

It looks like a video game, but it's not. it's a 3-D map of the buildings, roads and land in 1815 baltimore, created by

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In the early 1800s, you could walk the city of Baltimore in an evening. Thanks to researchers from UMBC, who have created a 3-D digital model of Baltimore circa 1815, you can see an approximation of what that walk would have looked like—building-by-building, block-by-block.

If you didn't know any better, you'd think you were looking at scenes from a video game.

"We get that all the time," said Dan Bailey, director of the UMBC Imaging Research Center's Visualizing Early Baltimore project and a professor in UMBC's Department of Visual Arts. But with video game maps, "there's not a lot of accuracy there."

Contrast that with the Imaging Research Center's map, which was commissioned for a 2014 exhibit at the Maryland Historical Society in honor of the two hundredth anniversary of the War of 1812 and the Battle of Baltimore, fought in Sept. 1814.

Clicking through the map, available at earlybaltimore.org (note: Google Chrome is required), you'll find old landmarks like the Holliday Street Theatre, where the Star-Spangled Banner was first performed, as well as still-standing structures like Fort McHenry. If you live in Federal Hill or Fells Point, you might even be able to locate your house.

The 2.5 billion pixel image, which took a computer a month to render, was the result of an arduous two-year process, involving consultations with local experts and scholars as well as extensive studies of early maps and paintings, said Bailey.

And that's just the beginning.

What started as a [museum exhibit](#) has morphed into an ongoing project to fully map out early 19th-century Baltimore, said Bailey, who presented the project at a recent meeting of MaptimeBmore, a monthly get-together for local cartographers and mapping enthusiasts sponsored by Baltimore-based software company Fearless Solutions.

One goal is to add geographical coordinates and other [spatial information](#) to the map in order to make it searchable by address and building—or in cartographic terms, to put the project into a geographic information system (GIS) database.

Part of this involves "georeferencing," also known as "rubber-sheeting"—overlaying images of old maps onto a modern backdrop in order to assign coordinates to the places depicted. The process is trickier than it might sound, as different maps are drawn using different scales and projections. In total, Bailey says he's georeferenced about 200 old maps.

Another piece is tracing old topography maps to understand the contours of the city's landscape, including the elevation of different areas and the location of the shoreline.

But historical maps only go so far. Most contain errors or anomalies. Many are development maps, meaning they show where things were planned to be, rather than where they actually were at the time. Finally, a few are so distorted that they can't be used at all.

That's where records such as the Baltimore City Directories—the Yellow Pages of the era—come in. Specifically, the researchers found a crucial resource in the City Directory of 1804, which not only lists the city's residents, but also provides information on which direction the streets ran and the number of buildings they contained.

"That was our Rosetta Stone," said Bailey, as it helped them translate old addresses and street names into their present-day counterparts.

The city directories also offer a window into the lives of ordinary 19th-century Baltimoreans.

In one sense, Baltimore, then the nation's third-largest city, was a vibrant and diverse place.

"Baltimore had more freed blacks than enslaved African-Americans, which is unusual for any city at that time," said Anne Rubin, a professor of history at UMBC and associate director of the university's Imaging Research Center. But segregation may have existed on a smaller level, between streets and alleyways.

Rubin is using information from the city directories along with other public records to map out the distribution of early 19th-century residents by race.

Baltimore also played a part in the 1800s slave trade. After the War of 1812, Maryland became a net exporter of slaves to the South, said Rubin, whose research has shown that the slave trade was happening all over the city, rather than in a centralized hub or marketplace.

With a historically accurate base map of early Baltimore, other researchers will be able to overlay their own data and explore their own theories, said Bailey.

The project team is currently applying for funding to continue their work, which could result in an updated, more accurate 3-D model and even potentially a virtual- or augmented-reality experience with location-based data.

"I've spent a year and a half to two years taking everything out of hand-drawn napkins and Photoshop layers and trying to get it into arcGIS," said Bailey, whose background is in visual arts and animation, not cartography, referring to the GIS software program he has been using to turn the original drawing into a database.

For this next phase, the team could use some help from the local map-making community. At some point, they hope to open the GIS database up to outside contributors. Open-sourcing the project, "that's my dream," Bailey said.

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