SOFTWARE

Twinmotion

MANCHESTER | URBAN DESIGN | LAB

MUD-Lab Toolkit

Rendering with Twinmotion

Twinmotion is the rendering software we will be using to finish and present our final 3D design. This software can give realistic materials and elements, street furniture, sky, people and vegetation to your model. It can help you to communicate the feel of your design and public spaces. The software is totally based on your SketchUp model. This handbook will introduce you to the software take you through the steps of rendering your model.

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Series Editor: Dr Philip Black

Series Graphics/Software Editor: Dr Taki Eddin Sonbli

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To reference this MUD-Lab Toolkit please use the following:
'Manchester Urban Design LAB (2020) '***MUD-Lab Toolkit: Twinmotion***' accessible at www.seed.manchester.ac.uk/mudlab

Disclaimer: This handbook does not replace the practical session

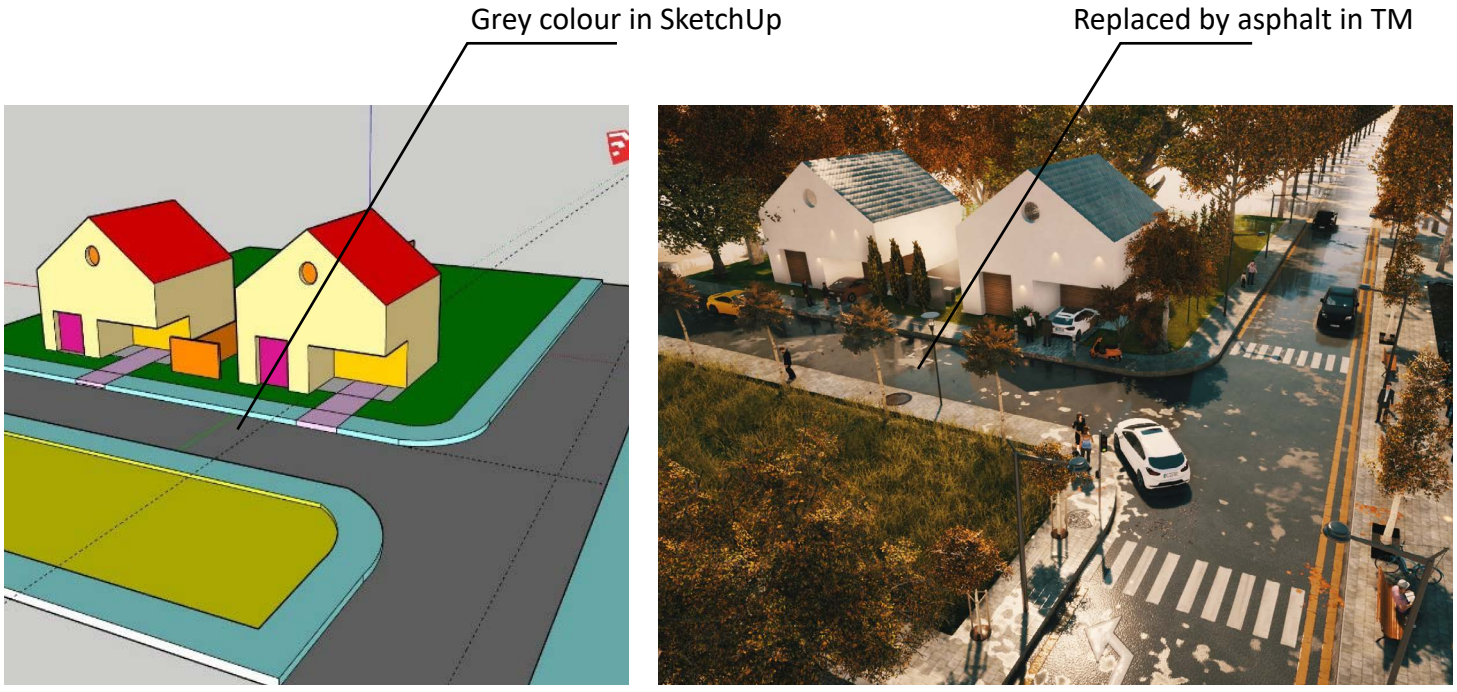
A Before getting started: Preparing SketchUp model for TM

Twinmotion is the rendering software we will be using to finish and present our final 3D design. The rendering software can give realistic materials and elements, street furniture, sky, people and vegetation to your model. It can help you to communicate the feel of your design and public spaces.

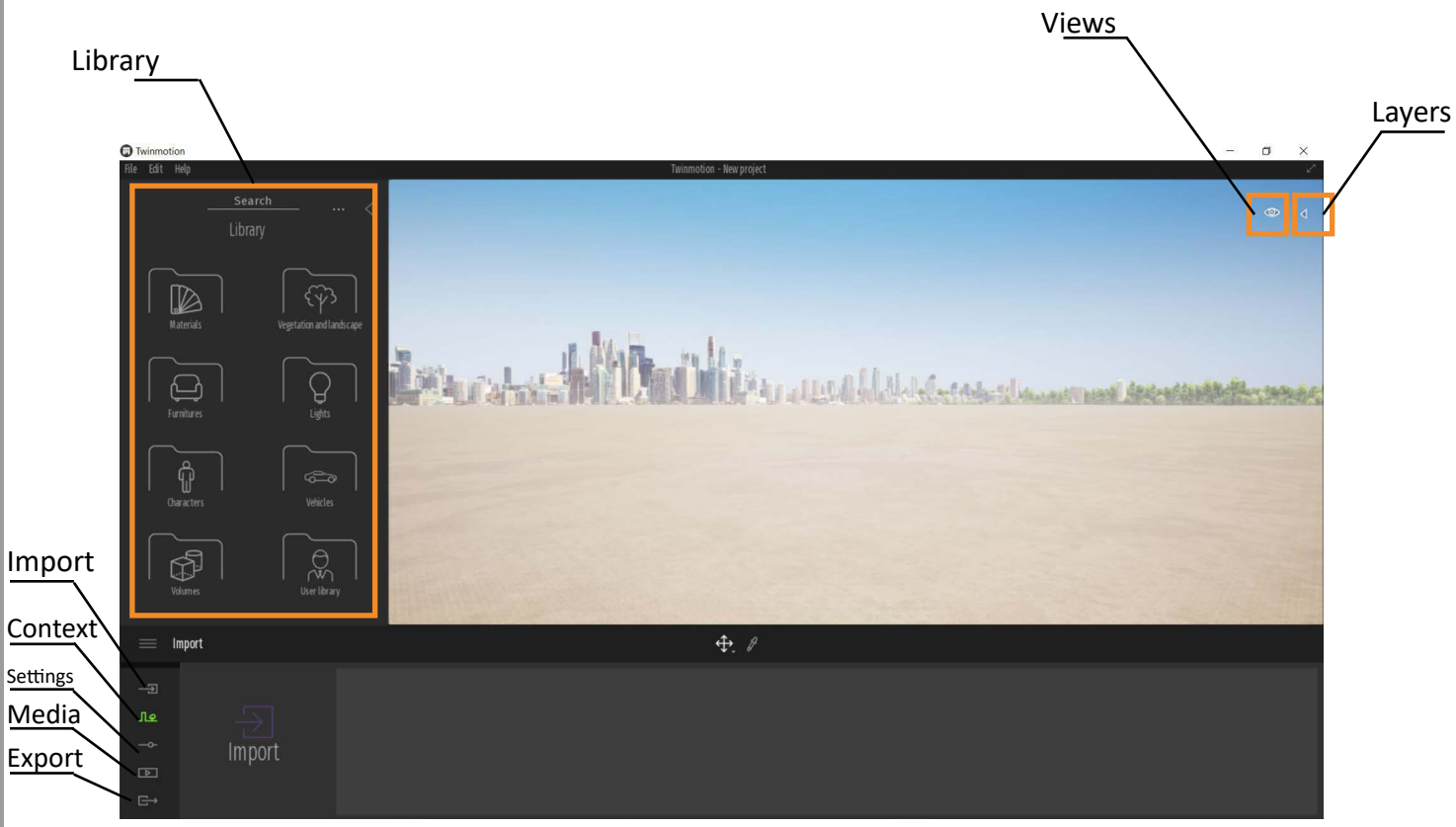
-While the software is very powerful, it is entirely based on the SketchUp model you created. The better the SketchUp structure the easier and more flexible the software. **Twinmotion cannot give raw objects any materials, it can however replace existing materials.** So in order to give surfaces materials in Twinmotion (TM), you need to give them colours or material in SketchUp first. Every material in the SketchUp model will be assigned to a material in Twinmotion from your choice. So if you decide to give a red surface in SketchUp a concrete or marble material in Twinmotion for example, all red surfaces will be assigned to this material. The more colours/materials you have in SketchUp the more flexibility you will have in Twinmotion.

- We do not need too many materials however. We basically want one or two materials to our new buildings (buildings and roofs for example), darker materials to existing and surrounding buildings and one or two materials to the ground. We also need separate materials for water surfaces, and for green surfaces. So make sure to give these surfaces above different materials/colours in your SketchUp model.

Please use the SketchUp model provided in BlackBoard to follow this toolkit handbook. Alternatively you can use your own model and follow the same steps. In this tutorial we will be taking this SketchUp model (left) to Twinmotion and render it to finish with the model below. Note how the SketchUp model is given different materials and how these materials are then replaced in the Twinmotion version. All other elements are added in Twinmotion. Your TM model will be one block if no materials are added to the SketchUp file.



B Getting started: TM Interface



Library: This is the most important panel in TM. All materials and objects are organized into folders in the Library.

Import: You import your SketchUp model from here. You can also refresh the model if you made any changes to the SketchUp model from this window.

Context & Settings: To control the feel of the scene such as weather, sun light, moon light...etc. in addition to some interesting features we will learn later.

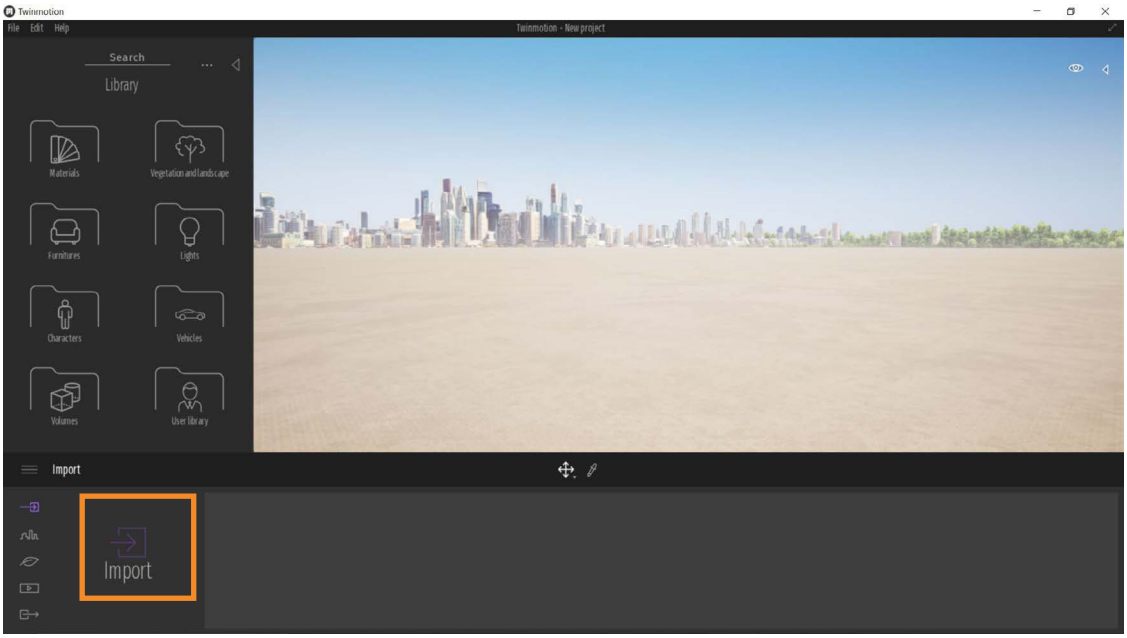
Media: You create your shots and edit them from here.

Export: to export your shots as JPEGs

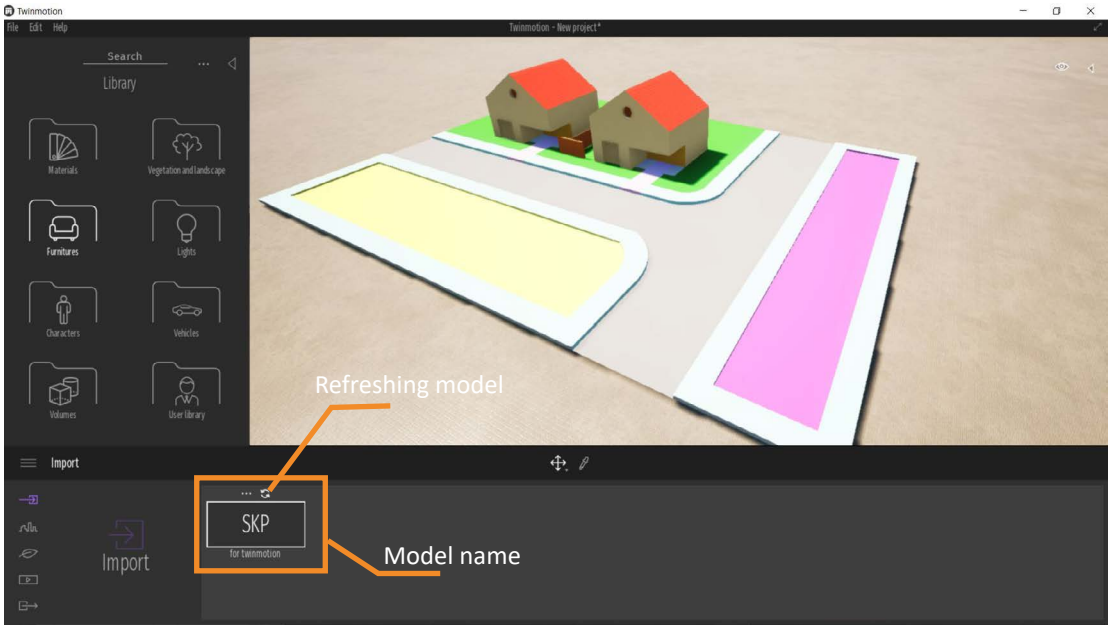
C Getting started: Bringing model to life

- Open Twinmotion

- **Import** the SketchUp file into Twinmotion:

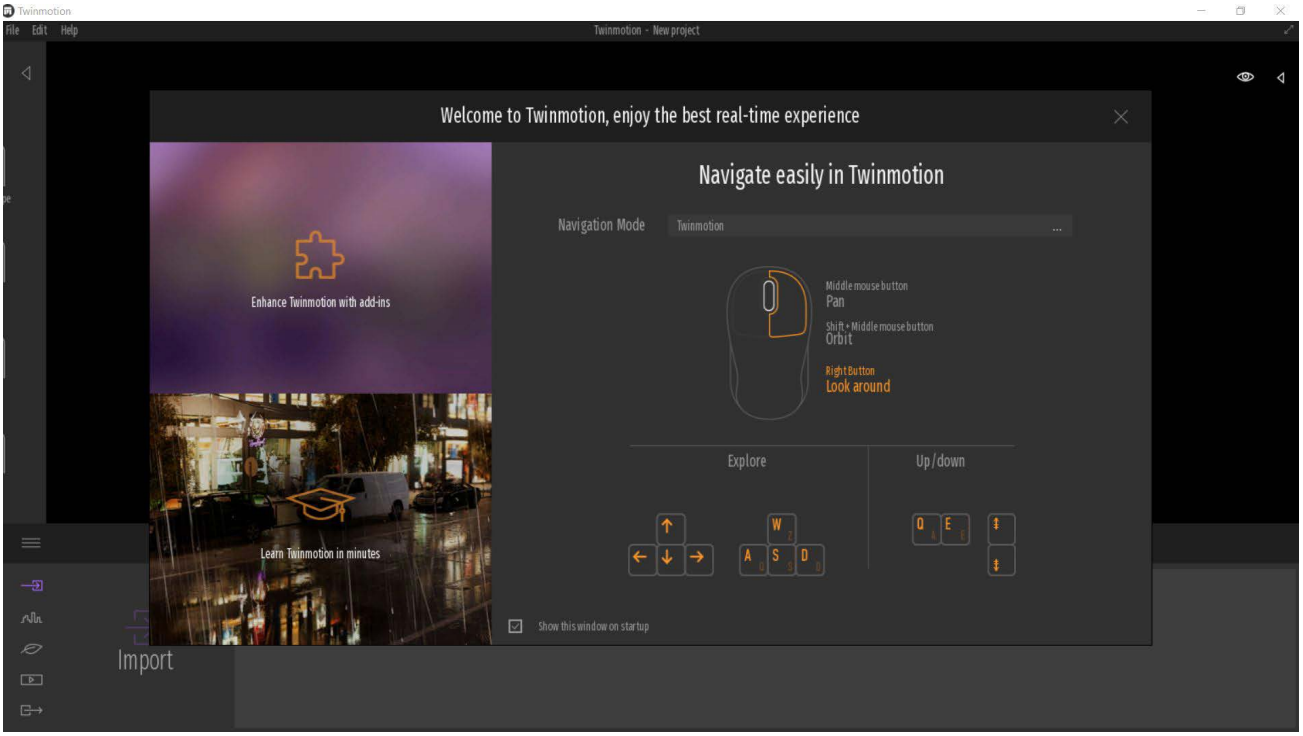


- You should now see the model imported. Please make sure that the model is close to the XYZ axes in SketchUp in order to find it easily in Twinmotion.

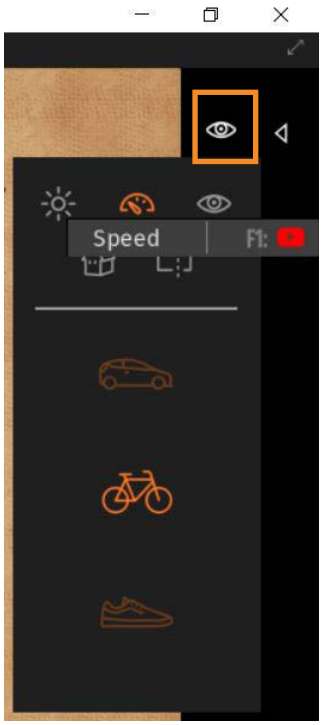


• **Looking around**: hold down the mouse right button and move the mouse.

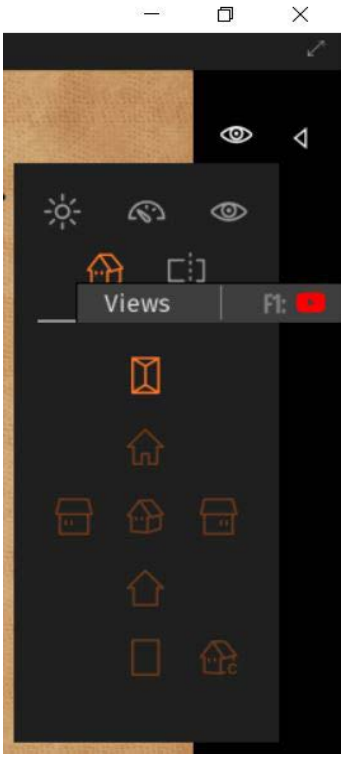
• **Moving the camera** in and out, left and right to Zoom in, S to zoom out, D to move right, A to move left



• Change **movement speed** in space from the top right view menu: Select the bike speed

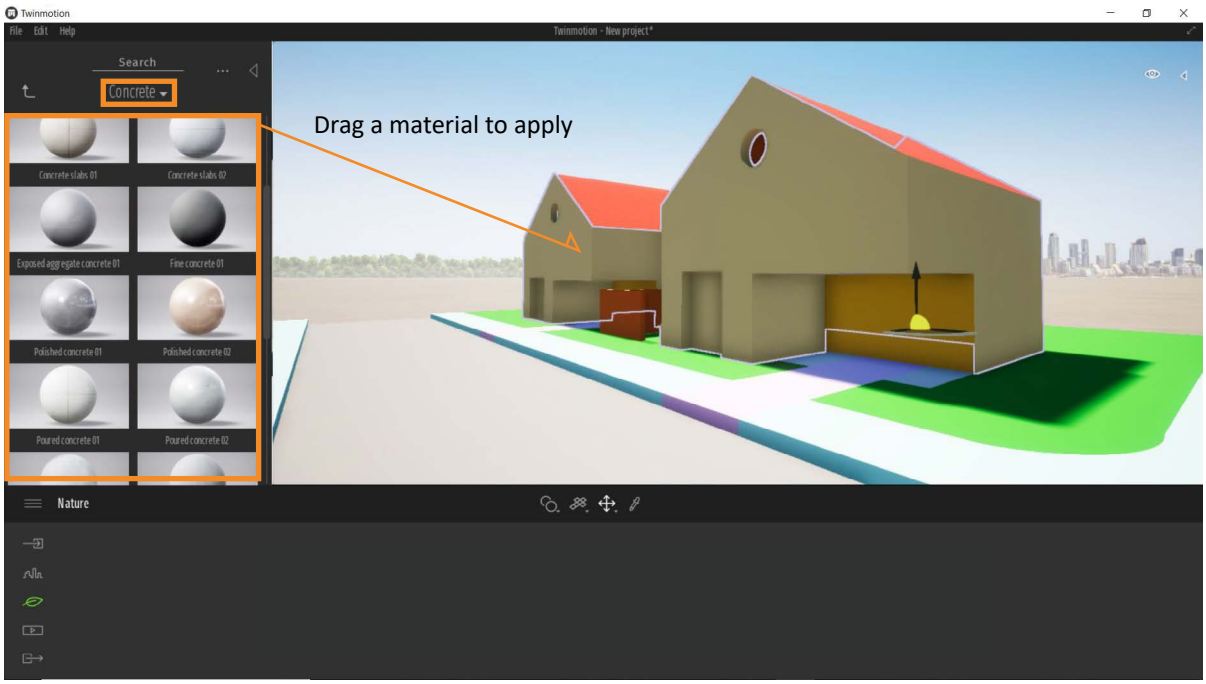


• From the same menu you can change the model daytime, and change views:

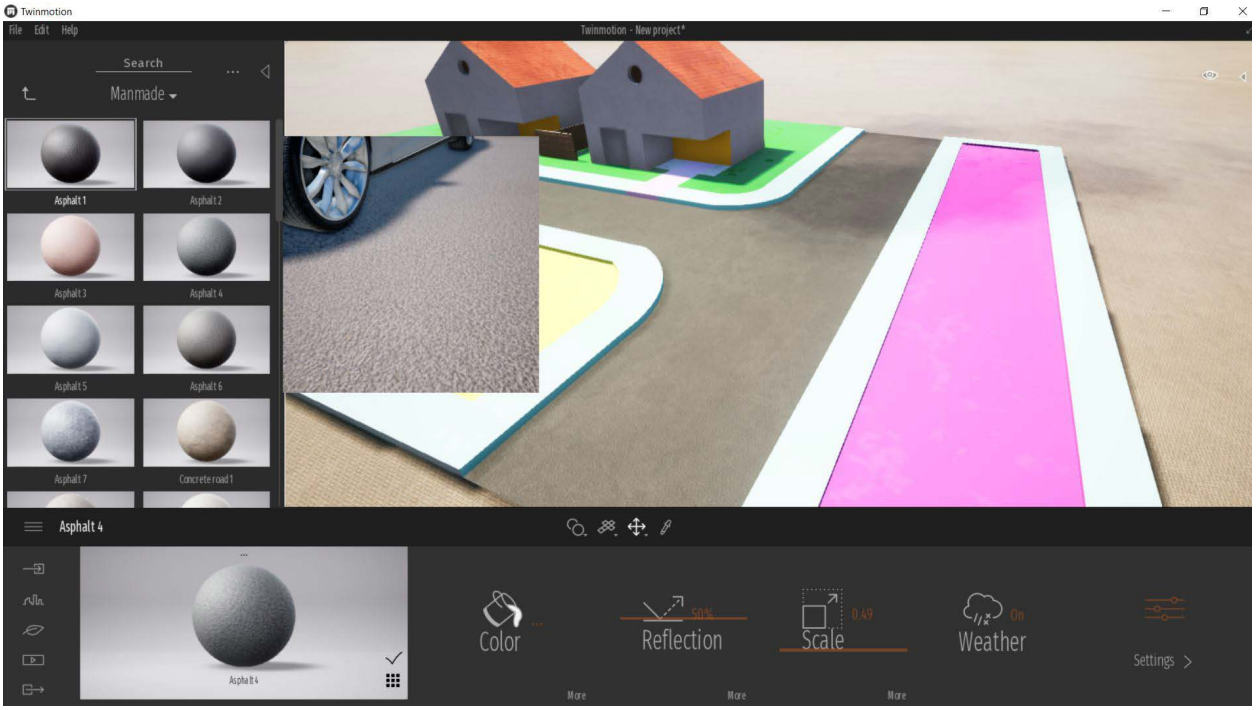


• **The Library:** Let us have a look at the Library. From here you can add materials, trees, people, street furniture, cars and lights to your model. It is the most important panel in Twinmotion.

• Open the Materials folder in the library and explore the different materials you can use. Open the concert folder and give building a plain concert texture by **dragging the material to the buildings**. As buildings were given a certain colour in SketchUp, this colour will now be **replaced** by concert in Twinmotion.



• Go back to materials and give streets an asphalt materials: Ground/Handmade/Asphalt.



- Give pavements Square Cobblestones again from the folder Ground/Handmade

• Give the green space a simple texture from folder: Ground/Nature. This will apply a simple 2D green texture.

• Give the water area a water texture from folder: Materials/Water. This will apply an animated realistic water texture

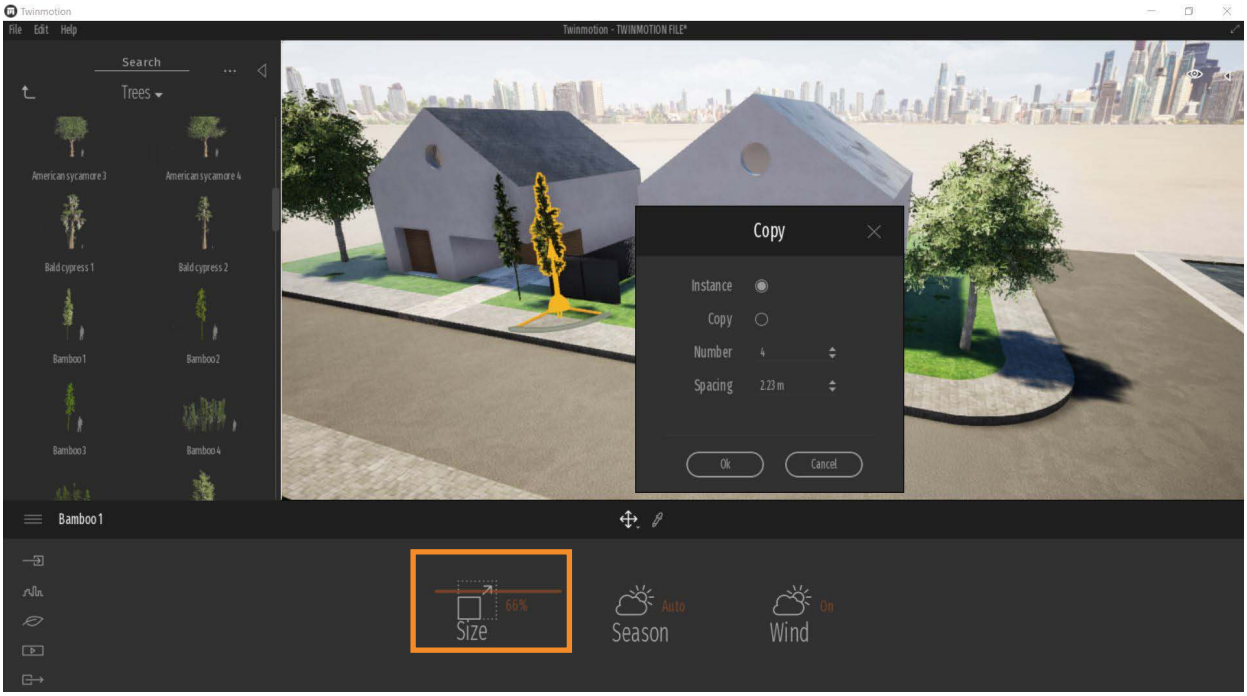
• Give the roofs a grey roof material: Materials/Roof Covering

• **Add trees** from Library/Vegetation and Landscape/Trees

• You can change the tree size by clicking on the tree and changing the size from the **Size tool** in the bottom panel (see below).

• You can also rotate it and move it from the yellow selection tool

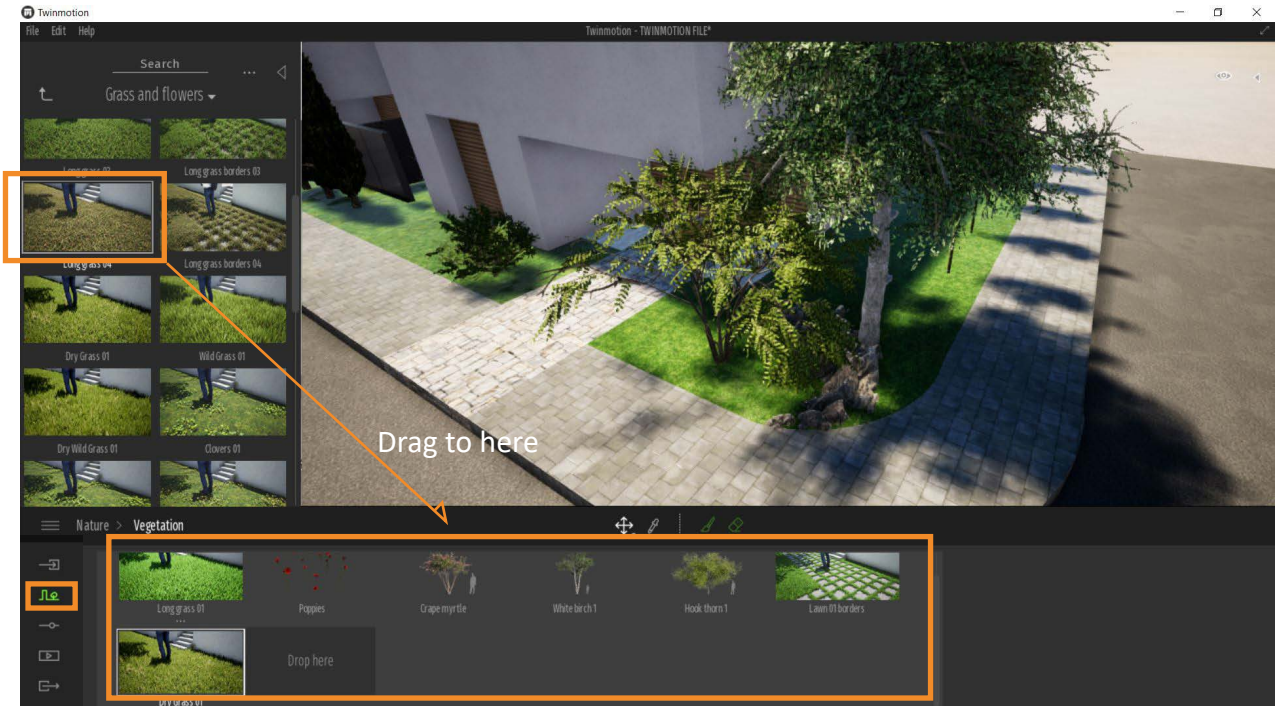
• Select a tree and **copy** it by holding Shift and dragging it. You can select the number of copies from the copy window.



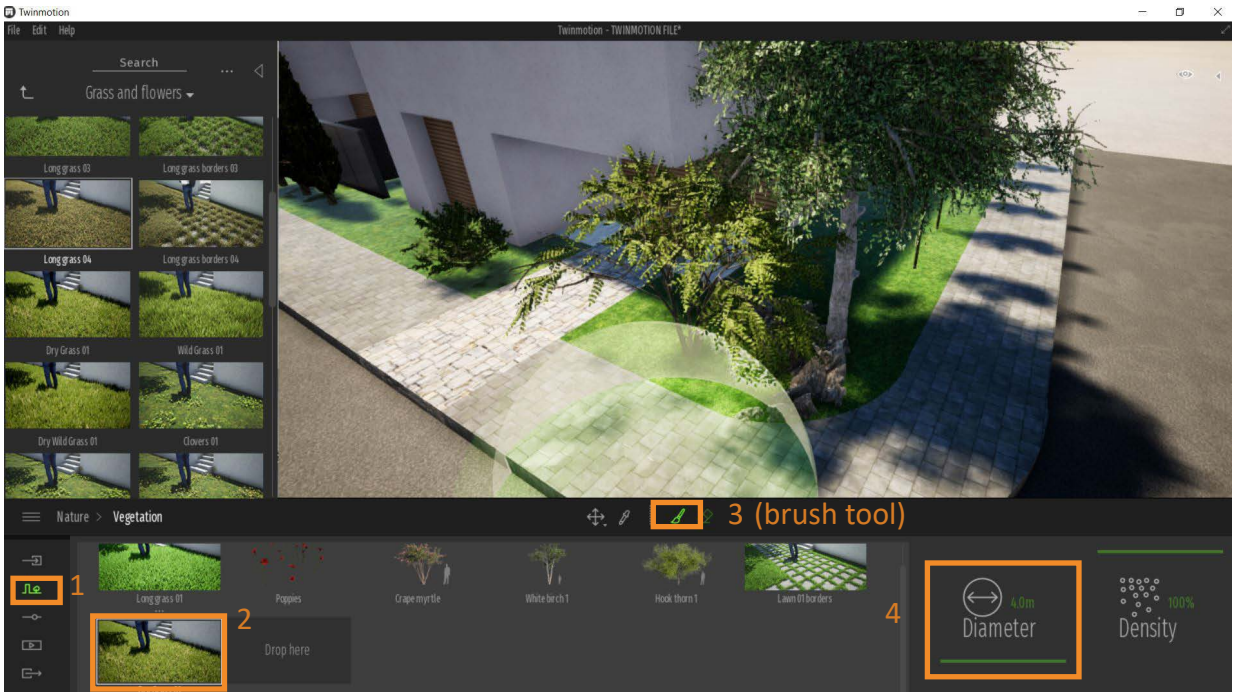
Note:

Do use different types of trees, however, consider the environmental context and select trees that look common in the area under study.

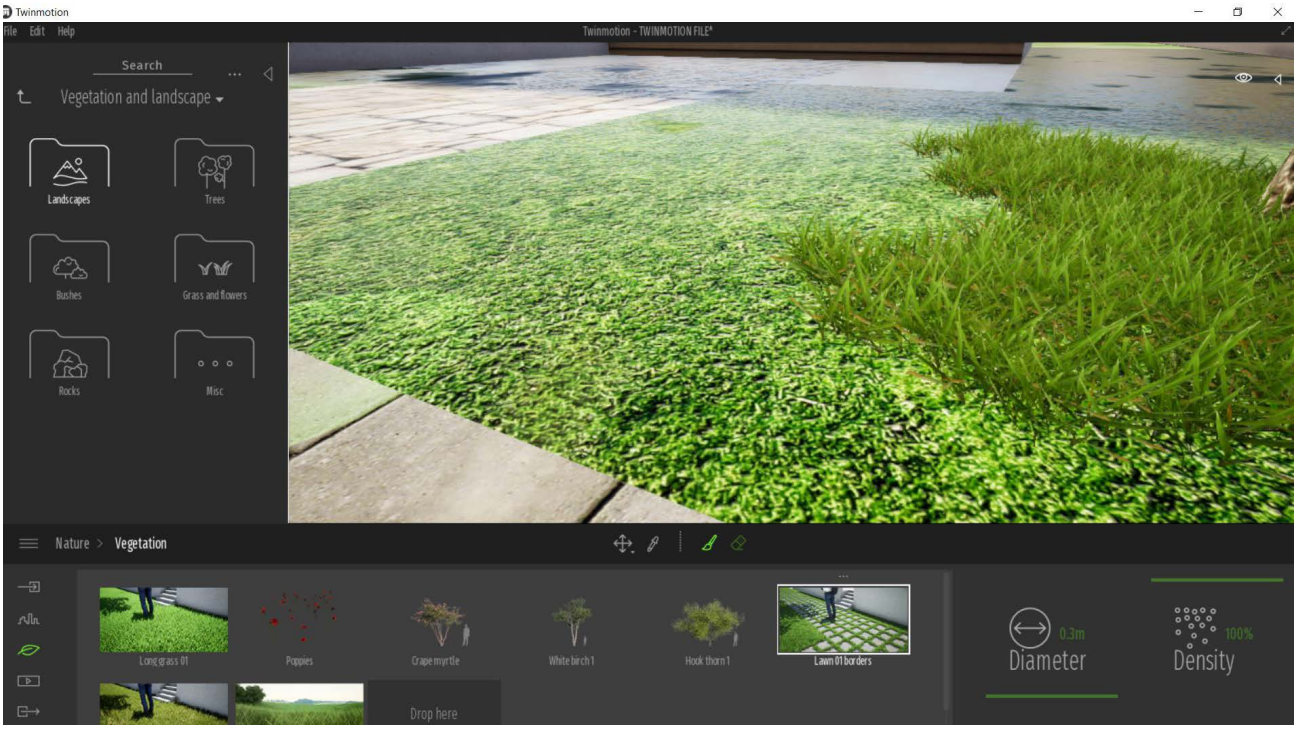
• Let us give grass a realistic 3D effect: click on the Context symbol in the bottom left panel and then click on **Vegetation**. Go back to the library /Vegetation and Landscape/ Grass and flowers. Now drag a grass material to the bottom panel.



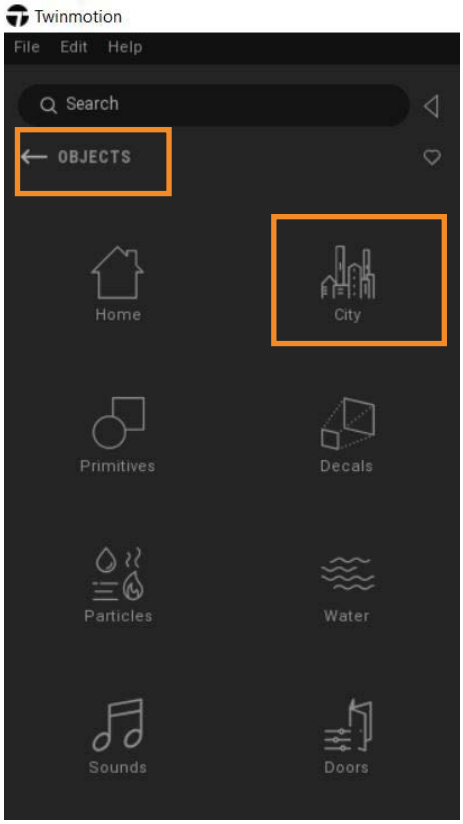
• Click on the **brush tool** to show the bubble brush and change the diameter of the brush and start brushing above the green space



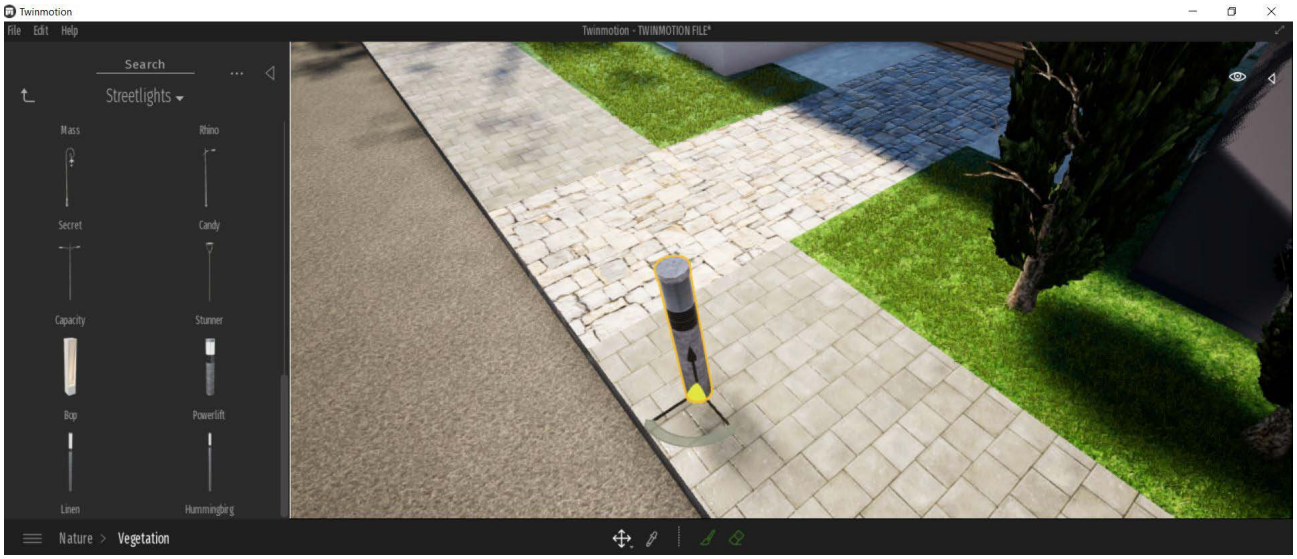
• By brushing on a surface you are actually giving that surface a realistic tall grass material. The new TM 2020 has a more refined and accurate approach than TM 2019.



• Let us start adding **street furniture**: Library/Objects/City. You can add street lights, benches, street signs and more from this folder.

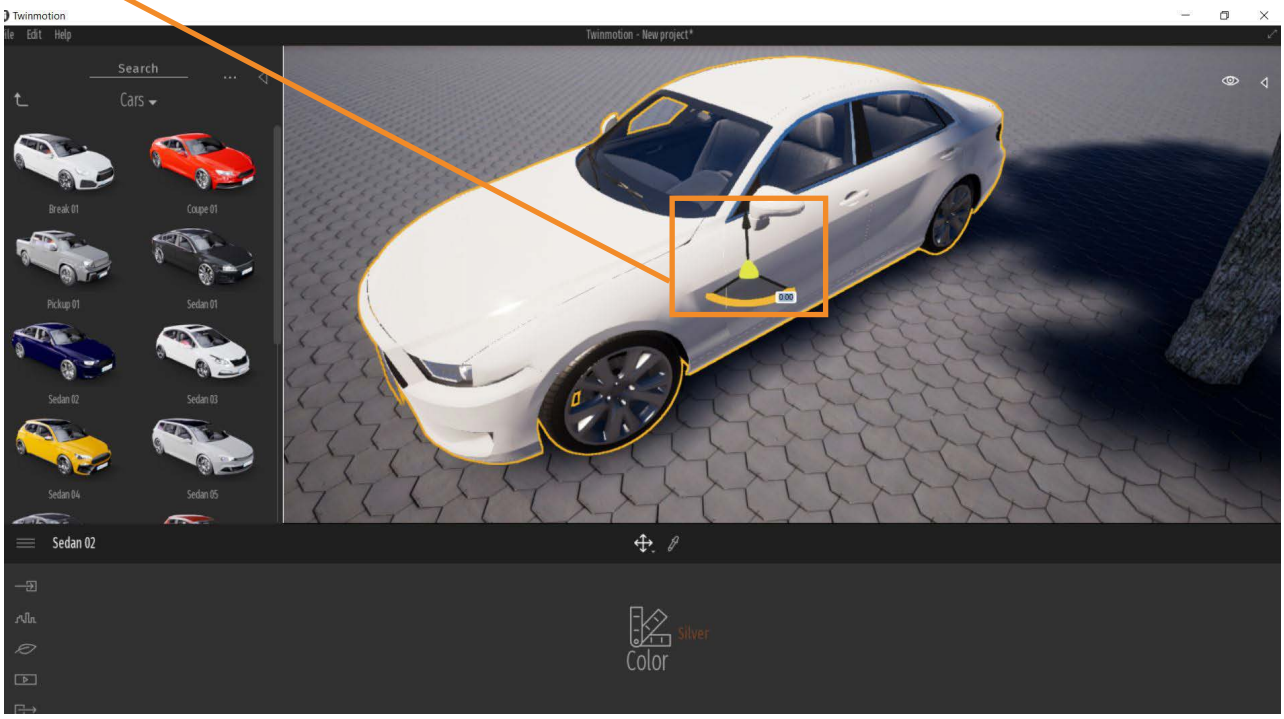


• Add street lights to main access and along streets. **These lights are functional** and their location and types are important, especially if you want to create a night scene.



• **Add cars** from Library/vehicles. Give cars a natural movement such as rotating a car on a curve… etc. as below. Give cars a natural movement such as turning on curves...etc. See how to rotate an object in the step below.

• To **rotate** a car or any objects in Twinmotion, again click on the object and then click and drag the yellow arc in the xyz axes as below

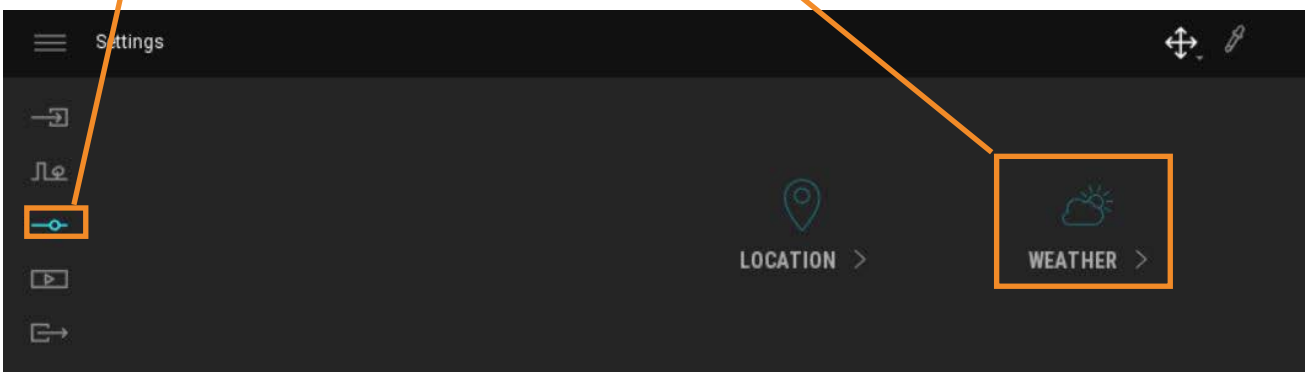


• **Add people** to the scene from Library/character/Humans. You can change people's positions (standing or sitting) by selecting the person, and select Pose from the menu at the bottom.

• Add **road markings** from: Library/Furniture/ Decals

• **Changing weather:**

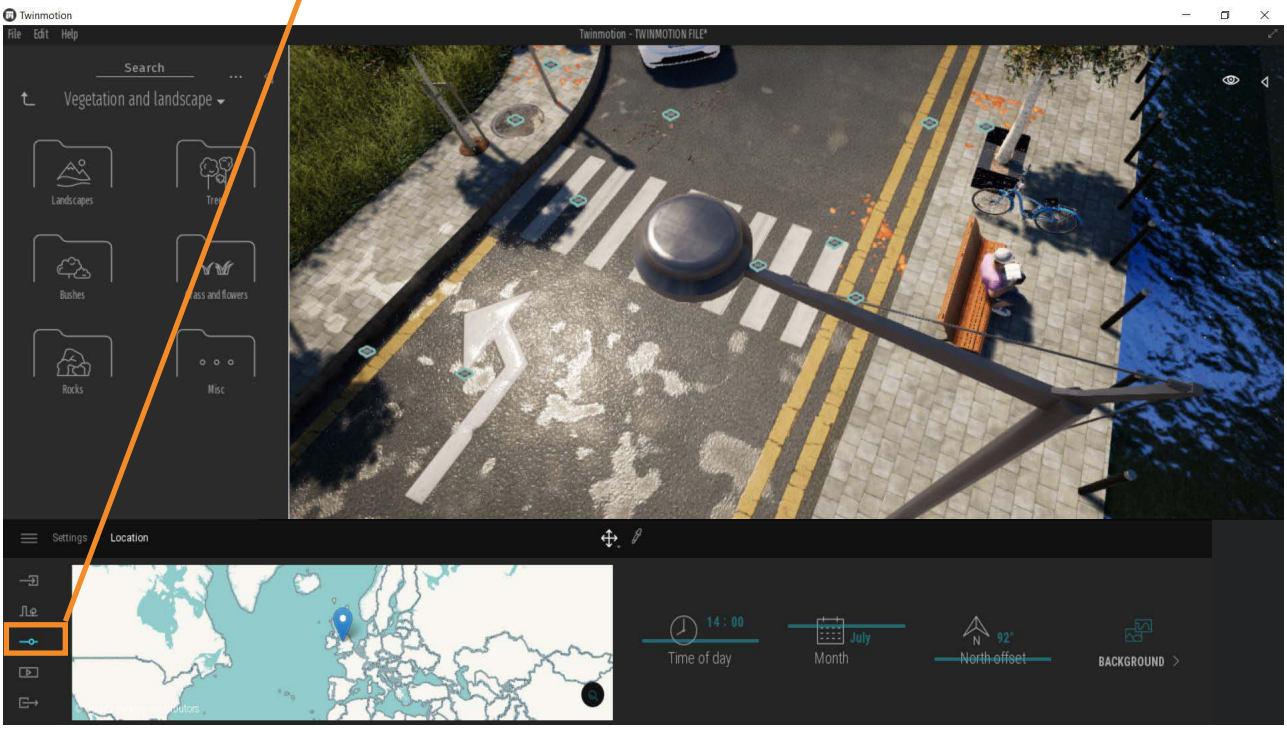
There are two ways to change weather in Twinmotion: The first is changing weather for the whole model, the second is changing weather for individual shots. To change weather for the whole model, go to the Context menu and find weather settings:



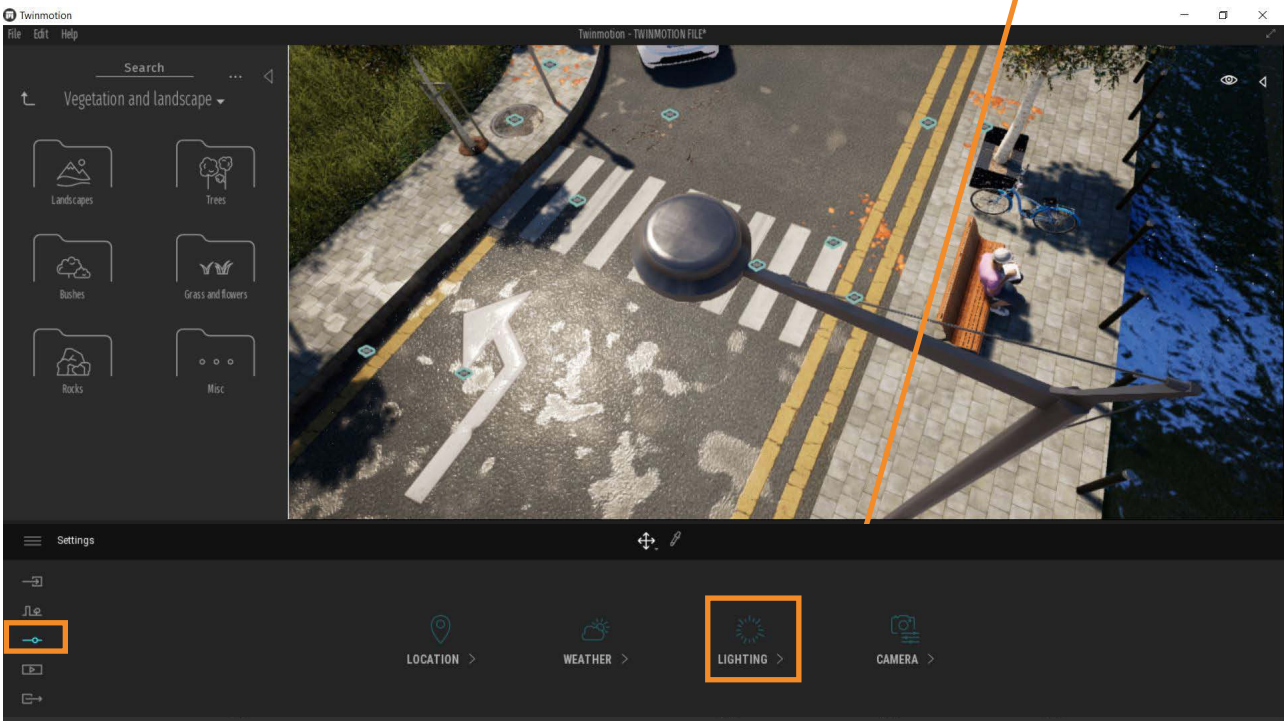
Play around with the weather settings

The settings below create wet floor which looks realistic and reflects lights well

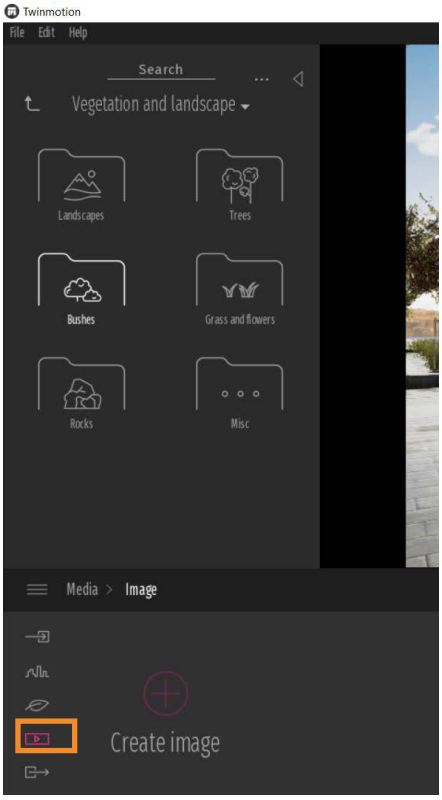
• From the same menu (context) select the location (click on Manchester on the map) to reflect accurate shadows



• You can change light settings from the lighting menu under the nature menu. Play around with these settings (shadows, sun and ambient) to create the desired feel. Change moonlight all the way up to improve night shots quality

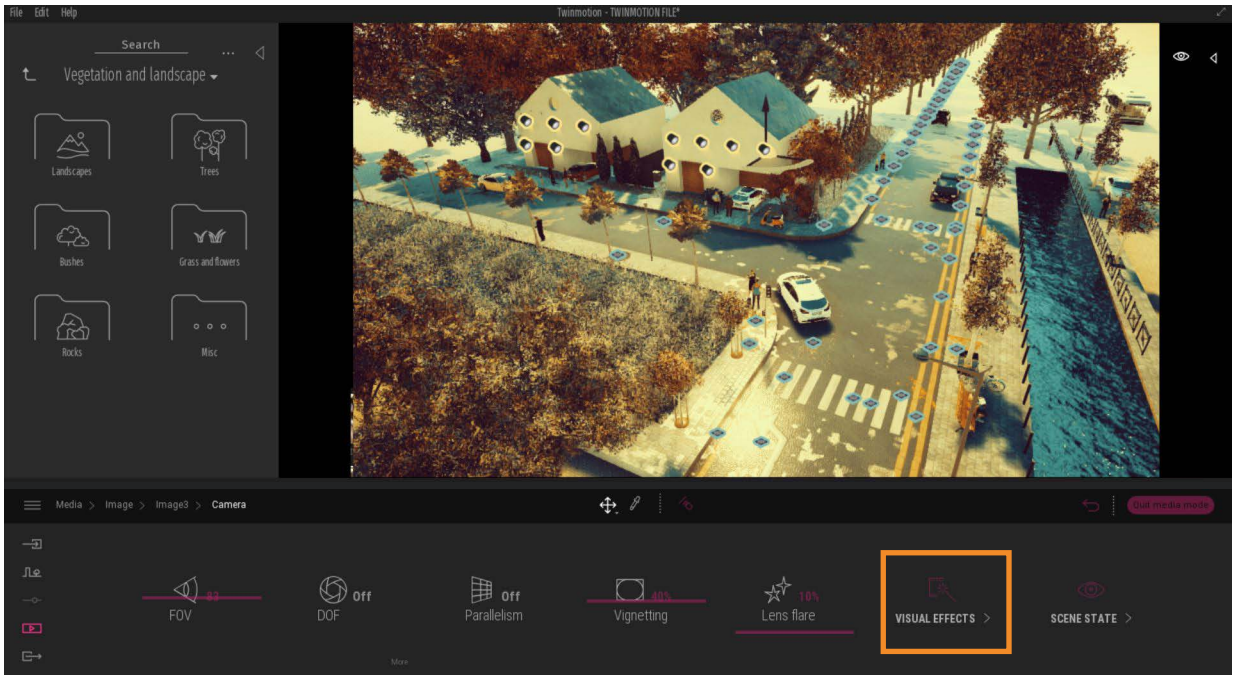


• **Media Menu:**
This is where we will select our shots and control their appearance. One of the key features of creating shots in TM is that we can give individual shots their own settings in term of day time, lighting and weather. Select the shot you want and then click on create image

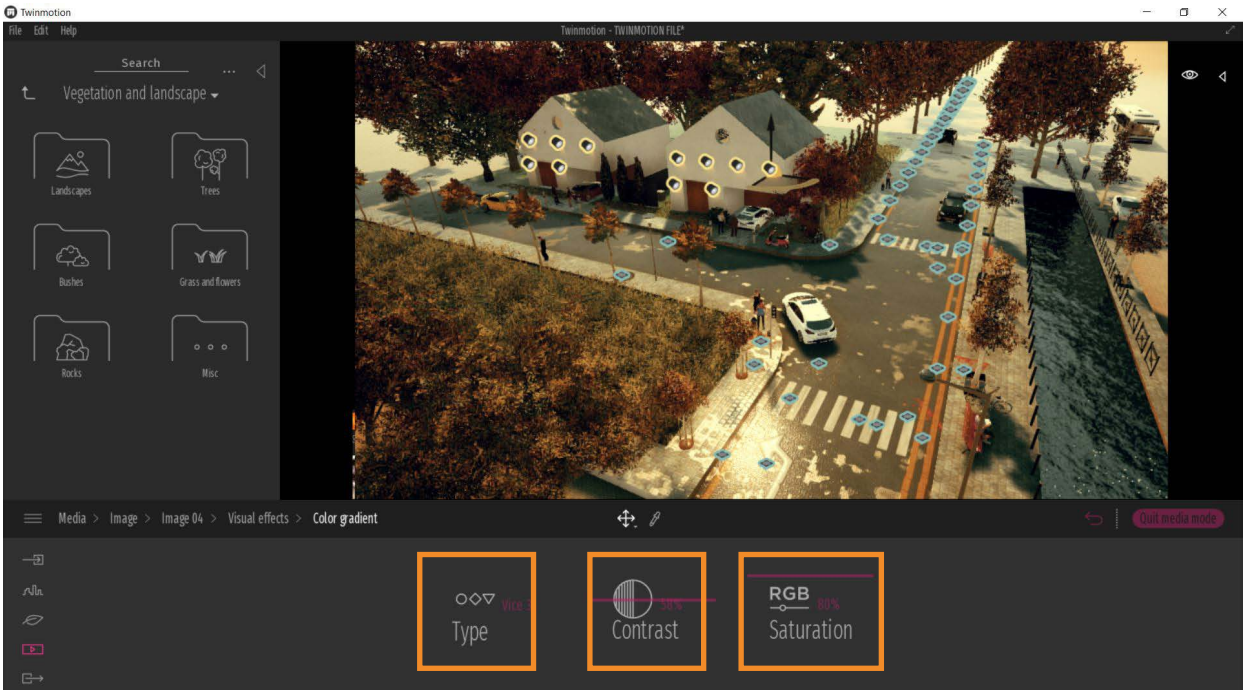


In the example below, I have 5 different shots with different settings. Click on Time to select the day time of the shot. Click on More for more options (weather…etc.)

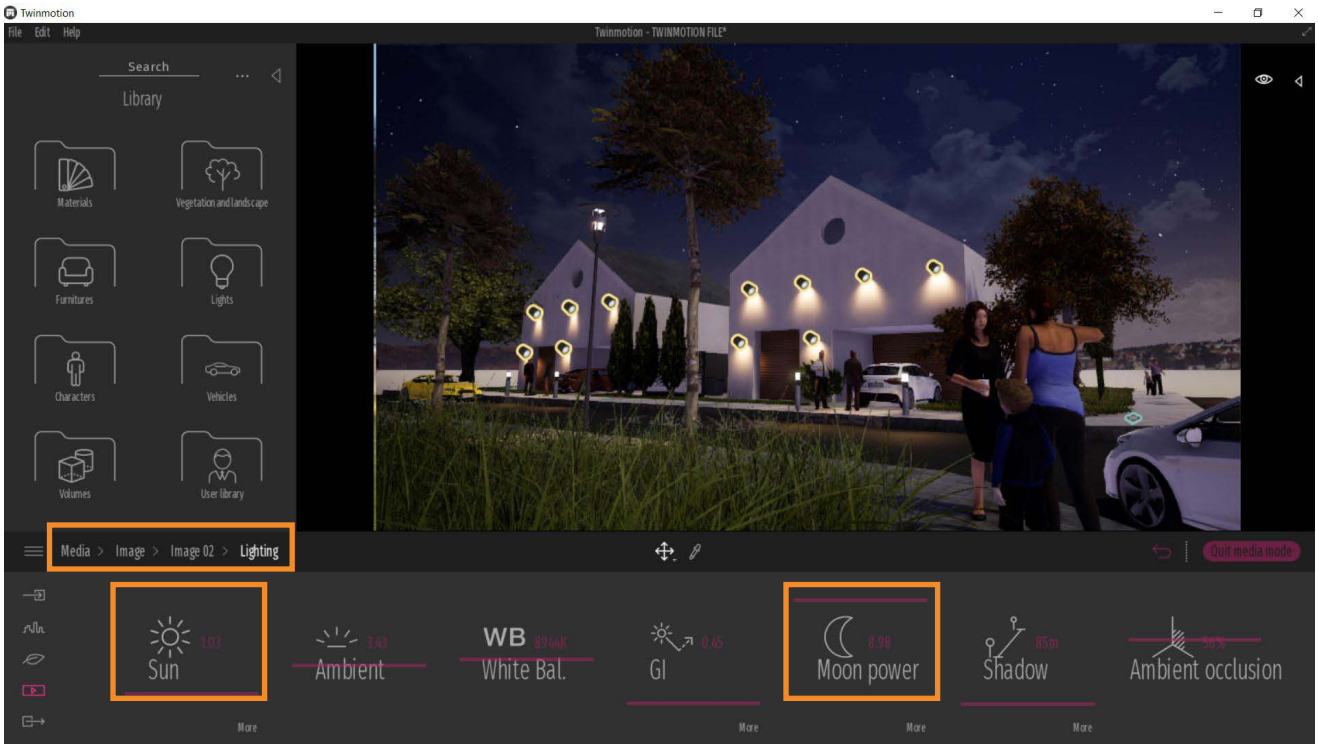
- Click on Visual Effects under the same menu (Media).



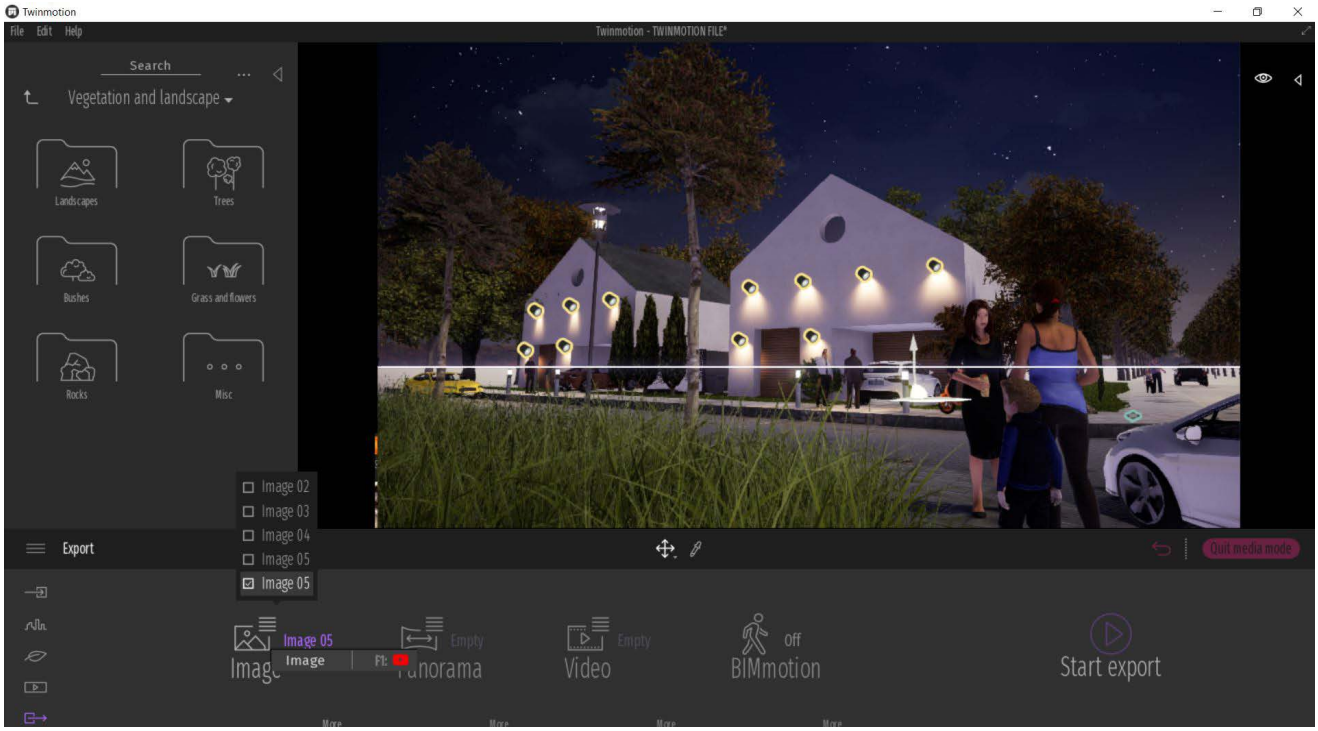
Click on colour gradient, and explore the Types window, change contrast and saturation to get the desirable effect. Be careful and try to keep your graphics natural.



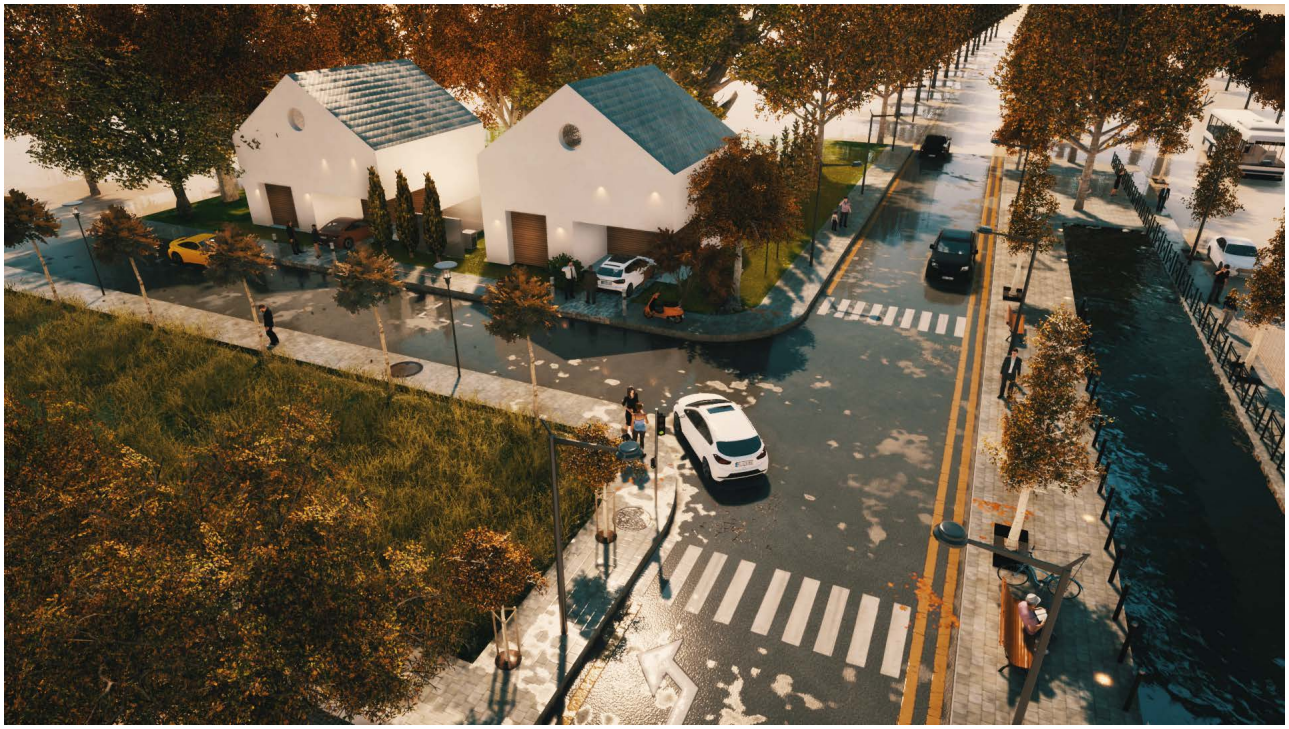
• To create a **night scene:** select the shot you want/more/ lightings/ move the sun all the way down/ move moon power all the way up. You scene is totally depending on the actual street lights and building lights you added to the model with street lights have the biggest effect. When you finish editing a shot, exist media mode.



• **Exporting your file:** To export your image: go to the export menu/image/ and check all the images you want to be exported then hit Start Export. The export is usually of higher quality than the live screen.



Exported day time shot:



Exported night time shot:

Note: TM 2020 renderings (lighting, vegetations and people's figures) are better than the 2019 version. You should be able to create more realistic graphics.

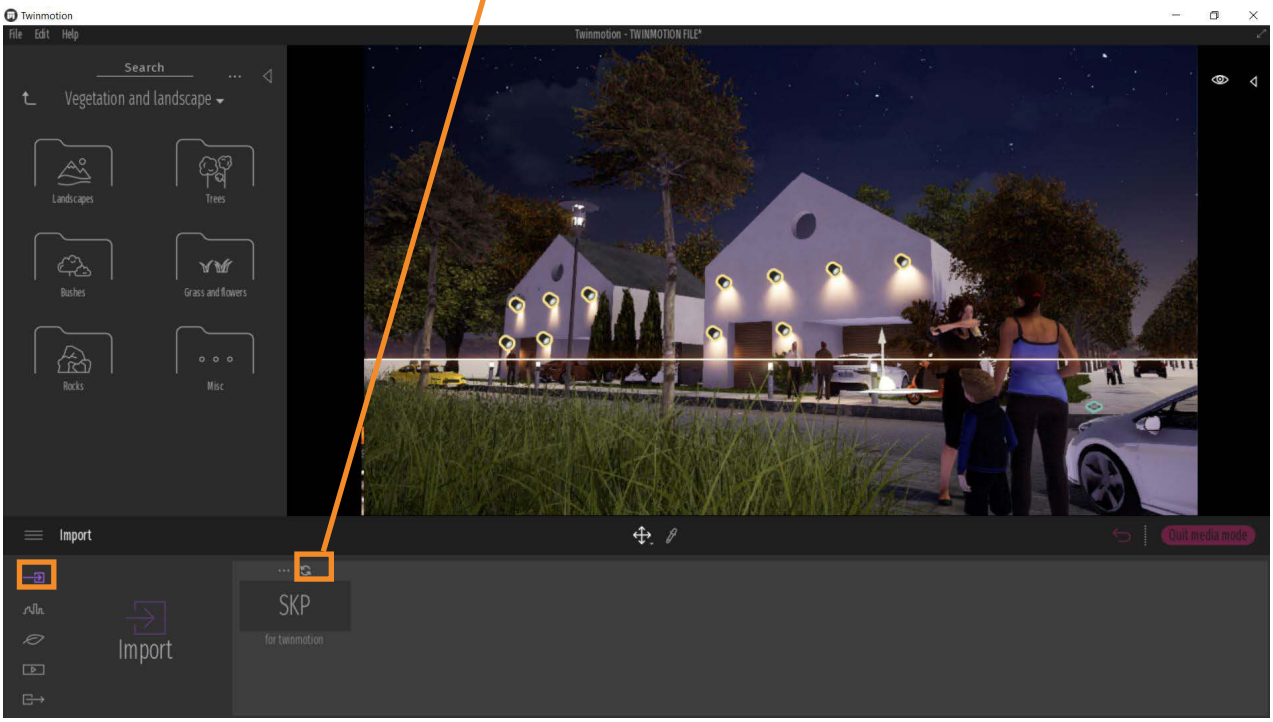
D Final Notes

- You are likely to go back and forth from SketchUp to TM while you are creating your model (to change some heights for example). This is very practical and easy in TM. You need to do the followings:

A. Make the required changes in SketchUp

B. Save the changes in SketchUp (hit Ctrl + S). If you do not save changes then they will not apply in TM.

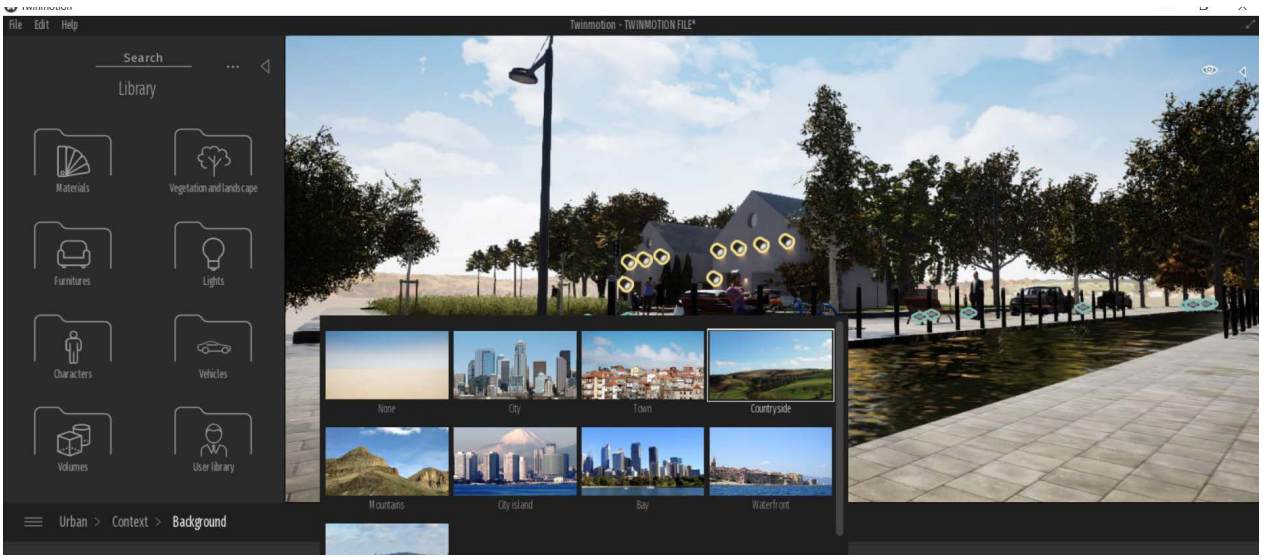
C. Go to TM import menu and refresh the model



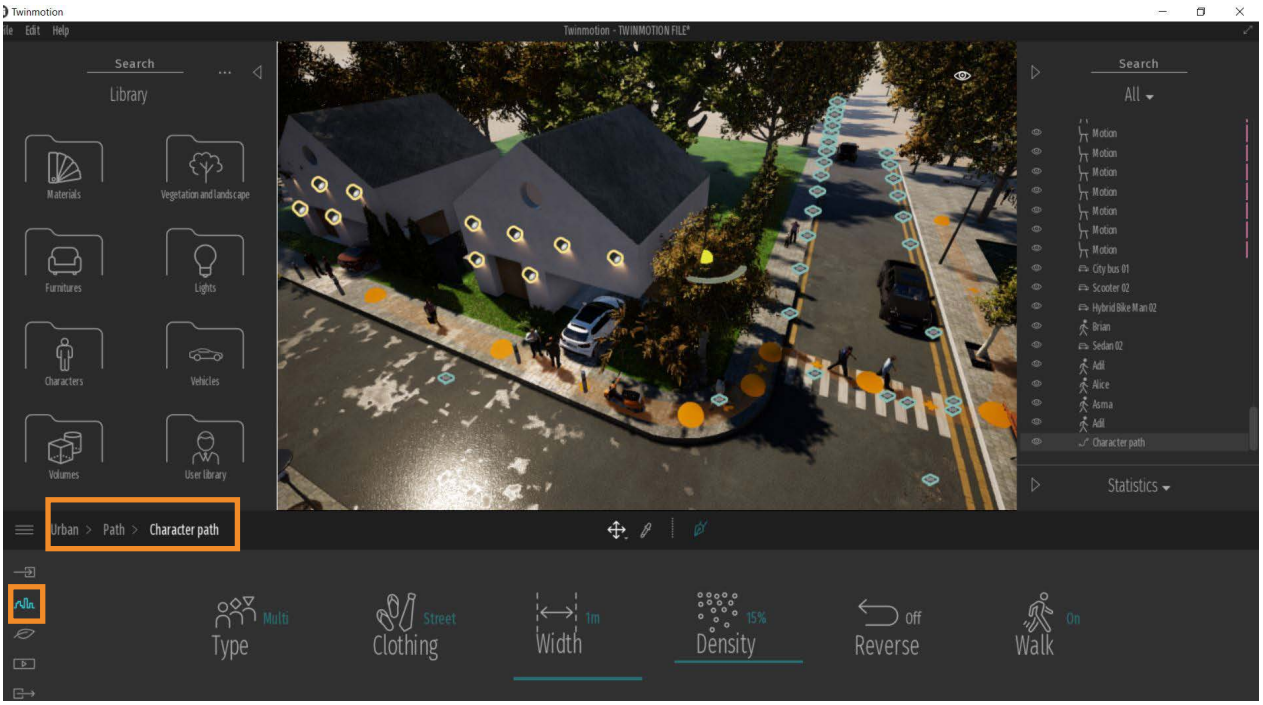
Select your shots carefully. Less is more. They should communicate your vision based on your analysis and urban design story.

- Try to be consistent, you do not have to change weather settings for every single shot!

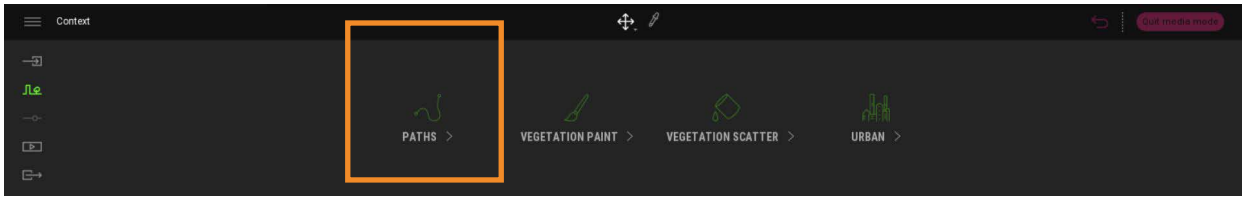
- The **Urban** menu (see below) allows you to change the background of the 3d model. These backgrounds are of generic characters of urban/rural/…etc. If the background is faraway then this should be adequate. Select the background that is closet to your context.



- You can find and manage (hide, search and change layer hierarchy) all the elements you used in your model in the Search menu. Lick on the small arrow to the top right to reveal it.



- You can create and export animated videos in TM. From Urban menu you can add Paths of people and cars.



- Click on the pen tool to create the path. Left mouse clicks on the model ground will create your path. This can be given to people and cars.