



InfraWorks 360: Hand-on Lab to Get Started

Joe Hedrick, LS, EIT – IMAGINiT Technologies

CV6330-P-L Are you wondering where to begin with InfraWorks software? Does your firm currently use a myriad of software systems for conceptual design and marketing proposals? Do you need to collaborate with multiple stakeholders virtually anytime and anywhere? If so, then this session is for you. During this hands-on lab we will dig into the tools and explore tips and techniques that will enable you to get up and running with InfraWorks software. We will pay special attention to finding and incorporating data-to-model existing conditions, designing roads and bridges, adding details to make the model realistic, and sharing the model for others to collaborate.

Learning Objectives

At the end of this class, you will be able to:

- Locate several locations for model data
- Learn how to create realistic models of existing conditions
- Learn how to design conceptual roads and bridges that can be exported to AutoCAD Civil 3D software for detailed design
- Learn how to collaborate with external stakeholders

About the Speaker

As the Infrastructure Solutions Team manager for IMAGINiT Technologies, Joe provides Autodesk civil engineering/survey implementation consulting services. Joe has over 20 years of experience in land surveying and civil engineering encompassing field-data collection, site design and layout, residential subdivision design, and land planning. He is an EIT and a licensed land surveyor in Virginia, and earned his Bachelor of Science degree in Civil Engineering Technology from Old Dominion University in Norfolk, Virginia.

jhedrick@rand.com

Introduction

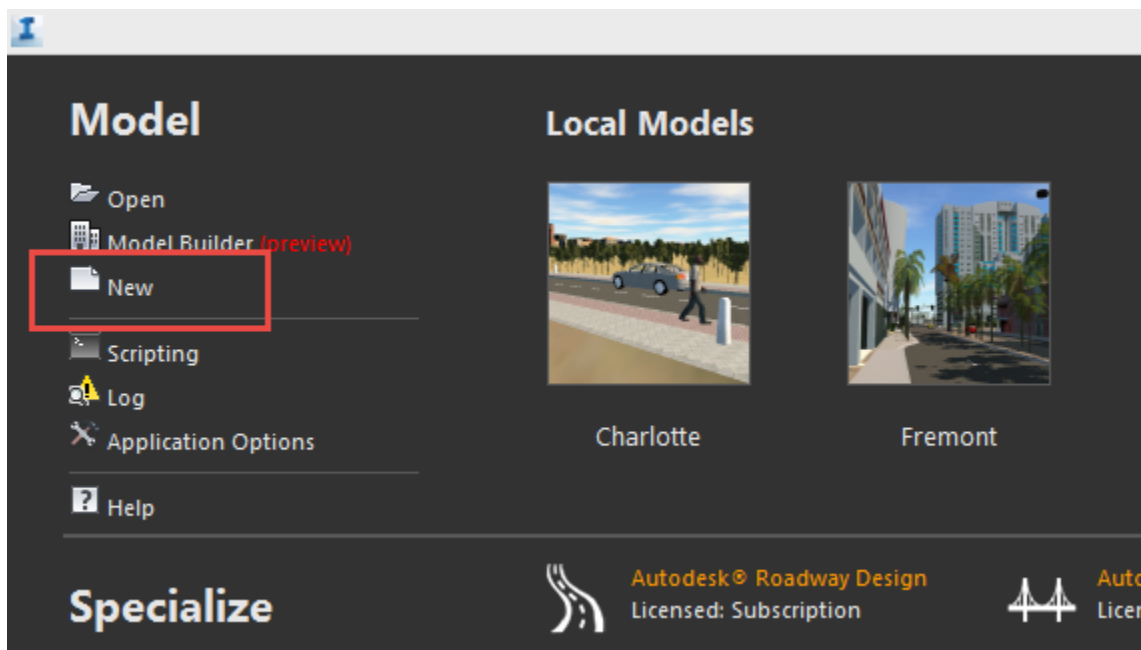
Autodesk InfraWorks 2015 and its bigger brother Autodesk InfraWorks 360 are the newest addition to the Autodesk Infrastructure portfolio of products. These products focus on the conceptual design and planning aspects of a project allowing users to:

- Provide real world context of existing conditions from GIS data, CAD designs, & point clouds
- Quickly and efficiently explore design alternatives
- Utilize analytics to make informed design decisions
- Collaborate and share models with stakeholders anywhere to increase project understanding
- Accelerate approvals by presenting rich, realistic 3D models instead of 2D plan sets

This lab is going to focus on how to get started utilizing this exciting new software and how it can be integrated into your current design process.

Creating a Project

1. From the InfraWorks start screen, select the NEW link located in the upper left hand corner of the screen:

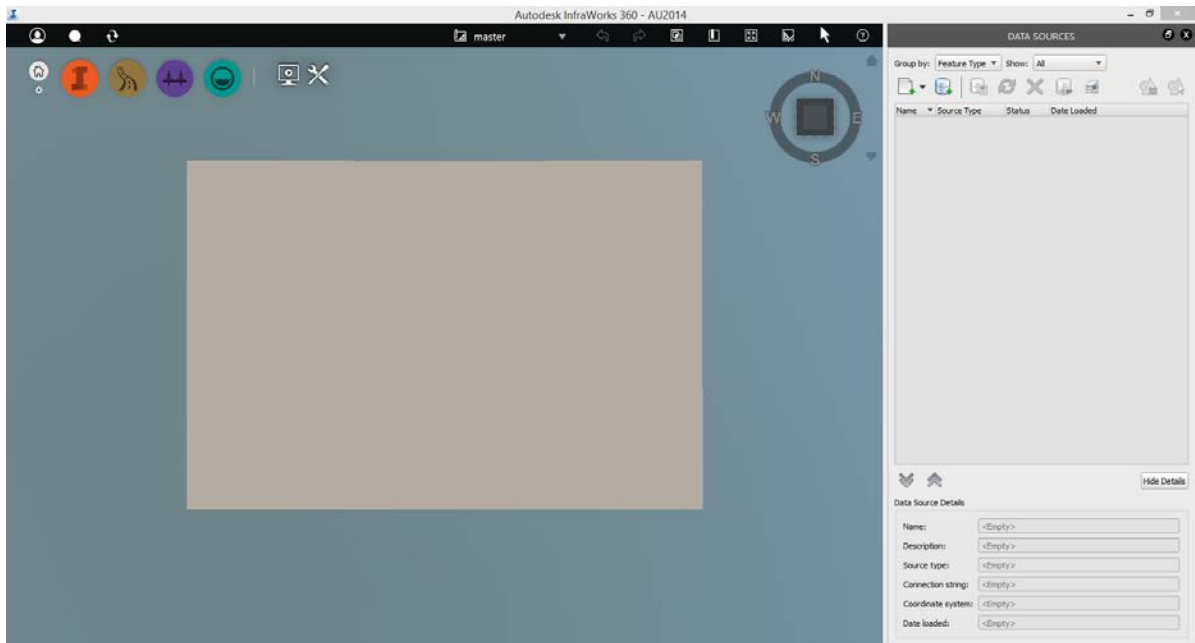


2. Type Clark County in the name text box and verify the location where it will be saved. It is a good idea to also define a model extent from either manually typing in values or by importing a boundary from GIS data. Select the checkbox to Define Model Extent and press the button to Load Extent From File. Select the .tif file located in the ..\Clark County\DRG\ folder.

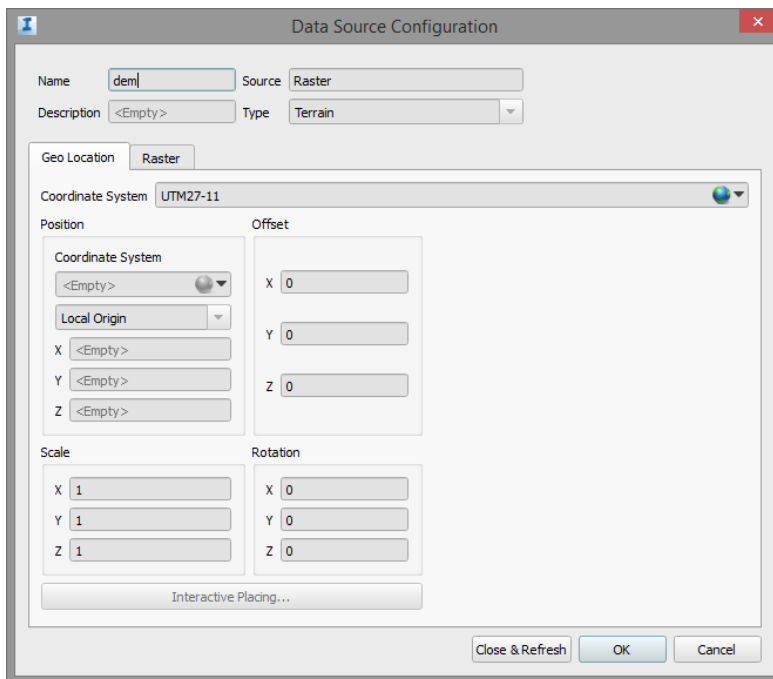
	X	Y
Minimum:	-116.0136366	35.9666603
Maximum:	-113.9618833	37.0335676

When complete, the results should look like the screenshot above.

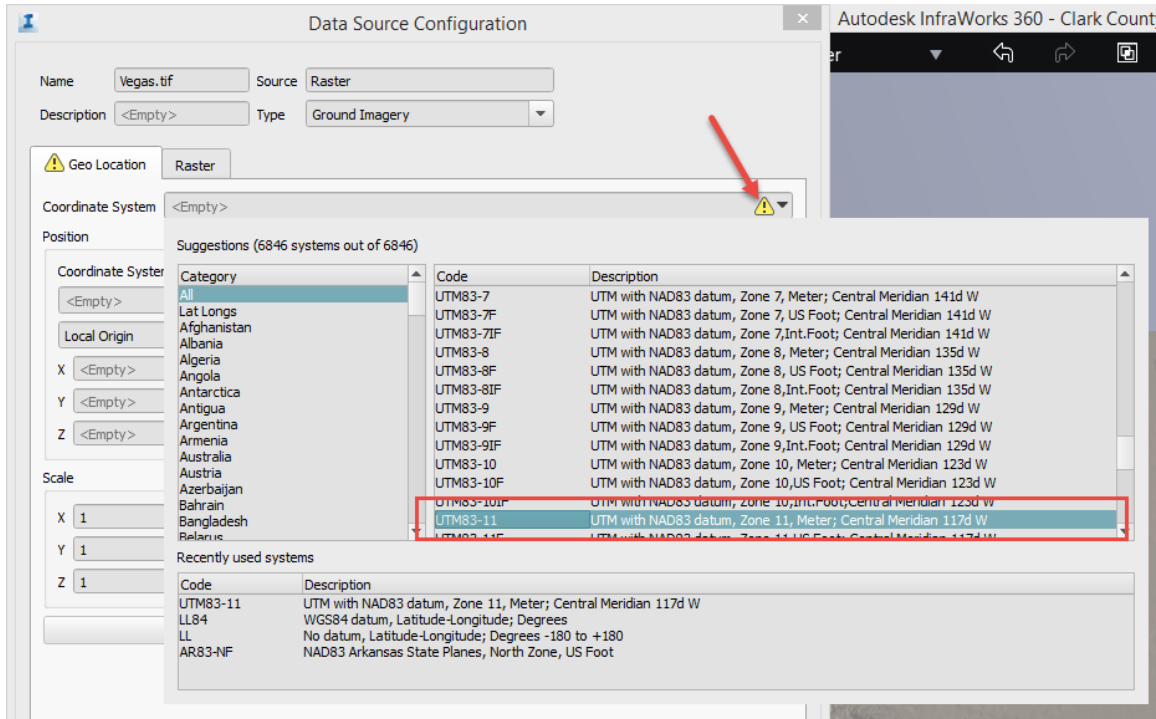
3. We now have a blank canvas to which to begin importing data!



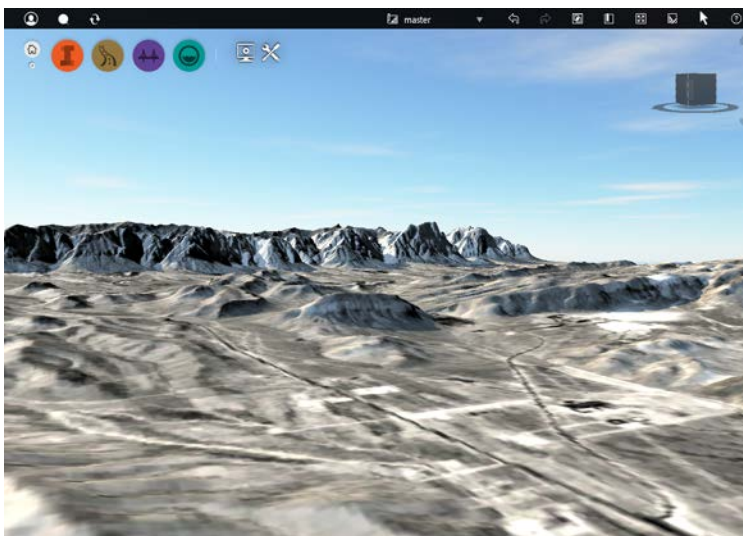
4. Open Windows Explorer and find the DEM subfolder under the Clark County directory. Use CTRL+A to select all 49 files and drag them into the model canvas. InfraWorks recognizes the coordinate system information from the metadata. Simply press the Close & Refresh button in import the data into the model.



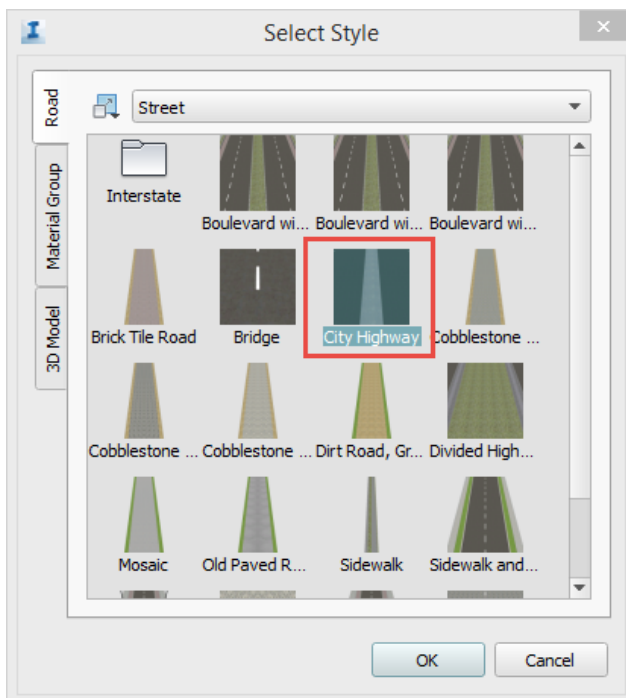
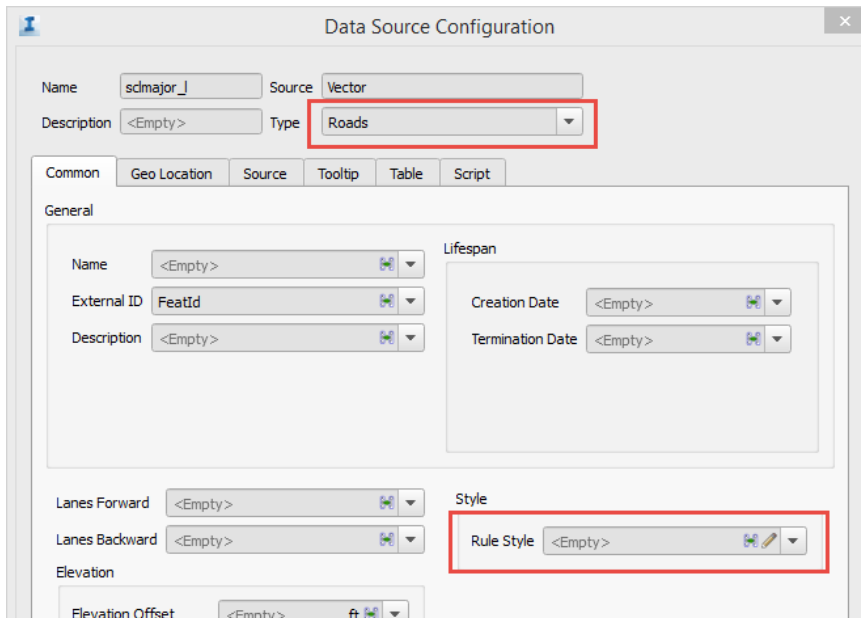
- Open Windows Explorer and find the TIF subfolder under the Clark County directory. Drag and drop the Vegas.tif file into the model canvas. In this case, InfraWorks cannot determine the coordinate system of the drawing so it needs to be manually set. Click on the yellow triangle with the exclamation mark and select UTM83-11 for the coordinate system. Press the Close & Refresh button in import the data into the model.



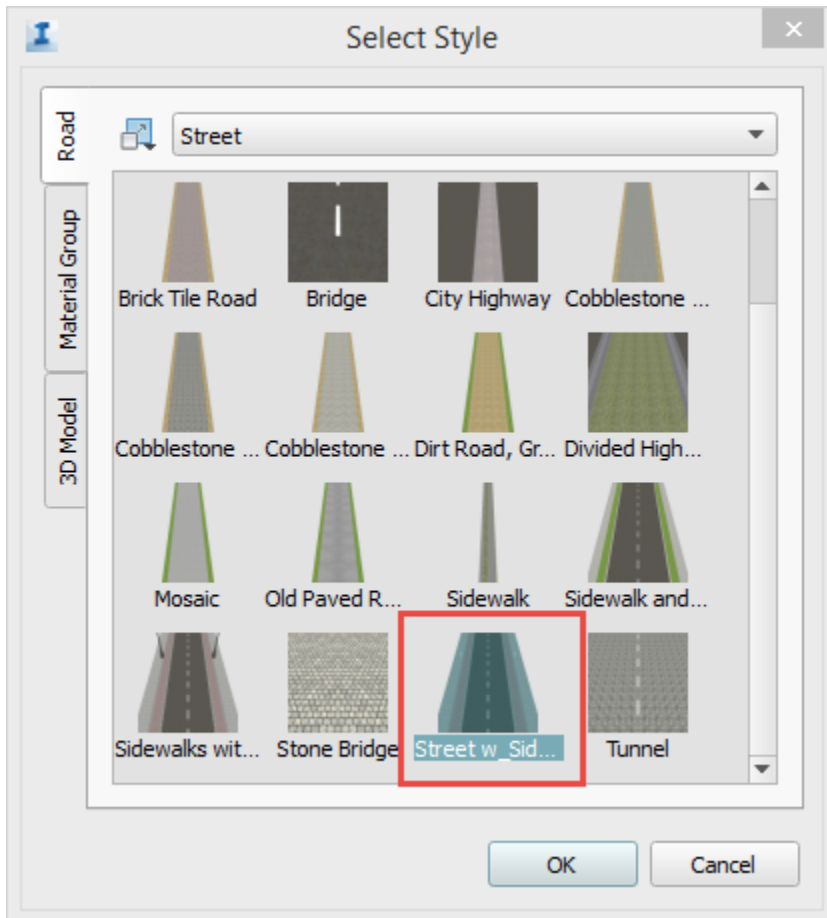
- Pan & zoom around to see how the image has been draped on top of the DEM model.



- Open Windows Explorer and find the SHP subfolder under the Clark County directory. Drag & drop the file named SCLMAJOR_I.shp into the model canvas. Select ROADS in the type combobox. Next select the pencil icon in the Rule Style combobox and select City Highway. Press Close & Refresh to import the major roads into the model canvas.



8. Repeat the above step and import the SCLCOLLECT_I.shp file. For the Rule Style, select Street with Sidewalk.

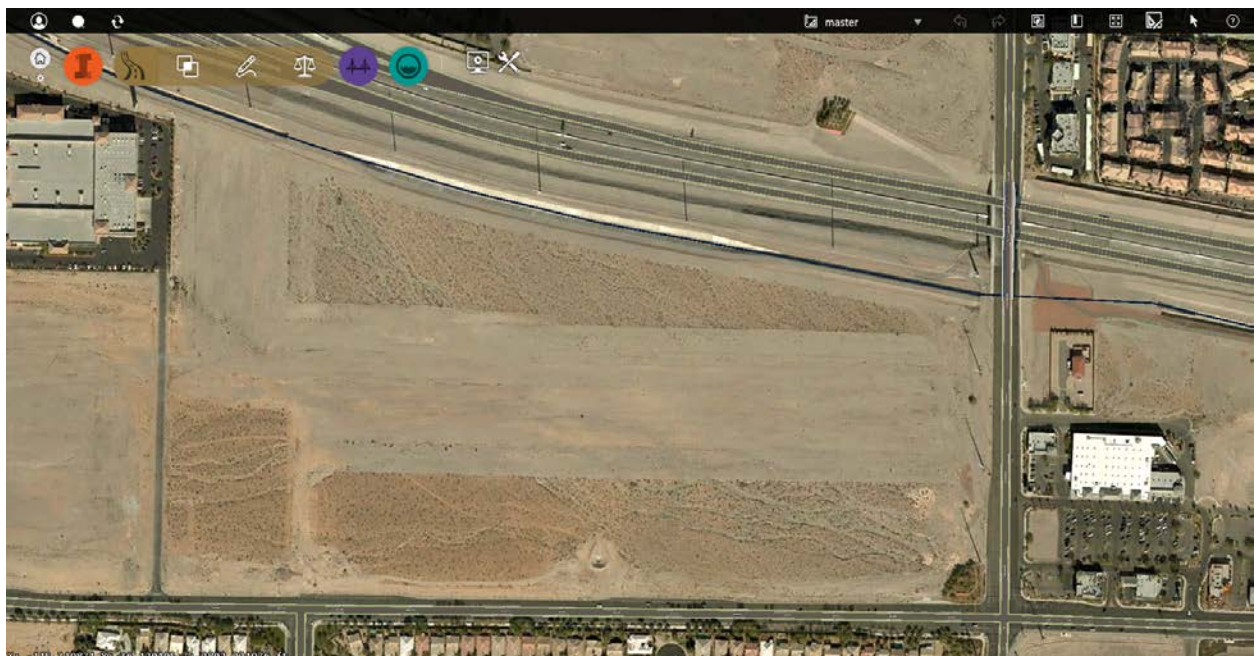
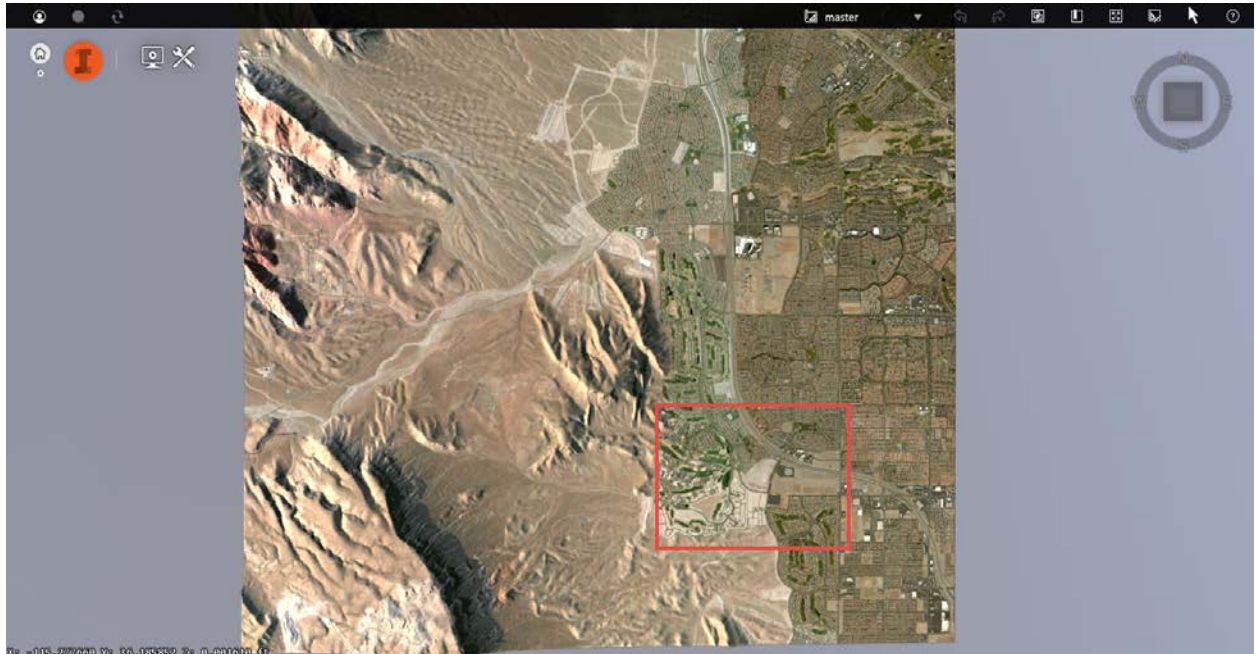


9. Pan and zoom around and notice the different roadway styles.



Creating Roads & Bridges

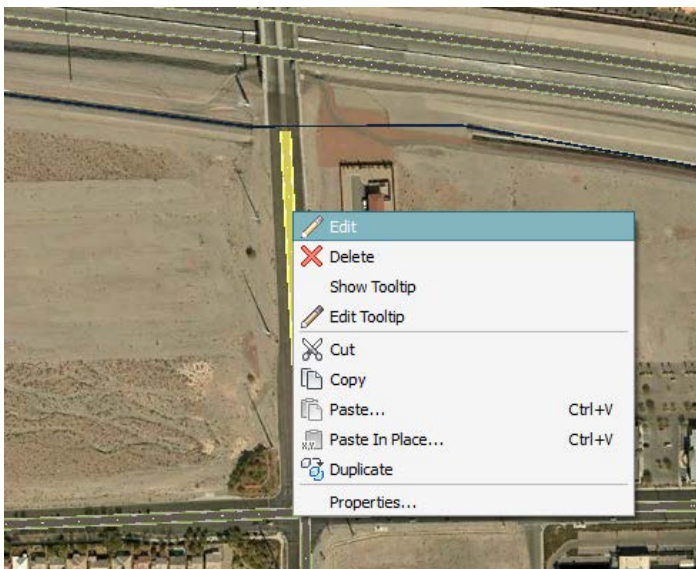
1. Open the model named Red Rock Canyon. Zoom into the undeveloped area in the southeastern portion of the model.



2. Select the area of the road in the upper right hand corner where it crosses the interstate, right click and select delete.



3. Select the southern road, right click and select edit to get the grips to display



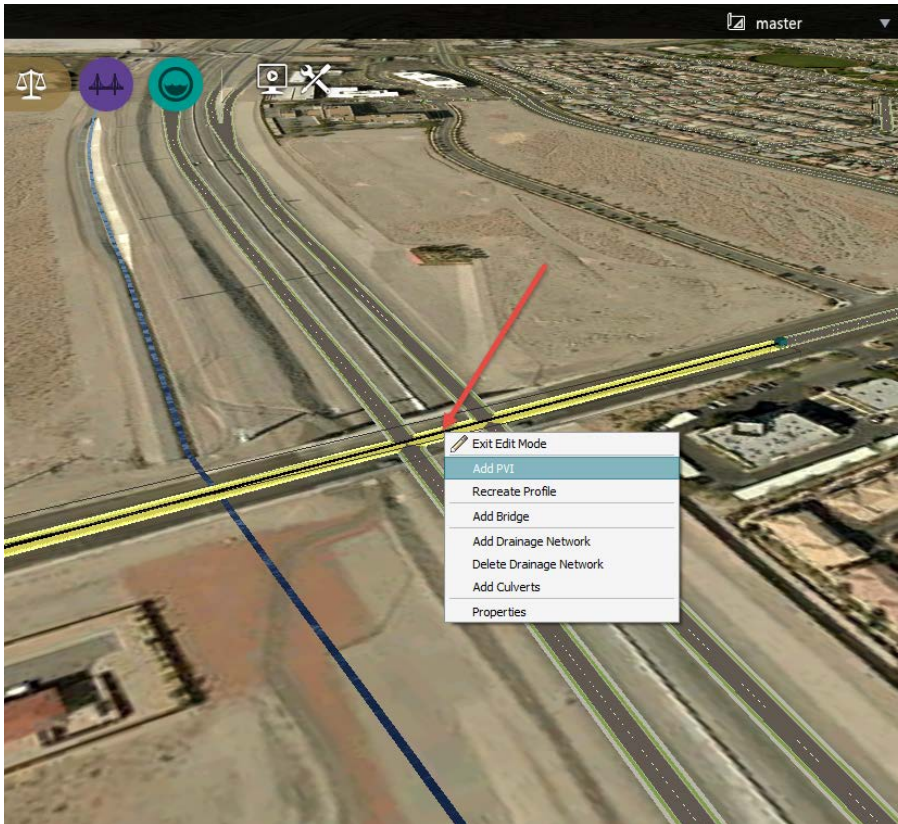
- Slide the northern most grip south to create more space between the end of the road and the interstate. Do the same thing for the road segment north of the interstate.



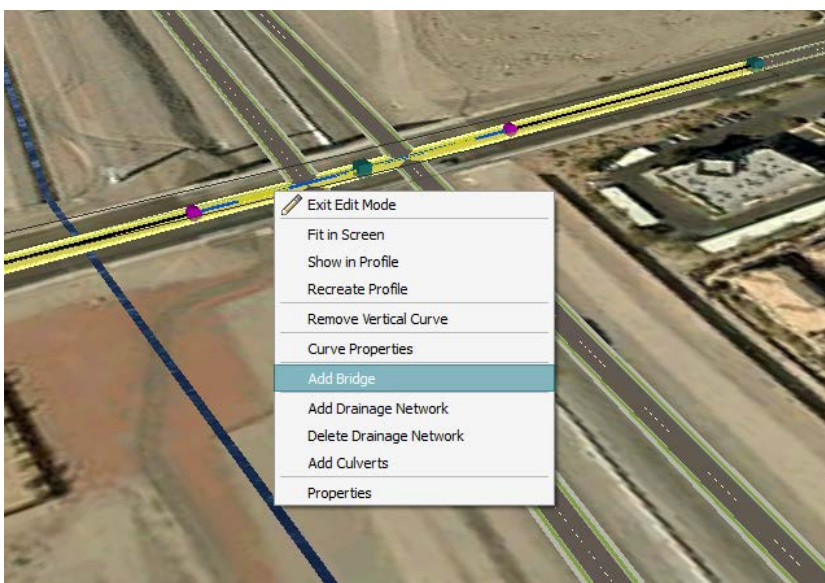
- Create a design road connecting the two end points using the Roads & Highways module of InfraWorks 360.



6. Orbit the model so that the intersection is being viewed at an angle. Right click on the road segment in the middle of the intersection and select Add PVI



7. Right click again on the road and select Add Bridge



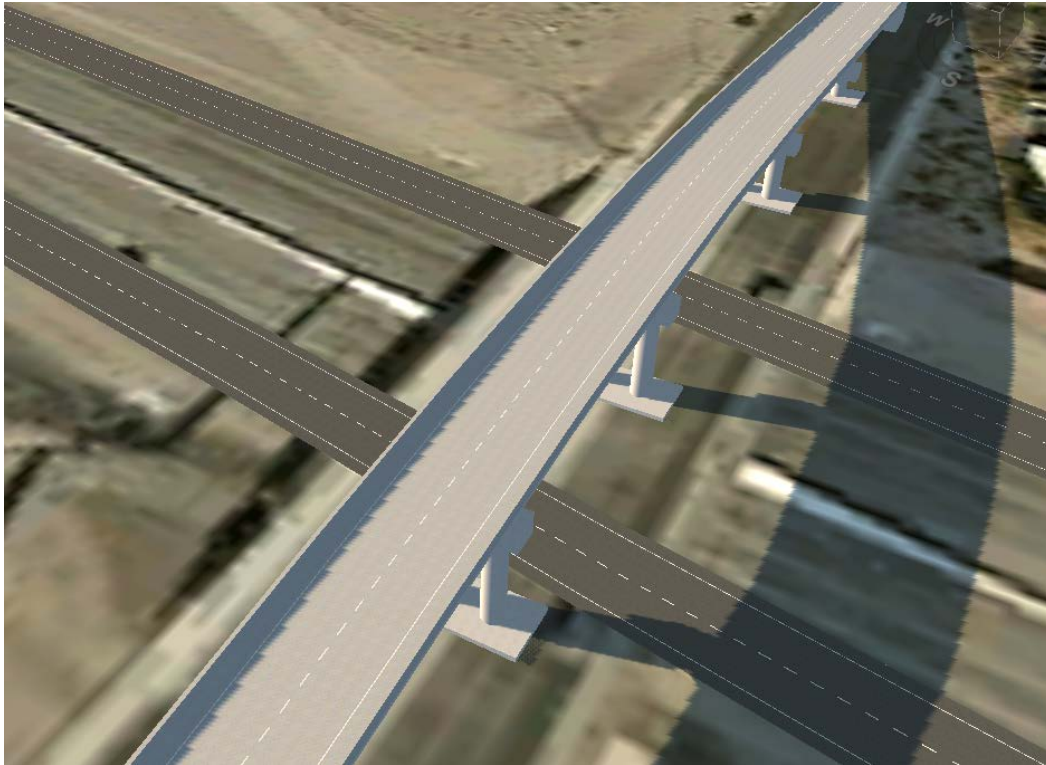
8. Left click to select the location to begin the bridge and again to end.



9. Select the road (not the bridge) and use the square grip in the middle of the intersection and drag it up to display the bridge.

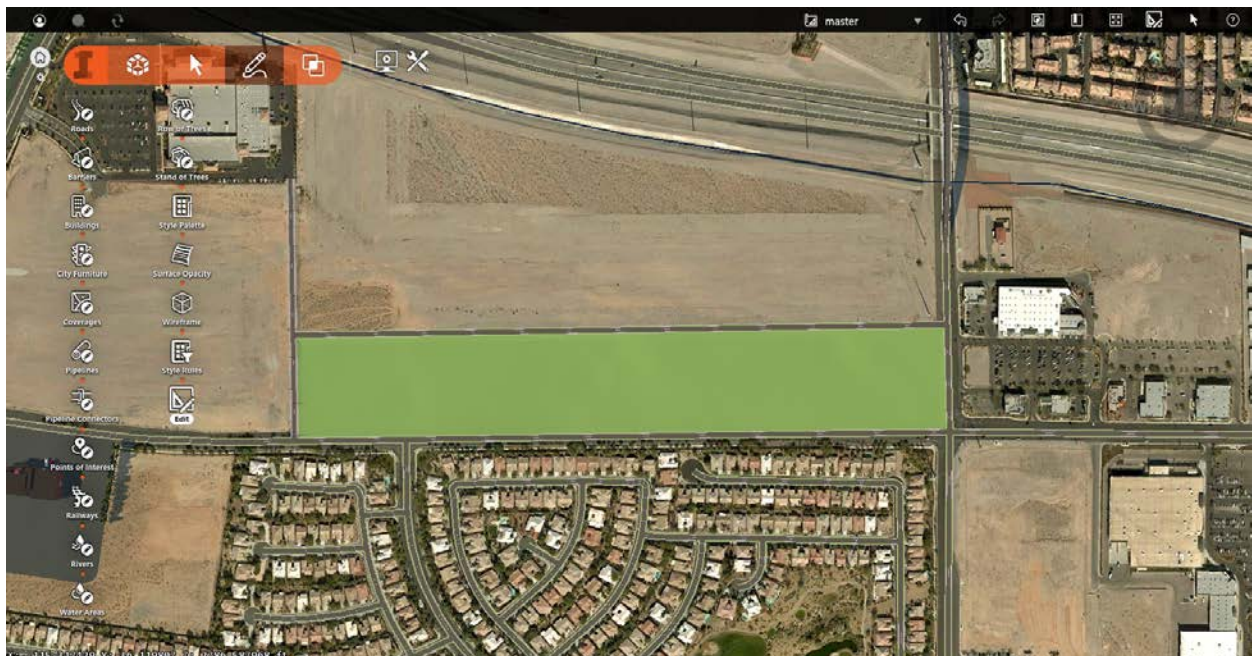
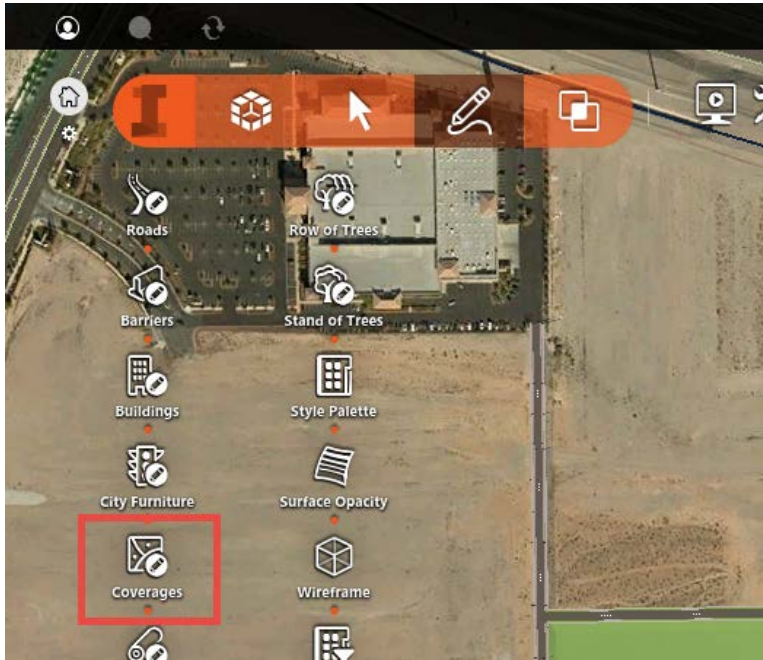


10. If the bridge piers are in the roadway, click on a pier until the gizmo is displayed and slide it out of the road. Open the Style Palette and add different visual styles to the roads to make them appear more realistic.

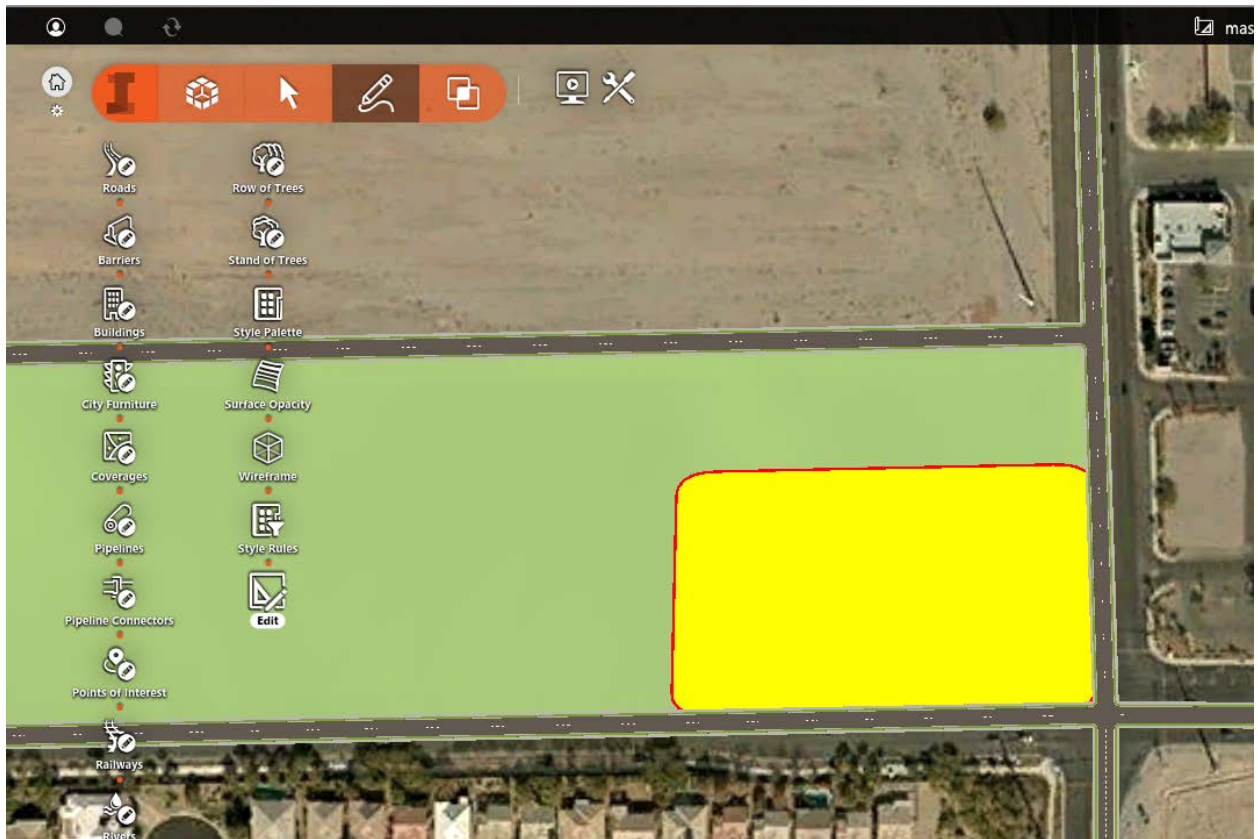


Coverage Areas

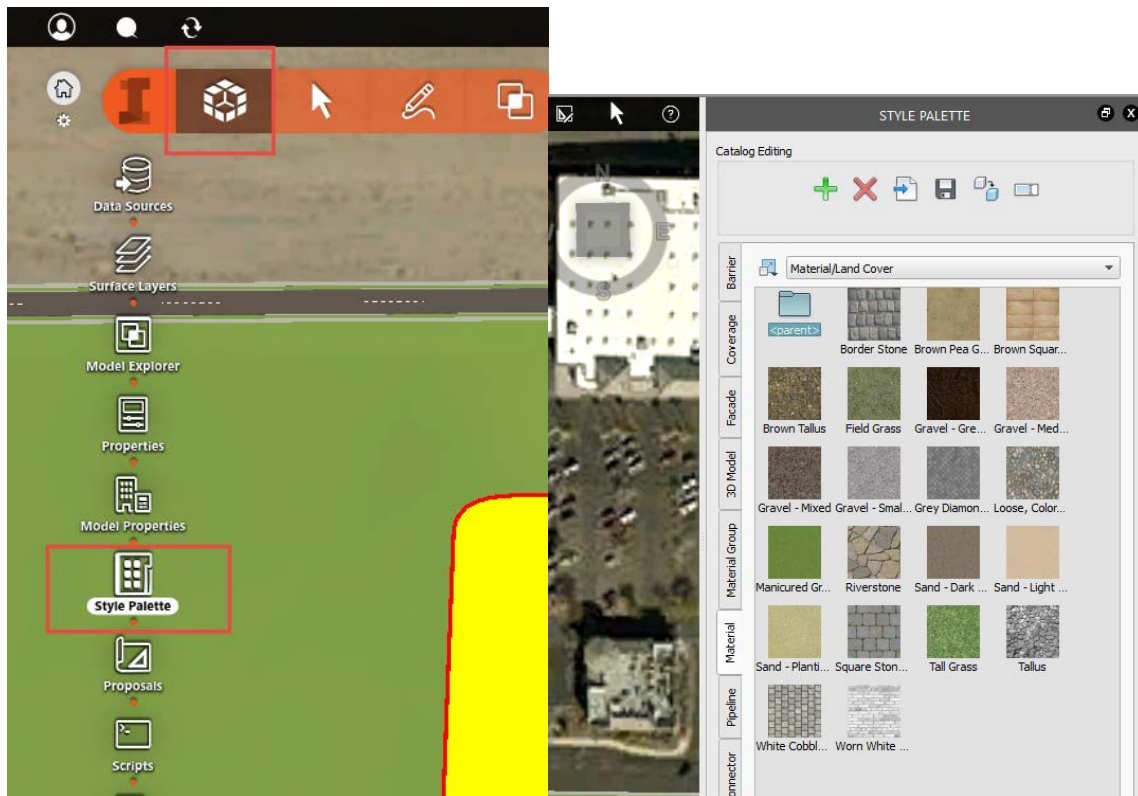
1. Select the tool to create a coverage area. Pick a style and begin drawing a polygon for the area that will become grass. Double click on the final vertex of the figure to quit drawing.



2. Next, repeat the above step to draw a new coverage area that will be the asphalt surrounding the proposed fire station. Be sure to use a different style than the one chosen for the grass so that it will stand out.



3. Launch the style palette

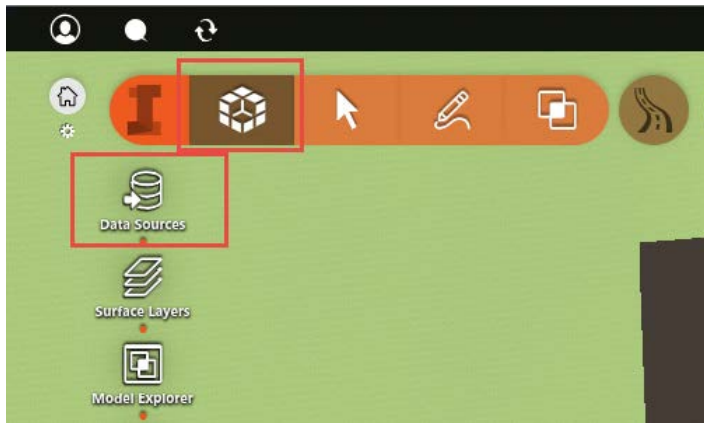


4. From the Land Cover folder in the Materials portion of Style Palette, drag and drop a grass style for the grassy area. Under the Roadway folder in the Materials portion of Style Palette, drag and drop an asphalt style for the parking area.

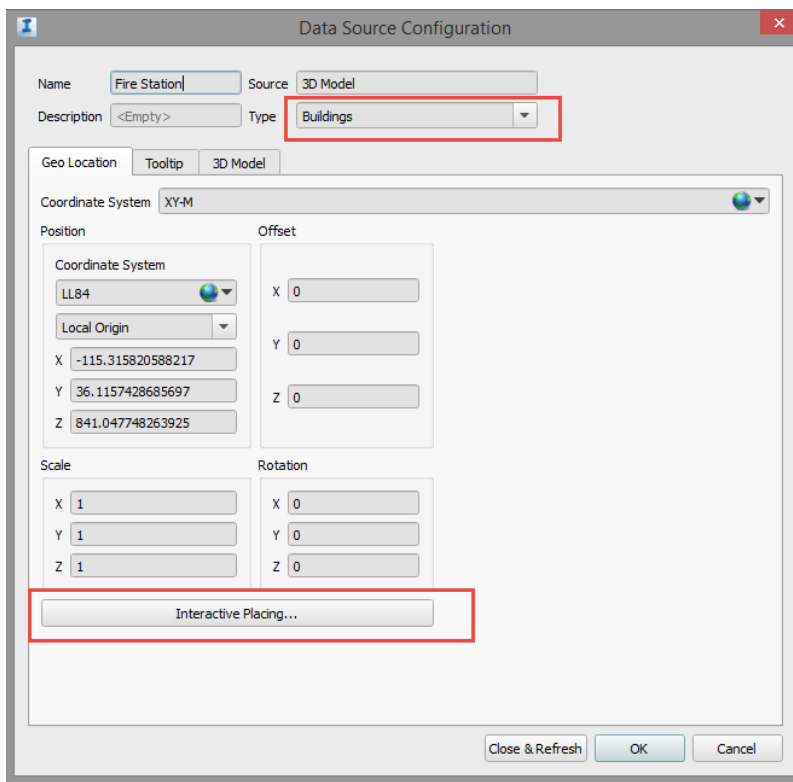


Buildings & Importing Models

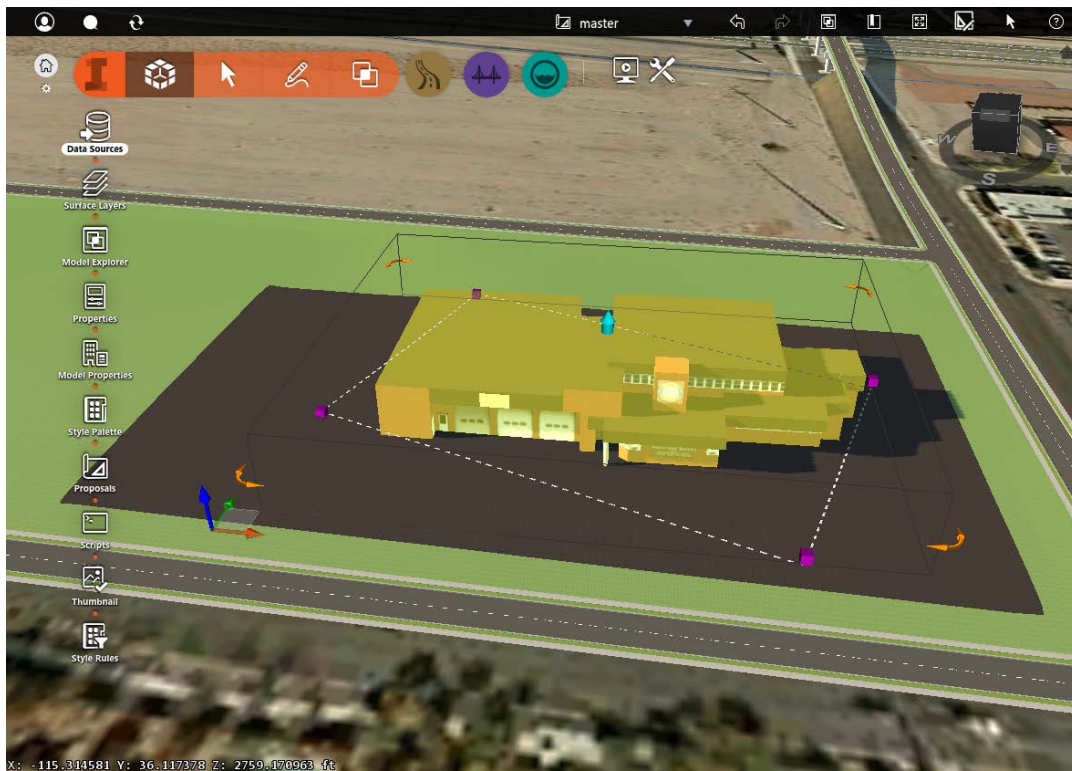
1. Select the Data Sources icon



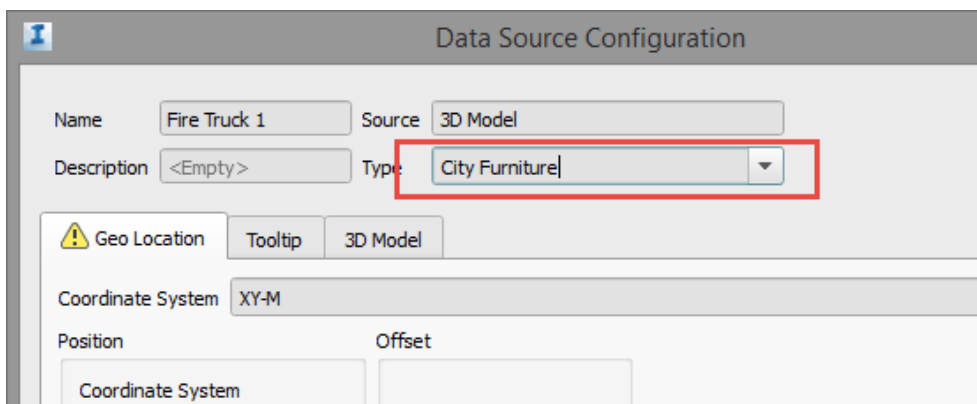
2. From Windows Explorer, find the Model Data folder in the class files. Drag and drop the Fire Station.dae file into the model window. In the configuration dialog box, select Buildings for the type and select Interactive Placing to select a location in canvas. Double click to place the building and then select Close & Refresh.



- Use the gizmos on the building to place and rotate it on the site.



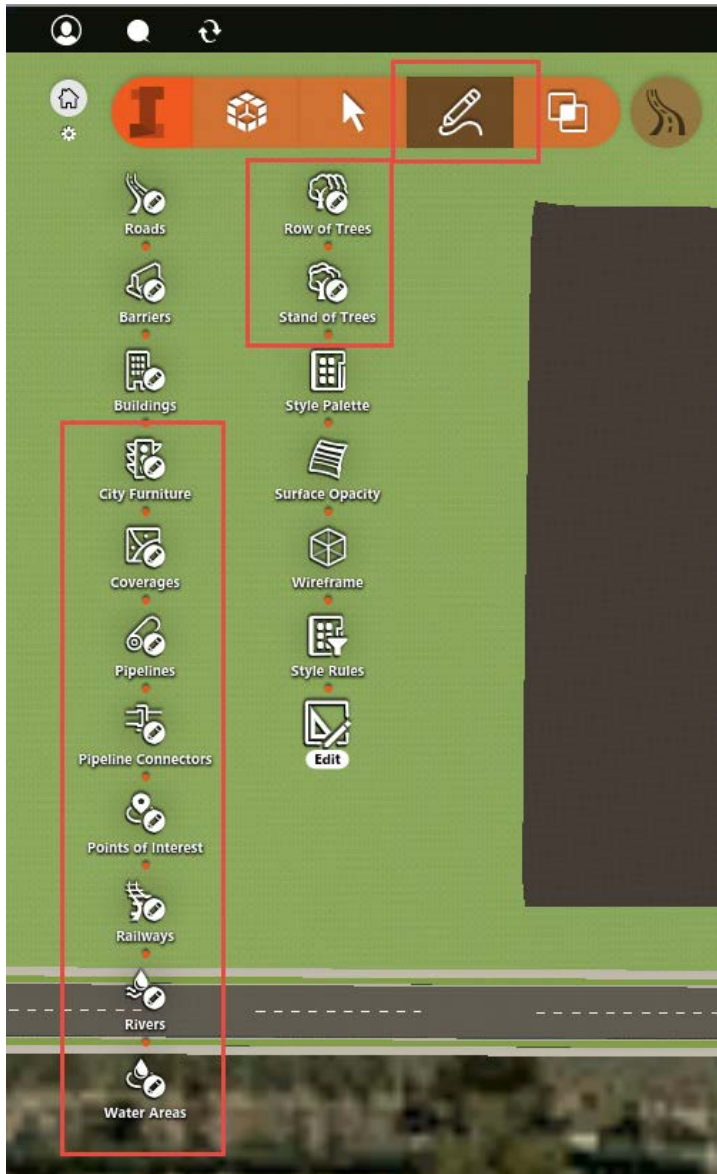
- Repeat the above steps with both Fire Truck dae files in the Model Data folder. In the configuration dialog box, select City Furniture as the type.





Adding Realism

1. InfraWorks contains libraries of several other items that can be inserted to help make the model more realistic. From the Create Conceptual Design Features menu, experiment with adding people, cars, water areas and trees. When placing point features (i.e. cars, people, etc.) double click in canvas to place the item and use the gizmos to adjust. For linear or polygonal features, click to place vertices and double click to end.





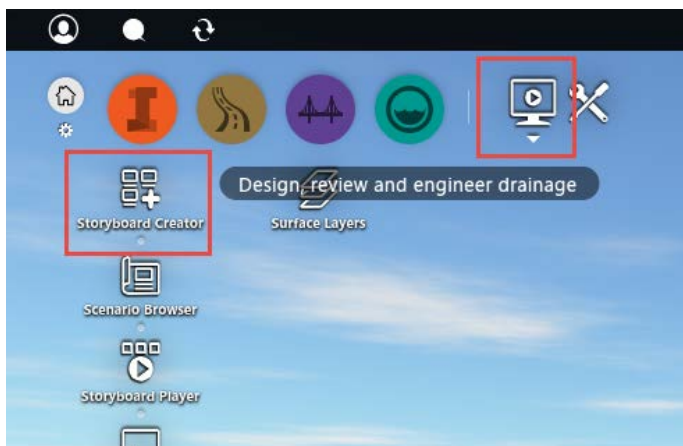
Sharing the model

The model can be shared in multiple ways:

- Syncing it to InfraWorks 360 cloud server for others with the correct permissions to view
- Create a storyboard video and share the video

A storyboard can be easily created with the following steps:

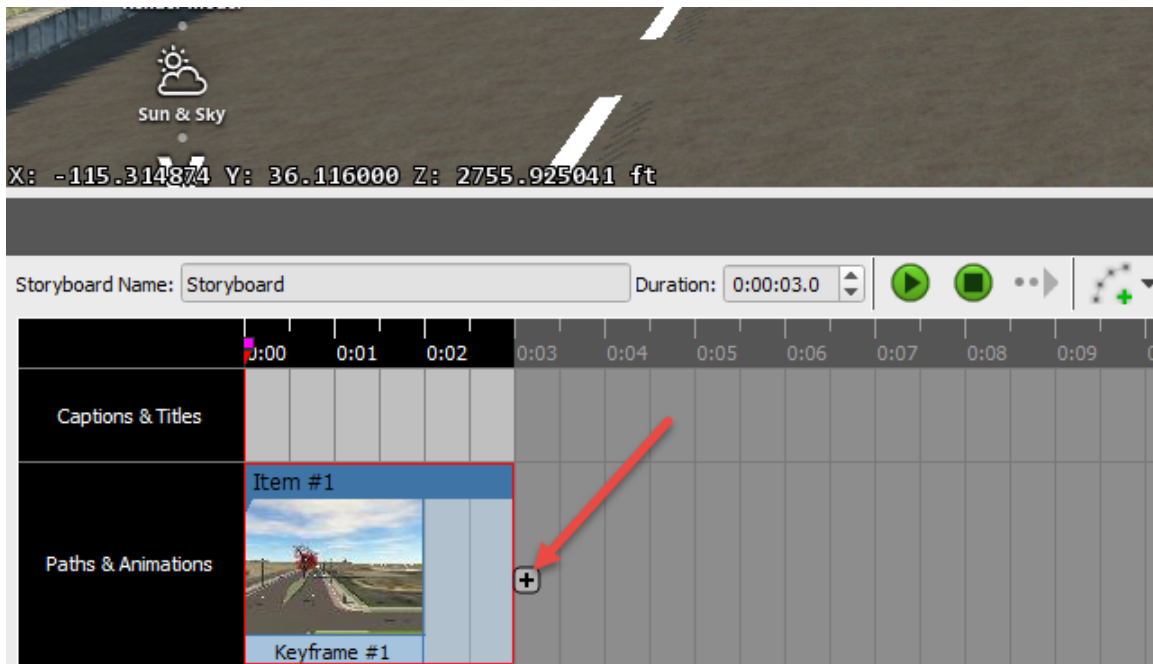
1. Click on Storyboard Creator from the Presentation menu



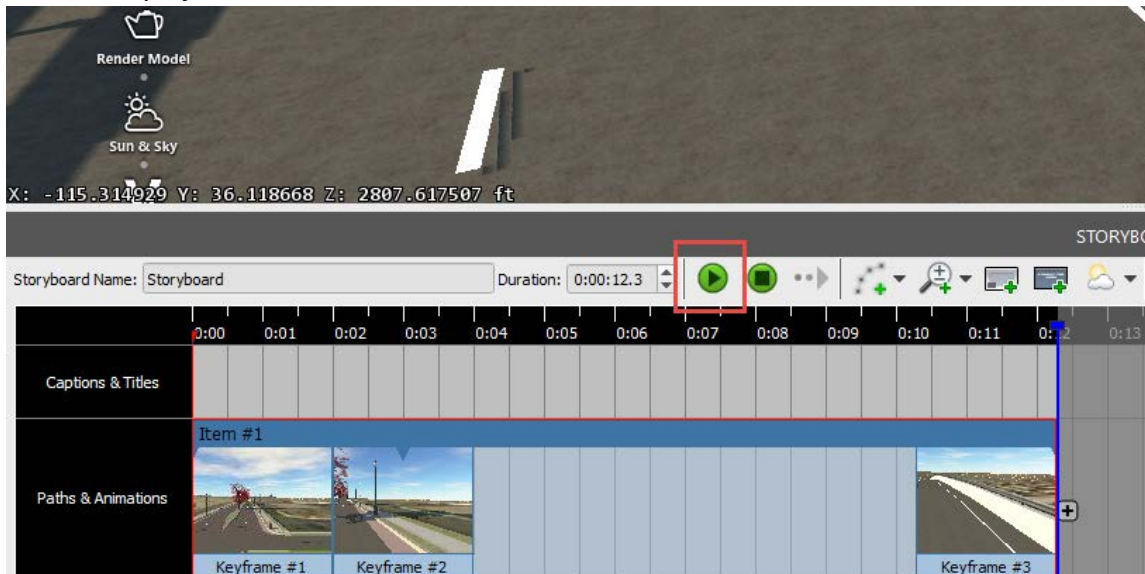
2. Pan and orbit to the beginning of the storyboard and select Add Camera Path Animation



3. Pan to the next location in the storyboard and select Add a Keyframe



- Repeat the same process until the end of the storyboard is reached. Use the VCR style buttons to play the video.



- To export the video, select the export button.

