

Creating Site Plans (Part III)

Visualization Insider

Creating 3D Site Plans – Part III

Prerequisites – a foundation level understanding of 3ds Max and an intermediate level understanding of AutoCAD.

In this final part of the tutorial, we will apply a few **Standard** materials from a material library, simulate global illumination with a few **Standard** lights, and merge the camera paths used in the final animation of this project. After doing so, I will explain how to quickly apply the V-Ray render engine to this scene to generate true global illumination and some procedures for creating 3D terrain. Finally, I will provide a list of additional considerations to make when building site plans, all of which are aimed at improving speed, efficiency, and accuracy.

Before we start, I want to mention that I have chosen to leave out the objects mentioned at the end of Part II, so that the renderings can be completed much faster. I have not yet included the building, lamp posts, cars, or people into this scene because doing so will only increase render times and clutter the scene with objects that are not yet needed. I recommend adding these elements only once the lighting is finished and the animation process is ready to begin.

Applying Materials

Before we start applying materials in this scene, I want to discuss a few important considerations about the subject. Although every project is different and every client has different needs, I have found more success in giving the client a visualization that concentrates on looking good first rather than on a visualization that shows exactly how the finished project will look. At the time a visualization is needed, the client will often not even know what the final materials are going to be, so I consider it far more important to provide the client with good artistic interpretation rather than trying to guess what the final material appearance will look like.

With this thought in mind, it's important to remember to use procedures that streamline workflow and maximize efficiency, and one of the things that can aid in this way is the use of material libraries. Unless there is a need for very unique materials that you don't already have created, it only makes sense to use material libraries. Additionally, I find myself using a small set of favorite materials over and over again, which streamlines my workflow even further. Such was the case in this project, and so we will use the same materials that were originally used here.

Before continuing, I think it's worth mentioning a few more things about material libraries, so the following is an excerpt from my book, [Foundation 3ds Max 8 Architectural Visualizations](#), discussing the subject a little further.

Excerpt

The importance of a good model and material library cannot be overstated. Like so many other components of a 3D scene, good models and materials are critical to the final product. The quality of your libraries is not only dependent on the quality of the individual models or materials, but also the quantity of each. If you have a very small number of either, you might be able to produce exterior renderings without much difficulty; however, you will almost certainly find it impossible to produce interior renderings without giving your clients the ability to choose exactly the type of furniture or appliances they want along with the exact type of look they want for their floors, walls, furniture, etc. Exterior scenes usually allow only a small portion of the objects to be stock models from your library. With the exception of objects such as street lamps, most of the objects in an exterior scene are specifically called for in the architectural drawings. Interior scenes, on the other hand, require far more use of library models and materials. Most clients are not willing to pay for custom furniture or appliances and the only alternative is to use stock content from your library. Without an extensive selection to provide your client, you will almost never be able to provide the exact look your client desires.

It is not enough to have good materials and models. You must have an easy and efficient way for you or your clients to find what's needed. If you spend an extensive amount of time looking for a specific piece of content, then you are usually wasting time. Adding content to any scene can be a simple thing if your libraries are arranged and labeled in a logical and easy to understand manner. On the other hand, if your content is not categorized logically and labeled correctly, you can easily spend days adding models and materials to your scenes.

I have found that the best way to select content for any scene is to maintain an up to date digital and printed catalog of all models and materials, categorized by specific content type. This is even more important when my clients need to select the content for themselves. Clients can be quickly overwhelmed when making furniture or material selections and it is critical that you provide them the means to make their selections with minimal difficulty. Nothing makes working on interior projects with a client easier than handing them a nice catalog (digital or printed) and telling them to get back with you when they've made their selection. If they are making furniture selections, I recommend giving them a floor plan, having them draw simple shapes to represent each piece of furniture they've selected, and then labeling those selections with the furniture names provided in the catalog. For material selections, I recommend giving the client elevations and having them label each area of the elevation with the materials they've selected, again, using the names in the catalog. This process streamlines what could otherwise be an ordeal for any visualization artist.

To develop great model and material libraries, you will probably have to make a sizeable investment in the purchase of each. Before deciding to do so, I struggled for a long time with free content I downloaded from numerous websites. I found such a method to be a waste of time because the quality and quantity available was usually not sufficient. For some of the best content available, I recommend two companies I have purchased from that together comprise nearly all of my model and material content. They are:

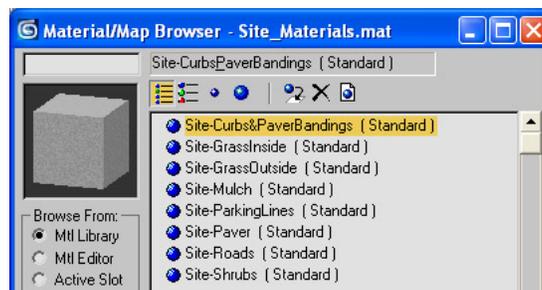
Materials – Marlin Studios (www.marlinstudios.com)

Models – Evermotion (www.evermotion.org)

End of Excerpt

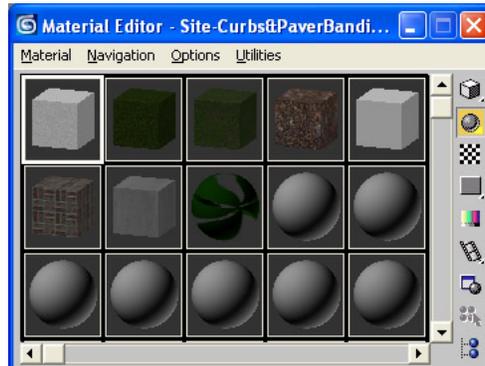
Finally, many 3ds Max users apply lighting to their scenes before applying materials; however, I do not recommend this for two important reasons. First, lighting can drastically change the appearance of materials and make it extremely difficult to determine the true look of a material free from the affects of the light and shadows. Secondly, just like lighting, applying materials takes some degree of experimentation and creating test renders becomes much more time consuming with good lighting and shadows. On the other hand, it is sometimes a good idea to apply lighting without the added distraction or influence of materials, and in these cases I will sometimes temporarily override the materials in my scene with one material type, usually light gray. Once the lighting is in place, I then return my materials to their normal configuration (which usually means merging a copy of the original objects back into the scene).

For now, we will leave lights out of the equation and concentrate on applying some believable materials. For the purposes of this tutorial, I have created a material library named **Site_Materials**, shown below, which contains only the materials needed for the objects in this project.



1. Continue from the previous exercise or open the file **My_Uno_13.max**.

2. Open the **Material Editor**.
3. Press the keyboard shortcut **O** to open the **Material Editor Options** dialog box.
4. Change your sample slot configuration to a **5x3** layout, as shown below.
5. Open the **Material/Map Browser**.
6. Select the **Mtl Library** option.
7. Click the **Open** button, and open the **Site_Materials** library.
8. Drag each material saved in the library to an empty sample slot in the Material Editor, as shown in the image below.



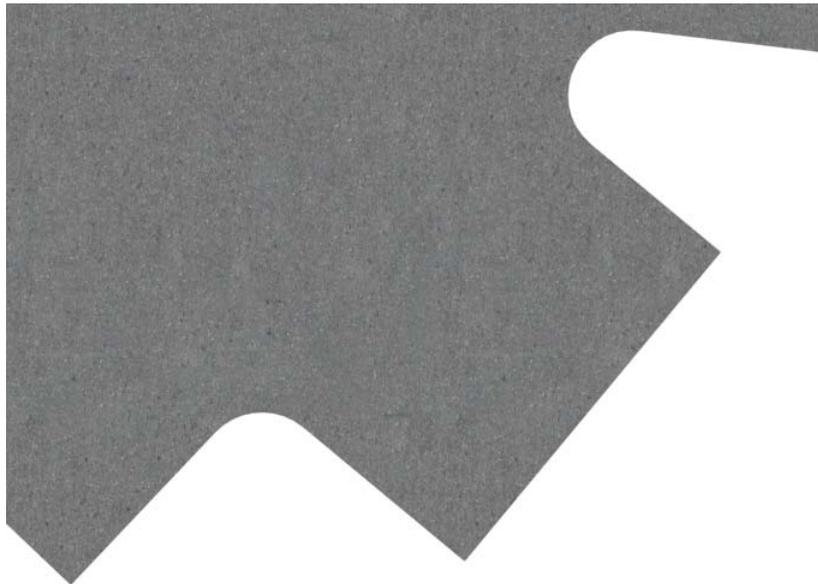
This scene contains two terrain objects; **Site-Terrain1** and **Site-Terrain2**. The reason these two objects weren't attached after their creation is because I wanted to have two slightly different appearances to the two types of terrain objects. As is often the case with sites like this one, there is well-maintained grass close to the building and lesser maintained grass around the perimeter of the property. Typically, grass is not well maintained in areas where so many trees are so tightly positioned, such as the area around the property of this project. Therefore, I chose to use a well-maintained looking grass material for the terrain immediately around the building and a lesser maintained grass material around the perimeter. In actuality, it would have probably been more realistic to use a very 'shabby' looking material around the perimeter of the parking lot, however, going back to what I said initially about materials, it's usually far better to give your client a nice interpretation rather than a not so appealing reality.

Now that we know that we are going to apply two different grass materials to the two different terrain objects, let's rename those two objects. I always maintain a strict naming system and it's worth the few extra seconds.

9. Select and isolate the objects, **Site-Terrain** and **Site-Terrain2**.
10. Rename the object **Site-Terrain** to **Site-GrassOutside**.
11. Rename the object **Site-Terrain2** to **Site-GrassInside**.
12. Add the material named **Site-GrassOutside** and **Site-GrassInside** to their respective objects.
13. Add a **UVW Map** modifier to **both objects** and apply the default **Planar** mapping with a **Length** and **Width** value of **20'0"**.
14. Render the two objects. The rendering should look like the image below. Notice that the grass on the outside of the parking area looks more weathered and less maintained than the grass on the inside. By analyzing the material, you would see that this is the result of a simple **Mix** map of two different images, with a **Noise** map to apply the mix.



15. Exit isolation mode.
16. Select and isolate the **Site-Roads** objects.
17. Apply the **Site-Roads** material to the **Site-Roads** object.
18. Add a **UVW Map** modifier and apply the default **Planar** mapping with a **Length** and **Width** value of **30'0"**.
19. Render the object. A close-up view should look like the image below.

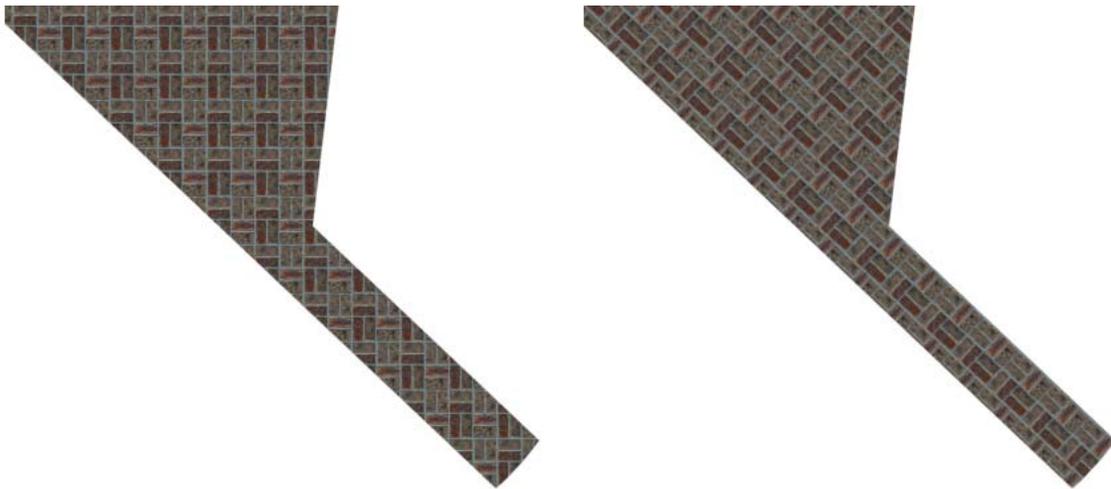


20. Exit isolation mode.
21. Select and isolate the **Site-Mulch** object.
22. Apply the **Site-Mulch** material to the **Site-Mulch** object.
23. Add a **UVW Map** modifier and apply the default **Planar** mapping with a **Length** and **Width** value of **6'0"**.
24. Render the object. A close-up view of one of the mulch beds should look like the image below.

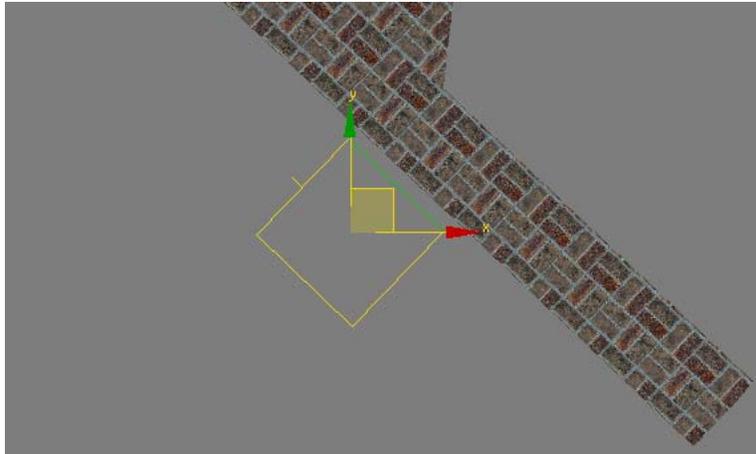


25. Exit isolation mode.
26. Select and isolate the **Site-Pavers** object.
27. Apply the **Site-Pavers** material to the **Site-Pavers** object.
28. Add a **UVW Map** modifier and apply the default **Planar** mapping with a **Length** and **Width** value of **6'0"**.
29. Render the object.

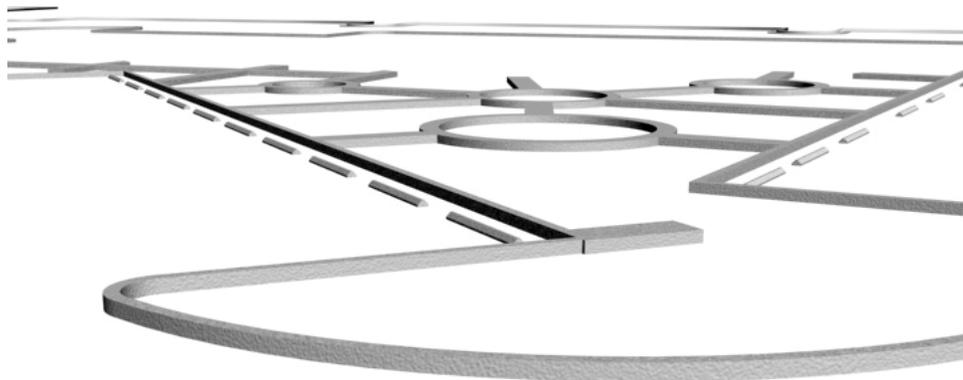
Notice that, by default, the pavers are aligned straight up and down, as shown in the left image below. This is usually not acceptable. In this scene, there are a few different sides we can choose to align the pavers to, but one side stands out. Since there is a long and skinny section that juts out into the parking area, this area would benefit most from aligned pavers. Let's align the pavers to this section so that the result looks like the right image below. To do so, we will have to change the orientation of the UVW Map gizmo.



30. Open the **UVW Map** modifier (click the plus sign symbol).
31. Click on the name **Gizmo** within the modifier. The gizmo turns yellow in the modifier stack and in the viewports.
32. Rotate the gizmo **46.5** degrees along the **Z axis**. The gizmo should be aligned to one side of the paver object, as shown below.



33. Exit isolation mode.
34. Select and isolate the objects **Site-Pavers_Banding1**, **Site-Pavers_Banding2**, **Site-Curb1**, **Site-Curb2**, and **Site-Parking Stops**. These five objects can receive the same material; one that simulates the look of concrete. Although we modeled the two banding objects separately and they now have the same material, we will leave them as separate objects. This is because we might want to apply different materials to them later on and keeping one additional object is negligible in terms of rendering time and scene management. We are not going to apply different materials later on, but the concept of keeping these objects separated applies. We could actually attach all of these objects together but it's simply not necessary and might cause additional work later on.
35. Apply the **Site-Curbs/Bandings/Stops** material to these objects.
36. Render the objects. A close-up view of one area should look like the image below. Notice that we didn't need to apply a UVW Map modifier to these objects because there is no bitmap image used in the material. It is a procedural **Noise** map applied to the **Bump** map channel.



37. Exit isolation mode.
38. Select and isolate the **Site-RoadLines** object.
39. Apply the **Site-RoadLines** material to this object. No UVW Map modifier is necessary for this material as well.

And the final material we will apply is for the shrubs and underbrush.

40. Exit isolation mode.
41. Select and isolate the objects **Site-Underbrush-Green** and **Site-Shrubs-Green**.
42. Apply the **Site-Shrubs** material to these objects.
43. Render the scene. It should look like the image below.
44. Save your file as, **My_Uno_14.max**.



We did not apply a material to the **Site-Retention** object because this object is not going to be in view during the final animation sequences. This object was created as part of this tutorial for demonstration purposes only. Feel free to experiment with materials for this object.

As mentioned at the beginning of this tutorial, I have not yet included the building, lamp posts, cars, or people into this scene because doing so will only increase render times and clutter the scene with objects that are not yet needed. We will finish the lighting of this scene before adding these elements.

Applying the Lighting

If you ask any veteran 3ds Max user what the most important element of a good 3D scene is, you'll always get the same answer—lighting. Good lighting can make a scene with bad modeling or materials look good. Likewise, poor lighting can make a scene with good modeling and materials look bad. Lighting can have a dramatic effect on the composition of your scene. It can convey a specific mood or inspire the viewer to feel a particular way. In fact, most competitions in the 3D world are won or lost by the application of lighting.

In this tutorial, we will examine the application of standard and V-Ray lights with both the scanline and V-Ray render engines.

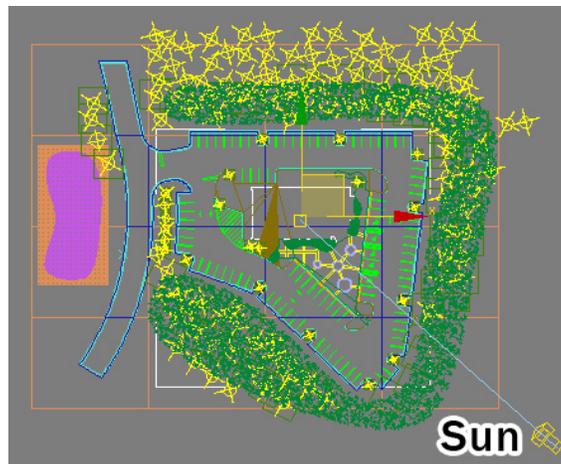
Scanline

Let's start by creating some standard lights to simulate the sun and global illumination.

1. Continue from the previous exercise or open the file **My_Uno_14.max**.

First, let's create the Sun.

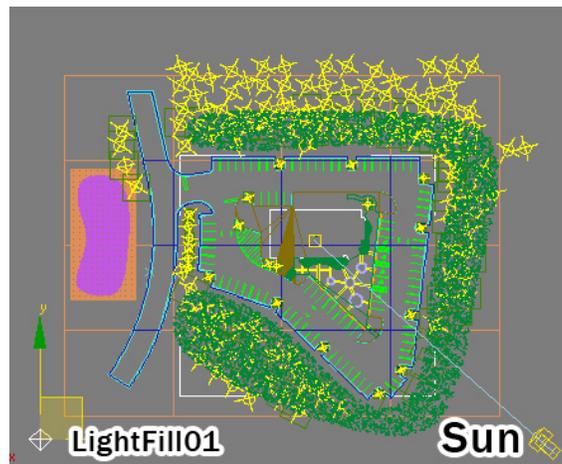
2. In the **Top** view, create a standard **Target Direct** light and place it in the bottom-right corner of the property, just outside the limits of the **Site-GrassOutside** object, as shown in the image below.
3. Place the target in the center of the property.
4. Move the sun to an elevation of **250'**. From the vantage point of the center of the project, this will place it approximately 45 degrees above the horizon and will provide nice shadow lengths.
5. Rename this light, **Sun**.



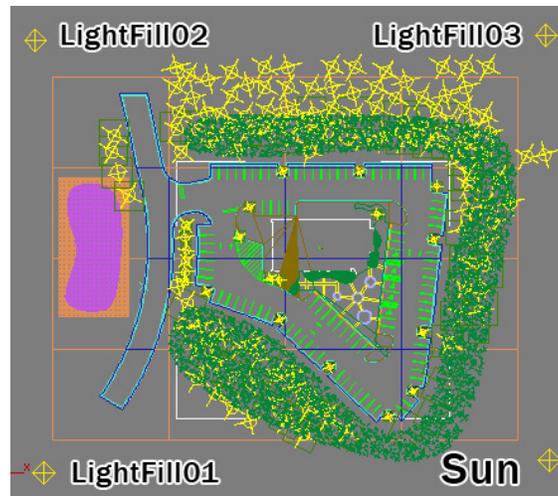
6. In the **Directional Parameters** rollout of the **Modify** panel, change **Hotspot** value to **1000'**. This will ensure that the sun casts light on the entire project, rather than just a small area, as it wants to by default.
7. Render a perspective view of the scene. It should look like the image below. Notice how dark the scene is and how poor the shadows are. First we'll fix the shadows.



8. Change the shadow type to **Adv. Ray Traced**.
9. Render the scene again. The shadows should appear much sharper and more accurate. Advanced ray traced shadows are a good option when using the scanline renderer. If you choose to use the V-Ray render engine, you should try to use V-Ray shadows because they will provide the best mixture of quality and speed.
10. Create a standard **Omni** light and place it in the bottom left-hand corner of the property, just outside the limits of the **Site-GrassOutside** object, as shown in the image below.
11. Rename the light, **LightFill01**. This light, along with 2 others will add greater illumination to the scene from multiple source locations. Doing so helps simulate global illumination. Some people choose to use dozens of extra fill lights, with less illumination per light, to accomplish the same thing. More lights means longer rendering times and I personally don't find significant improvement in using so many lights.



12. Move the light to an elevation of **250'**.
13. Change the intensity **Multiplier** value to **0.33**. As a rule, I prefer to have all fill lights create as much illumination combined as the sun in my scene. There will be two more fill lights, which when combined with the first will produce the equivalent illumination of the sun. When using V-Ray or any form of global illumination, this does not necessarily apply since you get the added light bouncing from surface to surface.
14. **Turn off** shadows for the fill light. The sun will be the only shadow casting light source in the scene.
15. Create **two** instances of this fill light and place one in each of the top corners of the property, as shown in the image below.
16. Move these two new lights to an elevation of **80'**. Placing them at a lower elevation will help produce greater illumination along the vertical faces in the scene and better simulate global illumination.



17. Render the scene again. It should look like the image below. There is a much greater amount of illumination in the scene and it will suffice to simulate global illumination.



18. Save your file as, **My_Uno_15.max**.

V-Ray

Now, let's try improving the lighting by using V-Ray. The intent of this section is not to teach you the ins and outs of V-Ray or how to get the most out of it, but rather how easy it is to apply some simple global illumination with it and achieve some decent results.

First, we will turn off the fill lights and decide later if we want to use them with the single light representing the sun. If you do not have V-Ray, simply skip this section.

1. Continue from the previous exercise or open the file **My_Uno_15.max**.
2. Change the render engine to **V-Ray**.
3. In the **Image sampler** rollout, change the **Antialiasing** filter to **Catmull-Rom**. This will provide a sharper rendering than the default Area filter. However, for animations, this filter will cause flickering and will need to be changed back to **Area** or **Video**.
4. In the **Indirect illumination** rollout, enable global illumination.

5. In the **Irradiance map** rollout, change the **Current preset** to **Very low**. This setting will suffice for test renders where experimentation is made with lighting.
6. In the same rollout, change the **Mode** from **Single Frame** to **Bucket** mode. This will allow you to see portions of the final rendering completed before an irradiance map is calculated for the entire rendering. This way you don't have to wait so long to see the first buckets completed.
7. Also in the **Irradiance map**, enable the **Show calc. phase** option. This will allow you to see the irradiance map being calculated rather than seeing just black until the first bucket is rendered.
8. Change the **HSph. Subdivs** value from **50** to **20**. This is a quality setting which doesn't need to be set so high for the purpose of test rendering. Reducing it saves a lot of time.
9. Render the scene. It should look like the image below. Notice how overly bright the scene is. This is due to the white color swatch in the Environment and Effects dialog box.



10. Press the keyboard shortcut **8** to open the **Environment and Effects** dialog box. Change the **Background color** to pure black. Any color other than pure black creates illumination in the form of skylight, and with a color of pure white, far too much illumination is created. An additional consequence with the greater illumination is increased render times because it takes longer for the light's energy to be dissipated.
11. Render the scene again. It should look like the image below. Now the scene is too dark. Let's put skylight back into the scene but this time a more appropriate form and this time through V-Ray.



12. In the **Environment** rollout, enable skylight using the default light blue color.
13. Render the scene again. It should look like the image below. Now the scene is bright enough but it's too washed out in some areas. Let's add a type of exposure control.



14. In the **Color mapping** rollout, change the **Type** from **Linear** to **Exponential**. This will reduce the extreme variations in illumination.
15. Render the scene again. It should look like the image below. The lighting is close to being sufficient, but now we'll make one final change. Let's slightly brighten some areas and darken others.



16. In the **Color mapping** rollout, decrease the **Dark multiplier** value to **0.6** and increase the **Bright multiplier** value to **1.4**.
17. Render the scene again. It should look like the image below. This lighting will suffice. There are countless other features that can be used and experimented with, such as HDR lighting, the V-Ray Sunlight feature, V-Ray lights, etc, however, this is a tutorial on site creation and this section simply demonstrated how to apply some basic global illumination.



19. Save your file as, **My_Uno_15vray.max**.

Creating an Animation

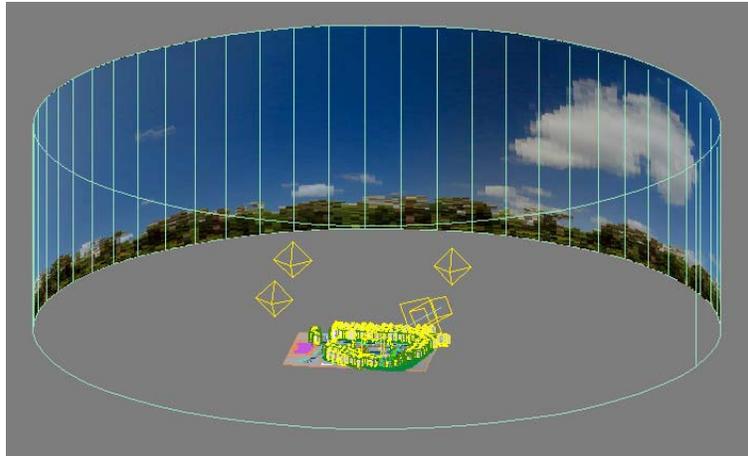
The final product for this project was a short animation. In this section, you can merge the final animation paths, see how the animations were created, and experiment with animation paths of your own.

1. Continue from one of the previous exercises, **Scanline** or **V-Ray**, or open the file **My_Uno_15.max** or **My_Uno_15vray**, depending on which render engine you want to use.
2. Merge the two cameras and camera paths from the file **Camera_paths.max**.

Creating a Background

One thing that has not yet been addressed is the background to the animations. In the overhead view, a background is not needed because it won't be visible from that particular perspective; however, it is a crucial part of the eye-level animation. Good backgrounds are very simple to create when done properly. Some users rely on using an environment map in the Environment and Effects dialog box, however, this is not even an option in an animation and not even a good option in a scene where renderings from multiple vantage points are needed.

My preferable way to create backgrounds is to use a cylindrical environment object that encompasses the entire project, as shown below. To do so, make a cylinder to the appropriate size, delete the top and bottom faces, flip the normals on all remaining vertical faces, and apply a material using Cylindrical mapping. By using this method, you can ensure that there is a background everywhere along the horizon, regardless of which direction the camera is looking.



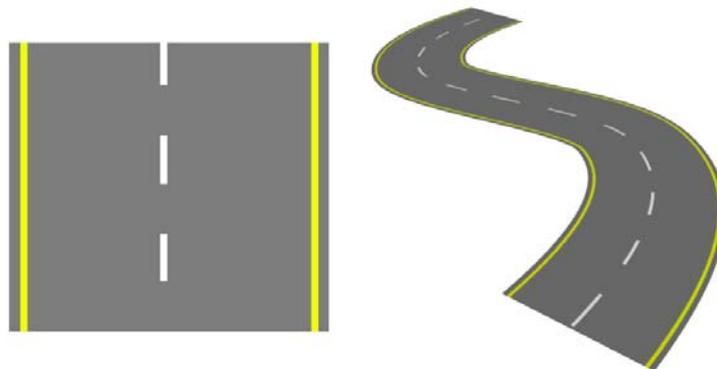
To use the background that I created for this project, merge the background object from the file **Background.max**. This is shown in the image above.

Other Considerations

Every site is unique and each one presents unique challenges and obstacles. The site in this tutorial was pretty simple relative to many others and sometimes the techniques described here need to be adjusted slightly. The following is a brief discussion of other considerations that might need to be taken when creating a particular site element.

Roads

Another great advantage to the loft feature is the ability to generate mapping coordinates that follow the path of the loft. The images below demonstrate this advantage. The image on the left was automatically mapped to follow the path of the loft on the right. In this tutorial, we created the roads by extruding a spline and applying a UVW Map modifier with the Planar option. There is nothing necessarily wrong with this method of creating a road, and for this particular project, we had no choice. The road we created included the parking lot, and because of this, we could not have used the loft. The best we could have done would be to create the parking lot separate from the road that runs in front of the entrance to the property. That would have allowed us to create the road with the loft feature, and therefore, apply very advanced mapping. This mapping was not necessary, however, since the road was in the background of the scene and barely visible. But when you are able to take advantage of the advanced mapping that lofts provide you, it's a great feature to employ.



Pavers

When you need to create a unique paver pattern, simply model the pavers, create a Top view rendering of the modeled bricks, and apply the rendered image as a map to an object that replaces the modeled bricks. Modeling individual bricks for use in your final scene will almost never be a reasonable option due to the extremely large number of faces required to create the brick models. Perhaps many years from now computers will make this feasible, but for the near future it is not a good idea to use individually modeled bricks in a scene.

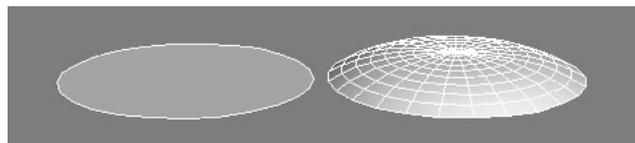
Mulch

Another way to create a little more realism in mulch beds is illustrated in the images below. The image on the left shows the boundary between grass and mulch as a harsh abrupt change, which is not as realistic as the image on the right, in which a radial gradient is applied to the Opacity channel of the mulch material. When used in this method, the areas of the Opacity channel that receive pure black are transparent, and the areas that receive pure white are completely opaque. This causes the simple square-shaped mesh to disappear around the edges, giving it an apparent round shape that fades into the grass object. Note, however, that the mulch object must be moved slightly above the grass object so that the two objects don't occupy the same space. You can do the same thing by using the Gradient map in the Diffuse Color channel, with Color #1 being the same as the surrounding grass, and Colors #2 and #3 being the mulch.



If you want to apply this procedure to each of the circular mulch beds in a project, you must apply the UVW Map modifier to each individual mulch bed or collapse one mulch bed object to an Edit Mesh or Edit Poly and then copy that mulch bed into each location. You cannot use the quick and easy method we used here where we created the circles, attached all the circles together, converted the object to an editable mesh and applied the UVW Map modifier to the entire mulch object all at once. This is because each circular mulch bed must have a UVW Map positioned at its center so that the gradient map can be transitioning from the center of each mulch bed.

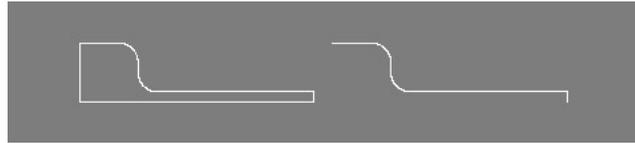
Another way to improve the appearance of a mulch bed even further is to provide a slight bulge to simulate a build-up of mulch material. The image below shows the difference.



Curbs

Curbs are a crucial element to many 3D sites. Having smooth curves, both in the shape and path of a curb loft is critical to making the curbs look realistic. However, equally important is not having too many vertices in the path or shape. A large scene can quickly become too large when careful consideration is not given to the makeup of the curbs. For the 'gutter' curbs we created in

this tutorial, the total face count was just under 20,000. While this amount is not a relatively large number, each additional vertex we place in the loft shape means about an additional 1,000 faces, and for larger scenes, this number only gets bigger. Likewise, too many vertices in the curves of the loft path mean the same thing. One thing that you can do to significantly reduce the overall face count in the curbs of a scene is to delete the bottom and back segments of the loft shape. With the bottom and back segments removed, as shown in the right image below, you can greatly reduce the total face count of the curbs without affecting their appearance.

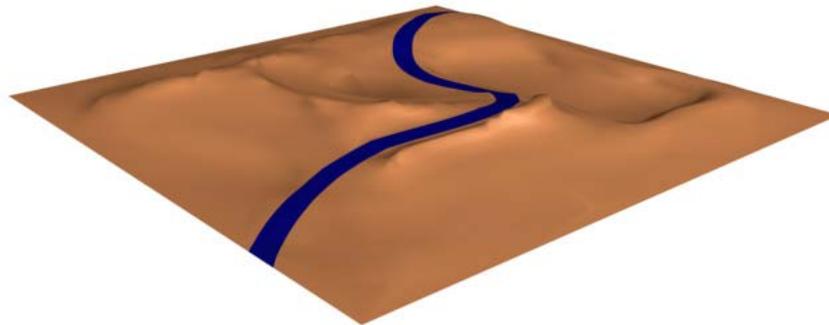


3D Terrain

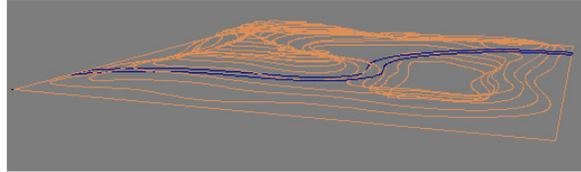
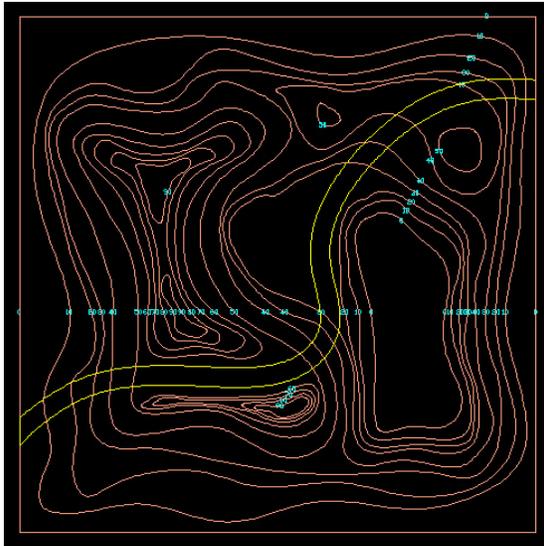
As mention earlier in this tutorial, creating 3D sites often requires a different approach than some of the procedures discussed so far. 3D sites are usually less forgiving of imprecise methods of modeling and inefficient scene management. Nonetheless, many of the procedures and concepts used throughout the tutorial are applicable and some of those will be briefly revisited here.

The procedure of creating the terrain is quite simple and the real challenge lies in what to do with the terrain once it's created. In other words, how do you create a road to follow the contour of the terrain and then get road lines to follow the contour of the road, and so on? To do so we will return to one of my favorite features, the **Boolean > Cut > Split** routine.

In this exercise we will create the image below, which represents a one-quarter square mile piece of land with a road running through it.



To create this, we will start with the AutoCAD drawing shown in the left image below. The contour lines in this drawing simulate the top of a mountain or just a small area of rolling hills. Running through the center of the terrain is a non-descript road represented by a single closed spline. The elevation of each line is annotated by text on its own layer. The image on the right shows what the contour lines look like when imported into 3ds Max and each line is elevated to the proper elevation as specified by that text. If you want to jump straight to this portion of the exercise with the contour lines already in place in 3ds Max, skip steps 1 through 3.



1. Reset 3ds Max.
2. Import the AutoCAD drawing **ContourLines.dwg**, ensuring that objects on the same layer are not grouped together.
3. While referencing the elevation notes in the AutoCAD drawing, carefully move each line to its proper elevation. This process can quickly get confusing and I recommend assigning colors to lines you have already moved so that you know which ones still have to be moved. This process can not be rushed and should take at least 5 minutes.

If you want to start from the 3ds Max scene with the linework already in place, open the file **Contour_Lines.max**.

4. After checking to ensure that each line is in place, attach one contour line to all the other lines, ensuring that the road line is not part of the attachment. The result should be a single object comprising all of the contour lines.
5. With the contour lines selected, select **Create > Geometry > Compound Objects > Terrain**. The lines are transformed into a 3D mesh.
6. In the **Simplification** rollout, select **Interpolate Point * 2**.
7. Select the road spline.
8. Extrude the spline **500** feet.
9. Move the road object down **200** feet so that it completely intersects the terrain object, as described earlier in this tutorial.
10. Select the terrain object.
11. Select **Compound Objects > Boolean > Cut > Split**.
12. Click the **Pick Operand** button.
13. Click on the road object in any viewport.
14. Add the **Edit Mesh** modifier.
15. Go to **Face** subobject level and detach the road faces from the terrain object.
16. Select the road object and give it a different color from the terrain.
17. To see the completed scene, open the file **Contour_Lines2.max**.

Once you separate the road object, you can create a spline from the edges of the road, and use the linework to create a loft representing curbs. You can also delete the road you just detached and loft a new road in its place from this same linework. The benefit of this would be that you could use the advanced mapping that lofts give you and place a nice map of a road on the loft and have the road lines perfectly follow the path of the loft.

This is just a small sample of how to tackle a 3D site project. The ways to create a 3D site are sometimes limited only by your imagination.

In General

- Sometimes, an important consideration in the creation of a loft, whether for a wall, a piece of furniture, or in the case of this tutorial, a curb, is the 'banking option. Regretably, Autodesk continues to enable the Banking option automatically and this can cause slight, but sometimes critical imperfections in the integrity of your models. When banking is on, the shape that gets lofted is banked during turns along the path. This can result in a separation between the loft and an adjacent object. This is only a problem when the view is sufficiently close and the need for detail is very high.
- One trick to save time while rendering a large site, is to turn off shadows for objects that don't really need them. For example, the parking stripes we created in this scene were raised about half-an-inch above the street object, and even though you can't see its shadows, 3ds Max is still trying to create them and doing so increases rendering time. Whenever you can determine that shadows are not needed for a certain object, disable them for that object.
- Sometimes when you get too close to objects in your scene, a bitmap can appear pixilated because of the lack of resolution in the image. On the other hand, when you get too far away from the objects in your scene, sometimes you see the appearance of tiling. While it is important to make sure that a map is scaled properly and that it represents an accurate distance in the real world, I find it more important to make sure that the map looks good first, and measures correctly second. So when you see the effect of tiling in your scene, you might try increasing the UVW Map size and when you see pixilation, you might try reducing the size.
- Compound objects are a critical part of my site creation process and when not used properly, they can quickly crash 3ds Max or cause your scene to explode in terms of file size or loading time. When a complex compound object is created, such as a Boolean created from two high-density mesh objects, it can often take several minutes to complete the command. When you save a 3ds Max scene with such a complex compound object, the scene saves fairly quickly. However, when you try to load that same scene, the same Boolean process has to be duplicated during the loading process and that means loading the scene would take several minutes just because of that one object. When you have several types of these objects, the consequences can be difficult to deal with. On the other hand, if you collapse such a compound object to an editable mesh or poly, your scene's file size may explode because instead of storing the object's information in the form of a few parameters, it will suddenly be stored face-by-face. With a compound object, the data for each face is not stored but rather represented by complex algorithms. With an editable mesh or poly, the information for each face has to be stored separately and the file size can be enormous. So some thought and care should be taken when trying to decide which is the lesser of these two evils.