

## Wisconsin Department of Transportation Installs TAPCO's BlinkerChevron™ Dynamic Curve Warning System to Prevent In-Curve Accidents on Wisconsin's Most Traveled Interchanges

The Wisconsin Department of Transportation (WisDOT) knew they had to reduce in-curve accidents on the notoriously dangerous Highway I-94 westbound to Highway I-43 northbound horizontal curve ramp at the Marquette Interchange.

### Problem:

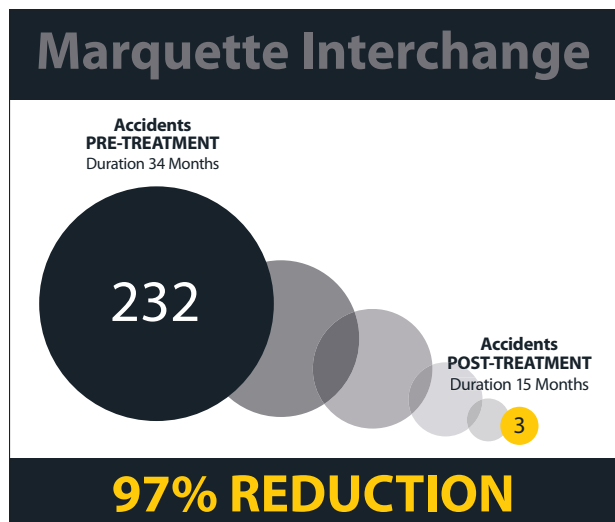
The quick speed reduction from 55 mph to the curve's 40 mph advisory speed limit wasn't being advised. In the first three years after completion of the original ramp in 2008, there were 232 reported accidents and many more close calls.

"We were concerned about the ramp, as we were starting to find out how many crashes there were," said Stacey Pierce, WisDOT Southeast Region Traffic Safety Engineer. "The Federal Highway Administration encouraged us to do everything we could."

Traffic professionals know that decreasing average in-curve vehicle speed is necessary, but it is the reduction of high-speed traffic that makes a true impact in reducing accidents.



TAPCO's BlinkerChevron™ Dynamic Curve Warning System safely guides drivers through Milwaukee's Marquette Interchange.



U.S. Department of Transportation, Federal Highway Administration  
\*Percent reduction comparing total accidents from 2011-2012

### Solution:

Looking for an innovative solution, WisDOT installed TAPCO's BlinkerChevron™ Dynamic Curve Warning System – proven to decrease 26 percent of in-curve vehicles traveling at high rates of speed, according to a recent [Highways for Life Study](#) – through the length of the curve.

From the opening of the ramp in November 2008 to the installation of the system in June 2011, static chevron signs were the only in-curve safety measure.

"We did not have the BlinkerChevron™ signs included originally," said Tom Heydel, WisDOT Southeast Region Signing and Marking Design Engineer, who was involved with the original signing and marking plans at the Marquette Interchange. "We just had the static chevron signs, but as a result of some issues with that particular ramp, we then installed the BlinkerChevron™ signs."

The installed system consists of nine solar-powered, LED-enhanced BlinkerChevron™ signs that flash simultaneously, guiding drivers through the length of the curve. The signs flash continuously day and night and are wirelessly connected through the cloud-based software, BlinkLink<sup>®</sup>.

“That particular ramp at the Marquette Interchange had a twofold issue – the speed reduction from 55 mph to 40 mph, but also the fact that it went down grade before the curve and into the curve,” Heydel said.

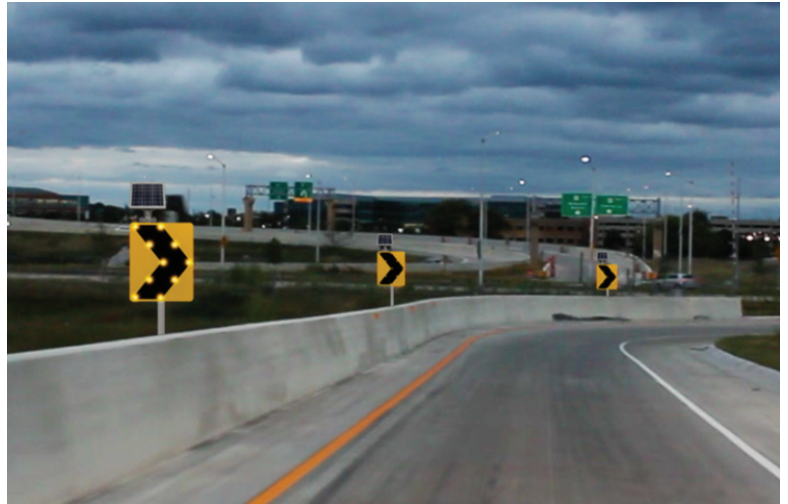
Due to the downward slope of the ramp, WisDOT installed High Friction Surface Treatment - pavement surfacing systems with exceptional skid-resistant properties – alongside the BlinkerChevron™ Dynamic Curve Warning System.

### Results:

In combination, the two countermeasures surpassed expectations. The ramp saw a 97 percent reduction in accidents after installation of the BlinkerChevron™ Dynamic Curve Warning System and High Friction Surface Treatment.

*“We have also installed them on two lane roads and they have been very successful in reducing crashes.”*

– Tom Heydel, WisDOT Southeast Region  
Signing and Marking Design Engineer



WisDOT has installed additional BlinkerChevron™ Dynamic Curve Warning Systems on high-speed ramps in Milwaukee County's Zoo Interchange.

### Preventive Measures:

With the proven success of the BlinkerChevron™ Dynamic Curve Warning System, WisDOT has taken what they have learned from the Marquette Interchange and is now being more proactive in their approach with highway curves during the reconstruction of the Zoo Interchange, the state's most traveled intersection.

“We've been installing BlinkerChevron™ [signs] at the Zoo Interchange where there are 40 mph or less ramps where drivers have to drop their speed,” Heydel confirmed. “It's a proactive approach as part of the project rather than waiting for the project to be over, and then you have a problem you'll have to address later.

“There is not a set standard that says, ‘You put in BlinkerChevrons when this happens’. It was more based on the experience with the Marquette Interchange.”