



Statewide Work Zone Information System (SWIS)

A real-time database of active, planned, and historical work zones that automatically ingests official traffic control plans to define work zone and traffic control layout.

IP Status: US Patent Issued; Patent No. 11,869,350

Applications

- Intelligent transportation systems

Key Benefits & Differentiators

- **Automated tracking and evaluation** SWIS automates the tracking and evaluation of work zone traffic control plans
- **Real-time alerts and advanced warning messages:** SWIS provides real-time alerts and configurable advanced warning messages to drivers approaching work zones
- **Comprehensive work zone information:** SWIS offers comprehensive details including work zone extents, activities, and other relevant information

Technology Overview

Existing technologies in work zone traffic control face significant challenges. Manual tracking and evaluation methods are time-consuming and resource-intensive, relying on frequent field visits and inspections. Current systems also provide limited information to drivers regarding upcoming work zones. They may only display basic location information without details such as work zone extents, activities, or potential deviations. This lack of comprehensive information can lead to driver confusion, increased congestion, and safety hazards. Lastly, using current systems, detecting deviations from established work zone layouts can be challenging. Manual inspections may not happen frequently enough, allowing unplanned deviations to go unnoticed, which can compromise driver safety. Overall, these limitations highlight the need for a more automated, comprehensive, and efficient solution to address the shortcomings of existing work zone traffic control technologies.

Researchers at the University of Minnesota have developed the Statewide Work Zone Information System (SWIS), revolutionizing work zone traffic control with its automated and innovative approach. By ingesting official traffic control plans and tracking individual work zone assets, SWIS ensures accurate and safe traffic control layouts. Whether it's short-term work zones without official plans or deviations from established layouts, SWIS evaluates and alerts in real time, eliminating the need for manual inspections. With SWIS, drivers gain awareness of upcoming work zones through advanced warning messages, improving safety and reducing congestion. The system optimizes transportation decisions and route choices, optimizing work zone capacity utilization. Its efficiency minimizes delays, fuel consumption, and emissions, leading to economic savings for drivers. Leveraging IoT hardware, intelligent tracking algorithms, and a user-friendly smartphone app, SWIS provides a promising and effective solution for work zone management.

Technology ID

20180414

Category

Software & IT/Algorithms
Software & IT/Communications & Networking
Software & IT/Databases
Software & IT/Mobile Apps
Software & IT/Transportation

Learn more



Phase of Development

TRL: 5-6

A functional prototype of SWIS has been developed and tested at work zone sites. Licensee will be required to source data feeds.

Desired Partnerships

This technology is now available for:

- License
- Sponsored research
- Co-development

Please contact our office to share your business' needs and learn more.

Researchers

- [John Hourdos, PhD](#) Research Associate Professor; Director, Minnesota Traffic Observatory, Department of Civil, Environmental, and Geo- Engineering