

# WisDOT Reduces In-Curve Accidents on WI's Most Traveled Interchanges



## CUSTOMER NAME

Wisconsin Department of  
Transportation (WisDOT)

## PRODUCTS

[TAPCO BlinkerChevron™ Dynamic Curve  
Warning System](#)

## SUMMARY

A horizontal curve ramp at the Marquette Interchange in downtown Milwaukee was the site of about 77 collisions per year. Then, WisDOT launched a safety improvement project that included the TAPCO BlinkerChevron™ Dynamic Curve Warning System, and the project proved so successful it was replicated elsewhere.

## ORGANIZATION

Since 1967, WisDOT has supported all modes of transportation in the state of Wisconsin, including its network of state highways and the interstate highway system.

## SITUATION

Downtown Milwaukee is home to one of the busiest highway interchanges in the state of Wisconsin: the Marquette Interchange. Due to the high traffic volume and a downward-sloping horizontal curve ramp, which featured a warning speed reduction from 50 miles per hour to 40 miles per hour, the interchange had 232 reported collisions less than three years after completion. That's about 77 reported collisions each year, on top of many close calls.

WisDOT was not alone in facing this safety challenge. In 2015, [23 percent of fatal crashes](#) in the U.S. happened on horizontal curves, despite such curves making up just five percent of road miles, according to the Fatality Analysis Reporting System (FARS).

From the opening of the Marquette Interchange's ramp in November 2008 through June 2011, the in-curve safety measures included static chevron signs, beacons and overhead 40 MPH speed warning signs, but they simply weren't enough. Crashes were still occurring.

"We were concerned about the ramp, as we were starting to find out how many crashes there were," said Stacey Pierce, State Traffic Management Supervisor for the Wisconsin Traffic Management Center (TMC). "The Federal Highway Administration encouraged us to do everything we could."

Reducing speeds and keeping people on the road were pivotal. To accomplish this, WisDOT needed a reliable, MUTCD-compliant safety solution that would stand the test of time.

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*Fatality Analysis Reporting System  
(FARS)*

# **The BlinkerChevron™ Dynamic Curve Warning System is proven to decrease the amount of vehicles speeding on curves by up to 26 percent.**

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*Federal Highway Administration  
(FHWA)*

## **SOLUTION**

WisDOT zeroed in on the [TAPCO BlinkerChevron™ Dynamic Curve Warning System](#), proven to decrease the amount of vehicles speeding on curves [by up to 26 percent](#), according to a 2014 Federal Highway Administration (FHWA) study.

Engineered to fit the contours of any curve, the system features wirelessly connected LED-enhanced chevron signs that command drivers' attention with simultaneous, true sequential, segmented sequential or custom flash patterns, guiding drivers through the entire curve. Plus, every BlinkerChevron™ Sign is MUTCD compliant and flashes in accordance with MUTCD section 2A.07.

Tom Heydel, WisDOT's Southeast Region Signing and Marking Operations and Design Engineer, said he had seen the effectiveness of TAPCO's LED-enhanced signs, called BlinkerSigns, in the past and knew they were MUTCD compliant, so that was a major draw.

The BlinkerChevron™ Dynamic Curve Warning System at the Marquette Interchange consists of nine AC-powered BlinkerChevron™ Traffic Signs that flash simultaneously. While the system can operate 24/7, from dusk to dawn, at scheduled times or via advanced sensor detection, WisDOT chose dusk-to-dawn activation so that the signs would only flash in low light conditions — when they're needed the most.



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*Tom Heydel, WisDOT Southeast  
Region Signing and Marking  
Operations and Design Engineer*

In addition, the BlinkerChevron™ Signs are wirelessly connected through [BlinkLink®](#), which is TAPCO’s cloud-based, event management software that generates high-priority activation alerts, compiles valuable data and provides system health diagnostics to traffic operations personnel.

“It’s been pretty good,” Tom said. “Our Traffic Management Center monitors the BlinkLink® system, and it’s been working effectively.”

Due to the downward slope of this particular ramp, WisDOT also installed a High Friction Surface Treatment (HFST), which is a pavement-surfacing system proven to help vehicles resist skids and stay on the road. A popular, cost-effective way to improve traffic safety in problem areas, HFST pairs well with many Intelligent Warning Systems.

## **RESULTS**

In combination, the BlinkerChevron™ Dynamic Curve Warning System and HFST surpassed expectations. The Marquette Interchange’s horizontal curve ramp saw a 97 percent reduction in collisions after both countermeasures were installed in 2011. Years later, collisions remain low.

“Speeds went down as a result of the BlinkerChevrons,” Tom confirmed. “It’s been a decade, and they’re still holding up pretty well.”



Due to the proven success of the curve warning system at that location, WisDOT installed the system with sequentially flashing signs at another one of the busiest interchanges in the state, the Zoo Interchange, when it was being completed in fall 2017. Since then, the interchange has experienced fewer collisions than the statewide average, despite the high traffic volume.

The system is now installed at several other locations in the Milwaukee metro area and around Wisconsin as well.

By being both proactive and responsive, WisDOT improved the safety of thousands of drivers with the BlinkerChevron™ Dynamic Curve Warning System.



 ***Learn more about the BlinkerChevron™ Dynamic Curve Warning System here.***

## ABOUT TAPCO

As an industry-leading innovator, TAPCO manufactures, services and distributes a wide portfolio of traffic and parking safety solutions designed to increase safe travels for all. Since 1956, we have set the standard for delivering reliable, cutting-edge traffic safety enhancements. From our world-renowned line of LED-enhanced BlinkerSign® solutions to our pedestrian crossing products and early detection warning systems, safety is at the heart of all TAPCO innovations.

Working alongside traffic professionals for more than 60 years- gives our team an exclusive perspective on the past, present and future needs of the traffic and parking safety industry.

