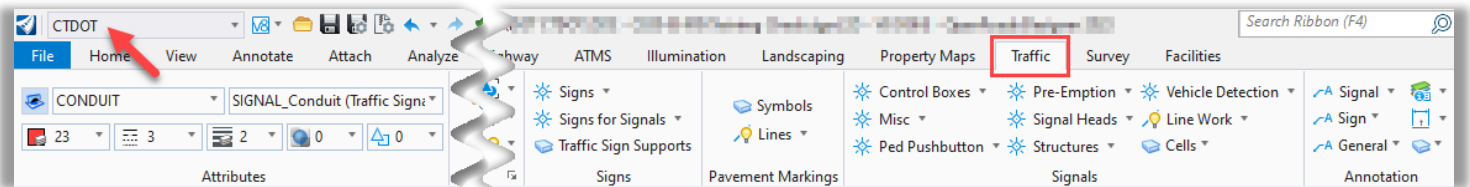


Figure 20 – CTDOT Custom Workflow Traffic Tools

2. In the **Pavement Marking** section select the **Open Symbols** icon. The Pavement Marking Cell Library will open.
3. Select the needed cell and follow the prompts for placement.

Note: If you use other tools associated with Element Templates make sure to set the Element Template back to Blank before placing another cell, this can be done by simply clicking the Open Symbols tool again.

4. In the **Properties** dialog box edit the **Item_Description** listed under PAY ITEM as required. The SEARCH property uses a pull-down menu, select the down arrow and search or select as needed. EPOXY RESIN PAVEMENT MARKINGS, SYMBOLS AND LEGENDS will be the default.

Note: For Symbol Cells the **Complete_Quantity_Override** is set to **YES**. All cells are set to the square footage as shown on the CTDOT Standard Detail Sheets.

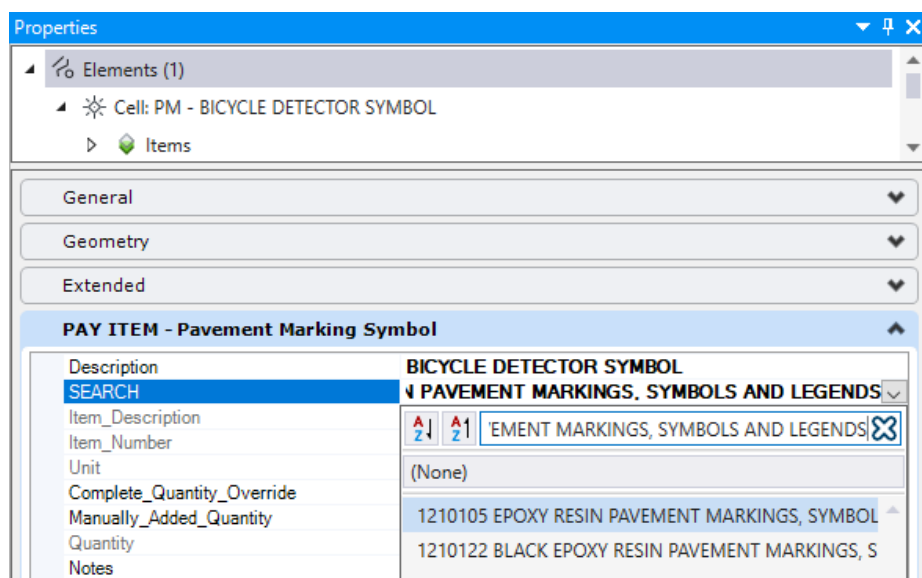


Figure 21 Pavement Marking Pay Item– Item Type

Volume 6 – OpenRoads Designer Traffic Engineering Base Modeling

5. On the Pavement Marking tab select the **Lines** pull down and select a tool. Place a line to represent the Pavement Marking. Use the Create Complex Chain tool, to combine line work as required.
6. Select the newly placed line and in the **Properties** dialog box update the Element Template in the General section, to **Pavement Markings\Lines\PAY ITEMS\...** and select as required.
7. This will add Pay Item to the line. Scroll down to the bottom of the **Properties** dialog box and update the pay item as needed.

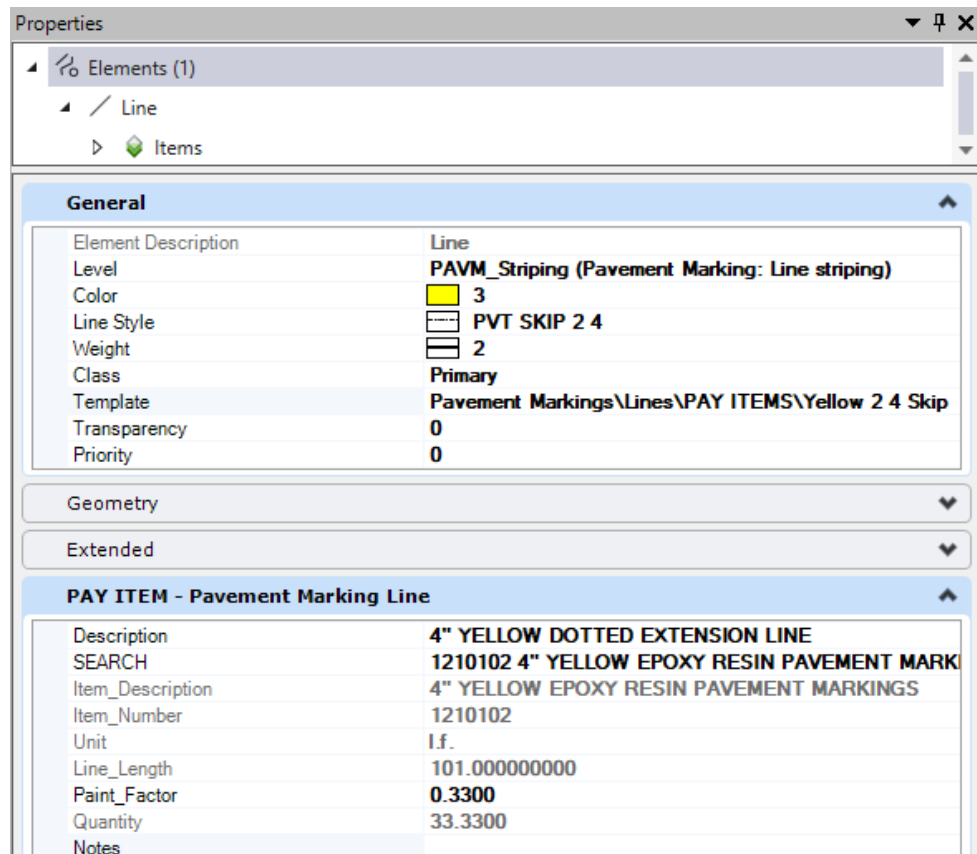


Figure 22 Element Templates with Attached Item Types

8. Place other Line Work, update the Templates and edit the pay items as needed.

3.2 Item Type Assignments

Pavement Marking Item Types use the properties described below:

3.2.1 PAY ITEM – Pavement Marking Symbol

Description – User defined, type in as needed.

SEARCH – uses a pull-down menu, by selecting the down arrow in the Property Definition, and entering part of an Item Description or Item Number, a selection pick list will appear.

Note: *you can enter any word in the description or Number, and it will filter regardless of the order.*

Item_Description – uses a look up table and will update based on the selected SEARCH Property.

Item_Number – uses a look up table and will update based on the selected SEARCH Property.

Unit – uses a look up table and will update based on the selected Item_Description.

Quantity – uses the following equations with the option of adding a manual amount if necessary. $s.f. = this.Manually_Added_Quantity + Area$

Complete_Quantity_Override – if set to Yes, the desired quantity will only use the Manually_Added_Quantity field and will disregard the graphical look up. If set to No, the desired additional Manually_Added_Quantity will be added to the graphical look up.

Manually_Added_Quantity – if no additional quantity is required leave this set to 0, any value added here will be added to the graphical look up in the Quantity field.

Notes – User defined, type in as needed.

3.2.2 PAY ITEM – Pavement Marking Line

Description – User defined, type in as needed.

SEARCH – uses a pull-down menu, by selecting the down arrow in the Property Definition, and entering part of an Item Description or Item Number, a selection pick list will appear.

Note: *you can enter any word in the description or Number, and it will filter regardless of the order.*

Item_Description – uses a look up table and will update based on the selected SEARCH Property.

Item_Number – uses a look up table and will update based on the selected SEARCH Property.

Unit – uses a look up table and will update based on the selected Item_Description.

Line Length – This is the graphical line length from the CAD file

Paint_Factor– the user can manually edit if needed.

Quantity – uses the following equations.

$$\text{l.f.} = \text{Length} * \text{this.Paint_Factor}$$

$$\text{s.f.} = \text{Length} * \text{this.Paint_Factor}$$

Notes – User defined, type in as needed.

Exercise 4 – Sign Base Modeling

4.1 Basic Workflow

1. In the **TR_CB_1234_1234_SGN.dgn**, select the **CTDOT** workflow and click on the **Traffic** tab to access the integrated CTDOT standard tools on the Ribbon.

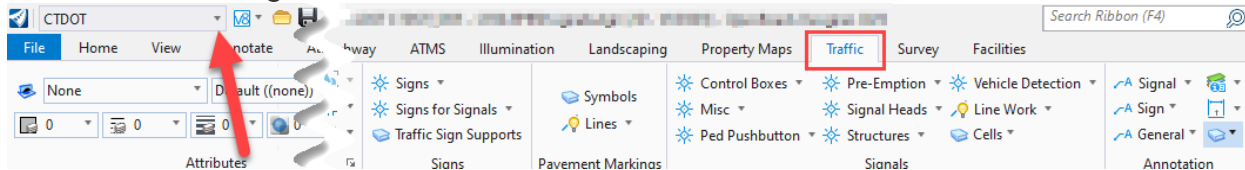


Figure 23 CTDOT Custom Workflow Traffic Tools

2. Click on this link to open the Sign Catalog
<https://portal.ct.gov/-/media/DOT/documents/dtrafficdesign/SignCatalogpdf.pdf>
 In the **Signs** section select the needed **Sheet Aluminum** tool. Note – The Sheet Aluminum (Signal) pull down will be used for signs associated to a signal. This will allow users to turn off the post sign level in the signal plan for non-signal signs.

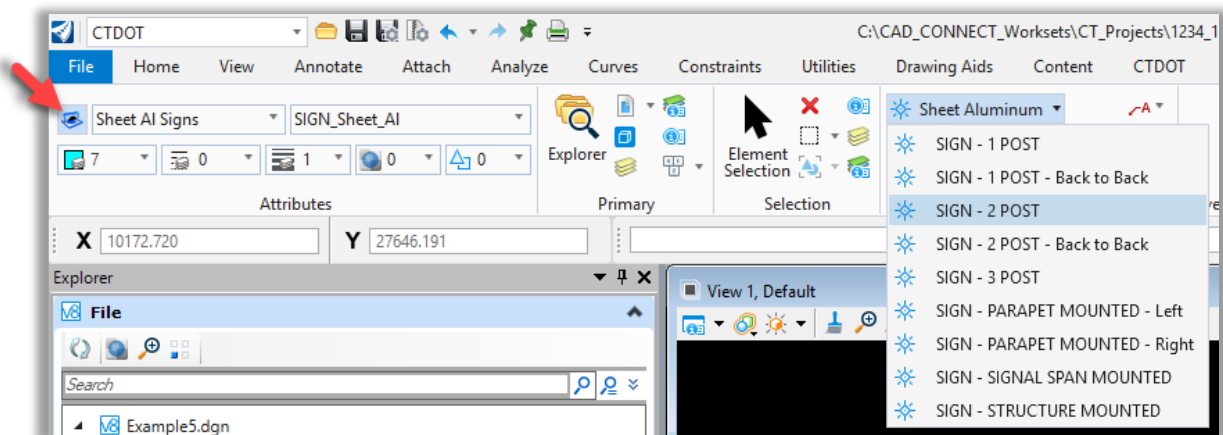


Figure 24 Place Sign Tools

3. Select the needed tool and make sure the **Element Template Association** is **Enabled**. Follow the prompts for placement.
4. Using Element Selection select a sign cell. Click on the **Properties** dialog box edit the attached Item Types.

Volume 6 – OpenRoads Designer Traffic Engineering Base Modeling

- For **SIGN - Assembly** enter a **Job Assembly Number** and edit the **Position** and **Label** as needed.

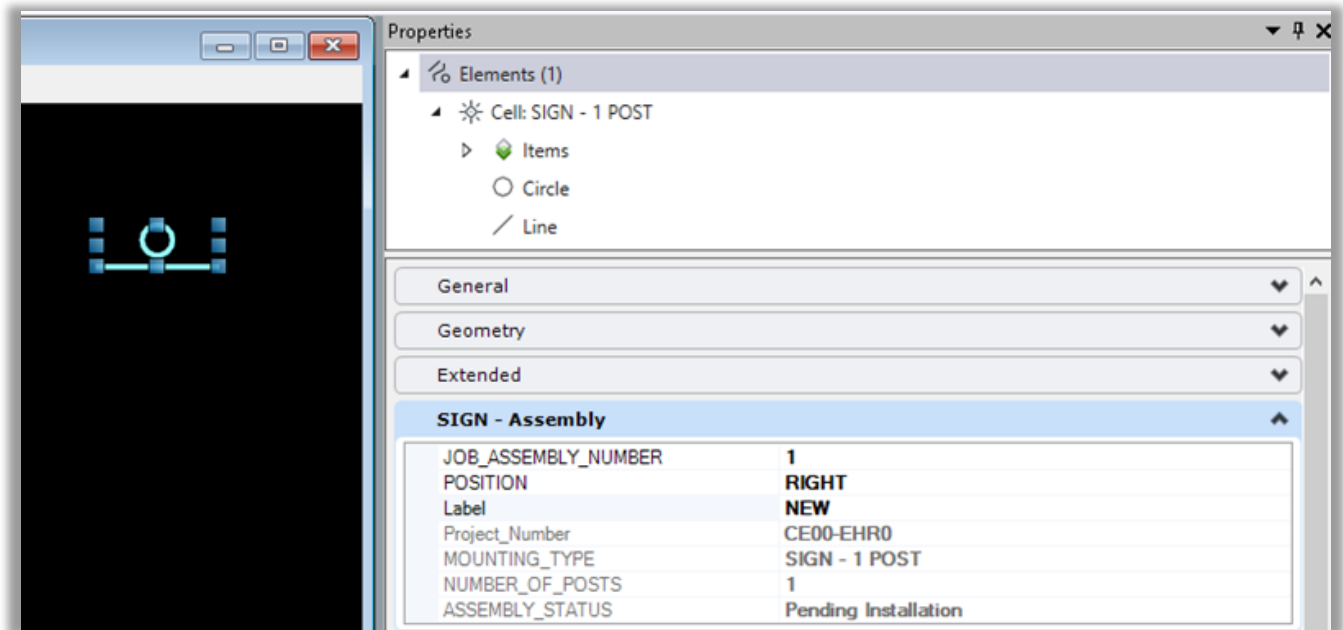


Figure 25 Sign Assembly Properties

- Jump down to the SIGN - Panel Properties. In the Sign Catalog find the needed Sign Number and type it into the **CATALOG_NUMBER** Search field. Fill in the **Actual_Legend** property if it differs from the Catalog Actual Legend.

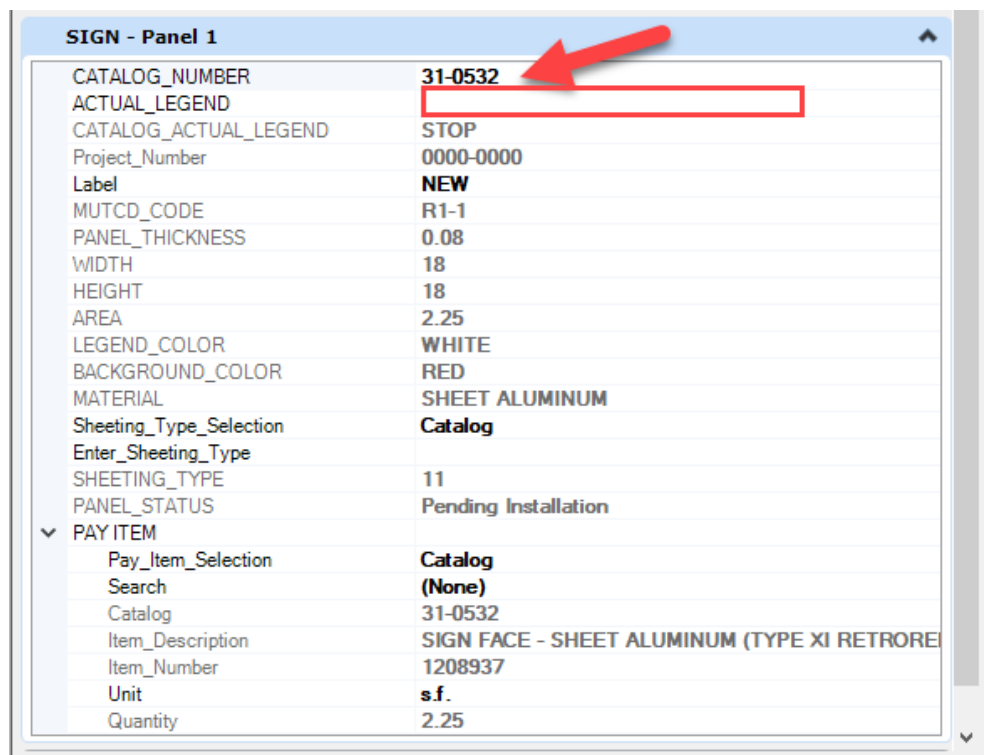


Figure 26 Sign Panel Item Types

Volume 6 – OpenRoads Designer Traffic Engineering Base Modeling

- More Panels can be added as necessary. On the Ribbon select the **Attach** tab and in the **Item Types** section select **Attach Item**.
- In the left panel of the dialog box select **Traffic Sign** and check off the needed panels. If you forget one or need to add more, you can always go back and add afterwards. Add the Catalog Number(s), Actual Legend(s) and update the Label(s). These properties can also be updated after attachment. Follow the prompts to attach the additional Panel(s) to the Signpost.

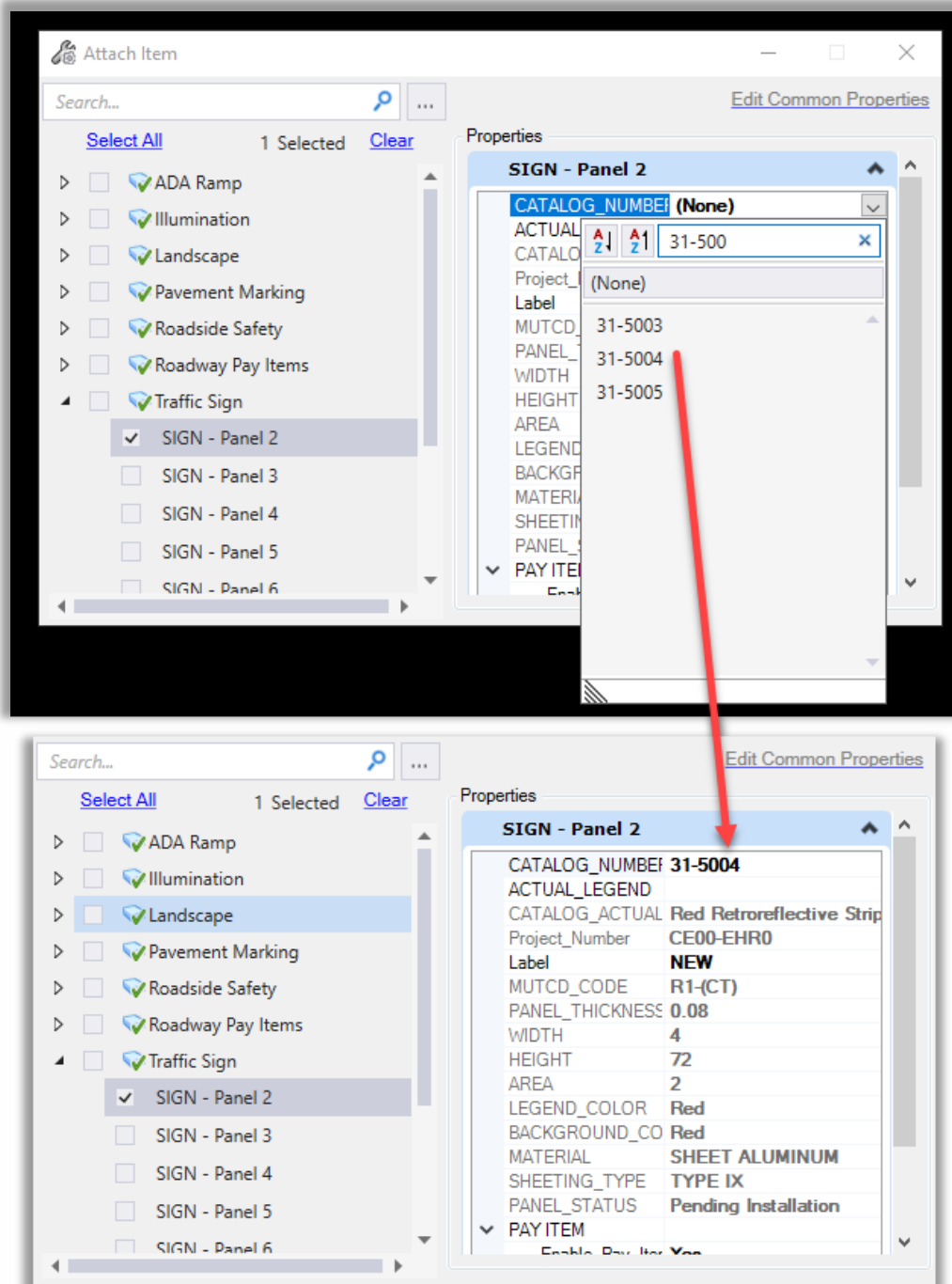
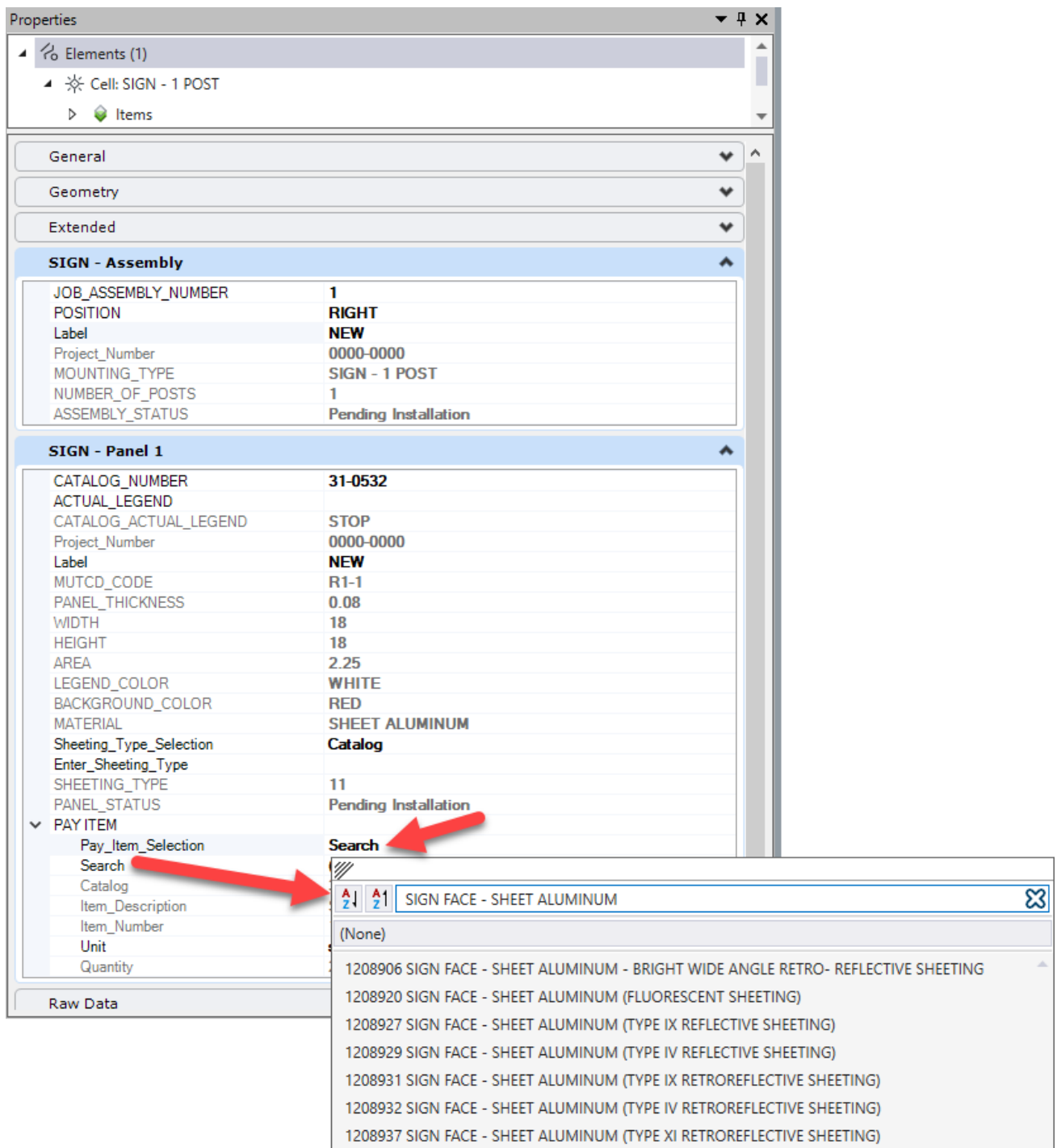


Figure 27 Catalog Number Property

Volume 6 – OpenRoads Designer Traffic Engineering Base Modeling

9. For the most part the Catalog Number will dictate the panel thickness Pay Item, but in some cases, this will need to be over written. In the Pay Item Section Change **Pay_Item_Selection** to **Search**. In the **Search** property change to the needed Pay item.



The screenshot shows the Properties window for a SIGN - 1 POST. The SIGN - Assembly section contains the following properties:

Property	Value
JOB_ASSEMBLY_NUMBER	1
POSITION	RIGHT
Label	NEW
Project_Number	0000-0000
MOUNTING_TYPE	SIGN - 1 POST
NUMBER_OF_POSTS	1
ASSEMBLY_STATUS	Pending Installation

The SIGN - Panel 1 section contains the following properties:

Property	Value
CATALOG_NUMBER	31-0532
ACTUAL_LEGEND	
CATALOG_ACTUAL_LEGEND	STOP
Project_Number	0000-0000
Label	NEW
MUTCD_CODE	R1-1
PANEL_THICKNESS	0.08
WIDTH	18
HEIGHT	18
AREA	2.25
LEGEND_COLOR	WHITE
BACKGROUND_COLOR	RED
MATERIAL	SHEET ALUMINUM
Sheeting_Type_Selection	Catalog
Enter_Sheeting_Type	
SHEETING_TYPE	11
PANEL_STATUS	Pending Installation

The PAY ITEM section is expanded, and the Pay_Item_Selection property is set to Search. A search dropdown is open, showing a list of sign face pay items:

Pay Item
(None)
1208906 SIGN FACE - SHEET ALUMINUM - BRIGHT WIDE ANGLE RETRO- REFLECTIVE SHEETING
1208920 SIGN FACE - SHEET ALUMINUM (FLUORESCENT SHEETING)
1208927 SIGN FACE - SHEET ALUMINUM (TYPE IX REFLECTIVE SHEETING)
1208929 SIGN FACE - SHEET ALUMINUM (TYPE IV REFLECTIVE SHEETING)
1208931 SIGN FACE - SHEET ALUMINUM (TYPE IX RETROREFLECTIVE SHEETING)
1208932 SIGN FACE - SHEET ALUMINUM (TYPE IV RETROREFLECTIVE SHEETING)
1208937 SIGN FACE - SHEET ALUMINUM (TYPE XI RETROREFLECTIVE SHEETING)

Figure 28 Update Pay Item

Volume 6 – OpenRoads Designer Traffic Engineering Base Modeling

- Update the Labels as needed. Labels are available in both the SIGN - Assembly and SIGN - Panel Item Types. If the panel is existing change the **Pay_Item_Selection** to **None**, this will cancel out the Pay Item quantity.

The screenshot shows the 'Properties' window in OpenRoads Designer. The 'Elements (1)' tree on the left shows 'Cell: SIGN - 1 POST' expanded to 'Items'. The main panel has tabs for 'General', 'Geometry', 'Extended', 'SIGN - Assembly', and 'SIGN - Panel 1'. The 'SIGN - Assembly' tab is active, showing a table of properties. A red arrow points to the 'Label' property, which is 'TO REMAIN'. Below this, the 'SIGN - Panel 1' tab is active, showing another table of properties. A red arrow points to the 'Pay_Item_Selection' property, which is 'None'. The 'Quantity' property at the bottom of the 'SIGN - Panel 1' table is highlighted with a red box and contains the value 'N/A'.

SIGN - Assembly	
JOB_ASSEMBLY_NUMBER	1
POSITION	RIGHT
Label	TO REMAIN
Project_Number	0000-0000
MOUNTING_TYPE	SIGN - 1 POST
NUMBER_OF_POSTS	1
ASSEMBLY_STATUS	Pending To Remain

SIGN - Panel 1	
CATALOG_NUMBER	31-0532
ACTUAL_LEGEND	
CATALOG_ACTUAL_LEGEND	STOP
Project_Number	0000-0000
Label	NEW
MUTCD_CODE	R1-1
PANEL_THICKNESS	0.08
WIDTH	18
HEIGHT	18
AREA	2.25
LEGEND_COLOR	WHITE
BACKGROUND_COLOR	RED
MATERIAL	SHEET ALUMINUM
Sheeting_Type_Selection	Catalog
Enter_Sheeting_Type	
SHEETING_TYPE	11
PANEL_STATUS	Pending Installation
PAY ITEM	
Pay_Item_Selection	None
Search	(None)
Catalog	31-0532
Item_Description	N/A
Item_Number	N/A
Unit	sf
Quantity	N/A

Figure 29 Existing Stop Sign