

INTRODUCTION

Visualizing Development



You will build something like this by the end of this tutorial

This tutorial will be the final step in our downtown redevelopment endeavor. We will use a 3D model, based in existing data, to illustrate our vision for the community.

This process is known as Geodesign. Geodesign is a process that integrates 3D analysis, planning, and geographic analysis into the design process. This concept can be very helpful for generating feedback or communicating different ideas.

Here, we will insert a new building and some streetscape improvements using Sketchup and Google Earth. Our example town in this tutorial will be Osceola, AR.

SketchUp is a 3D modeling program that is used in many industries like architecture, planning, interior design, civil and mechanical engineering, film, and video game design. Currently, it is owned by Trimble Navigation, a mapping, surveying, and navigation equipment company. You can download the program by visiting the site and filling out some basic information like who are and how you plan to use the software. You can use the software for up to 30 days at no cost. After the trial period you will be asked to purchase.

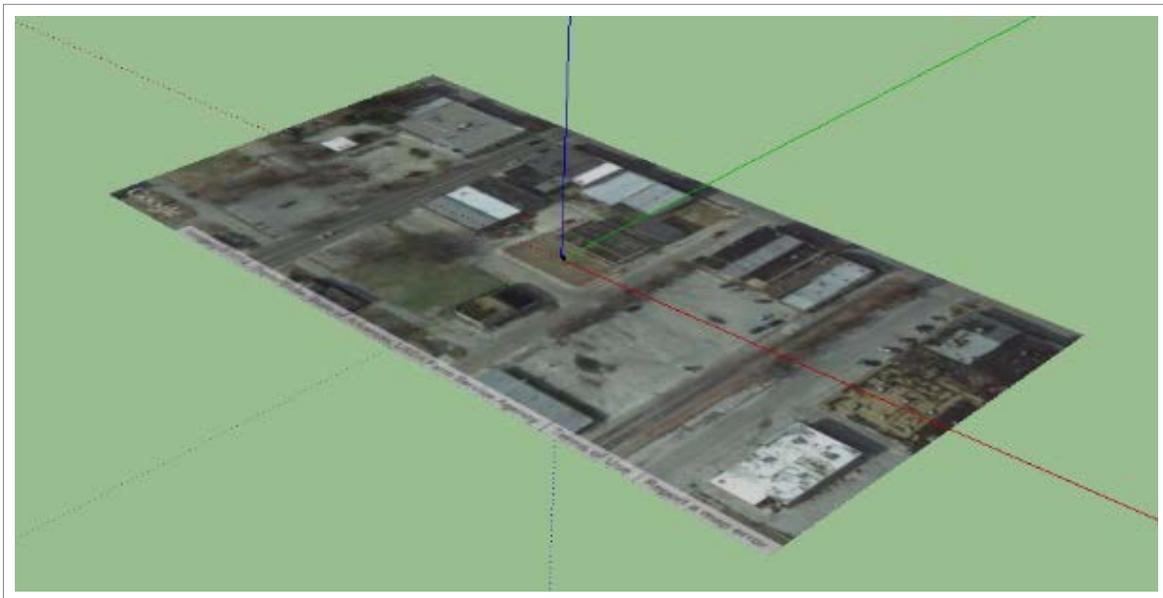
To view this document offline, click here:



Click Step 1 in the navigation menu at the top of your screen or scroll down to get started.
To return to the main field guide page, click here.

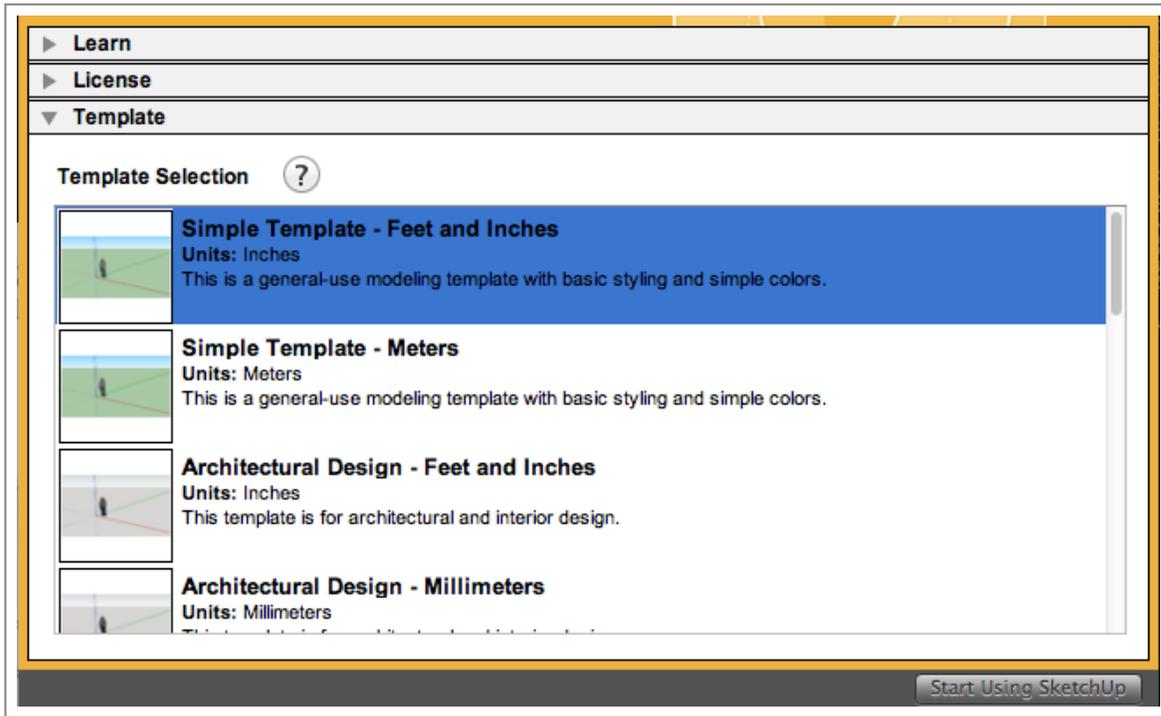
STEP ONE

Setup 3D Scene



Setting up a 3D, geo-located environment

Start by opening up SketchUp. You will be prompted to choose template. For this tutorial, you'll select Feet and Inches and then click "Start Using SketchUp".



Choosing a template

At the top of the menu, click the “Add Location..” icon to geo-locate your site.



Add Location icon

You may or may not need to sign into your google account depending on the version of your software.

Please re-enter your password

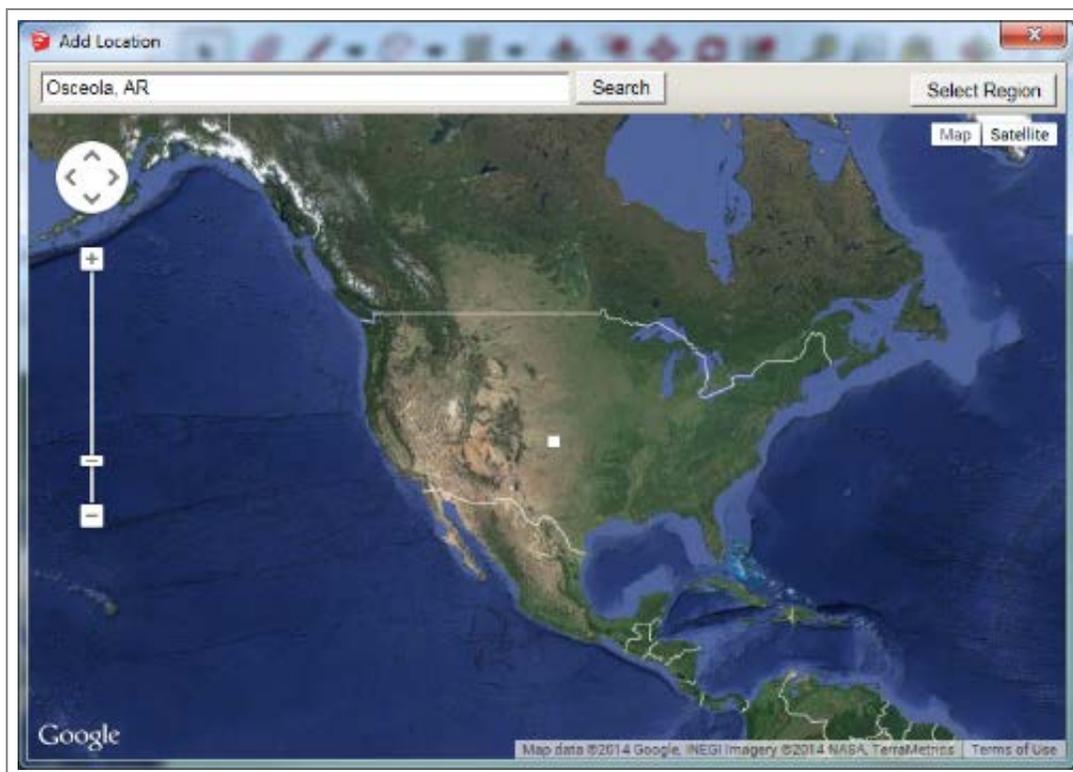


Nathan Brigmon
nathan@civicanalytics.com

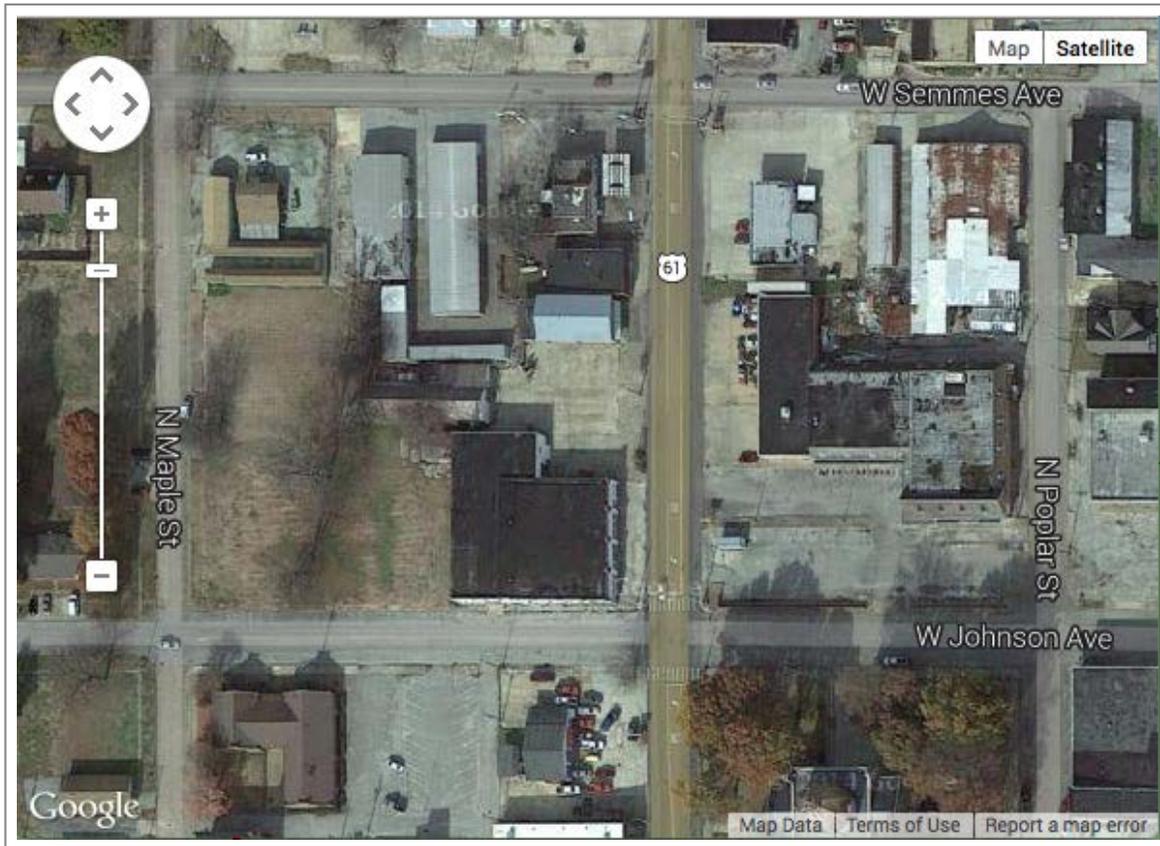
[Need help?](#)

Enter your gmail credentials

Once you are looking a map of the world, at the top left part of the window, type in the name of your site, in our case: Osceola, AR. Now look for the area we identified in our previous tutorial.



Search for your site



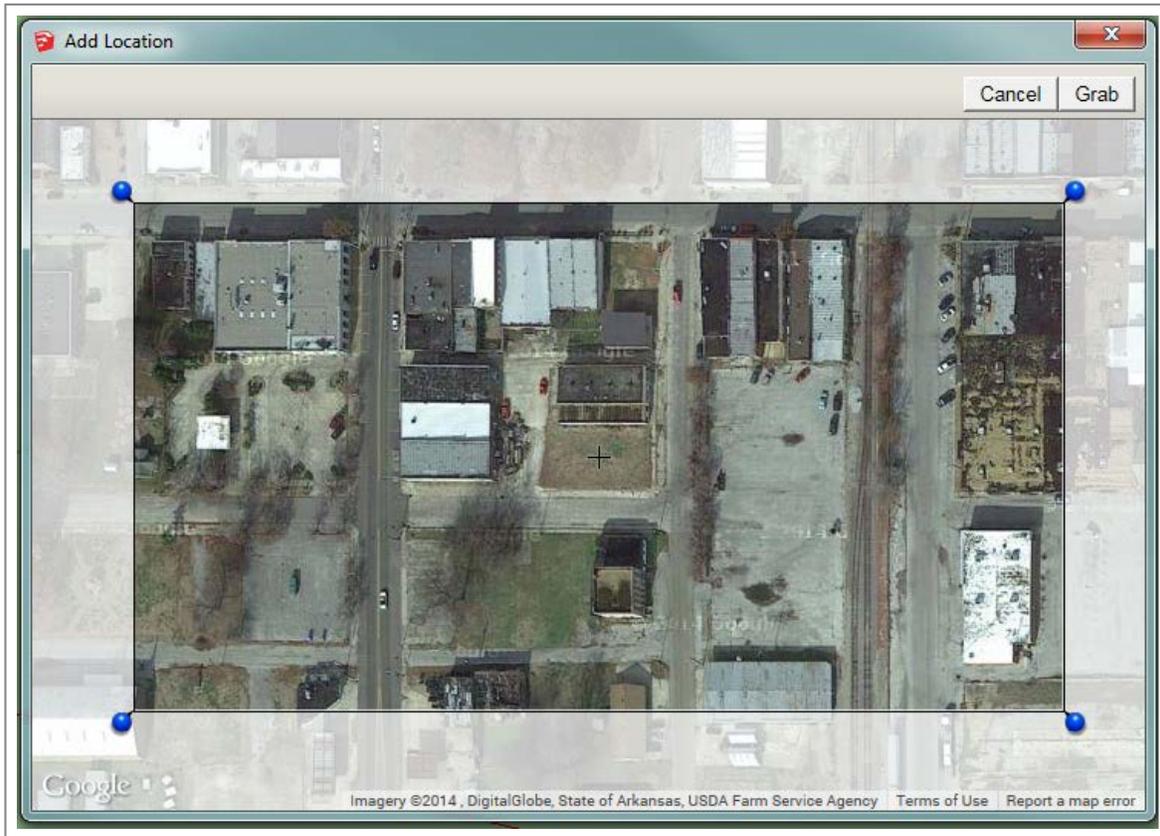
Try and find our "selected site"

Then click the "Select Region" button at the top right.



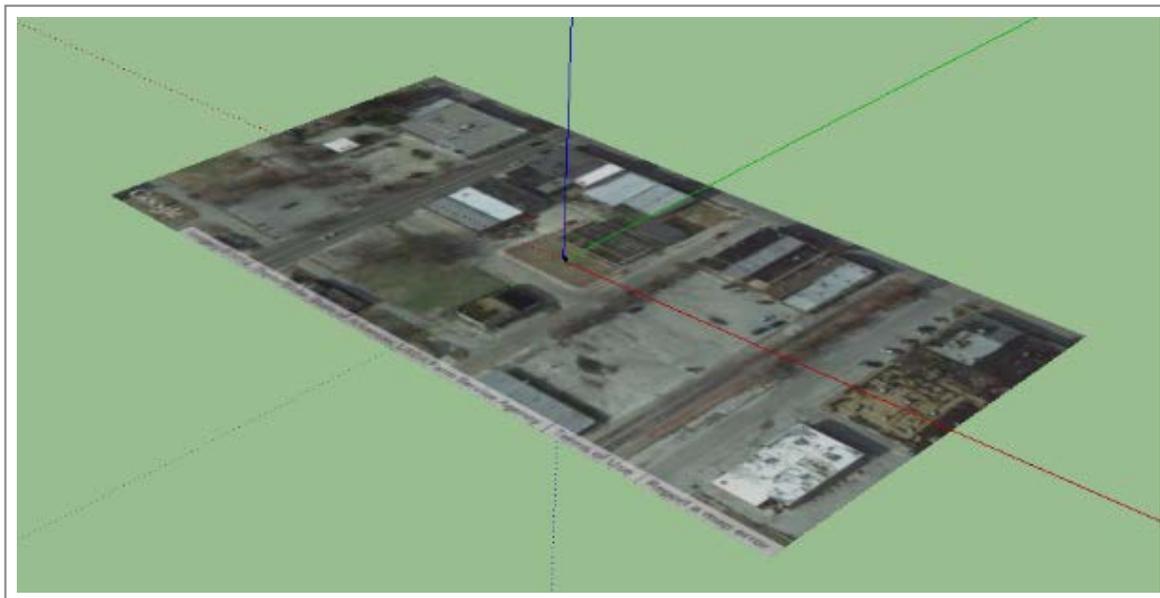
Click Select Region to choose your landscape

Then use the pins in the newly formed box to identify the area that contains your site. When you have identified your site, click "Grab".



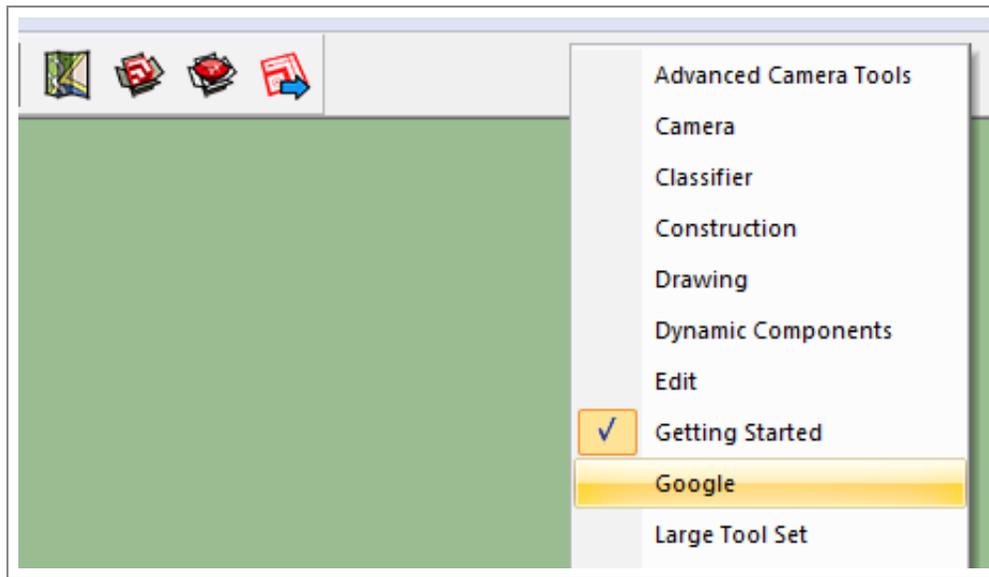
Capturing your site

Your terrain should now be added to the map.

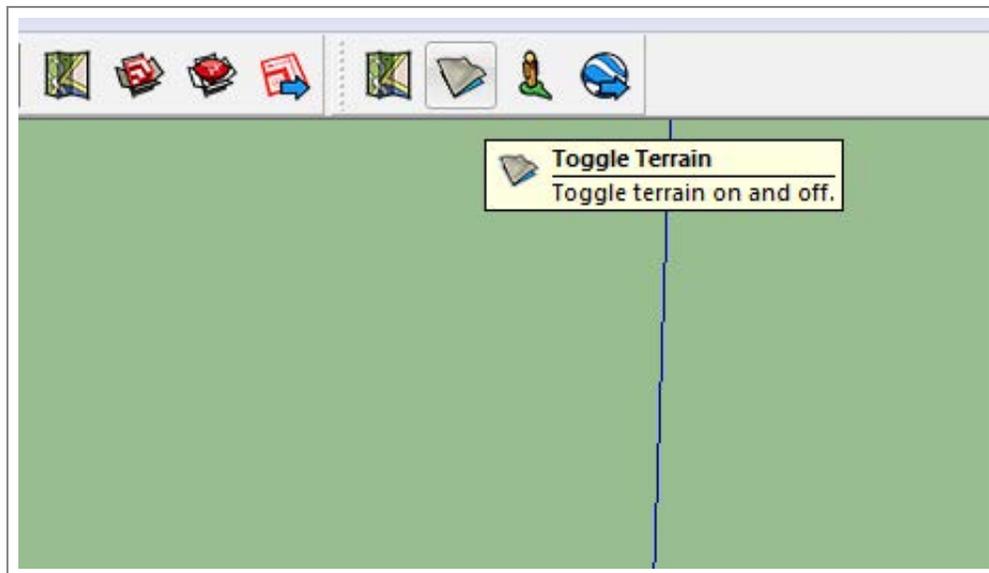


3D Scene is now ready

You'll notice our terrain is flat, which may or may not reflect reality. To view the true terrain's natural features. Use the Toggle Terrain button. If you cannot find it, right-click on the main toolbar and add the "Google" Toolbar.



Adding the toggle button from the Google Toolbar



Toggle Button

Before moving on, save your file (File > Save) and add it to your project folder.

STEP TWO

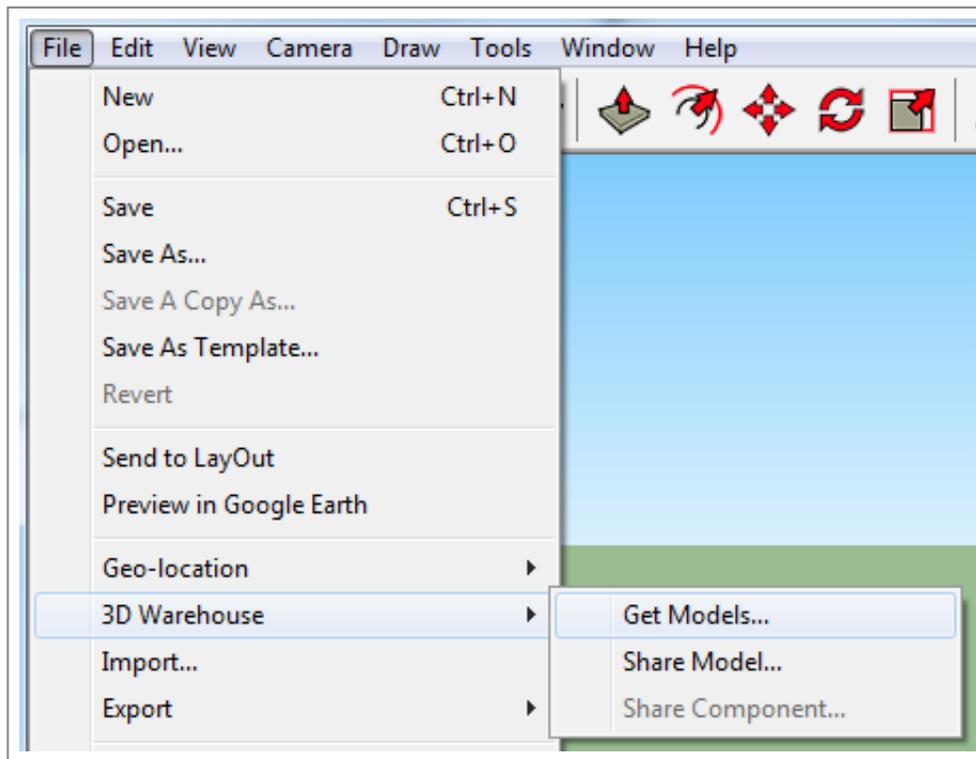
Create 3D Model



3D Model

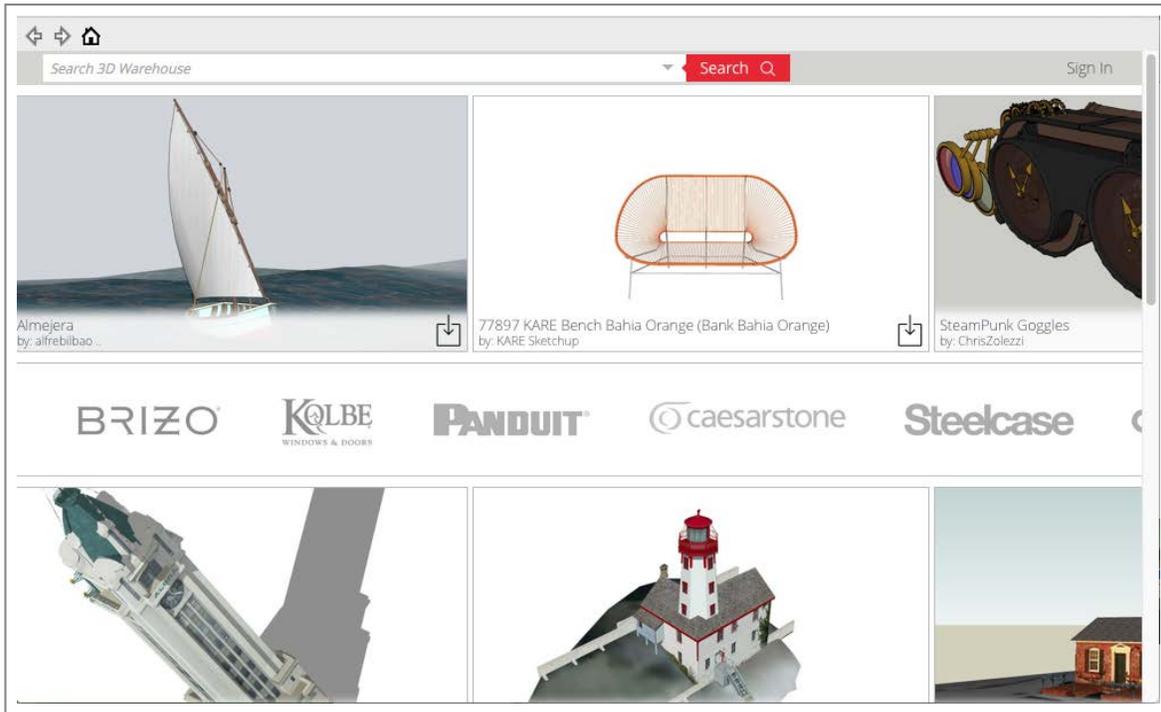
Here we will begin to build and add our 3D asset (or building). Based on our analysis of tabular data, we decided that a retail business would best suit our needs. We also determined the location of our business. Now, we will use the 3D Warehouse to download an already made model.

Go to File > 3D Warehouse > Get Models...



Reaching the 3D Warehouse

A window for the warehouse will open up with 3D model examples and a search menu.



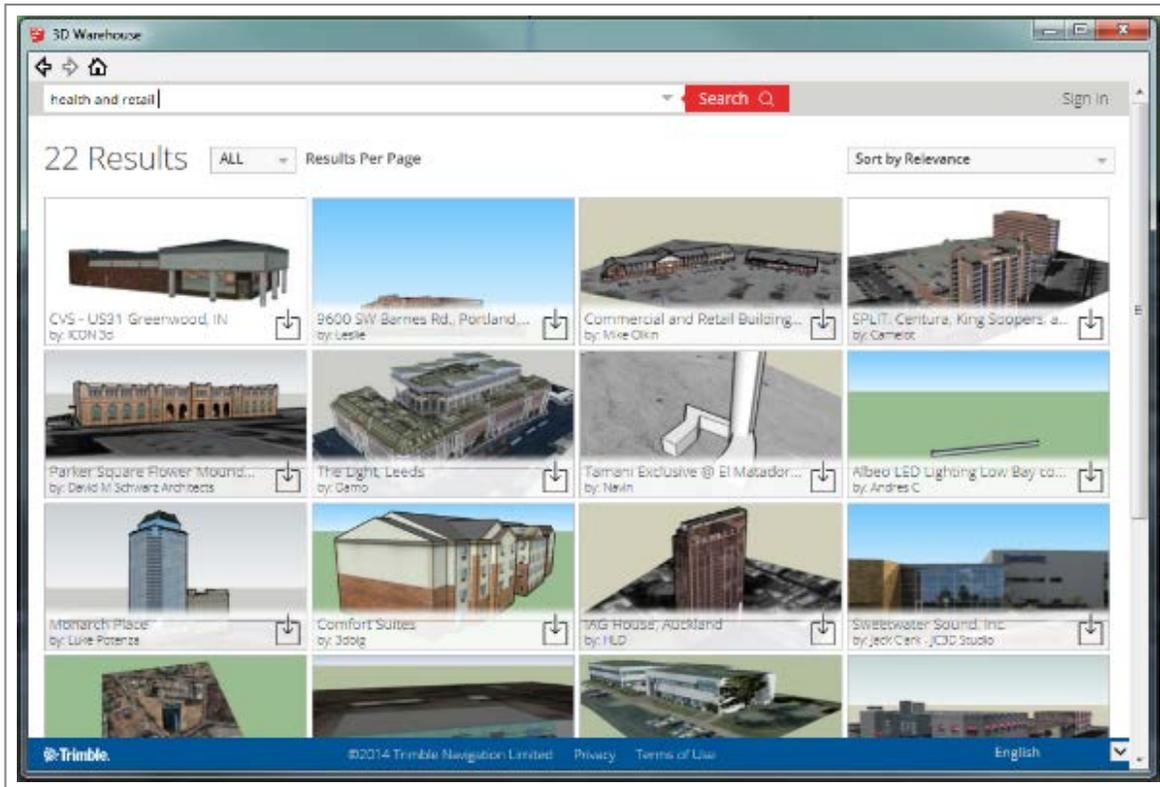
3D Warehouse

Use the search menu to look for a 3D asset. Think of this like a Google search. Enter any kind of words that relate to your building. Let's search for "health" and "retail" since our data supports Personal Care and Health stores.



Using the search menu

Go through the search results and find a model you like. Click the model you like and once in the details page, click "Download".

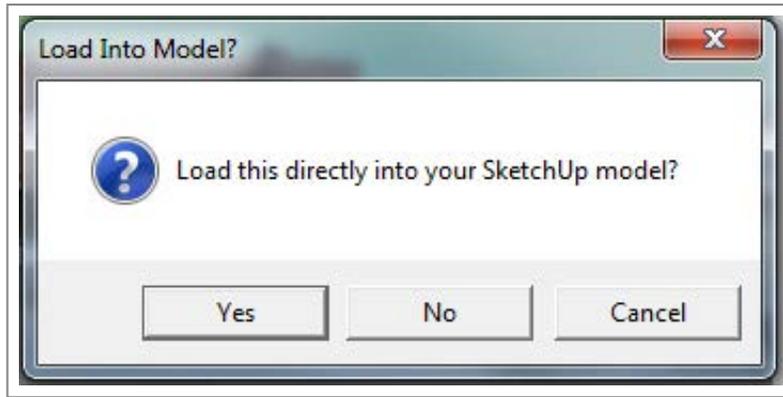


Search results

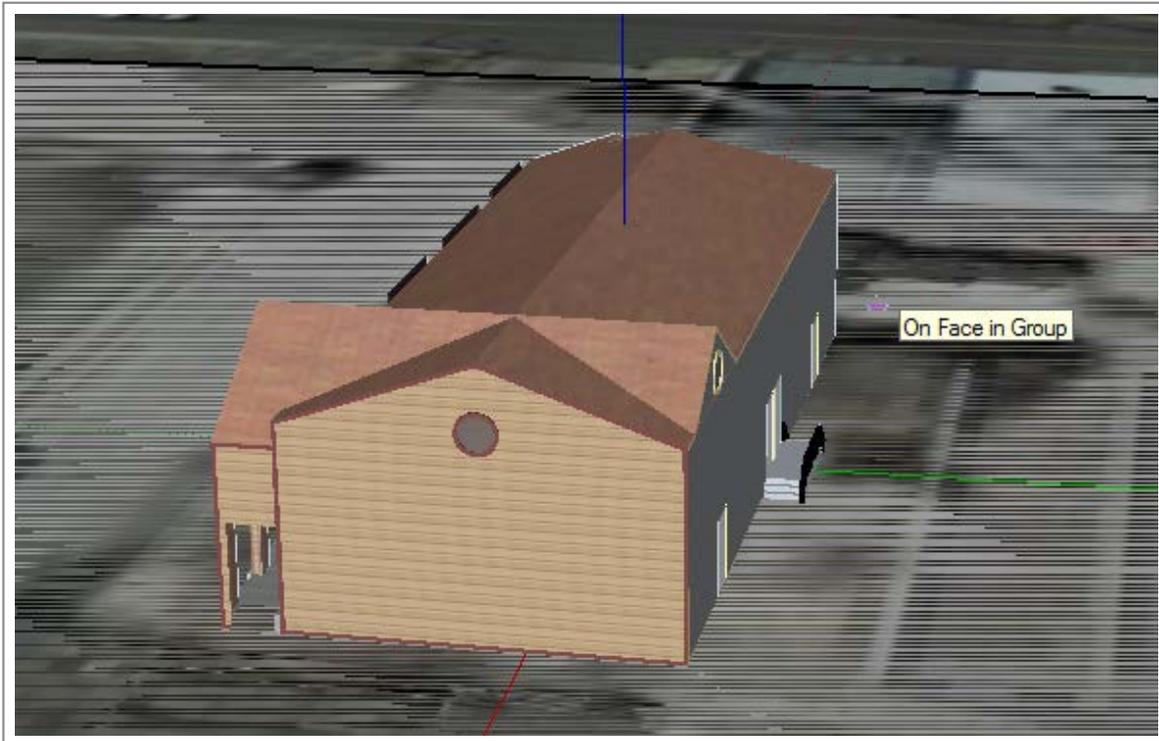


If you like the model, click Download at the top-right

You will be prompted to load your model directly into SketchUp. Click "OK". Then your model will be "attached" to the mouse pointer. Find a good spot, no matter how it is facing and click to place the model.

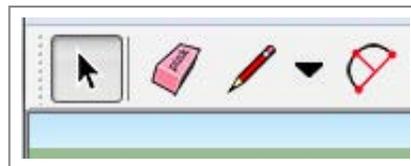


Load into SketchUp? Yes.

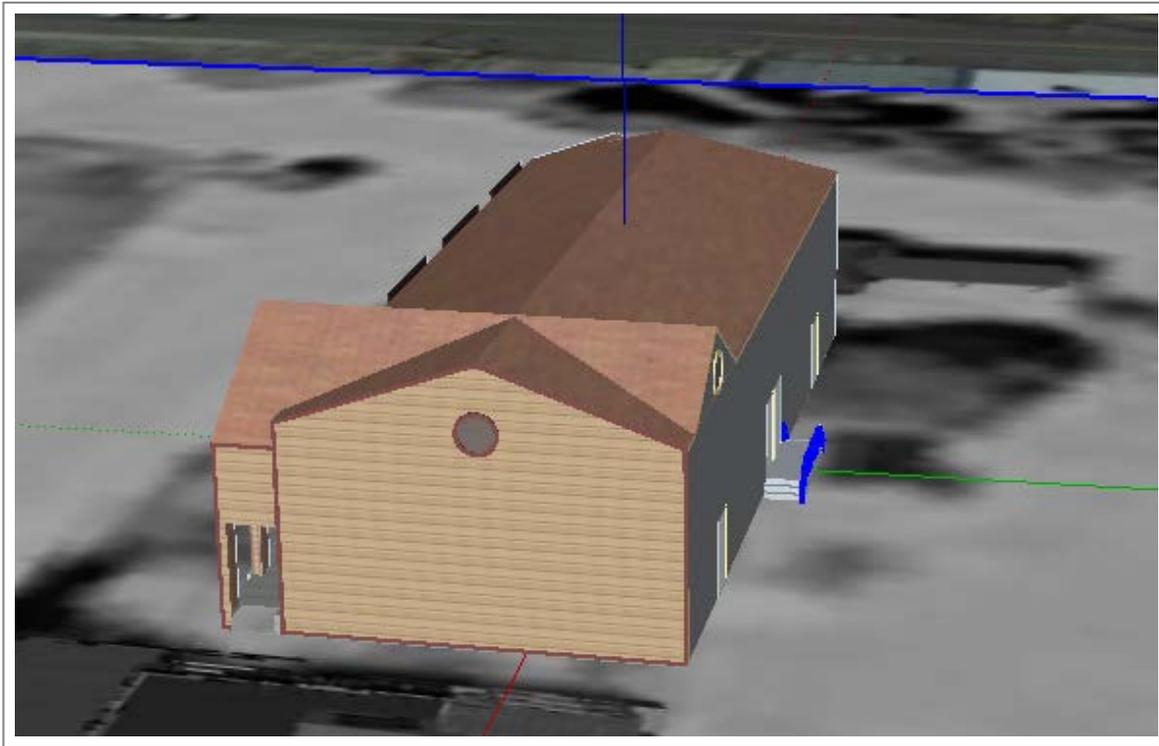


Place the model on the terrain

A lot of times when you download a model from the 3D Warehouse, it will come with terrain or associated objects. In this case we have terrain and want to get rid of it. First, be sure the model is selected. If it is not selected, use the pointer tool and click the model.

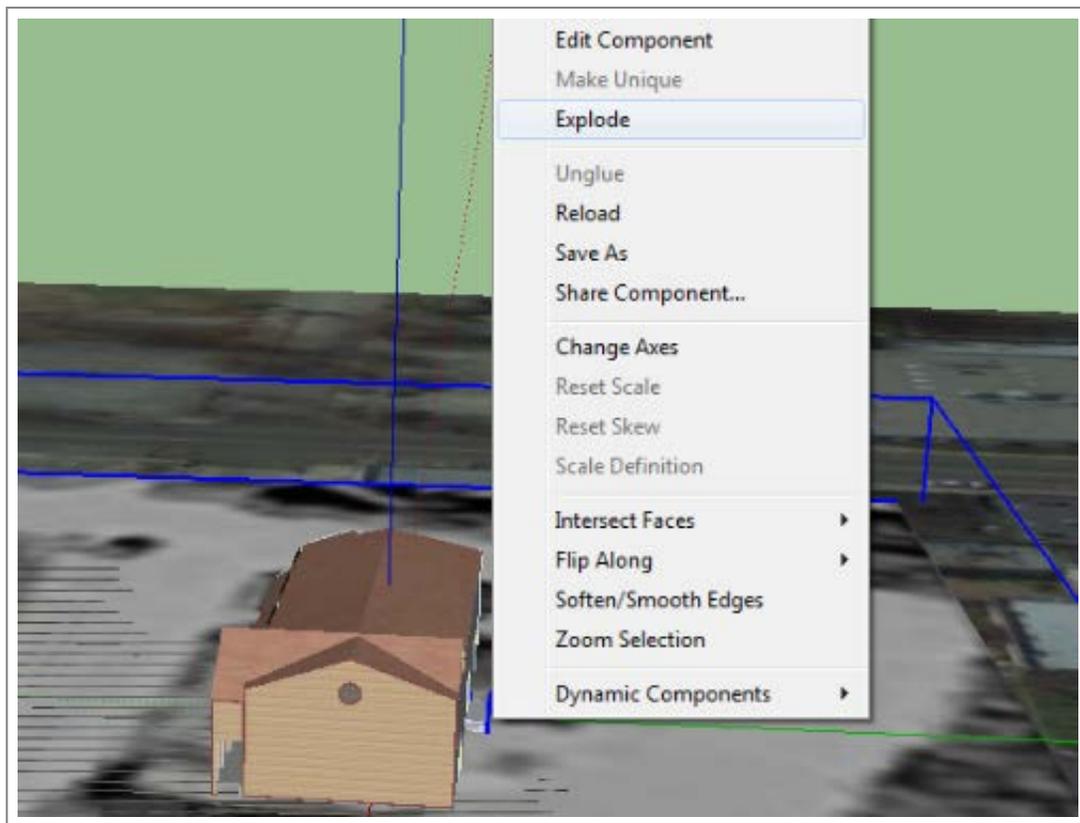


Use pointer tool to select model



Selected Model

Now, right-click on the model and choose "Explode".

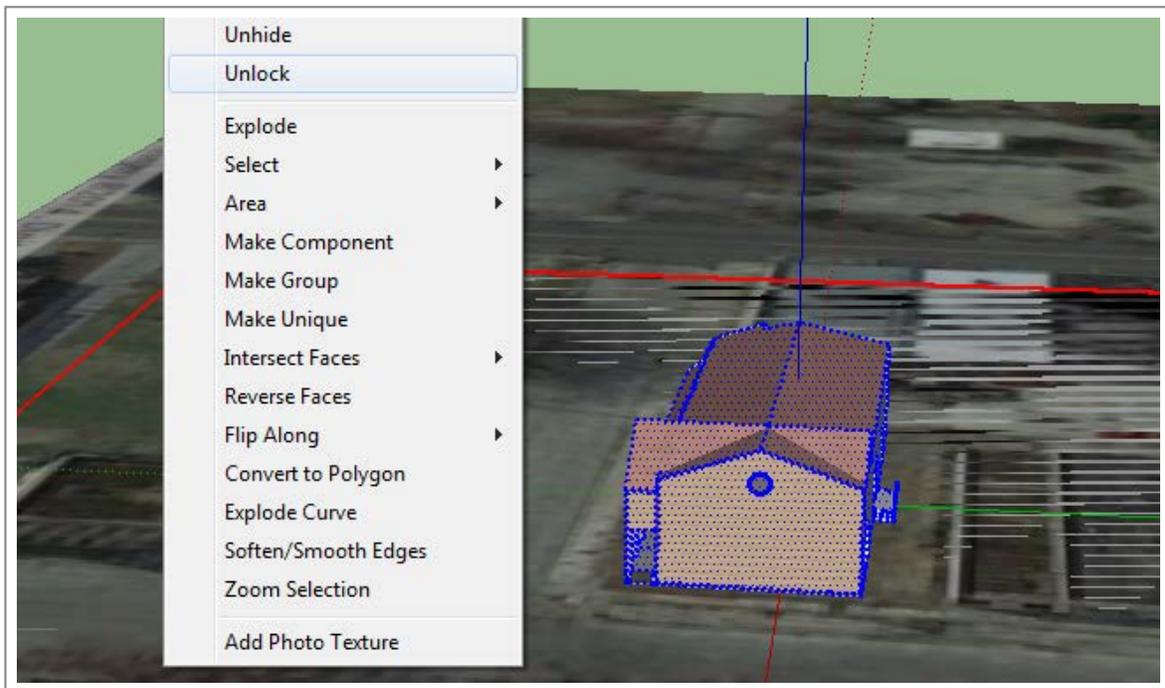


How to separate model from other pieces

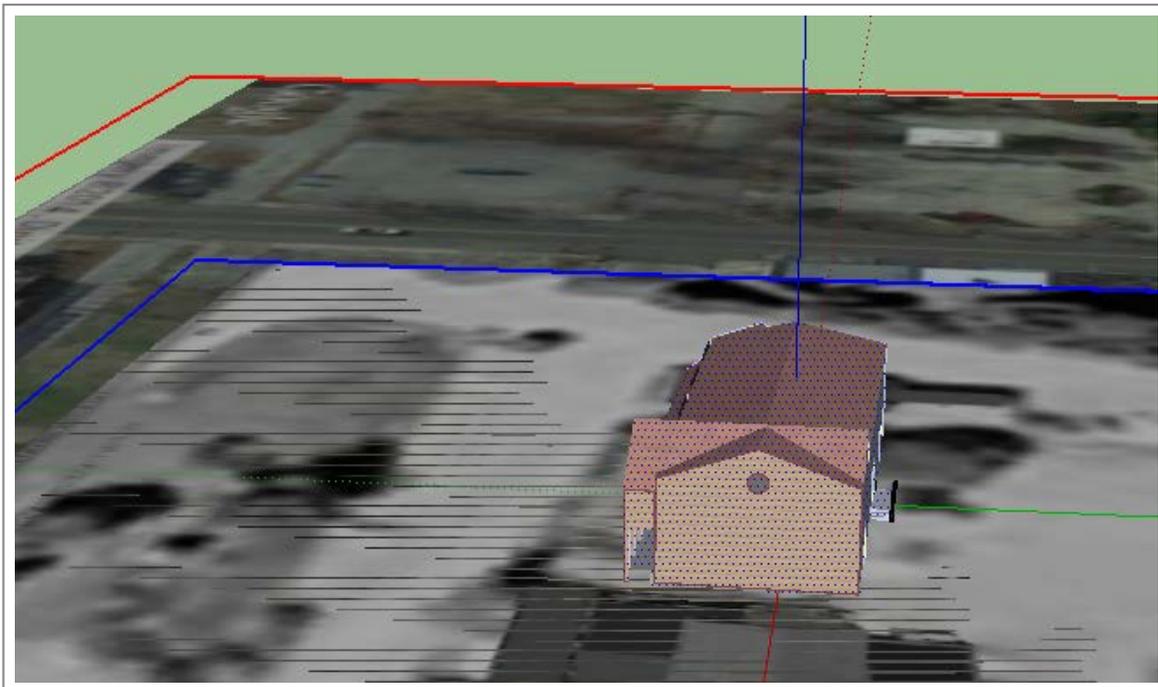


Resulting "explosion"

You'll notice that the terrain is highlighted in red. This means the layer is locked. Right-click on the terrain and choose "Unlock" and it will turn blue.



How to unlock a layer



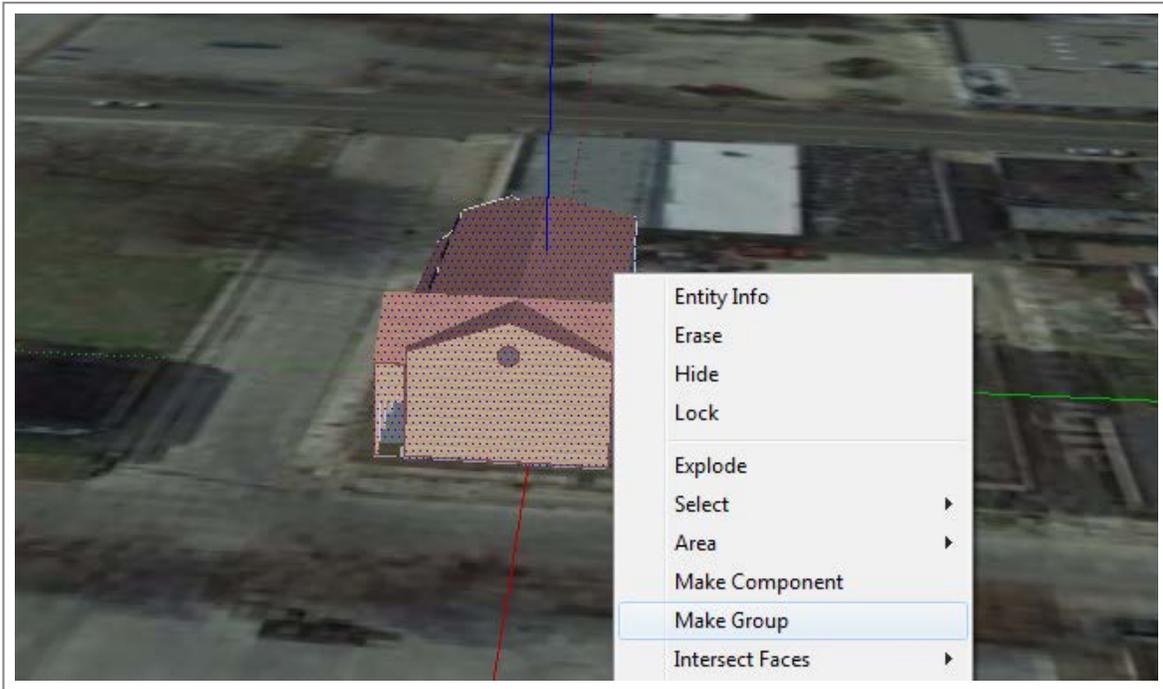
Layer now turns blue

Make sure that only the terrain layer is highlighted, press Delete to remove it. Now we need to place our building. To make that easy we need to make sure our buildings components are grouped. Using the pointer tool, click and drag to form a box around our building.



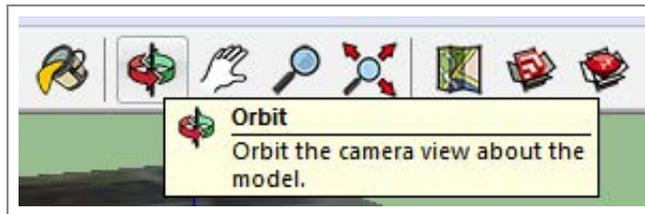
Select your building

Once your building is selected, right-click on the building and select "Make Group".



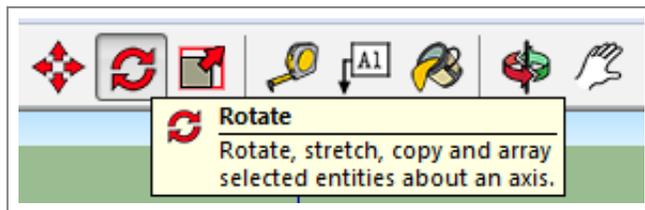
Make a group

Now we will focus on moving our building around. To navigate the scene, use the orbit tool. Left-click and hold to move the view and use the mouse wheel (if you have one) to zoom in and zoom out.



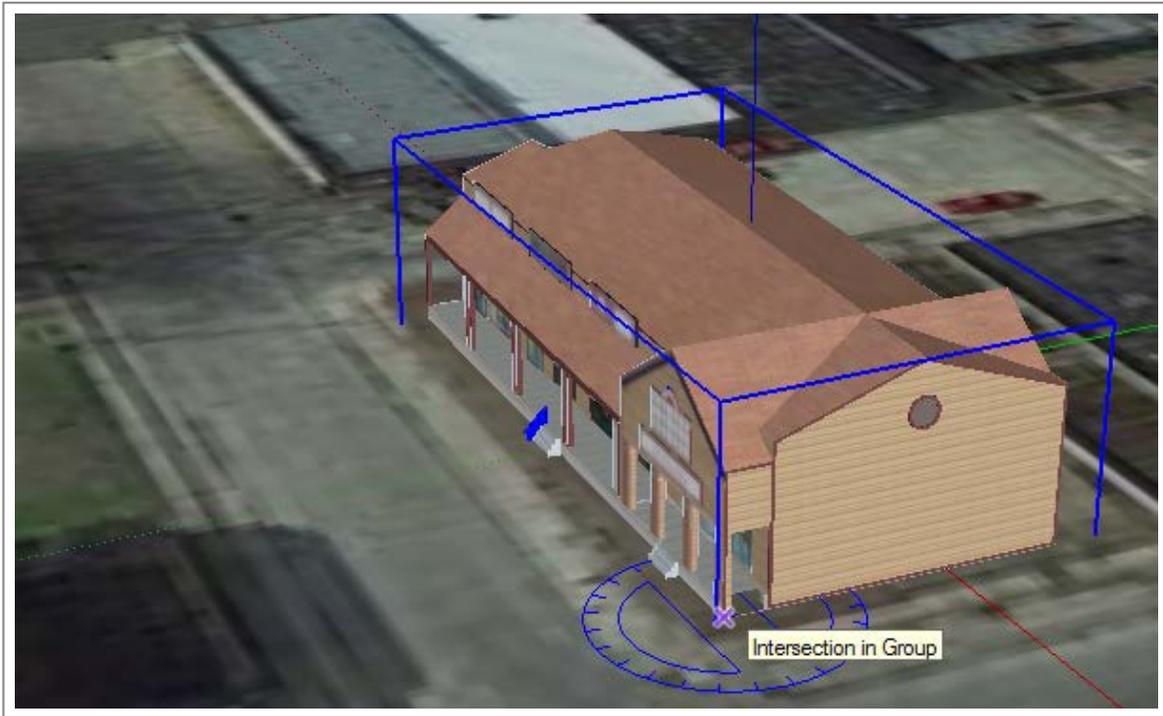
The orbit tool

In order to rotate the building click once on the building with the pointer tool. Then, select the rotate tool.



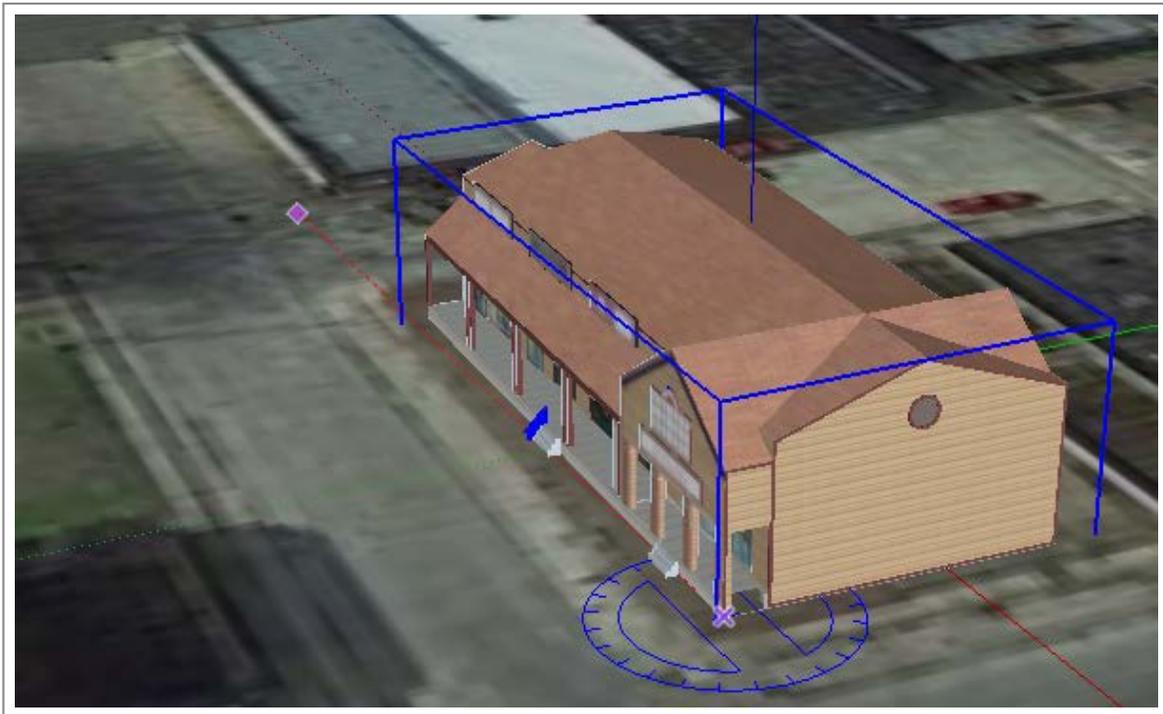
Select rotate tool

Now click once the corner of the building to establish an anchor point.



Establish first anchor point

Next, move your mouse away from the building and click again to establish another anchor point.



Establish second anchor point

Once you have clicked twice, your model will now pivot from the first anchor point to best align with the street.



Establish second anchor point

Our model is actually correctly aligned, so we will leave it. Now, select the move tool.

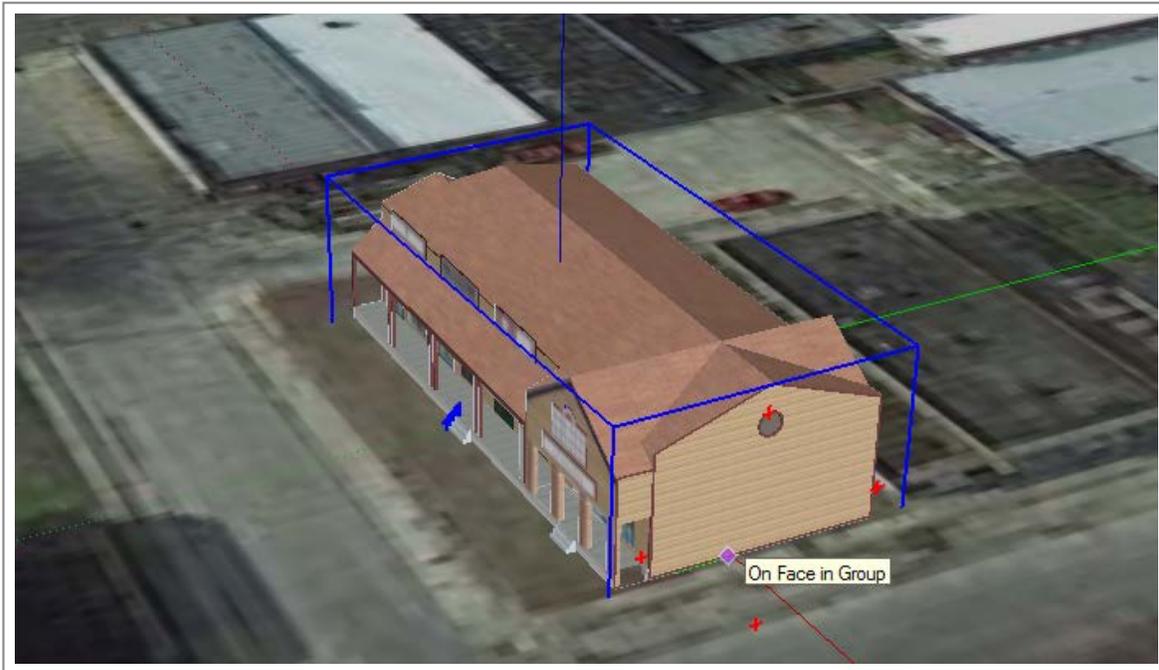


The move tool

Click once near your model to establish and anchor point. Now move your model to your desired location



Setup anchor point



Move to align model

If needed, finish the placement of your model by using the move tool.



Final model

You now have a 3D model. Let's move on in the next tab to add some supporting details before we share our work.

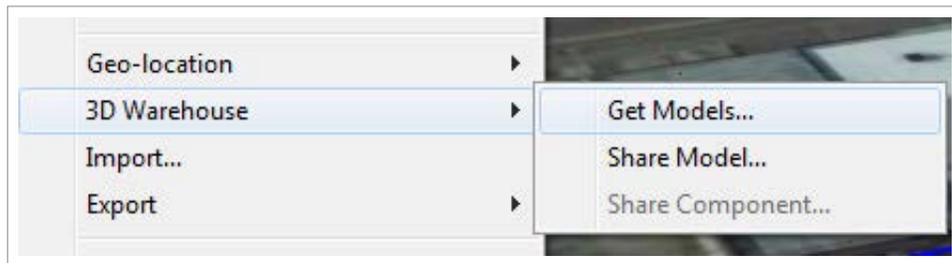
STEP THREE

Adding Supporting 3D Models and Detail



3D model with imported assets

Now let's go back to the 3D Warehouse and add some detail to the model. In the menu, go to File > 3D Warehouse > Get Models.



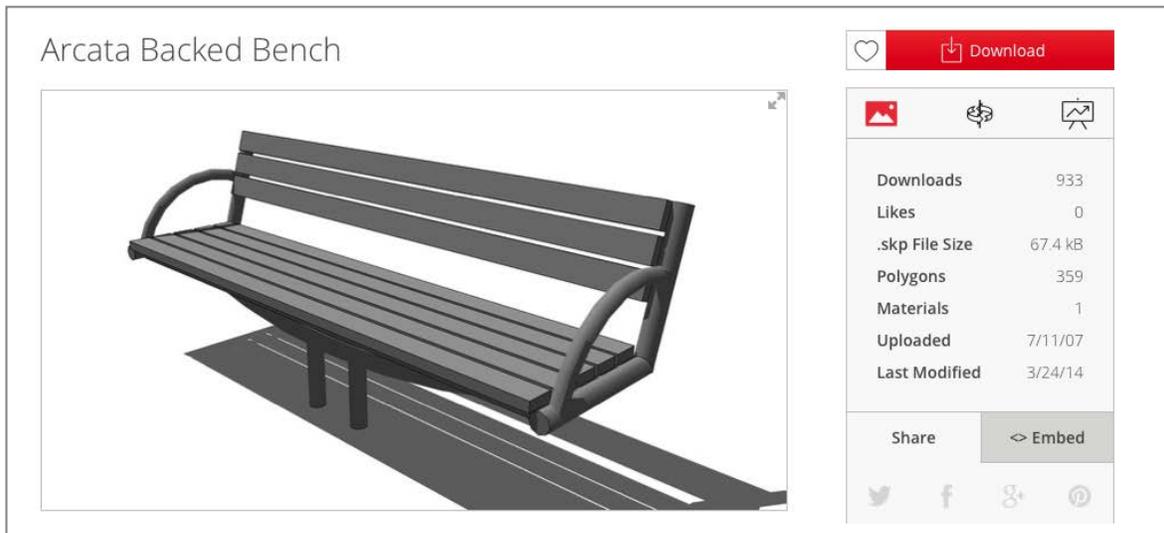
Path to get 3D models

Again, use the search menu. Let's search for a bench.



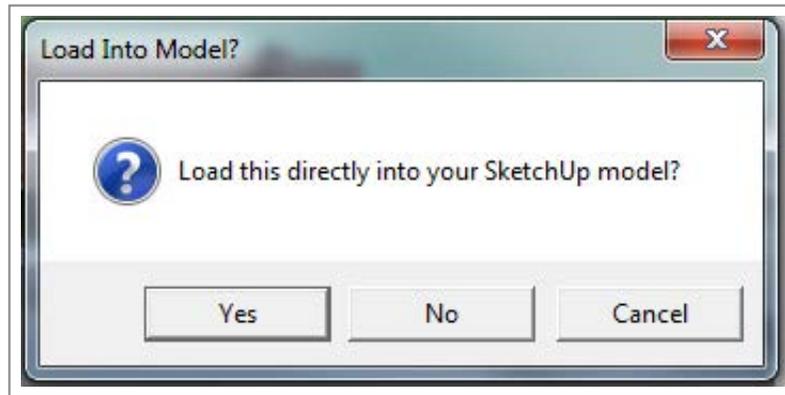
Type text here

Find one you like and click the download button located in the top right.



Free download

When you are prompted to load your model, select "OK".

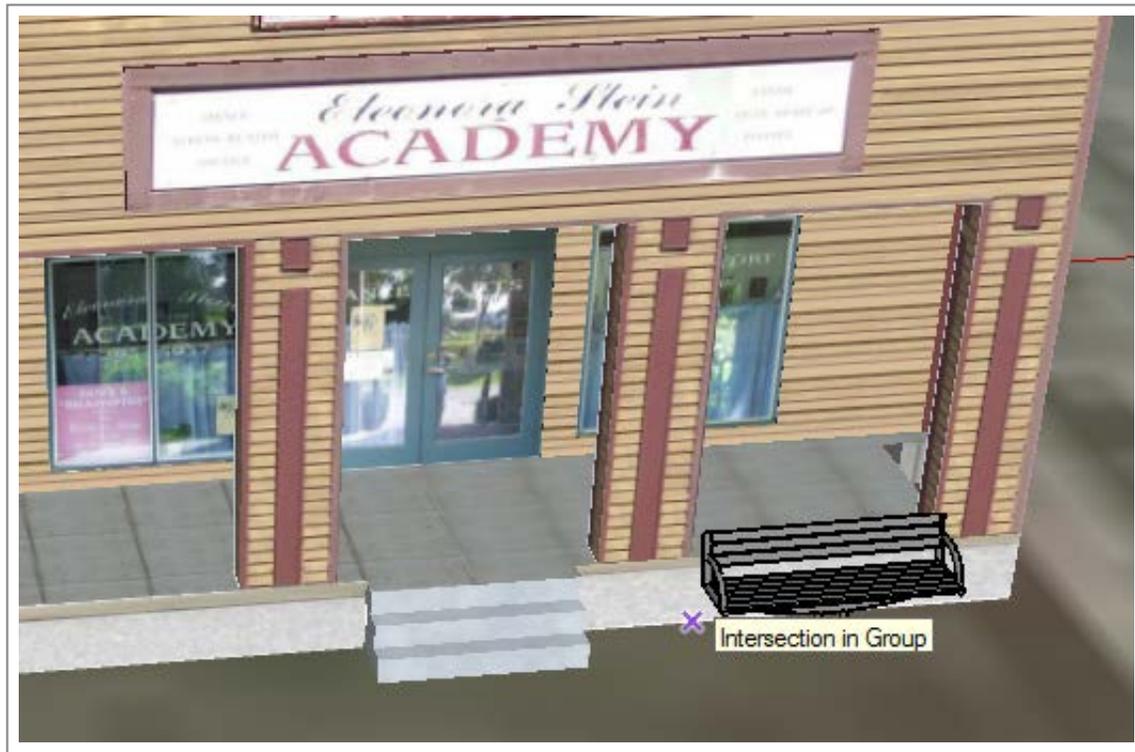


If you don't load the model, you can always save it as a KML

Use the same tools as before to align the model in the orientation and location of your choosing.



Move and Rotate icons



Bench location

Once you select a good spot for your bench, use copy/paste to add more models. First select the model with the pointer tool. Then use CTRL+C and CTRL+V to add copy and paste more models.



Select bench



Copy/Paste models

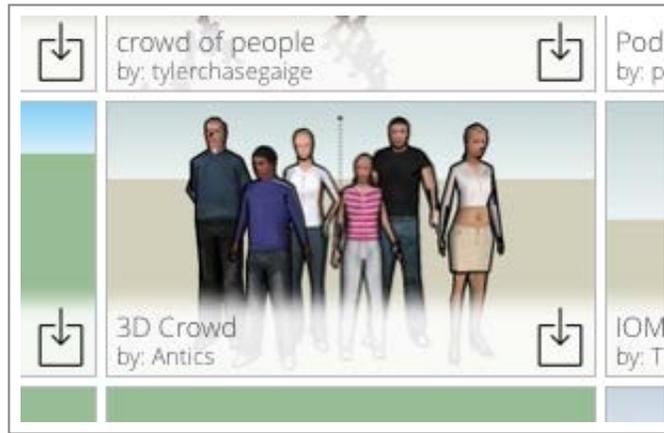


As many benches as you want!

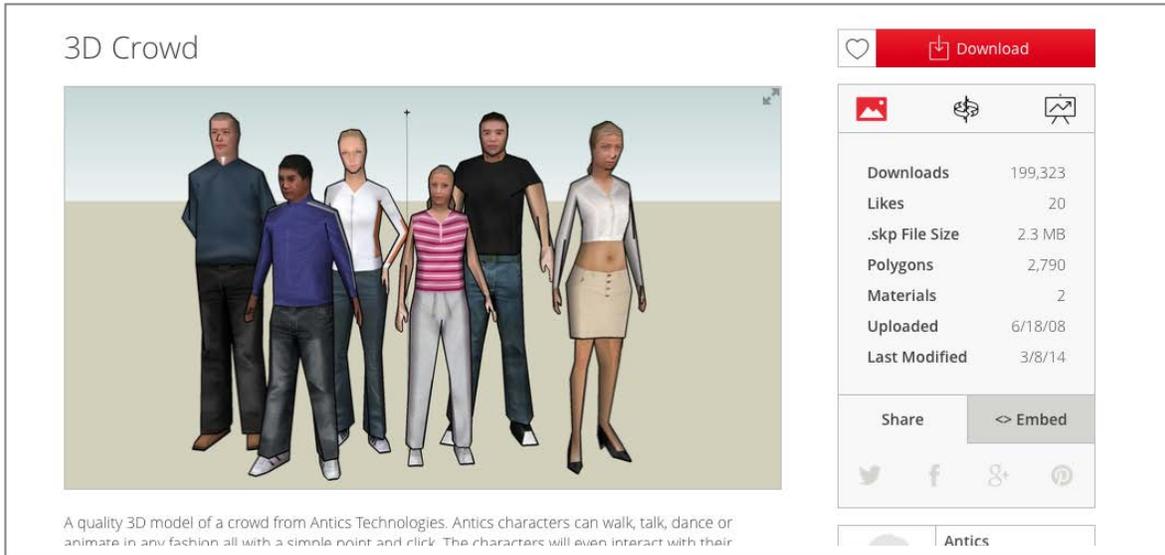
Feel free to add other types of models in the same process. In the following images, you will see how I am able to add a crowd and place it in front of the building.



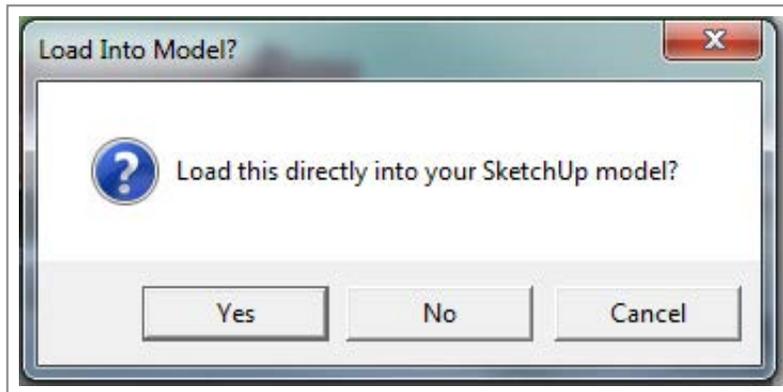
Search



Select



Download



Load

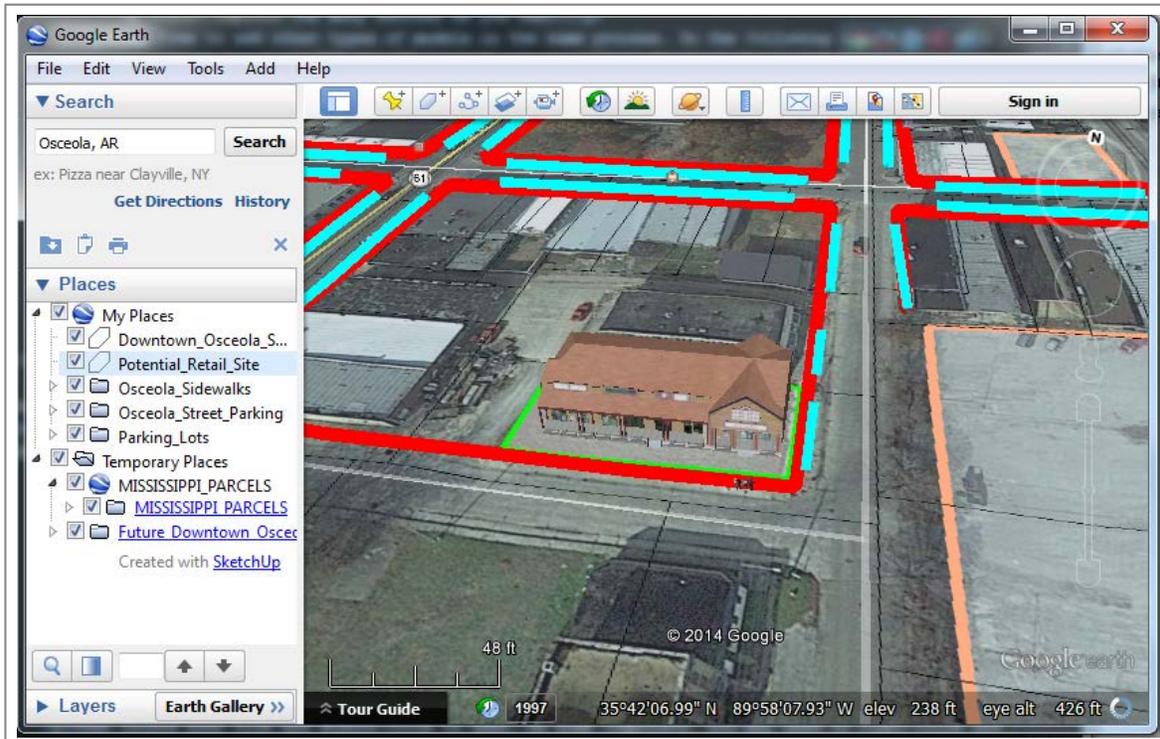


Place

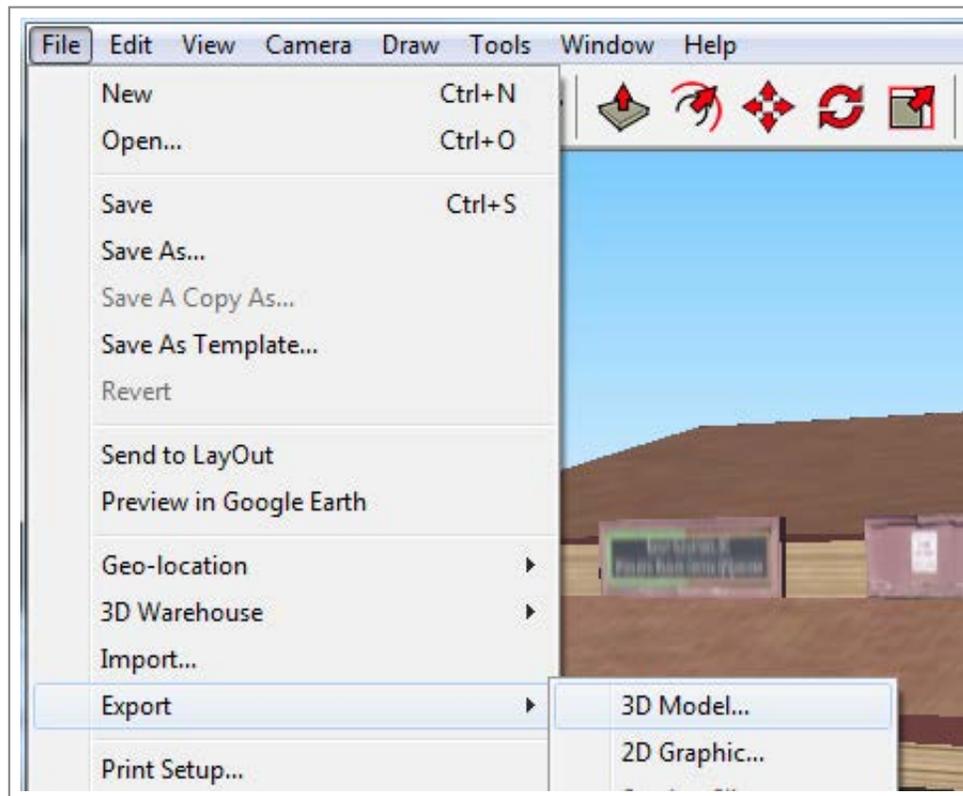
The above processes can be repeated multiple times to add further detail and extra models. For now save your work and move on the next step.

STEP FOUR

Load Your 3D Scene into Google Earth

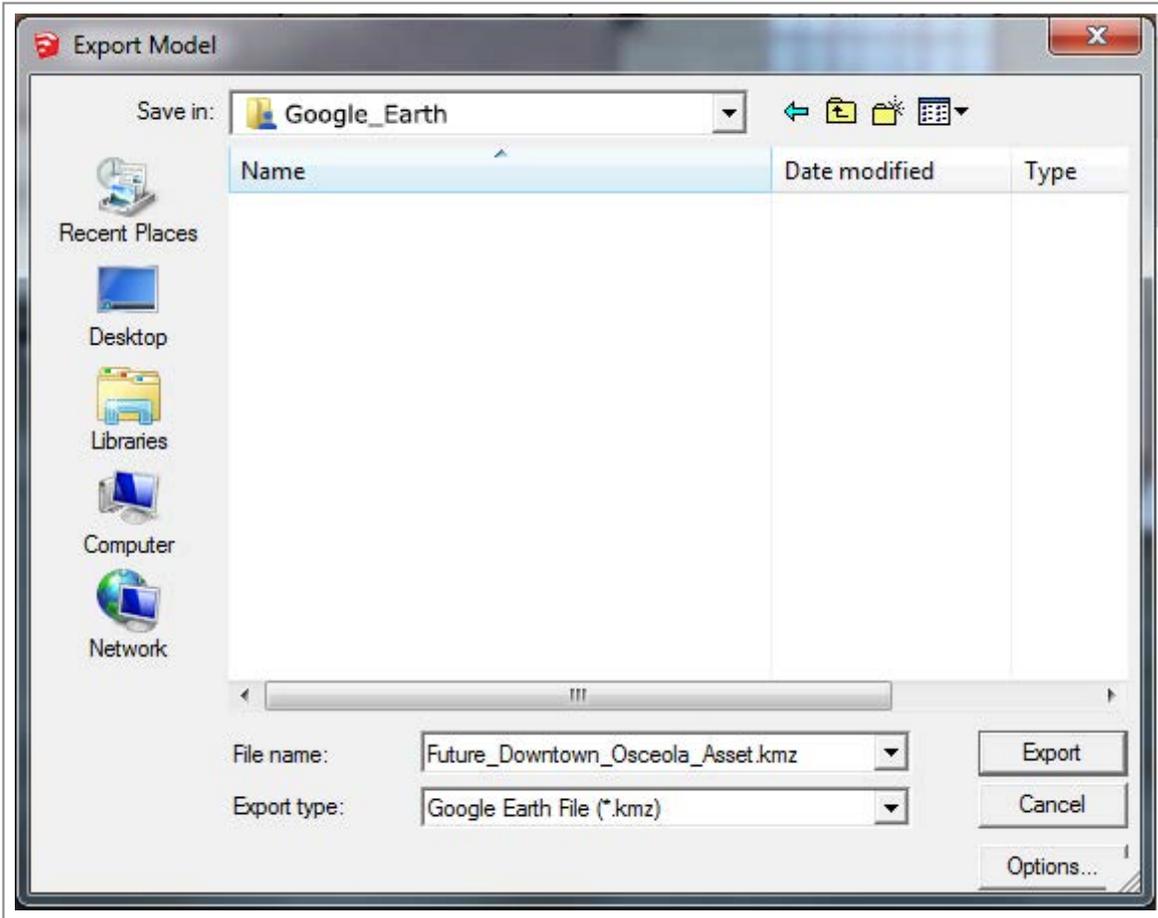


Now that we have a model, let's load it into Google Earth and create a shareable asset. In SketchUp, Go to File > Export > 3D Model.



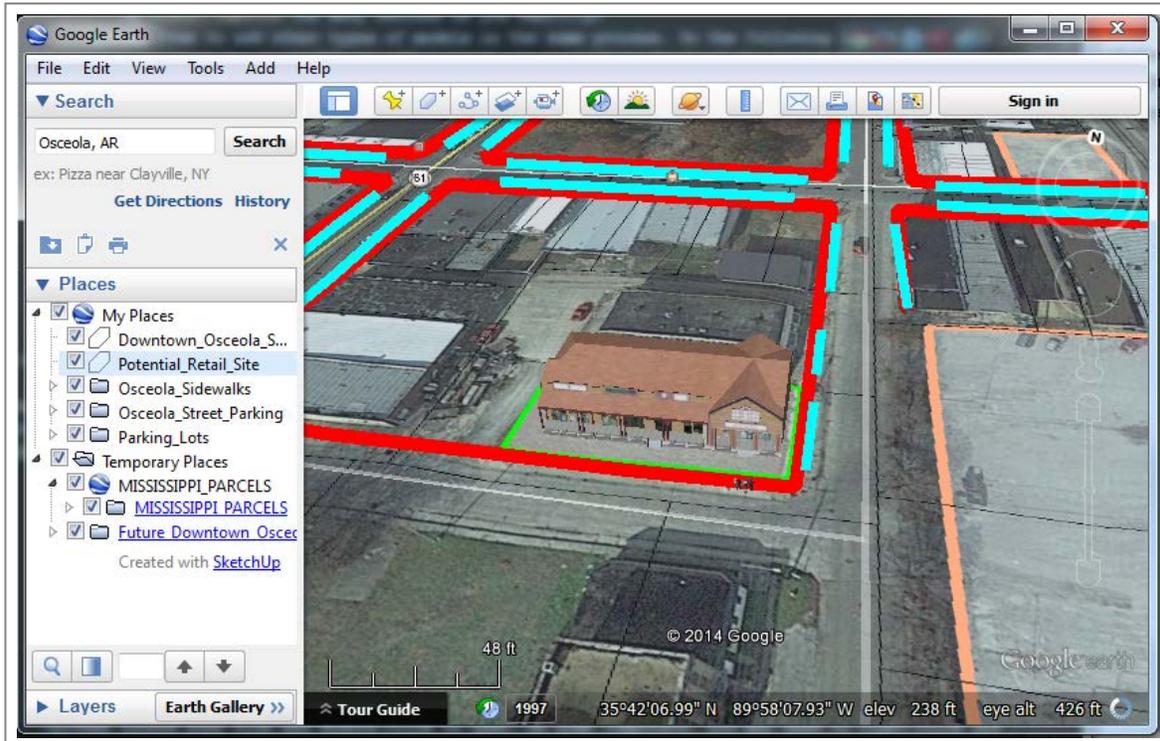
Path for exporting model from SketchUp

Make sure your format is KMZ and simply click "Export". Remember the proper file location and good naming convention.



Export as KML

Then locate your file and double-click to open. On some computers, you may need to right-click and choose "Open with..." and find your Google Earth application.



Google Earth view with all the extra layers



Model view only with all other layers deselected

Congratulations! You've just used Geodesign to visualize a proposed development. If you've completed the previous tutorials in the Downtown Redevelopment Field Guide, you've also performed a market study and survey to justify the proposed new downtown development. For more information and resources, check out the next tab below. To return to the main field guide page, click the option below:

[Downtown Redevelopment Homepage](#)

MORE INFO



Useful links:

- Chautauqua County's' virtual Economic Development
- Center for Sustainable Development and Scenario Planning
- 3D Visual Urban Simulation: Methods and Applications from CSPU - Pomona
- Buffalo's 3D Medical Campus as a Method for Collaboration
- 3D Vis World's Take on New Approaches for 3D City Design and Urban Planning

by Civic Analytics