

**STATE OF OHIO
DEPARTMENT OF TRANSPORTATION**

**SUPPLEMENTAL SPECIFICATION 961
PORTABLE TRAFFIC SIGNALS**

JANUARY 17, 2003

961.01 Description

961.02 Prequalification

961.03 Requirements

961.01 Description. This Supplemental Specification sets forth the requirements for portable traffic signals. A portable traffic signal is a self-contained traffic signal mounted on a trailer.

961.02 Prequalification. Portable traffic signals shall be prequalified in accordance with Supplement 1050.

961.03 Requirements. Portable traffic signals shall conform to the following criteria:

1. The portable traffic signal shall conform to all Ohio Manual of Uniform Traffic Control Devices requirements for traffic control signals including Section 6B-4 which in part states, "A Portable Traffic Control Signal must meet the physical and operational requirements of conventional traffic control signals described herein."
2. Each signal head shall have three 12 inch (300 mm) vehicular indications (red, yellow, green) and their candlepower distributions shall not be less than specified for standard 12 inch (300 mm) signals in the Institute of Transportation Engineers' Standard for Adjustable Face Traffic Signal Heads.
3. The systems may be powered by engine driven generator, solar or stored battery charge system. The systems shall be designed to provide electrical energy which will maintain the above described candlepower distribution for at least 24 hours at full output.
4. The dimming of a portable traffic signal, in a yellow flashing operation at night, shall be permitted in accordance with the Ohio Manual of Uniform Traffic Control Devices. The unit may include a photocell and circuitry which will permit the yellow lens light output to be reduced by up to 50 percent during night hours. The amount of dimming and the choice of not dimming shall be operator selectable.

5. The signal unit generator battery and electronic controls shall be completely inaccessible to unauthorized access and protected by a sturdy lockable metal enclosure.
6. Signal supports shall consist of sturdy brackets attached to a trailer. The erected assembly shall be designed to solidly support the roadside signals at the specified heights and be designed for 80 mph (128 km/h) wind loads. Signal head configurations for each approach shall be one signal post mounted at 8 feet (2.4 m) minimum height to the bottom of the housing of the vehicle signal face on the right side of the road plus another signal cantilever mounted over the right-hand traffic lane at a minimum height to the bottom of the housing of the vehicle signal face of 15 feet (4.6 m); or two signal heads, each post mounted at 8 feet (2.4 m) minimum height to the bottom of the vehicle signal face on both sides of the road. The lateral spacing between signals shall be not less than 8 feet (2.4 m).
7. The trailer and supports shall be orange.
8. The signal heads shall be yellow.
9. The controller portion of the portable traffic signal shall meet 633.07.
10. The portable traffic signal shall be capable of operating in manual, fixed time and traffic actuated modes.
11. The controllers for the portable traffic signal system shall electronically communicate to each other by cable, radio or other method approved by the Engineer.
12. It shall not be possible even under manual control (1) to program the yellow clearance interval for less than 3 seconds or (2) for the green interval to be displayed for less than 5 seconds.
13. All timing intervals shall be capable of being set in increments of one second or less.
14. The controller shall provide a variable all red clearance interval from 0 to 600 seconds.
15. The portable traffic signal shall provide a method for insuring that the pairs of signal heads cannot display conflicting indications. This shall include at least a system which will identify, as a conflict, the display of a green in one direction while (1) displaying green in the conflicting direction, (2) displaying a yellow in the conflicting direction or (3) displaying the all-red clearance interval for a conflicting approach.

Further, a controller will be determined to be in conflict if a displayed green is less than 5 seconds or a displayed yellow is less than 3 seconds. Upon determination that a conflict exists, all signal heads shall display flashing red as described in criteria 16.

16. The controller shall provide a red flash cycle that shall be flashed continuously at a rate of not less than 50 nor more than 60 times per minute. The illuminated period of each flash shall be not less than half nor more than two-thirds of the total flash cycle.
17. The controller shall have circuitry which will detect low voltage and prevent the occurrence of an unsafe signal indication. This "brown out" circuit shall hold the signal safe until adequate voltage is resumed. If a microprocessor is utilized, appropriate circuitry shall be included that will reset the processor when needed while holding the signal in a safe all red condition. When the processor is removed from the circuitry, the signal shall default to a safe condition or flashing all red.
18. If the portable traffic signal utilizes radio transmission equipment:
 - a. Non-licensed transmitters shall be an accepted FCC-type and shall not exceed 1 watt output per FCC Part 90.17. The manufacturer shall also comply with all specific limitations noted in FCC Part 90.17.
 - b. In case of radio interference or failure, the portable traffic signal shall display flashing all red.
 - c. If an FCC license is required, a copy shall be kept on file by the Contractor and a copy provided to the Engineer.