

0-6782: Development of Design Standards for Mounting Temporary Large Guide Signs

Background

A common issue during phased highway construction projects is the need to temporarily relocate large guide signs on the roadside or install new guide signs for temporary use. Many of these signs are larger than 100 ft² in size and cannot be accommodated on small sign supports. The conventional concrete foundations used for large guide signs are costly and time consuming to install and remove. They are often left in place, creating problems for mowing and maintenance.

This project developed a series of design standards for mounting temporary guide signs that are cost effective, crashworthy, and capable of accommodating wind load requirements. The “Give Us a Brake” sign, which has an area of 128 ft², served as a good basis for designs developed.

What the Researchers Did

Two different sign support systems for large guide signs were developed for use in temporary applications. The first used direct embedded wooden supports with weakening holes at the ground line and below the sign panel, and the second used direct embedded steel foundation posts with standard slip base and fuse plate mechanisms.

A freestanding, skid-mounted support system for large signs was developed to address situations where direct embedment of the sign supports is not feasible or desired due to cost, site constraints, etc. The wooden support posts are supported by

horizontal skids that run perpendicular to the sign panel. Design considerations included crashworthiness during vehicle impact, support size, spacing required to accommodate design wind loads, and ballast requirements to prevent overturning during a design wind event.

What They Found

The direct embedded wood (Figure 1) and steel support systems met the *Manual for Assessing Safety Hardware* (MASH) impact performance guidelines. The skid-mounted temporary support system for large guide signs was also successfully crash-tested in accordance with MASH guidelines. Figure 2 shows the tested, skid-mounted design for an 8 ft tall × 12 ft long (96 ft²) sign panel.

Charts include various post sizes that permit an economical support selection for a given-size sign panel. Guidance was also developed regarding recommended embedment depth for the direct embedded wood and steel post systems, and recommended ballast for the skid-mounted sign support system to prevent overturn during a design wind event.

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Figure 1. Wooden Direct Embedded Sign Support System.

What This Means

These temporary support systems for large guide signs provide cost-effective options for phased highway construction projects in which there is a need to move and relocate an existing guide sign or deploy a new temporary guide sign. Implementation of these systems will save time and money by eliminating the need to install expensive, hard-to-remove reinforced concrete foundations on a temporary basis. The skid-mounted system is particularly suited to projects in which the guide sign may need to be moved or relocated multiple times during the progression of a project. Design charts have been developed to assist with the appropriate selection of support posts for a given-size sign panel.



Figure 2. Wooden Skid-Mounted Sign Support System.

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