

A stained glass illustration depicting a surveyor in the foreground, wearing a blue shirt and dark pants, standing on a stone platform and operating a tripod-mounted instrument. In the background, a Native American man in traditional dress stands on the left, another on the right, and a woman in the center background pointing towards the horizon. The scene is set in a landscape with a river, trees, and a cloudy sky.

# the American Surveyor

MAY 2017

## AROUND THE BEND

**Survey Economics**  
Customers & services

**Black Elk Peak**  
Definitive elevation

**Mobile Scanning**  
Bringing the goods



# Around the Bend

## A Visit to Carlson Software



Unique details adorn the foyer, from local art to a favorite tree salvaged from the Carlson home that now serves as center column of the spiral staircase.

**T**he Ohio River is one of America's greatest, running near 1,000 miles between Pittsburgh and the Mighty Mississippi. Much of the coal and other products that fueled our nation's industrial expansion flowed between the shores of this maritime highway.

Situated along a key bend is Maysville, Kentucky, home of Carlson Software. We've written about the town's unique character before, long a jumping off point for intrepid individuals eager to expand their horizons and develop commerce in early America.

Bruce Carlson and wife Gisela found their way to Maysville in 1976. They quickly fell under the town's spell, developing and refining an overarching vision that has now spanned four-plus decades and produced some of the world's most popular survey and design software.

» ALLEN E. CHEVES





**Top:** Morning at the Parc Cafe, Carlson's Parisian-style bistro.

**Below:** The company's new headquarters in Maysville, Kentucky.







Carlson commissioned local artist James D. (Skip) Werline (left) to produce this one-of-a-kind stained glass masterwork showcasing a young George Washington. It took more than 400 hours to complete. [www.jamesdwerlineartstudio.com](http://www.jamesdwerlineartstudio.com)

**Right:** An artist's rendition of the Simon Kenton Memorial Bridge that connects Maysville, Kentucky with Aberdeen, Ohio.

## Breaking new ground

At the start of 2016, the company underwent its third major office expansion since opening up shop in 1983. Since we last visited in 2015, it was apparent that the latest chapter of a grand design has taken shape in Carlson's new headquarters. To build the facility, the Carlson team renovated an old four-story grain warehouse to create an atmosphere supportive of world-class software development. In addition to offices, a park was constructed for the city on land that came with the building alongside a well-appointed French-style café complete with terrace overlooking the park. Staff-parking spaces were constructed from cobblestone recovered from the streets of Cincinnati. While aesthetically pleasing, the re-purposing of salvage material is appreciated by employee and tourist alike.



All creative individuals require a continual fount of inspiration. With Bruce, many decisions factor business and community in equal parts. He explained, "It's near impossible to alter a major metro area but here we can have an impact. The attempt to build our business should in turn help the community in some form." Future plans include a river walk and hillside walking trails to be constructed by their team. Each of these items will benefit from Carlson Software design functions such as surface modeling from field surveys and drone-based photo

mapping, along with aspects of Precision 3D Topo, a new Carlson product.

## Creation without impediment

Carlson cherishes its independence and has long championed open architecture, be it software or hardware centric. The company has found success in their Surveyor II data collection platform, as well as in tablets that have gained traction via their ruggedized RT3. "







Carlson shares Limestone Park with the city, playing host to events such as the “Pickers & Grinners Market”, complete with live music, farm-fresh produce, hand-crafted items and more.



“Our software is built to support your design as fast as your imagination drives it.”

development and technical support based on a respect for human nature—despite the revolutions in technology it remains the same. Customers appreciate our free tech support. They appreciate our accessible, easy-to-use software. It is intuitive. But getting back to what’s new, the human experience is 3D, we think in 3D, and I believe 3D design is the future. We don’t think in plan and profile, we think and

Turning to office software, Bruce stated: “one of the great benefits of 3D is the immediate visualization of the effectiveness of a design—I’ll show you what I mean”, referencing the park they’re sharing with the city. “Our target is a twelve-minute

design of an area like this—our software is built to support your design as fast as your imagination drives it.”

He then showed a clever drainage approach designed to manage storm run-off. “I like to approach software





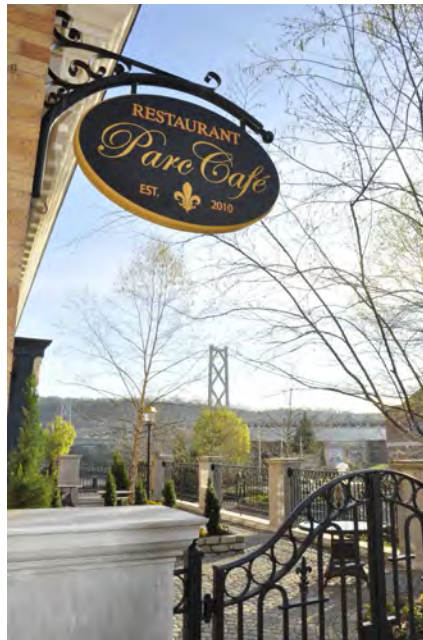
Aerial view of Carlson Software HQ & Limestone Park, courtesy of Aerial Images Solutions, LLC. Murals showcasing early life along the Ohio River grace the city's floodwalls.

imagine in 3D. So we are moving our civil, hydro and mining design to a 3D platform as a new design option. We recognize that deliverables are 2D, so we are linking the 3D and 2D deliverable worlds in a way no one has done before.”

While in Maysville, we also spent time with Simon Baksh, Carlson's newly minted Chief Technology Architect, well known in the industry thanks to previous positions with Altus and Trimble. We discussed the pros and cons of seemingly endless industry consolidation and what this means to the average buyer. “There is almost no one left except the consolidators,” said Simon. “This adds to our motivation to provide surveyors, engineers and construction companies with choices and alternatives.” Simon will support Carlson in the areas of product management and tech development.

### There's no place like home

Just a couple short blocks from HQ is middle daughter Emily's boutique clothier Kentons, named after a famed local pioneer. While he is not covering sales in Portugal and South America, Nuno Fernandes, husband of eldest daughter and company vice-president Barbara Carlson-Fernandes, is building a microbrewery, the first of its kind in the area. The family has gone even further and started a private school



Unique in town, the Parc Cafe was stylistically modeled after the French brasserie Le Procope, considered the oldest continuously operating cafe in Paris.

in a non-charter school state. Just north of HQ, the Maysville Academy is a STEM-focused grade and middle school, based in the original offices of Carlson Software, a campus of federal style antebellum buildings dating back to 1838.

One third of the SurvCE programming team found Carlson after moving to Maysville. They continually work to recruit locally, or as Bruce puts it, “so Carlson can serve as a magnet for talent that is from

Maysville or moves here for the quality of life.” Fully 10% of the entire staff consists of family members, and only 2% of the company ownership is outside the family. Dave Carlson, son of older brother Steve Carlson, is the Director of Programming and executive vice president.

### Learning the language

“I like to say that no corporation writes the Great American Novel,” said Bruce. “Software is in the category of art, like a novel or a music score. It requires imagination to design effective software, and this is the domain of the individual. So even a single talented person can compete with the big guys in terms of product quality. We're fortunate that we have a lot of design talent in the company, a lot of vision, and we have a 34-year code base to build upon to implement that vision.”

On the wall of Bruce's office hangs an inconspicuous certificate listing him as winner of a 1974 marathon in Sweden. As patriarch and entrepreneur, Bruce long ago surmised that long-term impact was more important the short-term gains. “My philosophy is simple. The key to business is to stay in business, stay independent, and keep innovating.” Steady and principled wins the race.

Surveyors and engineers harbor a unique position along the digital river that's now flowing to 3D systems. Still, the migration remains daunting for many firms. As Bruce says “It takes time but there are rewards for those that take the plunge. For many design functions, especially in hydrology, benefits include a tenfold speed increase. It's time to test the waters—3D is here.” ■

Allen E. Cheves is the Publisher of the magazine.