

CANOGA™ | Traffic Sensing Solutions

Canoga™ Traffic Sensing improves safety at rural intersections



CHALLENGE

A new approach for improving rural roadway safety

Nearly 70 percent of fatal vehicle collisions in Minnesota occur on roads in rural communities, where vehicles move at higher speeds over varying grades and unique terrain. Emergency responders travel longer distances to reach these crash sites, so injured motorists may not receive life-saving medical attention in time.

The Minnesota Department of Transportation (MnDOT) was determined to reduce the number of deaths on rural roads — by reducing the number of vehicle crashes. It teamed with the Minnesota Department of Public Safety and the Minnesota Department of Health to create the Toward Zero Death initiative (TZD), which uses a data-driven, interdisciplinary approach to improve driver safety at targeted rural intersections. As a result, Rural Intersection Conflict Warning Systems (RICWS) are being deployed across outstate Minnesota.

RICWS targets deadly intersections, most averaging two or more fatalities annually. WSB & Associates was selected as the project designer for the RICWS project. The firm has chosen GTT's Canoga™ Traffic Sensing technology to help warn at-risk drivers that oncoming traffic is approaching.

"Across the state, there are dozens of intersections where trees, hills and winding roads obscure views for drivers," said Janelle Borgen, ITS Manager at WSB. "We needed a reliable system that could sense approaching vehicles when drivers couldn't."

SOLUTION

Sensing a better solution

RICWS is one of many types of vehicle warning systems. Each is used to give motorists real-time warnings about cross traffic at intersections when more traditional traffic control devices or environmental improvements can't be implemented. WSB & Associates chose Canoga™ for its reliability and easy installation.

"We're trying to improve safety by implementing traffic sensing technology," said Borgen. "So why would we jeopardize safety by closing roads while installing it? We can install Canoga™ quickly without lane closures for less money and with fewer risks."

LOCATION

Rural Minnesota

MUNICIPALITY

Minnesota Department of Transportation, Minnesota Department of Public Safety and the Minnesota Department of Health

CHALLENGE

- Significant number of serious injury and fatal accidents at non-signalized rural intersections
- Unique terrain and other environment issues compromise visibility for motorists

SOLUTION

- Install Canoga™ Traffic Sensing technology near high-risk intersections
- Calculate speed and distance of approaching vehicles to warn drivers waiting at crossroads that it's unsafe to proceed into the intersection

PERFORMANCE

- Accurately warned 99.9+% of waiting motorists that other vehicles were approaching
- Expected to reduce the number of collisions at rural intersections
- Preliminary data shows a decrease in fatal accidents at intersections



Canoga™ includes non-invasive micro-loops and conduits that are installed by boring horizontally under the pavement on the side of the road, instead of cutting directly into the roadway. The integrity of the pavement is spared. Plus, the solution is impervious to adverse weather conditions, unlike radar- or video-based RICWS systems, so motorists can receive warnings consistently at all times.

GTT engineers customized the Canoga™ solution with two sets of micro-loops spaced about 20 feet apart. The solution measures the time it takes for a vehicle to pass between the two sets of micro-loops to determine vehicle speed. Then, it automatically calculates the time it will take for the vehicle to reach the intersection and sends an activation signal to a highly conspicuous flashing sign to warn cross-traffic drivers. GTT partners with its dealer, Traffic Control Corporation (TCC), to ensure Canoga™ works seamlessly with the warning signal signs at the targeted intersections.

“With Canoga™, we know exactly how long it takes for vehicles to reach the intersection based on the speeds they’re traveling,” said Borgen. “We’ve set the warning signals to give cross-traffic drivers about seven seconds of warning time. The signals flash so drivers on crossroads know that a vehicle is approaching and to stay clear of the intersection.”

PERFORMANCE

Lives saved in a flash

MnDOT hired the University of Minnesota to evaluate performance where the Canoga™-based RICWS was deployed. The University studied one intersection, using its own proprietary test solution to determine whether Canoga™ accurately activates the warning signal for cross-traffic vehicles. That information was compared to the data stored in the Canoga™ solution. Discrepancies between the two systems were resolved by analyzing video surveillance at the site.

The results were remarkable. In the 30-day study, 85,645 vehicles approached the intersection. The warning sign was activated accurately 85,634 times. All stakeholders involved in the project are very pleased with the 99.997% success rate of the Canoga™ solution.

“The accuracy numbers are fantastic, but we’re more concerned with another number and that’s the number of collisions at the site since Canoga™ was installed,” said Borgen. “We’re passionate about saving lives. And this project can have a giant impact on not only reducing fatalities, but in reducing crashes. That’s why we’re here, doing what we do and why we chose Canoga™.”

While the study is still ongoing, the MnDOT Office of Traffic Safety is anticipating a crash reduction of more than 30% and a decrease in serious injury by 70%. GTT, TCC and WSB have implemented Canoga™- based RICWS at 20 rural intersections. Another 30 installations are slated for the coming year.

The success of the project has triggered similar initiatives throughout outstate Minnesota. In fact, up to 150 intersections will be equipped with a RICWS in the next couple of years.

GTT is confident that the state will count on Canoga™ keeping motorists safer at many of those intersections.

“We’re passionate about saving lives. And this project can have a giant impact on not only reducing fatalities, but in reducing crashes. That’s why we’re here, doing what we do and why we chose Canoga™.”

- Janelle Borgen,

ITS Manager at WSB & Associates



GLOBAL TRAFFIC TECHNOLOGIES

Global Traffic Technologies, LLC
7800 Third Street North
St. Paul, Minnesota 55128-5441
1-800-258-4610
651-789-7333
www.gtt.com