# QPL 44 - WORKZONE TRAFFIC CONTROL PRODUCTS

## SECTION A: DIGITAL SPEED LIMIT SIGN ASSEMBLY

### PROCEDURES

**GENERAL**

This evaluation procedure outlines the Department's approval process for Work Zone Digital Speed Limit Signs on interstates and freeways with speed limits greater than 55 MPH, and or facilities that have significant traffic volumes and impacts. These signs are regulatory speed limit signs with LED displays for the speed limit numbers. The purpose of Digital Speed Limit signs is to easily change work zone speed limits between activities that necessitate the need for a lower speed limit and the ones that do not.

**SPECIFICATIONS**

712.04-01 Temporary Traffic Control

**PROCEDURES**

A completed Product Evaluation Form, MSDS sheets, if applicable, and product data information must be submitted to the Division of Materials and Tests. The Department bases approval of the product on meeting the following criteria:

**Equipment**: Digital Speed Limit Signs shall meet the following criteria.

- Have a minimum dimension of 48" wide x 60" high. The speed limit sign (R2-1) shall be black on white with high intensity white prismatic sheeting mounted on aluminum.

- The Digital Speed Limit sign shall be mounted such that the bottom of the sign is 7' above roadway.

- The LED panel shall be a minimum of 28" wide x 18" high. The display on the LED panel shall be amber or white.

- The LED numbers shall have a minimum 5 wide by 7 high pixel array with a minimum height of 18".

- The LED panel shall have auto brightness/dimming capability.

- A black on orange "WORK ZONE" sign shall be mounted above the Speed Limit sign. It shall be 48" wide x 12" high with high intensity prismatic orange sheeting mounted on

aluminum.

- The Work Zone Digital Speed Limit systems shall have flashing beacons. Beacons shall be 12" diameter LED circular yellow. They shall be mounted above and below sign assemblies and are to be centered horizontally. The beacons shall alternately flash at rates not less than 50 or more than 60 times per minute.

- All digital speed limit systems shall have operational software and wireless communications that allows for remote operation and data monitoring.

- Digital Speed Limit Signs may be trailer mounted or stationary mounted. The unit shall be Solar powered and have the ability to operate continuously. It shall be supplemented with a battery backup system which includes a 110/120 VAC powered on-board charging system.

- The batteries, when fully charged; shall be capable of powering the display for 20 continuous days with no solar power. The unit shall be capable of being powered by standard 110/120 VAC power source. Store the battery bank and charging system in a lockable, weather and vandal resistant box.

- See TDOT QPL #44 for approved products that meet these specifications.

**Construction Requirements:** The Speed Limit shall be continuously displayed on the signs. The speed limits are the sole authority of TDOT. All speed limits are to be ordinanced by the State Traffic Engineer in order to have a lawfully enforceable speed limit.

- The Traffic Engineer or designee will approve all Work Zone Speed Limit on activities and conditions in accordance with 712.04-01.

- All existing static Speed Limit signs within the work zone speed zone shall be covered or removed at the time of Digital Speed Limit sign installation. Signs shall be covered with an opaque, form fitting, tear resistant material that fully obscures any text.

- The Contractor will be responsible for coordinating with the Engineer when the Work Zone Speed Limits are to be changed and will have to seek approval by the Engineer or his designee before the Speed Limit is changed.

- Sign placement shall begin within the advanced warning area with one (1) sign placed on the Right side of the road. Subsequent signs shall be positioned at intervals no greater than 2 miles with one (1) placed after each entrance ramp within the work zone.

- Placement of signs shall be on the right side of the road unless infeasible or as directed by engineer. Placement of signs shall not interfere with the function of roadside devices such as guard rail or terminals

- Flashing beacons shall be activated at the time of any workers present, no earlier than 30 minutes prior to workers arriving and be deactivated at the conclusion of work no later than 30 minutes after all workers depart.

- On a weekly basis for the duration of the project Contractor shall supply a printable copy of the Tracking Report, reflecting the times of the speed limit changes along with their corresponding speed values.

**Measurement and Payment:** The measurement for the Work Zone Digital Speed Limit Signs is made according to the number of Work Zone Digital Speed Limit signs required per the spacing requirements. Payment will be made for each sign used for the duration of the project.

This includes all materials and labor to install, maintain and remove each of the Work Zone Digital Speed Limit Units.

| Item No. | Pay Item | Pay Unit |
|---|---|---|
| 712-08.09 | Digital Speed Limit Sign Assembly | **Each** |

**Basis of payment**: Bid price to furnish, coordinate, install, maintain, operate, track, monitor, subsequently remove DSL Sign Assemblies as well as provide the weekly Tracking Report shall be included. The expense of covering or removal, and subsequent restoration of existing Speed Limit or Minimum Speed Limit signs, including any necessary supports, shall be included in the pay item for the Digital Speed Limit (DSL) Sign Assembly. All installations, relocations and removals, of supplemental signs, including signs and necessary supports, shall be included in the pay item for Digital Speed Limit (DSL) Sign Assembly.