

## South Carolina Department of Transportation

### Engineering Directive

**Directive Number:** ED-78 **Effective:** March 1, 2019

**Subject:** Business Rules for District Traffic Signal Shop Operations

**References:** Engineering Directive 2 – Fiscal and Maintenance Responsibilities for Traffic Signal Installations on the State Highway System  
Engineering Directive 33 – SCDOT Mast Arm Standards  
Traffic Signal Manual  
Traffic Engineering Guideline 35  
SCDOT Maintenance Manual  
SCDOT Procurement Policies and Procedures Manual  
Manual on Uniform Traffic Control Devices (MUTCD)

**Primary Department:** Traffic Engineering

#### **Background**

Engineering Directive 78 is a supplement to Section VII, Signal Shop Inventory Control, of Traffic Engineering Guideline 35 (TG-35), Business Rules for District Signal Shop Operations. TG-35 established consistency and accountability for the South Carolina Department of Transportation's (SCDOT) district traffic signal shop processes, operations, and inventory.

#### **General Responsibilities**

Supervision of district signal shops varies from district to district, but for the purpose of this engineering directive, the person responsible for general oversight of operations, contracts, and inventory control shall be referred to as the "district electric supervisor (DES)."

District signal shops are responsible for the maintenance of SCDOT owned and maintained traffic signals and flashers within their jurisdictional area.

District signal shops perform signal inspection for any signal revisions or installations performed by others.

District signal shops verify signal system communications are operational. This communication system termini is from the traffic signal cabinets in the field to the point of presence on the ITS fiber or IT Services network switch. Any outages will be reported to IT (Network) Services via SCDOT Help Desk IT Services Online System.

District signal shops maintain and verify signal timing parameters are operating as designed and/or approved by the district traffic engineer (DTE).

District signal shops procure and store signal and other equipment needed for maintenance or repair of traffic signals and flashers.

District signal shops manage any fixed price, multi-vendor procurement contracts for signal work, including issuing work orders, paying invoices, and signal inspection.

District signal shops are responsible for performing routine inventory as specified herein.

District signal shops are maintained and operated in accordance with all Federal and State safety regulations and the SCDOT Employee Safety Manual.

### **Signal Shop Inventory Control**

The DES will be responsible for maintaining an electronic inventory of all signal equipment assigned to his or her district, including equipment in operation and spare equipment stored in the district signal shop warehouse area as described below. The electronic inventory will be maintained through an inventory database. Access to the inventory database will be controlled by the Inventory Database Administrator (Administrator).

Equipment and supplies stocked must be kept at levels that are reasonable based on historical usage. The DES should use historical data to establish minimum and maximum inventory levels and reorder points in consultation with the DTE and district maintenance engineer (DME).

#### Inventory Items

Inventory items shall be identified as follows:

1. Accountable Equipment – Accountable equipment is any equipment item with a value of \$1,000 or more to include signal cabinets, controllers, poles, and video detection cameras with serial numbers as applicable.
2. Non-accountable (Stockpile) Equipment – Non-accountable equipment is any equipment item with a value of less than \$1,000, not requiring serial number verification, to include conflict monitors, signal heads/modules, pedestrian heads/modules, and pedestrian poles.
3. Expendable Items – Expendable items do not require an inventory. Examples are signal cable, signal wire, nuts and bolts, non-specialty brackets, etc. Procurement, storage, use, and replacement will be the responsibility of the DES and will be monitored on a regular basis.

#### Inventory Data

Inventory data will include the following information at a minimum:

1. Accountable Equipment – Quantities will be maintained in the inventory database. The DES or his or her designee will review, update, and sign off on stockpile records at least quarterly. Items will be accounted for referencing the following: serial number,

date of delivery, status defined as "In Operation", "In Stock", "In Repair", "Surplus", or "Salvage."

2. Non-accountable (Stockpile) Equipment – Quantities will be maintained in the inventory database. The DES or his or her designee will review, update, and sign off on stockpile records at least quarterly.

The DES will perform cycle counts of inventory on at least a quarterly basis that the DTE or DME will review. Discrepancies will be noted and the cause identified (i.e. physical count error, recording error, item identification error, or physical control problem.) If inventory corrections are necessary, the DES will notify the Administrator to make inventory corrections in the inventory database for items that are entered incorrectly.

DEAs will submit quarterly inventory findings by memorandum to the Chief Engineer for Operations and copy the Administrator.

### Storage Security

Inventory will be controlled and secured to ensure maintenance of accurate inventory records and controlled physical movement and distribution of accountable and non-accountable items.

1. Expendable inventory will be stored in a controlled area with monitored access.
2. Accountable and non-accountable inventory items will be stored in such a way as to provide optimum security and controlled access by designated employees.
  - a. Each signal shop must maintain a security plan developed by the DME/DTE and approved by the DEA, including a diagram indicating where items are stored, how they are fenced/gated or locked up separately from maintenance yard/facility, who has authorized access to each location, and how the storage area is secured and monitored by authorized signal shop personnel. This plan must also indicate how facility is secured during non-business hours or when signal shop employees are not accessing the storage area.
  - b. The DES will authorize employees who are allowed access to this storage area and will assign keys.
  - c. All inventory items will be maintained neatly and like items shall be stored in a manner to facilitate ease of tracking. All inventory items must be stored in a designated storage location, i.e., all signal heads together, all conflict monitors together, unless separated for projects, salvage piles, or repairs. Each area will be marked with name of item as well as minimum and maximum level.

Power and hydraulic tools and equipment used in signal shops that are valued at less than \$1,000 each will be recorded in a "Tool and Equipment Record" listing the quantity, unit value, and location stored or assigned employee. The DES or his or her designee will verify annually the location and condition of the shop's tools and equipment.

### Inventory Storage and Release

The DES will authorize employees who are allowed access to the accountable and non-accountable inventory storage area. These employees must ensure that the appropriate transfer record is completed before removing or adding items from or to this area. The DES will designate one employee to be responsible for updating the electronic inventory record of daily transfers from the inventory storage area. A complete audit trail will be maintained through the electronic inventory system of items moved from and to the storage area, when moved, by whom, and who received the item.

### Traffic Signal Equipment Transfer to Non-district Entities

Procedures for accepting or delivering accountable and non-accountable equipment from the signal shop inventory will be the same whether user is a contractor, vendor, local government, or other District/HQ personnel. These transfers shall be tracked in the inventory database.

Users may be allowed on signal shop grounds to pick up equipment (accountable and non-accountable equipment) designated for a particular project. A location on the grounds, separate and secured from inventory storage or warehouse and employee work area, will be designated for equipment transfer. The DES or his or her designee must be present to ensure the correct equipment is picked up or delivered.

A standard transfer form will be used to record the following information for all deliveries or pick-ups:

*For the person and entity represented, it will include signature, legible printed name of individual, company/local government name, company/local government contact information, date of pick up or delivery, project file number or name, if applicable, and the field location where the equipment will be installed. These transfers will be recorded in the inventory database.*

The user representative must sign the transfer form verifying the transmittal of the listed traffic signal equipment. A copy of the form will be maintained in the signal shop files, either in hard copy format or electronically and a receipt will be given to the user representative.

### Borrowing Signal Equipment

Contractors and local governments will only be allowed to borrow signal equipment for a SCDOT initiated project or an existing signal installed on the SCDOT system, if approved by the DTE. Borrowed equipment must be replaced in kind within two months of transfer. The DES will be responsible for tracking all borrowed equipment and its return. If the equipment is not replaced within two months, the DES will notify the SCDOT Accounting Office to generate an invoice to be submitted to the borrowing entity for immediate payment.

At the DTE's discretion, if a user borrows equipment and does not return it in kind within the two-month period, that user will not be allowed to borrow equipment again.

### Salvage Equipment

The DES will review all accountable and non-accountable inventories annually and determine

whether the items should be retained or declared salvage. The items that are identified will be indicated as "Salvage" in the inventory database. The listing will include the quantity, unit value, and condition of each item. Other signal maintenance shops will have access to the inventory database list of salvage equipment and may request transfer of equipment for use in their district as needed.

Surplus Equipment

If no other users are found in the state for salvaged equipment, the item shall be identified as "Surplus" property in the inventory database and will be disposed of in accordance with South Carolina Regulation 19-445.2150. Contact South Carolina's Surplus Property Office to dispose of surplus property and equipment.

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