



Contact us for an on-site demo.

Practical Technology, LLC

BOWS Bridge Operation Warning System

Wouldn't you want to know?



Queen Isabella Causeway Memorial Bridge (courtesy TxDOT)

An **emergency warning system** that *reliably* detects bridge collapse, *immediately* alerts unsuspecting motorists, and *automatically* notifies authorities.

Advantages

Immediate, Actionable Advice — Limit liability and fatalities by notifying motorists right away. Detect bridge collapse anywhere along the bridge for any reason—from natural disasters or marine accidents to aging or terrorism.

Cost-Effective — Expand coverage area with affordable capital cost/ft plus very low maintenance costs. Easy to install and maintain.

Reliable — Maintain public safety and trust by reliably reporting failures and not false alarms. This cable-based system delivers on reliability throughout: everything from a low part-count to durable, low-maintenance components.

Complete System — Standard set of components with only site-specific design required. Turnkey systems also available.

Critical Components

- Reliable bridge collapse detector
- Series of flashing red traffic signal beacons to warn motorists
- Integrated controller cabinet, including auto-dialer and UPS

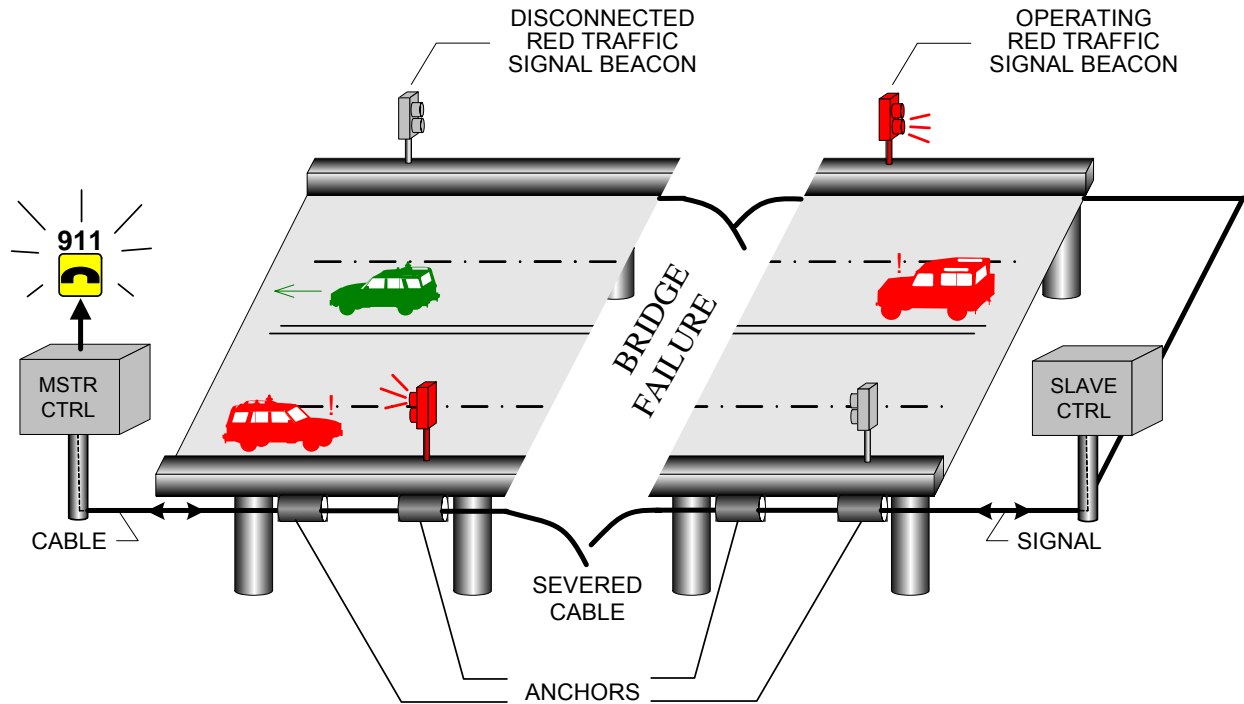
Features

- Immediate motorist warning
- Automatic voice notification of bridge collapse and maintenance events
- Optional automatic built-in self-tests
- Optional critical component redundancy



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System Synopsis

Bridges are designed to be very safe. This system *provides warning when disaster strikes*.

A cable is attached to the underside of the bridge, such that a bridge collapse will break the cable. The cable is anchored to the bridge on both sides of every expansion joint, forming an elongation sensor across each expansion joint.

Cable integrity is continually monitored by controllers at each end of the bridge. A bridge failure is indicated by a loss of signal, prompting the controllers to immediately warn motorists and automatically notify authorities.

A series of flashing red traffic signal beacons warns motorists traveling toward the collapse (red vehicles) to stop. Beacons past the collapse are disconnected, allowing those motorists (green vehicles) to exit the bridge normally. Each individual beacon is home-run wired, so that the severed cable will not affect operation of any beacon before the collapse. The same cable is used for both integrity monitoring and beacon power distribution.



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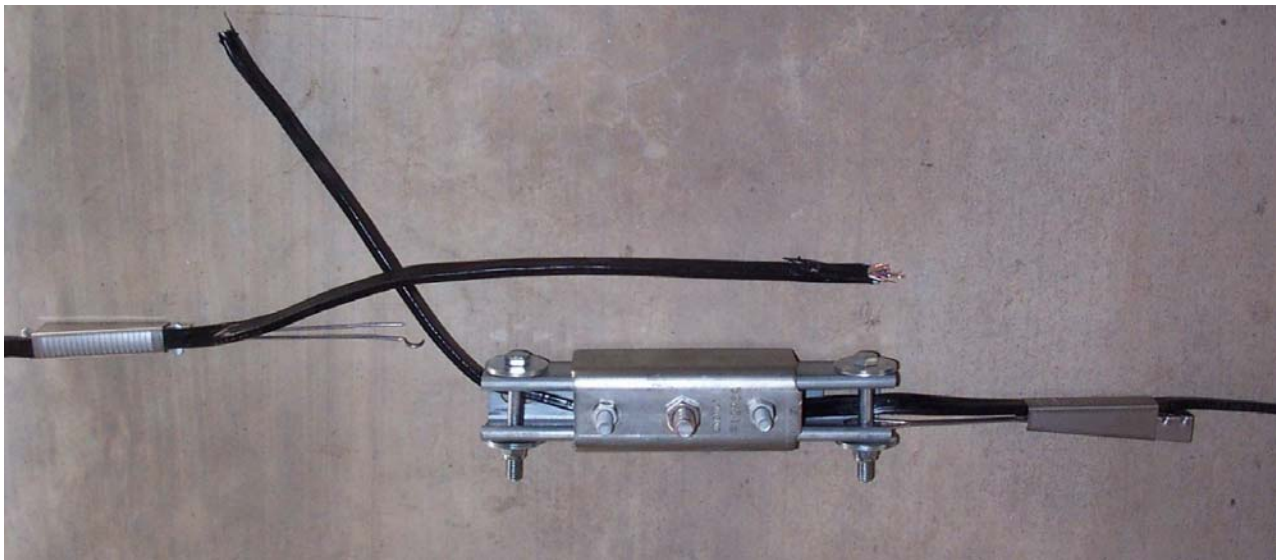
Bridge Collapse Detection Sensor

Cable

With no conduit required, this multi-pair copper telecommunications cable running low-voltage DC power is safer and easier to install. Controllers use a signal to monitor its integrity.

Anchor

This simple, easy-to-install mechanical attachment point for the cable to the bridge also assists in severing the cable during a bridge collapse.



How It Works

A pair of anchors is installed underneath the bridge deck, straddling every expansion joint. The cable is looped through the anchor assemblies, forming an elongation-based bridge collapse detection sensor. Controllers on each end of the bridge monitor a signal on the cable.

As the bridge collapses, the nearest expansion

joint parts, causing the clamp part of the anchor to break. Free from the clamp, the cable is then pulled taut against the metal edge of the anchor by the force of the collapse, severing the cable. The edge helps the cable to break quickly and consistently. With the cable now severed, the controllers detect a loss of signal and activate an emergency alarm.



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*Integrated System Controller
with Autodialer and UPS*

What It Does

Brains of the System — *Detects a cable break and turns on the beacons.* One on each side of bridge protects the entire bridge in both directions.

Autodialer/UPS — *Notifies emergency responders and provides a one-hour battery backup with the lights on.*

Standard Features

- Cable integrity monitor
- Traffic signal beacon controller
- Autodialer
- UPS: one-hour battery backup with lights on
- Convection-cooled NEMA 4X enclosure
- Outdoor lightning protection
- Regular maintenance reports

Optional Features

- Redundancy
- Remote UPS diagnostics
- Remote beacon diagnostics