



## City of Beloit

AutoCAD® Civil 3D® software gives the City of Beloit the dexterity to accommodate changing project priorities and schedules.

### Profile

**City Population:**

Approximately 37,000

**Engineering Department Employees:**

- 11 Total Employees
- 5 Engineers
- 3 Aides
- 2 GIS Professionals

**Web site:**

<http://beloit.govoffice3.com/>

**Services:**

The engineering department designs, supervises construction, and maintains public areas (parks) and roads. They also permit for future construction and capital improvement projects, including design, plan review, and inspection services. Most of the division's work is on urban reconstruction projects and utility or local roadway extensions. Pre-construction presentation to the citizens of Beloit and post-construction record-keeping area also part of their services.

### The challenge:

In 2005, the City of Beloit Engineering Department was using a range of software in performing their services, including AutoCAD® Land Desktop, AutoCAD®, Field Survey, a new TDS Ranger survey data collector, and additional software for importing survey information. The combination of resources resulted in project workflow processes that were cumbersome and complex, preventing the department from responding quickly to sudden changes to project priorities and schedules. "We're involved with a lot of economic development projects, which have many different stakeholders," explains Michael Flesch, city engineer. "We need to be reactive and accommodating to those interests, particularly when it comes to new or potential commercial development projects."

### The solution:

MasterGraphics consulted with the City of Beloit's Engineering team to optimize their software mix while streamlining their design processes. They were already familiar with AutoCAD, says Flesch, and "they all wanted to stick with an AutoCAD-based product. We all felt that the automatic link between design and documentation would give us the dexterity we needed to make changes mid-design and still meet our schedules and deadlines. So AutoCAD Civil 3D went to the top of our list."

They also knew that the software's model-based approach to design and documentation—so very different from AutoCAD Land Desktop—would make for a bumpy transition. So they sat down with MasterGraphics to develop an implementation plan that mapped out a schedule for training, software loading and configuration, and so forth. Before any training began, MasterGraphics also worked with Luke Arnold, project engineer, to customize the standard AutoCAD Civil 3D styles, templates, and libraries so that the training and course material would reflect the actual work environment. "This was money well spent," remarks Flesch. "Without this level of preparation, the transition wouldn't have been as successful as it was."

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## The result:

One of the first projects that the Engineering Division tackled using AutoCAD Civil 3D was the design of a new 1,150-foot roadway called Sager Lane located in an industrial park. "The project itself wasn't all that technically challenging," remarks Flesch, "except that a few days before construction was scheduled to start, a major mistake was discovered." Just before construction, a surveyor noticed that his plat showed a right-of-way of 70 feet, but the city's plan showed 80 feet, so he informed the Engineering Division of the discrepancy. "I went into scramble mode, called the survey crew, and told them that the information we sent them was bad and I would send them a new set of plans by the end of the day," recalls Arnold.

"Using AutoCAD Civil 3D, it took me about three and a half hours to redesign the project. That same effort would have taken at least three or four days in Land Desktop. This delay would have forced the contractor to start work on another project—impacting the start date of our project and ultimately its completion date," reports Arnold. By the end of the day, he emailed the new plans, alignment data, and coordinates for the structures to the contractor for his team to start staking out the correct locations. "In the end, there were no additional expenses incurred and no delays in the project," says Arnold.

Since early 2006, the City of Beloit's Engineering Division has standardized on AutoCAD Civil 3D, with six users who have worked on more than 22 projects. Through its styles-based drafting environment, AutoCAD Civil 3D software enables the City of Beloit's Engineering Division to produce more uniform, consistent project documentation—no matter which engineer has worked on it. In addition, the software enables engineers to react quickly to any changes that are thrown at them—no matter how late in the project those changes occur.

"AutoCAD Civil 3D has given us a significant productivity boost—enabling us to complete our designs faster," says Arnold. "AutoCAD Civil 3D allows us to focus more on the details of our design rather than spending time figuring out how to get the software to do what we need it to do," adds Flesch. "And when priorities or schedules suddenly change, we can accommodate them and keep the project moving forward—on target and on time."

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