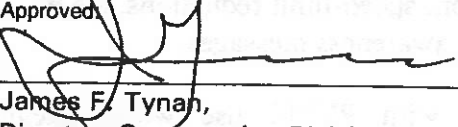


To: SUPERSEDED BY <u>EB 06-004</u> EFFECTIVE <u>9/7/06</u>		New York State Department of Transportation ENGINEERING INSTRUCTION	EI 05-031
Title: DESIGN GUIDANCE FOR PORTABLE, VARIABLE-MESSAGE SIGNS (PVMSSs)			
Distribution: ☒ Manufacturers (18) ☒ Local Govt. (31) ☒ Agencies (32) ☐ Surveyors (33) ☒ Consultants (34) ☒ Contractors (39) ☐ _____ ()		Approved:  James F. Tynah, Director, Construction Division Date <u>9-8-05</u>	

ADMINISTRATIVE INFORMATION:

- This Engineering Instruction (EI) is effective beginning with projects submitted for the letting of 1/12/06.
- This EI supersedes EI 91-005.
- The guidance transmitted with this EI will be incorporated into a future update of the Highway Design Manual.

PURPOSE:

The purpose of this EI is to issue guidance for designers regarding the selection and use of Portable, Variable-Message Signs (PVMSSs).

TECHNICAL INFORMATION:

Special Specification 619.21xx--14, Portable, Variable-Message Signs (PVMSSs) – LED, and 619.22xx--14, Portable, Variable-Message Signs (PVMSSs) – Hybrid-Flip Disk are being issued concurrently by EI 05-030.

Design Guidance:

This guidance is intended for Contractor-owned and provided PVMS. A PVMS is intended for use as a supplemental, temporary work zone warning device and for lane and roadway closures. A PVMS can be an effective temporary traffic control device when used appropriately. By its very nature, it draws the attention of the motorist; however, this effect can be diminished if this device is overused. The PVMS should not replace any of the signing detailed in the 17 NYCRR Chapter V, a.k.a. the New York State Manual of Uniform Traffic Devices (MUTCD). A PVMS should only be used where it will be more effective than standard signs used alone for providing information the motorist needs to travel safely or to minimize delay.

The following items should be determined when considering specifying PVMSSs in a contract:

1. **Variability** – Would the various messages relayed by this sign make it cost-effective and/or improve safety more than an equivalent number of fixed-message, standard construction signs? Is “real time” information necessary? How often would the message be expected to change?
2. **Conspicuity** – Can sufficient conspicuity be achieved using standard construction signs? What are the consequences of not noticing the sign? Would a standard construction sign be obscured at the needed location due to numerous other construction signs, poor geometrics, etc.?

3. **Cost-Effective** – If several standard construction signs are viable alternatives to a single PVMS unit, what is the cost difference?
4. **Overriding Considerations** – Are there any overriding considerations to warrant a PVMS unit even if other warrants are not met? Such considerations could include, but are not be limited to, a need for improved conspicuity or emphasis, presence of workers in the roadway without barrier protection, speed-limit reductions, a new traffic pattern, warning of police enforcement, and other motorist awareness messages.

For assistance with PVMS use within Regions, designers should consult with the Regional Transportation Services Group, Regional ITS coordinator and/or Regional Transportation Management Center. A representative from the Transportation Management Center and/or the Regional ITS coordinator should be invited to scoping and preconstruction meetings for input on PVMS use on the contract. All work on a contract must occur within the contract limits, though limits need not be contiguous nor continuous. For distant locations, small areas approximating the PVMS location should be bounded by contract limits.

PVMSs may be specified using pay units of each or week. The designer must include a Special Note titled “Requirements for Portable, Variable-Message Signs (PVMSs)” to give the contractor information needed to bid the PVMSs, taking into consideration if they can use the same PVMS in multiple locations and how many PVMSs they will have in operation during various stages of construction. A sample special note is found on the last page of this Design Guidance.

The following information should be included in the Special Note.

- 1) Approximate Location of PVMSs.
- 2) Required sight distance along the approach(s).
- 3) Estimate of the approximate dates and lengths of time the PVMS unit will be in use at each location, in weeks (only when specifying by week).

Sign Selection

The PVMS specification requires the designer to choose between Light-Emitting-Diode (LED) type and Hybrid Flip-Disk types. Each of these types has advantages and disadvantages. Hybrid units were previously favored due to the combination of the benefits of both types of displays, but recent improvements in LED technology and lower operating costs have led to increasing use of LED units.

LED (Light-Emitting Diode)

Advantages are its low maintenance, long life due to no moving parts, and lower cost. Disadvantages are if LED modules are not properly repaired and replaced, displays can become dim. LED units can be difficult to see in direct sunlight and at wider approach angles. LED units will probably result in lower costs and can provide adequate visibility where the angle of the sun and the highway alignment are favorable.

Hybrid (Flip-Disk and LED)

Advantages are high visibility in direct sunlight and at wider approach angles and they operate if the light source fails. Disadvantages are hybrids are more expensive than LED and have higher maintenance requirements. Hybrid units should be considered where the sun angle and highway alignment may significantly reduce the effectiveness of LED units.

Cellular Communications Option

Cellular-equipped units can be operated via a cellular phone by authorized personnel and should be specified unless the PVMS unit would not need to be remotely controlled throughout the entire contract or if there is no cellular reception in the area.

Radar Option

Radar-equipped units provide the ability to determine the speed of an approaching vehicle and interrupt the programmed sequence with a special default message displaying the vehicle's speed. Radar-equipped units should be considered on all high-speed expressways and controlled access highways.

CONTACT: Direct questions concerning this specification to Chuck Riedel criedel@dot.state.ny.us (518) 457-2185 or Dawn Arnold darnold@dot.state.ny.us at (518) 457-1673 of the Traffic Engineering and Highway Safety Division.

REQUIREMENTS FOR PORTABLE, VARIABLE-MESSAGES SIGNS (PVMSs)

PHASE I

PVMS 1

LOCATION: EASTBOUND ROUTE 123, ONE-HALF MILE WEST OF THE START OF THE LEFT LANE CLOSURE.

DURATION: THIS LOCATION SHOULD BE OCCUPIED FOR THE FIRST XX WEEKS OF PHASE I.

PVMS 2

LOCATION: WESTBOUND ROUTE 123, ONE-HALF MILE EAST OF THE START OF THE LEFT LANE CLOSURE.

DURATION: THIS LOCATION SHOULD BE OCCUPIED FOR THE FIRST XX WEEKS OF PHASE I.

PHASE II

PVMS 1

LOCATION: EASTBOUND ROUTE 123, ONE-HALF MILE WEST OF THE START OF THE ROUTE 89 RAMP.

DURATION: THIS LOCATION SHOULD BE OCCUPIED FOR THE FIRST XX WEEKS OF PHASE II.

PVMS 2

LOCATION: NORTHBOUND ROUTE 89, ONE-HALF MILE EAST OF THE ROUTE 123 RAMP.

DURATION: THIS LOCATION SHOULD BE OCCUPIED FOR THE FIRST XX WEEKS OF PHASE II.

PVMS 3

LOCATION: WESTBOUND ROUTE 123, ONE-HALF MILE EAST OF THE START OF THE ROUTE 89 RAMP.

DURATION: THIS LOCATION SHOULD BE OCCUPIED FOR THE FIRST XX WEEKS OF PHASE II.

PVMS 4

LOCATION: SOUTHBOUND ROUTE 123, ONE-HALF MILE EAST OF THE START OF THE ROUTE 123 RAMP.

DURATION: THIS LOCATION SHOULD BE OCCUPIED FOR THE FIRST XX WEEKS OF PHASE II.
