VISUALIZING YOUR COMMUNITY WITH
Google Earth
AND
Google SketchUp

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While Google's search engine, e-mail, and other web-based services are convenient, the combination of Google Earth and Google SketchUp offers an outstanding application for historic preservation and planning. Using these tools, your community can affordably create and use a 3D environment in which the existing and the proposed can be viewed side by side, before ever being built. This article introduces Google Earth and related tools and shows how they are facilitating community vision and historic preservation.

3D Modeling and Visualization

Three-dimensional imaging and simulation is big business, one that you might associate with video games or the military. Powerful 3D tools designed for professional designers and architects are overkill for the rest of us, not to mention expensive.

Enter Google Earth. This is a free software application that depicts a digital globe of the Earth, with terrain, aerial photography, and 3D models of buildings and other structures. (Wait! Don't worry… this article won't get too technical. I'll make a point of explaining how easy these tools are to use.)

Google Earth and Google SketchUp bring 3D and visualization software to those of us who are not programmers or artists. They open the door for communities to take a visual approach to critical planning projects, revitalization work, and anything else that would benefit from visual cues to help people better understand an idea or conceptual plan. Potentially gone are abstract descriptions; hard-to-grasp ideas; and promises of what buildings, places, or businesses could look like if something were changed.

Once you create a 3D rendering of your commercial district, filled with actual images of your community and its buildings, you can easily introduce online visitors to your town and show potential investors available properties. When you want to give everyone a look at a new public facility before it's built, or show how a building will appear after its 100-year-old stone walls are cleaned, just send them a link in an e-mail.

Users can fly through your 3D community in Google Earth, rotate it, and zoom it in and out. People can look at their own homes or schools or view a particular area of town. Of course, they risk getting addicted to Google Earth, and so do you, if you haven't played with it yet. So there's your warning, it's really fun.

Getting Started with Google Earth

You can learn a great deal about using Google Earth just by playing with it, watching video tutorials, or reading instructional pages on its homepage. You can play with the various "layers" to see more details and get more information. Click the 3D Buildings layer to see structures that have already been modeled in 3D. As you zoom closer you can see the details of those modeled buildings. Click Places of Interest to make different icons pop up for coffee shops, gas stations, and ATMs. You can find a specific business or business type by searching as well by clicking on the Find Business tab.

Depending on your computer, your Internet connection speed, and how dense your destination is, these layers could take a few moments to appear. Also note that the resolution and accuracy of the aerial photography depends on what was available to Google. There is aerial photography of all locations, so go see your childhood home or a local landmark. If you are lucky, the city that you want to view has provided Google with recent aerial photos.

Here are a few places to check out first: Meteor Crater, Arizona; McMinnville, Tennessee; Burbank City Hall; Castillo de San Marcos, Florida; and the Airplane Graveyard.

Making Google Earth and Google SketchUp Work for Revitalization

A lot of major cities and big buildings are being added by modelers; but rural America is slowly catching up. Google Earth is proving to be an effective tool for revitalization programs.

Regional tourism promotion has evolved to include Google Earth. Showing a historic site within its context is more visually engaging than just providing text on an online map. Tourists and residents alike can look at a community to find the closest coffee shop or see if new stores have opened. They can get directions to a business, find out its

Chattanooga STAND bills its self as a community visioning effort by Chattanoogans, for Chattanoogans. One of its projects is to work with citizens to turn its flat, aerial-view-only presence on Google Earth into a beautiful 3D representation of the city they love and are working to improve. The images pictured here are just some of the buildings modeled in Google SketchUp by community volunteers and uploaded into Google 3D Warehouse so they can be displayed on Google Earth. To learn more about the project and to watch their progress, visit www.chattanooga3d.com.

hours, and even read customer reviews.

Here are just some of the benefits and possible uses of a 3D model of your town:

PLANNING AS A CITIZEN/GROUP ACTIVITY
▸ Allowing community access to the visual toolset;
▸ Collaborating over distance and time;
▸ Creating a rapid development/change cycle for models; and
▸ Developing low-cost models.

VISUALIZING VARIOUS ALTERNATIVES
▸ Adding corridor elements like foliage and terrain;
▸ Planning traffic patterns; and
▸ Adding street parking.

DEVELOPING HISTORIC PRESERVATION AND DESIGN PROJECTS
▸ Documenting existing structures;
▸ Visualizing structures in context;
▸ Creating renovation scenarios (awnings, signs, paint, full facades, etc.); and
▸ Developing rapid what-if scenarios (what if we demolish this structure, build a 10-story building here, run a highway through this district, etc.).

CREATING COMMUNITY VOLUNTEER MODELING PROJECTS
▸ Using models of existing structures as a base;
▸ Getting volunteers to create most of the models;
▸ Refining selected structural details as needed;
▸ Modeling proposed new structures;
▸ Educating citizens about the city's structures; and
▸ Examining the aesthetics of physical/visual relationships.

MARKETING
▸ Providing business information;
▸ Promoting cultural and heritage tourism sites and activities;
▸ Recording tours and creating itineraries;
▸ Promoting Main Street; and
▸ Providing route-based information.

## 3D Modeling by the People, for the People

The Google Earth tools are designed to be easily used and intuitively simple, and they generally have achieved these goals. Other free programs can be used with Google Earth to make your 3D experience even better and to help people populate it with information and 3D graphics.

Google has two 3D modeling tools: Building Maker and SketchUp. Google Building Maker is a web-based application that lets users create 3D building models from aerial photography already provided. It has an easy and fun user interface and you don't have to download an entire program,

unlike Google Earth. However, the images are not as detailed as those you can make using Google SketchUp and are not yet available for every city.

Google SketchUp has a great free version that can be used, in combination with a free Google 3D Warehouse account, to create and publish 3D models that can be viewed by anyone using Google Earth. (To learn more about how to use Google SketchUp, read the *McMinnville, Tennessee: A Main Street in 3D* case study on pages 12-16.)

The Google 3D Warehouse is the online storage site for Google Earth 3D models, and an online community for 3D modelers. Some people model places just for fun, while others create models for a specific purpose. The Google 3D Warehouse is where modelers share their work and their ideas. Models are
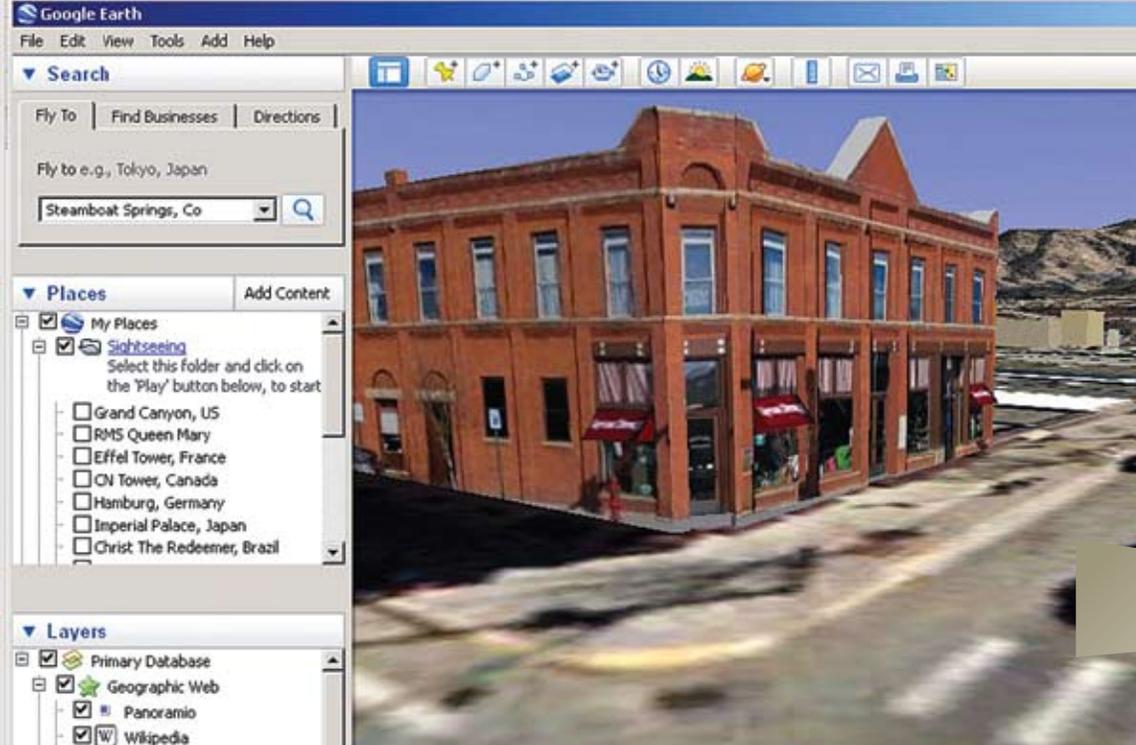
With the Terrain and 3D Building layers selected, this view of a street in downtown Steamboat Springs, Colorado, in Google Earth shows the Squire-Maxwell Building that was modeled in SketchUp with mountains in the background. If you click on the building, details, including its history and address, pop up. This building's pop-up "advertises" that visitors can stop by a museum located around the corner for more local history.

grouped by location, type, or some other aspect they have in common. If you want to see communities that have already compiled collections, search for the following places on the Google 3D Warehouse website (http://sketchup.google.com/3dwarehouse): Blackfoot, Idaho; Madison, New Jersey;

The Google 3D Warehouse is a great resource to find models you can use to represent a proposed project. For example, if your community has a vacant site and your Main Street program wants to create an infill mixed-use project, a model of such a site can be dropped into that location so

city officials or potential developers can see how the project would look.

Crowdsourcing and Community

Perhaps you're wondering why Google would create a product and then rely on the public to populate it with images and information. But that is exactly what sets Google's 3D rendering software apart from others. The 3D images that people like you and I create are

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McMinnville, Tennessee; Nanaimo, British Columbia; Steamboat Springs, Colorado; and Westport, Ireland.

After you model a building, you can upload it to the Google 3D Warehouse for review. If it passes the acceptance criteria (Google staff verify that the building actually exists and that it is correctly located, correctly sized, and correctly textured on all visible sides), the model becomes a part of Google Earth. Then anyone who views Google Earth can see it when turning on the 3D Buildings layer.

The review process is for quality-control purposes to keep the virtual world looking good. The review used to take weeks, but now it usually takes a week or less. Buildings that are rejected can still be downloaded and viewed in Earth. This is how models created for "what-if" scenarios and building improvement options are viewed.

RESOURCES

GOOGLE SUPPORT WEBSITES:
- http://earth.google.com/support/
- http://sketchup.google.com/support/?hl=en

INSTRUCTIONAL VIDEOS:
- General introduction on 3D modeling: www.youtube.com/v/0TpFf_TOuhU
- Architectionary - www.youtube.com/user/architectionary
- SketchUp Show - www.youtube.com/user/4sketchupgo2school

BOOKS:
- *Google SketchUp for Dummies* by Aidan Chopra (www.aidanchopra.com).
- *Google SketchUp Cookbook: Practical Recipes and Essential Techniques* by Bonnie Roskes (http://www.oreillynet.com/pub/au/3512)
- *Real World Google SketchUp 7* by Mike Tadros (www.peachpit.com/store/product.aspx?isbn=0321660315)

TRAINING:
- Igloo Studios is an Authorized Google Training Center for both SketchUp and Earth. An account on its website, www.Go-2-School.com, offers access to a complete library of videos, webinars, and other assistance.

COMPUTER SAFETY NOTE: *It's always a good practice to make a restore setpoint in your System Restore dialog before installing any new software. On the off chance that you have any trouble, you can roll your computer back to the last setpoint. If you've never done this, look it up or ask a computer expert. It's worth the time to be safe! Learn more at http://en.wikipedia.org/wiki/System_Restore.*

INSTALLING Google Earth AND Google SketchUp

Google Earth can be downloaded on a Mac or a PC. It is a 250 MB program. Check to make sure your operating system can support the software. Operating system requirements are indicated next to the download button.

➜ Go to http://earth.google.com/download-earth.html.
➜ Read the terms of service and click "Agree and Download."
➜ A pop-up box will ask you to save the file.
➜ Save the file to your desktop. Click "OK."
➜ Double click on the Google file that appeared on your desktop (it has a .dmg file extension).
➜ The file has finished downloading when an icon labeled "Google Earth" appears on your desktop. You can leave the icon here or move it into your applications folder.
➜ Double click the icon and you are ready to get started.

There is also a $400 pro version of the software, which has more bells and whistles than the free version. In most cases, however, the free version is all that you will need, especially if you are just getting started.

The procedure for installing Google SketchUp is much the same as above; however, it requires more computer hardware than Google Earth. Make sure that you have enough hard drive space (500 MB) for the software. Go to http://sketchup.google.com/download/gsu.html and follow the instructions above for similar installation. Similarly, there is a $495 pro version, but the free version should meet your needs.

Download Google SketchUp

For Windows XP/Vista & Mac OS X (10.4+)

Google SketchUp Pro 7

SketchUp Pro, LayOut and Style Builder - a powerful combination.

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More Google tools to use with SketchUp:

Google Earth

Google 3D Warehouse

Building Maker

Make buildings for Google Earth

HTTP://SKETCHUP.GOOGLE.COM/

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added to Earth for everyone to see. This is a form of "crowdsourcing," a concept that means everyone can work together to create something in the virtual world. We all have a hand in building the 3D images.

Those of us who enjoy doing this sort of activity get an "edutainment," while Google gets its mapping database populated with lots of 3D building models that are correctly located. It's a great way to incorporate information from a widely diverse group of contributors.

As you can imagine, in the world of social media where groups of people are independently working on something at the same time, an online community forms. As mentioned earlier, the Google 3D Warehouse

is not just the online storage area for all 3D models, it is a meeting place for modelers. Originally populated by early users of Google SketchUp, an enthusiastic, if not elite, group of people came together virtually to collaborate and compete with each other. With the advent of Google Building Maker and the rise in usage of Google Earth, more people are interacting with each other in this online community.

It's really encouraging how well "newbies" are accepted into the Google 3D Warehouse world. There are many experienced, talented modelers who enjoy providing technical solutions and offering advice when needed. If you upload your models, it is satisfying to get the recognition of other modelers who are rated highly by the online community.

Kent Morrison has been at work cajoling computers and networks since 1983. His professional experiences include: U.S. Army Infantry, industrial electronic manufacturer's representative, industrial construction networks, information systems management for city government, and computer and network consulting for small business. His love of rural America led him into 3D modeling of historic structures using Google SketchUp. A consultant and designer specializing in rural issues, he will cheerfully accept your fee-paid commissions for 3D models of rural Americana. See some of his work at http://sites.google.com/site/ixboat3d/ or www.steamboat3D.com.