



# MEMORANDUM

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## LEGISLATIVE REFERENCE BUREAU

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**To:** Carjacking and Reckless Driving Task Force  
**From:** Kathleen Brengosz, Fiscal Planning Specialist, x3926  
**Date:** June 4, 2019  
**Subject:** Stop Stick® Tire Deflation Devices

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In response to the Task Force's request for information regarding the use of Stop Stick® tire deflation devices during vehicle pursuits, the Legislative Reference Bureau is providing the following information.

Law enforcement officers use tire deflation devices as a way of disabling target vehicles. The U.S. Department of Homeland Security (DHS) established the System Assessment and Validation for Emergency Responders (SAVER) Program to assist emergency responders in making procurement decisions. In 2006, Texas A&M Engineering conducted a comparative assessment of portable tire deflation devices for the SAVER Program. The assessment included simulated deployment evaluations and operation testing for the systems on concrete pavement at 35 mph and 70 mph. In conjunction with the assessment, subject matter experts from various jurisdictions developed evaluation criteria and recommended possible uses and operational outcomes. The tire deflation devices were assessed based on 5 criteria; affordability, capability, deployability, maintainability and usability. The Stop Stick® tire deflation device received the highest overall rating. A summary of the assessment issued by the DHS is attached to this memo.

Stop Stick was founded in the mid-1990s. Stop Stick products are used by local, state and federal agencies, as well as agencies in Europe. Its leading product is the Stop Stick®, but it also manufactures variations, including the Terminator® and Piranha®.

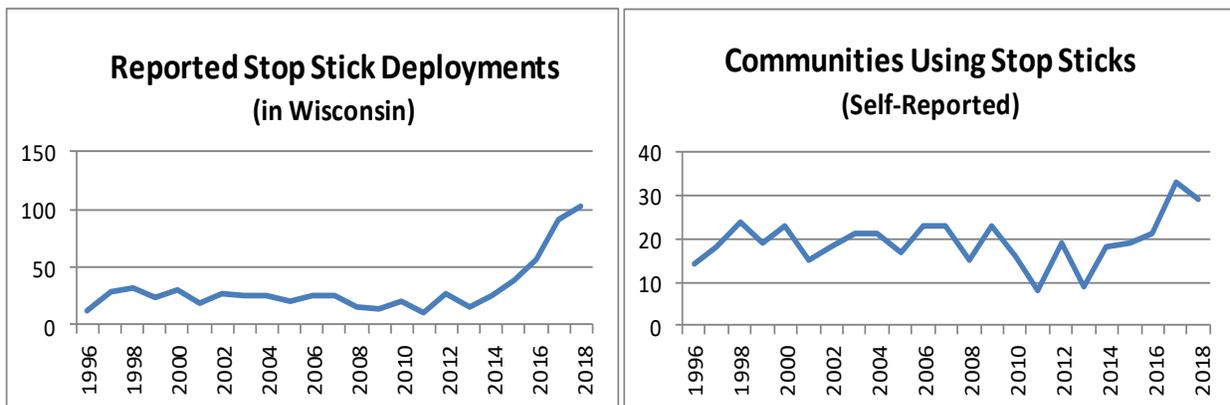
Every Stop Stick® is fitted with hollow, Teflon-tipped, steel quills. The hollow quills create consistently-sized air channels which allow the tire to deflate rapidly, usually within 5 seconds. The controlled exit of air helps prevent tire blowout and helps the driver maintain control of his or her vehicle. The quills are set in an offset pattern to ensure that the device operates as intended regardless of how it lands in the street when deployed. Each quill is 2 5/8 inches long. The quills are designed to deflate any kind of tire, including tires that are designed to self-seal or run flat.

The quills are covered in a plastic housing that compresses when it is run over. Because the quills are not exposed, there is little possibility of injury while handling the device. The Stop Stick® is designed to go from vehicle storage to deployment in under 10 seconds. It is attached to an 80-foot cord, so officers can deploy it while remaining away from the roadway. The cord also allows the device to be removed without entering the roadway.

The Stop Stick® is generally used for high-speed police pursuits. The Terminator® is similar to the Stop Stick® but it is better suited to protecting checkpoints and security bottlenecks, as well as preventing drive-offs during traffic stops. The Piranha® is designed to prevent pursuits from starting in the first place. The Piranha is extremely compact, measuring just three inches long and weighing only five ounces. It is ideal for high-risk and covert settings, such as surveillance or drug raid operations.

To date, Stop Stick has documented over 29,500 successful deployments nation-wide. Because deployment is self-reported, the actual number of deployments is unknown and could be much higher. Reported Stop Stick® usage in Wisconsin was relatively stable from 1996 until 2013. Deployments since 2013 have risen dramatically. Statewide, there have been 750 Stop Stick® deployments since 1996. Over 100 of them occurred in 2018.

The number of communities that reported using a Stop Stick® has also increased. The largest increase in usage has been in Milwaukee County. Thirteen communities in Milwaukee County have reported using Stop Stick® at least once since 2015. These communities include Bayside, Brown Deer, Cudahy, Fox Point, Glendale, Greenfield, Milwaukee (City), Milwaukee (County), Oak Creek, River Hills, Shorewood, Wauwatosa, West Allis and Whitefish Bay. The data reviewed included only communities that reported the deployment of Stop Stick® devices. There may be additional communities whose law enforcement officers are equipped with Stop Stick® devices, but haven't deployed them in the field.



The primary risk associated with tire deflation devices is that the driver of the fleeing vehicle may lose control of the vehicle causing injury or property damage. Loss of control may occur when the tires deflate after striking a Stop Stick® or when a fleeing driver attempts to avoid a Stop Stick® deployed in the roadway. Nationwide, between 1996 and 2017, at least 30 people have been killed in Stop Stick®-related crashes. Twenty-six of the fatalities were law enforcement officers. In September 2012, after several fatal crashes, the Federal Bureau of Investigation issued a bulletin urging law-enforcement agencies to explore other ways to handle chases.

The deployment of Stop Sticks® may cause property damage. Property damage may be crash-related, occurring when suspects lose control of their vehicles and crash into other vehicles, buildings, trees, or poles. Property damage may also be caused when unintended vehicles drive over Stop Sticks®. Unintended vehicles may be innocent passersby or police vehicles involved in the pursuit. Reliable data on property damage related to Stop Stick® use is difficult to find. I was unable to determine or estimate the number or amount of property damage claims related to Stop Stick® devices.

To reduce the risk of injury or property damage, Stop Stick strongly recommends that Stop Stick® devices be deployed by trained officers. Training guidelines provided by the manufacturer state that a Stop Stick® should not be used:

- In areas with heavy traffic
- In populated areas or locations with pedestrians nearby
- Near road construction
- Near steep embankments, curves or obstacles that limit the deploying officer's view of traffic and the approaching pursuit

In addition to the SAVER assessment summary, I have attached information from the manufacturer of Stop Stick® regarding product specifications and training and a list of all Wisconsin jurisdictions which have reported using Stop Stick®.

If you would like additional information, please do not hesitate to contact me.

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Attachments