

## 0-6708: Traffic Control for Access Points within a Lane Closure on a Two-Lane, Two-Way Road

### Background

When a lane is closed on a two-lane, two-way road for construction or maintenance, provisions must be made to alternate one-way movement of the two original travel lanes through the work area. There are often low-volume access points (e.g., residential driveways or county roads) within the temporary one-lane section of roadway. Existing access point control methods are not always feasible based on conditions such as work duration, traffic volume, time of day, and cost of the method. This project evaluated alternative methods to control traffic entering a lane closure on a two-lane, two-way road from low-volume access points.

### What the Researchers Did

Researchers identified strategies and devices that could be used to control traffic entering from low-volume access points, and then investigated two innovative devices.

To stop traffic, device 1 (Figure 1) displays a steady circular red indication. Yellow flashing arrow indications show motorists when turns are allowed (either left or right). A steady yellow arrow indication is provided as a change interval between the flashing yellow arrow and steady circular red indications.



(a) Stop—No Turns Allowed.



(b) Proceed—Left Turns Allowed.

Figure 1. Prototype of Device 1.

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To stop traffic, device 2 (Figure 2) also displays a steady circular red indication. In addition, two light-emitting diode signs display movement prohibition signs for both directions. When a motorist is allowed to proceed, the circular red indication flashes, and the red circle/slash does not display over the white arrow in the allowed direction of travel.

Researchers used motorist surveys, field studies, and cost-benefit analyses to develop guidelines regarding the appropriate traffic control for low-volume access points within a lane closure on a two-lane, two-way road.

### What They Found

When motorists needed to stop and remain stopped until otherwise indicated, they did not understand device 1 as well as they understood device 2. Motorists also did not understand the flashing yellow arrow indications used with device 1. This misunderstanding resulted in several participants trying to make a wrong turn.

The current practice of using portable traffic control signals to control both the main road and access point traffic (without vehicle detection) increased delay for the main road and the access point. Conversely, the innovative devices decreased delay at the access point and did not negatively impact the main road delay. The innovative devices would take 1 to 4 years to pay for themselves, dependent upon use and type of device.



(a) Stop—No Turns Allowed.



(b) Proceed—Left Turns Allowed.

Figure 2. Prototype of Device 2.

### What This Means

To ensure the safety of the motoring public and workers, all access points within a work zone lane closure on a two-lane, two-way road should be monitored. At a minimum, engineering judgment should be used to determine if a flagger is needed at a low-volume access point. Texas Department of Transportation (TxDOT) personnel should continue to visit property owners and residents to notify them of the temporary changes in traffic control and the appropriate actions to take when residents exit their driveway. Researchers do not recommend the use of device 1 but do recommend that TxDOT further experiment with device 2.

### For More Information

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