FOR INFORMATIONAL USE ONLY - NOT FOR BIDDING PURPOSES

CONTRACT NO. T62017-10E BID SHEETS

ITEM NO.	UNIT OF MEASUREMENT	ITEMS WITH UNIT PRICES WRITTEN IN WORDS		BID FACTOR	
22C-2X	1 Ton	**Base Course Asphalt Concrete Type Dense Base**		x 1,000	
23X	1 Cu. Yd.	**Concrete Foundation For Pavement**		x 10	
24X	1 Cu. Yd.	**Cement Concrete Pavement**		x 10	
129X	1 Cu. Yd.	**Cement Concrete for Pavement - Calcium Chloride**		x 100	
26X	1 L.F.	**Concrete Curb**		x 1,000	
27X	1 Sq. Ft.	**Cement Concrete Sidewalk**		x 10,000	

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CONTRACT NO. T62017-10E BID SHEETS

ITEM NO.	UNIT OF MEASUREMENT	ITEMS WITH UNIT PRICES WRITTEN IN WORDS		BID FACTOR	
27DW	1 Sq. Ft.	**Detectable Warning Surface**		x 1,000	
28X	1 Sq. Ft.	**Cement Concrete Driveways & Driveway Aprons**		x 1,000	
30	1 Sq. Yd.	**Metal Reinforcement For Concrete Pavement**		x 1,000	
32X	1 Each	**Joint Ties (Grout Type)**		x 100	
36DX	1 Ton	**Asphalt Concrete Type 1A**		x 1,000	
411-A1	1 Each	**Install Foundation For Signal Post Or Auxiliary Pole**		x 100	

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CONTRACT NO. T62017-10E BID SHEETS

ITEM NO.	UNIT OF MEASUREMENT	ITEMS WITH UNIT PRICES WRITTEN IN WORDS		BID FACTOR	
411-C	1 Each	**Install Foundation For Controller Cabinet**		x 10	
411-S1	1 Each	**Install Foundation For 15' to 35' Mast Arm Pole**		x 100	
411-S2	1 Each	**Install Foundation For 26'-28' Strain Pole Or 40'-50' Mast Arm & Pole**		x 100	
411-S3	1 Each	**Install Foundation For 30' Strain Pole**		x 10	
411-S4	1 Each	**Install Foundation For 32' Strain Pole**		x 10	
411-S5	1 Each	**Install Foundation For 32' Heavy Duty Strain Pole**		x 1	

CONTRACT NO. T62017-10E BID SHEETS

ITEM NO.	UNIT OF MEASUREMENT	ITEMS WITH UNIT PRICES WRITTEN IN WORDS		BID FACTOR	
411-S6	1 Each	**Install Foundation For 34'-38' Strain Pole** _____		x 1	
411-S7	1 Each	**Install Foundation For 40' Strain Pole** _____		x 1	
411R	1 Cu. Ft.	**Rejected Foundation Location & Restoration** _____		x 1,000	
412A	1 Each	**Furnish & Install Auxiliary Pole** _____		x 10	
412A-T	1 Each	**Install Auxiliary Pole** _____		x 10	
412G	1 Each	**Furnish & Install A Pushbutton Post & Foundation** _____		x 10	

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CONTRACT NO. T62017-10E BID SHEETS

ITEM NO.	UNIT OF MEASUREMENT	ITEMS WITH UNIT PRICES WRITTEN IN WORDS		BID FACTOR	
412G-1	1 Each	**Furnish & Install A Pushbutton Post Only**		x 10	
412MA-xxTX	1 Each	**Install Standard Mast Arm Pole Together With Mast Arm Not Exceeding 35' (xx=arm length)**		x 10	
412MA-yyTX	1 Each	**Install 18" B.C. Mast Arm Pole Together With Mast Arm 40' through 50' (yy=arm length)**		x 10	
412MB-xxTX	1 Each	**Install 16.5' Mast Arm Pole (18" Ext. Shaft) Together With Mast Arm Not Exceeding 35' (xx=arm length)**		x 100	
412MB-yyTX	1 Each	**Install 16.5' Mast Arm Pole, 18" B.C. Pole Together W/Mast Arm 40' Through 50' (yy=arm length)**		x 100	
412MC-xxTX	1 Each	**Install 18.5' Mast Arm Pole (42" Ext. Shaft) Together With Mast Arm Not Exceeding 35' (xx=arm length)**		x 10	

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CONTRACT NO. T62017-10E BID SHEETS

ITEM NO.	UNIT OF MEASUREMENT	ITEMS WITH UNIT PRICES WRITTEN IN WORDS		BID FACTOR	
412MC-yyTX	1 Each	**Install 18.5' Mast Arm Pole, 18" B.C. Pole Together With Mast Arm 40' Through 50' (yy=arm length)**		x 10	
412M-X	1 Each	**Install Mast Arm Only On Existing Metal Pole**		x 1	
412M-1X	1 Each	**Reposition Existing Mast Arm As Directed**		x 1	
412P-xTX	1 Each	**Install Aluminum Signal Post, 4' Through 12'**		x 100	
412S-1TX	1 Each	**Install 26' Strain Pole**		x 1	
412S-2TX	1 Each	**Install 28' Strain Pole**		x 10	

FOR INFORMATIONAL USE ONLY - NOT FOR BIDDING PURPOSES

CONTRACT NO. T62017-10E BID SHEETS

ITEM NO.	UNIT OF MEASUREMENT	ITEMS WITH UNIT PRICES WRITTEN IN WORDS		BID FACTOR	
412S-3TX	1 Each	**Install 30' Strain Pole**		x 10	
412S-4TX	1 Each	**Install 32' Strain Pole**		x 10	
412S-5TX	1 Each	**Install 32' Heavy Duty Strain Pole**		x 10	
412S-6TX	1 Each	**Install 34' Strain Pole**		x 1	
412S-7TX	1 Each	**Install 36' Strain Pole**		x 1	
412S-8TX	1 Each	**Install 38' Strain Pole**		x 1	

FOR INFORMATIONAL USE ONLY - NOT FOR BIDDING PURPOSES

CONTRACT NO. T62017-10E BID SHEETS

ITEM NO.	UNIT OF MEASUREMENT	ITEMS WITH UNIT PRICES WRITTEN IN WORDS		BID FACTOR	
412S-9TX	1 Each	**Install 40' Strain Pole** _____		x 1	
412W-35	1 Each	**Furnish & Install Wood Pole** _____		x 1	
412W-T	1 Each	**Install Wood Pole** _____		x 1	
413A-TX	1 Each	**Install One Traffic Signal Face** _____		x 1,000	
414-1	1 Assy.	**Furnish & Install 5/16" Span Wire Assembly** _____		x 1	
414-2	1 Assy.	**Furnish & Install 7/16" Span Wire Assembly** _____		x 10	

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CONTRACT NO. T62017-10E BID SHEETS

ITEM NO.	UNIT OF MEASUREMENT	ITEMS WITH UNIT PRICES WRITTEN IN WORDS		BID FACTOR	
414-4	1 Assy.	**Furnish & Install 7/16" Down Guy Assembly** _____		x 1	
414-6	1 Assy.	**Transfer Or Extend Span Wire** _____		x 1	
415-2X	1 L.F.	**Furnish & Install 2-Conductor, No. 14 Cable On Span Wire, In Conduit, Pole Or Mast Arm** _____		x 10,000	
415-3X	1 L.F.	**Furnish & Install 3-Conductor, No. 14 Cable On Span Wire, In Conduit, Pole Or Mast Arm** _____		x 10,000	
415-5X	1 L.F.	**Furnish & Install 5-Conductor, No. 14 Cable On Span Wire, In Conduit, Pole Or Mast Arm** _____		x 10,000	
415-7X	1 L.F.	**Furnish & Install 7-Conductor, No. 14 Cable On Span Wire, In Conduit, Pole Or Mast Arm** _____		x 10,000	

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CONTRACT NO. T62017-10E BID SHEETS

ITEM NO.	UNIT OF MEASUREMENT	ITEMS WITH UNIT PRICES WRITTEN IN WORDS		BID FACTOR	
415-10X	1 L.F.	**Furnish & Install 10-Conductor, No. 14 Cable On Span Wire, In Conduit, Pole Or Mast Arm** _____		x 10,000	
415-14X	1 L.F.	**Furnish & Install 14-Conductor, No. 14 Cable On Span Wire, In Conduit, Pole Or Mast Arm** _____		x 10,000	
415-15X	1 L.F.	**Furnish & Install 15-Conductor, No. 14 Cable On Span Wire, In Conduit, Pole Or Mast Arm** _____		x 10,000	
415-16X	1 L.F.	**Furnish & Install 16-Conductor, No. 14 Cable On Span Wire, In Conduit, Pole Or Mast Arm** _____		x 10,000	
415-20X	1 L.F.	**Furnish & Install 20-Conductor, No. 14 Cable On Span Wire, In Conduit, Pole Or Mast Arm** _____		x 10,000	
415-12-10X	1 L.F.	**Furnish & Install 10-Conductor, No. 12 Cable On Span Wire, In Conduit, Pole Or Mast Arm** _____		x 100	

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CONTRACT NO. T62017-10E BID SHEETS

ITEM NO.	UNIT OF MEASUREMENT	ITEMS WITH UNIT PRICES WRITTEN IN WORDS		BID FACTOR	
415C-5X	1 L.F.	**Furnish & Install 10-Conductor (5 Pair) No. 19 Cable On Span Wire, In Conduit, Pole Or Mast Arm**		x 10,000	
415C-10X	1 L.F.	**Furnish & Install 20-Conductor (10 Pair) No. 19 Cable On Span Wire, In Conduit, Pole Or Mast Arm**		x 100	
415C-15X	1 L.F.	**Furnish & Install 30-Conductor (15 Pair) No. 19 Cable On Span Wire, In Conduit, Pole Or Mast Arm**		x 100	
415C-25X	1 L.F.	**Furnish & Install 50-Conductor (25 Pair) No. 19 Cable On Span Wire, In Conduit, Pole Or Mast Arm**		x 100	
415C-M5X	1 L.F.	**Furnish & Install 10-Conductor (5 Pair) No. 19 Self-Supporting Cable**		x 1,000	
415C-M10X	1 L.F.	**Furnish & Install 20-Conductor (10 Pair) No. 19 Self-Supporting Cable**		x 100	

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CONTRACT NO. T62017-10E BID SHEETS

ITEM NO.	UNIT OF MEASUREMENT	ITEMS WITH UNIT PRICES WRITTEN IN WORDS		BID FACTOR	
415C-M15X	1 L.F.	**Furnish & Install 30-Conductor (15 Pair) No. 19 Self-Supporting Cable** _____		x 100	
415C-M25X	1 L.F.	**Furnish & Install 50-Conductor (25 Pair) No. 19 Self-Supporting Cable** _____		x 100	
415M-2	1 L.F.	**Furnish & Install Self-Supporting 2-Conductor No. 14 Cable** _____		x 100	
415M-3	1 L.F.	**Furnish & Install Self-Supporting 3-Conductor No. 14 Cable** _____		x 100	
415M-5	1 L.F.	**Furnish & Install Self-Supporting 5-Conductor No. 14 Cable** _____		x 100	
415M-7	1 L.F.	**Furnish & Install Self-Supporting 7-Conductor No. 14 Cable** _____		x 100	

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CONTRACT NO. T62017-10E BID SHEETS

ITEM NO.	UNIT OF MEASUREMENT	ITEMS WITH UNIT PRICES WRITTEN IN WORDS		BID FACTOR	
415M-10	1 L.F.	**Furnish & Install Self-Supporting 10-Conductor No. 14 Cable** _____		x 100	
415M-14	1 L.F.	**Furnish & Install Self-Supporting 14-Conductor No. 14 Cable** _____		x 100	
415M-15	1 L.F.	**Furnish & Install Self-Supporting 15-Conductor No. 14 Cable** _____		x 100	
415M-16	1 L.F.	**Furnish & Install Self-Supporting 16-Conductor No. 14 Cable** _____		x 100	
415M-20	1 L.F.	**Furnish & Install Self-Supporting 20-Conductor No. 14 Cable** _____		x 100	
415-6AL-3X	1 L.F.	**Furnish & Install 3-Conductor, No. 6 Aluminum Cable (Triplex) For Electric Service** _____		x 100	

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CONTRACT NO. T62017-10E BID SHEETS

ITEM NO.	UNIT OF MEASUREMENT	ITEMS WITH UNIT PRICES WRITTEN IN WORDS		BID FACTOR	
415P-6-2X	1 L.F.	**Furnish & Install 2-Conductor, No. 6 Cable For Electric Service**		x 1,000	
415P-8-2X	1 L.F.	**Furnish & Install 2-Conductor, No. 8 Cable For Electric Service**		x 10,000	
416-1TX	1 Each	**Install Cabinet Only**		x 10	
416-xTX	1 Each	**Install 2ø Through 8ø Controller Cabinet & Auxiliary Equipment (x=phase)**		x 100	
416-9TX	1 Each	**Install and Remove Auxiliary Equipment In Existing Cabinet**		x 10	
419B-1	1 Each	**Furnish & Install 1¼" Steel Conduit Bend In Existing Foundation**		x 1	

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CONTRACT NO. T62017-10E BID SHEETS

ITEM NO.	UNIT OF MEASUREMENT	ITEMS WITH UNIT PRICES WRITTEN IN WORDS		BID FACTOR	
419B-2	1 Each	**Furnish & Install 2" Steel Conduit Bend In Existing Foundation**		x 1	
419B-3	1 Each	**Furnish & Install 3" Steel Conduit Bend In Existing Foundation**		x 10	
419B-4	1 Each	**Furnish & Install 4" Steel Conduit Bend In Existing Foundation**		x 1	
419P-1X	1 L.F.	**Furnish & Install 1¼" PVC Conduit**		x 100	
419P-2X	1 L.F.	**Furnish & Install 2" PVC Conduit**		x 100	
419P-3X	1 L.F.	**Furnish & Install 3" PVC Conduit**		x 100	

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CONTRACT NO. T62017-10E BID SHEETS

ITEM NO.	UNIT OF MEASUREMENT	ITEMS WITH UNIT PRICES WRITTEN IN WORDS		BID FACTOR	
419P-4X	1 L.F.	**Furnish & Install 4" PVC Conduit** _____		x 100	
419R-1X	1 Each	**Furnish & Install 1¼" Riser Assembly** _____		x 100	
419R-2X	1 Each	**Furnish & Install 2" Riser Assembly** _____		x 10	
419R-3X	1 Each	**Furnish & Install 3" Riser Assembly** _____		x 1	
419S-075X	1 L.F.	**Furnish & Install 3/4" Steel Conduit for Loops** _____		x 10,000	
419S-1X	1 L.F.	**Furnish & Install 1¼" Steel Conduit** _____		x 10,000	

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CONTRACT NO. T62017-10E BID SHEETS

ITEM NO.	UNIT OF MEASUREMENT	ITEMS WITH UNIT PRICES WRITTEN IN WORDS		BID FACTOR	
419S-2X	1 L.F.	**Furnish & Install 2" Steel Conduit** _____		x 100	
419S-3X	1 L.F.	**Furnish & Install 3" Steel Conduit** _____		x 10,000	
419S-4X	1 L.F.	**Furnish & Install 4" Steel Conduit** _____		x 1,000	
419Z	1 L.F.	**Clean Conduit** _____		x 1,000	
420-1	1 Each	**Furnish & Install Standard Pullbox** _____		x 100	
420-1T	1 Each	**Install Only Standard Pullbox** _____		x 1	

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CONTRACT NO. T62017-10E BID SHEETS

ITEM NO.	UNIT OF MEASUREMENT	ITEMS WITH UNIT PRICES WRITTEN IN WORDS		BID FACTOR	
420-2	1 Each	**Furnish & Install Pullbox With Large Knockouts** _____		x 1	
420-2T	1 Each	**Install Only Pullbox With Large Knockouts** _____		x 1	
420-3	1 Each	**Furnish & Install Split Pullbox** _____		x 1	
420-3T	1 Each	**Install Only Split Pullbox** _____		x 1	
420-4	1 Each	**Furnish & Install Large Pullbox** _____		x 1	
420-4T	1 Each	**Install Only Large Pullbox** _____		x 1	

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CONTRACT NO. T62017-10E BID SHEETS

ITEM NO.	UNIT OF MEASUREMENT	ITEMS WITH UNIT PRICES WRITTEN IN WORDS		BID FACTOR	
420-STX	1 Each	**Install Only Special Pullbox**		x 1	
420R	1 Each	**Regrade Pullbox Frame & Cover Only**		x 100	
420R-1	1 Each	**Furnish & Install a Pullbox Frame & Cover on Existing Pullbox, Regrade as Necessary**		x 10	
420ZX	1 Each	**Clean Pullbox**		x 10	
422LSX	1 L.F.	**Furnish & Install Saw Cut For Loop**		x 10,000	
422LX	1 L.F.	**Furnish & Install Loop Wire**		x 10,000	

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CONTRACT NO. T62017-10E BID SHEETS

ITEM NO.	UNIT OF MEASUREMENT	ITEMS WITH UNIT PRICES WRITTEN IN WORDS		BID FACTOR	
422M-T	1 Each	**Install Multi-Lane Magnetic Vehicle Detector**		x 10	
422SH-T	1 Each	**Install Only Single Lane Magnetic Vehicle Detector Housing**		x 10	
422S-T	1 Each	**Install Only Single Lane Magnetic Vehicle Detector**		x 10	
424-1	1 Each	**Remove Foundation For Post**		x 10	
424-2	1 Each	**Remove Foundation For Mast Arm Pole Or Strain Pole**		x 10	
424-3	1 Each	**Remove Foundation for Controller Cabinet**		x 1	

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CONTRACT NO. T62017-10E BID SHEETS

ITEM NO.	UNIT OF MEASUREMENT	ITEMS WITH UNIT PRICES WRITTEN IN WORDS		BID FACTOR	
424-4	1 Each	**Remove Any Post** _____		x 10	
424-5	1 Each	**Remove Any Strain Pole** _____		x 100	
424-6A	1 Each	**Remove Mast Arm Pole Together With Mast Arm** _____		x 100	
424-6B	1 Each	**Remove Mast Arm Only From Any Pole** _____		x 10	
424-7	1 Each	**Remove Wood Pole** _____		x 10	
424-8	1 Each	**Remove 2½" Steel Pedestrian Post & Foundation** _____		x 10	

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CONTRACT NO. T62017-10E BID SHEETS

ITEM NO.	UNIT OF MEASUREMENT	ITEMS WITH UNIT PRICES WRITTEN IN WORDS		BID FACTOR	
424-9A	1 Each	**Remove Controller, Cabinet & Auxiliary Equipment From Post Or Pole**		x 100	
424-9B	1 Each	**Remove Controller, Cabinet & Auxiliary Equipment From Foundation**		x 10	
424-10	1 Each	**Remove Vacated Cabinet Only From Any Location**		x 10	
424-11AX	1 Each	**Remove One Signal Face**		x 1,000	
424-11BX	1 Each	**Remove One Pedestrian Signal**		x 100	
424-12	1 Assy	**Remove & Dispose Of Span Wire & Accessories**		x 100	

CONTRACT NO. T62017-10E BID SHEETS

ITEM NO.	UNIT OF MEASUREMENT	ITEMS WITH UNIT PRICES WRITTEN IN WORDS		BID FACTOR	
424-13	1 Assy	**Remove Back Or Down Guy Assembly**		x 1	
424-14	1 L.F.	**Remove Cable From Span Wire, Conduit Or Other Support**		x 10,000	
424-21	1 Each	**Remove Single Lane Magnetic Or Magnetometer Vehicle Detector From Housing**		x 1	
424-22X	1 Each	**Remove Single Lane Or Magnetometer Vehicle Detector And Housing**		x 100	
424-23X	1 Each	**Abandon Foundation**		x 100	
424-24X	1 Each	**Remove Auxiliary Pole**		x 10	

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CONTRACT NO. T62017-10E BID SHEETS

ITEM NO.	UNIT OF MEASUREMENT	ITEMS WITH UNIT PRICES WRITTEN IN WORDS		BID FACTOR	
424-25X	1 Each	**Remove Pullbox** _____		x 100	
424-26X	1 Each	**Remove Multi-Lane Magnetic Vehicle Detector** _____		x 10	
424-27X	1 Each	**Remove Pushbutton & Sign Assembly** _____		x 100	
424-28X	1 Each	**Remove Any Riser Assembly** _____		x 10	
426TX	1 Each	**Install One Pedestrian Signal - Any Type** _____		x 1,000	
427-1T	1 Each	**Install 9"x12" Pushbutton & Sign Assembly** _____		x 10	

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CONTRACT NO. T62017-10E BID SHEETS

ITEM NO.	UNIT OF MEASUREMENT	ITEMS WITH UNIT PRICES WRITTEN IN WORDS		BID FACTOR	
427P-1T	1 Each	**Install 9"x12" Post Top Pushbutton & Sign Assembly** _____		x 10	
427-2T	1 Each	**Install 5"x7" Pushbutton & Sign Assembly** _____		x 100	
427P-2T	1 Each	**Install 5"x7" Post Top Pushbutton & Sign Assembly** _____		x 10	
455-1	1 Each	**Furnish & Install 30 Amp Power Connection** _____		x 100	
455-2	1 Each	**Furnish & Install 60 Amp Power Connection** _____		x 1	
471-1-6	1 L.F.	**Furnish & Install Fiber Optic Cable With 6 Fibers** _____		x 100	

CONTRACT NO. T62017-10E BID SHEETS

ITEM NO.	UNIT OF MEASUREMENT	ITEMS WITH UNIT PRICES WRITTEN IN WORDS		BID FACTOR	
471-1-12	1 L.F.	**Furnish & Install Fiber Optic Cable With 12 Fibers** _____		x 100	
471-1-18	1 L.F.	**Furnish & Install Fiber Optic Cable With 18 Fibers** _____		x 100	
471-1-24	1 L.F.	**Furnish & Install Fiber Optic Cable With 24 Fibers** _____		x 100	
471-1-30	1 L.F.	**Furnish & Install Fiber Optic Cable With 30 Fibers** _____		x 100	
471-1-36	1 L.F.	**Furnish & Install Fiber Optic Cable With 36 Fibers** _____		x 100	
471-1-42	1 L.F.	**Furnish & Install Fiber Optic Cable With 42 Fibers** _____		x 100	

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CONTRACT NO. T62017-10E BID SHEETS

ITEM NO.	UNIT OF MEASUREMENT	ITEMS WITH UNIT PRICES WRITTEN IN WORDS		BID FACTOR	
471-1-48	1 L.F.	**Furnish & Install Fiber Optic Cable With 48 Fibers** _____		x 100	
471-1-54	1 L.F.	**Furnish & Install Fiber Optic Cable With 54 Fibers** _____		x 100	
472-1	1 Each	**Furnish & Install A Stand-Alone Fiber Optic Modem** _____		x 1	
472-2	1 Each	**Furnish & Install A Rack-Mounted Fiber Optic Modem** _____		x 1	
472-3	1 Each	**Furnish & Install A Rack For Rack-Mounted Fiber Optic Modems** _____		x 1	
473-2	1 L.F.	**Furnish & Install A 1½" Diameter Fiber Optic Innerduct** _____		x 100	

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CONTRACT NO. T62017-10E BID SHEETS

ITEM NO.	UNIT OF MEASUREMENT	ITEMS WITH UNIT PRICES WRITTEN IN WORDS		BID FACTOR	
474-1	1 Each	**Furnish & Install A Basic Fiber Optic Splice Case**		x 1	
474-2	1 Each	**Furnish & Install A Fiber Optic Splice Case With 8 Cable Capacity**		x 1	
475	1 Each	**Furnish & Install Fiber Optic Splice Organizer Tray**		x 10	
476-1	1 Each	**Furnish & Install Fiber Optic Splice (250 Micron To 250 Micron)**		x 100	
477-6	1 L.F.	**Furnish & Install Fiber Optic Breakout Cable With 6 Fibers**		x 10	
477-12	1 L.F.	**Furnish & Install Fiber Optic Breakout Cable With 12 Fibers**		x 10	

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CONTRACT NO. T62017-10E BID SHEETS

ITEM NO.	UNIT OF MEASUREMENT	ITEMS WITH UNIT PRICES WRITTEN IN WORDS		BID FACTOR	
477-18	1 L.F.	**Furnish & Install Fiber Optic Breakout Cable With 18 Fibers**		x 10	
478-2	1 Each	**Furnish & Install Fiber Optic Connector Module**		x 1	
479	1 Each	**Furnish & Install Fiber Optic Pigtail**		x 1	
RM	------	**Furnishing Material (Forced Bid)** Material Percentage 5% + 100% = 105% x $700,000 = For Seven-Hundred-Thirty-Five-Thousand-and-00/100 Dollars Cents	105%	x $700,000	$735,000 00

CONTRACT NO. T62017-10E BID SHEETS

NASSAU COUNTY
TRAFFIC SIGNAL CONSTRUCTION & MODIFICATION
SPECIFICATIONS
RESTORATION ITEMS

ITEM	DESCRIPTION
22C-2X	Base Course Asphalt Concrete Type Dense Base - per ton
23X	Concrete Foundation for Pavement - per cubic yard
24X	Cement Concrete Pavement - per cubic yard
129X	Cement Concrete Calcium Chloride Pavement – per cubic yard
26X	Concrete Curb - per linear foot
27X	Cement Concrete Sidewalk - per square foot
28X	Cement Concrete Driveways and Driveway Aprons - per square foot
30	Metal Reinforcement for Concrete Pavement - per square yard
32X	Joint Ties (Grout Type) – per each
36DX	Asphalt Concrete Type 1A - per ton

All materials furnished and work performed under these Items shall conform to the 2009 Standard Specifications and Detail Sheets for Civil Engineering and Site Development Construction, latest edition, herein referred to as Standard Highway Specifications, and as modified hereafter.

Payment shall be for the number of units of work performed at the unit price named in the Contract.

The minimum dimensions for roadway pavement replacement shall be as follows, unless directed by the Engineer:

A. Stone Base Pavement

1. Longitudinal Openings (Parallel with Curb line):

a. Pavement replacement shall be a minimum of two (2) feet on both sides of the trench, with a total minimum width of six (6) feet.

b. When the remaining longitudinal strip to the edge of the pavement at the curb is less than three (3) feet, the entire longitudinal strip shall be replaced.

2. Transverse Openings (Perpendicular to Curb line):

a. The pavement replacement shall be a minimum of two (2) feet on both sides of the trench, with a total minimum width of six (6) feet.

b. Dense Base Asphalt may be substituted for the removed stone base.

B. Concrete Base and Finished Concrete Pavement

1. Longitudinal Openings:

a. The entire panel shall be removed and replaced.

b. All existing panels that are less than six (6) feet from a transverse or longitudinal joint shall be removed and replaced.

2. Transverse Openings:

a. All transverse openings shall be sawcut ninety (90) degrees to the longitudinal joint.

b. All existing panels that are less than six (6) feet from a longitudinal or transverse joint shall be removed and replaced.

All pavements shall be sawcut to a neat edge prior to restoration. Sawcutting shall be made to the full depth of the pavement and shall be included in the price bid.

In general, the thickness of pavement replacement shall match the existing pavement with the following exceptions:

Finished concrete pavement shall be nine (9) inches minimum in thickness.

Base concrete and base asphalt shall be seven (7) inches minimum in thickness with one (1) inch thick asphalt wearing surface or match existing pavement depths, as ordered by the Engineer.

A mechanical vibrator shall be available on all concrete work performed under this Contract. The vibrator shall be used as directed by the Engineer on each job site.

CEMENT

Portland Cement, Class A shall be used for the following items:
ITEM NO. 24X Cement Concrete Pavement
ITEM NO. 26X Concrete Curb

ITEM NO. 22C-2X BASE COURSE ASPHALT CONCRETE, TYPE DENSE BASE

The General Highway Specifications for Item 22C-2 shall apply with the following exceptions:

A. Description

Under this item, the Contractor shall furnish and construct an Asphalt Concrete Base Course to conform with the details as shown on the typical section on the contract plans, and in accordance with Section B, Bituminous Concrete General Specifications, except as modified herein.

B. Materials

1. The aggregate gradings and the composition of the mixture shall be as follows:

Sieve Size	General Limit % Passing	Job Mix % Tolerance
2"	100	----
1½"	90-100	----
1"	78-95	+/-5
½"	57-84	+/-6
¼"	40-72	+/-7
1/8"	26-57	+/-7

#20	12-36	+/-7
#40	8-25	+/-7
#80	4-16	+/-4
#200	2-8	+/-2
Asphalt Cement	4.0-6.0	+/-0.4

Mixing and placing temperature 250°-325° F.
Asphalt Cement AC-20

2. Each layer of this course shall be laid with a self-propelled mechanical spreader.

3. The depth of any one layer of this course shall not be greater than necessary to produce a compacted thickness of five (5) inches.

C. Method of Measurement

The quantity to be paid for under this Item shall be the number of tons of compacted material placed in accordance with the plans and specifications.

D. Basis of Payment

1. The unit price bid per ton for this Item shall include the cost of furnishing all materials including Bitumen, mixing, transportation, placing and rolling, and all labor and equipment necessary to complete the work.

2. The cost of sawcutting full depth, removing existing pavement and fine grading for the installation of this Item, shall be included in the price bid for this Item. Such work shall be performed in accordance with the Standard Highway Specifications for Item 58 Sawcutting Existing Concrete, Item 58A Asphalt Sawcutting, Item 2 Unclassified Excavation and Item 7 Preparing Fine Grade.

ITEM NO. 23X CONCRETE FOUNDATION FOR PAVEMENT ITEM NO. 24X CEMENT CONCRETE PAVEMENT

1. The cost of sawcutting full depth, breaking and removing existing concrete pavement, fine grading and select fill for the installation of new concrete pavement, shall be included in the price bid for Item 23X and Item 24X. Such work shall be performed in accordance with the Standard Highway Specifications for Item 2 Unclassified

Excavation, Item 4A Cement Concrete Breaking (Pavement), Item 58 Sawcutting Existing Concrete, and Item 7 Preparing Fine Grade.

2. The Standard Highway Specifications for these items shall apply in all other respects.

ITEM NO. 129X CEMENT CONCRETE FOR PAVEMENT REPAIRS

A. Description

Under this item the Contractor shall construct cement concrete for pavement repairs consisting of Portland cement concrete with calcium chloride added as an accelerator as shown on the Plans and in the proposal, in accordance with these specifications.
NOTE: Refer to the latest New York State Standard Specifications for the specified Section requirements.

B. Materials

1. Portland Cement Concrete:

The materials used to produce the cement concrete shall conform to the following sections unless modified by this specification:

Portland Cement	Type III	701-01
Fine Aggregate		703-07
Coarse Aggregate	Type CA 2	501-2.02 B.2
Water		712-01
Air Entraining Agent		711-08
(except that it shall be neutralized vinsol resin based)		
Calcium Chloride		712-02

If type A Solid Flake Calcium Chloride is used, it shall be made into a solution having a specific gravity of 1.290 and 1.295 at 60 degrees F.

2. Stockpiling Aggregates:

The requirements of Subsection 501-3.03A, “Stockpiles” shall apply when Mobile Mixers are used, with the following modifications:

a. Unless otherwise approved by the Engineer, the fine and coarse aggregates shall be stockpiled at the work site.

b. The stockpile shall be covered.

c. The free moisture of each aggregate, at the time of batching, shall not exceed eight (8) percent of the saturated surface dry weight of the aggregate.

3. Proportioning Concrete:

a. A concrete mix design to be furnished by the Contractor shall be based upon trial batches. The mix will use the following parameters:

Cement content, 826 lb./cy.
Air content, 7.0%
Final water cement ratio, by weight, (including water in the calcium chloride mixture added), maximum 0.39.
2% of the pure compound Calcium Chloride (CaC12) by weight of cement. When high alkali cements and/or aggregates are used, up to 2T additional calcium may be required (4% maximum). The need for additional calcium chloride will be determined during trial batching and testing.
Compressive strength, 2000 psi in 4 hours.

b. When ordered by the Engineer, the Contractor shall supply the Department of Public Works Testing Laboratory with three bags of cement, 500 lbs. of each fine and coarse aggregate, 1 quart of each admixture, and 10 lbs. chloride liquid for laboratory test batches. The materials submitted shall be of the same type and size and from the same source as those to be used to produce the concrete. The materials shall be submitted at least 20 working days in advance of the calibration test for the self-contained mobile mixer or truck mixers.

c. The slump and air content placement limits shall be as follows:

	Min.	Desired	Max.
Slump	---	2	3*
Air Content, Percent	5.5	7.0	8.5

*Applies to Mobile Mixer only.

NOTE: If the slump of concrete which has been truck mixed exceeds 4 1/2 inches, the Contractor shall immediately reduce the water and make other appropriate corrections as approved by the Engineer.

4. Membrane Curing Compound (Clear):

This shall meet the requirements of Subsection 711-05.

5. Polyethylene Film:

The polyethylene film shall be 4 mils thick and shall meet the requirements of ASTM C171.

6. Insulating Materials:

The insulating materials shall be solid foam which shall be 1" of polyurethane insulation board meeting the requirements of ASTM C591 or 2" of polystyrene insulation board meeting the requirements of ASTM C578 or 3" of cellulose fiber insulating board meeting the requirements of ASTM C208.

1. Equipment:

The Contractor shall have the option of using Truck Mixed Concrete and/or Mobile Mixer.

a. Truck Mixed Concrete – Section 501 of the New York State Standard Specifications shall apply, except as modified by this specification.

1. Physical Requirements:

Flow Meters – Truck mixers shall be equipped with in-line, water flow meters capable of being easily reset to "0," of withstanding water temperatures up to 200 degrees F. and having a manufacturer's certified flow rate capacity of 70 gallons per minute. The flow meters shall be mounted in such a manner as to allow the Engineer easy access for reading the meter. The flow meters shall be inspected and approved by the Department of Public Works Laboratory prior to their being approved for Contract work. The batching delivery tolerance for the water flow meter shall be 1% by weight or volume. The actual flow rate as measured by the Department of Public Works Laboratory shall not be less than 50 gallons per minute. The flow meters shall be equipped with air strainers capable of removing any trapped air in the system.

Air Pressurized Tanks for Calcium Chloride Solution – Truck mixers shall be equipped with air pressurized tanks having a capacity sufficient to meet the calcium chloride solution design needs of the mix. The air pressurized tank shall be capable of discharging the design quantity of calcium chloride solution into the truck mixer drum in less than one minute. The tanks output hose leading into the truck mixer shall be made of clear plastic. The air pressurized tank shall be equipped with properly working relief valves.

(2) Quantity:

The maximum amount of concrete to be produced at any one time by truck mixer shall be 6.5 cubic yards. This amount may be subject to the approval of the Engineer for large monolithic placements.

(3) Batching and Mixing:

The Contractor shall batch and operate his truck in accordance with Section 5013.04E, "Truck Mixed Concrete." The prescribed amount of calcium chloride solution to be used shall be introduced into the air pressurized tank at the batch plant.

As stated in Section 501-3.04D, the drum shall be drained of wash water before charging with the constituents of the concrete mixture.

Immediately prior to the batching of each truck, the Contractor shall make a determination of the moisture content of the coarse and fine aggregate and compute the amount of water in each aggregate of water in gallons per cubic yard of concrete. That quantity as well as the quantity of water present in the calcium solution, shall be subtracted from the design water. Upon doing so, the Contractor shall submit his data and calculations to the County representative at the concrete plant for his review. Upon approval, the Contractor shall indicate, in writing on the delivery ticket, the exact number of gallons of water to be added to the mix at the job site. Upon arrival at the job site, the driver shall give the delivery ticket to the Engineer. Before the addition of water into the truck mixer, the Contractor shall execute twenty dry revolutions and reset the flow meter to zero.

The water shall be added in one complete uninterrupted operation. No water is to be removed from the Truck Mixer for any purpose whatsoever, while water is being added to the drum. The calcium chloride solution shall be discharged into the truck mixer drum after fifty gallons of water have been added to the concrete. The addition of water in excess of the quantity shown on the delivery ticket shall be cause for rejection of the concrete in the drum at the time the excess water is added.

b. Mobile Mixer

Mobile Mixers shall meet the requirements of Section 584-2.04C "Proportioning and Mixing Equipment" except for the following changes:

Delete the second sentence "A minimum of two units shall be supplied." A sufficient number of Mobil Mixers shall be supplied to provide for placement of concrete

without formation of cold joints. Delays during placement greater than 10 minutes shall be considered that time in which a cold joint will form. Concrete with cold joints shall be replaced or repaired as determined by the Engineer. To join fresh concrete to that which has already set, the face shall be chipped to leave a rough irregular surface, the face shall be sandblasted clean and a 1:1 mortar or neat cement paste shall be thoroughly brushed into the face immediately before placing and consolidating the fresh concrete.

Delete a. High Density Concrete and b. Latex Modified Concrete and substitute the following:

The mixers shall provide positive control of the flow of the air entraining admixture and the calcium chloride admixture into the mixing chamber. Flow meters shall be used to control the amount of admixture to the mix. The system shall introduce the calcium chloride and the air entraining agent at two separate points in the mixing auger. The calcium chloride shall be introduced at the same point as the mixing water. The air entraining agent shall be separated from this point by a distance of one foot. This separation shall be accomplished by the extension of the tube carrying the air entraining agent in a manner satisfactory to satisfactory to the Engineer. The system shall be capable of adding admixture in the amounts necessary to achieve the required air content and calcium chloride percentage. The system shall be equipped with a bypass valve suitable for obtaining a calibrated sample of admixture to determine batching accuracy.

Mobile Mixers shall be made available for testing according to Section 584-2.04D, "Mixer Unit – Testing".

c. Test Equipment – The Contractor shall furnish a Schmidt Pendulum Hammer for testing compressive strength of the pavement repairs.

2. Construction Details:

The areas to be repaired shall be shown on the Plans or will be designated in the Proposal or by the Engineer. Repairs shall conform to the details shown on the Plans or be in accordance with the directions of the Engineer.

Concrete Placement Weather Limitation: Concrete placement operations may be started when the air temperature is in the range of 55 degrees F. to 95 degrees F. and when the minimum and maximum temperatures for the 48 hours immediately after placement of concrete shall be within the range of 40 degrees F. to 95 degrees F., based upon national weather service reports which the Contractor shall obtain on a daily basis. All temperatures shall be measured in the shade. No placement of concrete will be permitted when the air temperature is or can be

expected to lie outside these ranges. No concrete shall be placed when it is raining or when rain is expected within two hours of placement.

If at any time during the curing period the air temperature is outside the range specified for curing, the concrete shall be inspected for damage. Concrete damaged by temperature as determined by the Engineer shall be removed and replaced by the Contractor at no cost to the County.

The temperature of the concrete at the point of discharge shall be between 85 degrees F. and 95 degrees F. The Contractor shall heat the mixing water as necessary to achieve this discharge temperature.

Concrete shall be placed, spread, consolidated, and struck off using methods and equipment approved by the Engineer. Placements of concrete less than 10 feet long shall be struck off with the screed oriented in a longitudinal direction to match any wheel track wear. The concrete surface shall be tested while plastic and shall conform to Section 502-3.09C. Concrete may be placed on grade directly from an approved mixer. Chutes used to place the concrete in final position must be steel lined. Baffled chutes or other non-segregating devices shall be used to avoid segregation. Details of these devices shall be submitted to the Engineer for his approval prior to the start of concrete placement operations.

The wheels of the concrete mixing and placing equipment shall not be allowed on the grade or within two feet of the sawcut ends of the existing pavement. Mechanical spreading and finishing will not be required. Precautions must be taken to prevent segregation of the concrete during placement and spreading.

Concrete shall be deposited from the mixer, as close to its final position as possible and shall be thoroughly consolidated by immersion type vibrators. The Contractor shall have immediately available at <u>all times</u> a second vibrator system to be used in the event of a failure of the primary system.

The Contractor is advised that the design of this concrete is such that initial set will take place within thirty to forty minutes from the time of mix completion. To ensure that the concrete is discharged in the shortest possible time, the Contractor is advised to have a sufficient labor force available to ensure the rapid and expeditious incorporation of the concrete into the Project. During and immediately after deposition, the concrete shall be thoroughly compacted by vibrating the concrete, internally with an immersion spud (hand operated) vibrator whose diameter shall not be less than two inches. Excessive movement of concrete by use of vibrators or other means will not be permitted. Concrete that cannot be properly placed and consolidated shall be rejected and removed from the job site.

<u>Curing</u> – Upon completion of the concrete placement operation, the repair shall be allowed to cure uncovered until initial set has occurred. Initial set shall be defined as having occurred

when no cement past is lifted from the repair when it is lightly rubbed with the finger of one's hand. This should take place in approximately 45 minutes to one (1) hour.

As soon as initial set has occurred, the repair shall be covered with a four (4) mil thick polyethylene sheet, and thermal insulating board conforming with one of the three insulating materials described in the "Materials" section of this specification.

Shrinkage cracks occurring due to the Contractor's failure to cover the repair as soon as set has occurred will be cause for rejection of the repair. The polyethylene and insulating material shall extend a minimum of 12 inches beyond the length of the repair and 6 inches beyond its width. They shall be securely weighted down to prevent the uncovering of the concrete. Particular care shall be taken to insure that the edges of the insulating material are weighted sufficiently to insure intimate contact with the existing pavement surrounding the repair and to prevent wind intrusion beneath the polyethylene vapor barrier. The polyethylene film and insulating material shall not be removed until just prior to opening the pavement to traffic.

When the concrete pavement has reached 2000 psi, based upon pendulum type Schmidt hammer testing, the concrete surface shall be immediately coated with clear curing compound at the rate of 1 gallon per 150 square feet.

Concrete placement operations shall be timed within the work day such that all concrete placement is completed a minimum of 4 hours prior to the time specified on the Plans for opening the lane, in which the repair lies, to traffic. If compressive strength testing with the Schmidt hammer demonstrates that 2000 psi is being achieved in less than four hours, then the Engineer may, at his discretion, allow placement operations to proceed later in the work day. In all cases, a minimum of 2000 psi compression must be achieved prior to opening the lane. In the event, due to temperature or other variables, 2000 psi is not achieved in four hours, then the Engineer may direct the Contractor to complete all placement operations more than four hours prior to the lane opening time specified on the Plans.

Under no circumstances will any changes to materials or order specified in this specification be permitted.

C. Method of Measurement

The quantity to be measured shall be the number of cubic yards computed from the measured surface area times the depth shown on the Plans or in the Proposal.

D. Basis of Payment

The cost of sawcutting full depth, breaking and removing existing concrete pavement, fine grading and select fill for the installation of new concrete pavement, shall be included in the price bid for Item 129X. Such work shall be performed in accordance with the Standard Highway Specifications for Item 2 Unclassified Excavation, Item 4A Cement Concrete Breaking (Pavement), Item 58 Sawcutting Existing Concrete, and Item 7 Preparing Fine Grade, without specific payments for these items.

The unit price bid per cubic yard shall include the cost of furnishing all labor, materials, and equipment necessary to complete the work, including cleaning existing concrete pavement surfaces. Joint ties will be paid for under their appropriate items.

All work required for the repair of damages to existing pavement, including enlargement of the areas to be repaired and replacement of concrete damaged by temperature, shall be done at no cost to the County.

ITEM NO. 26X CONCRETE CURB

1. Under this Item, the Contractor will be required to replace curbing damaged for the purpose of installing traffic control items, or as ordered by the Engineer.

2. The height of the new curb shall match the existing curb. All other dimensions shall conform to those shown on Concrete Curb Type A or Type C on Sheet No. 2 and details for Handicapped Sidewalk Ramps on Sheet No. 19, of the Standard Sheets for the Construction of Highways and Bridges.

3. The Standard Highway Specifications for Item 26 Concrete Curb, shall apply in all other respects.

4. The cost of sawcutting full depth, removing existing sidewalks, fine grading and select fill for the installation of this item, shall be included in the price bid for this item.

ITEM NO. 27X CEMENT CONCRETE SIDEWALK

1. The cost of removal and replacement of brick or sidewalk shall be included under this item.

2. The Contractor may reuse existing brick, however, when new brick is needed, it shall match the size and color of existing pavement.

3. The depth of concrete sidewalks shall be five (5) inches.

4. The cost of sawcutting full depth, removing existing sidewalks, fine grading and select fill for the installation of this item, shall be included in the price bid for this item.

5. The cost of removal and replacement of pole raincaps as needed shall be included in the price bid for this item.

ITEM NO. 28X CEMENT CONCRETE DRIVEWAYS AND DRIVEWAY APRONS

1. The cost of sawcutting full depth, removing existing sidewalk and driveways, fine grading and select fill for the installation of these items, shall be included in the item.

2. Such work shall be performed in accordance with the Standard Highway Specifications for Item 58 Sawcutting Existing Concrete.

3. All commercial driveways shall be seven (7) inches in depth with wire reinforcing Item 30.

ITEM 36DX - ASPHALT CONCRETE TYPE 1A

A. Description

Under this item, the Contractor shall construct an asphalt concrete wearing surface for pavement upon a previously prepared foundation, conforming to the lines, grades, and typical section shown on the Plans, in accordance with Part Three, Section B, General Specifications For Bituminous Concrete and/or ordered by the Engineer.

The wearing surface for the pavement shall be constructed in one or more courses of asphalt concrete as shown.

B. Materials and Construction Details

1. *Proportioning*

All materials used in the mix shall conform to the requirements of Part Three, Section B, Article 4 and shall be proportioned as specified in the table

"Composition of Mixtures."

The asphalt concrete top course shall be type 1A and underlayment course shall be Binder.

Asphalt cement used in the mix shall be paving asphalt Grade 85-100, M5, Table 1.

2. *Preparation of Aggregates*

The fine and coarse aggregates to be used in the mix shall be first passed through the dryer and heated to a temperature of 225° F. to 300° F. After the aggregates have been heated and passed through the dryer, they shall be screened to the required gradations and these graded sizes placed in the separate proper storage bins over the mixer unit.

3. *Mixing*

The aggregates shall be introduced into the mixer at a temperature between 225° F. and 300° F. and dry mixed for a period of time necessary to produce a homogeneous mixture as determined by the Engineer, but in no case less than 15 seconds before the asphalt cement is added. The asphalt cement shall be introduced into the mixer at a temperature specified by the Engineer between the limits of 225° F. and 300° F. The mixing period after the introduction of the asphalt cement shall be that period of time required to completely and uniformly coat all aggregate particles with asphalt cement as determined by the Engineer but in no case shall it be less than 45 seconds.

4. *Placing*

Each individual course shall after final compaction meet the density requirements specified in Part Three, Section B, Article 5, par. f, Compacting the Course.

C. Method of Measurement

The quantity to be paid for under this item shall be the number of tons of compacted material satisfactorily furnished, placed and incorporated in the completed work in accordance with the Plans, Specifications and orders of the Engineer.

D. Basis for Payment

The unit price bid per ton for this item shall include all labor, material, tools, equipment and incidentals required for the satisfactory completion of the work. The cost of sawcutting full depth existing pavement and sealing pavement joints for the installation of this item shall be included in the price bid for this item.

NASSAU COUNTY
TRAFFIC SIGNAL CONSTRUCTION & MODIFICATION
SPECIFICATIONS
INSTALLATION AND REMOVAL OF POLES, MAST ARMS AND POSTS

ITEM NO. 412..X

All of the requirements of section 412 of the Nassau County Traffic Signal Specifications & Standard Drawings shall apply with the following changes:

1. The Contractor shall pick up the poles, mast arms, posts, and fittings at The Nassau County Traffic Signal Shop or as designated by the Engineer.

2. The pole or post shall be properly raked and securely bolted in position. The pole or post shall appear vertical under loads as shown on the drawings. It is the Contractor's responsibility to verify signal clearance prior to pole installation and notify the Engineer if proper clearance cannot be obtained. In the event that a new pole is installed and sufficient clearance cannot be obtained or if the clearance is too high, the Contractor shall remove the new pole and install a replacement pole at no extra charge to Nassau County.

3. The Contractor shall cap unused nipples, and weld plugs into unused holes on the poles, at no additional cost to the County.

4. Under certain conditions and with the approval of the Engineer, the Contractor may erect the pole with the mast arm and fittings in place. However, such approval will only be granted if the Contractor can demonstrate to the satisfaction of the Engineer that the method by which he intends to perform the erection shall at the same time safeguard the life and property of others. After the pole erection, the pole shall be cleaned and painted if so ordered.

5. When so ordered, the Contractor shall furnish and install either a two (2) inch, two and-one-half (2½) inch or three (3) inch weatherhead assembly on a new or existing strain pole. The installation of the weatherhead assembly shall be as specified in the Traffic Signal Standard Drawings. All costs shall be at the Contractor's expense.

6. The Contractor shall install handhole covers, doors, bolt and pole caps and miscellaneous hardware that is required to complete the installations. All costs shall be at the Contractor's expense.

C. Installation of Mast Arms on Existing Poles

1. Mast arms installed on existing metal or wood poles shall be oriented as shown on the intersection drawing or as directed by the Engineer.

2. The minimum clearance between the roadway and a vertically suspended five-section signal face shall be 15 feet 6 inches. Generally, the clearance to the bottom of the signal should be 16 feet and shall not be more than 19 feet.

3. The mast arm shall be completely assembled and securely fastened to the pole by means of brackets and fittings supplied with the arm. A cable entrance with bushing shall be provided into metal poles at the Contractor's expense.

D. Removal of Posts, Poles, and Mast Arms

1. Posts, poles, or mast arms ordered removed from their present sites shall be dismantled, transported and unloaded to The Nassau County Traffic Signal Shop as directed by the Engineer.

2. Any adherents or attachments to posts or poles shall be carefully removed and disposed of as directed by the Engineer. Cable removal shall be performed and paid for as specified under items for cable.

3. Any existing signs attached to posts or poles shall be reinstalled on new posts or poles as ordered by the Engineer. All costs shall be included in various items of the contract.

E. Finish

1. When so ordered, the Contractor shall paint newly installed steel poles, steel mast arms, and steel posts, which shall be painted in compliance with the Traffic Signal Standards, at no additional cost to Nassau County.

2. Galvanized steel poles, mast arms, and posts which have suffered abrasions due to handling, transportation, erection, etc., shall be repaired by an approved field galvanizing method, at no additional cost to Nassau County.

ITEM NO. 413..X

All of the requirements of section 413 of the Nassau County Traffic Signal Specifications & Standard Drawings shall apply with the following changes:

Furnishing of Materials

1. Nassau County will furnish new or refurbished traffic signal faces in various configurations as one-way signals. The equipment shall be issued to the Contractor at The Nassau County Traffic Signal Shop.

   Nassau County will furnish the following hardware:

   Post-Top Slipfitters
   Two-Way Top and Bottom Brackets
   Three-Way Top and Bottom Brackets
   Four-Way Top and Bottom Brackets
   Mast Arm Hangers Only Span
   Hangers Only

Note: The furnishing of this equipment by the County shall be reflected in the bid.

2. The Contractor shall furnish when required, stainless steel strapping, belly bands, pole mount brackets, elbows, nipples and other miscellaneous hardware, cable, transportation, all labor necessary for pick-up and delivery, loading and unloading; assembly into multi-faced heads when required, installation, miscellaneous painting to make all components the same standard County colors, removal and other incidentals necessary to complete the work. The unit of work shall be one (1) oneway signal face assembled, mounted as set forth by items.

3. The Contractor shall assemble the furnished signal faces into the one-way, two-way, three-way, four-way or other signal head combinations for mounting as shown on the intersection drawings or described by work orders.

4. All signal installations and removals performed in conjunction with street improvements shall be carried out in cooperation with and in coordination with schedules of other contractors and as directed by the Engineer.

5. Signals removed as ordered, shall be disassembled into one-way faces, and delivered and unloaded with all fittings and other parts to The Nassau County Traffic Signal Shop.

Note: All costs shall be included in the unit costs for removal.

C. Installation Requirements

1. The Contractor shall install all traffic signals at the locations and properly oriented as shown by the drawings, work orders, or as directed by the Engineer. The installations shall include the placement and fastening of hangers, hubs, and other fittings or supports necessary to locate the signals in the proper position.

2. The Contractor shall connect all signal L.E.D module wires and signal cable to the proper terminals in each signal head so as to provide the proper signal indications when placed in operation.

3. Each traffic signal installed prior to placing the installation in service shall be completely enveloped in a burlap sack or other hood approved by the Engineer. The hood shall be properly maintained until the signal is placed in operation. Cardboard or other similar material is not acceptable.

4. All traffic signal heads placed over the roadway shall be so installed as to provide minimum clearance of 15 feet 6 inches, but generally at sixteen (16) feet to the bottom of the signal head. Maximum clearance shall be nineteen (19) feet. This clearance shall be measured from the pavement to the lowest part of the assembly, including brackets and back plates. Signal faces shall be installed such that red sections are at the top end of the brackets and the height of each red section on a single approach shall be within 2" of each other.

5. All traffic signals mounted on the shaft of poles or posts shall be mounted with a minimum clearance of ten (10) feet and a maximum clearance of fifteen (15) feet above the sidewalk or pavement grade of the center of the highway, whichever grade is higher.

6. Signals installed on mast arms or span wires shall be fastened to the support with each face properly oriented and securely tightened and the hanger properly balanced and fastened.

7. Signals installed on the shafts of poles shall be mounted at the proper height using pole mount brackets and three-quarter (¾) inch stainless steel strapping and accessories, Type 301 AISI Specifications. The Contractor shall drill a hole in the post; and furnish and install an approved bushing for cable entrance. Each face shall be properly oriented and securely tightened in place.

8. Signals installed on top of a post shall be mounted with a slipfitter. Each face shall be properly oriented and securely tightened in place.

9. All hardware, such as nipples & mounting brackets shall be field painted with a brush with the appropriate color, after field installation, as ordered by the Engineer.

NASSAU COUNTY
TRAFFIC SIGNAL CONSTRUCTION & MODIFICATION
SPECIFICATIONS
CABLE

ITEM NO. 415..X

All of the requirements of section 415 of the Nassau County Traffic Signal Specifications & Standard Drawings shall apply with the following changes:

1. When directed by the Engineer, the Contractor shall remove any or all existing cable and reinstall the same cable in poles, posts, conduit, signals or on span wire. All costs shall be borne by the Contractor at no additional expense to the County.

2. When directed by the Engineer, the Contractor shall install new cable into existing signal heads and rewire as necessary. All costs shall be borne by the Contractor at no additional expense to the County.

3. The Contractor shall terminate all new cable installed. All costs for these terminations shall be included in the price bid for item 415.

4. Under the power cable items, 415P-6-2X and 415P-8-2X, the #6 and the #8 in the item number shall refer to the gauge of the conductor. The last number in the progression shall refer to the number of conductors.

5. Under the triplex item, 415-6AL-3X, the #6 shall refer to the gauge of the aluminum conductor and the last number in the progression shall refer to the number of conductors.

NASSAU COUNTY
TRAFFIC SIGNAL CONSTRUCTION & MODIFICATION
SPECIFICATIONS
COMMUNICATION CABLE

ITEM NO. 415C..X

All of the requirements of section 415C of the Nassau County Traffic Signal Specifications & Standard Drawings shall apply with the following changes:

A. Testing Requirements

No separate payment shall be made for this work. The cost of this work shall be included in the unit bid price for Item 415C.

Once all cable has been installed and terminated and all telemetry units connected, the following tests shall be performed:

1. Continuity Test

1.1 At the end of the cable, furthest from the computer room, each wire shall be jumpered to its' mate wire.

1.2 From the other end of the cable, the resistance shall be measured between each wire and its' mate wire.

1.3 The measured resistance should not be more than the maximum specified on the contract plans, documents or work order. The maximum resistance specified will be a function of the length of cable to be installed. The cable installation will not be accepted until this requirement is met or until the Engineer determines that the Contractor has made every possible effort to locate and eliminate any ground condition.

1.4 All jumpers shall be removed at the conclusion of this test.

1.5 Results of these tests shall be submitted to the Engineer.

2. Ground Test

2.1 At the end of the cable, furthest from the computer room, each wire shall be jumpered to its' mate wire.

2.2 From the other end of the cable, the resistance shall be measured between each wire and ground. The meter used for this test shall be capable of measuring a minimum of 10,000 ohms.

2.3 The resistance between each wire and ground should read infinity. The cable installation will not be accepted until this requirement is met or until the Engineer determines that the Contractor has made every possible effort to correct the situation.

2.4 All jumpers shall be removed at the conclusion of this test.

2.5 Results of these tests shall be submitted to the Engineer.

3. Signal Injection Test

3.1 A remote telemetry unit tester shall be hooked to each pair within the cable, at the end of the cable closest to the central computer. The RTU tester shall be capable of simulating the Central Computer in Mineola. A County-owned S80-04 RTU tester may be available for these tests. The Contractor should contact the central computer room for information regarding the use of this test equipment.

3.2 Data signals shall be sent from the tester along the entire length of cable. The signal strength shall be 2.0 volts peak to peak.

3.3 An oscilloscope shall be attached to the other end of the pairs being tested.

3.4 The measured signal strength at the far end of the cable shall not be less than 20 mV peak to peak.

3.5 The noise level shall not be more than 10 mV peak to peak.

3.6 The cable installation will not be accepted until these requirements have been met or until the Engineer determines that the Contractor has made every possible effort to locate and eliminate the source of the noise and/or the signal degradation.

3.7 Results of these tests shall be submitted to the Engineer.

NASSAU COUNTY
TRAFFIC SIGNAL CONSTRUCTION & MODIFICATION
SPECIFICATIONS
TRAFFIC SIGNAL CONTROLLER, CABINETS, AND AUXILIARY EQUIPMENT

ITEM NO. 416..X

A. Purpose

The purpose of this specification is to set forth the minimum requirements for the installation, modification or removal of traffic signal controllers, cabinets, and associated auxiliary equipment.

B. Basic Requirements

1. The County will furnish controllers, cabinets with terminal blocks, auxiliary equipment, and mounting plates at The Nassau County Traffic Signal Shop. The cost of loading, transporting, unloading, and storage of such equipment furnished by the County shall be at the Contractor's expense.

2. The Contractor shall install the controllers, cabinets, and auxiliary equipment as shown on the intersection item sheet, work order, or as directed by the Engineer. The Contractor may be required to perform signal head wiring changes. The Contractor may be required to disconnect and reconnect existing hardwire interconnect cables in the new cabinet. The costs incurred shall be included in the above item.

3. The cabinet shall be mounted on pole, post or foundation as described by the drawings or work order. The controller cabinet bottom mounting height shall be approximately 28" above the pavement area or as ordered by the Engineer. Those cabinets requiring LB condulets shall be mounted 28"-30" above the pavement area or as ordered by the Engineer. The auxiliary cabinet bottom mounting height shall be as ordered by the Engineer. The installation shall include the drilling of posts or poles, the welding of LB condulets, the fastening of supports, the connecting and splicing of all conductors. The Contractor shall supply all bolts, nuts, straps, LB condulets, condulets, nipples, mounting plates, and other materials required to secure the cabinet properly, and in accordance with the Traffic Signal Standards. The welding operation shall include provisions by the Contractor to cover and protect, by an approved method or remove and reinstall, any existing cabling in the poles at no additional expense. Any cable damaged by this operation shall be replaced by the Contractor at no additional expense to Nassau County.

4. The controller and auxiliary equipment shall be installed in and/or removed from the cabinet as specified in the Traffic Signal Standards. The auxiliary equipment shall include, but shall not be limited to, the following equipment: time clocks, computer telemetry units, detector sensors and detector amplifiers, synchronizers, coordination units, rack-mounted cards and any necessary harnesses. The unit of work for the installation of auxiliary equipment is per each work order; designated, one each.

5. The Contractor shall connect the equipment ground terminals of the controller to the equipment grounding stud in the base of the pole or ground mounted cabinet by a No. 6 AWG copper conductor.

6. The Contractor shall make all necessary splices using solder or, in lieu of soldering, approved solderless connectors. All splices shall be properly covered with vinyl plastic, self-fusing splicing tape, three-quarter (¾) inches wide and thirty (30) mils thick. The Contractor shall make all connections in the cabinet by means of approved solderless lugs.

7. Controllers, cabinets, and auxiliary equipment ordered removed, shall be delivered to The Nassau County Traffic Signal Shop. When a cabinet is removed, any holes left in the pole or post shall be plugged in a manner approved by the Engineer. If existing cable is not removed, it shall be left coiled in the base of the pole or post, or as otherwise directed by the Engineer.

8. Each controller including associated equipment shall be tested in operation with prescribed timing schedules, and all action shall be taken to assure proper operation, as directed by the Engineer. The contractor may be required to program the controller software to perform the desired functions of the traffic signal installation as designated on the sequence chart, plans, diagrams, or as directed by the Engineer. These program changes shall be performed at no additional expense to Nassau County.

9. The County will furnish wiring diagrams of any auxiliary equipment furnished by the County to be installed if available but will not furnish information as to connecting this equipment to the existing field terminals and equipment. It is the responsibility of the Contractor to obtain the schematic diagrams or electrical drawings of the traffic signal equipment located at the various intersections. Whatever diagrams or schematics that are available of existing field equipment, will be provided by the County, but their accuracy shall be verified by the Contractor in the field. All revised schematic diagrams or electrical drawings shall become the property of the County upon the completion of the work order.

10. When required, the Contractor shall furnish and install AND/OR remove wiring harnesses for County-supplied auxiliary equipment. The harnesses shall include the mating plug for the auxiliary equipment.

11. Whenever the Contractor receives a controller, cabinet or auxiliary equipment from the County, it is the responsibility of the Contractor to ensure that this equipment will function properly in the field, by bench testing this equipment at the Contractor's facilities. Any malfunctioning of this equipment during bench testing shall be repaired by the County.

12. When the equipment is removed from bench testing and installed in the field, the Contractor shall assume all responsibility for the equipment, installation and operation until final acceptance by the County with no recourse to the County.

13. When the Contractor receives equipment from the County and installs the equipment directly in the field without bench testing, the Contractor assumes all responsibility for the equipment, installation and operation until final acceptance by the County with no recourse to the County.

C. Method of Measurement

1. The quantity to be paid for shall be the number of each item installed or removed in compliance with the specifications and to the satisfaction of the Engineer. Installation of multiple items in the same cabinet shall be paid for as one unit.

2. Payment for each unit shall be at the unit price named in the Contract.

3. The unit price shall include the cost of installation, programming, welding, removal, pick-up, transportation, delivery, labor, hardware, and other incidentals necessary to complete the work to the satisfaction of the Engineer.

D. Basis of Payment

1. The item numbers shall be as follows:

Item	Description
416-1TX	Install Cabinet Only – per each
416-xTX	Install 2 ø through 8 ø (as designated - x) Controller, Cabinet, and Auxiliary Equipment - per each
416-9TX	Install and/or remove auxiliary equipment in existing cabinet – per cabinet

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ELECTRICAL CONDUIT, BENDS, AND RISER ASSEMBLIES

ITEM NO. 419..X

All of the requirements of section 419 of the Nassau County Traffic Signal Specifications & Standard Drawings shall apply except for the following changes:

Repairing or Replacing Damaged or Obstructed Underground Conduit and Bends

1. Where obstructed or damaged conduit is to be replaced, the Contractor shall open the existing conduit at the point of damage or obstruction, remove the damaged or obstructed section and shall install and connect a new section of conduit by an approved method.

2. Where bends in existing foundations are obstructed or damaged, the Contractor shall clear the obstructions or shall repair or replace the obstructed or damaged bends. The Contractor shall do all the necessary work to open the existing foundation, remove the obstructed or damaged bends and install new bends. The Contractor shall restore the foundation under the appropriate contract items, as directed by the Engineer.

3. Where the conduit has been repaired or replaced, the Contractor shall rod and clear the conduit run from terminus to terminus, subject to the approval of the Engineer before installing cable.

Riser Assembly Installation – 419R-1X, 419R-2X, 419R-3X

1. All risers shall be mounted on the back side of the wood pole away from traffic.

PULLBOXES

ITEM NO. 420..X

All of the requirements of section 420 of the Nassau County Traffic Signal Specifications & Standard Drawings shall apply with the following changes:

A. Pullbox Special Item 420-STX

1. Under this item, the Contractor shall install only a special pullbox furnished by the County, at a designated location.

2. The cost of loading, transporting, unloading, and the storage of such equipment furnished by the County, shall be at the Contractor's expense.

3. The Contractor shall install the special pullbox at the location, as shown on the intersection drawing, work order or as directed by the Engineer.

4. The special pullbox shall consist of a housing and cover. The approximate dimensions shall be:

   24" wide x 24" long x 24" deep

5. The special pullbox shall weigh less than seventy (70) pounds.

Item 420R-1 - Furnish & Install a Pullbox Frame & Cover on Existing Pullbox, Raise or Lower as Necessary

1. Under this item, the Contractor shall follow all of the requirements of Item 420R, regrading a pullbox frame & cover as necessary, except that the Contractor shall also furnish and install a new frame and cover meeting the requirements of General Item 420.

CLEAN EXISTING PULLBOXES

ITEM NO. 420ZX

A. Purpose

The purpose of this specification is to establish the minimum requirements to clean existing pullboxes (pullboxes not installed under this contract) before installing either cable in existing conduit, new conduit into existing pullboxes or boxes where cable and conduit exist.

B. Requirements

1. *Location*

   The Contractor shall clean existing pullboxes at the locations specified by the work orders or as ordered by the Engineer.

2. *Cleaning*

   Existing pullboxes shall be cleaned from their base between interior walls in a workmanlike manner and maintained clean as determined by the Engineer for the duration of the work order.

   All water shall be removed from existing pullboxes by pumping, bailing, hauling, or any other method approved by the Engineer. Water removed shall not cause soil erosion and shall be performed to avoid contamination of any other new or existing facilities.

   In the course of cleaning the designated pullboxes, any deteriorated bricks or mortar under the pullbox frame shall be repaired or replaced to the satisfaction of the Engineer.

   Materials removed shall become the property of the Contractor to dispose of in accordance with all applicable rules and regulations.

C. Damage

1. The Contractor shall execute care to protect all facilities within the pullbox and the area adjacent to the work. Included, but not limited to these facilities, are cables, conduits, bushings, ground wires, cable hangers, frames, covers, ground rods, sidewalks, curbs, pavements, lawns, etc.
2. The Contractor shall replace in kind any facilities damaged by his operations at his own expense as approved by the Engineer.

3. The Contractor is alerted that existing cables are both energized and deenergized but are to be considered energized. The Contractor shall assure that all work is undertaken with due care to maintain and protect both his employees, agents, etc. and that maintenance and protection of vehicular and pedestrian traffic is in accordance with the contract documents.

D. Method of Measurement

This work shall be measured for payment as the number of pullboxes actually cleaned in accordance with the contract documents and as ordered by the Engineer.

E. Basis of Payment

1. The unit price bid for this work shall include all costs for furnishing all labor, materials, tools, equipment, and incidentals necessary to complete the work.

2. The item number shall be as follows:

Item	Description
420ZX	Clean Existing Pullboxes - per each

NASSAU COUNTY
TRAFFIC SIGNAL CONSTRUCTION & MODIFICATION
SPECIFICATIONS
LOOP VEHICLE DETECTORS
LOOP WIRE ITEM NO. 422LX
AND
SAW CUT (LOOP) ITEM NO. 422LSX

All of the requirements of section 422L and 422LS 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 sensor loops shall be installed 11’ apart in the same lane (changed from 10’ apart).

NASSAU COUNTY
TRAFFIC SIGNAL CONSTRUCTION & MODIFICATION
SPECIFICATIONS REMOVALS

ITEM 424..X

All of the requirements of section 424 of the Nassau County Traffic Signal Specifications & Standard Drawings shall apply with the following changes:

1. All abandoned conduits shall have the cable removed and both ends of the conduit plugged with suitable mortar.

2. Under Item 424-8X, the contractor shall completely remove the steel post and foundation. The pushbutton shall be removed under separate item 424-27X.

3. Under Item 424-22X, the contractor shall saw cut back the existing pavement two (2) feet on all sides of the detector housing being removed, or as ordered by the Engineer.

4. Under Item 424-24X, the contractor shall completely remove the auxiliary steel pole and foundation. The Contractor shall return and unload the auxiliary pole at the Nassau County Traffic Signal Shop as ordered by the Engineer. The Contractor shall dispose of the removed foundation. Any attachments to the auxiliary pole shall be carefully removed and disposed of as ordered by the Engineer.

5. Under Item 424-25X, the Contractor shall completely remove the pullbox, frame & cover and backfill the excavation with suitable material as approved by the Engineer. The area shall be made to conform with the surrounding area as ordered by the Engineer. The Contractor shall return and unload the pullbox frame & cover to The Nassau County Traffic Signal Shop as ordered by the Engineer. The Contractor shall dispose of the concrete pullbox as ordered by the Engineer.

6. Under Item 424-26X, the Contractor shall remove the multi-lane magnetic detector from the conduit. The Contractor shall return the multi-lane magnetic detector to the Nassau County Traffic Signal Shop as ordered by the Engineer.

7. Under Item 424-27X, the Contractor shall remove the pedestrian pushbutton & sign from a pole or post as required. Any openings in a steel pole left by the removal of the pedestrian pushbutton & sign shall be sealed by a suitable method as approved by the Engineer. The Contractor shall return the pedestrian pushbutton & sign to The Nassau County Traffic Signal Shop as ordered by the Engineer.

8. Under Item 424-28X, the Contractor shall completely remove the riser assembly when required. The Contractor shall return and unload the riser assembly to The Nassau County Traffic Signal Shop as ordered by the Engineer.

9. Under Item 424-11AX, the item number shall indicate that it is a traffic signal face to be removed.

10. Under Item 424-11BX, the item number shall indicate that it is a pedestrian signal face to be removed.

11. The quantity to be paid for any removal item shall be the number of each item removed in accordance with the plans, intersection item sheets or as ordered by the Engineer,

12. The unit price shall include the cost of removing all traffic equipment, delivery, unloading, disposal, excavation, backfill, seed, sodding, all labor, equipment, tools, materials and incidentals necessary to complete the work.

13. The Item Number for removals shall be as follows:

424-1	Remove Post Foundation – per each
424-2	Remove Mast arm or strain pole foundation – per each
424-3	Remove Ground Mount Cabinet Foundation – per each
424-4	Remove Posts – per each
424-5	Remove strain pole – per each
424-6A	Remove Mast Arm & Pole – per each
424-6B	Remove Mast Arm Only – per each
424-7	Remove Wood Pole – per each
424-8	Remove 2½" Steel Pushbutton Post & Foundation – per each
424-9A	Remove Pole Mount Controller & Cabinet – per each
424-9B	Remove Ground Mount Controller & Cabinet – per each
424-10	Remove Ancillary Cabinet – per each
424-11AX	Remove Signal Face – per each
424-11BX	Remove Pedestrian Face – per each
424-12	Remove Span Wire Assembly – per assembly
424-13	Remove Back or Down Guy Assembly – per each
424-14	Remove Cable – per l.f.
424-21	Remove Single Lane Magnetic (includes magnetometers) – per each
424-22	Remove Single Lane Magnetic Housing – per each
424-23AX	Abandon Mast arm or strain pole foundation – per each
424-23BX	Abandon Post Foundation – per each
424-24X	Remove Auxiliary Pole – per each
424-25X	Remove Pullbox – per each

424-26X	Remove Multi-Lane Magnetic Detector from conduit – per each
424-27X	Remove Pushbutton & Sign Assembly – per each
424-28X	Remove Riser Assembly – per assembly

NASSAU COUNTY
TRAFFIC SIGNAL CONSTRUCTION & MODIFICATION
SPECIFICATIONS
INSTALLATION OF PEDESTRIAN SIGNALS

ITEM 426TX

All of the requirements of section 426 of the Nassau County Traffic Signal Specifications and Standard Drawings shall apply with the following changes:

1. Under item 426TX, installation of any type of pedestrian signal shall apply, although the County will generally be using LED symbolic countdown pedestrian signals.

NASSAU COUNTY
TRAFFIC SIGNAL CONSTRUCTION & MODIFICATION
SPECIFICATIONS
INSTALLATION OF PEDESTRIAN PUSHBUTTONS

ITEM 427*x*

All of the requirements of section 427 of the Nassau County Traffic Signal Specifications and Standard Drawings shall apply with the following changes:

1. Under item 427, the Contractor may be required to install special type pedestrian pushbuttons, that have audio & visual provisions, as indicated on the work order and/or intersection item sheet. These pushbuttons may have to be connected inside the pedestrian signals with special equipment that will be supplied by Nassau County as well as the usual terminal connections in the cabinet. All associated costs shall be included in the price bid for item 427. If the existing pedestrian signal needs to be removed and reinstalled in order to facilitate the installation of the pushbutton, the appropriate removal and installation items shall also be used.

NASSAU COUNTY
TRAFFIC SIGNAL CONSTRUCTION & MODIFICATION
SPECIFICATIONS
FURNISHING MATERIAL

ITEM RM

A. Purpose

The purpose of this specification is to set forth the minimum requirements for furnishing material as ordered by the Engineer.

B. Materials

1. The material shall include, but will not be limited to the following:

    a. Traffic Signal Heads and/or hardware
    b. Special Traffic Signal Controls
    c. Sign Assemblies
    d. Detection Equipment
    e. Poles & hardware
    f. Cabinet & Controller assemblies

2. All materials furnished by the Contractor shall be new and of excellent quality, acceptable and approved by the Engineer.

3. All materials shall conform to the Nassau County Traffic Signal Specifications & Standard Drawings, latest edition.

C. Installation

The Contractor shall furnish only the materials, when ordered by the Engineer. If necessary, the installation of the furnished materials shall be covered under the applicable items of this Contract.

D. Guarantee

1. All material and workmanship furnished under this specification, shall be guaranteed for a period of one (1) year from the date of completion of the Contract.

2. The Contractor shall be responsible for any defective parts, due to faulty material or workmanship, free from any expense to the County of Nassau, during the term of this guarantee, where such material is exposed to normal operating conditions.

3. Units or parts found damaged or imperfect when inspected after installation shall be replaced by the Contractor at his own expense, including all subsequent delivery and shipping charges.

E. Method of Measurement

1. The quantities to be paid for shall be the number of each item ordered by the Engineer, excluding tax.

2. The Contractor must supply a certified cost statement or invoice of his purchase prices.

3. Payment for each item shall be at the Contractor's purchase price plus the 5% gross profit and overhead shown on the bid schedule, excluding tax.

F. Basis of Payment

1. The item number shall be as follows:

Item	Description
RM	Furnishing Material

Note: The County of Nassau is Tax Exempt.