



INTELLIGENT WARNING SYSTEMS





A pioneering force in the industry, TAPCO has been bringing cutting-edge traffic safety solutions to communities nationwide since 1956. We specialize in manufacturing, servicing and distributing an expansive portfolio of traffic and parking safety solutions, leading the way when it comes to expertise and innovation. Safety is at the heart of all TAPCO innovations — and our mission to save lives prospers in each of our products, from our LED-illuminated LegendViz® technology and Wrong-Way Alert Systems to our groundbreaking pedestrian safety solutions.



Unmatched Expertise

Our team has worked alongside traffic professionals for more than 60 years, providing us with an exclusive, knowledgeable perspective on the needs of the traffic safety industry: past, present and future.



Innovative Technology

Traffic safety evolves — and so do we. We continue to be at the forefront of the industry by embracing cutting-edge advancements and tailoring our solutions to meet customer needs.



A Nationwide Presence

Our reach spans all 50 U.S. states — plus some regions of Canada, giving us valuable insight and an in-depth understanding of a range of community safety concerns and challenges.



Award-Winning Culture

At TAPCO, we have cultivated a collaborative culture that fosters innovation and instills a sense of pride. Our commitment to excellence is evident in our recognition as a repeat recipient of the Top Workplaces award.



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Alert drivers of pertinent roadway safety information directly through TAPCO's awardwinning CVI.



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Learn how to enhance any TAPCO-manufactured system with warning alerts, designed to improve driver compliance.

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TAPCO leads the industry in not only manufacturing traffic safety systems but maintaining their upkeep as well. Learn more on how to improve your system's lifespan.





BlinkLink®

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TAPCO's cloud-based smart city platform is designed for traffic professionals to remotely manage, schedule, quantify and monitor Intelligent Warning Systems.

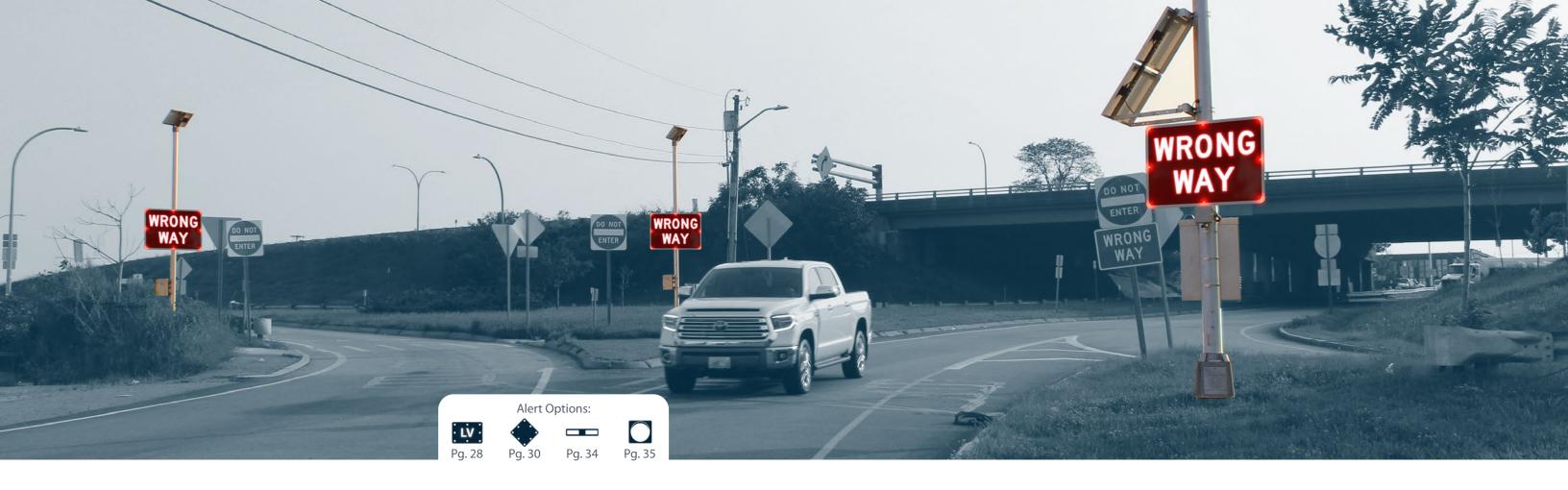
PROCUREMENT/CONSULTATIVE HELP

42-43

We help customers meet unique needs. Need help securing funding or not sure how to implement a solution? Talk to our experts.









When a wrong-way driver enters a freeway or any roadway against traffic, the effects can be devastating. Reducing just one wrong-way event can save lives.

The Wrong-Way Alert System is engineered to detect wrong-way driving events. When a driver is initially detected, wrong-way driver alerts are triggered, encouraging the driver to turn around. If the driver doesn't self-correct, the wrong-way driver is detected in the Confirmation Zone, which then sends out a high-priority alert to critical parties, such as DOTs, via BlinkLink®.

TAPCO Wrong-Way Alert Systems deliver low percentages of false positives and high system uptime.

The flashing
Wrong-way
[BlinkerSign®]
has been a
tremendous help
to us. They've been
twice as successful
as I ever thought
they would be.



 John Gianotti, TxDOT
 Transportation Engineer for the San Antonio District



DID YOU KNOW?

360 lives are lost annually due to wrong-way collisions. TAPCO's Wrong-Way Alert System is proven to reduce wrong-way events by 38%.

[According to the Texas Transportation Institute (TTI): Assessment of the Effectiveness of Wrong-Way Driving Countermeasures and Mitigation Methods] Uniquely engineered to fit any ramp configuration, the Wrong-Way Alert System is able to meet the needs of individual deployments. With thousands of ramps installed and over fifteen years of wrongway deployment experience, TAPCO offers ease of installation for ramp configuration, power and communication restrictions, and budgetary contstraints.

Common system placements:

- side-by-side highway entrance and exit ramps
- side street exit ramps
- poorly lit exit ramps
- mainlines

With BlinkLink®, transportation officials can collect actionable data as well as access livestreaming, video and still footage of wrongway events.







Pedestrian safety starts with the proper countermeasures. Ensuring pedestrians have access to highly visible, designated crosswalks is a crucial step in securing their safety — and enhancing crosswalk visibility to alert drivers when pedestrians are nearby further optimizes pedestrian safety.

TAPCO's Pedestrian Crosswalk Systems are designed to provide drivers with real-time warning of pedestrians in or entering the crosswalk by capturing driver attention and encouraging drivers to stop or yield through activated alerts. Not only do the systems heighten driver awareness, but they provide vulnerable road users with confidence to safely navigate crosswalks — day or night.

Built to MUTCD standards, TAPCO's crosswalk systems are suitable for any area, from midblock locations to school zone crossings. Additionally, the customization options give transportation officials the ability to build each system to meet community safety needs.



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According to data from the local police department and DOT, our crashes are down 20 to 30 percent.





KNOW?

You can increase driver yield rates by as much as 96% with select applications.

[According to an analysis of the efficacy of RRFB LED beacons to increase yielding to pedestrians using crosswalks on multilane roadways in the city of St. Petersburg, FL]



ENHANCEMENTS

SafeWalk®: Vulnerable road users can become more visible in crosswalks with TAPCO-engineered lighting, made especially for nighttime and low-light conditions.

VizMark™: By illuminating crosswalks or advanced stop and/or yield lines when pedestrians are detected, VizMark[™] helps motorists identify important pavement markings.

BlinkLink®: Take your crosswalk systems to the next level with device connectivity options. Remote scheduling, activation data and system information are all available in one convenient location when you connect your crosswalk network with BlinkLink®, TAPCO's smart city platform.



Product Brief



Product Brief



Product Brief



⁻ John Edlebeck, Director of Public Works for Whitefish Bay, WI





SCHOOL ZONE

When school zones lack protective measures, it can create a dangerous environment for students. School zone safety starts with implementing the proper safety measures.

TAPCO's school zone warning solutions are designed to enhance student safety within any designated school zone. By alerting drivers of an approaching school zone and to the presence of students, TAPCO's warning systems increase roadway compliance to elevate overall safety.

Depending on each school zone's unique needs, choose from options such as TAPCO's Pedestrian Crosswalk System, BlinkerRadar™ Driver Feedback System and various speed limit warning alerts — all engineered to address common school zone safety concerns. For an extra layer of protection, add additional desired warning alerts to any system to maximize driver visibility.



The TAPCO [RRFB Pedestrian Crosswalk]
System took safety to the next level and was worth every penny.
I would certainly recommend it to any school administrator or principal.



– Laura Studee, Principal, Sheboygan Leadership Academy Connect and manage all deployed school zone warning systems in one place with BlinkLink®. TAPCO's smart city software gives users the ability to monitor systems, collect data and manage activations remotely, simplifying system management and eliminating the need for unnecessary trips — especially to schools located in remote areas.

BlinkLink® Scheduled Activation: With a time clock, utilize Blinklink® to remotely schedule the activation of all school zone systems from one convenient location.

BlinkerRadar™ Driver Feedback System: By combining a driver feedback sign and LED-enhanced warning alerts, the BlinkerRadar™ Driver Feedback System encourages speeding drivers to slow down.









SPEED AWARENESS

Speeding is one of the most common causes of crashes and endangers lives on the road every day. Increasing roadway compliance can not only reduce overall speeds, but it can also save lives.

When motorists fail to comply with traditional static speed limit signs, additional measures are often needed. TAPCO's speed awareness solutions are proven to increase roadway compliance by showing drivers their speed, accompanied by an alert. By notifying motorists of the posted speed limit alongside their own, speed awareness applications can add an extra layer of awareness that can lead to immediate driver reactions: slowing down.

TAPCO's speed awareness solutions are a cost-effective way to complement any speed reduction strategy — or can be used as a standalone treatment. Strategic placement of speed control devices can help calm traffic in challenging locations with fluctuating speeds, such as school zones, newly constructed roadways and roads with recently changed speed limits. To aid in compliance, choose an activation method suited for each application's environment, based on factors like foot traffic and traffic patterns.

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Horizontal curves pose a significant risk on roadways, with a crash rate three times higher than other highway segments.

The BlinkerChevron™ Dynamic Curve Warning System is engineered to maximize safety on horizontal curve segments by guiding motorists through curves. Embedded with LED-enhanced warning alerts that flash according to MUTCD standards, the system increases driver awareness on any horizontal curve to mitigate the occurrence of roadway departures and in-curve speeding.

Reduce motorists driving 15+ mph over advisory curve speed limits by 30%.

[FHWA Safety Program: Low-Cost Treatments for Horizontal Curve Safety 2016]

Over 25% of fatal crashes are associated with a horizontal curve. TAPCO's BlinkerChevron™ Dynamic Curve Warning System is proven to reduce horizontal curve crashes by 58%.

KNOW?

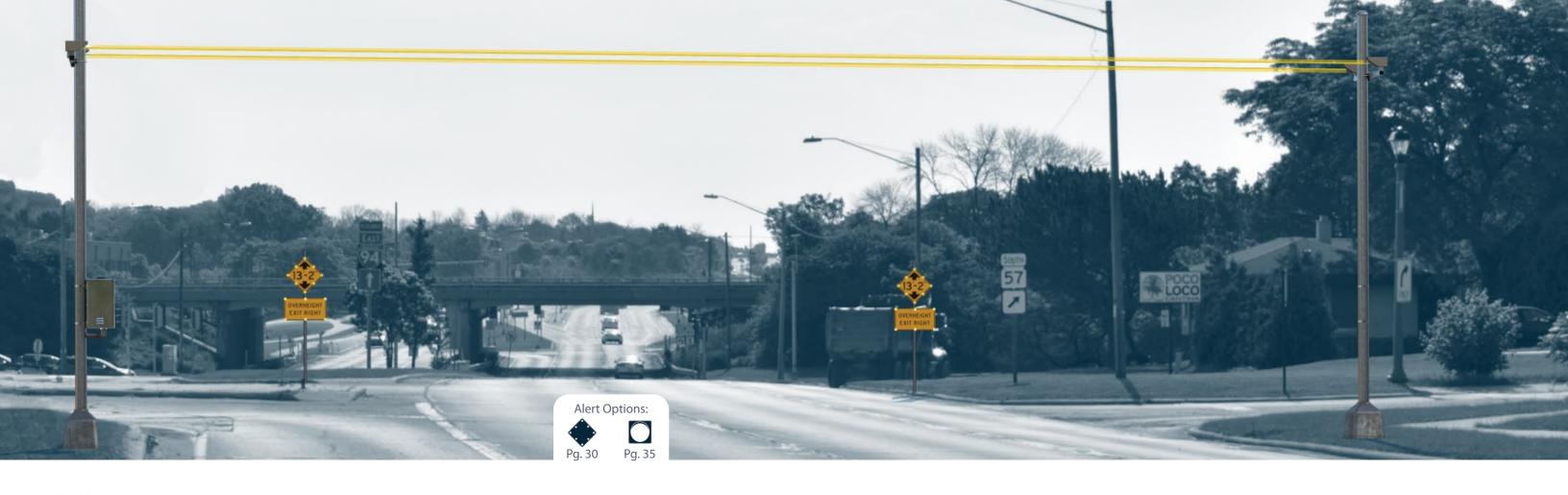
[Highways for Life: Evaluation of the Sequential Dynamic Curve Warning System] Highly effective on segments such as rural roadways, multilane expressways and obstructed view highways, the system is designed to fit the contour of any curve. An extra layer of protection can be added by integrating the system's radar activation into any existing advance curve warning alerts and message boards, deploying the BlinkerChevrons and advance messaging even earlier. Tailor the system to fit your needs with a variety of custom activations, flash patterns and power options.

BlinkLink® enhancement: eliminate unnecessary trips to your system, especially for rural locations.

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When an overheight collision occurs, the impact can be devastating. Preventing the occurrence of these collisions can vastly improve safety and eliminate unplanned costs.

The Overheight Warning System is designed to help reduce the occurrence of overheight collisions by providing advance warning to drivers ahead of low-clearance structures. Equipped with dual-beam infrared sensor detection, the system detects vehicles that won't clear a structure and activates warning alerts when an overheight vehicle breaks the beam between the emitter the sensors.

Some low-clearance structures are struck once per month.

[According to a Primer for Improved Urban Freight Mobility and Delivery Operations, Logistics, and Technology Strategies]



YOU KNOW?

The average cost of a single overheight collision is \$200,000 to \$300,000.

[According to a <u>TxDOT study</u>]

By alerting drivers of an upcoming low-clearance hazard, the system gives drivers the ability to safely exit and reroute. The flexible configuration allows users to integrate the system with existing solutions — such as dynamic message signs — to further enhance situational awareness.

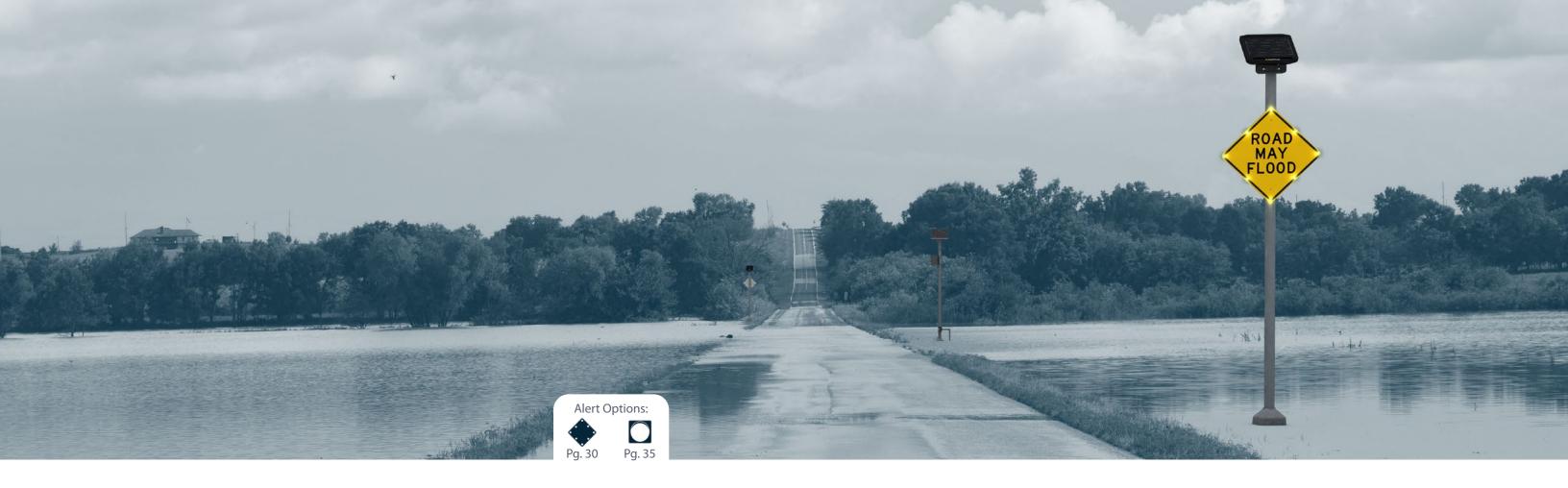
Common collision locations:

- Low bridges
- Tunnels
- Underpasses
- Weigh stations
- Parking structure

BlinkLink® advantage: be the first to know when there is an overheight collision.



Brochure Video





It's not always possible to predict when weather will affect mobility. Ensure motorists are always informed when flash floods and other high water events occur.

The High Water Warning System detects when water rises to dangerous levels through a combination of sensor technology — handpicked by TAPCO experts. Once flooding is detected, the system's warning alerts activate to provide advance warning to approaching drivers to give them ample notice for rerouting.

By automatically activating once water levels reach the adjustable threshold, the system helps mitigate the need to deploy resources in the event of flooding. The system can be right-sized for any road, with adjustable water level detection to fit a variety of geographical layouts.

BlinkLink® advantage: receive automated notifications in the event of a system activation to facilitate an immediate response.



Just one inch of water can cause a car to hydroplane — and 12 inches of water can carry a car away.

[According to the National Weather Service]



20 Video 21





When an emergency occurs, time is of the essence. Giving emergency vehicles the space to respond quickly starts at the station.

The Emergency Vehicle Warning System alerts drivers of emergency vehicles actively leaving the station, allowing drivers to yield at entry and exit points. By activating the LED alerts, the system heightens driver awareness to facilitate an uninterrupted response from first responders.

Ideal for roadways with limited visibility, such as broad curves and hidden driveways, the system's real-time warning enhances safety for all roadway users. And, choose from multiple activation options that immediately trigger the system's warning alerts.

BlinkLink® advantage: manage your system remotely, including system health.



In 2021, 18,775 fire department emergency vehicles were involved in collisions, resulting in 600 firefighter injuries.

[According to NFPA survey of fire departments for US fire experience (1980–2021)]



Video 23





INTERSECTION CONFLICT

Intersections are a common factor in traffic collisions, but increasing awareness of present traffic can reduce the potential for dangerous crashes.

The Intersection Conflict Warning System provides real-time warning of cross traffic at two-way stop intersections. By notifying approaching drivers of present cross traffic, the system reduces the likelihood of collision at dangerous intersections.

Enhance an Intersection Conflict Warning System with LegendViz® technology to illuminate hard-to-see traffic signs on rural roadways with poor lighting.

DID YOU KNOW?

You can reduce fatal and injury crashes at rural intersections by 27%.

[FHWA Systemic Application of Multiple Low-Cost Countermeasures at Stop-Controlled Intersections] Ideal for rural intersections or roadways with limited visibility, the system utilizes a presence detector to identify vehicles approaching both the intersection and the stop sign. When a vehicle is detected, the system's warning alerts activate to inform motorists of present traffic and encourage them to proceed with caution.

BlinkLink® advantage: eliminate time-consuming trips to each system's location.



Product Brief 25



Brochure

Traffic sign visibility can be easily compromised — from roadways with limited visibility to adverse weather. The bottom line? Standard, static traffic signs can be difficult to see until it's too late. And even one motorist inadvertently failing to stop or yield can pose a danger to all roadway users.

LED-enhanced warning alerts are designed to increase roadway compliance and awareness by commanding driver attention. TAPCO's wide variety of alerts include beacons, edge-lit warning lights, RRFBs and illuminated legends, which can be added to any system to heighten visibility.

While common applications include wrong-way entry points, rural intersections and mid-block crosswalks, warning alerts can be integrated into any TAPCO system to boost visibility. By drawing attention to existing safety measures, warning alerts promote compliance and create a safer environment for all.









Video

Add next-level visibility to any system featuring a stop, wrong-way or do not enter sign with LegendViz® technology. The LED-illuminated legends offer unmatched visibility during low-light or low visibility conditions without the need for retroreflectivity or headlights.

The long-lasting LEDs automatically brighten according to ambient light levels and are visible from offset and perpendicular angles, enhancing sign legibility distance and heightening situational awareness. By utilizing illumination technology, LegendViz® creates a stark contrast between the legends and the dark environment.

- MUTCD-compliant and made in the USA
- Dusk-to-dawn legend illumination
- Designed for easy installation
- Flexible configuration

Increase sign legibility distance by as much as 100% in comparison to static traffic signs.

[According to Texas A&M TTI testing]





Video

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The LegendViz® BlinkerSign® brings an extra layer of visibility to any TAPCO system equipped with a stop, wrong-way or do not enter sign. By incorporating LED-illuminated legends with the proven conspicuity of flashing perimeter LED warning lights, the alert combination maximizes driver awareness and compliance.

Visible more than one mile away, the LegendViz® BlinkerSign® can flash 24/7, dusk-to-dawn or upon vehicle detection, with the LED-illuminated legends offering consistent nighttime illumination. The enhanced visibility decreases the reliance on vehicle headlights to illuminate a retroreflective sign and helps to mitigate events of motorists failing to comply with traffic signs.

- MUTCD-compliant and made in the USA
- Perimeter LEDs with automatic dimming
- Designed for easy installation
- Flexible configuration

Boost legibility distance by up to 267% in comparison to static traffic signs.

[According to Texas A&M TTI testing]







Video

Designed to command motorists' attention and increase roadway compliance, BlinkerSigns® are edge-lit with flashing LED warning lights. The highly visible perimeter lights bring enhanced visibility to any system and utilize amber, red, orange or white LEDs depending on the sign face.

Ideal for evening hours and problem locations, the perimeter lights on a BlinkerSign® are visible more than one mile away. Any sign can be programmed to flash 24/7, dusk-to-dawn or upon vehicle activation based on location and customer need.

- MUTCD-compliant and made in the USA
- Highly visibly edge-lit LEDs
- 3M DG³ reflective sheeting
- Anti-graffiti overlay on sign face
- Flexible configuration

Reduce vehicle blow-throughs by up to 52.9% at high-risk and high-incident intersections.

[According to the <u>Texas A&M TTI</u>]



RUGGEDIZED BLINKERSIGN®



Video

Bypass the standard cycle of extreme wear and tear on traffic signs with the Ruggedized BlinkerSign®. Designed to withstand severe weather conditions, the Ruggedized BlinkerSign® is reinforced with two additional layers of material to ensure exceptional durability.

The signs reduce the likelihood of being bent or broken — especially when it comes to external conditions like snowplows, falling debris and high winds. Any LED-enhanced TAPCO sign can be ruggedized to provide enhanced protection and longevity.

- MUTCD-compliant options available
- Made in the USA
- 3M DG³ reflective sheeting
- Enhanced three-layer design
- Resistant to harsh environmental conditions







Video

Convey any message to passing motorists with a custom BlinkerSign®, such as "REDUCED VISIBILITY AHEAD" or "INTERSECTION AHEAD". Traffic safety isn't limited to standard sign messaging — and TAPCO's custom messaging reflects that. Each sign is enhanced with flashing perimeter LED warning alerts to command the attention of roadway users.

Depending on the sign face, the perimeter LEDs can be offered in amber, red, orange or white. And, choose from various activation and control options to meet the unique needs of each application. Not only does a custom BlinkerSign® ensure any message stands out, but it also maximizes visibility and overall roadway safety.

- Made in the USA
- Customized sign face
- Highly visible perimeter LED lights
- Multiple activation options





Video

Edge-lit and engineered to command attention, an Indoor BlinkerSign® can facilitate situational awareness in indoor settings. The signs are designed to increase safety compliance and are ideal for facilities that experience forklift, heavy equipment and pedestrian traffic on a regular basis.

The Indoor BlinkerSign® adds an extra layer of safety to any facility, ensuring that individuals remain alert and exercise caution when navigating potential hazards. The highly visible, red flashing LEDs increase attention and enhance reaction times, mitigating the occurrence of preventable collisions and workplace injury.

- Made in the USA
- Heighten indoor situational awareness
- Automatic dimming based on ambient light
- Increase facility safety compliance







A step above industry standard, the RRFB-XL2[™] elevates the safety measures of any system. The extra-large rectangular rapid flashing beacons utilizes the FHWA-approved wig-wag plus simultaneous (WW+S) flash pattern, making them highly visible to approaching drivers.

The beacons automatically dim based on ambient lighting, optimizing LED output and longevity. Available in amber or red LEDs, the RRFB enhances situational awareness and increases driver compliance.

- MUTCD-compliant
- Reduce nighttime glare with dimmable LEDs
- Highly visible day and night

Improve driver yield rates by as much as 98% at uncontrolled pedestrian crossings.

[According to an Analysis of the Efficacy of Rectangular-shaped Rapid-Flash LED Beacons to Increase Yielding to Pedestrians Using Crosswalks on Multilane Roadways in the City of St. Petersburg, FL]



⚠ BLINKERBEACON™

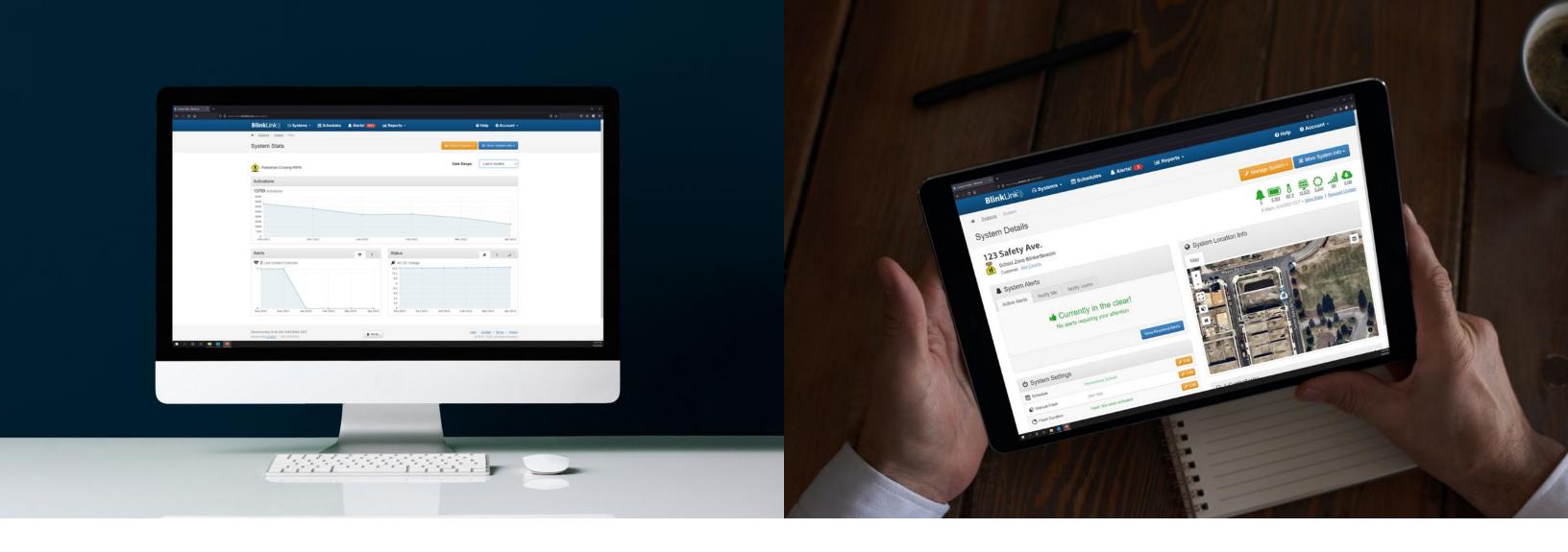


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BlinkerBeacon™ flashing LED beacons provide real-time warning to drivers in active school zones. With a variety of arrangement options available, beacon alerts can be added based on each system's activation needs.

The variable dimming capabilities offer optimal LED output and longevity, ensuring the beacons consistently provide optimal levels of brightness (during day and night) and maximize visibility without compromising their reliability. The beacons are available in red and amber LED options, providing flexibility to optimize roadway safety.

- MUTCD-compliant options available
- Reduce nighttime glare with dimmable LEDs
- Capture driver attention





Managing any community's intelligent transportation systems can be time consuming.

Software like BlinkLink® — TAPCO's smart city platform — is designed to make traffic system management easier. The cloud-based application gives agencies the ability to remotely manage, monitor, schedule and quantify their Intelligent Warning System deployments and system-wide timeclocks.

By providing real-time data in one place, BlinkLink® users can quickly identify and react to emergencies, system issues and maintenance needs. Once a problem is identified, BlinkLink® immediately notifies transportation officials via voice, email or SMS alerts. With additional capabilities such as image/video capture and livestreaming, BlinkLink® provides vital data to not only act quickly in the event of an emergency, but also to identify future infrastructure improvements through activation trends.





The cool thing about BlinkLink is that it has it's own diagnostics that will come through and send emails. I don't even have to go to BlinkLink® — it comes to me.

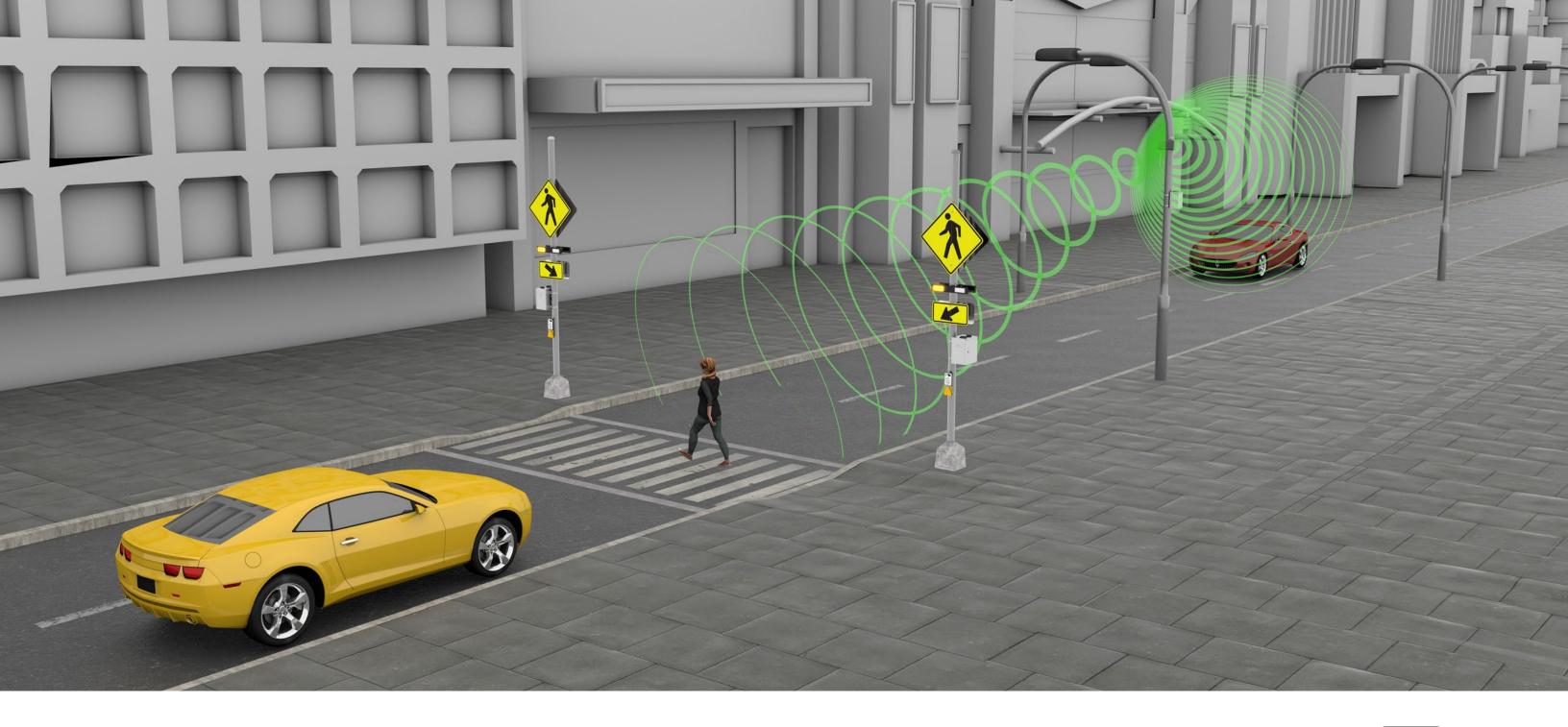
– Buck Hodgkinson, Senior Field Service Technician at RIDOT



BlinkLink® is compatible with all TAPCO Intelligent Warning Systems for hassle-free management. Other features include:

- Third-party software integration
- Controller-based mapping
- Custom reporting
- Accessible via any web-enabled device







TAPCO's Connected Vehicle Interface (CVI) is designed to seamlessly connect with any Intelligent Warning System to deploy in-vehicle alerts. Once the system is triggered, the CVI establishes communication between the warning system, the RSU and the vehicle's onboard unit (OBU) to activate the approaching motorist's in-vehicle alert. By providing another level of warning, TAPCO's CVI elevates situational awareness and driver response to create a safer roadway experience for all.

DID YOU KNOW?

TAPCO's CVI won the 2019 New Products Innovation Award, presented by American Traffic Safety Services Association (ATSSA).



Video





PREVENTATIVE MAINTENANCE

Caring for an Intelligent Transportation System extends beyond procurement and installation. Servicing a system can optimize performance and extend lifespan, making it a vital step in maintaining any community's systems. TAPCO offers service agreements to accompany any Intelligent Warning System installation or supplement existing Intelligent Transportation System deployments.

TAPCO's preventative maintenance plans provide continued care of any traffic system, including scheduled visits and warranty extensions. Once a system is installed, TAPCO customers can "set it and forget it", with experienced service technicians available to provide next-level service for years to come.

Preventative maintenance packages are available for any TAPCO Intelligent Warning System. Additionally, TAPCO offers customized packages to supplement resources for non-TAPCO traffic systems and equipment, ensuring peace of mind for any deployed system. Standard services include scheduled visits to perform inspections and/or testing, plus complete system updates, with comprehensive documentation provided after each visit.

Other benefits of a TAPCO service agreement include:

- Discounted BlinkLink® subscription
- Discounted equipment packages
- Maintenance contractor technical support
- Customizable agreements



40 Video 41







Contracts

By offering purchase agreements, TAPCO ensures that communities nationwide can access high-quality traffic safety solutions at an affordable price while creating an easy and fair buying experience.

<u>Purchase agreements and contracts</u> offered by TAPCO include national cooperative contracts through <u>Omnia Partners</u> and federal contracts through GSA. These partnerships are designed to streamline the purchasing process, allowing transportation officials to obtain the solutions they want. Not only do purchase agreements save time and money, but they also provide transparency and peace of mind throughout the buying process.

Additionally, TAPCO has partnered with select programs to provide contracts on a state level. By offering solutions that adhere to regional standards, these programs simplify the procurement process for state agencies and give them the ability to enhance safety in their communities.





Contact Us

Each community's roadway network is set up differently — and it can sometimes be difficult to identify the most suitable fit for a roadway. TAPCO offers consultative help to communities seeking the best solution for the problem facing their roadways. During the consultation process, TAPCO's experts gather information about specific needs, infrastructure characteristics and more to assess the situation and recommend a right-fit solution.

TAPCO understands that the one-size-fits-all approach isn't always suitable, which is why engineered-to-order options are available to address specific roadway safety needs. Specialty solutions like the High Water Warning System and Icy Road Warning System utilize TAPCO's expertise to develop a customized system, ultimately targeting elevated situational safety. TAPCO's deep understanding of the industry paired with 60+ years of experience ensures our team of experts is equipped with the knowledge to select the optimal technology for any solution, carefully considering factors such as accuracy, reliability and compatibility for the best possible fit.





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