

McMinnville, Tennessee A Main Street in

3D

BY ANDREA L. DONO

You've been there before. You've met with a property owner several times and he just doesn't understand why a large, backlit sign isn't compatible with the historic district. Or you're gearing up for a contentious public meeting and those technical planning maps with new parking scenarios are too cumbersome to be of much help. Wouldn't it be great to have a three-dimensional view of your Main Street district to illustrate the messages you're trying to convey? ▶

A picture says a thousand words, but Chris Wilson, the former director of Main Street McMinnville in Tennessee, wanted to see what a 3D picture of a downtown could say. With limited funds and no state architect, Wilson wondered if he could use Google SketchUp and Google Earth to help property owners make appropriate changes to their historic buildings.

Google SketchUp is a free, robust drawing tool that lets you easily layer digital photographs of your buildings over 3D shapes with just a few clicks of your mouse. Google Earth is another free tool that uses actual geographic coordinates so you can drop your 3D buildings in the same spots they would appear on a map. After playing around with the technology, Wilson realized these tools would allow people to see places in downtown McMinnville as they actually exist.

“Once a 3D model is created, you can look at it from every conceivable angle, whether from the street level, from an upper-story window across the street, or from inside the building looking out,” says Wilson. “Unlike aerial maps and satellite imagery that provide a view straight down, the 3D downtown can be viewed from all angles, including a ‘fly over’ or a look at ground level.”

Before the availability of this software, design specialists would build models by hand or by using very expensive, complex software. While these Google tools won’t take the place of traditional architecture software and the professionals who use it, they will enable you to create a rendering of your district that can translate ideas into 3D pictures and allow everyone to see what you are talking about when you discuss your work in the four points of the Main Street approach. **CONTINUED ON PAGE 14 ►**



Compare the actual photo of a McMinnville church (bottom) with the digital Google SketchUp version (top).





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Exploring the Possibilities

While downtown Boulder, Colorado (Google SketchUp's headquarters), was the first 3D city in Google Earth, as far as Wilson knew no one had modeled a 3D downtown with the intention of using it as a tool for revitalization. Considering it a long shot, he fired off an e-mail to the general Google inbox and explained his idea for gathering volunteers to model downtown McMinnville. He hoped to use the finished product to get design assistance from an architect without the need for an on-site visit as well as to build a stronger preservation ethic in his community. "Thirty minutes later someone e-mailed me back to say something like that was possible. He gave me his phone number and asked me to give him a call," says Wilson. "I thought, this is amazing!"

Wilson turned to the Tennessee Main Street Program for help and was encouraged to apply for an Innovation Grant. He reached out to partners and volunteers of Main



Two Google SketchUp renderings of proposed renovations to the Park Theater in downtown McMinnville.

With just two steps, a building starts to take form, "and they had that eureka moment. They realized they didn't have to be a computer whiz to help with 3D Downtown," says Wilson. "It was a matter of empowering people to do something. They got that it wouldn't take a long time to learn and that they can contribute."

Wilson involved people from a broad cross-section of McMinnville: the municipal planner, the county 911 center, the Tennessee Technology Center, the local community college, local high school CAD students, the chamber of commerce, the two electric companies, the state Department of Economic and Community Development, and the

Innovation Grant was used to buy a new computer and an LCD projector to facilitate the training. Two other sessions, held in the chamber of commerce's community room, brought together about 12 people to continue the modeling.

To get started, Wilson obtained aerial photographs from the Warren County 911 Center. (You can check with your area utility companies, emergency services, or even see whether aerial shots are available on Google Earth already.) Photographers were sent to take pictures of as many faces of the downtown's buildings as possible.¹ The photos were then uploaded to a folder on a network; today, however, you can save them all to a free online photo-sharing service like Picasa or Flickr.

Volunteers working on modeling simply downloaded the Google SketchUp and Earth programs and were able to start right away. Google SketchUp was used to draw an outline of each building, which was popped into a 3D shape. Next, modelers used photographs of the building faces to create photo-texturing. If they found a photo didn't work well, they could just grab a camera and take a better picture so they could keep working.

Leon Steele, design coordinator for Louisiana Main Street, is a fan of Google SketchUp, too. "It is an easy-to-learn software for those folks, who like me, are intrigued but shudder at the thought of learning new technologies, which historically have been such a pain. Not with SketchUp. And, it

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Street McMinnville and piqued their interest in getting involved.

Using his grant funding, partners, and volunteer manpower, Wilson was able to show Google that he was determined to implement his idea so they got on board, too. Google not only wanted to demonstrate how Google SketchUp and Earth could work together; the company was interested in taking the 3D city concept a step further, especially in a rural community, and exploring the possibilities for the use of its software. Google provided trainers, online assistance, and free "Pro" versions of the software (which have more import/export and style features than the free versions).

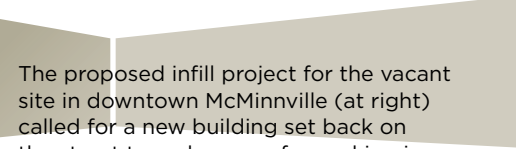
To get people on board, Wilson showed off the 3D model of Boulder as an example. He demonstrated the view of the city in Google Earth, spun it around, zoomed in and out, and virtually walked down the street. He then used Google SketchUp to show them how easy it was to get started.

Tennessee Valley Authority, among others. Everyone was eager to see how the 3D Downtown project would turn out and how the community could use it.

3D Downtown Process

Working with about 40 volunteers, Wilson gauged participants' skills and interests before splitting them into teams of four that would tackle different sections of downtown's main streets. Some people offered resources, others wanted to learn how to do the modeling, and a few volunteered to photograph the downtown buildings with digital camera.

There were three big working sessions. The first featured a hands-on, daylong training and modeling session with Google's elite modelers. The McMinnville Electric System donated a meeting space so the team could plug in their laptops, connect wirelessly to the Internet, and follow along with the trainer. The aforementioned



The proposed infill project for the vacant site in downtown McMinnville (at right) called for a new building set back on the street to make room for parking in the front (middle picture). Wilson used SketchUp to create a mock up of the proposed plan as well as an alternative (far right) to show the property owner how a more compatible design could meet her needs while being sensitive to the downtown environment.

¹ Photoshop, an expensive photo editing application, is not necessary to prep the digital photos of your buildings. It could be helpful in piecing together a large structure that is hard to capture in a single photograph, although there are still other ways to do photo-texturing even without using Photoshop.





has made our lives at Louisiana Main Street so much easier.” He adds that an enhancement element called Podium lets users create photo-realistic images with lighting and other features, but admits he is not quite at that level yet.

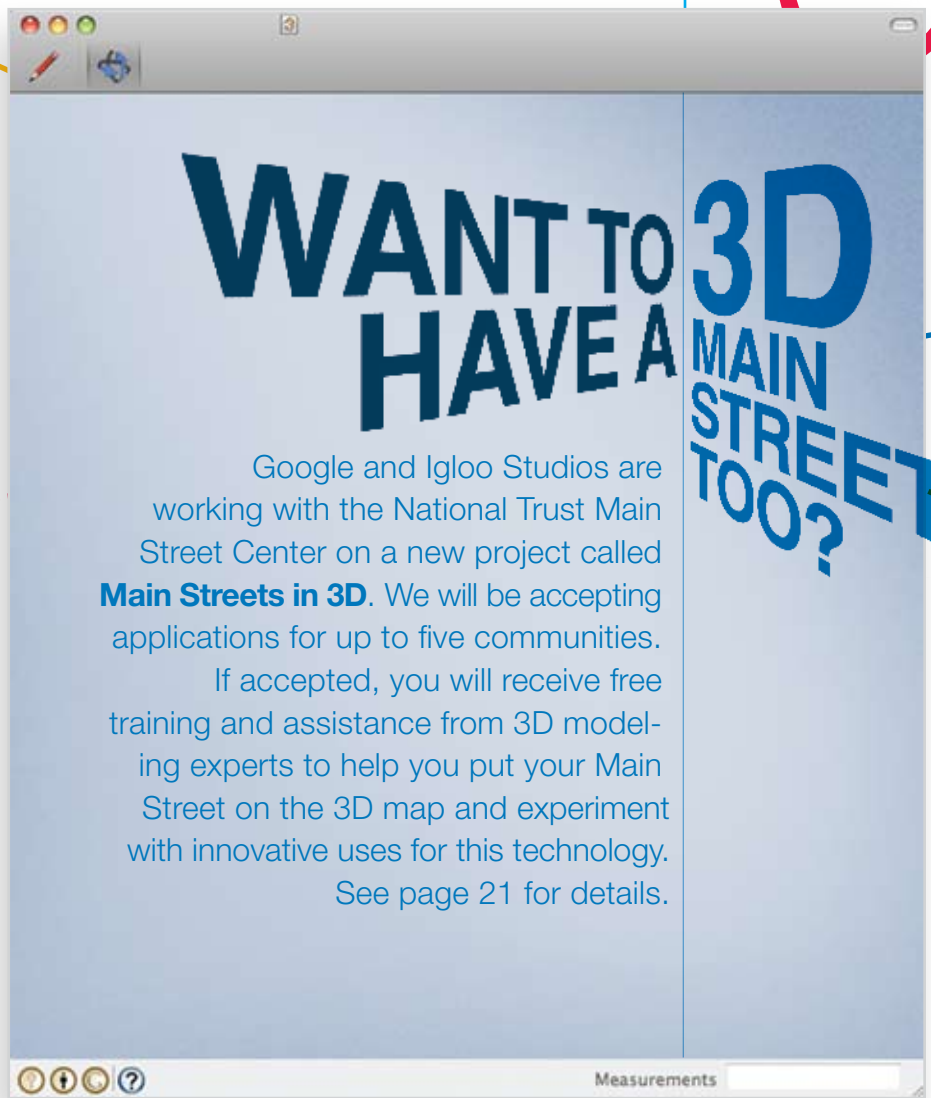
When asked how long it takes to model a simple building, Wilson created one side of a building in 45 seconds and says it would take five minutes or less to model the entire structure. Wilson admits that buildings with more detail, like canopies and signs, take longer, and some, such as churches with steeples or a water tower, can be more complicated to do. Luckily, his partners included Google staff who offered to help out when volunteers got stuck, and volunteer modelers from his utility partners who have experience using AutoCAD. But, “none of it is impossible,” he says. “There are a lot of users online who can offer advice.”

From concept to completion, McMinnville’s 3D Downtown was completed in six months.

Putting It to Use

Debra and Kenny Thompson, business owners located outside the downtown, decided they wanted to move to the Main Street district. They presented a design plan for new infill construction that was set back in order to make room for parking in the front, instead of a site plan with a zero set back like the surrounding structures. Wilson sprang into action and showed the Thompsens how a building that complemented its surroundings would be more appropriate for a downtown setting, and still meet the needs of their business.

Contacting Kimberly Nyberg, the coordinator of the Tennessee Main Street Program, Wilson showed her the site in question on Google Earth in 3D and a mock-up of the business owners’ proposed plan. Over the phone, Nyberg suggested some better



alternatives, which Wilson turned into a 3D rendering to show the Thompsens.

“We were able to give the business owner an alternative that she could see and I was able to tap into Kim’s expertise without needing her to travel to McMinnville,” says Wilson. “Using Earth, I could show the owner that a building on a zero lot line would have better visibility on a one-way street that is on a hill.”

Debra Thompson, owner of Main Street T’s downtown, says that it wasn’t until she saw the 3D model that she began to realize that her plan did not suit the site or the downtown as a whole: “As a result of modeling we were able to visualize how our building would have performed had it been built. We were able to change our signage, orientation to the street, display windows

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and doors, awnings, interior walls, even access to parking and deliveries. Everything we changed saved us a lot of money and a lot of headaches down the road.”

Without costly drawings that often take a long time to create, Wilson was able to take images of downtown buildings that could benefit from façade improvements and compare them to 3D renderings of the same structures, but with modifications. If a new sign or awnings could improve the look of the business, a rendering could be created and shown to the business owners so they could see for themselves what a difference some changes could make. Wilson could even simulate what shadows from the sun would look like on the storefront.

The beauty of using Google Earth for historic preservation purposes is that you can give context to a site. Design review boards or preservation commissions are usually given 2D plans and renderings of a single building. Google Earth can display the surrounding environment, and thus show how changes will affect neighboring buildings and the district as a whole.

Partners of Main Street McMinnville found the 3D model of downtown immediately useful, too. The CAD operator for the electric company was able to model the underground junction boxes. Wilson was amazed that while he was thinking about doing everything above ground, his partner was able to think of a very important underground use. By using Google SketchUp, the CAD operator was able to show where the electrical line came into a building. No guessing required.

For businesses in downtown McMinnville that didn't have a website, having a Google Earth presence is important because people can find the business in the downtown and click on it for more details. Google Earth and Google Maps go hand-in-hand.

How to Make Your Main Street 3D

With a high-speed Internet connection, you can download Google SketchUp and Earth in seconds and start working with them right away. There are tons of written directions and videos on Google's website and non-Google websites and blogs, such as www.go-2-school.com.

“These tools are so great, not just because they are free, but because you don't have to learn the entire software and all of the functions before you begin,” Wilson explains. “You can learn parts of the program and get started right away.”

One of the first things your program can do is create customized “bubbles” that show unique content about a building, a business, or an event. Other quick tasks you can complete for your community right away include: creating a business directory with 3D shapes; entering data into the Google Maps directory that are cross referenced with the aforementioned business “bubbles”; creating a walking tour; and identifying new renovations in the district that can make an impact on the appearance of your community.

Once your volunteers start using Google SketchUp, they can model the interior of a building and create interesting activities like scavenger hunts, including geo-caching (a technology-centric scavenger hunt that involves using a GPS device to locate items or places), or sales events. Wilson can't stress enough that the sky's the limit.

Wilson explains that while it is worth taking a few hours out of a busy schedule to learn the software, it is important for a Main Street program to use the tools to enhance a project already in its work plan. “Develop a strategic plan and use the tools to implement what you already have planned,” advises Wilson. “Don't do the project for the sake of doing a project.”

The following are just a few of the ways you can use the technology:

DESIGN USES:

- ▶ Building renovation design
- ▶ Building inventory
- ▶ New construction design and planning
- ▶ Urban planning
- ▶ Public improvement planning
- ▶ Placement of signs and awnings
- ▶ Placement of banners on light poles
- ▶ Historic preservation planning
- ▶ Traffic design
- ▶ Parking layouts
- ▶ Interior design

ECONOMIC DEVELOPMENT USES:

- ▶ Business recruitment
- ▶ Business site location planning
- ▶ Business inventory
- ▶ Business clustering
- ▶ Commercial real estate development projects

PROMOTIONAL USES:

- ▶ Event planning
- ▶ Festival planning
- ▶ Activity location planning
- ▶ Downtown business directory

As with your other Main Street work, engage your partners to help put your community on the 3D map so you can leverage their resources. Chances are they will have some use for it, as well. There are so many groups that could benefit from these tools, including utility companies, economic development agencies, chambers of commerce, area schools, public officials, planning departments, preservationists, property owners, business owners, and developers.

Wilson has spoken at various conferences (and will be at this year's National Main Streets Conference in Oklahoma City), participated in Google focus groups, and shared information for a Google Earth Blog posting and for various media, including the Downtown Idea Exchange. His message is always the same: “This can be done in your city. It's not hard, it's completely free, and it will be able to help you in ways you haven't imagined yet.”

Chris Wilson welcomes your questions or comments regarding his community's project. You can contact him at 931-224-3163 or cmtwx123@mac.com.

A complete block of downtown McMinnville modeled by volunteers.

