



WHITE PAPER

**THE ROLE AND SAFETY IMPACTS  
OF AUTOMATED FLAGGING  
ASSISTANCE DEVICES**



## FLAGGERS: AN ESSENTIAL – AND DEADLY – ROLE

When work needs to be done on major roads and highways, flaggers are vital to directing the flow of traffic, minimizing congestion, and keeping workers and motorists safe. However, the very nature of the role puts flaggers themselves at considerable risks. As gatekeepers of the work zone, they are continually exposed to oncoming traffic. Their safety depends entirely on visibility and motorist awareness—and unfortunately, that is often not enough.

**A study** conducted by the occupational health and safety organization (CNESST) in the province of Quebec revealed alarming

numbers. The CNESST **found that between 2016 and 2019, there were 264 major accidents involving flaggers with several fatalities.** After completing this study, the CNESST collaborated with the Ministry of Transportation of Quebec (MTQ) to discuss potential solutions to reduce and eliminate the number of accidents involving flaggers.

**The solution was to mandate Automated Flagger Assistance Device (AFAD) systems on all flagging operations with speed limits over 70 KPH, which is 45 MPH in the U.S.** Since October 2020, the AFAD has been mandatory in the Province of Quebec.



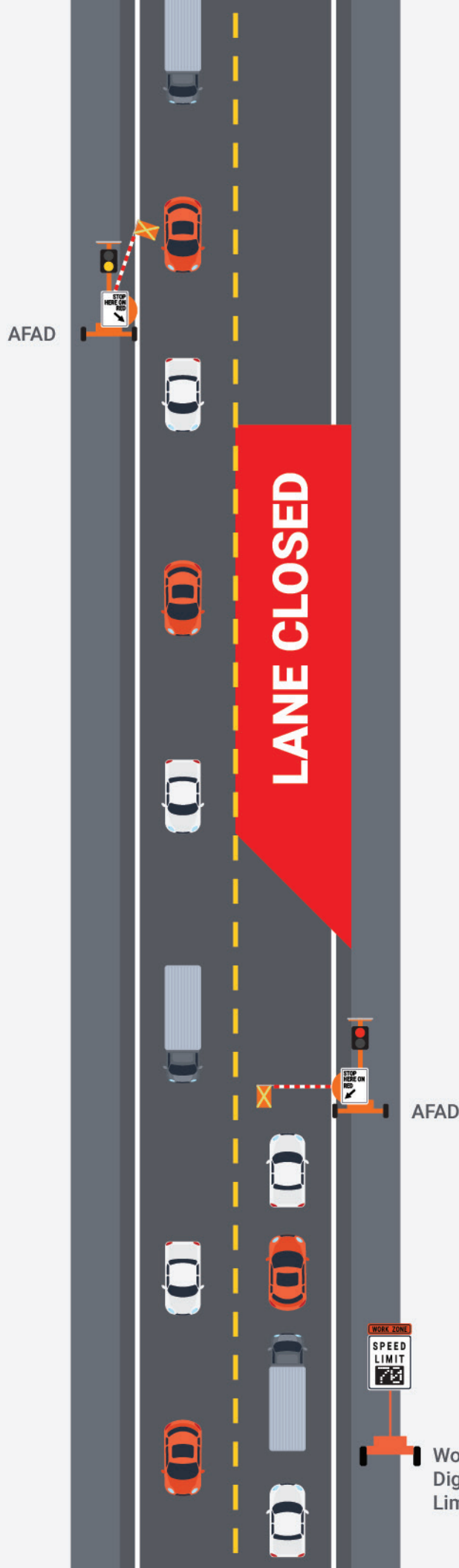
## AUTOMATED FLAGGER ASSISTANCE DEVICES – WHAT ARE THEY?

An Automated Flagger Assistance Device, or AFAD, typically is a trailer-mounted gate device designed for flagging operations. The AFAD system consists of two gate devices that are operated using a wireless remote controller. Each gate device is setup on each end of the work zone, replacing the flaggers position in the work zone. This technology allows the operator to safely control both devices from a location outside the work zone. A typical AFAD device is equipped with two 12-inch lamps, (1) red and (1) yellow, a static “Stop Here on Red” sign, one gate with a flag and a wireless remote controller.

In most work zones, the operator is positioned to visually see each end of the work zone to determine when to open or close each gate depending on traffic flow. The system has a fail safe that both gates cannot be open at the same time preventing head on collisions. When the gate is in the down position, the red 12” lamp will activate, when the gate is in the up position the 12” yellow lamp will activate. The AFAD system does have the flexibility to be controlled by two operators when the work zone length is too far to be safely monitored by one operator.

The AFAD units can either be tandem or nested towed, depending on government towing requirements. Each AFAD device can easily be setup and operational in a few minutes by one operator. In most cases, one operator can tow, setup and operate both AFAD devices to help save on labor costs.

AFAD’s are designed for short term daily work zones and are required to be manually operated in the field based on current traffic flow. AFAD’s are not intended for longer duration work zones or work zones requiring automated operation of the devices. In those applications, the U.S. MUTCD requires the use of portable traffic signals.



## TYPICAL USE OF AN AFAD

Flagging operations are highly regulated and the use of the equipment needs to take into account several factors in order to insure the effectiveness of the AFAD and the safety of the flaggers.

### LENGTH OF PROJECT

AFADs should be used for short or intermediate closures of roads or lanes. They are not advised for extended road closures.

### TYPE OF ROAD

Use of an AFAD is appropriate when there is a single lane of approaching traffic to control. AFADs should not be used to control multiple lanes of approaching traffic, nor as a replacement for traffic signals.

### TIME OF WORK

In regions where night deployment is allowed, AFADs can be used both during day and night shifts. However, if used at night, the unit should be properly illuminated to provide adequate visibility.

### SPEED LIMIT

Governments that have mandated use of AFADs generally require them on roads at or above certain speed limits. Here are some requirements in Canada and Australia:

LOCATION	SPEED LIMITS
Quebec	70 KMH - 45 MPH
British Columbia	70 KMH - 45 MPH
Alberta	50 KMH - 31 MPH
Australia	60 KMH - 37 MPH

AFAD

Work Zone  
Digital Speed  
Limit



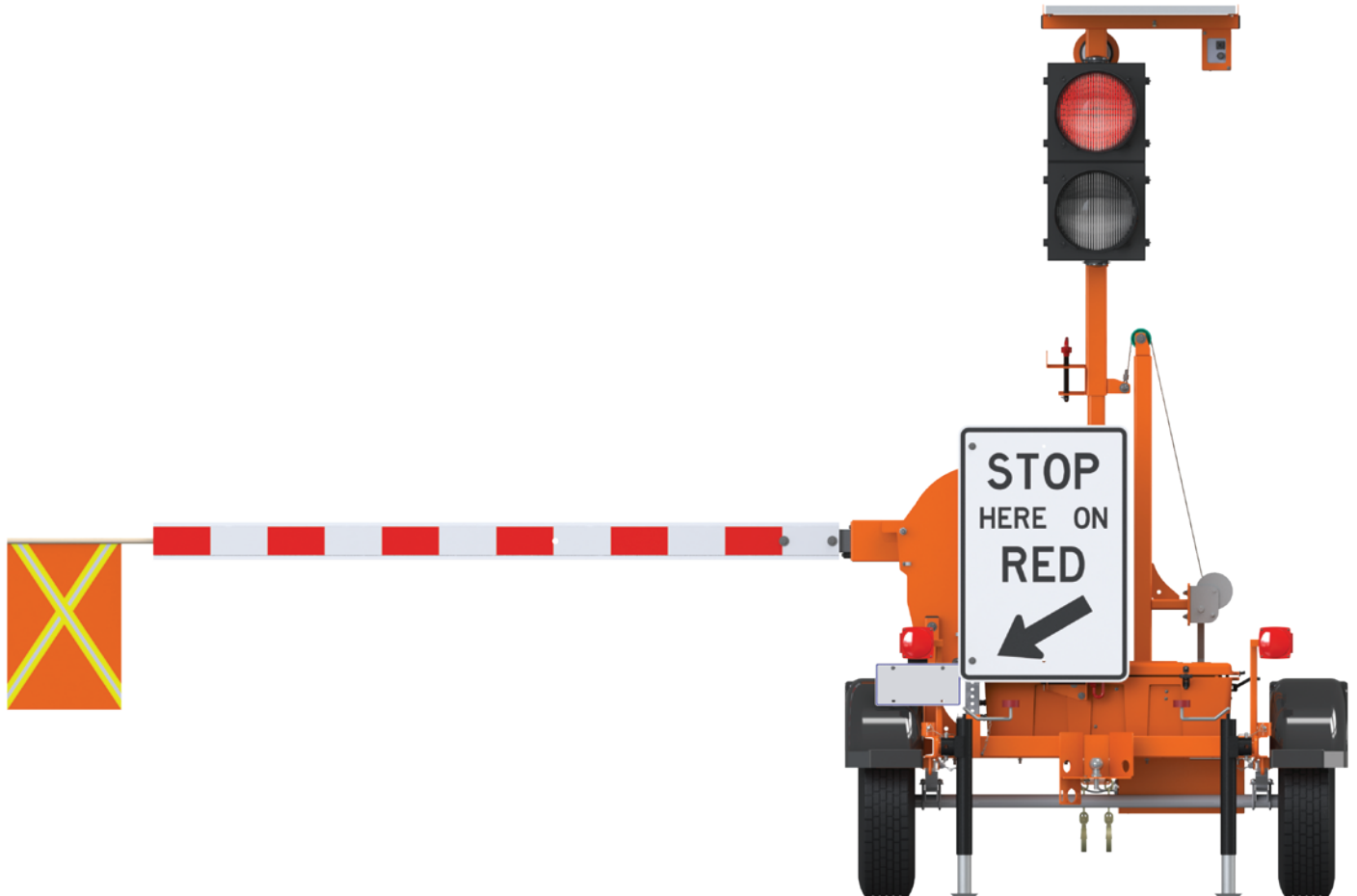
## AUTOMATED FLAGGER ASSISTANCE DEVICES – EFFECTIVENESS

AFAD's have been on the market for over 15 years with several manufactures and styles. Strict government requirements and guidelines have insured all AFAD's provide the same high level of safety to motorists, workers and AFAD operators.

A study conducted by the Missouri Department of Transportation (MoDOT) in 2018 found that **80% of drivers surveyed preferred AFADs to human flaggers**, with AFADs outperforming human flaggers in simulators designed to measure driver performance.

Even more tellingly, 100% of workers surveyed recommended using more AFADs in the State of Maine after using them in 59 projects during a single construction season.

**As of July 2021, the CNESST in Quebec has reported no injuries or fatalities to flaggers in work zones where AFAD's have been deployed since the mandate was implemented in October of 2020.**



## CONCLUSION

Flaggers have an essential role on any road construction site, and they are the most at-risk workers in a work zone. Proximity both to oncoming traffic and to work zone vehicles and equipment makes their job prone to serious or fatal accidents. In today's world, distracted driving on our highways is a serious issue which leaves flaggers in a more vulnerable position with drivers not likely to see them.

**By having an AFAD device on the roadway, it removes the flagger in the work zone and prevents serious injury or death.**

AFADs already have a proven impact, and just as importantly, everyone out on the road appreciates having them there. Every government agency should consider specifying AFAD's as the mandatory flagging operation for most flagging applications.