

## **SECTION 690**

### **REMOVAL OF EXISTING TRAFFIC SIGNAL EQUIPMENT**

#### **690-1 Description.**

Remove existing traffic signal equipment including electrical and electronic equipment, supporting hardware and structures, electrical wiring conduit, and all other elements specified and required to clear the areas of concern for new installations.

When removing existing traffic signal equipment, salvage and protect all equipment and materials designated for removal in the Contract Documents.

#### **690-2 Ownership.**

The Department retains ownership of the equipment removed unless otherwise stated in the Contract Documents.

#### **690-3 General Removal Operations.**

Remove and salvage all equipment, appurtenances, and materials designated on the plans to remain the property of the Department or other owner.

Where the removals require excavation, backfill, compact, and level the excavated areas (unless to be used as areas for other installations) so as to form a smooth contour, uniform in density with adjacent ground areas.

Where the removal operations require the removal or disturbance of overlying pavement, curb, grass, or sidewalk, remove such pavement and subsequently replace it in kind (or equivalent).

Remove, handle, and transport electronic equipment to be removed with all due care. Correct any damage to such equipment caused by negligence at no expense to the Department regardless of whether the damage occurs before or after removal of the equipment.

When removing all electronic equipment, also remove all attaching devices and all other devices and auxiliaries related to the electronic unit which the Department does not require to remain in place for use with replacing equipment.

Perform all removals in such a manner as to not damage or disturb adjacent property, utilities, or other equipment.

Where replacing existing functioning installations by new installations, do not remove the existing installations until the new installations are in place and operating or until temporary traffic control approved by the Engineer is in place.

Notify the proper authorities or the owners of affected adjacent installations at least 24 hours in advance of any removal operations which might endanger or otherwise affect the operations of their facilities.

Where the Contract Documents indicate that owners will remove their own poles (or others), carefully remove and handle all signal equipment from such poles prior to such removal of the poles.

#### **690-4 Specific Removal Operations.**

**690-4.1 Removal of Poles:** Remove direct burial, strain poles, steel strain poles, mast arm and monotube assemblies and associated foundations as specified in the plans. Obtain the Engineer's approval for the removal process before beginning any removal work. These requirements do not apply to poles used for highway lighting, unless they are jointly used to support traffic signal mast arm or span wire assembly.

Accomplish the removal process of each pole/foundation in such a manner as not to result in a safety hazard to motorists or adjacent property or damage to existing utilities. Ensure that all utilities have been located prior to removal.

When shallow pole removal is specified in the plans, ensure the remaining pole/foundation and any protrusions, such as pole keys, dead men, guying apparatus, conduit, anchor bolts, or reinforcing steel, are removed to a minimum depth of 4 feet below existing grade.

When deep pole removal is specified in the plans completely remove each pole including the foundation and all accessories or attachments, such as pole keys, dead men, guying apparatus, conduit, anchor bolts, and reinforcing steel.

Do not remove or disturb utility poles located within the right-of-way.

**690-4.2 Removal of Signal Pedestal:** Remove each signal pedestal and associated foundations as specified in the plans. Obtain the Engineer's approval for the removal process before beginning any removal work.

Accomplish the removal process of each pedestal/foundation in such a manner as not to result in a safety hazard to motorists, pedestrians or adjacent property or damage to existing utilities. Ensure that all utilities have been located prior to removal.

Completely remove each pedestal including the foundation and all accessories or attachments, such as pole keys, conduit, anchor bolts, and reinforcing steel.

**690-4.3 Controller Assembly:** When removing controller assemblies, also remove the cabinet. For base mounted cabinets, completely remove the concrete base and technician pad.

Prior to removal, conduct an inventory of all controller assembly parts, cabinets, and related equipment using an appropriate list, as determined by the Engineer, including identification of the model number and serial numbers of each item. Turn over the controller assembly inventory list to the Engineer for retention by the Department or transfer the list to the equipment owner.

**690-4.4 Signal Head Assembly (Vehicular and Pedestrian):** Remove all signal head assemblies in such a manner as to avoid unnecessary damage. Also remove the signal head, disconnect hanger and adjustable hanger, saddle clamp, drop pipe, and all miscellaneous attachment hardware before dropping span wire.

**690-4.5 Detector Assembly (Vehicular and Pedestrian):** Divide the removal of detector assemblies into the following categories:

(a) Vehicular Detector Assemblies: When the removal of vehicular detector assemblies is specified in the Contract Documents, remove the amplifier from the controller cabinet, the loop, and the lead-in wiring that is in the conduit and pull boxes.

When removing pressure type vehicular detector assemblies, remove the amplifier and the detector pad and its framework from the roadway pavement. After removing such detector assemblies, repair the roadway areas by backfilling and tamping with an approved asphalt concrete mix or concrete pavement mix so as to restore the roadway to the satisfaction of the Engineer.

(b) Pedestrian Detector Assemblies: Include in the removal of pedestrian detector assemblies the removal of the push button detector, sign, and all mounting hardware, including the supporting post and foundation.

**690-4.6 Mast Arm Assembly:** Disconnect the mast arms carefully at the pole, and salvage all usable hardware and attachment devices as determined by the Engineer. Remove all

devices supported by the mast arm and the wiring in the mast arm prior to the removal of the mast arm.

For integrally installed mast arms and mast arm poles, remove the pole and mast arm combination as a unit after removing the devices supported by the mast arms.

**690-4.7 Cabling and Conduit:** After removing the conductor cable and conduit, carefully stub, or protect with other appropriate procedures, the remaining conductor cable and conduit at the point of removal.

If the removal of any cables and conduit requires excavation, restore disturbed areas compatible with adjacent ground areas.

### **690-5 Transporting and Storing Removed Signal Equipment.**

When the Contract Documents specify special handling, deliver equipment and materials that are not stipulated to be reused in the new installations to the location(s) designated in the Contract. When the Contract Documents note no special handling, stockpile or dispose of the removed materials as approved by the Engineer. The Engineer will determine ownership of removed equipment and will approve of the removal of any salvaged equipment from the project in advance.

Provide disposal areas, and dispose of removed concrete strain poles in such areas.

### **690-6 Method of Measurement.**

**690-6.1 General:** The quantities to be paid for will be measured in accordance with the different work tasks required in this Section. The Contract unit price for each different work task as specified in the Contract Documents will include all labor and equipment required to remove the specified items specified by the Pay Item Numbers.

#### **690-6.2 Remove Poles:**

**690-6.2.1 Pole Removal Shallow:** The quantity to be paid for will be the removal of each pole including the foundation and all accessories or attachments to a depth not less than 4 feet below existing grade.

**690-6.2.2 Pole Removal Deep:** The quantity to be paid for will be the depth in foot below existing grade required for complete removal of the pole and foundation including all accessories or attachments.

**690-6.3 Remove Signal Pedestal:** The quantity to be paid for will be the complete removal of each pedestal including the foundation and all accessories or attachments.

### **690-7 Basis of Payment.**

Prices and payments will be full compensation for all work specified in this Section.

Payment will be made under:

Item No. 690- 10-	Remove Traffic Signal Head Assembly - each.
Item No. 690- 20-	Remove Pedestrian Signal Assembly - each.
Item No. 690- 31-	Remove Signal Pedestal - each.
Item No. 690- 32-	Pole Removal Shallow - each.
Item No. 690- 33-	Pole Removal Deep - per foot.
Item No. 690- 50-	Remove Controller Assembly - each.
Item No. 690- 60-	Remove Vehicular Detector Assembly - each.
Item No. 690- 70-	Remove Pedestrian Detector Assembly - each.
Item No. 690- 80-	Remove Span Wire Assembly - each.
Item No. 690- 90-	Remove Cabling and Conduit - per intersection.

Item No. 690-100- Remove Miscellaneous Signal Equipment - per intersection.