

New Jersey Department of Transportation
Bureau of Research

Technical Brief



Safety and Accessibility of Dynamic Message Signs (DMS)

The project described in this report involved an evaluation of older Dynamic Message Signs (DMSs) to identify safe maintenance practices. Although DMSs in New Jersey are now designed to meet Occupational Safety and Health Standards (OSHA), older generation signs exist with limited or no safe access. The report documents the results of an inspection of existing DMSs and provides an assessment of the safety and accessibility to these signs.

Background

Occupational Safety and Health Standards (OSHA) Part 1910.23 provides standards on "Walking-Working Surfaces" which should be adhered to by employees accessing DMSs. The standards require that catwalks include handrails capable of supporting 200 lbs. of force, with means of egress be from/to permanent or stationary structures. Although DMSs in New Jersey are now designed to meet OSHA requirements for employee access of overhead signs during maintenance, older generation signs exist with limited or no safe access. For some older generation signs, walkways are not provided in accordance with OSHA regulations, may not be wide enough or may be loose and not properly supported. In addition, for some older DMS signs, hand-rails may not meet OSHA standards and although gates in front of the sign are provided, these gates can be loose or do not close.

Research Objectives and Approach

The overall objective of the research was to perform an evaluation of all older DMS designs to allow employees to safely access overhead DMSs. The research involved performing a systematic inspection of the approximately one hundred and seventy DMSs located in the State of New Jersey to determine the safety and accessibility for maintenance of the signs. An assessment was also performed to determine whether existing procedures used for accessing newer signs can also be used for the older signs or whether revised procedures are needed. Safe work practices were identified and engineering or alternative solutions identified to allow employees to safely access overhead DMSs.

Findings

In total, inspections were performed at 171 DMSs in 19 counties in New Jersey. Over forty percent (43%) of the inspected DMSs are located on Interstate roadways and the

remainder on State routes. Of the DMSs inspected, 11 percent were butterfly, 36 percent cantilever, 26 percent span and 29 percent ground mounted DMS.

One of the inspection items was whether a catwalk was present and if so were the safety features of the catwalk present. Over half (53%) of the DMSs inspected did not have a catwalk. Over ninety percent of the DMSs with a catwalk have hand railings and grates. About 65 percent of DMSs have a kickplate. None of the DMSs inspected had a safety chain.

To assist in performing the assessment, criteria were developed to identify minimum standards that should exist at each DMS to be deemed safe for access. Minimum standards were developed for three areas: (1) Minimum standards for catwalks; (2) Minimum standards for utility lines adjacent to DMS; and (3) Minimum standards for accessibility. All three criteria would need to be satisfied to state the DMS had safe access for maintenance personnel. The minimum standards for catwalks were found to be met at 53 or approximately one-third (31%) of the DMSs. For 23, or 13.5% of the DMSs, the standards are not met. These locations where the standards are not met are cantilever and span DMSs where no catwalk is provided.

The minimum standards for utility lines were found to be met at 157 or 91.8 percent of the DMSs. Twelve DMS influenced both vertically and horizontally by utility lines did not meet the minimum standards. Two DMSs influenced horizontally by utility lines partially met the minimum standards.

In total, 125 or 73.1 percent of DMS met the minimum standards for access. For those DMSs where access by a ladder was not feasible, this standard was removed as part of the criteria for fully meeting the minimum standards. Forty-six or 26.9 percent of DMS partially met the standard.

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A final report is available online at: <http://www.state.nj.us/transportation/refdata/research/>.

If you would like a copy of the full report, send an e-mail to:
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