



Public Works Department - Office of Transportation - TRAFFIC ENGINEERING DIVISION  
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# **Communication Infrastructure**

## **Policies & Procedures**

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## **1.0 Introduction**

The Broward County Traffic Engineering Division is responsible for assisting the motoring public in arriving at their destination safely and with minimal delay. This requires the Division to maintain and expand the communications infrastructure to enable communications between a central signal computer and each signalized intersection to provide signal coordination. At present, communications is accomplished using a copper cable plant but fiber optic cable will be added in the near future to enhance the network.

The County roads are in a constant state of change due to construction. Projects initiated by the State (FDOT), County, Cities and private companies affect the condition of the infrastructure and in particular, the communications infrastructure. Within the Division, the Communication's group is responsible for maintaining and expanding the communication's infrastructure. Through the use of the County's Communications Standards and Specifications and the governing Communications Policies and Procedures as outlined in this document, we are ensured that the communication's infrastructure is reliable and capable of supporting the Traffic Engineering Division's objectives. Any comments to this document shall be addressed to the Communications Manager at 954-847-2745 and by email at [traffic.communications@broward.org](mailto:traffic.communications@broward.org).

## **2.0 Objectives**

The objectives of this document are to convey Broward County's Traffic Engineering's Communications Policy and Procedures for maintaining and expanding the communication's infrastructure, establish guidelines for all Engineering, Consulting and Contracting companies doing business in Broward County and to make it known that standards and specifications exist for the communications infrastructure.

### **3.0 Communications Infrastructure Policies and Procedures**

The following policies and procedures shall be used to guide all Engineering, Consulting and Contracting companies conducting business in Broward County.

#### **3.1 Violation Discovery at Communications Re-inspection Policy**

When a signalization project is completed, the Contractor will send in a request to the Broward County Traffic Engineering Division to perform an initial inspection. This inspection ensures that the completed project has conformed to the Broward County Traffic Engineering Division's standards and specifications. The inspection includes the communications infrastructure, i.e.; copper or fiber optic interconnect cable, conduit, junction boxes, pull boxes, etc. On occasions, the inspection will fail and a punch list will be generated which lists each item that has failed.

When the Contractor has rectified the items on the punch list, the Contractor will request a re-inspection. The re-inspection will be conducted to verify that the items on the punch list have been rectified and now meet Broward County standards. While performing the re-inspection, another significant violation of Broward County standards may be discovered. The discovered significant violation will be added to the punch list. Any additional significant violations found may result in the failure of the re-inspection. It is not the intent of the re-inspection to perform another entire inspection.

The overall intend of this policy is not to unnecessarily delay acceptance of the project but to guarantee the operational integrity of the communications infrastructure, thus helping to protect the motoring public of Broward County.

Note: A full inspection will be conducted if 90 or more days pass since the first inspection.

#### **3.2 Replacement Interconnect Cable Policy**

Interconnect cable may need to be replaced when the cable is cut or when the construction project specifications require replacement. In either case, the cable shall be replaced in its entirety between existing termination points. If the replacement interconnect cable extends beyond the immediate project or damage area, the areas which are affected by the replacement cable will now be considered to be part of the project or damage area. It is the responsibility of the Contractor to take whatever steps are necessary to perform the installation of the replacement interconnect cable.

Two specific issues are addressed below that may affect the installation of the interconnect cable.

1. In the process of removing the interconnect cable for the installation of new cable, the cable can not be pulled out of the conduit:

The problem may be located outside the project area or area of damage (cable cut). In this case, the Contractor must take the necessary steps to isolate the problem area (i.e. blowing out the conduit, going from pull box to pull box and pulling the cable, etc.) and take the necessary corrective actions so that the cable can be removed and the new cable installed.

2. In the process of reinstalling new interconnect cable, other communications infrastructure is damaged:

While in the process of removing or installing the interconnect cable, any damage to junction boxes, pull boxes or any other signal communications system equipment are the responsibility of the Contractor. The Contractor shall replace the damaged equipment with approved equipment as specified in our current Broward County Traffic Engineering "Standards and Specifications for Communications Infrastructure" document. For a copy of these standards, refer to the Broward County web site at [WWW.BROWARD.ORG/traffic](http://WWW.BROWARD.ORG/traffic). To eliminate any questions concerning damages, it is required that the Contractor take pictures of the equipment in the area which may be affected by the installation of the replacement cable (i.e. pictures of a damaged pull box) prior to the cable installation. Prior to commencement of the cable replacement, these pictures are to be submitted to Broward County Traffic Engineering if they are to be used for arbitration purposes.

### **3.3 Communications Disruption Policy and Procedure**

#### **3.3.1 Communication Disruption Responsibility Policy**

The County's communications policy requires all Contractors to maintain online communications during the construction period within their project corridor. This is required for two reasons; to ensure continued signal coordination through the project corridor and other affected corridors in the County and second to provide the County with visibility to downstream communications in other areas outside the project corridor. If communications is not restored after being down for 3 consecutive days and we have a cable cut downstream outside the project limits, it shall be the Contractors responsibility to also repair the downstream cable cut. This due to the fact that we will not be aware of the cable cut until communications is re-established and by that time it may be too late to find the responsible party. Due to this risk to the infrastructure, Time is of the Essence for replacing the communications cable to re-establish communications. A cable cut outside the project corridor shall be treated as a normal cable cut.

#### **3.3.2 Notification of Communications Disruption Procedure**

When communications to one or more intersections must be disrupted by a Contractor to perform work other than an Emergency Disconnect, the Contractor shall provide an advance two day notice in writing thru their CEI or Project Manager (FDOT/Agency), to the Broward County Traffic Engineering Division. This notification shall be conveyed via electronic mail (email) to the Communications Manager- Robert Blount at rblount@broward.org and Tony Casas at acasas@broward.org. Notification shall include contact person, telephone number, purpose, location and duration. The disruption shall be scheduled during the weekend or during off peak hours beginning at 9:00am and ending at 3:00pm, however, the disruption shall last for no more than 3 consecutive days. The Contract administrator will review the application and respond by return mail or e-mail.

### **3.4 BCTED Signalization Inspection Procedure**

- 1) Written requests for Signalization inspections must be made by the CEI or the Signalization Contractor, hereafter referred to as the Requestor. This request shall be provided to the Systems Engineer or Designee (SED) 30 calendar days in advance of the anticipated completion date. Inspection groups may include Signal Maintenance, Signal Timing, Planning, Design or Communications as required.
- 2) The SED will schedule inspections on a first come, first serve basis. The inspection will be scheduled no later than 30 days from the request, except when a later date is requested. The SED will notify the appropriate groups of the inspection to be conducted and provide plans as available. The groups notified of the inspection are committed to that inspection for

the days required. The Planning group may inspect the markings as their schedule permits, but will perform their inspection prior to the scheduled inspection date.

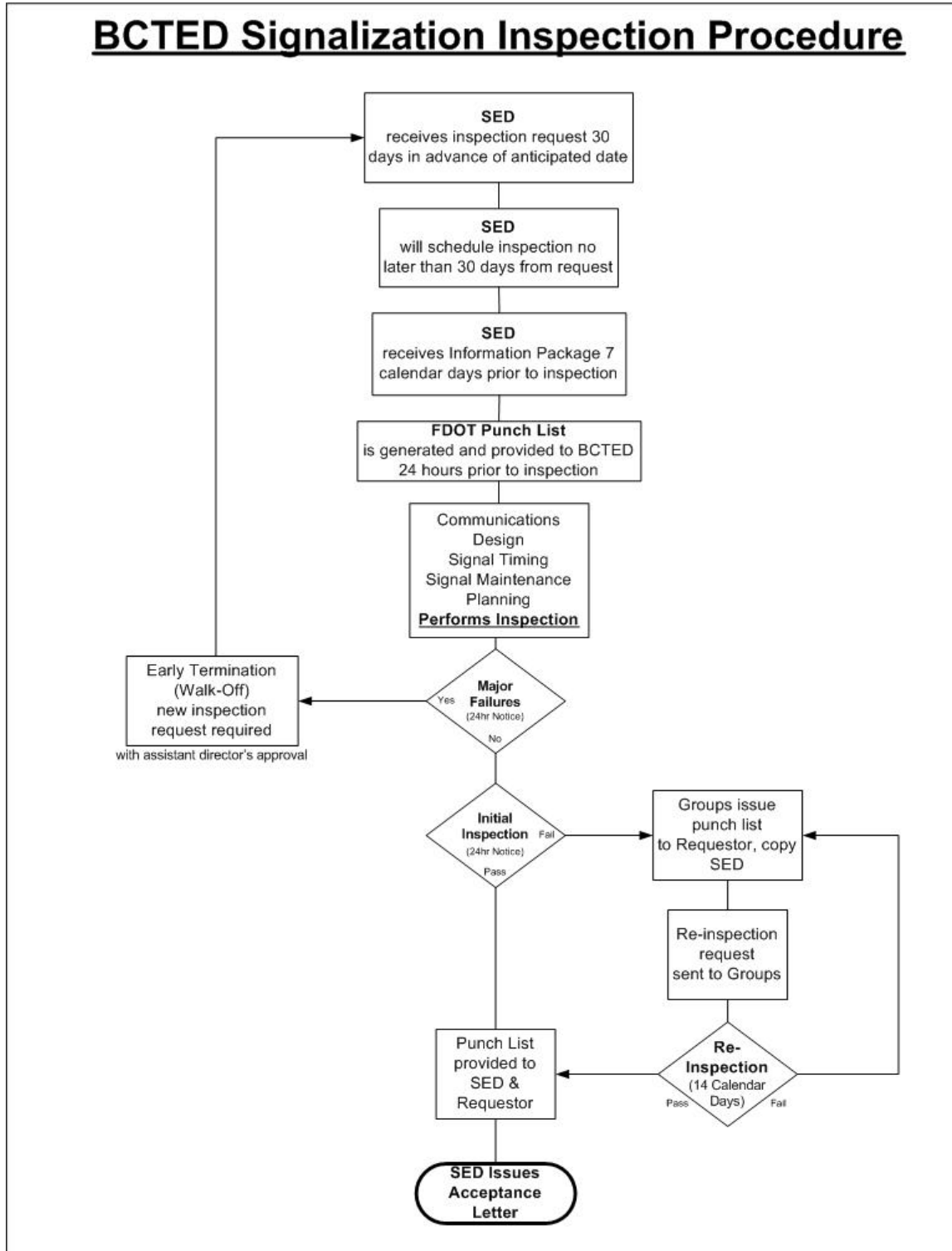
- 3) A package of information to include four sets of As-built drawings and Submittal Data shall be provided to the SED seven calendar days prior to the inspection date.
- 4) The group performing the inspection allocates and schedules the necessary staff to complete the inspection. Note: the scheduling of the inspection will be based on three intersections per day. Additional intersections will be inspected if time and resources permit that day and will continue the next business day.
- 5) The Requestor will confirm the inspection date and location with the SED seven calendar days prior to the scheduled inspection date. The location of the inspection may be changed two days prior to the scheduled inspection date. FDOT's Signalization Coordinator shall provide the SED the latest punch list 24 hours prior to the inspection.
- 6) The Supervisors of the inspection groups will notify the SED the afternoon before the scheduled inspection date if the inspection should be cancelled. The inspection cancellation will be made by any Section Head after consultation with the Assistant Director. Notification of the cancellation will be provided by the SED to all of the parties.
- 7) The Communications Section and the Maintenance Section will each provide the SED and the requestor with a punch list within two business days of the close of inspection. The punch list will state whether the intersection(s) passed or failed, and a list of the failed items. Pavement Marking and Signing items that present an operational hazard will be placed on the Maintenance punch list. Other Pavement Marking and Signing comments will be passed along to the appropriate party, as determined by roadway jurisdiction and the contract administration of the pavement markings. A punch list is not required if an Early Termination occurs. (See Section 9) If both punch lists have passed, the SED shall provide a Letter of Acceptance, if required, to the requestor within two business days.
- 8) If an inspection fails, a re-inspection request must be submitted in writing to the inspection group(s) which failed the inspection confirming, item-by-item, that each item on the punch list has been corrected. A copy of this request will be sent to the SED. Once this request is submitted, the re-inspection will be performed within 14 calendar days unless circumstances do not permit this. A revised punch list will be provided as in Section 7. This cycle will continue as needed until both punch lists are cleared.
- 9) An inspection will terminate early if a single major problem is discovered by any of the FDOT or BCTED inspection groups as specified in section 10, "Major Failure List" or if a pattern of incomplete work has been noticed as determined by the Supervisor and approved by the Assistant Director. If an Early Termination occurs, the group(s) terminating the inspection will notify the SED in writing stating the reason for the termination. The Requestor must provide a written request for inspection to the failing inspection group for a new inspection. Termination of an inspection by one group does not require termination by all other groups. Any punch list generated by the remaining group will be processed as specified in section 7.

10) The following is the Major Failure List which will be used to determine if an inspection will terminate early.

- ⌘ No communications established between any one intersection to be inspected and the BCTED communications room and any failed communications outside the project area due to work performed as part of the project
- ⌘ Pavement Markings not completed (temporary markings are acceptable)
- ⌘ A package of information containing As-built signalization plans (four sets) and Submittal Data have not been provided 7 calendar days prior to the inspection
- ? No Signal Contractor representative at the inspection

Or when a pattern of incomplete work has been noticed, for example;

- ? Movement(s) is found to be on recall, unless called for on plan and no detection installed or working
- ⌘ Phasing and operations not as stipulated on the plans
- ? Signal indications, including pedestrian, not functioning properly as per plans
- ? Improper grounding found
- ⌘ Electrical service installation presents a hazard due to code violation or improper installation



### **3.5 Pre-Construction Communication Infrastructure Verification Policy**

It is the responsibility of the Contractor/Project Manager/CEI to perform an inspection of the communications infrastructure prior to the commencement of construction. This is to verify the integrity of the various elements associated with the infrastructure (i.e.; conduit, interconnect cable, pull boxes, etc.) It is assumed by BCTED that the infrastructure is in perfect working condition and meets BCTED's Communications Standards and Specifications.

If a condition is discovered by the Contractor/Project Manager/CEI that may affect the acceptance of the communication's portion of the project at its conclusion, BCTED must be notified prior to commencement of the construction in the form of a written letter, email and/or pictures. If the condition is not brought to the attention of BCTED, it will be the responsibility of the Contractor/Project Manager/CEI to make the necessary repairs in order for the communication's portion of the project to pass inspection and be accepted.

### **3.6 Cable Cut Restoration Procedure**

When a cable is cut by a Contractor performing work on a project and prior notification of the cut was not provided, a temporary repair of the damaged cable shall be provided within 48 hours. Permanent repairs, which include the duct work, shall be provided within two weeks after all excavation within the designated cable area has been completed. Repairs are to be performed by an approved Signal Contractor that is on the BCTED list. Inspection of the permanent repairs shall be performed within 30 days.

### **3.7 Failed Communication Inspection Responsibility Policy**

When a construction project is completed, the Contractor/CEI shall send in a request to the Broward County Traffic Engineering Division to perform a communications inspection (see 3.4 above). This inspection ensures that the completed project has conformed to the Broward County Traffic Engineering Division's Communications Standards and Specifications. On occasions, the inspection will fail and a punch list will be generated which lists each item that has failed. Until the punch list items have been resolved and the inspection passes, the communications portion of the project is not accepted and continues to be the responsibility of the Contractor.

Due to the failure of the communications inspection, the Broward County Traffic Engineering Division will not accept any responsibility for damage or equipment failures associated with the communications portion of the project. Upon damage or equipment failures to the communications portion of the project, the Contractor shall make repairs within 24 hours to ensure the continued safety of the public.