CASE STUDY

TRIMBLE INDOOR MOBILE MAPPING SOLUTION (TIMMS)

Public Safety Through Situational Awareness at Northwood-Kensett High School

TIMMS reduces cost by more than 50% and time-to-completion by more than 80%!

Northwood-Kensett High School in Northwood Iowa serves students in grades 7 through 12. As in all schools of North America and around the world, one of the administration's top goals is to create the safest environment possible for students and staff. Emergency Planning and Emergency Response are two important aspects of overall school safety and security, but both are difficult to act upon without up-to-date and accurate indoor layout information.

Because accurate blueprints of Northwood-Kensett High School were non-existent, first responders would have to react to any alarm or emergency situation in the school by entering the building "blind" to its structure and layout, and unsure of where to go and what path to take. In short, situational awareness to an incident commander is everything. When the speedy arrival of personnel and equipment to a particular location is critical, such as in the event of a hostage taking or fire, the absence of highly accurate indoor spatial data can lead to potentially life-threatening delays. Town officials realized the importance of this problem. "The Police Chief here in town has been asking me for years to get us better information as far as a blueprint for the school," said Joel Rohne, Worth County IT and GIS Director.

It was therefore essential that accurate blueprint and spatial information of the inside of the school be obtained so that officials could improve and/or create plans for emergencies of all types.

The Challenge

Officials required an easy to use and highly accurate digital blueprint of the entire school, with exact distances and measurements of every single room, closet, hallway and doorway in the structure. A full 360 degree scan was therefore needed for each and every room. A "map" or "model" of the interior could then be created, giving personnel exact knowledge of where they are going and what route to take prior to entering and without having ever been in the school before. Essentially first responders could take a virtual walk-through of the entire space in advance to quickly plan the appropriate course of action.

Traditionally, mapping the precise order and condition of an indoor space such as a school has been a time consuming and costly exercise. Laser scanning is the preferred choice to capture measurements and images at various locations. However, the equipment is then moved and set up multiple times until all perspectives of a room are captured. While this method delivers high accuracy it does have several significant shortcomings;

- data acquisition and processing are very labor intensive
- multiple setups required to cover large built up areas
- specialists are required to access data in software programs which require in depth training
- and it produces many datasets which all need to be merged

For Northwood-Kensett and its 90 rooms, the time to acquire the necessary data through traditional static scanning was conservatively estimated at 1 week and the associated processing of the data another two weeks, making the project with static scanning cost-prohibitive. In addition, an easy to use visualization and measurement package which can be accessed by multiple users was required, giving officials not only a central repository for the data but a total information solution which can be accessed in the field via the internet.

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What is the Trimble Connected Community (TCC)?

The TTC is an online information management system that uses web-based tools to make managing projects hassle-free. It is an easy-to-use, fully customizable system with an elegant and easy to use interface. Virtually anyone can visualize the data with TCC.

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The Solution: Trimble Indoor Mobile Mapping Solution (TIMMS)

Northwood required a more cost-effective, faster, and simpler solution. The Trimble Indoor Mobile Mapping System (TIMMS) was ultimately selected. Using innovative technologies including advanced indoor positioning and orientation technology, the system produces fast and accurate maps which enable users to translate their environments directly into 2D & 3D models of structured interiors. TIMMS is ideal for applications such as Situational Awareness, Emergency Response, and the fast and easy updating of old floor plans.

A simple walk-through with TIMMS of an interior space allows for 360 degree indoor coverage. Georeferenced spatial data is captured accurately and quickly as the mobile system moves through the building. The solution integrates active and passive sensors with an intuitive user workflow to enable true indoor GIS capability. Maps and models, covering thousands of square feet of indoor space, can be created in minutes and entire buildings can typically be completed in a day. Trimble's solution can be used in a variety of indoor mapping applications. For more information, visit: www.trimble.com/indoor-mapping.

Results: Enormous Cost and Time Savings

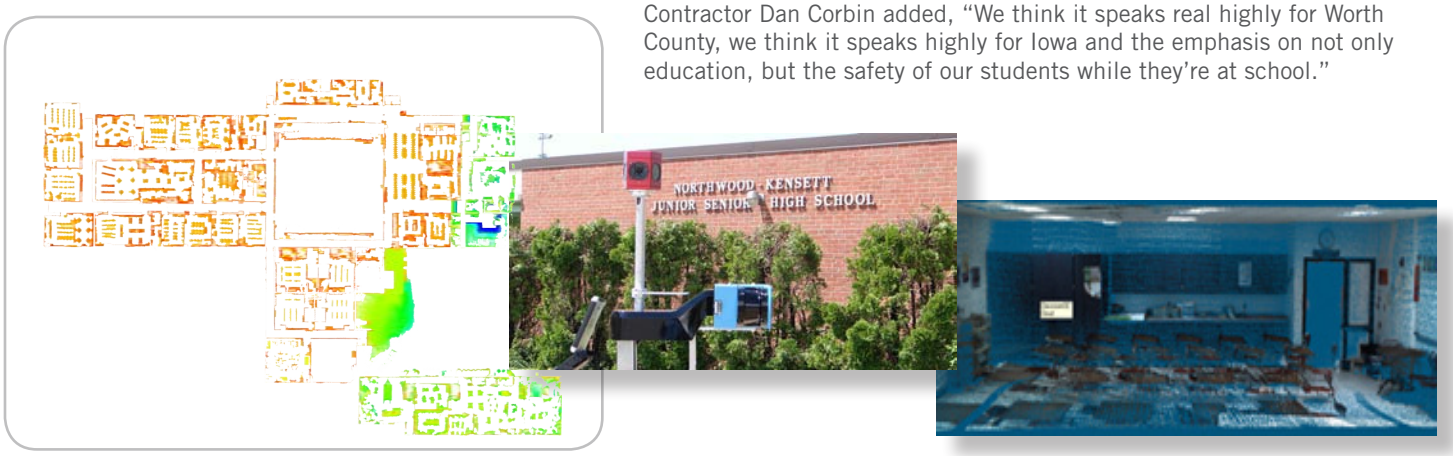
With TIMMS the entire school, all 75,000 sq ft in all 90 rooms, was scanned in just 5 hours - a reduction of approximately 80% compared to the static method.

Processing the collected data and making the final information product visually available to the customer on the Trimble Connected Community (TCC) was then accomplished in just 8 additional hours. TIMMS final product was therefore delivered to the customer in 92% less time. While total time-to-completion was drastically cut, the cost of using TIMMS to the school was also cut by over 50%.

Simply put: TIMMS saved Northwood-Kensett High School a lot of time, a lot of money, and delivered the product like no other method can – visually and online!

Northwood is the first school in the United States to be scanned using this new method, although many are expected to follow. Rohne said, "Absolutely, it's the next step, for emergency response especially. The more time you can save the more lives you're going to save."

Contractor Dan Corbin added, "We think it speaks real highly for Worth County, we think it speaks highly for Iowa and the emphasis on not only education, but the safety of our students while they're at school."



Northwood-Kensett High School - left to right: 2D floor plan created by TIMMS; TIMMS in front of School and LiDAR overlay of class room.

About Trimble

Trimble applies technology to make field and mobile workers in businesses and government significantly more productive. Solutions are focused on applications requiring position or location—including surveying, construction, agriculture, fleet and asset management, public safety and mapping. In addition to utilizing positioning technologies, such as GPS, lasers and optics, Trimble solutions may include software content specific to the needs of the user. Wireless technologies are utilized to deliver the solution to the user and to ensure a tight coupling of the field and the back office. Founded in 1978, Trimble is headquartered in Sunnyvale, Calif.

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