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HOW GIS MAPPING CAN HELP YOUR CITY: A CASE STUDY ON THE TRIMBLE DA2



ENHANCING GIS MAPPING FOR CITY UTILITIES: A CASE STUDY ON THE TRIMBLE DA2

The City of Lawrenceburg, located in southeast Indiana along the Ohio River, embarked on a transformative journey to modernize its management of power, water, sewer, and storm sewer utilities. This initiative was prompted by the impending retirement of key personnel and a commitment to embracing cutting-edge technology. In this paper, we explore the benefits of adopting the Trimble DA2, specifically tailored for GIS work, in collaboration with Banning Engineering.

THE CHALLENGE

The project demanded highly accurate data collection, with the requirement of achieving centimeter-grade mapping accuracy. Traditional methods, such as using the Trimble R2 product with sub-foot accuracy, were insufficient for this undertaking. The Trimble DA2, paired with the Catalyst 1 subscription, emerged as the ideal solution, surpassing alternative options in terms of accuracy, cost-effectiveness, and time efficiency.

EQUIPMENT OVERVIEW

The Trimble DA2 GNSS receiver, compatible with Android™ and iOS devices, is a cornerstone of the Trimble Catalyst™ GNSS positioning service. It offers scalable accuracy from centimeter to sub-meter levels, transforming smartphones or tablets into precision mapping tools. Despite its compact size and affordability, the DA2 utilizes Trimble ProPoint™ technology for survey-quality RTK positioning, making it ideal for GIS applications.



GIS MAPPING PROCESS

The process involved meticulous data collection using the Trimble DA2-equipped poles, with data transmitted to iPads via Bluetooth and captured using the ArcGIS Field Maps app. The project emphasized accuracy in the mapping of over 3000 poles and related features, as well as underground elements, for the power, water, sewer, and storm sewer utilities.

FIELD WORK AND DATA COLLECTION

The field work utilized the INCORS RTK network and the Trimble DA2 for collecting detailed data on utility points. Data included horizontal location, feature number, vertical elevation, and photographs for clarity. Real-time monitoring and a progress dashboard allowed for efficient tracking and coordination with City staff.





OFFICE PROCESSING AND PROJECT COMPLETION

The office processing stage involved creating a comprehensive utility data network, ensuring high accuracy levels for different utilities. The project was completed within a year, reflecting efficiency, dedication to precision, and successful collaboration with local municipalities.



REAL-TIME MONITORING AND COLLABORATION

Online monitoring and a cloud-based system facilitated efficient project execution. Field mapping expeditions offered hands-on training and immediate feedback, accelerating the project timeline and enhancing skill development.



TRAINING AND KNOWLEDGE SHARING

Banning Engineering provided comprehensive field mapping training to City staff, ensuring the longevity of the project's success. The Trimble DA2 unit was gifted to the City, enabling future independent data collection and promoting technical proficiency.

UTILITIES OVERVIEW

Detailed mapping and real-time data updates in the power, water, sewer, and storm sectors significantly improved utility management. The project leveraged the Trimble DA2's capabilities to enhance efficiency, accuracy, and emergency responsiveness across all utilities.



POWER

Accuracy level: 3 m

Over 3000 critical electrical assets mapped, enhancing organizational efficiency.



WATER

Accuracy level: 1-2 cm

High-accuracy mapping ensured quick valve location in emergencies.



SEWER

Accuracy level: 1-2 cm

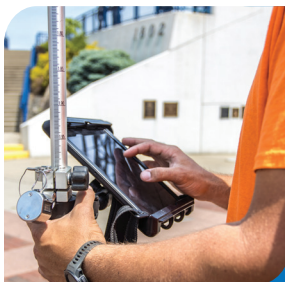
Detailed sewer mapping aided superior growth planning.



STORM

Accuracy level: 1-2 cm

Efficient mapping in levee areas improved time efficiency and accuracy.



EMPOWERING UTILITY MANGEMENT

The Trimble DA2 receiver has transformed GIS mapping in Lawrenceburg, offering high accuracy and seamless integration with various devices. This technological advancement, developed in collaboration with Banning Engineering, has greatly improved the management of Lawrenceburg's municipal utilities. The resulting robust GIS Mapping System enhances the city's utility administration and supports its continuous growth and development.

REALIZING LONG-TERM BENEFITS WITH THE TRIMBLE DA2 INTEGRATION

The Trimble DA2 receiver has revolutionized GIS mapping for Lawrenceburg's utilities with its versatility, cost-effectiveness, and high accuracy. Compatible with Apple and Android devices, it simplifies utility data collection and management. In partnership with Banning Engineering, the City of Lawrenceburg has established a robust GIS Mapping System, enhancing the management of its municipal utilities. This technological advance is a significant contributor to the city's growth and development.

SPECIAL THANKS TO



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CASE STUDY**

