

FOR INFORMATIONAL USE ONLY - DO NOT USE FOR BIDDING

CONTRACT NO. T6225007M

ITEM NO.	APPROX. QUANTITIES	ITEMS WITH UNIT PRICES WRITTEN IN WORDS			
1	1,600 EACH	TRAFFIC SIGNAL LIGHT INTERSECTIONS		x 36	
2	350 EACH	MISCELLANEOUS DEVICES		x 36	
4A	124,000 EACH	TRAFFIC SIGNAL LIGHT RELAMP		x 1	
419S-075	1,000 L.F.	FURNISH & INSTALL 3/4" STEEL CONDUIT FOR LOOPS		x 1	
422LX	16,000 L.F.	FURNISH & INSTALL LOOP WIRE		x 1	

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ITEM NO.	APPROX. QUANTITIES	ITEMS WITH UNIT PRICES WRITTEN IN WORDS			
422LSX	6,000 L.F.	FURNISH & INSTALL SAWCUT FOR LOOP		x 1	
5A	75 EACH	PAINT - STRAIN POLE		x 1	
5B	25 EACH	PAINT - AUXILIARY POLE		x 1	
5C	50 EACH	PAINT - POST		x 1	
5D	5 EACH	PAINT - MAST ARM		x 1	

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ITEM NO.	APPROX. QUANTITIES	ITEMS WITH UNIT PRICES WRITTEN IN WORDS			
5E	150 EACH	PAINT - MAST ARM & POLE		x 1	
5F	600 EACH	PAINT - SIGNAL HEAD		x 1	
5G	160 EACH	PAINT - PEDESTRIAN SIGNAL		x 1	
5H	25 EACH	PAINT - CONTROL BOX		x 1	
5J	400 EACH	PAINT - PUSHBUTTON		x 1	

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ITEM NO.	APPROX. QUANTITIES	ITEMS WITH UNIT PRICES WRITTEN IN WORDS			
5L	100 EACH	PAINT - TRAFFIC SIGNAL NUMBER COMPLETE		x 1	
5M	1 EACH	PAINT - SIGN STRUCTURE COMPLETE		x 1	
5N	10 EACH	REFURBISH SIGNAL SECTION		x 1	
5P	10 EACH	PAINT - TRAFFIC SIGNAL HARDWARE		x 1	
6	\$90,000 L.S.	FURNISH EQUIPMENT-AS ORDERED (Forced Bid)	\$90,000 .00	x 1	\$90,000 .00

**NASSAU COUNTY TRAFFIC SIGNAL MAINTENANCE
SPECIFICATION CONTRACT NO. T6225007M
DIVISION I - GENERAL**

A. Purpose

1. Scope of Work

The purpose of this Specification is to set forth the minimum requirements for the maintenance of all Electrically/Electronically operated Traffic Control devices during a period of thirty-six (36) months, with an optional one-year extension approved by the Commissioner of Public Works from about January 1, 2027 0001 hours to December 31, 2030 2400 hours.

2. Funding

The funding for this Contract shall be taken from the authorization appropriated in the 2027 approved budget together with those amounts which shall be appropriated in the approved budgets for the succeeding years, during the term of this Contract.

B. Contractor Experience and Requirements

1. The proper operation of traffic signals is of a critical public safety nature. Prospective bidders must have at least three (3) years of satisfactory experience and demonstrate management ability in the actual operation, maintenance, modification, and installation of a considerable number of types of complex traffic control equipment.

2. In addition to the requirements outlined in "Instruction to Bidders" of this Contract, the low bidder may be required to complete a Traffic Signal Experience Questionnaire supplied by the County, that will include the following questions:

a. A list of all traffic signal contracts completed within the past three years, including dollar amounts.

b. A list of the traffic signal equipment in stock such as spare controller equipment, signal parts, and all other equipment. It is noted that there are time requirements to complete construction, emergency and maintenance work in the contract, and it is vitally important that these parts and equipment be in stock in order that the Contractor can comply with these requirements and to adequately insure the public safety.

- c. A list of traffic signal technical personnel who will be performing the supervision, maintenance, modification, bench and other necessary work.

C. Area of Coverage

1. The area of coverage for this Contract shall include, but not be limited to, all items in this Contract under the jurisdiction of the Division.

2. The County of Nassau reserves the right during the term of this Contract to increase or decrease or eliminate an item of coverage, and the Contractor is hereby advised that he will receive no additional compensation other than the unit prices as expressed in the Contract for such addition or deletion.

D. Work Included

The work includes the furnishing of all transportation, labor, materials, signs, equipment, parts, tools, and appurtenances required to perform the work in accordance with this Contract. A listing may be obtained at the Division showing intersections and locations where traffic control devices, and other equipment are to be maintained.

E. Definitions

The following definitions are in addition to the definitions as described in the AGREEMENT:

1. Central Computer (TMC) and Ancillary Equipment

Electronic device used to supervise the split, offset and cycle length of traffic signal controllers in systems. The central computer and ancillary equipment is located at the TMC Computer Center - D.P.W. – Division of Engineering/Traffic Engineering Unit, 1194 Prospect Avenue, Westbury, New York. The maintenance of these units shall be by a contractor, other than this contract.

2. Contractor

The individual, firm or corporation undertaking the execution of the work under the terms of the Contract and acting directly or through his, their, or its agents and employees. In this Contract, the "Contractor" shall be the electrical contractor performing all traffic control electrical/electronic work at on-site field locations.

3. *Controller*

The mechanism used to time and control the indications of traffic signals, including the cabinet, terminals, wiring, switches, cabinet relays, auxiliary equipment and all other parts, except time clocks, detectors and amplifiers, and special timing units as designated in Division 2, Item 1.

4. *Direct Labor Cost*

(As applied to Division 2, Section 3, Time and Materials) shall be the current prevailing base labor rate schedule for electricians in the Nassau County area as verified by the New York State Department of Labor plus a seventy percent (70%) supplement. This 70% supplement shall cover all fixed, variable and other direct labor costs of the Contractor. The above 70% supplement shall not change for the duration of this contract. Any changes to the base labor rate during the duration of this contract, shall be verified by the New York State Department of Labor before payment can be made. Supplement percentages for the subcontractor's personnel will be computed and verified by the Department.

5. *Division*

Division of Engineering, Traffic Engineering, Traffic Signal Construction & Operations Unit, Department of Public Works, Nassau County.

6. *Electrically Operated Traffic Control Devices*

All traffic control signals, pedestrian control signals, floodlights, signs, and all other illuminated devices whose maintenance is the responsibility of the Division.

7. *Field Telemetry Unit*

An electronic device used to receive and transmit messages between the central computer and ancillary equipment and the local traffic signal controller. This unit may be located within the confines of the traffic signal controller cabinet. The maintenance of these units shall be by a contractor, other than this contract.

8. *Floodlight*

A high output lamp or lamps including fixtures, switches, and switch boxes; the principal function of which is the illumination of policemen directing traffic.

9. *Foundation and Pole*

A concrete base and metal or wood poles used primarily to support an illuminated traffic control device and/or signal control equipment. Wood poles maintained and owned by utility companies are not included in this definition.

10. *Hourly Rates*

(As applied to Division 2, Section 3, Time and Material) shall indicate the current direct labor cost for those personnel that modify, construct, remove or install traffic control devices.

11. *Local Receiver Units*

An electrical device used to transfer the message from the local master controller to the traffic signal controller. This unit is located within the confines of the traffic signal controller cabinet.

12. *Local Master*

An electrical device used to supervise the split, offset and cycle length of traffic controllers in a hardwired coordination system. This device is field located on or near the artery it is controlling.

13. *Maintain, Maintaining, Maintenance*

These terms shall include, in addition to other work specified, the following:

- a. The periodic inspection of all traffic control devices under the "Routine Maintenance and Inspection Program."
- b. The repair or replacement of any defective or worn out traffic control device, electrical, electronic, mechanical or electro-mechanical component, part, unit or equipment.
- c. The repair and adjustment of all wiring connections, cables, timing, and any other work required for establishing accurate and efficient operation of traffic control equipment.
- d. The installation of functionally operating temporary equipment following damage or malfunction to any equipment for traffic control whose responsibility rests with the Division. Including all

necessary temporary electric power, if directed, until the permanent equipment can be restored to normal electric service.

- e. The continuance of a regularly scheduled group relamping/inspection program.
- f. The initial response to all reports of damaged equipment and the securing off the area until such time as repairs commence under the Time and Material portion.

14. Materials and Equipment

(As applied to Division 2, Section 3, Time and Material) are those physical components and equipment that are furnished and/or installed as required for the completion of the work. The cost of the materials shall be the net cost to the Contractor, including all discounts multiplied by the amount bid for material in this contract. Proof of material and equipment costs shall be required when cost of item exceeds one hundred dollars and may be required if cost is less than one hundred dollars. Material used on a T&M shall be separate from equipment supplied under this provision. Material or Equipment supplied shall be identified by the County as such as RM – Request Material, and the Contractor shall supply this equipment/material to the County. The cost of this equipment under the RM item shall be the net cost to the Contractor, including all discounts, multiplied by 5%. The Contractor shall have no recourse if this equipment supplied under RM is later installed by the Contractor under the appropriate T&M items to claim additional payments for material percentages under this provision.

15. Miscellaneous Devices

Devices not included in other categories, such as Advance Warning Signs and Signals; Flashing Traffic Signals; Flashing Warning Signs, RRFB (Rectangular Rapid Flashing Beacons), Sensor and Sensor Stations including sensor loops & sensor loop amplifiers but not field telemetry units or computer cable located at the sensor station; Counting Stations; Speed Awareness Devices & Signs, Cable Terminal & Splice Cabinets; and Computer Terminal & Splice Cabinets but not the computer cable, lightning protection, computer signal amplifiers and fiber optic modems that may be in those cabinets.

16. Overhead

(As applied to Division 2, Section 3, Time and Material) shall include the following expenses of the Contractor and/or subcontractor, and shall be deemed to include all costs other than direct labor cost, material and profit percentages:

- a. All transportation costs; including vehicles, rental charges, fuel, repair and incidentals, except subcontractor's transportation costs and rental charges.
- b. All other equipment except subcontractor's equipment.
- c. Office personnel
- d. Supervision - including transportation
- e. Insurance
- f. Office Expenses - including light, heat, power, rent and office equipment.
- g. Communications Equipment
- h. Any remaining Direct Labor Cost not covered by other provisions.

17. Overtime

Overtime paid by the Contractor on emergency time and material work, as ordered by the Division, will be computed for the total direct labor cost actually paid by the Contractor and shall be listed separately from other time cost. All overtime shall be verified and approved by the Division. The normal working hours for this contract will be 8:00 A.M. to 4:30 P.M., Monday through Friday, except all legal holidays.

18. Pedestrian Pushbutton Assembly

A device used by pedestrians for the purpose of actuating a controller; including pushbuttons, housings, sign assembly and all other parts, including audible, latching and visual parts.

19. Pedestrian Signals

Devices used to indicate street crossing intervals to pedestrians by the illumination of messages reading "Walk", "Don't Walk," international symbols or other similar messages including audible signals; and includes the housing, visors, access doors, transformers, symbolic L.E.D. modules, symbolic L.E.D. countdown modules, APS modules, gaskets, wiring, and all other parts.

20. *Relay*

A relay assembly in a cabinet, to provide special functions as called for on the sequence chart, including all terminals, wiring, switches and all other parts.

21. *Routine Maintenance*

Work items that shall be performed regularly to insure that traffic signal equipment will continue to operate efficiently and safely.

22. *Sign, Illuminated*

A sign assembly primarily used for lane control, advance warning, and/or turn prohibitions. Burnouts of lamps to be replaced as they occur.

23. *Street Light*

A device used to illuminate the roadway including the fixture, fuse, pole, base, and wiring.

24. *Subcontractor*

Any individual, firm or corporation to whom the Contractor, with the written consent of the Department, sublets any part of the contract. In this Contract, a subcontractor may only perform non-electrical work on traffic control devices, or designated work on non-traffic signal jobs.

25. *Supports*

All structural parts, such as span wire, mast arms, hangers, brackets, clamps and parts thereof, used to support traffic control devices.

26. *Time Base Coordinator*

An electronic device used to supervise the split, offset and cycle length of a traffic controller in a non-interconnected system. This unit is located within the confines of the traffic signal controller cabinet.

27. Traffic Control Device

All traffic signals, traffic signs, street lights, floodlights, and other devices erected or placed on or adjacent to a highway or street, which said devices are under the jurisdiction of the County of Nassau for the purpose of regulating, warning, or guiding traffic.

28. Traffic Signal Face

A traffic signal face is that part of a traffic signal head provided for control of traffic approaching from a single direction and includes any arrows or pedestrian indications provided (e.g. the red, yellow AND green or R,Y,G and Green Arrow).

29. Traffic Signal Heads

One or more traffic signal faces mounted together and used to control traffic by the illumination of colored lenses, including the housing, visors, doors, sockets, lamps, reflectors, lenses, modules, gaskets, wiring, hangers, backplates and all other parts.

30. Traffic Signal Section

A traffic signal section is that part of a traffic signal face consisting of an assembly of a lens, reflector, lamp, lamp socket and housing, or an L.E.D. module and housing, with the necessary supporting parts to be used to provide a single signal indication (e.g. the red, the yellow, the green arrow or pedestrian indication, etc.).

31. Unscheduled Maintenance

Emergency repairs which occur as the result of equipment failure or damage, and shall include all work required to restore a traffic control installation, system or other equipment under the jurisdiction of the Division, to its original normal operating condition.

32. Vehicle Detectors

All vehicle detection equipment used to detect the presence or motion of a vehicle for actuated units (e.g. relays, amplifiers, magnetic units, power supply, roadway loops, video cameras, pucks, pods, etc.).

F. Apparent Omissions

1. The apparent silence of these specifications as to any detail or the apparent omission of them from a detailed plan concerning any work to be done and materials to be furnished, shall be regarded as meaning that only the best general practice is to prevail and that only the best workmanship and material shall be used. Work not specified but involved in the proper execution of the work, is required and shall be performed by the Contractor as though it were specifically delineated or described. Interpretation of these specifications shall be made upon that basis.

2. All schedules, directives, and conditions are subject to change by the direction of the Commissioner, or as ordered by the Engineer.

G. Number of Units

1. Unless otherwise directed in writing by the Engineer, the number of units per item to be maintained for items 1, and 2, shall be those existing at the time the Contract takes effect and corrected each month by letter from the Division. The County reserves the right to delete, increase or decrease the number of units or items. This number shall be used for monthly billing purposes.

2. The number of units shown in the bid schedule are estimates of the number expected to be in service. The actual number of units in service at that time may vary from the estimate and the Contractor will be notified of the correct figure as stated above. From time to time, the County may remove units which will be maintained by a Contractor other than this contract, such as those that are under construction at a given time.

H. Communications Service

1. The Contractor's Communication Center shall receive and record all calls for service originating from the Division, Precincts of the Nassau County Police Department, and other police agencies, and other agencies authorized by Nassau County, but not the general public. The twenty-four hour communication service shall be maintained every day in the year sufficient to insure compliance with the terms of this contract. Each call will be confirmed in writing by the person receiving such a call on a form approved by the Division showing time of call, nature of call, and names of persons transmitting and receiving the calls, (e.g. Log).

2. The Contractor's Communication Center must have a minimum of two phone numbers for incoming calls devoted exclusively to this contract.

3. Immediately after the repair of a malfunctioning traffic signal or other traffic control device, if requested or directed, the Contractor shall notify the desk officer of the

police agency within whose boundaries the device is located and inform him of the time, date, and other pertinent information concerning the repair of any such device.

I. Communication with County Personnel

The Contractor shall provide seven (7) each iPhones, 2 of which shall be the latest model with Qi chargers, approved by Nassau County, and a wall charger, a car charger, holster and hands free device for each unit for field communication with the Contractor's Communication Center, including phone, Bluetooth, and internet access; two (2) 4G or better wireless Wi-Fi hotspot unlimited data and the related services to use the hotspots. The 2 latest model iPhones may be upgraded after 2 years. If the iPhone models are no longer supported by Apple during the term of this contract, then those phones shall be upgraded as well to models that are supported. All maintenance, rental and monthly charges shall be borne by the Contractor. The telephones shall be capable of reaching any other telephone, even on other networks. The cost of the telephones and hot spots shall be spread over and included in the various contract items of the contract. At the termination of this contract, the telephones, hot spots and the charging equipment shall be returned to the Contractor.

J. Response To Calls

The Contractor shall report to a site within two (2) hours from the time he is notified that a traffic control device, system or other equipment under the jurisdiction of the Division, requires unscheduled maintenance. The Contractor shall report to a site within twenty-four (24) hours from the time he is notified for non-emergency tree trimming, removal of foreign matter, graffiti removal calls, and pushbutton sign replacement (not signals). If the County deems any of the 24 hour calls an emergency, a two (2) hour response will be in effect. The Contractor's receipt of call shall be considered as when the Contractor's Communication Center or answering service receives the call. The time that the Contractor receives notification from the answering service shall not be considered as "Time of receipt of call."

K. Charging Contractor for Work Performed by Others

When the Contractor fails to perform on-time in response to calls, this work will be subject to being accomplished by other than the successful bidder of this contract, as so ordered by the Commissioner. All direct and indirect costs and expenses related thereto, will be paid by the Contractor, in accordance with the Agreement.

L. Temporary Traffic Equipment

1. When it is found to be impractical to immediately restore or relocate the existing equipment due to malfunctioning equipment, the Contractor shall immediately provide temporary traffic signal equipment if possible, and maintain same until it can be replaced with the permanent traffic equipment. The Contractor shall provide the temporary traffic signal equipment and necessary temporary electric power, labor, controllers, conflict monitors, cable, wiring, fittings and connections, and other materials or equipment necessary to provide a safe and proper operating condition of the existing traffic control installation. All temporary traffic equipment shall be approved by the Engineer.

2. The Engineer shall be notified immediately of any damaged equipment by the Project Manager or Foreman Only. The Engineer shall instruct the Contractor as to the resolution of the damaged equipment, in order to restore the equipment to its normal operating condition.

3. The temporary controllers shall provide the phasing and sequence as per the permanent County-owned controller. The elimination of turning indications (arrows) or pedestrian signals shall not be approved.

4. Within thirty calendar days, the permanent equipment shall be reinstalled and placed in operation, and the temporary equipment removed. All temporary equipment installed, maintained and removed, shall be at no additional cost to Nassau County. All traffic control equipment forwarded to a manufacturer for repairs, shall not relieve the Contractor of his obligations under this paragraph. Violation of this paragraph shall be just cause to delay any claim for payment until the permanent equipment is repaired and reinstalled.

M. Controller and Timing

1. Timing schedules for the traffic signal control devices at all Nassau County signalized intersections will remain in force as of the first day of this Contract. The controllers shall be kept operating by the Contractor in strict accordance with these schedules, unless notified of modifications the Division requires to be made.

2. Timing schedules found deviating from the established schedules shall be corrected immediately. Excessive and repeated timing schedule deviations in the same controller shall be fully investigated and corrected by the Contractor, and reported to the Division.

3. Nothing herein shall be construed to relieve the Contractor of his obligation to correct electrical/electronic or mechanical trouble in the controller assembly or interconnecting cables (County-owned) at more frequent intervals, if such are reported to him or found by him to be faulty in any respect.

N. Office Equipment

The following equipment shall be furnished to the Division for use by County Personnel in the administration of this Contract, the cost of which shall be included in the various items of the Contract:

1. Computer System Hardware, Software and Supplies

- a. The Contractor shall provide the following computer equipment which shall be furnished and installed as directed, interconnected with existing equipment and maintained at the Traffic Signal Construction & Operations Center: (4) each Dell Pro Rugged 14 Laptop with a minimum Intel Core Ultra 5 (12 Core) processor, 16gb ram and 512gb SSD with Windows latest version, Microsoft Office latest version (not 365) and Norton Security latest version for 3 years installed; (4) Microsoft Office for Windows 10 or latest version; (4) Acrobat Pro software (latest version); (4) Norton Security Software renewable for 3 years, (6) ipads with a rugged case and Verizon connectivity or approved equivalents; All items to be approved by Nassau County. The cost of these items shall be spread over all items being bid in this contract.
- b. The Contractor shall provide the following computer equipment which shall be furnished and installed as directed, interconnected with existing equipment and maintained at the Traffic Signal Construction & Operations Center: (1) each – HP Enterprise M775f Printer or latest version including (1) HP JetDirect Card or approved equal including toner and all cables. The cost of these items shall be spread over all items being bid in this contract.

The County may use this equipment for any official business of the Division and shall include all cables and toner cartridges.

- c. The Contractor will be responsible for all necessary supplies, toner cartridges, ink jet cartridges, printer ribbons, maintenance and service on the County's existing printers, and new equipment supplied and installed, including software.
- d. The Contractor shall provide replacement equipment due to breakdown, damage, or theft within ten working days. A list of equipment will be furnished to the Contractor upon request.
- e. The Contractor will be responsible for having their own computer system, printer and internet access, capable of running a County-supplied Traffic Signal Maintenance Program. The Contractor must use this system for all correspondence and record keeping required in this contract. To include: Daily work orders, controller reports, manpower reports, weekly schedules, painting lists, relamping, billing, etc.
- f. The Contractor shall provide each field maintenance electrician with an ipad with a ruggedized case and verizon network connectivity or approved equivalents,for the duration of the contract.

Upon issuance of the "Completion Certificate," all items supplied under Items 1a, 1b, 1c and 1d will become the property of the Division.

EQUIPMENT – Item 6

In addition to the above equipment in paragraph N, the following equipment shall be furnished to the Traffic Signal Construction and Operations Unit for use by Nassau County personnel in the administration of this contract.

It is expressly understood and agreed that the foregoing bid is the basis for establishing the amount of the bid security on this proposal and includes the following allowance:

\$90,000 for the purchase of computer hardware, computer equipment, monitors, portable dash cameras, speed trailers, copying equipment, printers, associated software, and related equipment, which will be selected by the County during the contract period. Payments to the Contractor will be strictly on the basis of manufacturer's or supplier's invoices plus 5%,

delivered and unloaded at the County Traffic Signal Construction & Operations Shop. If the cost of the equipment exceeds the \$90,000 allowance, the Contractor will be paid the increased amount based on invoices. The equipment shall be delivered within forty five (45) calendar days after selection. Payment will be made under Division 2, Item 6.

Upon issuance of the "Completion Certificate," all items supplied under Equipment – Item 6 will become the property of the Division.

O. Vehicle Detector Inspection

The Contractor shall perform routine inspection of all traffic signal detectors and pedestrian pushbuttons on a form approved by the Division. This form will be submitted every ninety (90) days with the claim for all locations. All detectors and pedestrian pushbuttons shall be inspected once in a ninety (90) day period by precinct and a report submitted. An entry shall be made on the intersection record card at the time of inspection. Any defective detectors or pushbuttons shall be repaired at the time of inspection. Any damage shall be reported to the Engineer. In addition to the form submission, the set of inspections must be copied and transmitted to the County as a PDF computer file.

P. Contractor's Stock Facility

1. The Contractor shall maintain in inventory of stock, a complete stock of repair and replacement parts for use in the operation of electrical/electronic traffic control devices, including complete units or parts, necessary to comply with the terms of this contract. This stock shall be a three (3) months' supply to insure strict compliance with the requirements of this specification.

2. The County will not be responsible for furnishing any parts under this Contract unless otherwise specified in this specification.

3. All replacement parts or components shall be new and equal to the original part or component replaced. If the Contractor replaced a defective component or part with anything but the same manufacturer's make, model, quality, etc., he shall first receive permission from the Engineer.

4. The Contractor's stock facility shall contain the following minimum equipment:

a. Five (5) each - NEMA Two-Phase Traffic Signal
Controllers

- b. Ten (10) each - NEMA Four-Phase Traffic Signal
Controllers
- c. Five (5) each - NEMA Eight-Phase Traffic Signal
Controllers
- d. Thirty (30) each – 2070 Lite Traffic Signal Controllers**
- e. Fifteen (15) each – Dual Channel Rack Mount Loop
Amplifiers
- f. Five (5) each –Rack Mounted Magnetic Detector Amplifiers
- g. Five (5) each – Iteris Rack Mounted Video Amps
- h. Five (5) each – Autoscope Rack Mounted Video Amps
- i. Twenty (20) each - Loop Detector Amplifiers
- j. Five (5) each – Magnetic Detector Amplifiers
- k. Two (2) each - Electro-Mechanical Fixed-Time Controllers
- l. Thirty (30) each - NEMA Load Relays with Lamps
- m. Ten (10) each - NEMA Three-Channel Conflict
Monitors
- n. Ten (10) each - NEMA Six-Channel Conflict
Monitors
- o. Five (5) each - NEMA Twelve-Channel Conflict
Monitors
- p. Ten (10) each - Rack Mounted 2010EClip Conflict Monitors
- q. Ten (10) each - Rack Mounted DC Isolation Cards
- r. Two (2) each - Rack Mounted AC Isolation Cards
- s. Two (2) each – Rack Mounted Latching Pushbutton Cards
- t. Fifteen (15) each – 12” Red L.E.D. modules
- u. Fifteen (15) each – 12” Yellow L.E.D. modules
- v. Fifteen (15) each – 12” Green L.E.D. modules
- w. Five (5) each – 12” Red Arrow L.E.D. modules
- x. Five (5) each – 12” Yellow Arrow L.E.D. modules
- y. Five (5) each – 12” Green Arrow L.E.D. modules
- z. Five (5) each – 12” Bi-Modal LED arrow
- aa. Fifteen (15) each – 8” Red L.E.D. modules
- bb. Fifteen (15) each – 8” Yellow L.E.D. modules
- cc. Fifteen (15) each – 8” Green L.E.D. modules
- dd. Two (2) each – Low Voltage 8” Yellow L.E.D. modules
- ee. Fifteen (15) each – 16” x 18” countdown L.E.D. ped
- ff. Twenty (20) each – 2” Polara Bulldog pushbutton modules
- gg. One (1) each - Miovision Camera detectors
- hh. One (1) each – Miovision Shelf Mount Processor

jj. Two (2) – Pods

- The above equipment shall be stenciled with the Contractor's name and the word "spare," with the exception of the L.E.D. modules.
- The L.E.D. modules must be approved by Nassau County.
- The above equipment shall be functionally operational and tested.
- The above equipment must conform to the Nassau County Traffic Signal Specifications, latest edition.

If the L.E.D. module spares, pods and pucks are used in the field as permanent replacements, the Contractor will be required to replenish his spare stock modules to bring him in compliance with the minimum spare equipment as listed above.

**Note: The County has 2070 Lite controllers and auxiliary equipment installed in the field at this time. It is expected that additional controllers will be installed in the field during the course of this contract, other than by this contract.

Q. Contractor's Communication and Maintenance Center

1. The Contractor shall maintain a Communication Center. The Contractor shall maintain this Center within the County of Nassau. The Center shall include office facilities, adequate shop facilities, and storage area to perform the required work under this specification.

2. Upon issuance of the "Commence Work Order," the Contractor's Communication Center shall be fully equipped with shop facilities including test equipment for the repair of various types of electrical and electronic traffic control equipment.

3. The Contractor's Communication Center shall be equipped with minimum 2 phones or approved equal for communication with field personnel.

R. Shop Facility

1. The Contractor shall have on hand a complete stock of electrical/electronic test equipment within the County limits. This equipment shall be sufficient to insure strict compliance with the requirements of this specification.

2. The shop facility shall include, in addition to other equipment, the following minimum equipment:

- a. One (1) each - Portable Oscilloscope with Dual Channel
- b. Three (3) each - VOM Simpson Model 260's
- c. Test jigs for checking Traffic Signal Controller operation
- d. Dummy Signal Load Boards
- e. Transistor in-circuit tester
- f. 600 Volt Meggar
- g. 2070 controller tester
- h. Video monitor for video detection check/setup

3. The shop facility shall be available at all times for inspection by the Division.

S. Contractor's Personnel

1. The Contractor shall maintain a sufficient staff of trained maintenance, modification, and emergency repair personnel.

2. The Contractor shall provide adequate supervision, competent in directing the necessary personnel and the required work. Supervisory personnel shall have the authority to act for the Contractor. The names and telephone numbers of these employees shall be submitted to the Division.

3. Due to the complexity of this Contract and public safety requirements, the Contractor shall assign the following minimum personnel to this contract:

- a. One (1) Project Manager for supervision, with a minimum of three years' experience in the management of Traffic Signal Maintenance. This position is full-time and the individual shall be on duty, in the County of Nassau only, during normal working hours for this contract. This position may need to be contacted at off-hours due to any emergencies that cannot be handled by any other personnel.
- b. One (1) Journeyman Maintenance Foreman with five years' experience of in-field troubleshooting and repairs of electrical/electronic traffic signal equipment. This position shall be responsible for and shall be capable of supervising the bench technician and the maintenance electrician personnel. This position shall be responsible for all field repairs and electrical equipment repairs and decisions. This position is full-time and the individual shall be on duty, in the County of Nassau only. This position shall report to the Project Manager but be equal in making decisions. The

Foreman shall be selected from paragraph d below only and shall be included in the five personnel from paragraph d.

- c. One (1) Journeyman Electronic Bench Technician with five years' experience in electrical/electronic traffic signal controller and other traffic equipment repairs to work as needed on repairs.
- d. Five (5) Journeymen Maintenance Electricians with five years' experience each of in-field troubleshooting and repairs of electrical/electronic traffic signal equipment.
- e. One (1) Journeymen Maintenance Electrician with three years' experience of in-field troubleshooting and repairs of electrical/electronic traffic signal equipment.
- f. Two (2) Apprentice Journeyman Electricians to be trained in Signal Maintenance and related equipment and topics.
- g. Two (2) Journeymen Construction Electricians, available for T & M Work with five years' experience each of in-field construction and modification of electrical/electronic traffic signal equipment. Work may not be available every working day that the County of Nassau is open for business as determined by the Engineer and the following County holidays will be excluded from regular work days for any Journeyman Construction Electrician working on the T & M crew: New Year's Day, Martin Luther King Day, Lincoln's Birthday, President's Day, Memorial Day, Independence Day, Labor Day, Columbus Day, Election Day, Veterans Day, Thanksgiving Day, The Friday after Thanksgiving, and Christmas Day, excluding emergency work.

All the above personnel shall be employed at the Contractor's Communication Center and shall be on duty in the County of Nassau only, except as noted in paragraph g.

Each field service Maintenance Journeyman, and Maintenance Foreman shall have video detection monitors/mouse in their vehicles and available at all times as well as each having a Smartphone that has internet and Bluetooth capabilities to be able to access and contact Bluetooth pushbuttons, as well as Bluetooth or other similar technology in speed awareness signs and related equipment and to be in contact with inspectors and other field personnel. The Maintenance Foreman shall also have a Windows Laptop with internet access capable of being used for and with Bluetooth equipment and programming for field equipment. Each Construction

Foreman regularly assigned to T&M shall also have a video detection monitor/mouse, Windows Laptop with Bluetooth and internet; and Smartphone with internet and Bluetooth capabilities. Each construction crew member shall have a Smartphone with internet and Bluetooth capability. Both the Maintenance and Construction foreman shall also have a wireless unlimited data Wi-Fi hotspot provided to them to be able to access the internet from the field locations.

4. A dispatcher shall be employed in the Contractor's Communication Center. The dispatcher shall communicate by telephone and be able to use phone as well as texting capabilities with the Contractor's field personnel or County personnel in the field. The dispatcher shall be on duty at the Contractor's Communication Center as follows:

- a. Monday through Friday - 7:00 A.M. to 5:00 P.M.
- b. Saturday - 9:00 A.M. to 5:00 P.M.
- c. The above schedule excludes New Year's Day, President's Day, Memorial Day, Independence Day, Labor Day, Veterans Day, Thanksgiving Day and Christmas Day. If other holidays are added to the Journeyman Maintenance Electricians schedule by I.B.E.W. Local 25, those holidays will be included in this exemption and the County of Nassau shall be notified in writing.
- d. When one of the above holidays falls on a Saturday or Sunday, and the Contractor is closed the preceding Friday or following Monday, a dispatcher shall be on duty that Friday or Monday during the hours of 9:00 A.M. and 2:00 P.M. if the County of Nassau is open. Answering service may be employed on the Friday or Monday if the County of Nassau is also closed for business.
- e. A dispatcher shall be on duty the Friday following Thanksgiving Day, Christmas Eve and New Year's Eve between the hours of 9:00 A.M. and 2:00 P.M.
- f. At all other times, an answering service shall be employed by the Contractor for receipt of calls.
- g. The County may request a dispatcher to be on duty in lieu of the answering service when the County encounters an emergency situation. Payment for this service will come under the Time and Material Section, Division II, Section III.

5. The Contractor shall provide field personnel for maintenance as outlined in Items 1, 2, 3, and 4 in the County of Nassau only, including immediate response to calls as follows:

- a. Sunday 11:30 P.M. through Friday 11:30 P.M. continuous coverage twenty-four (24) hours a day. A minimum of two (2) Journeymen Maintenance Electricians on duty from 7:00 A.M. to 7:00 P.M. each day Monday through Friday and a minimum of one (1) Journeyman Maintenance Electrician on duty from 7:00 P.M. to 7:00 A.M., each day starting Monday evening and ending Friday night 11:30 P.M.
- b. Saturday and Sunday 8:00 A.M. to 4:00 P.M., a minimum of one Journeyman Maintenance Electrician shall be on duty.
- c. The above Saturday and Sunday schedule shall apply to the Friday After Thanksgiving Day, Christmas Eve and New Year's Eve.
- d. The above schedule excludes New Year's Day, President's Day, Easter, Memorial Day, Independence Day, Labor Day, Veterans Day, Thanksgiving Day and Christmas Day. If other holidays are added to/removed from the Journeyman Maintenance Electricians schedule by I.B.E.W. Local 25, those holidays will be included in this exemption and the County of Nassau shall be notified in writing.
- e. Stand-by shall be used on the above listed holidays and at all other times that are not in the above schedules. Stand-by will not be considered for fulfillment of the above requirements of paragraphs a, b & c.
- f. It will be the Contractor's responsibility to hire adequate personnel to cover the above requirements. There must be a minimum of seven (7) personnel to accomplish this schedule, not including the two apprentices. A work schedule will be forwarded to the Traffic Signal Operations Center every Friday morning indicating the individuals assigned and their scheduled hours for the following week Sunday through Saturday.

6. Manpower Reports

- a. On a daily basis, a report shall be transmitted to the Traffic Signal Operations Center before 10:00 A.M. with the name of each employee and what work was performed by said employee for the

preceding day. This report shall be furnished for all holidays, Saturdays and Sundays on the next regularly scheduled work day. This report shall be titled the Manpower Report.

- b. The Manpower Report shall include the time the employee started his work shift and the time he completed his work shift; the work orders the personnel was responsible for including relamping, and detector inspection locations, or items for maintenance performed under Items 1, 2, 3 and 4.
- c. The normal work day for maintenance men will be considered eight (8) hours each. This report will be for all Dispatchers and Journeymen Maintenance Electricians. The use of Journeymen Maintenance Electricians as a Dispatcher or Painter will not be considered as fulfilling the requirement of seven Journeymen Maintenance Electricians for in-field trouble-shooting.

7. Employees used for Time & Material Work (T & M), painting, and all other work that does not come under Item Nos. 1, 2, 3 & 4 shall not be used to fulfill the minimum manpower requirements.

8. When the minimum manpower requirements are not met on a weekly basis (week to be established and agreed to by the County and the Contractor), a credit will be made to the County. This credit will be at the prevailing wage for the particular employee plus 70 percent supplement as established under the T & M portion of the Contract.

9. This credit will be deducted from Item No. 1 of the Contract on the monthly claim, indicating that the shortage took place. There will be no carry-over from one week to the next. These hours will establish a minimum only. There will be no additional payment by the County for hours in excess of the minimum or additional credit for overtime wages paid. Vacation time, sick leave, and jury duty, used by the employee(s) will not be credited towards the minimum manpower requirements.

T. Routine Maintenance and Inspection Program

1. The Contractor shall perform Routine Maintenance and Inspection of all Traffic Control Devices on a form supplied by the Division. This form shall be known as the "Routine Maintenance, Relamp and Detector Inspection Report." The completed Routine Maintenance, Relamp and Detector Inspection Report shall be submitted as part of the monthly claim. In addition to the form submission, the set of inspections must be copied and transmitted to the County as a PDF computer file.

2. This work shall be performed once every eight (8) months during the Scheduled Group Relamping Program for the life of this contract.

3. This work shall include the checking and inspection of all L.E.D's; inspection, calibration, repair, lubrication, cleaning, adjusting or alignment of the Traffic Control Devices, cleaning of all lenses, reflectors, and L.E.D. modules; inspection of mast arm hangers, span wire hangers and span wire; testing of all conflict monitors; checking and resetting of the official timing; rotating controller thumbwheels as necessary; vacuuming & cleaning of the inside of the cabinet, and lubrication of the door locks and hinges in accordance with the manufacturer's specifications and the County. L.E.D. modules shall not be relamped as part of this program, but all other maintenance work is to be performed at L.E.D. locations. Any other miscellaneous bulbs shall be replaced.

U. Painting

1. The painting of existing equipment shall be programmed by the Division. The County will furnish the listing of items that are to be painted to the Contractor. All painting will be paid under Division 2, Item 5.

2. Approximately 20 percent of all signalized intersections may be painted each year during the life of this contract.

3. All painting shall be completed within 30 days of the written letter from the Department. Any delay to the painting program, without written permission from the Division, shall be just cause to delay the payment of any claim.

V. Contractor's Vehicles

1. The Contractor shall provide adequate vehicles to perform the work, to include but not limited to, one (1) auger boom capable of setting and handling standard traffic signal poles; four (4) each bucket and/or platform trucks suitable for overhead maintenance and construction, two (2) each bucket trucks suitable for overhead maintenance with a minimum working height of 40'. The Contractor's name shall be displayed on both sides of all motorized equipment. The minimum size of letters shall be three (3) inches.

2. All overhead type vehicles shall have a minimum working height of 30 feet.

3. Two vehicles must be available with a minimum working height of 40 feet.

3. All vehicles used in the performance of work in roadways shall be equipped as specified in the "National Manual on Uniform Traffic Control Devices", and the N.Y.S. Supplement, latest edition.

4. All vehicles and/or service personnel shall be equipped with telephones for communication with the Contractor's Communication Center and County personnel, including internet, texting and Bluetooth capabilities.

5. Each vehicle shall be equipped with proper MPT equipment.

W. Records

1. The Contractor shall be required to keep a neat, accurate and up-to-date record of the types and locations of all equipment within the scope of this contract. These records shall be a format approved by the Division and shall include, but not be limited to the following:

- a. Location and number of intersections controlled by signals and other electrically operated traffic control devices.
- b. Type and amount of equipment at each intersection, and method of operation.
- c. Time, date and details of repairs, replacement, cleaning, etc. by intersection.
- d. Timing, offset and program information, by intersection and system.

2. In lieu of the above (a, b & d) records, the Contractor may use the County supplied computer system information on the Contractor's own computer system to store the records of which the information shall be provided by the County.

3. All records shall become the property of Nassau County and be surrendered to the Division upon the termination of the contract. Duplicate records shall be maintained by the Contractor for a minimum of seven years.

X. Work Orders

1. All calls for service shall be recorded on a Work Order.

2. A duplicate copy of the Contractor's completed work orders shall be forwarded to the Division daily by 10:00 A.M., for the preceding day.

3. These work orders shall be in a format approved by the Division and shall include, but not be limited to the following:

- a. Location
- b. Device Number
- c. Contractor's Work Order Number
- d. Date and Time Contractor was notified of malfunction, damage or required maintenance.
- e. Person making notification or authorizing work and command.
- f. Date and time Contractor arrived at scene.
- g. Date and time repair was completed
- h. What type of malfunction, required maintenance and/or damage was reported.
- i. What type of malfunction, required maintenance and/or damage was found, if any.
- j. Repair of malfunction, required maintenance and/or damage and how it was serviced, etc.
- k. Serviceman's Full Name

4. The Contractor shall input the above information into the County supplied Traffic Signal Maintenance program and then submit the work orders by internet/FTP connection to the County.

5. Consecutive numbered work orders shall be issued by the Contractor.

6. Delinquent work orders shall not be permitted. Delinquent work orders shall be just cause to delay any claim for payment until the completed (delinquent) work order is forwarded to the County.

Y. Intersection Record Card

1. The 5" x 8" intersection record card shall be maintained by the Contractor with the issuance of the "Commence Work Order" for this contract. This record card shall remain at the intersection controller cabinet. Full and completed record cards shall be returned to the County.

2. The record card shall show street address, intersection number, the date any device was installed, the date removed for maintenance, the date reinstalled, and a brief

description of all work or inspection performed at intersection, and the initials of the journeyman performing the work.

3. The format for the above record shall be approved by the Division.

Z. Controller Report

A controller report shall be transmitted to the Traffic Signal Construction * Operations Center every morning before 10:00 A.M. This report shall be forwarded on every normal Nassau County work day excluding Saturday, Sunday, and Nassau County Holidays. This report shall list the locations where equipment has been removed for repair and shall include the following information: Date of Report, Contract #, Contractor's Name, Signal Number, Hamlet, Location, Equipment Removed, Work Order #, Date Removed, Date Returned, and Type of Temporary Equipment Installed. The Contractor shall input this information into the County-supplied Traffic Signal Maintenance program.

AA. Reports

All work performed in accordance with the terms of this specification, shall be tabulated and reported in conjunction with the monthly claim on forms supplied by the Engineer.

AB. Protection of Traffic

1. Where work is being constructed through streets, sidewalks, easements, or other locations normally used by the public, the Contractor shall conduct his work so as to minimize the interference with the safe and direct movement of pedestrian and vehicular travel.

2. The Contractor shall provide all necessary signs, fencing, barricades, and lighting as required by the Engineer and the material and its placement shall conform to the latest edition of the "National Manual of Uniform Traffic Control Devices," & N.Y.S. supplement, and the current edition of the Nassau County Traffic Signal Specifications and Standards (latest edition).

3. When directed by the Engineer, the Contractor shall provide the safe means of crossing-over trenches or obstacles within the work site either by bridging or other suitable structures.

4. Accessibility to fire hydrants, police and fire call boxes, and provision for the ingress and egress of emergency vehicles including police, fire and ambulance in the work site, shall be required at all times.

5. In addition to the appropriate Articles of the Agreement, the following requirements shall be strictly adhered to:

Across all roadway pavement, no more than ten (10) feet of pavement is to be open at any one time. No construction work will be permitted between 6:30 A.M. and 9:00 A.M. or 4:00 P.M. and 6:30 P.M. Monday through Friday unless otherwise authorized by the Engineer. During these periods and at all times when work is not in progress, all openings in the roadway shall be covered with pinned steel plates or temporary pavement to safely permit traffic to crossover the excavation.

All work performed under this paragraph shall be at the Contractor's expense and at no additional cost to Nassau County. Failure by the Contractor to perform all work in accordance with this Article shall be just cause to have the work performed by others in accordance with the Agreement.

AC. Wiring Diagrams

All wiring diagrams pertaining to County-owned equipment, originating either with the equipment manufacturer or the Contractor, are the property of the County and shall be forwarded to the Division as work is completed, or if necessary, at the conclusion of this contract.

AD. Underground Facilities

Before performing any work under, over, or near underground facilities, all provisions of Industrial Code Rule #753 of Title 12 of the Official Compilation of Codes, Rules and Regulations of the State of New York," effective February 5, 1997 shall be strictly enforced and complied with.

AE. Cleanliness

Upon completion of the work at each location, the Contractor shall remove all remaining material and shall leave the area, which may have been affected by his operation, in a neat and orderly condition.

AF. Cooperation

The Contractor shall respect the rights of, and cooperate as fully as possible with utility companies, other contractors, and all County Departments.

AG. Standards

The Traffic Signal Standard Specifications and Drawings, NCDPW-TED (Latest edition) are made a part of this contract. These may be subject to change during the duration of this contract.

AH. Recourse

This Contract does not imply that the approved Contractor, following the award of this contract, has the exclusive right or legal recourse to the County of Nassau, for any other similar Traffic Signal Maintenance type contract, or any other traffic signal contract which includes the maintenance and/or the installation of traffic signals, lighting equipment and computer installation and maintenance work that may be awarded during the life of this contract.

AI. Electric Service

1. If necessary, the Contractor shall arrange with the Electric Utility Company for flat rate electrical service (unless otherwise specified).

2. The Contractor shall request the electric service in the name of the County, in writing, from the electrical utility company. A copy of this request shall be forwarded to the Engineer.

3. The Contractor shall notify the electric utility company at least two weeks in advance of the time that the installation is complete and ready for electric service. This will provide the utility company with sufficient time to install electric service.

4. All costs for compliance with the above, and other costs necessitated by the utility company to provide for the electric service, shall be borne by the Contractor with no recourse to the County.

AJ. Vandalism

All damage caused by vandalism to equipment maintained under this contract, shall be repaired by the Contractor at no additional expense to the County of Nassau. Payment for vandalism shall be distributed over the items of this contract and included in the bid.

AK. Safety

1. The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the work.

2. The Contractor shall take all reasonable precautions for the safety of, and shall provide all reasonable protection to prevent damage, injury or loss to:

- a. All employees on the work site and all other persons who may be affected thereby.
- b. All the work and all materials and equipment to be incorporated therein, whether in storage on or off the job site, under the care, custody or control of the Contractor or any of his subcontractors.
- c. Other property at the job site or adjacent thereto including trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.

3. The Contractor shall comply with all applicable laws, ordinances, rules, regulations and orders of any public authority having jurisdiction for the safety of persons or property or to protect them from damage, injury or loss. The Contractor shall erect and maintain, as required by existing conditions and progress of the work, all reasonable safeguards for safety and protection including posting danger signs and other warnings against hazards, promulgating safety regulations and notifying owners and users of adjacent utilities.

4. When the use or storage of hazardous material or equipment is necessary for the execution of the work, the Contractor shall exercise the utmost care and shall carry on such activities under the supervision of properly qualified personnel.

5. All damage or loss to any property referred to in the above paragraphs, caused in whole or in part by the Contractor, any subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable, shall be remedied by the Contractor.

6. The Contractor shall designate a responsible member of his organization, under the contract, whose duty shall be the prevention of accidents. This person shall be the Contractor's project manager, unless otherwise designated in writing by the Contractor to the County.

AL. Public Safety

1. The Contractor shall be responsible for making all arrangements with utility companies to secure any required Attachment Agreements in the name of the County.

2. All attachments to utility company poles, when required, shall be in accordance with the owning utility's specifications and subject to the inspection of the utility companies.

3. The Contractor shall protect all property and materials of the utility company and shall be responsible for the repair or replacement of any damaged material or property. In the event that the points of attachment or location of equipment, as indicated on the drawings, interfere with and do not provide the proper clearances with existing utility company attachments, the Engineer in agreement with the utility company owning the pole, will determine the necessary adjustments in heights and location, to eliminate such interference.

4. All necessary protection of utility company lines or cables shall be furnished and installed by the Contractor at the direction of the utility company and in accordance with the utility specifications.

5. All make ready work and other costs for compliance with the above shall be borne by the Contractor with no recourse to the County.

AM. Pre-Emption Equipment

1. At certain County-owned traffic signal installations, there exists pre-emption equipment owned by fire departments. This equipment is connected to the traffic signal equipment under a permit issued by the County. It is the responsibility of the fire department to have the pre-emption equipment maintained, outside the confines of the traffic signal controller cabinet. If a pre-emptor is malfunctioning due to cable or

equipment outside of the traffic signal controller cabinet, the Contractor shall disconnect the pre-emptor and notify the fire department by telephone and, if necessary, in writing. A copy of this letter/email shall be forwarded to the County. If the malfunctioning equipment is inside of the County-owned traffic signal controller cabinet, then the Contractor shall be responsible for the maintenance.

2. At certain County-owned traffic signal installations, there exists pre-emption equipment owned by the County, such as at railroad crossings. At these locations, the Contractor shall be responsible for the maintenance of said equipment.

AN. Extension of Contract

The termination date of this contract may be extended by the County with the approval of the Commissioner of Public Works for an additional year from the original two year termination of this contract. Additional extensions may be granted if agreed upon by both Nassau County and the Contractor. The termination date of this Contract may be extended by the County for up to two (2) months from the normal termination of this Contract by the Commissioner of Public Works if a new contract is not in place and the end of this agreement to take over the maintenance of the traffic signals.

AO. Progressions

The County presently has a number of Traffic Signal Progressions that may be supplied to the Contractor to be maintained. The Contractor will check and reinstall, if necessary, said progression every sixty days and when needed, and followed up with a written report furnished to the County.

AP. Power Outages

In the event of a power outage, the Contractor shall notify the utility company and recheck said location every twelve (12) hours, and if needed, a follow-up notice to the utility company, until power is restored.

**NASSAU COUNTY TRAFFIC SIGNAL MAINTENANCE
SPECIFICATION CONTRACT NO. T6225006M
DIVISION 2 - DETAILS OF ITEMS**

SECTION 1 - BASIS FOR BIDS

1. Maintenance of Items 1 and 2, described below, shall be paid for on the basis of a unit cost per month, multiplied by the number of months of the contract duration to determine the cost of these items. Items 4, 5 and loop items inclusive, described below, shall be paid for on the basis of a unit cost per unit as ordered by the Division. All items specified by the Department under the terms of Division 2, Section 3 of this specification, shall be paid for under the terms of Section 3.

2. The total cost of carrying out all the provisions of this contract, other than Section 3 of this Division, together with the work described below, shall be deemed fully distributed and included in the unit price bid for the various items.

SECTION 2 - ITEMS TO BE MAINTAINED

ITEM 1

FOUNDATIONS, POLES AND JUNCTION BOXES

1. The work comprises the maintenance of foundations and poles combined (referred to as "pole") and includes the repair or replacement of the pole caps, handhole covers, transformer base covers, bolt covers and tightening of anchor bolt nuts. The splicing of necessary cable and wiring connections between the foundations, pole, and traffic control device, the raking of poles to maintain vertical alignment, the repair or replacement of junction or concrete pullbox frames and covers, and the performance of other work necessary to maintain the foundations, poles, and pullboxes in a safe and proper condition.

2. When pole caps, handhole covers, transformer base covers or bolt covers are missing, vandalized or damaged, they are to be replaced at no additional charge.

3. Included under this item is the removal of any unauthorized sign material or graffiti.

4. The following classes of equipment shall be maintained:

Traffic Control Poles and Foundations
Auxiliary Poles and Foundations
Junction or Concrete Pullboxes
Pedestrian Poles and Foundations

SUPPORTS

1. The work comprises the maintenance of supports and includes the straightening of mast arms; the tightening and adjustment of span wire hardware; adjustment of mast arm hanger hardware; the splicing of necessary cable and wiring connections, hardware, and the performance of any other work necessary to maintain the supports in a safe and proper condition and the traffic signal heads at the proper height.

2. The Contractor shall maintain all County-owned span wires and fittings which are attached to utility company poles.

3. The following classes of supports shall be maintained:

Span Wires
Strut Guy Assemblies
Mast Arms
Aerial Cable Supports

4. The above work shall be performed at no additional cost to Nassau County.

5. The work for the removal or replacement of any worn, damaged span wire hanger, mast arm hanger, threaded nipple or elbow and spans will be repaired under the T & M portion, Division 2, Section 3 of this Contract after being verified by the Division.

ILLUMINATED TRAFFIC CONTROL DEVICES

1. The work comprises the maintenance of illuminated traffic control devices, including lamps and L.E.D.'s, on all types of poles, supports and structures, and includes the cleaning, location of trouble, repair, lubrication, removal, reassembly, reinstallation and straightening of the devices and their components. The splicing of necessary cable and wiring connections and the performance of other work necessary to maintain the devices in a safe and proper condition. The maintenance of pedestrian control devices shall include, in addition to the above work, the replacement and repair of lamps, L.E.D. modules, audible

devices, pushbutton LED light, transformers, and all other components of these devices.

2. The following classes of devices shall be maintained:

Illuminated Traffic Control Devices
Pedestrian Control Signal: audible, fiber optic,
incandescent or L.E.D.
Internally Illuminated Signs

CONTROLLERS

1. The work comprises the maintenance of traffic signal controllers and all control components of interconnected and non-interconnected systems. Included are the location of trouble, repair, removal, reassembly, and replacement of controllers, and all components; such as conflict monitors, amplifiers, air filters, batteries, flashers, relays, fuses, isolation cards, wiring, and other auxiliary devices; stenciling or restenciling of traffic signal intersection number, together with all other work necessary to maintain the controllers functioning properly at the prescribed operation and timing schedule. All vehicle and pedestrian actuated controllers shall operate at all times as actuated equipment. No recall switches shall be activated unless prescribed by the timing chart or upon written authorization posted in the cabinet, unless damaged beyond the Contractor's control or the corresponding equipment needs to be pulled and repaired. All conflict monitors and/or controllers removed for service, shall have a suitable temporary replacement installed.

2. All equipment shall be lubricated, calibrated and cleaned in accordance with the manufacturer's recommendations, once every eight (8) months as part of the scheduled routine maintenance program. The use of lamps to maintain a desired temperature in the controller cabinet is prohibited.

3. All battery equipped controllers, coordination units, and time clocks shall have the batteries replaced during the second and third month of the contract. Thereafter, the batteries are to be replaced when needed. The removed batteries and a list of where the batteries were changed are to be submitted to the County.

4. Included under this paragraph is the changing of programs on the local master controllers according to seasons or special events as ordered by the Engineer. The Division may order the cycle length, split and offset of any number of controllers to be changed, which shall be considered as part of this item. This

would also include changes to time clocks and/or reprogramming controller time settings to comply with the changes to and from E.S.T. and Daylight Savings Time as necessary.

5. The classes and approximate quantities of controllers to be maintained are as follows including cabinets:

Fixed Time Controllers	25
SVA and Full-Actuated Controllers	675
2070 Lite Controller	900*
Local Master Controllers	10
Local Receiver Units	80
Time Base Coordination Unit	60

* This number is expected to increase during the life of this contract.

6. The field telemetry units to be maintained by a contractor, other than this contract. When a field telemetry unit or modem malfunctions, the Traffic Signal Maintenance Contractor shall disconnect the field telemetry unit, adjust any necessary timings or settings, and notify the County of Nassau, Traffic Management Center (TMC), by telephone. This notification shall be accomplished during normal County workdays only.

CABLE

1. The work comprises the maintenance of multi-conductor aerial and underground (in conduit) cable, excluding computer telemetry cable, and includes the location of trouble, inspection, repair, removal, reassembly and reinstallation of multi-conductor cable, and its associated brackets, fittings, and interconnections with controllers, and all other work necessary to maintain this cable in a safe and proper operating condition.

2. The work also includes the removal, relocation, and reinstallation of cable from one pole to another pole as requested by a utility company or municipality. This cost shall be borne by the Contractor at no additional cost to the County. If the required removal, relocation and reinstallation also involves moving a riser assembly from one pole to another pole, then the riser transfer and associated cable transfer will instead be done under the T & M portion, Division 2, Section 3 of this contract after notification to and verification by the Division.

3. All replacement cable furnished under this Contract shall be an exact replacement in all respects, including types of cable construction, conductor size,

messenger size, outer jacket and insulation and color. No substitutions of any kind will be permitted without approval of the Engineer.

DETECTORS AND TIMING DEVICES

1. The work comprises the maintenance of time clocks, pushbutton assemblies including audible (tone or voice) & LED lights on pushbuttons, vehicle detectors, vehicle detector amplifiers, AC & DC isolation cards, and computer sensor station amplifiers. The work includes the location of trouble, inspection, repair, removal, reconditioning, replacement, reassembly, and reinstallation of this equipment and their components; the making of necessary cable splices, wiring installations and connections, detector tuning, resealing of loop wire, and the performance of any other work required to maintain this equipment in a safe and proper working order and according to prescribed timing schedules. All equipment shall be lubricated in accordance with manufacturer's recommendations.

In checking for a defective loop, the point of testing shall be at the first splice or in the case where no splice exists, testing to be performed at termination point. Defective loops will be replaced under the T & M portion, Division 2, Section 3 of this contract after verification by the Division, or by other means, other than this contract, as determined by the Engineer.

2. All detector equipment and timing devices shall be cleaned once every eight (8) months as part of the Routine Maintenance Program.

3. Included under this paragraph is the prompt resetting of timing devices as required by changes to or from Eastern Standard and Daylight Savings Time. These changes may be started on the Thursday before the actual time change and must be completed by Monday following the official time change.

4. The following classes of detector and timing devices shall be maintained:

- Loop Vehicle Detector Amplifiers excluding the loop wire
- Video Detectors and Amplifiers
- Pod or puck vehicle Detection and Amplifiers
- Time Clocks
- Magnetic Vehicle Detector Amplifiers
- Magnetic Vehicle Detectors, Single-lane or Multi-lane including Housing or Conduit
- Special Detectors, as designated by the Division
- Pushbutton Assemblies, including audio, visual, programming,

etc.

External Special Timing Units such as Pedestrian Interval
Timers, Advance and lagging Green Timers, etc.
Magnetometer Vehicle Detectors, including Probe and
Aluminum Housing
Magnetometer Vehicle Detector Amplifier
DC and/or AC Isolation Cards, and latching cards

ITEM 1 - PAYMENT

Payment for this item shall be all inclusive of Item 1 described, including the maintenance of progressions and the vehicle detector inspection program. The basis for payment shall be a unit cost per month for each Traffic Signal intersection under the jurisdiction of the Division and verified by the Number of Units letter.

ITEM 2 - MISCELLANEOUS DEVICES

1. The work comprises the maintenance of miscellaneous devices, including lamps and L.E.D.'s, on all types of poles, supports and structures; and includes the cleaning, lubrication, repair, adjustment, removal, replacement, reinstallation, straightening of the devices and their components, and maintaining device numbers on the cabinets. This work also includes the maintenance of computer sensor stations including loop amplifiers, cabinets, loop sealing, etc, but not the computer cable or other computer equipment in the sensor station cabinet; and computer splice or terminal cabinets but not the computer cable inside these cabinets; the making of necessary cable and wiring splices, but not to computer cable, and the performance of other work necessary to maintain the devices in a safe and proper working condition. Incident cameras and cabinets for the TMC are not included in this contract.

2. The following classes of devices shall be maintained but not limited to:

Flashing Beacons
Counting Stations
Warning Signs
Sensor Stations
Computer Sensor Stations
Speed Awareness Signs
School Speed Awareness Signs
RRFB's (Rectangular Rapid Flashing Beacons)

Computer Splice & Terminal Cabinets
Floodlights
Illuminated Signs

ITEM 2 - PAYMENT

Payment for this Item shall be all inclusive of Item 2 described. The basis for payment shall be a unit cost per month for each Miscellaneous Device location under the jurisdiction of the Division to be maintained.

ITEM 4 - SIGNAL RELAMPING

1. The Contractor shall relamp any traffic signal sections, and miscellaneous device signal sections, including special lamps, that do not include L.E.D.'s. All type pedestrian signals are not included in this section. The Contractor shall furnish lamps which meet the requirements of Institute of Transportation Engineer's Standards for Traffic Signal Lamps, latest revision, and other specifications. Payment for this item shall include all labor and materials incidental to relamping.

1. Some locations have different size & type lamps that need to be replaced during relamping, such as a few remaining incandescent lamp sections. This shall be accomplished at no additional cost to the County other than as specified in Item 4A.

2. The lamps used in this Contract shall be those as manufactured by General Electric, Westinghouse, Durotest, Sylvania or equal approved by the Division.

b. Group Relamping/Inspection

1. The Contractor shall inspect all optical sections, including special lamps, at an intersection every eight (8) months, in accordance with a schedule to be furnished by the Division. Intersections which have L.E.D. modules installed shall not have the lamps replaced, however the maintenance of the signal section shall be carried out as described in paragraph 2.

2. Relamping shall include the replacement of the appropriate lamp, excluding L.E.D.'s, the cleaning of the optical reflector and associated lens or the outside of the L.E.D. module with an approved cleaning solution and rag or paper

towel. Any damaged or deteriorated parts shall be replaced. Included is the cleaning of the associated controller cabinet by means of vacuuming and lubrication of door lock mechanisms and hinges; and rotation of controller thumbwheels. Included also is the inspection of the traffic signal hanger hardware. All timings shall be checked and restored to specifications as necessary. All signal heights shall be measured and the lowest height recorded.

3. Relamping/Inspection of all optical sections at a particular intersection shall be done within thirty (30) days of the specified date.

4. The Contractor shall bill all optical sections inspected and L.E.D. modules cleaned on the group relamping/inspection list.

c. Changes

Changes to the Group Relamping Schedule will be made at the discretion of the Division. The Contractor shall be responsible for modifying the group relamping schedule accordingly.

d. Emergency Relamping

When a lamp or L.E.D. outage occurs, the Contractor shall replace the lamp or L.E.D. within the time limits established in Division 1. If all optical sections at this intersection are to be periodically inspected within thirty (30) days of the outage, then all optical sections at the intersection may be inspected, and the periodic relamping inspection shall be considered to have been done at the proper time. In all other instances, only the affected lamp or L.E.D. shall be replaced. There will be no additional payment for spot relamping other than the monthly maintenance payment.

e. L.E.D. outages

When an outage occurs at an intersection where there exists L.E.D. modules, the Contractor shall replace the appropriate color L.E.D. module only with a unit supplied by the Contractor. The new units shall be a type approved by Nassau County.

f. Signal Height

At the time of each relamping, the height to the bottom of each traffic signal head above the pavement grade, at the center of the roadway, shall be measured. If the bottom of any signal is less than 15', an emergency condition shall exist, and shall

be remedied within two (2) hours by the Contractor. Any signal which cannot be raised for any reason to the proper height of 15' 6" or more shall be first reported verbally and afterwards in writing to the Division by the Contractor as soon as the Contractor is aware of such a condition. The Contractor shall explain in detail the reasons why the signal cannot be raised to its proper height.

g. At the time of relamping, the Contractor shall perform the Routine Maintenance and Detector Inspection Program at signalized intersections.

ITEM 4 - PAYMENT

Payment will be made on the basis of the number of optical sections relamped, or L.E.D. modules cleaned at the unit price for the following classes:

1. Item 4A – Optical sections inspected with special lamps replaced and/or cleaning of L.E.D. modules, per module or lamp.

ITEM 5 - PAINTING

1. Purpose

The purpose of this specification is to set forth the minimum requirements for painting traffic signal equipment or sign structures.

2. Basic Requirements - Equipment Included

All traffic signal equipment shall be painted in accordance with this specification and as ordered by the Department.

3. All paint shall be brush applied and not sprayed.

4. Sanding and Priming

All rusted, scraped, blistered, scored or other areas where the paint film has been injured, shall be thoroughly sanded to a smooth bare metal surface. The sanding shall be accomplished by an electric disc sanding machine approved by the Division.

5. All painted or bare metal equipment to be painted shall have applied one (1) coat of multi-pigment primer.

6. The multi-pigment primer shall be in conformance with the "Federal Standard Specifications #TTE-489H, TT-P664 Lead and Chromate Free."

7. *Painting*

a. Metallic poles, mast arms, steel overhead sign structures, slipfitters, cabinets, shaft-mount signal brackets, pedestrian signals and pedestrian signal brackets - one (1) coat of ready-mixed aluminum paint shall be applied. The aluminum paint shall be in conformance with the "Federal Specification TTE-489-H #QQ-A-250/2."

b. Traffic Signal Head, Pedestrian Pushbutton and Traffic Signal Hardware, except shaft mount signal brackets and pedestrian signal brackets - One (1) coat of Federal Highway Yellow Paint shall be applied. The Federal Highway Yellow Paint shall be in conformance with the "Federal Specification TTE-489D." The color shall be Federal Standard 595A, Color Number 13538 - Federal Highway Yellow, latest revision.

NOTE: Where there exists plastic traffic signal heads, Item 5P shall be substituted for Item 5F and only the hardware shall be painted.

c. The inside of all Traffic Signal Visors shall be painted with one (1) coat of flat black enamel.

d. The intersection traffic signal number shall be stenciled on each side of the controller cabinet with flat black enamel. The number shall be three (3) inches in height, Series C, and painted in a horizontal position.

e. Where no controller cabinet exists at an intersection, the intersection traffic signal number shall be painted on the curb side of the steel poles, in the vertical position.

f. Paint shall be applied only when the air temperature is at or above forty (40) degrees Fahrenheit, and the relative humidity is less than 85%. Paint shall not be applied upon damp surfaces or upon metal containing frost, nor shall it be applied when the air is misty. Paint shall not be applied, when in the judgment of the Department, conditions are such as to produce unsatisfactory results.

8. *Catalog Cuts and Certifications*

a. The Contractor shall provide catalog cuts with descriptions of each type of paint for approval. The manufacturer shall provide a certified report that the paint is in compliance with the specification.

b. Samples for test purposes may be required.

9. *Refurbishing of Signal Section Inventory*

Refurbishing of signal faces from the County Inventory to include the painting of the exterior of each signal section; visor, if included, in two colors; cleaning of interior of signal sections. Signals to be picked up at Traffic Signal Construction & Operations Center, returned after refurbishing and unloaded at the Signal Operations Center.

10. *Measurement and Payment*

a. Payment for the painting of each item will be made at the unit price named in the contract.

b. The quantity to be paid for under this item will be the number of each item, painted in accordance with the specifications, or as directed by the Department. Signals refurbished will be paid for per section with no distinction between eight or twelve inch.

c. The unit price shall include the cost of furnishing and applying the paint, primer, sanding, all labor, materials, equipment, vehicles, incidentals and tools necessary to complete the work, including pick-up, delivery and unloading of refurbished signals.

ITEM 5 - PAYMENT

The item numbers for painting shall be as follows:

- 5A - Steel Traffic Signal Pole - *per pole*
- 5B - Steel Auxiliary Pole – *per Auxiliary Pole*
- 5C - Steel Post - *per post*
- 5D - Mast Arm - *per arm*
- 5E - Mast Arm and Pole - *per pole*
- 5F - Traffic Signal Head and Hardware including up to 4 Signal Faces, Hanger, Brackets, Backplates, Lawton Hubs, Slipfitters, Nipples - *per traffic signal head*
- 5G - Pedestrian Signal and Brackets - *per pedestrian signal head*
- 5H - Control Boxes - *per control box*
- 5J - Pushbuttons - *per pushbutton*

- 5L - Traffic Signal Number - *per complete number*
- 5M - Steel Overhead Sign Structure - *per complete structure*
- 5N - Refurbish Signal Section - *per section*
- 5P - Traffic Signal Hardware (*to be used where plastic traffic signal heads are located*) -Top & Bottom Brackets, Hanger, Lawton Hubs, Slipfitters, Nipples & Backplates - *per traffic signal head*

LOOP VEHICLE DETECTORS

ITEM 422LX – Furnish & Install Loop Wire

ITEM 422LSX – Furnish & Install Saw Cut

ITEM 419S-075 – Furnish & Install ¾” Rigid Steel Conduit for Loops

All of the requirements of section 422L, 422LS and 419S-075 of the Nassau County Traffic Signal Specifications & Standard Drawings shall apply with the following changes:

1. All loops 6’ x 11’ and smaller shall have 3 turns of loop wire installed.
2. All loops 6’x 12’ and larger shall have 2 turns of loop wire installed
3. All saw cuts shall be wet cut, unless otherwise approved by the Division.

PAYMENT

Item 422LS - Saw Cut

1. The quantity to be paid for under this item shall be the number of linear feet of saw cut installed in accordance with the intersection drawings, specifications, and orders of the Department.
2. Payment for saw cut shall be made at the unit price per linear foot of saw cut.
3. The unit price shall include the cost of making the saw cut, insulating compound, compressed air, water and all materials, equipment, tools, labor and incidentals necessary to complete the work.

Item 422L - Loop Wire

1. The quantity to be paid for under this item will be number of linear feet of single conductor wire furnished and installed in accordance with the intersection drawings, specifications, and orders of the Department.

2. The unit price shall include the cost of wire, all connections, splices, sealer and all labor, materials and incidentals necessary to complete the installation.

3. Payment for loop wire installed in saw cut shall be made at the unit price per linear foot of wire installed.

Item 419S-075 – ¾” Steel conduit

1. The quantity to be paid for under this item shall be the number of linear feet of steel conduit furnished and installed in accordance with the intersection drawings, specifications and order of the Department.

2. The unit price shall include the cost of the ¾” steel conduit, excavation, cutting, drilling, and all labor, materials, tools and incidentals necessary to complete the installation.

3. Payment for ¾” steel conduit installed shall be made at the unit price per linear foot of conduit installed.

ITEM 6 – Furnish Equipment - As Ordered (force bid)

During the course of this contract \$90,000 has been allocated for the purchase of computer & office related equipment which will be selected by the County during the course of the contract period. Details regarding this item can be found in Division 1, Section N - Equipment.

Item 6 – Payment

1. Payments to the Contractor will be strictly on the basis of manufacturer's or supplier's invoices, plus 5% fixed overhead and profit. If the cost of the equipment exceeds the \$90,000 allowance, the Contractor will be paid the increased amount based on invoices.

SECTION 3 - TIME AND MATERIAL

NCDPW

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Installations, modifications and major repairs shall be performed by the Contractor, as ordered by the Engineer under this section.

INSTALLATIONS

Installations shall include the installation of traffic control devices at a location as so ordered by the Engineer.

MODIFICATIONS

1. Modifications may include, but will not be limited to the following:
 - a. Signal sequence changes.
 - b. Addition of arrow lens or other optical sections.
 - c. Modify controllers for the following changes in operations: Timing, Time clock, pedestrian phase (pushbutton), synchronizer, flashing, and hand control.
 - d. Similar other incidental changes to controllers, signals, traffic control device or floodlight installations.
 - e. Major modifications of any electrically operated device due to road construction, public safety requirements, New York State Standards, or immediate need for the device(s).
 - f. Detectors.
 - g. Interconnection cable and devices.
 - h. Repair of traffic counter equipment.
 - i. Mark out of traffic and related underground facilities.
 - j. Fabrication of controllers and components.
2. All requests for estimates of installations and modifications must be made in writing by the Division. All estimates shall be returned to the Division no later than one (1) week from the date of the request.
3. Upon issuance of a Time and Material Work Order, the actual field construction shall be completed by the Contractor within four (4) weeks, unless otherwise authorized by the Division. Failure to complete the work in the specified time may be just grounds to withhold the monthly claim.
4. The Contractor shall be subject to all the provisions of the Articles in the Agreement of this Contract for any incomplete work and shall be noted accordingly.

MAJOR REPAIRS

1. May include, but not be limited to:
 - a. Replacement of damaged steel pole.
 - b. Replacement of damaged control box.
 - c. Replacement of damaged traffic signal heads
 - d. Repair or replacement of damaged span wire
 - e. Similar major items.

2. Orders for major repairs will normally be made by the Engineer and will be identified as a major repair when the request for same is made. Confirmation of major repair orders will be made in writing by the Division. However, since most major repairs are of an emergency nature, work shall commence within one (1) hour of the receipt of the report by the Contractor, unless otherwise notified by the Division. Major repairs shall be completed within four (4) weeks of approval unless otherwise authorized by the Division.

EMERGENCY REPAIRS

In the interest of public safety, from time to time, the Commissioner may direct the emergency repair of electrical equipment that may not be directly associated with traffic control work.

RECONDITIONING

1. Various pieces of equipment which are in inventory may be repaired and/or reconditioned by the direction of the Engineer. This order shall be in writing to the Contractor.

2. The provisions of this section shall in no way modify the portions of this Contract concerning the maintenance of equipment as distinct from modifications or major repairs.

PAYMENT - TIME AND MATERIAL

1. Payment for work performed as directed under this section shall be on a Time and Material basis. Claims for payment of material furnished, including material furnished by a subcontractor, shall clearly show material cost and percentage for overhead and profit as submitted on the bid. Material cost times the

sum of the overhead and profit percentage plus 100% of the material cost shall equal the total cost of material for this item. Material identified by the County as RM shall be billed at total cost of material/equipment plus a fixed amount of 5%.

2. Claims for the payment of time, including the subcontractor's time shall clearly show the personnel hours and the hourly rates for direct labor cost, and percentage for overhead and profit. Hourly rates of direct labor cost times the sum of the overhead and profit percentage plus 100% of the direct labor cost shall equal the total cost of time. Claims for the payment of equipment used by the subcontractors shall show the actual number of hours worked for each piece of equipment used on the job. When two or more men are working under T & M, if needed, one man will be designated the foreman.

3. The hourly equipment rates shall be the daily rates divided by eight (8), as listed in the "Rental Rate Blue Book For Construction Equipment" (Blue Book), published by the Equipment Guide Book Company, or approved equal.

4. The Contractor shall require that payment for any work performed by a subcontractor be verified with an itemized breakdown of material used and its cost, personnel hours, hourly rates of direct labor costs, and equipment type and number of hours used. Additionally, the Contractor shall be allowed 5% of the subcontractor's paid cost of materials, direct labor costs, and equipment costs to cover the Contractor's additional overhead and supervision costs.

5. In computing the 5%, it shall be based solely on the subcontractor's cost of labor, materials, and equipment, exclusive of overhead and profit.

6. The subcontractor's percentage of overhead and profit shall be no more than the Contractor's percentage for overhead and profit less 5%.

SECTION 4 - MATERIALS AND INSTALLATION

1. All materials furnished by the Contractor shall be new and of excellent quality acceptable to the Engineer. The Division may require the submission of samples for approval. All such materials used in modifications and major repairs shall be the same as that which is replaced, or better. The Contractor shall specify, in writing when required, to the Engineer, the manufacturer's name, model, quantity, etc., of the materials he intends to use. All materials supplied shall be guaranteed by the Contractor for a minimum period of one (1) year.

2. Any signal equipment and material found defective shall be replaced by the Contractor. Costs shall be borne by the Contractor for material replacement and labor.

3. All materials and installation methods shall meet the applicable Traffic Signal Standard Specifications and Drawings. These specifications and standards may be changed from time to time during the life of this contract, and the latest revision shall govern.

4. Concrete shall meet the latest revisions of the Department's Specifications for Cement and Aggregates.

5. The Contractor shall trim trees and shrubs as required by the Division. Payment shall be distributed among the various items of the Contract.

6. It is the Contractor's responsibility to ensure proper signal visibility. Indications shall be clearly visible to those drivers they are intended to control for a distance of 500 feet, unless physically obstructed. Physically obstructed does not include the tree limbs. Tree and brush trimming may also be required to access the controller cabinets as well as be cleared from in front of pedestrian signals and pushbuttons or other related equipment.

Section 5 – Health & Safety Plan

The County will have the Contractor's and Subcontractor's site-specific safety plan on file PRIOR to the start of any work. The Contractor shall have at least one person skilled in safety and health procedures and familiar with State and Federal safety and health regulations, whose responsibility it will be to monitor methods and procedures. This person will attend the pre-construction meeting, and will review all safety plans and procedures the Contractor will employ during the work. The prime contractor must submit to the County the Health & Safety Plan for review and approval. Any subcontractor's must sign-on to the Contractor's health & safety plan or submit their own for approval. The Contractor will conduct weekly safety meetings, tool-box meetings and submit the sign-in sheets to the County on a monthly basis.