



PROJECT MANUAL

FOR

STATESVILLE AVENUE ITS PROJECT Fiber Optic Cable and Traffic Management Camera Installation

PROJECT NUMBER:

CDOT-ITS-15-522

CITY OF CHARLOTTE, NORTH CAROLINA

ADVERTISEMENT DATE:

May 3, 2016

2012 NCDOT STANDARD SPECIFICATIONS
v.150508

TABLE OF CONTENTS

DIVISION 00 - PROCUREMENT AND CONTRACTING REQUIREMENTS

Contents

00 10 00 – INVITATION TO BID 1

00 20 00 – INSTRUCTIONS TO BIDDERS..... 1

ARTICLE 1: DEFINITIONS1

ARTICLE 2: BIDDER’S REPRESENTATIONS.....2

ARTICLE 3: BIDDING PROCEDURES2

ARTICLE 4: BID AWARDS AND REJECTIONS.....3

ARTICLE 5: POST-AWARD.....4

00 40 00 – BID FORMS AND SUPPLEMENTS 1

ITEMIZED BID2

CBI FORM 3 - Subcontractor / Supplier Utilization Commitment..... 6

COMMERCIAL NON-DISCRIMINATION CERTIFICATION8

EXECUTION OF BID9

ACKNOWLEDGEMENT OF ADDENDA.....9

00 50 00 – ACCEPTANCE BY THE CITY 1

00 55 00 – CHARLOTTE BUSINESS INCLUSION (CBI) PROGRAM..... 1

00 60 00 – PROJECT FORMS..... 1

00 70 00 – STANDARD SPECIAL PROVISIONS..... 1

ARTICLE 1: NCDOT STANDARD SPECIFICATIONS.....1

ARTICLE 2: CITY STANDARD PROVISIONS4

00 75 00 PROJECT SPECIAL PROVISIONS..... 1

SPECIFICATIONS 1

00 90 00 – ADDENDA..... 1

LIST OF PLANS

Construction Plans of Proposed Statesville Avenue ITS Project

- Part A- Statesville Avenue: 55 Sheets Total
- Part B- CCTV Camera Installations: 10 Sheets Total

00 10 00 – INVITATION TO BID

The City of Charlotte (hereinafter the "City") will receive sealed bids for the following Project:

PROJECT NAME: Statesville Avenue ITS Project

PROJECT NUMBER: CDOT-ITS-15-522

BID DUE DATE AND TIME: Monday May 16, 2016, AT 3:00 PM (Local Time per clock in room CMGC 601)
BID OPENING LOCATION: Charlotte-Mecklenburg Government Center (CMGC)
600 East Fourth Street, 6th Floor Room 601
Charlotte, NC 28202

PRE-BID DATE AND TIME: Thursday May 5, 2016, AT 2:00 PM (Local Time per clock in room CMGC 601)
(Not Mandatory)

DESCRIPTION OF WORK:

Part A: The Statesville Avenue ITS Project includes the installation of approximately 2.25 miles of fiber optic cable in existing conduit and 1.1 miles of directionally bored conduit construction. This project also includes entrances and equipment for 8 existing traffic control cabinets, the installation of 7 traffic management cameras, 7 camera poles, and the installation of 28 handholes. This project also includes fiber splicing and testing.

Part B: CCTV Camera Installation includes the installation of 5 new camera poles and 5 traffic management cameras.

All work shall be in accordance with 2012 NCDOT Standard Specifications unless specified otherwise.

PLEASE READ ALL INSTRUCTIONS CAREFULLY BEFORE PREPARING AND SUBMITTING YOUR BID.

The bid form furnished by the City of Charlotte with the proposal shall be used and shall not be altered in any manner. **DO NOT SEPARATE THE BID FORM FROM THE PROPOSAL!**

Bidding documents, which includes a printed copy of one (1) Project Manual and one (1) half-size Drawing set, are available for a non-refundable charge of **\$45.00** (including tax) at the following:

Sudeep Vyas
Richa Graphics
800 North College Street
Charlotte, NC 28206
Email: Orders@richa.com (preferred contact method)

Bidders shall be properly licensed under North Carolina state law to perform the work. A **5%** bid security is required with each bid that equals or exceeds **\$100,000**.

The Bidder will indicate his or her North Carolina Contractor's License Number, Classification(s), and Limits in the space provided on the signature page of the proposal. This project requires the bidder to be a Public Utilities Contractor with a Communications Classification or a qualified Electrical Contractor.

The Contractor will require the services of a licensed Electrical Contractor to perform all work where active exposed power conditions exist within a "Traffic Controller Cabinet".

This project is subject to the requirements of the City's Charlotte Business INclusion Program to promote diversity, inclusion, and local business opportunities in the City's contracting and procurement process for Minority, Women, and Small Business Enterprises headquartered in the Charlotte Combined Statistical Area.

A SBE Contract Goal of 7% and a MBE Contract Goal of 0% have been established for this project.

For information regarding this Invitation to Bid, contact as follow:

Jennifer Miloy, Contracts Specialist
Charlotte Department of Transportation
600 East Fourth Street, Charlotte, NC 28202
(704) 336-3369; jmiloy@charlottenc.gov
Website: <http://epmcontracts.charmeck.org>

Please submit questions or inquiries at least three (3) calendar days before the Bid Due Date. Questions or inquiries past this deadline may not be addressed by the City prior to the Bid Due Date.

The City of Charlotte reserves the right to reject any and all bids and to waive any informalities or technicalities as it may deem to be in its best interest.

Changes in any entry shall be made by marking through the entry in ink and making the correct entry adjacent thereto in ink. A representative of the Bidder shall initial the change in ink. Do not use "White Out" or similar product to make corrections.

The bid shall be properly executed. All bids shall show the following information:

- Name of individual, firm, corporation, partnership, or joint venture submitting bid.
- Name of individual or representative submitting bid and position or title.
- Name, signature, and position or title of witness.
- Federal Identification Number
- Contractor's License Number (If available)

Bids submitted by corporations shall bear the seal of the corporation.

The bid shall not contain any unauthorized additions, deletions, or conditional bids.

The bidder shall not add any provision reserving the right to accept or reject an award, or to enter into a contract pursuant to an award.

00 20 00 – INSTRUCTIONS TO BIDDERS

ARTICLE 1: DEFINITIONS

Whenever the following terms are used in the NCDOT Standard Specifications, in any of the Contract Documents, or in the plans, the intended meaning of such terms shall be as follows:

- 1) **“Administrator”, “Chief Engineer”, or “State Highway Administrator”** shall mean the **“City Engineer”**
- 2) **“Alternate” or “Alternate Bid”** shall mean the amount stated in the Bid which may be added to or subtracted from the Base Bid amount if such Alternate(s) are accepted by the City.
- 3) **“Total Amount Bid” or “Total Base Bid”** shall mean the correct sum total obtained by adding together the amounts bid for every item in the proposal including contingencies or allowances, but excluding Alternates.
- 4) **“Board of Transportation”** shall mean **“City Council”**
- 5) **“City”** shall mean the **“City of Charlotte, North Carolina”**; the City is the Project Owner
- 6) **“City Engineer”** shall mean the **“Department Director of the City of Charlotte, Charlotte Department of Transportation or Engineering and Property Management Department”**
- 7) **“City Standard”** shall mean the latest edition of the applicable **“Charlotte Land Development Standards Manual (CLDSM)”, “Charlotte-Mecklenburg Storm Drainage Design Manual”, “Charlotte Mecklenburg BMP Design Manual” and “Charlotte-Mecklenburg Utility Department Policies, Procedures, Standards and Specifications”**
- 8) **“Construction Manager”, “Engineer”, “Division Engineer” or “Resident Engineer”** shall mean the City Engineer’s duly authorized Construction Manager to oversee the construction of the project
- 9) **“Contract”** shall mean the reciprocal undertakings, obligations, and rights of the City and the Contractor evidenced by the executed agreement and other Contract Documents between the City and the Contractor, covering the performance of and compensation of the Work.
- 10) **“Contract Amount”, “Total Contract Amount” or “Contract Sum”** shall mean the Total Base Bid plus Alternates accepted by the City.
- 11) **“Contract Documents”** shall consist of the Project Manual, the Contractor’s executed bid and forms, Acceptance by the City, and any change orders issued after execution of the contract.
- 12) **“Date of Availability”** shall mean **“Notice to Proceed Date”**
- 13) **“Department”, “Department of Transportation”, “Division of Highways”, and “Raleigh Central Office”** shall all mean **“City of Charlotte, Charlotte Department of Transportation or Engineering & Property Management Department”**
- 14) **“Electronic Bid”** shall mean the **“Electronic Bid Form”** and process as defined in Section 00 10 00 – Instructions to Bidders, Article 3 – Bidding Procedures, Subsection 3.3. – Bid Form.
- 15) **“Project Manual”** shall mean the complete set of bidding documents issued by the City of Charlotte, Charlotte Department of Transportation or Engineering & Property Management to include the Invitation to Bid, Instructions to Bidders, Bid Forms, sample project forms, conditions and special provisions of the contract, addenda issued prior to the execution of the contract, and drawings.
- 16) **“State”** shall mean **“City of Charlotte”**
- 17) **“State Contract Officer”** shall mean **“Contract Officer”**
- 18) **“Supplemental Agreements”** shall mean **“Change Orders”**

ARTICLE 2: BIDDER'S REPRESENTATIONS

2.1 Contractor's Licenses

Bidders shall be properly licensed under North Carolina state law to perform the Work specified in the Bidding Documents per **SECTION 102-14** of the NCDOT Standard Specifications.

2.2 Bidder Qualifications

Bidders shall be experienced in the class of work proposed who can refer to projects of similar magnitude and scope that have been successfully completed by them within the past three (3) years. Bidders to whom award of a Contract is under consideration may be required to submit to the City, upon request, a properly executed Contractor's Qualifications Statement. The Contractor's Qualifications Statement may include, but is not limited to, the Bidder's past projects, financial capability, staff qualifications and availability, references, litigation or claims against the Bidder, list of equipment available to execute the Work and NCDOT pre-qualification status. The City reserves the right to request such qualifications from Bidders as part of its bid evaluation. The Bidder's failure to submit the requested Qualifications Statement within the timeframe specified by the City may be grounds for bid rejection.

2.3 Site Investigation and Conditions Affecting the Work

By submitting a bid, Bidders certify to have carefully examined the Project site and familiarized themselves with the existing conditions on the Project, affecting the cost and execution of the work as described in **Section 102-6** of NCDOT Standard Specifications.

ARTICLE 3: BIDDING PROCEDURES

3.1 The Project Manual

The Project Manual is the bidding document and shall not be altered.

3.2 Addenda

Addenda will be published online at <http://epmcontracts.charmeck.org>. Bidders shall be responsible for inquiring if any addendum has been issued and shall acknowledge receipt of all addenda on the Bid Form. All addenda shall become part of the Contract Documents whether or not received or acknowledged by the Bidder.

3.3 Bid Form

Bidders shall complete and submit Section 00 40 00 "BID FORMS AND SUPPLEMENTS" of the Project Manual in its entirety for bid consideration. Bidders shall submit Bids using the Bid Form provided in the Bidding Documents. The Bid Form shall be completed in its entirety with all entries including signatures written legibly in ink. Unit prices shall be entered where required and applicable. Incomplete Bid Forms shall be subject to rejection at the discretion of the City.

3.4 Forms, Certifications, and Execution of Bid

Bidders shall complete each form, certification, and the Execution of Bid provided the Bidding Documents. Failure to complete and submit the required forms, certifications, and Execution of Bid may be grounds for bid rejection.

3.5 Bid Security

A **five-percent (5%)** bid security is required with each bid that equals or exceeds **\$100,000**. Bid Bond or Bid Deposit, made payable to the City of Charlotte, shall be provided in accordance with **Section 102-10** of NCDOT Standard Specifications.

3.6 Sales and Use Tax

Refer to Section 00 70 00 of this Project Manual for additional information on sales and use tax. The City reserves the right to request from the bidder after bid opening the estimated amount of total Eligible Taxes that were used to calculate the Bid and any supporting documentation of such. The Bidder, in submitting the Bid for consideration, agrees to provide any such sales or use tax estimates or documentation that may be requested by the City.

3.7 Submission of Bids

Bids shall be submitted in an opaque, sealed envelope, and printed with the following information on the outside of the envelope:

BID FOR:	_____	(Enter the Project Name as shown in the Bidding Documents)
BIDDER'S NAME:	_____	(Enter Full Name of Bidder submitting the bid)
PROJECT NUMBER:	_____	(Enter the Project Number as shown in the Bidding Documents)
DO NOT OPEN UNTIL:	_____	(Enter the Date and Time as shown in the Bidding Documents)

A secure bid box is located in the receptionist area on 6th floor or Charlotte-Mecklenburg Government Center Bids placed in the referenced bid box prior to the bid opening date and time will be opened at the bid opening and read aloud.

If a Bid is delivered by mail, the sealed envelope shall be placed inside another envelope. The outer envelope shall be addressed to: CITY OF CHARLOTTE, CHARLOTTE DEPARTMENT OF TRANSPORTATION, 6TH FLOOR RECEPTIONIST, 600 EAST FOURTH STREET, CHARLOTTE, NORTH CAROLINA 28202. The outer envelope and the inner envelope shall both be marked with the required information above. Late bids will not be accepted.

If the Bid is delivered in person, it shall be delivered to the bid opening location identified in the Invitation for Bids.

All Bids shall be delivered prior to the bid opening date and time specified in the Invitation for Bids.

Bidders are advised that building security may require a sealed package to be opened for inspection prior to entering the building. Bidders shall be responsible for ensuring bids are sealed prior to submission.

Bidders shall be responsible for the timely delivery of Bids at the bid opening location specified.

ARTICLE 4: BID AWARDS AND REJECTIONS

4.1 Bid Opening

Bid Opening will be conducted in accordance with **Section 102-13** of NCDOT Standard Specifications.

4.2 Rejection of Bids and Disqualification of Bidders

Rejection of Bids and Disqualification of Bidders will be provided in accordance with **Sections 102-14 and 102-15** respectively of NCDOT Standard Specifications.

4.3 Award and Execution of Contract

Award and execution of Contract will be in accordance with **Section 103** of NCDOT Standard Specifications.

The City will award the contract or contracts conditioned upon funds being available for construction and other governmental approvals as may be required.

The City reserves the right to accept Alternates in any order or combination. The City further reserves the right to determine the low bidder on the basis of the Total Base Bid with Accepted Alternates.

ARTICLE 5: POST-AWARD

5.1 Bonds and Insurance

For bids equal to or greater than **\$100,000**, the successful bidder shall provide the City with performance and payment bonds each in the amount equal to **one hundred percent (100%)** of the contract amount. Bonds shall be submitted to the City upon ten (10) calendar days of award of the Contract and shall be in conformance with NC GS 44A-33. Failure to provide acceptable bonds within ten (10) calendar days of award of the Contract shall be just cause for forfeiture of the bid bond or bid deposit and rescinding the award of the Contract. Award may then be made to the next lowest responsive, responsible bidder or the Project may be re-advertised at the City's sole discretion.

The Contractor shall also submit, within ten (10) calendar days of recommendation of award, a Certificate of insurance with the minimum amounts required in the Contract Documents.

5.2 Pre-Construction Conference

A pre-construction conference will be scheduled as soon as practical after award of the Contract. The Contractor shall attend the pre-construction conference with the prospective project superintendent, any anticipated major subcontractors and major suppliers. A proposed progress schedule in a form satisfactory to the Construction Manager and a statement of the anticipated monthly progress payments showing the percent of progress each month shall be submitted by the Contractor to the City. The Contractor shall also provide at least two (2) local telephone numbers that may be used to contact the Contractor or the Contractor's authorized representative in the event of an emergency after normal business hours. The Contractor shall also provide the name of the Contractor's on-site representative who is OSHA certified for trenching, shoring, and confined space entry.

5.3 Notice to Proceed

The City will issue a Notice to Proceed (NTP) to the Contractor upon award and execution of the contract. The Contractor shall not perform any Work prior to the date on which the NTP commences. The City reserves the right to issue an Administrative Notice to Proceed authorizing the Contractor to place orders for products requiring long lead times, or to obtain certain permits prior to beginning any Work. If an Administrative Notice to Proceed is issued, the Contractor shall not perform any Work prior to the date on which the Notice to Proceed commences.

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00 40 00 – BID FORMS AND SUPPLEMENTS

ITEMIZED BID

Contractor : _____

Project #: CDOT-ITS-15-522

Project Name: Statesville Avenue ITS Project-Part A

ITEM #	SECTION	ITEM	DESCRIPTION	NO. OF UNIT	UNIT	LABOR	MATERIAL	UNIT PRICE LABOR & MATERIAL	TOTAL PRICE
1	A	(15) - (60)PB/BD	CAMERA POLE AND FOUNDATION UNIT	2	EA				
2	A	(30) - (60)PB/BD	CAMERA POLE AND FOUNDATION UNIT	3	EA				
3	A	(35) - (60)PB/BD	CAMERA POLE AND FOUNDATION UNIT	2	EA				
4	BM	BM53A	ADHESIVE FIBER WARNING SIGN ASSEMBLY UNIT	3	EA				
5	BM	BM53 CM	UNDERGROUND FIBER CURB MARKER	36	EA				
6	BM	BM81	CABLE RISER GUARD UNIT	4	EA				
7	C	C(CAMERA)IP(A)	CAMERA ASSEMBLY INSTALLATION UNIT	7	EA				
8	C	CAT5(1)	CAT5 CABLE 1 METER	7	EA				
9	C	CF-CAT6ES	CAT6A SERVICE CABLE	7	EA				
10	CH	CHO-4(1)ST/LC	FIBER OPTIC JUMPER ASSEMBLY UNIT	32	EA				
11	CO	CO(6)E	AERIAL FILLED FIBER OPTIC CABLE ASSEMBLY UNIT	150	LF				
12	FO	FOE(TRX)(ESU)CI(4)	ETHERNET SWITCH UNIT/MODULE	8	EA				
13	FO	FOE(TRX)(ESU)(SFP)(GLX-R)	SFP UNIT (10KM)	16	EA				
14	HO	HO-1	FIBER OPTIC SPLICING ASSEMBLY UNIT	214	EA				
15	HU	HUO(48)L	UNDERGROUND FIBER OPTIC CLOSURE ASSEMBLY UNIT	9	EA				
16	PM	PM2	POLE GROUND ASSEMBLY UNIT	2	EA				
17	UO	U(8)ST(50')/ML	UNDERGROUND FILLED FIBER OPTIC PATCH PANEL STUB UNIT	1	EA				
18	UO	U(8)ST(100')/ML	UNDERGROUND FILLED FIBER OPTIC PATCH PANEL STUB UNIT	1	EA				
19	UO	U(8)ST(150')/ML	UNDERGROUND FILLED FIBER OPTIC PATCH PANEL STUB UNIT	3	EA				
20	UO	U(8)ST(175')/ML	UNDERGROUND FILLED FIBER OPTIC PATCH PANEL STUB UNIT	1	EA				
21	UO	U(8)ST(200')/ML	UNDERGROUND FILLED FIBER OPTIC PATCH PANEL STUB UNIT	1	EA				
22	UO	U(8)ST(250')/ML	UNDERGROUND FILLED FIBER OPTIC PATCH PANEL STUB UNIT	1	EA				
23	UD	UD(2-1.5" LW)HD	UNDERGROUND CONDUIT ASSEMBLY UNIT	105	LF				
24	UD	UD(2-2" LW)HD	UNDERGROUND CONDUIT ASSEMBLY UNIT	225	LF				
25	UD	UD(1-2" LW)DB	UNDERGROUND CONDUIT ASSEMBLY UNIT	90	LF				
26	UD	UD(2-1.5" LW)DB	UNDERGROUND CONDUIT ASSEMBLY UNIT	45	LF				
27	UD	UD(2-2" LW)DB	UNDERGROUND CONDUIT ASSEMBLY UNIT	4065	LF				
28	UD	UD(3-2" LW)DB	UNDERGROUND CONDUIT ASSEMBLY UNIT	1125	LF				
29	UD	UD(2-2"LW)DB(B)	UNDERGROUND CONDUIT ASSEMBLY UNIT-BUNDLED	555	LF				
30	UD	UD(3-2"LW)DB(B)	UNDERGROUND CONDUIT ASSEMBLY UNIT-BUNDLED	100	LF				
31	UD	UD-CB	CONDUIT BUILDING ENTRANCE UNIT	1	EA				
32	UD	UD-EX	CONDUIT PROOFING	400	LF				
33	UD	UD-SW	SIDEWALK REMOVE AND REPAIR UNIT	12	SQ				
34	UH	UH-1	UNDERGROUND HANDHOLE ASSEMBLY UNIT	12	EA				

ITEM #	SECTION	ITEM	DESCRIPTION	NO. OF UNIT	UNIT	LABOR	MATERIAL	UNIT PRICE LABOR & MATERIAL	TOTAL PRICE
35	UH	UH-2	UNDERGROUND HANDHOLE ASSEMBLY UNIT	16	EA				
36	UO	UO(12)	UNDERGROUND FILLED FIBER OPTIC CABLE ASSEMBLY UNIT	280	LF				
37	UO	UO(12)LW	UNDERGROUND FILLED FIBER OPTIC CABLE ASSEMBLY UNIT	50	LF				
38	UO	UO(24)	UNDERGROUND FILLED FIBER OPTIC CABLE ASSEMBLY UNIT	1125	LF				
39	UO	UO(48)LW	UNDERGROUND FILLED FIBER OPTIC CABLE ASSEMBLY UNIT	12815	LF				
40	UO	UO(48)	UNDERGROUND FILLED FIBER OPTIC CABLE ASSEMBLY UNIT	7235	LF				
41	W	(W) 10/(15)-5335	REPLACE 10' POLE WITH A 15' POLE	5	EA				
42	W	(W)CC	ACCESS TO TRAFFIC CONTROL CABINET	8	EA				
43	W	(W)CO 72/E	CABLE RE-LASHING UNIT	80	LF				
44	W	(W)PM25(EP5A)	ELECTRIC PEDESTRIAN SIGNAL ASSEMBLY REARRANGEMENT	5	EA				
45	W	(W)PM25(PSA)	PEDESTRIAN SIGN ASSEMBLY REARRANGEMENT	5	EA				
46	W	(W)PM-ELB	IN-SPAN FIBER OPTIC CABLE-SLACK STOW REARRANGEMENT UNIT	1	EA				
47	W	(W)SC	USE OF SPARE CONDUIT ENTRENCE/ACCESS TO TCB	1	EA				
48	W	(W)UD	UNDERGROUND CONDUIT ACCESS UNIT	6	EA				
49	XX	(XX)UF	REMOVAL OF EXISTING COPPER CABLE	400	LF				
SUBTOTAL COST									
15% CONTINGENCY									
TOTAL COST									

Do **not** include any North Carolina Sales and Use Tax that qualifies as Eligible Taxes per Section 00 70 00, Subsection 2.17 "Sales and Use Tax".

ITEMIZED BID- CONTINUED

Contractor : _____

Project #: CDOT-ITS-15-522

Project Name: CCTV Camera Project-Part B

ITEM #	SECTION	ITEM	DESCRIPTION	NO. OF UNITS	UNIT	LABOR	MATERIAL	UNIT PRICE LABOR & MATERIAL	TOTAL PRICE
1	A	(35)-(808) PB/BD	CAMERA POLE AND FOUNDATION UNIT	4	EA				
2	A	(25)-(808) PB/BD	CAMERA POLE AND FOUNDATION UNIT	1	EA				
3	A	BM2	CAMERA POLE AND FOUNDATION UNIT	5	EA				
4	BM	BM53A(OF)	ADHESIVE FIBER WARNING SIGN ASSEMBLY UNIT	9	EA				
5	BM	BM53PA(OF)	ADHESIVE POWER WARNING SIGN ASSEMBLY UNIT	9	EA				
6	BM	BM81	CABLE RISER GUARD UNIT	4	EA				
7	C	C(CAMERA)IP(A)	CAMERA ASSEMBLY INSTALLATION UNIT	5	EA				
8	CAT5(1)	CAT5 CABLE 1 METER	CAT5 CABLE 1 METER	5	EA				
9	CF-CAT8ES	CAT8A SERVICE CABLE	CAT8A SERVICE CABLE	5	EA				
10	UD	UD(1-2"LW)HD	UNDERGROUND CONDUIT ASSEMBLY UNIT	110	LF				
11	UD	UD-SW	SIDEWALK REMOVE AND REPAIR UNIT	10	SQ				
12	UD	UD(RC/WH)	2' RISER GUARD UNIT RISER ASSEMBLY UNIT	95	EA				
13	W	(W)PM25(EPSA)	ELECTRIC PEDESTRIAN SIGNAL ASSEMBLY REARRANGEMENT	2	EA				
14	W	(W)PM25(PSA)	PEDESTRIAN SIGN ASSEMBLY REARRANGEMENT	2	EA				
15	W	(W)RISER	CONDUIT RISER REARRANGEMENT UNIT	4	EA				
16	W	(W)UH	PLACING CONDUIT AND/OR CABLE IN EXISTING HANDHOLE UNIT	3	EA				
SUBTOTAL COST									
15% CONTINGENCY									
TOTAL COST									

Do **not** include any North Carolina Sales and Use Tax that qualifies as Eligible Taxes per Section 00 70 00, Subsection 2.17 "Sales and Use Tax".

ITEMIZED BID- CONTINUED

Contractor : _____
Project #: CDOT-ITS-15-522
Project Name: Statesville Avenue ITS Project-**t A** and CCTV Camera Project-**Part B**

PROPOSAL SUMMARY PART A & PART B

Part A Total	\$ _____
Part B Total	\$ _____
 SUBTOTAL	 \$ _____
 15% CONTINGENCY ALLOWANCE	 \$ _____
 TOTAL	 \$ _____

CBI FORM 3 - Subcontractor / Supplier Utilization Commitment
 (page 1 of 2)

This form **SHALL** be submitted at the time of Bid Opening. *Copy this CBI Form 3 as needed.*
 Failure to properly complete and submit Form 3 with the Bid constitutes grounds for rejection of the Bid.

Per Part B, Section 3.5 of the CBI Policy, the Subcontractor/Supplier Utilization Commitment (**CBI Form 3**), captures information regarding the MSBEs and other subcontractors and suppliers that the Bidder intends to use on the Contract **FOR ALL TIERS.**

Bidder Name:			
Project Name:	Statesville Avenue ITS Project		
Project Number:	CDOT-ITS-15-522	Established SBE Goal:	7%
		Established MBE Goal:	0%

List below all **MSBEs (Non-Hauling Services)** that you intend to use on this contract. **NOTE: You will only receive credit for SBEs that are currently certified with the City as of the Bid Opening Date. Furthermore, you will only receive credit for MBEs that are registered with the City as of Bid Opening Date and who have an ethnic designation of African American, Hispanic, or Native American.**

MSBE Vendor Name (Non-Hauling Services)	Mark X for each Certification		Description of work / materials	NIGP Code	Vendor #	Total Projected Utilization (\$)
	SBE	MBE				

List below all MSBEs that you intend to use for **hauling services** on this contract and the Total Projected Utilization (\$) for all hauling services for the contract. **If the project has both MBE and SBE subcontracting goals established and the Bidder utilizes a hauling vendor that is both a MBE and a SBE, the Bidder shall designate the specific dollar amount to be committed to that hauling vendor. The Bidder will still indicate the total utilization for haulers that are only SBE certified.**

MSBE Vendor Name (Hauling Services)	Mark X for each Certification		Description of work / materials	NIGP Code	Vendor #	Utilization (\$)
	SBE	MBE				
						Input Total SBE Hauling Utilization

Total SBE Utilization \$ _____

Total MBE Utilization \$ _____

Total Bid Amount (including Contingency and excluding Allowance Amount) \$ _____

Percent SBE Utilization* (Total SBE Utilization *divided by* Total Bid Amount) _____ %

Percent MBE Utilization* (Total MBE Utilization *divided by* Total Bid Amount) _____ %

*THE MSBE Utilization percentage stated **MUST** be rounded to two (2) decimal places

CBI FORM 3: Subcontractor / Supplier Utilization Commitment (page 2 of 2)

List below all non-MSBEs subcontractors and suppliers that you intend to use on this contract:

Vendor Name	Description of work / materials	NIGP Code	Vendor #	Projected Utilization (if known) (\$)

Letters of Intent submitted upon notice from the City

Per Part B, Section 3.6 of the CBI Policy, within three (3) Business Days after receiving a request from the City (or within such longer time as may be communicated by the City in writing), Bidders must submit a separate Letter of Intent (**CBI Form 4**) for each MSBE listed on **CBI Form 3** and for any additional MSBEs for which the Bidder seeks credit under the last sentence of Part B, Section 3.5. Each Letter of Intent must be executed by both the MSBE and the Bidder. The City shall not count proposed MSBE utilization for which it has not received a Letter of Intent by this deadline. Per Part B, Section 3.3, a Regular Dealer as defined in the CBI Policy shall only count 60% of all expenditures towards the established Subcontracting Goal(s). In addition, a Hauler, Broker, or Packager shall only count fees or commissions charged by the established Subcontracting Goal(s). The Bidder is still obligated to pay the MSBE the full amount listed on the Contract with the MSBE regardless of what percentage is actually counted towards the established Subcontracting Goal(s).

Adding subcontractors or suppliers after submitting this form

Nothing in this certification shall be deemed to preclude you from entering into subcontracting arrangements after submission of this form. However, per Part D of the CBI Policy, you must comply with the following:

- You must maintain the level of MSBE participation proposed on this **CBI Form 3** (and **CBI Form 3A**, if applicable) throughout the duration of the Contract, except as specifically allowed in Part D.
- If you need to terminate or replace a MSBE, you must comply with Part D, Section 5.
- If the scope of work on the Contract increases, or if you elect to subcontract any portion of work not identified on this form as being subcontracted, then you must comply with Part D, Section 6.
- A Letter of Intent (**CBI Form 4**) must also be submitted for each MSBE you add subsequent to contract award.

All Subcontractors and Suppliers must be registered with the City of Charlotte.

Pursuant to the City’s Vendor Registration Policy, each subcontractor or supplier (non-MSBEs and MSBEs) that you use on this contract must be registered in the City’s vendor database. You will need to provide the vendor number for each subcontractor or supplier used on this contract as a condition for receiving payment on this Contract.

Signature

Your signature below indicates that the undersigned firm certifies and agrees that:

- It has complied with all provisions of the CBI Policy; and,
- Failure to properly document such compliance in the manner and within the time periods established by the CBI Policy shall constitute grounds for rejection of your bid.

Signature of Authorized Official	Printed Name	Title	Submittal Date

COMMERCIAL NON-DISCRIMINATION CERTIFICATION

Project: Statesville Avenue ITS Project

Name of Company (Bidder): _____

The undersigned Bidder hereby certifies and agrees that the following information is correct:

1. In preparing the enclosed bid, the Bidder has considered all bids submitted from qualified, potential subcontractors and suppliers and has not engaged in discrimination as defined in Section 2.
2. For purposes of this Section, *discrimination* means discrimination in the solicitation, selection, or treatment of any subcontractor, vendor or supplier on the basis of race, ethnicity, gender, age, religion, national origin, marital status, familial status, sexual orientation, gender identity, gender expression or disability or any otherwise unlawful form of discrimination. Without limiting the foregoing, *discrimination* also includes retaliating against any person or other entity for reporting any incident of *discrimination*.
3. Without limiting any other remedies that the City may have for a false certification, it is understood and agreed that, if this certification is false, such false certification will constitute grounds for the City to reject the bid submitted with this certification and terminate any contract awarded based on such bid. It shall also constitute a violation of the City's Commercial Non-Discrimination Ordinance and shall subject the Bidder to any remedies allowed thereunder, including possible disqualification from participating in City contracts or bid processes for up to two years.
4. As a condition of contracting with the City, the Bidder agrees to promptly provide to the City all information and documentation that may be requested by the City from time to time regarding the solicitation and selection of subcontractors in connection with this solicitation process. Failure to maintain or failure to provide such information shall constitute grounds for the City to reject the bid submitted by the Bidder and terminate any contract awarded on such bid. It shall also constitute a violation of the City's Commercial Non-Discrimination Ordinance and shall subject the Bidder to any remedies allowed thereunder.
5. As part of its bid or proposal, the Bidder or Proposer shall provide to the City a list of all instances within the past ten years where a complaint was filed or pending against Bidder or Proposer in a legal or administrative proceeding alleging that Bidder or Proposer discriminated against its subcontractors, vendors or suppliers, and a description of the status or resolution of that complaint, including any remedial action taken.
6. As a condition of submitting a proposal to the City, the Bidder agrees to comply with the City's Commercial Non-Discrimination Policy as described in Section 2, Article V of the Charlotte City Code, and consents to be bound by the award of any arbitration conducted thereunder.

By: _____
Signature of Company's Authorized Representative

Title: _____

Date: _____

EXECUTION OF BID

NON-COLLUSION AFFIDAVIT, DEBARMENT CERTIFICATION AND GIFT BAN CERTIFICATION

The person executing the bid, on behalf of the Bidder, being duly sworn, solemnly swears (or affirms) that neither he, nor any official, agent or employee of the Bidder has entered into any agreement, participated in any collusion, or otherwise taken any action which is in restraint of free competitive bidding in connection with any bid or contract, that the Bidder has not been convicted of violating North Carolina General Statute 133-24 within the last three years, and that the Bidder intends to do the work with its own bona fide employees or subcontractors and is not bidding for the benefit of another contractor.

In addition, execution of this bid in the proper manner also constitutes the Bidder's certification of status under penalty of perjury under the laws of the United States in accordance with the Debarment Certification attached, provided that the Debarment Certification also includes any required statements concerning exceptions that are applicable.

NC General Statute 133-32 prohibits the offer to, or acceptance by, any City employee of any gift from anyone with a contract with the City or State, or from any person seeking to do business with the City of Charlotte. By execution of any response in this procurement, you attest, for your entire organization and its employees or agents, that you are not aware that any such gift has been offered, accepted, or promised by any employees of your organization.

In the event the Bidder is awarded the Contract, execution of the Bid by the Bidder is considered the same as execution of the Contract. Affixing the corporate seal to this document is only intended to verify the officer signing on behalf of the corporation has the authority to do so.

The undersigned, having carefully examined the site and familiarized himself with the existing conditions on the Project area affecting the cost of work and hereby proposes to furnish all supervision, labor, equipment, materials and services required to construct and complete the Project in accordance with the Project Manual at and for the Total Amount Bid, excluding any Allowances, such as contingency, which may be used by the Contractor only upon written instructions from the Engineer in accordance with the terms of this Contract.

Type of Bidder: Sole Proprietor Partnership Corporation Limited Liability Company
(check 1 box) Joint Venture

(if joint venture, complete this "Execution of Bid" sheet for each joint venture company and identify the "Name of Joint Venture" on each sheet)

NAME OF JOINT VENTURE: _____

Company Name: _____

Mailing Address: _____

City/State/Zip: _____

Phone: _____ Email: _____

Printed Name: _____ Title: _____

Signature: _____ NC Gen. Contractor License #: _____

Subscribed and sworn to before me this _____ day of _____ 201____

Signature of Notary Public _____

of _____ County

State of _____

My Commission Expires: _____

Acknowledgement of Addenda

The undersigned acknowledges receipt of the following addenda (initial next to each addendum):

1: Date: # 2: Date: # 3: Date: # 4: Date: # 5: Date: # 6: Date:

00 50 00 – ACCEPTANCE BY THE CITY

A CONTRACT FOR:

PROJECT NAME: Statesville Avenue ITS Project

PROJECT NUMBER: CDOT-ITS-15-522 CONTRACT NUMBER: _____

CONTRACT AMOUNT (\$): _____

THIS CONTRACT (the "Contract") is made and entered into and shall be effective as of _____, 2016 (the "Effective Date"), by and between the CITY OF CHARLOTTE, a North Carolina Municipal corporation (the "City"), and _____, a company doing business in North Carolina (the "Contractor").

WHEREAS the City of Charlotte advertised an Invitation to Bid (ITB) for the Project on _____, together with all attachments and addenda,

WHEREAS the Contractor submitted to the City a Bid on _____ in response to the ITB, together with all attachments and separately sealed confidential trade secrets, herein referred to as the "Bid",

WHEREAS the execution of the Bid is the same as the execution of the Contract by the Contractor,

WHEREAS the City of Charlotte Council, on _____, authorized the City to enter into this Contract with the Contractor for construction services for the Project,

WHEREAS this Contract includes the following:

- a. Project Manual, including all addenda issued prior to execution of the Contract;
- b. Plans;
- c. Contractor's Bid;
- d. Performance & Payment Bonds;
- e. Acceptance by the City; and
- f. Executed Change Orders issued after execution of the Contract.

WHEREAS the City and the Contractor now desire to fully execute this Contract for the Contractor to provide construction services for the Project in accordance with the terms and conditions set forth in the Contract,

NOW, THEREFORE, the City of Charlotte, acting through its City Council, has caused this Contract to be executed in the name of the City of Charlotte by an authorized official.

CITY OF CHARLOTTE:

ATTEST:

By: _____
Print Name: _____
Title: _____
Date: _____

By: _____

00 55 00 – CHARLOTTE BUSINESS INCLUSION (CBI) PROGRAM

CBI Policy adopted April 8, 2013

The City of Charlotte has a long history of creating and implementing strategies to support and encourage local business growth. In 2013, Charlotte City Council adopted the Charlotte Business INclusion Policy to promote diversity, inclusion, and local business opportunities in the City's contracting and procurement process for Minority, Women, and Small Business Enterprises (MWSBEs) headquartered in the CSA, Charlotte Combined Statistical Area*.

A complete list of City of Charlotte certified Small Business Enterprises (SBEs) and City of Charlotte registered Minority and Women Business Enterprises (MWBEs) is available on the City's website at www.charlottebusinessinclusion.com

Project Subcontracting

Goals:

SBE Goal¹: 7%

MBE Goal²: 0%

* The Charlotte CSA consists of the following 13 counties:

In NC: Anson, Cabarrus, Cleveland, Gaston, Iredell, Lincoln, Mecklenburg, Rowan, Stanly, and Union

In SC: Chester, Lancaster, and York

MSBE references throughout this document and CBI Forms 1-6 may refer to a SBE Subcontracting Goal, MBE Subcontracting Goal, or MBE and SBE Subcontracting Goals. The information in the Subcontracting Goal box above will supersede any general references in this document.

¹The SBE Goal established for this project can only be met with City of Charlotte Certified SBEs.

²The MBE Goal established for this project can only be met with City of Charlotte registered MBEs that have been certified as a Historically Underutilized Business by the State of North Carolina who have an ethnic designation of:

- African American
- Hispanic
- Native American

1. APPLICATION:

The City's Charlotte Business INclusion (CBI) Policy is incorporated into and made a part of this solicitation and the resulting contract (the "Contract"). Copies of the CBI Policy may be obtained by:

Internet: www.charlottebusinessinclusion.com

Mail: Charlotte Business INclusion Office
 600 East Trade Street, Suite 300
 Charlotte, North Carolina 28202

Capitalized terms used in this document shall have the meanings set forth in Part A, Appendix 1 of the CBI Policy. Each reference to "you" or "your" in these provisions refers to any entity that submits a bid, proposal or statement of qualifications on a City contract, and any entity that enters into a contract with the City.

For this solicitation, the CBI Policy requires that you either (a) meet the established Subcontracting Goal, as listed in the first page of this document; or (b) comply with the Good Faith Efforts and Good Faith Negotiation requirements referenced in Section 3 below. ***Failure to comply with the CBI Policy in the bid phase constitutes grounds for rejection of your bid. Failure to comply after contract award may result in assessment of damages and/or termination of your contract.***

2. SUBCONTRACTING GOALS:

You must submit your proposed MSBE utilization for this Contract on CBI Form 3 (Subcontractor/Supplier Utilization Commitment Form) listing subcontractors and suppliers that will be providing goods or services.

In measuring MSBE Goal attainment, a firm that is certified as both an SBE by the City and also registered with the City as an MBE shall be counted in both the SBE category and the MBE category. For example, work committed to an SBE that is also an MBE shall count toward both the SBE and MBE Project Goals.

MSBE established Goals can only be met with City of Charlotte registered MBEs that have been certified as a Historically Underutilized Business by the State of North Carolina who have an ethnic designation of:

- African American
- Hispanic
- Native American

CBI Form 3 SHALL be submitted with your bid. Failure to submit CBI Form 3 with your Bid shall constitute grounds for rejecting the Bid.

Bidders shall state the projected dollar amount for each MSBE firm listed on their CBI Form 3 and indicate the total dollar value of MSBE participation for the contract. In the event the Bidder has no MSBE participation, the Bidder is still required to indicate this on CBI Form 3 by entering the word or number zero. Blank forms will be deemed to represent zero participation. The City will only give Bidders credit towards the established Subcontracting Goal that:

- a. Is listed on CBI Form 3 submitted with the Bid; and
- b. Is listed on CBI Form 3A (when applicable); and
- c. Is documented by CBI Form 4 (CBI Letter of Intent) which is submitted to the City within three (3) Business Days after the City requests it; and
- d. Meets all of the requirements of Part B Section 3 of the CBI Policy.

NOTE: MSBEs listed on CBI Form 3 shall be actively certified/registered with the City of Charlotte as of bid date and shall be performing a Commercially Useful Function as defined in Part A of the CBI Policy.

Bids submitted that do not have the above required MSBE information indicated on CBI Form 3 constitutes grounds for the Bid to be considered non-responsive and rejected.

The established Subcontracting Goal will represent the total dollars to be spent with MSBEs as a portion of the total bid amount, **which includes Contingency and excludes Allowances**. The MSBE percentage will be rounded to two decimal places. As an example, if the MSBE percentage is 3.571, it should be listed as 3.57% or if it is 3.578, it should be listed as 3.58%. The percentage will not be rounded to the next "whole" number, i.e., 4%. A Bidder may round up if the third number after the decimal is a five (5) or greater.

In the event Alternates are selected by the City, the established Subcontracting Goal for this Contract will apply to the total contract amount, including Contingency, selected Alternates and excluding Allowances ("Total Contract Amount"). If a low Bidder would meet the established Subcontracting Goal on the base bid amount, but would not meet the established Subcontracting Goal for the Alternates selected by the City, the Bidder will have three (3) days after the City notifies it of its low bid status to secure enough additional participation to meet the established Subcontracting Goal calculated on the Total Contract Amount. The low Bidder will be required to utilize CBI Form 3A to meet this requirement. This in no way exempts the bidder from the CBI requirements due at bid time.

If the Bidder fails to meet the established Subcontracting Goal, calculated on the Total Contract Amount, then the Bidder shall earn the Minimum Good Faith Effort (GFE) Points and meet the Good Faith Negotiation requirements set forth in Part B, Sections 4 and 5 of the CBI Policy. GFE Points will be calculated, independently, for each Subcontracting Goal that is not met. For instance, if the Bidder fails to meet both the SBE Goal and/or the MBE Goal that was set with respect to African American, Native American and Hispanic firms, the Bidder will have to earn the minimum GFE points for SBEs, and also the minimum GFE points for MBEs.

If the Bidder fails to meet the SBE Goal and MBE Goal on the Total Contract Amount, and fails to earn the required Good Faith Efforts points, the Bid will be rejected.

The City will request CBI Form 4 Letters of Intent if you are a finalist for contract award. You shall submit a separate CBI Form 4 for each MSBE subcontractor/supplier identified on CBI Form 3 (and CBI Form 3A, if applicable) within three (3) Business Days after the City requests it.

3. GOOD FAITH EFFORTS and GOOD FAITH NEGOTIATION:

IF BOTH A MBE AND SBE SUBCONTRACTING GOAL ARE ESTABLISHED, BOTH SUBCONTRACTING GOALS SHALL BE MET. IF YOU DO NOT MEET THE ESTABLISHED SUBCONTRACTING GOALS, then you must earn the Minimum Good Faith Effort (GFE) Points and meet the Good Faith Negotiation requirements as set forth in Part B, Sections 4 and 5 of the CBI Policy.

Detailed information of the City's Good Faith Efforts and Good Faith Negotiation requirements can be found in the CBI Policy, Part B, Sections 4 and 5. Failure to meet the Good Faith Efforts and Good Faith Negotiation requirements will constitute grounds for rejection of your bid.

Documenting Good Faith Efforts. To demonstrate Good Faith Efforts (GFE) compliance, Bidders shall complete and submit CBI Form 5: Good Faith Effort (GFE) and Statement of GFE Compliance. A minimum of fifty (50) GFE Points must be earned for each Subcontracting Goal not met. If more than one Subcontracting Goal is not met, then Bidders will be required to complete and submit a separate form for each unmet goal.

CBI Form 5 lists GFEs and the number of points attainable for each type of Good Faith Effort. The City will request your Good Faith Effort (GFE) / Statement of GFE Compliance if you are an apparent low Bidder for contract award, and you must submit CBI Form 5 and all supporting documentation within three (3) Business Days after the City requests it.

In deciding whether to award GFEs, the City will assess whether the efforts employed by the Bidder are those that a prime contractor would reasonably be expected to take if actively and aggressively trying to meet the established Subcontracting Goal for the Contract. This assessment will be made on a case-by-case basis taking all available facts into account. The focus will be on the likely effectiveness of steps taken. Mere pro forma efforts will not be sufficient.

In awarding GFEs, the City may also take into account: (1) the Bidder's past performance in meeting Subcontracting Goals; and (2) the performance of other Bidders in meeting the established Subcontracting Goal on the Contract up for award. For example, when the apparent low Bidder fails to meet the established Subcontracting Goal, but other Bidders meet it, the City may reasonably raise the question of whether, with additional reasonable efforts, the apparent low Bidder could have met the goal.

It is important that you carefully review Part B, Sections 4 and 5 of the CBI Policy in order to understand and comply with all requirements. **All actions necessary to earn the required GFE Points shall be undertaken prior to Bid Opening.** Failure to comply with the requirements set forth in this section shall constitute grounds for rejecting a bid.

3.1 MSBE Contacts.

To receive credit for GFE 5.3.1, MSBE Contacts, at least ten (10) Days prior to Bid Opening, the Bidder must contact MSBE firms in a manner reasonably calculated to meet the established Subcontracting Goal for the Contract. A MSBE Vendor List can be located at www.charlottebusinessinclusion.com.

Please refer to Part B, Section 5.3.1 of the CBI Policy regarding how these Contacts must be made and documented. Contacts are to be recorded on CBI Form 2: CBI Solicitation Form, which is submitted along with CBI Form 5, within three (3) Business Days after requested by the City.

3.2 Good Faith Negotiation.

Bidders shall negotiate in good faith with all interested MSBE firms. Part B, Section 4 of the CBI Policy defines what negotiating in "Good Faith" means. Among other things, it means that if a MSBE is low bid on a contract for construction or for the procurement of goods, then you must contract with that MSBE unless it is not "Qualified" within the meaning of the CBI Policy.

3.3 MSBE Assistance Organizations.

To receive credit for GFE 5.3.4, Working with MSBE Assistance Organization, the Bidder shall document that it worked with one of the following organizations, as described in Part B, Section 5.3.4 of the CBI Policy:

- Metrolina Minority Contractors Association (MMCA)
- Hispanic Contractors Association of the Carolinas (HCAC)
- United Minority Contractors of North Carolina (UMCNC)
- Carolinas Association of General Contractors (CAGC)

3.4 Self-Performance.

A Bidder that intends to perform 100% of the work on a Contract with its own workforce may submit an affidavit (CBI Form 1) stating that the Bidder does not customarily subcontract elements of this type project, and normally performs and has the capability to perform and will perform all elements of work on this contract with its own current workforces. In such event the Bidder shall not be required to comply with Part B, Section 5 of the CBI Policy. However, if the Bidder is not licensed to perform each and every type of work included in the Contract, or if the City has cause to believe based on past practice or other grounds that the Bidder will not be performing all work under the Contract with its own workforce, then the City may reject the Bidder's Bid for non-compliance with the CBI Policy.

4. PROJECT DOCUMENTS / PLANS AND SPECIFICATIONS:

Plans and Specifications may be viewed at City of Charlotte, Charlotte Department of Transportation, 6th Floor Reception Desk, 600 East Fourth Street, Charlotte, NC 28202-2844.

5. MANDATORY SUBCONTRACTING REQUIREMENTS:

Per Part B, Section 2.4 of the CBI Policy, City Council has the authority to establish mandatory subcontracting requirements for certain contracts. The box checked below indicates whether such requirements have been established for this Contract:

- City Council has established a mandatory subcontracting requirement of seven percent (7 %) for this Contract.
- City Council has not established a mandatory subcontracting requirement for this Contract.

6. CBI POLICY PROVISIONS APPLICABLE AFTER CONTRACT AWARD:

If you are awarded a Contract with the City, note in particular the following Part D Sections of the CBI Policy regarding Post Contract Award Requirements and activity:

- I. Compliance with the committed established Subcontracting Goal throughout Contract completion (Part D, Section 2)
- II. Performance of a Commercially Useful Function and affiliate status (Part D, Section 3)
- III. Terminating or Replacing an MSBE on the Contract (Part D, Section 5)
- IV. New Subcontractor Opportunities (Part D, Section 6)
- V. Renewals (Part D, Section 7)
- VI. Payments to MSBEs (Part D, Section 8)
- VII. Utilization Reports and Documentation of Payments (Part D, Section 9)
- VIII. Remedies and Liquidated Damages (Part D, Section 14)

7. CBI CONTRACT PROVISIONS:

The following provisions are incorporated into any contract that may result from this solicitation.

Charlotte Business INclusion. The City has adopted a Charlotte Business INclusion Policy ("CBI Policy"), which is posted on the City's website and available in hard copy form upon request to the City.

The parties agree that:

- I. The terms of the CBI Policy, as revised from time-to-time, together with all rules and guidelines established, are incorporated into this Agreement by reference; and
- II. A violation of the CBI Policy shall constitute a material breach of this Agreement, and shall entitle the City to exercise any of the remedies set forth in Part D of the CBI Policy, including but not limited to liquidated damages; and
- III. Without limiting any of the other remedies the City has under the CBI Policy, the City shall be entitled to withhold periodic payments and final payment due to the Contractor under this Agreement until the City has received in a form satisfactory to the City all claim releases and other documentation required by the City's CBI Policy, and in the event payments are withheld under this provision, the Contractor waives any right to interest that might otherwise be warranted on such withheld amount under G.S. 143-134.1; and
- IV. The remedies set forth in Part D, Section 14 of the CBI Policy shall be deemed cumulative and not exclusive and may be exercised successively or concurrently, in addition to any other available remedy; and
- V. The City will incur costs if the Contractor violates the CBI Policy, and such costs are difficult to ascertain due to their indefiniteness and uncertainty. Accordingly, the Contractor agrees to pay the City liquidated damages at the rates set forth in Part D of the CBI Policy.
- VI. The Contractor agrees to participate in any dispute resolution process specified by the City from time-to-time for the resolution of disputes arising from the CBI Policy.
- VII. Nothing in this Section shall be construed to relieve a Contractor from any obligation it may have under N.C. Gen. Stat. 143-134.1 regarding the payment of subcontractors.

Remedies for Violation of CBI Policy. A violation of the CBI Policy by a Contractor shall constitute a material breach of the Contract, and shall entitle the City or private owner to:

- I. Exercise all rights and remedies that it may have at law or at equity for violation of the CBI Policy;
- II. Terminate the Contract for default;
- III. Suspend the Contract for default;
- IV. Withhold all payments due to the Contractor under the Contract until such violation has been fully cured or the City and the Contractor have reached a mutually agreeable resolution;
- V. Assess liquidated damages as provided in Part D Section 14.2; and/or
- VI. Offset any liquidated damages and/or any amounts necessary to cure any violation of the CBI Policy from any retainage being held by the City on the Contract, or from any other amounts due to the Contractor under the Contract.

The remedies set forth herein shall be deemed cumulative and not exclusive, and may be exercised successively or concurrently, in addition to any other available remedy.

Liquidated Damages. The City and the Contractor acknowledge and agree that the City will incur damages if the Contractor violates the CBI Policy in one or more of the ways set forth below, including but not limited to loss of goodwill, detrimental impact on economic development and diversion of internal staff resources. The parties further acknowledge and agree that the damages the City might reasonably be anticipated to accrue as a result of such failures are difficult to ascertain due to their indefiniteness and uncertainty. Accordingly, the Contractor agrees to pay the liquidated damages assessed by the City at the rates set forth below for each specified violation of the CBI Policy. The Contractor further agrees that for each specified violation the agreed upon liquidated damages are reasonably proximate to the loss the City will incur as a result of such violation:

- I. **Failure to Meet Committed Subcontracting Goal.** If the City determines upon completion or termination of a Contract that the Contractor did not meet a Committed Subcontracting Goal and that such failure is not otherwise excused under Part D of the CBI Policy, the City may assess the lesser of: (a) \$200,000 or (b) the dollar difference between the Committed Subcontracting Goal that was missed and the Contractor's actual MSBE utilization toward that Goal. Such amount may be assessed when it becomes apparent that it will not be possible for the Contractor to achieve the Committed Subcontracting Goal.
- II. **Use of a Conduit.** If the Contractor lists a MSBE to receive credit towards a Committed Subcontracting Goal with knowledge that the MSBE will be acting as a Conduit or will not be performing a Commercially Useful Function reasonably commensurate with the payment amount for which the Contractor will be seeking credit, the City may assess the lesser of: (a) \$100,000 per incident; or (b) the dollar amount the Contractor indicated that it would pay such MSBE in the MSBE's contract (or if no contract has been signed, the MSBE's Letter of Intent).
- III. **Wrongful Termination or Replacement of MSBE.** If the Contractor terminates or replaces a MSBE in violation of the CBI Policy, the City may assess the lesser of: (a) \$50,000 per incident; or (b) the dollar amount of the work remaining to be performed by the terminated MSBE at the time it was terminated (or if the MSBE was not terminated because it was never retained, then the dollar amount that the Contractor indicated it would pay the MSBE in the MSBE's Letter of Intent).
- IV. **Failure to Comply with CBI Policy Following Termination or Withdrawal of an MSBE.** If the Contractor fails to comply with the Modified Good Faith Efforts requirements (Part D, Section 5 of the CBI Policy) in replacing an MSBE that is terminated or withdraws from work on a project, the City may assess the lesser of: (a) \$50,000 per incident or (b) the dollar amount of the work remaining to be performed by the MSBE that withdrew or was terminated at the time of the termination or withdrawal.

- V. **Failure to Comply with CBI Policy to Add New Subcontractors.** If the Contractor fails to comply with the Modified Good Faith Efforts requirements (Part D, Section 5 of the CBI Policy) in adding new subcontractors to a Contract, or when the scope of work of a Contract changes so as to create a new MSBE subcontracting opportunity, the City may assess the lesser of: (a) \$50,000 per incident; or (b) the dollar amount of the new or additional work.
- VI. **False Statements and Misrepresentations.** If the Contractor makes a false statement or material misrepresentation or material misleading omission regarding any matter relevant to the CBI Policy (including but not limited to information relating to good faith efforts, MSBE utilization, MSBE certification or payments to MSBEs), the City may assess the lesser of: (a) \$50,000 per incident; or (b) if the misrepresentation relates to payment, the dollar difference between what the Contractor represented and the truth.
- VII. **Failure to Respond to Request for Information.** If the Contractor fails to provide any report, documentation, affidavit, certification or written submission required under the CBI Policy within the time period set forth therein, the City may assess \$40 per day for each day that such report, documentation or written submission is overdue.
- VIII. **Seeking Credit for Use of An Affiliate to Meet the Committed Subcontracting Goal.** If the City finds a violation of Part D, Section 3 of the CBI Policy due to a Contractor seeking credit for utilizing a MSBE that the City determines to be an Affiliate, the City may assess the lesser of: (a) \$75,000 per incident or (b) the dollar amount the Contractor counted towards its Committed Subcontracting Goal for that MSBE.

8. CBI FORMS:

Bidders shall submit the following CBI forms within the timeframes indicated below:

CBI Form	Submission Requirements
<p>CBI Form 1: Intent to Perform Contract with <u>Own</u> Workforce Affidavit A Bidder that intends to perform 100% of the work on a Contract with its own workforce must submit an Affidavit (CBI Form 1) stating that the Bidder does not customarily subcontract elements of this type project, and normally performs and has the capability to perform and will perform all elements of work on this Contract with its own current workforces.</p> <p>If the Bidder is not licensed to perform each and every type of work included in the Contract, or if the City has cause to believe based on past practice or other grounds that the Bidder will not be performing all work under the Contract with its own workforce, then the City may reject the Bidder's Bid for non-compliance with the CBI Policy.</p>	<p>If not meeting the established Subcontracting Goal, and intending to perform 100% of the work, the Bidder must submit this completed CBI Form 1 with its bid*.</p> <p>* In addition to submitting a completed CBI Form 1, the Bidder shall also provide at Bid Opening sufficient supporting documentation for the City to determine that the Bidder does not customarily subcontract work on this type project.</p>
<p>CBI Form 2: Solicitation Form. Identifies all MSBEs the Bidder contacted and any MSBEs that contacted the Bidder.</p> <p>Documentation content includes: Scope of work, MSBE contact, date and method of contact, response status, as well as other information.</p> <p>Note: For each scope of work bid by a MSBE and NOT</p>	<p>If not meeting the established Subcontracting Goal, submitted as part of a Bidder's Good Faith Efforts documentation, within three (3) Business Days after requested by the City.</p> <p>ALL supporting documentation, reflecting the solicitation methods and content, must be submitted at the same time as CBI Form 2.</p>

CBI Form	Submission Requirements
<p>awarded to a MSBE, Bidder must complete CBI Form 2A documenting the reason(s) for rejecting the MSBE's bid.</p>	
<p>CBI Form 2A: Good Faith Negotiation Form. Bidders must submit a completed CBI Form 2A for each MSBE who bid the project and was ultimately not selected by the Bidder to participate on the Contract.</p>	<p>Must be submitted within three (3) Business Days after requested by the City.</p>
<p>CBI Form 3: Subcontractor / Supplier Utilization Commitment. Identifies all MSBE, and non-MSBE subcontractors and suppliers to be utilized on the Contract and the dollar amounts committed to MSBEs and non-MSBEs.</p> <p>Bidders must identify all subcontractors and suppliers known at the time the Bid is submitted.</p>	<p>DUE AT BID OPENING</p>
<p>CBI Form 3A: Subcontractor / Supplier Utilization Commitment – ALTERNATES. Identifies additional MSBE commitments made after Bid Opening, when there are accepted alternates.</p> <p>This form will only be accepted when the City selects alternates.</p>	<p>Must be submitted within three (3) Business Days after requested by the City.</p>
<p>CBI Form 4: Letter of Intent. Bidders shall submit a separate Letter of Intent executed for each MSBE listed on CBI Form 3 and CBI Form 3A (if applicable) that the Bidder commits to utilize on the Contract.</p>	<p>Shall be submitted within three (3) Business Days after requested by the City.</p>
<p>CBI Form 5: Good Faith Efforts (GFE) and Statement of GFE Compliance. Identifies the minimum GFE points required for this contract, the GFE Categories, and respective GFE Points value for each GFE Category.</p> <p>Bidder must check each GFE Category for which it has performed the respective effort, as described in Part B Section 5.3 of the CBI Policy.</p>	<p>If not meeting the established Subcontracting Goal, this CBI Form 5 must be submitted as part of the Bidder's Good Faith Efforts documentation, within three (3) Business Days after requested by the City.</p>

CBI Form	Submission Requirements
<p>CBI Form 6: Payment Affidavit – Subcontractor / Supplier Utilization. Contractor shall provide with each pay request to the City a payment affidavit showing work that has been completed and approved for all subcontractors, suppliers, manufacturers, brokers, and/or members of a joint venture in connection with the contract.</p>	<p>Upon award of Contract, CBI Form 6 must be submitted to the City with each pay request for the duration of the Project.</p> <p>For Final Payment period, check the box indicating “Final Payment.”</p>

All CBI Forms and a full list of SBE and MBE vendors are available on-line at: www.charlottebusinessinclusion.com

CBI FORM 3: Subcontractor / Supplier Utilization Commitment
 (page 1 of 2)

This form **SHALL** be submitted at the time of Bid Opening. *Copy this CBI Form 3 as needed.*
 Failure to properly complete and submit Form 3 with the Bid constitutes grounds for rejection of the Bid.

Per Part B, Section 3.5 of the CBI Policy, the Subcontractor/Supplier Utilization Commitment (**CBI Form 3**), captures information regarding the MSBEs and other subcontractors and suppliers that the Bidder intends to use on the Contract **FOR ALL TIERS**.

Bidder Name:			
Project Name:	Statesville Avenue ITS Project		
Project Number:	CDOT-ITS-15-522	Established SBE Goal:	7%
		Established MBE Goal:	N/A

List below all **MSBEs (Non-Hauling Services)** that you intend to use on this contract. **NOTE: You will only receive credit for SBEs that are currently certified with the City as of the Bid Opening Date. Furthermore, you will only receive credit for MBEs that are registered with the City as of Bid Opening Date and who have an ethnic designation of African American, Hispanic, or Native American.**

MSBE Vendor Name (Non-Hauling Services)	Mark X for each Certification		Description of work / materials	NIGP Code	Vendor #	Total Projected Utilization (\$)
	SBE	MBE				

List below all MSBEs that you intend to use for **hauling services** on this contract and the Total Projected Utilization (\$) for all hauling services for the contract. **If the project has both MBE and SBE subcontracting goals established and the Bidder utilizes a hauling vendor that is both a MBE and a SBE, the Bidder shall designate the specific dollar amount to be committed to that hauling vendor. The Bidder will still indicate the total utilization for haulers that are only SBE certified.**

MSBE Vendor Name (Hauling Services)	Mark X for each Certification		Description of work / materials	NIGP Code	Vendor #	Utilization (\$)
	SBE	MBE				
						Input Total SBE Hauling Utilization

Total SBE Utilization	\$ _____
Total MBE Utilization – N/A	\$ _____
Total Bid Amount (including Contingency and excluding Allowance Amount)	\$ _____
Percent SBE Utilization* (Total SBE Utilization <i>divided by</i> Total Bid Amount)	_____ %
Percent MBE Utilization* (Total MBE Utilization <i>divided by</i> Total Bid Amount) – N/A	_____ %

***THE MSBE Utilization percentage stated MUST be rounded to two (2) decimal places**

CBI FORM 4: Letter of Intent

Per Part B, Section 2.2 of the CBI Policy, within (3) Business Days after receiving a request from the City (or within such longer time as may be communicated by the City in writing), Primes must submit a separate Letter of Intent for each MSBE listed on CBI Form 3 and CBI Form 3A (if applicable).

Project Name:	Statesville Avenue ITS Project
Project Number:	CDOT-ITS-15-522

To be completed by the Prime	
Name of Prime: _____	Vendor #: _____
Address: _____	
Contact Person: _____	Email: _____
Telephone: _____	Fax: _____

If the Prime has entered into a Quick Pay Agreement, in association with this Letter of Intent and as defined in the CBI Policy, please attach a copy of the executed Agreement with the undersigned MSBE.

Identify in complete detail the scope of work to be performed or item(s) to be supplied by the MSBE.

NOTE: If the MSBE will provide hauling services, the Prime will be required to contact and utilize each of the MSBE haulers listed on this form on a rotating basis throughout the life of the project.

Cost of work to be performed by MSBE: _____ \$ _____

To be completed by MSBE	
Name of MSBE: _____	Vendor#: _____
Address: _____	
Contact Person: _____	Email: _____
Telephone: _____	Fax: _____

Upon execution of a Contract with the City for the above referenced project, the Prime certifies that it intends to utilize the MSBE above, and that the description, cost and percentage of work to be performed by the MSBE as described above is accurate. The MSBE Firm certifies that it has agreed to provide such work/supplies for the amount stated above.

Prime: _____	Date: _____
Signature and Title	
MSBE Firm: _____	Date: _____
Signature and Title	

CBI FORM 6: Payment Affidavit - Subcontractor / Supplier Utilization

To be submitted with each request for payment from the City of Charlotte showing work that has been paid for all subcontractors, suppliers, manufacturers, brokers, and / or members of a joint venture in connection with the contract. Copy this form as needed. The Prime is responsible for collecting and submitting CBI Form 6 from all subsequent lower tiers.

Project Name: Statesville Avenue ITS Project

Contractor Name: _____ Payment / Invoice # _____

Contract Number: _____ Invoice Amount: \$ _____

Payment Period: From _____ To _____ City Department: _____

FINAL PAYMENT Check this box only when submitting Final Pay request.

Section 1: Payments to SUBCONTRACTORS (MSBEs and Non-MSBEs)

Complete the chart below for all subcontractors used on the Project/Contract regardless of dollar amount. All subcontractors must be registered in the City's Vendor Management System.

Subcontractor's Name	Mark X for each Certification		Description of Work Performed	NIGP Code	Vendor #	Payments this Period	Cumulative Payments
	SBE	MBE					

Section 2: Payments to SUPPLIERS

All suppliers providing goods under City contracts must be listed on the Sales Tax Statement submitted with each pay request. The City may request on a case-by-case basis that the Contractor require certain suppliers to be registered in the City's Vendor System and may withhold payment of any amounts due the Contractor in the event the Contractor fails to comply with such request.

The undersigned Company certifies the preceding chart is a true and accurate statement of all payments that have been made to subcontractors on this Project/Contract, and that all Suppliers providing goods under this contract have been listed in the Sales Tax Statements submitted to the City in connection with this Payment Affidavit. If no subcontractors or suppliers are listed on the preceding chart or Sales Tax Statements, the Company certifies that no subcontractors or suppliers were used in performing the Project/Contract for the payment period indicated. Failure to provide accurate and truthful information is a violation of the Charlotte Business INclusion Policy and may result in the sanctions prescribed therein.

This _____ day of _____ 20 _____

Signature

Print Name and Title

<u>To be completed by City for FINAL PAYMENT</u>		SBE Goal:	%	MBE Goal:	%
Total Paid to Contractor:	\$	SBE Goal Commitment:	%	MBE Goal Commitment:	%
Total Paid to SBEs:	\$	SBE Goal Attainment:	%	MBE Goal Attainment:	%
Total Paid to MBEs:	\$				

00 60 00 – PROJECT FORMS

CONTRACTOR'S AFFIDAVIT

RELEASE AND WAIVER OF CLAIM

STATE OF: _____ **COUNTY OF:** _____

(Name) (Title)
_____, being first duly sworn, deposes and says that:
(Contractor)

1. The undersigned is authorized to execute this Affidavit, Release and Waiver of Claim on behalf of the Contractor and has personal knowledge of all facts set forth herein;
2. This Affidavit, Release and Waiver of Claim is made concerning the construction of the following project:

Project Name: Statesville Avenue ITS Project

Project No.: CDOT-ITS-15-522

3. All payrolls, material bills, sales tax, social security tax, state and federal unemployment insurance, and all other liabilities and taxes owed by the Contractor and arising in any manner from the above-described project have been paid in full;
4. No claim or lien exists in favor of any supplier of materials or labor or in favor of any subcontractor furnishing materials or labor on the above-described project;
5. Notwithstanding the foregoing, if the City of Charlotte or property of the City of Charlotte is subject to any claim or lien which arises in any manner from the failure of the Contractor to pay any liability described above, the Contractor will indemnify and hold the City of Charlotte harmless for any amount which the City of Charlotte is required to pay to discharge such lien or settle such claim and further will pay the City of Charlotte's expenses, costs, and attorney fees incurred in connection therewith;
6. All claims, suits, and proceedings of every name, description, or nature arising out of the above project against the City of Charlotte, its officers, employees and agents have been settled;
7. The Contractor releases and waives any and all claims of every type and description which the Contractor may have against the City of Charlotte arising in any manner from the construction of the above-described project.

(Contractors Signature)

Subscribed and sworn to before me this _____ day of _____ 201__

Signature of Notary Public _____

of _____ County

State of _____

My Commission Expires: _____

00 70 00 – STANDARD SPECIAL PROVISIONS

Section 00 10 00 (Invitation to Bid) and Section 00 20 00 (Instructions to Bidders) are hereby incorporated and made a part of Standard Special Provisions.

ARTICLE 1: NCDOT STANDARD SPECIFICATIONS

1.1 NCDOT Standard Specifications

2012 NCDOT Specifications: The January 2012 North Carolina Department of Transportation (NCDOT) Standard Specifications for Roads and Structures, herein referred to as the “NCDOT Standard Specifications,” is part of the Contract Documents and incorporated herein by reference. The Contract Documents are intended to be complementary. In case of any conflict among the Contract Documents that cannot otherwise be resolved, the order of precedence shall be as set forth in Section 105-4 of the NCDOT Standard Specifications.

The NCDOT Standard Specifications are hereby modified as follows:

Section #	Modification
101-3	Modify the Definitions as provided in Section 00 20 00 Article 1 of this Project Manual.
102-1	Delete lines 21 through 22.
102-2	Delete this section in its entirety.
102-3	Delete lines 8 through 11.
102-7	In the second sentence of in the second paragraph, delete the phrase “ <i>in Raleigh at the office of the Geotechnical Engineering Unit</i> ” and replace with “ <i>on the City’s website, if available</i> ”
102-8(B)	In line 22, replace “14 calendar days” with “10 calendar days”.
102-9(C)	Delete lines 17 through 19. In line 34, replace “14 calendar days” with “10 calendar days”.
102-10	In line 8, replace “14 calendar days” with “10 calendar days”. Delete lines 39 to 44.
102-14(A) and 103-2 (A)(4)(a)	In addition to “ <i>State Funded Projects</i> ”, these sections also apply to “ <i>City Funded Projects.</i> ”
102-14(B)	In line 9, replace “60 days” with “90 days”.
102-15 (J)	Delete this sentence in its entirety and replace with the following: “ <i>Failure to satisfy the City’s Charlotte Business Inclusion Program or failure to satisfy NCDOT’s Disadvantaged Business Enterprise requirements, whichever program is applicable as required in the project Bidding Documents.</i> ”
103-3(A)	Delete the reference to “ <i>North Carolina General Statute 136-28.1</i> ” and replace with the reference to “ <i>North Carolina General Statute 143-129.1</i> ”
103-3(A)(5)	Delete the “48 hours” notice of bid withdrawal and replace with “72 hours”.
103-3(B) and 103-3(C)	Delete these sections in its entirety and replace applicable procedures established in North Carolina General Statutes 143-129.1.
103-7	In line 27, replace “14 calendar days” with “10 calendar days”.
103-9	In line 37, replace “14 calendar days” with “10 calendar days”.
104-8(A)(1)	Delete line 23 through 29 and replace with the following: When the Engineer and the Contractor agree to the prices to be paid, the agreement will set forth in a change order. The Contractor may begin work by written authorization from Engineer before executing the change order.

104-12(E)	Delete following part from line 23: “and the State Value Management Engineer in the Quality Enhancement Unit”
107-15	Delete this section in its entirety and replace with Insurance Requirements of Section 00 70 00 of this Project Manual.
107-24	In line 26, delete the reference of “NCGS § 136-29” and replace with the reference of “Dispute Resolution of Section 00 70 00”.
108-4	Insert the following after Line 27: The Contractor’s project superintendent and other individuals representing the Contractor who are knowledgeable of the Contractor’s proposed progress schedule or who will be in charge of major items of the work shall attend the preconstruction conference.
108-6	In line 37, delete the reference of “NCGS § 136-29” and replace with the reference of “Dispute Resolution of Section 00 70 00”.
108-10(B)(5)	Delete this section in its entirety.
108-13	Delete this section in its entirety and replace with the Termination of Section 00 70 00 of this Project Manual.
109-11	Delete this section “ <i>Interest on Final Payment</i> ” in its entirety.

1.2 ERRATA

(1-17-12) (Rev. 04-21-15)

Z-4

Revise the 2012 *Standard Specifications* as follows:

Division 2

Page 2-7, line 31, Article 215-2 Construction Methods, replace “Article 107-26” with “Article 107-25”.

Page 2-17, Article 226-3, Measurement and Payment, line 2, delete “pipe culverts,”.

Page 2-20, Subarticle 230-4(B), Contractor Furnished Sources, change references as follows: **Line 1**, replace “(4) Buffer Zone” with “(c) Buffer Zone”; **Line 12**, replace “(5) Evaluation for Potential Wetlands and Endangered Species” with “(d) Evaluation for Potential Wetlands and Endangered Species”; and **Line 33**, replace “(6) Approval” with “(4) Approval”.

Division 3

Page 3-1, after line 15, Article 300-2 Materials, replace “1032-9(F)” with “1032-6(F)”.

Division 4

Page 4-77, line 27, Subarticle 452-3(C) Concrete Coping, replace “sheet pile” with “reinforcement”.

Division 6

Page 6-7, line 31, Article 609-3 Field Verification of Mixture and Job Mix Formula Adjustments, replace “30” with “45”.

Page 6-10, line 42, Subarticle 609-6(C)(2), replace “Subarticle 609-6(E)” with “Subarticle 609-6(D)”.

Page 6-11, Table 609-1 Control Limits, replace “Max. Spec. Limit” for the Target Source of $P_{0.075}/P_{be}$ Ratio with “1.0”.

Page 6-40, Article 650-2 Materials, replace “Subarticle 1012-1(F)” with “Subarticle 1012-1(E)”

Division 7

Page 7-1, Article 700-3, CONCRETE HAULING EQUIPMENT, line 33, replace “competition” with “completion”.

Division 8

Page 8-23, line 10, Article 838-2 Materials, replace “Portland Cement Concrete, Class B” with “Portland Cement Concrete, Class A”.

Division 10

Page 10-166, Article 1081-3 Hot Bitumen, replace “Table 1081-16” with “Table 1081-2”, replace “Table 1081-17” with “Table 1081-3”, and replace “Table 1081-18” with “Table 1081-4”.

Division 12

Page 12-7, Table 1205-3, add “FOR THERMOPLASTIC” to the end of the title.

Page 12-8, Subarticle 1205-5(B), line 13, replace “Table 1205-2” with “Table 1205-4”.

Page 12-8, Table 1205-4 and 1205-5, replace “THERMOPLASTIC” in the title of these tables with “POLYUREA”.

Page 12-9, Subarticle 1205-6(B), line 21, replace “Table 1205-4” with “Table 1205-6”.

Page 12-11, Subarticle 1205-8(C), line 25, replace “Table 1205-5” with “Table 1205-7”.

Division 15

Page 15-4, Subarticle 1505-3(F) Backfilling, line 26, replace “Subarticle 235-4(C)” with “Subarticle 235-3(C)”.

Page 15-6, Subarticle 1510-3(B), after line 21, replace the allowable leakage formula with the following:
 $W = LD\sqrt{P} \div 148,000$

Page 15-6, Subarticle 1510-3(B), line 32, delete “may be performed concurrently or” and replace with “shall be performed”.

Page 15-17, Subarticle 1540-3(E), line 27, delete “Type 1”.

Division 17

Page 17-26, line 42, Subarticle 1731-3(D) Termination and Splicing within Interconnect Center, delete this subarticle.

Revise the *2012 Roadway Standard Drawings* as follows:

1633.01 Sheet 1 of 1, English Standard Drawing for Matting Installation, replace “1633.01” with “1631.01”.

ARTICLE 2: CITY STANDARD PROVISIONS

2.1 Curb and Gutter Tapers and Transitions

The Contractor shall be responsible for constructing concrete curb and gutter end tapers and concrete curb and gutter transitions as shown on the plans and in the specifications, including CLDS 10.19 curb transitions. Payment will be made at the contract unit prices of the adjacent curb and gutter for the various curb types in NCDOT Section 846, "Concrete Curb, Concrete Curb and Gutter, Concrete Gutter, Shoulder Berm Gutter, Concrete Expressway Gutter and Concrete Valley Gutter" and CLDS 10.17 "Curb and Gutter".

2.2 Pipe Joint Wrap

All rigid pipe shall be installed per NCDOT section 300-6 (A) except that all pipe shall have Type 2 filtration geotextile wrapped around all pipe joints. Extend geotextile at least 12" beyond each side of the joint, overlap ends by 12" minimum. Secure geotextile against the outside of the pipe by methods approved by the Engineer. There will be no separate measurement or payment for the joint wrapping, the price of the work will be included in the price bid for the individual line item.

2.3 Existing Utilities

The Contractors work shall be in accordance with NCGS 87-115, "Underground Utility Safety and Damage Prevention Act" (2013-407, s 2.). To assist the Contractor and utility owners in meeting the requirements of this law, there is a service provider called "NC811." Most major utilities with underground facilities in the State subscribe to this service.

From within North Carolina, dial 811. For calls originating outside (or inside) of North Carolina, the toll free number (800) 632-4949 may be used. NC811 can also be accessed via the Internet at:

<http://nc811.org/homepage.htm>.

The Contractor shall include the cost of any coordination and cooperation of utilities in his bid.

No additional compensation shall be allowed for delays or inconvenience sustained by the Contractor due to utility relocation or adjustments. No additional payment will be made for re-mobilization required by the utility's failure to relocate a utility at the request of the Contractor.

Where changes to utility facilities are to be made solely for the convenience of the Contractor, it shall be the Contractor's responsibility to arrange for such changes, and the Contractor shall bear all costs of such changes.

2.4 Utility Street Cut Regulations (CDOT Street Maintenance Division)

All street cut permits for this project have already been obtained.

The [current edition at the time of bid](#) of the Charlotte Department of Transportation, Street Maintenance Division; Regulations, Fee Schedule and Procedures for Working in Asphalt and Concrete Pavements, shall apply on all portions of the project unless otherwise specified herein.

The CDOT Street Maintenance Division requires that any Utility Company, Contractor, Developer, or agents thereof engaged in utility excavation in Charlotte street rights-of-way must ensure that a CDOT/SMD excavation certified company representative be present on the job site.

Excavation certification requires a utility crew foreman/lead person to attend a 5-hour class to become familiar with these policies/specifications and CDOT/SMD's procedures for excavating in Charlotte streets. Once these foremen/lead persons obtain certification, they are placed on an approved Utility Certification List maintained by SMD.

2.5 Concrete

All concrete used on City projects will be required to meet the NCDOT Standard Specifications for Roadways and Structures. In addition the following City requirements apply:

The City of Charlotte or their Independent Testing Laboratory (ITL) will perform all testing for Slump, Air Content, Temperature, and Compressive Strength for City approved/accepted concrete mix designs.

Compressive Strength Quality Assurance for Incidental Concrete:

The following Quality Assurance Specifications shall apply only to incidental concrete used in the construction of this Project. Incidental concrete shall be defined as any concrete not used in the construction of rigid pavement or any concrete that is not an integral part of a structure. The Engineer reserves the right to reject questionable material at any time in lieu of making reduced payment.

Compressive Strength:

All incidental concrete used in the construction of this Project shall be a minimum 3600 PSI strength at twenty-eight (28) days, unless otherwise specified. No adjustment will be allowed for the required use of high-early strength concrete. When the Contractor is requested to use high-early strength concrete in certain areas, he must furnish a copy of the delivery ticket to the Project Inspector prior to allowing traffic to proceed across the item in question before the required seven (7) day curing period.

Concrete will be tested and accepted with respect to compressive strength on the basis of the average test results of concrete test cylinders. The City's testing company will prepare test cylinders in accordance with ASTM C31 and take them to their laboratory for curing and testing. The Contractor is responsible for providing adequate curing boxes, blankets, burlap, if needed. If the average strength of concrete cylinder test results fail to attain the specified minimum compressive strength at twenty-eight (28) days, but meet or exceed 70% of the minimum compressive strength, the Engineer will have the option of instructing the Contractor to replace all concrete represented by those cylinders with concrete meeting specifications or of allowing the concrete to remain in place at a reduced Contract price. The Contract Unit Price for such concrete left in place shall be reduced by the following formula:

- $$\text{Reduced Unit Price} = \text{Contract Unit Price} \times \frac{\text{Avg. Strength of Test Cylinders at 28 Days}}{\text{Specified Minimum Compressive Strength}}$$

In the event that concrete cylinder tests fail to meet minimum compressive strengths at twenty-eight (28) days, the Contractor will have the option of taking cores from the concrete in question at the Contractor's expense. Cores must be taken and tested in accordance with ASTM C42. Cores must be taken thirty-one (31) days after placement of concrete. Cores shall be taken and tested by a qualified independent testing laboratory approved by the Engineer. A minimum of three (3) cores shall be taken from questionable concrete, unless otherwise specified by the Engineer. Cores shall be taken from locations selected by the Engineer.

If the average strength of the concrete test results (cylinders and cores) fail to attain seventy percent (70%) of the specified minimum compressive strength at twenty-eight (28) days, all applicable concrete shall be rejected. The Contractor, at no additional cost to the City, shall remove the rejected concrete and replace it with concrete that meets specifications.

The Contractor shall submit a Process Control plan for review by the City of Charlotte, including the name of the field person in charge for the contractor during concrete placement per the NCDOT Standard Specifications. This person shall be concrete certified per ACI and NCDOT Field Level 1 Concrete.

2.6 Reclamation of Waste or Borrow Sources

All removal, disposal, and storage of waste and borrow material for this project will be required to meet the NCDOT Standard Specifications for Roadways and Structures. In addition the following City requirements apply. If any borrow or waste areas are to be utilized, it shall be the responsibility of the Contractor to notify the property owner that the property owner is responsible for any damage occurring at the site, either as part of the agreement with the Contractor, or on his own. The cost of all work of securing the borrow site, sediment control, re-grading and seeding shall be the responsibility of the property owner or contractor per their separate agreement.

The City will not participate in the cost of this reclamation work on the waste or borrow areas. Prior to final payment being made, the Contractor shall obtain a release from the property owner of the borrow or waste site utilized for the Project.

2.7 Hazardous Materials

If the Contractor encounters any materials considered or suspected of being hazardous, he shall immediately secure the area, discontinue operations, and contact the Charlotte-Mecklenburg Hazardous Materials Coordinator, telephone 704-336-2461 for further instructions. All activities shall be required to meet the NCDOT Standard Specifications for Roadways and Structures – [Section 107-25](#).

2.8 Financial Responsibility, Sedimentation Pollution Control Act

If this project is subject to the “North Carolina Department of Environmental Health and Natural Resources Sediment Pollution Control Act”, the City has already acquired the permit. The Contractor, upon recommendation of award shall complete Part B of the Financial Responsibility/Ownership form provided by the City. The City will then transfer financial responsibility of the erosion control permit to the Contractor. The City of Charlotte will pay the cost of the application fees. The Contractor will be responsible for any fines levied for violation of the approved erosion control plan.

Site monitoring shall be done by either a PE or a certified Charlotte-Mecklenburg Certified Site Inspector.

2.9 Construction Stakes, Lines, and Grades

Any construction stakes, lines and grades will be provided by the City in accordance with [Section 105-9](#) of the NCDOT Standard Specifications. Surveying will be provided by the City in accordance with the current “Surveying Field Procedures Manual” of the Engineering and Property Management Department.

The Contractor shall request all staking at least FORTY-EIGHT (48) hours in advance of the time that the staking will be required. The Contractor shall be held responsible for the preservation of all stakes and marks, and, if any of the construction stakes or marks have been carelessly or willfully destroyed or disturbed by the Contractor, the cost of replacing them (\$100.00 per hour) will be charged against him and will be deducted from the payment for the work. See additional requirements for Construction Stakes, Lines and Grades under the “Traffic Control” Special Provision.

2.10 Maintenance of the Project

Maintenance of the Project shall be in accordance with [Section 104-10](#) of the NCDOT Standard Specifications.

The Contractor shall furnish and erect, at no additional cost to the City, whatever sidewalks, bridges, culverts, or other works as may be necessary for the protection of the public, including, but not limited to, barricades, fences, etc. and for the safe and proper execution of other public utility lines so as not to interfere therewith or damage or cause damage thereto. The Contractor shall be responsible for all damages to persons or property that occur as a

result of his fault, omission, or negligence in connection with the prosecution of the work and shall be responsible for the proper care and protection of all work performed hereunder until completion and final acceptance, whether or not the same has been covered in whole or in part by payments made by the City.

2.11 Storage of Materials and Equipment

The Contractor shall be responsible for locating and providing storage areas for construction materials and equipment. The material and equipment storage shall comply with all local and state ordinances throughout the construction period. The Contractor shall restore the storage area to its original condition upon completion of the Project or upon such time as directed by the Engineer. Such restoration shall be at no additional cost to the City.

The Contractor shall be responsible for the safeguarding of materials and equipment against fire, theft and vandalism and shall not hold the City responsible in any way for the occurrences of same. The Contractor shall furnish and erect, at no additional cost, whatever works may be necessary for the protection of the public, including but not limited to barricades, fences, etc. Prior to final payment being made, the Contractor shall obtain a release from the property owner of the storage area utilized for the Project.

2.12 Subletting

The Engineer reserves the right to waive the subcontracting limits set forth in [Section 108-6](#) of the NCDOT Standard Specifications whenever it is deemed to be in the best interest of the City. The limits can be waived only upon written approval from the Engineer.

2.13 Quantity Tickets

All quantity tickets for items not measurable in place shall be submitted in duplicate to the Project Inspector within seventy-two (72) hours after receipt of the material on the job. Each ticket shall indicate the date, contractor, job location and name, type of material, quantity of material, truck number and signature of the Contractor or his authorized representative.

No tickets will be accepted after seventy-two (72) hours have elapsed between the time of delivery and the submittal of tickets to the Project Inspector.

2.14 Periodic Payments

The City will make partial payments based on the work progress estimates prepared by the Engineer and on the payment requests submitted by the Contractor on a monthly schedule established by the Engineer. Partial payments will be made within thirty (30) calendar days after receipt of a complete and accurate payment request. Partial payments will be approximate only and will be subject to correction in the final estimate and payment.

The Contractor shall submit the following required documents with each payment request:

1. Payment Affidavit (CBI Form 6 provided by the City) and
2. Sales/Use Tax Statement (provided by the City).

The Contractor shall submit an updated project schedule with every partial payment request. The schedule shall detail the entire project and incorporate a Critical Path Method (CPM) analysis that adheres to the Traffic Control Plan, or be in a format that reflects the Work Area Traffic Control Handbook and meets the approval of the Engineer. Partial payment requests that do not include an updated project schedule will be deemed incomplete and the payment request will not be processed until the updated schedule is received. In the event the Contractor fails to submit an updated schedule for a period in excess of thirty (30) days of the scheduled submission date, the surety will be notified of the pending breach and requested to provide assistance in obtaining the schedule to avoid a declaration of default under the terms of the Contract.

For contracts less than \$50,000.00, partial payments may be made twice each month if, in the judgment of the Engineer, the amount of work performed is sufficient to warrant such payment. No partial payment will be made when the total value of the work performed since the last partial payment, excluding mobilization, is less than \$1,000.00.

Payment requests, Erosion Control Logs, Payment Affidavits (CBI Form 6) and Sales/Use Tax Statement shall be submitted on the forms provided by the City.

The Contractor shall have a copy of his current payment request on the job site and it may be viewed by subcontractors upon request.

In accordance with N.C. General Statutes 143-134.1, retainage on periodic payments will be an amount equal to five percent (5%) of the total amount due on payment requests.

2.15 Final Payment

Final Payment will be made in accordance with Section 109-9 and 109-10 of the NCDOT Standard Specifications.

The Contractor shall provide the following documents with the final pay request:

1. Contractor's Affidavit Release and Waive of Claim (form provided by the City);
2. Payment Affidavit (CBI Form 6 provided by the City);
3. State/County Sales/Use Tax Statement (form provided by the City); and
4. Consent of Surety to Final Payment (AIA Document G707).

No final payment will be authorized until these documents have been properly completed and submitted by the Contractor.

2.16 Payment Affidavits

To determine whether disparities exist in City contracting based on race, gender or other factors, and also to measure the effectiveness of the City's Charlotte Business INCLUSION Program, the City tracks the utilization of subcontractors and suppliers on certain City contracts based on race, gender, small business status, and other factors. For analysis purpose, it is important that the City obtain this data not only for minority, female and small business suppliers and subcontractors, but also for other subcontractors and suppliers. As a condition to receiving payment under this Contract, the Contractor agrees to provide to the City with each invoice for payment submitted under this Contract, a written payment affidavit detailing the amounts paid by the Contractor to first tier subcontractors and suppliers in connection with this Contract ("Payment Affidavits"). Payment Affidavits shall be in the format specified by the City from time to time, and shall include all payments made to subcontractors and suppliers under this Contract that are not included on a prior Payment Affidavit.

Failure to provide a properly completed version of each Payment Affidavit required by this Section shall constitute a default under this Contract, and shall entitle the City to: (a) withhold payment of any amounts due the Contractor (whether under this Contract or otherwise), or (b) exercise any other remedies legally available for breach of this Contract, or (c) impose any other sanctions permitted under the City's Charlotte Business INCLUSION Program. In order to have a properly completed Payment Affidavit, each prime contractor and first tier subcontractor identified shall be registered in the City's Vendor Registration System. The City may request on a case-by-case basis that the Contractor require certain suppliers to be registered in the City's Vendor Registration System, and may withhold payment of any amounts due the Contractor in the event the Contractor fails to comply with such request.

2.17 Sales and Use Tax

The City is NOT exempt from applicable sales or use taxes assessed by North Carolina or other states. However, the North Carolina Department of Revenue does reimburse the City for the North Carolina sales or use taxes the City pays for certain construction related goods. Therefore, the City utilizes the below procedures for such sales tax. The Contractor agrees to follow the procedures set forth below for all sales or use taxes related to the Work and any other work performed pursuant to this contract.

“Eligible Taxes” are defined as North Carolina sales or use taxes paid by the Contractor for *buildings, materials, supplies, fixtures and equipment that become a part of or annexed to any building or structure that is owned or leased by the City and is being erected, altered or repaired by the City* (North Carolina GS 105-164-14(c)).

“Non-Eligible Taxes” are defined as all other sales or use taxes including those paid to states other than North Carolina, or sales or use taxes paid to North Carolina on purchases or rental of tools, equipment, and disposable supplies, including fuel, used in the Work.

Non-Eligible Taxes

Non-Eligible Taxes shall be included in the Bid and will be included in the Contract Amount.

The Contract Amount as shown in Section 00 50 00 includes full and complete compensation for the Contractor for any and all Non-Eligible Taxes paid by the Contractor in the prosecution of the Work and any other work performed pursuant to this Contract.

Eligible Taxes

Eligible Taxes **shall not** be included in the Bid and will **not** be included in the Contract Amount. Eligible Taxes will be reimbursed separately pursuant to the procedures below.

Prior to award of the Contract, the Contractor shall provide the City with the estimated amount of total Eligible Taxes for the Contract. This estimated amount of total Eligible Taxes will be used solely for the purpose of the City’s budget planning for the Project and will **not** be included in the Contract Amount.

The Contract Amount as shown in Section 00 50 00 excludes Eligible Taxes. The Contractor shall invoice the City for Eligible Taxes as set forth below and the City will reimburse the Contractor for those Eligible Taxes pursuant to the procedures below.

In the event the Contractor fails to materially follow the procedures set forth by this Article, and/or fails to properly document its payment of Eligible Taxes, the City will not be liable to the Contractor in any way for the payment of such Eligible Taxes.

In order to receive the reimbursement for Eligible Taxes, the Contractor shall provide a detailed listing of Eligible Taxes on the Sales/Use Tax Statement (“Tax Statement”) provided in the Contract Documents. Tax Statements shall be submitted with each payment request and shall include invoices documenting the Eligible Taxes and the underlying purchases made by the Contractor or by the Contractor’s subcontractor.

Tax Statements shall indicate whether such Eligible Taxes was paid by the Contractor or by the Contractor’s subcontractor.

If no Eligible Taxes have been paid for the period in which a payment request is being submitted by the Contractor, then the Contractor shall indicate “No Eligible Taxes paid this period” and submit the Tax Statement accordingly.

Tax Statements shall be completed and signed by the Contractor/subcontractor’s company officer submitting the statement and certified by a Notary Public.

Tax Statement shall list in detail the Eligible Taxes paid for each individual invoice paid by the Contractor/subcontractor. No lump sum, running total, or copies of previously reported statements will be accepted.

Tax Statements shall show separately the portion of Eligible Taxes that are paid to the State of North Carolina and the applicable North Carolina county, identifying the county accordingly.

Tax Statements will be reviewed and approved by the City prior to paying the Eligible Taxes reimbursement. Such approval will not be unreasonably withheld.

2.18 Allowances

Any Allowance included as a line item on the Itemized Proposal, including but not limited to Contingency Allowances, may only be used by the Contractor upon written instructions from the Engineer. Any portion of any Allowance remaining at the end of the Contract shall revert to the City. The City reserves the right to change any Allowance amount prior to award of the Contract.

2.20 Commercial Non-Discrimination Policy

As a condition of entering into this agreement, the Company represents and warrants that it will fully comply with the City's Commercial Non-Discrimination Policy.

As a condition of entering into this Contract, the Contractor agrees to:

(1) Promptly provide to the City all information and documentation that may be requested by the City from time to time regarding the solicitation, selection, treatment and payment of subcontractors in connection with this Contract; and

(2) If requested, provide to the City within sixty days after the request a truthful and complete list of the names of all subcontractors, vendors, and suppliers that Contractor has used on City contracts in the past five years, including the total dollar amount paid by Contractor on each subcontract or supply contract. The Contractor further agrees to fully cooperate in any investigation conducted by the City pursuant to the City's commercial non-discrimination policy as set forth in section 2, article V of the City Code, to provide any documents relevant to such investigation that are requested by the City, and to be bound by the award of any arbitration conducted under such policy. The Contractor understands and agrees that violation of this clause shall be considered a material breach of this agreement and may result in Contract termination, disqualification of the Contractor from participating in City contracts and other sanctions.

The Contractor agrees to provide to the City from time to time on the City's request, payment affidavits detailing the amounts paid by Company to subcontractors and suppliers in connection with this Contract within a certain period of time. Such affidavits shall be in the format specified by the City from time to time.

2.21 E-Verify

The Company shall comply with the requirements of Article 2 of Chapter 64 of the North Carolina General Statutes, and shall require each of its subcontractors to do so as well.

2.22 Iran Divestment Act

The Company warrants and certifies that as of the Effective Date, Company is not identified on the Final Divestment List created by the North Carolina State Treasurer pursuant to N.C.G.S. 143-6A-4. The person signing this Contract certifies that he or she is authorized by Company to make the foregoing certification. Company further agrees that it will not utilize on this Contract any subcontractor that is identified on the Final Divestment

List.

2.23 Indemnification

To the fullest extent permitted by law, the Contractor shall indemnify, defend and hold harmless each of the "Indemnitees" (as defined below) from and against any and all "Charges" (as defined below) paid or incurred any of them as a result of any claims, demands, lawsuits, actions, or proceedings: (i) alleging violation, misappropriation or infringement of any copyright, trademark, patent, trade secret or other proprietary rights with respect to the Work or any products or deliverables provided to the City pursuant to this Contract ("Infringement Claims"); (ii) seeking payment for labor or materials purchased or supplied by the Contractor or its subcontractors in connection with this Contract; or (iii) arising from the Contractor's failure to perform its obligations under this Contract, or from any act of negligence or willful misconduct by the Contractor or any of its agents, employees or subcontractors relating to this Contract, including but not limited to any liability caused by an accident or other occurrence resulting in bodily injury, death, sickness or disease to any person(s) or damage or destruction to any property, real or personal, tangible or intangible; or (iv) alleging violation of any federal, state or local law or regulation by the Contractor or any of the Contractor's subcontractors; or (v) alleging that an employee or subcontractor of the Contractor is an employee of the City, including but not limited to claims relating to worker's compensation, failure to withhold taxes and the like. For purposes of this Section: (a) the term "Indemnitees" means the City and each of the City's officers, officials, employees, agents and independent contractors (excluding the Contractor); and (b) the term "Charges" means any and all losses, damages, costs, expenses (including reasonable attorneys' fees), obligations, duties, fines, penalties, royalties, interest charges and other liabilities (including settlement amounts).

If an Infringement Claim occurs, the Contractor shall either: (i) procure for the City the right to continue using the affected product or service; or (ii) repair or replace the infringing product or service so that it becomes non-infringing, provided that the performance of the overall product(s) and service(s) provided to the City shall not be adversely affected by such replacement or modification. If the Contractor is unable to comply with the preceding sentence within thirty days after the City is directed to cease use of a product or service, the Contractor shall promptly refund to the City all amounts paid under this Contract.

2.24 Guarantee

1.0 General

Unless otherwise noted herein, The Contractor shall guarantee all materials and workmanship for a period of one (1) year from the date of acceptance by the City and shall replace any portions that fail because of faulty materials or workmanship at no additional cost to the City. A six (6) month and eleven (11) month inspection will be held during the warranty period. The Contractor shall immediately repair all defective items upon notification. Items repaired under the provisions shall have an extended warranty period of twelve (12) months from the date of repair of the item. If the manufacturer's warranties for the components are for a longer period, those longer period warranties will apply. Ensure that the manufacturer's warranties on all materials and equipment are fully transferable from the Contractor to the City.

Areas and/or other work disturbed while accessing and/or repairing/replacing warranty covered items shall be stabilized and repaired at no additional cost to the City.

2.0 CCTV Cameras and Video Transceiver Equipment

Ensure that CCTV cameras and video transceiver equipment furnished, assembled, or installed have a manufacturer's warranty covering defects in assembly, fabrication, and materials for a minimum of three years from the date of final acceptance by the Engineer in accordance with Section 105-17 of the NCDOT Standard Specifications of all work to be performed under the Contract. If the manufacturer's warranties for the components are for a longer period, those longer period warranties will apply. Ensure that the manufacturer's warranties on CCTV cameras and video transceiver equipment are fully transferable from the Contractor to the City. Ensure that these warranties require the manufacturer to furnish replacements for any part or equipment

found to be defective during the warranty period at no cost to the City within 10 calendar days of notification by the City or other mutually agreed upon timeframe. Because the video display system is a mission-critical part of the TMC, the warranty and maintenance period shall apply to the entire system and its associated subsystems furnished and installed under this Contract, and shall include the following tasks:

- a. Replace any operational support supplies used during this warranty period at no additional cost to the City, including the operational support supplies used for repairs made due to lightning damage.
- b. Conduct regularly scheduled preventive maintenance every six months for the initial one-year period.
- c. For service and repairs during and beyond the warranty period, designate either the video transceiver equipment Contractor, the equipment dealer, or the manufacturer's field technician as the representative responsible for providing this ongoing support to the TMC.
- d. Allow no more than 24 hours to elapse between the time of the City's notification that a repair is needed and the time repair commences.

3.0 Fiber Optic Cable System

Ensure that the fiber optic cable, the splice enclosures, termination points, conduit, locate system, pull boxes and splice boxes have a one-year manufacturer's warranty from the date of final acceptance by the Engineer in accordance with Section 105-17 of the NCDOT Standard Specifications of all the work to be performed under the Contract. If the manufacturer's warranties for the components are for a longer period, those longer period warranties will apply. Ensure that the manufacturer's warranties on the fiber optic cable, the splice enclosures, termination points, conduit, locate system, pull boxes and splice boxes are fully transferable from the Contractor to the City. Ensure that these warranties require the manufacturer to furnish replacements for any part or equipment found to be defective during the warranty period at no cost to the City within 10 calendar days of notification by the City or other mutually agreed upon timeframe.

4.0 Network Devices

Ensure that the manufacturers' warranties for the Ethernet switches are fully transferable from the Contractor to the City. Ensure that these warranties require the manufacturer to furnish replacements for any part of equipment found to be defective during the warranty period at no cost to the City within 10 calendar days of notification by the City or other mutually agreed upon time frame. If the manufacturers' warranties noted below are for a longer period, those longer period warranties will apply.

Ethernet Switches: Provide an Ethernet Switch having a manufacturer's warranty for equipment and parts furnished to be free from defects in fabrication, assembly, and materials for five years from the date of final acceptance by the Engineer in accordance with Section 105-17 of the NCDOT Standard Specifications of all work to be performed under the Contract. Ensure that the Ethernet Switches include technical support for both the product hardware and its software for three years from the date of final acceptance.

2.25 Testing

1.0 General

Perform the required tests for the ITS equipment installed. Notify the Engineer of ITS installation testing at least 7 days in advance. Provide the test procedures to the Engineer at least 14 days in advance for approval prior to commencement of testing. Ensure that the test plan demonstrates each and every functional requirement specified for the device or system under test. Furnish all equipment, software, and supplies necessary for conducting the tests. Include in the test documentation the last calibration date of all test equipment, along with the test parameters as set on the equipment. All test results shall be compared with their corresponding specifications. Failure to conform to the specifications of any test shall be considered a defect and the equipment shall be subject to rejection by the Engineer. Rejected equipment may be offered again for a retest, provided that all deficiencies have been corrected and evidence thereof has been submitted to the Engineer. Subject the installed system to a 90-day operational observation period, during which time the Contractor shall perform any and all maintenance, recalibration, system checking, and display

modifications required by the Engineer. The City has the option to require a restart of the observation period if a major system flaw or failure occurs.

2.0 CCTV Cameras

Subject the equipment covered by these specifications to design approval tests (DATs) and field acceptance tests (FATs). Develop and submit a test plan for DATs and FATs to the Engineer for review and approval. Ensure that test plans demonstrate each and every functional requirement specified for the device or system under test. The Engineer may accept certification by an independent testing laboratory in lieu of the DATs to satisfy the requirement that certain features and functions have been witnessed and documented as performing satisfactorily. Arrange and conduct the tests and satisfy all inspection requirements prior to submission for the Engineer's inspection and acceptance. The Engineer reserves the right to witness all DATs and FATs. Compare all test results with their corresponding specifications. Complete the tests within five calendar days from the initiation of the testing process. Perform local field operational tests at CCTV field sites according to the following:

- a. Verify that physical construction has been completed as specified in the plans.
- b. Verify the quality and tightness of ground and surge protector connections.
- c. Verify proper voltages for all power supplies and related power circuits.
- d. Verify all connections, including correct installation of communication and power cables.
- e. Verify that the video signal from the camera is present and of consistent quality at all connection points between the camera, the cabinet, and any video devices therein.
- f. Exercise pan, tilt, zoom, and focus in all directions and execute a minimum of 3 other programming commands to ensure that the communication links between the cabinet and the camera and between the camera and the TMC are functioning properly.

3.0 Video Transceiver Equipment

Submit a detailed system acceptance test plan to the Engineer for review and approval. Prepare a test plan that covers all areas of system function described in this section, and that is developed according to the various equipment manufacturers' recommendations. Check and test the satisfactory operation of all video transceiver components upon completion of the equipment's installation. Subject the video transceiver equipment to a 90-day operational observation period, during which time the Contractor shall perform any and all maintenance, recalibration, system checking, and display modifications required by the Engineer. The City has the option to require a restart of the observation period if a major system flaw or failure occurs.

4.0 Fiber Optic Cable System

Manufacturer's Testing: Provide documentation of all factory tests performed by the manufacturer for all fiber optic cable, splicing material, cable terminations, and patch panels.

Installation Testing: Notify the Engineer of cable testing at least 7 calendar days in advance. Provide the testing procedures to the Engineer for approval prior to commencement of testing. Perform all tests at 1,310/1,550 nanometer wavelengths, and include the last calibration date of all test equipment with the test parameters set on the equipment in the test documentation. Test all installed fibers (terminated and un-terminated) using methods approved by the Engineer.

End to End Attenuation Testing: Perform testing on all fibers including existing fibers to ensure that end to end attenuation does not exceed allowable loss (0.35 db/km for 1310nm wavelength, 0.25 db/km for 1550nm wavelength, plus 0.5 db for any connectors and 0.1db for splices). Repair or replace cable sections installed under the scope of this contract that exceed allowable attenuation at no cost to the City.

OTDR Tracing: Test all terminated fibers from both cable end points with optical time domain reflectometer (OTDR) signature traces in each direction between the fiber end points at the optical patch terminations. All non-terminated fibers are to be tested in one direction only. The signature traces are to be made at both 1310

and 1550nm. Forms are provided in the contract to record the test results. In addition, one electronic copy on optical media and one hard copy of each signature trace shall be furnished to the Engineer. Ensure all OTDR testing complies with the EIA/TIA-455-61 standard.

Splice Loss Testing: Test all SMF fusion splices including existing SMF fusion splices to ensure that the splice loss for a SMF fusion splice does not exceed a maximum bidirectional average of 0.1 decibel per splice. Repair or replace splices installed under the scope of this contract that exceed allowable attenuation at no cost to the City.

Connector Loss Testing: Ensure that the attenuation in the connector at each termination panel and its associated splice does not exceed 0.5 decibel. Repair or replace connectors exceeding allowable attenuation at no cost to the City.

5.0 Conduit and Locate System

Inspect all conduit route marker system components and approve prior to installation. Fully test the locate wire system after installation to ensure that it functions and can be used to accurately locate the conduit system. Ensure that the fiber curb markers, electronic ball markers, and locate wire system are fully functional prior to installing the fiber optic cable.

6.0 Pull Boxes and Splice Boxes for Fiber Optic Cable

Material Inspection: Inspect all pull boxes and splice boxes and approve prior to installation, and again prior to installation of the fiber optic cable.

Compaction and Density Testing: Ensure compaction procedures for each soil type encountered meets the requirements of NCDOT State Specifications.

7.0 Ethernet Switches

Subject the Ethernet switches to field acceptance tests (FATs). Develop and submit a test plan for FATs to the Engineer for consideration and approval. The Engineer reserves the right to witness all FATs. Complete the tests within five calendar days. **Field Testing:** Once the Ethernet switch has been installed, conduct local FATs at the Ethernet switch field site according to the submitted test plan. Perform the following:

- a. Verify that physical construction has been completed as detailed in the plans.
- b. Inspect the quality and tightness of ground and surge protector connections.
- c. Verify proper voltages for all power supplies and related power circuits.
- d. Connect devices to the power sources.
- e. Verify all connections, including correct installation of communication and power cables.
- f. Verify the network connection to the Ethernet switch through ping and telnet sessions from a remote personal computer (PC) and at the TMC.

The City's Information and Technology unit will configure and verify the Ethernet switch Internet Protocol (IP) addresses and subnetwork mask.

2.26 As-Built Field Data

The Contractor shall keep, at the construction site, a complete set of prints. The prints are the "issued for construction" drawings which have been accepted and signed by the Engineer of Record. During construction, these prints shall be marked to show all the approved deviations from the construction drawings and clearly record the location and extent of infrastructure improvements. The drawings shall show all changes or modifications from the original design and from the final inspection. These deviations shall be shown in the same general detail utilized in the issued for construction drawings. Marking of the prints shall be pursued continuously during construction to keep them up to date. In addition, the Contractor shall maintain full size marked-up drawings, survey notes, and sketches. This information shall be maintained in a current condition at all times until the completion of the work. The resulting field-marked prints and data shall be referred to and marked as "As-Built

Field Data”, and shall be used for no other purpose. They shall be made available for inspection by the Engineer whenever requested during construction and shall be jointly inspected for accuracy and completeness by the Engineer and a responsible representative of the Contractor prior to submission of each monthly pay estimate. Failure to keep the As-Built Field Data current shall be sufficient justification to withhold a retained percentage from the monthly progress payment.

The As-Built Field Data shall be submitted to the Engineer, for review and approval, a minimum of 10 calendar days prior to the date of final inspection. If review of the preliminary as-built drawings reveals errors and/or omissions, the drawings shall be returned to the Contractor for corrections. The Contractor shall make all corrections and return the drawings to the Contracting Officer’s technical representative within 10 calendar days of receipt or other mutually agreed upon timeframe.

The Contractor shall provide a table of all installed devices with the following information for each device:

1. Manufacturer’s model number
2. Device serial number
3. Location
4. Date of installation

The Contractor shall provide two copies of a bound and indexed project equipment manufacturers’ manual that includes manufacturers’ published operation and maintenance material for each device model installed.

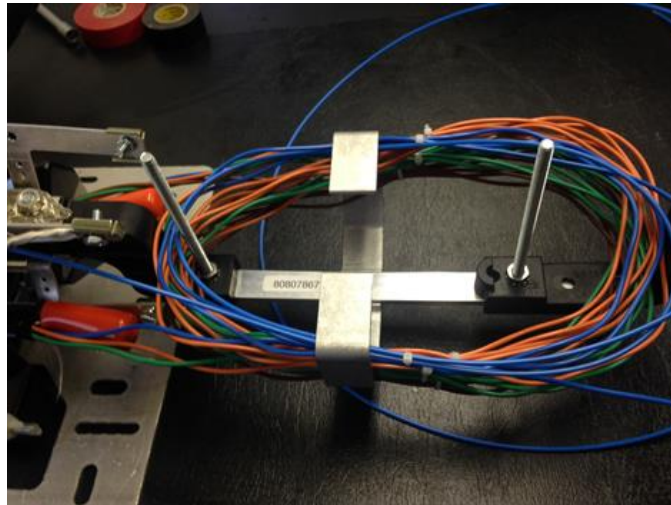
2.27 Splice Enclosure and Fiber Distribution Unit Standards

CDOT Standards for Splice Cases

The pictures are shown using a 6.5 x 22 PLP Dome Enclosure. The standards shall apply to all splices and enclosures that may be used.

Cable Preparation:

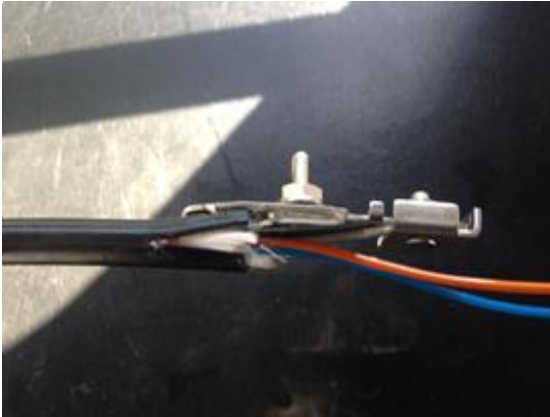
1. For mid-entry applications remove 180 inches of sheathing.
2. For cable end applications remove 90 inches for sheathing.
3. Unwind all buffer tubes back to the sheath opening. Secure neatly in the storage basket with tie wraps individually by color as shown below.



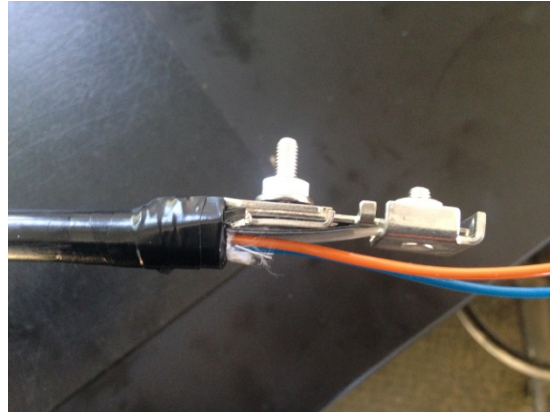
Building Splice Case:

1. Place trunk line cables or express cables in bottom ports (3 &4).
2. Apply supplied silicon lubricant to the outside of grommets prior to installation.

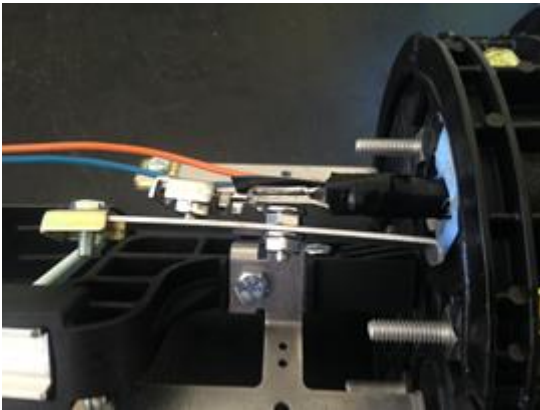
3. Bond all armored cables together and then to one lug on the bulkhead of splice case.



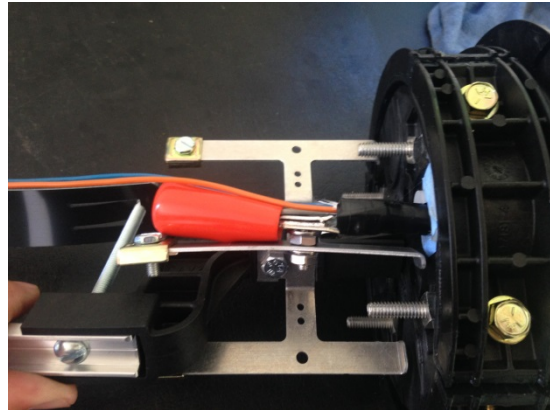
3M bond 4460-D/FO



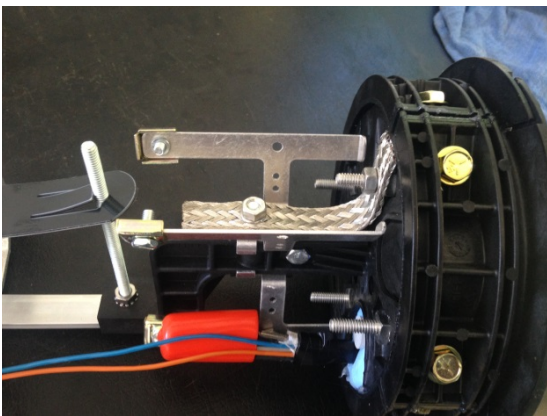
Cover sheath with tape



Secure bond to strength member bracket



Install orange cover

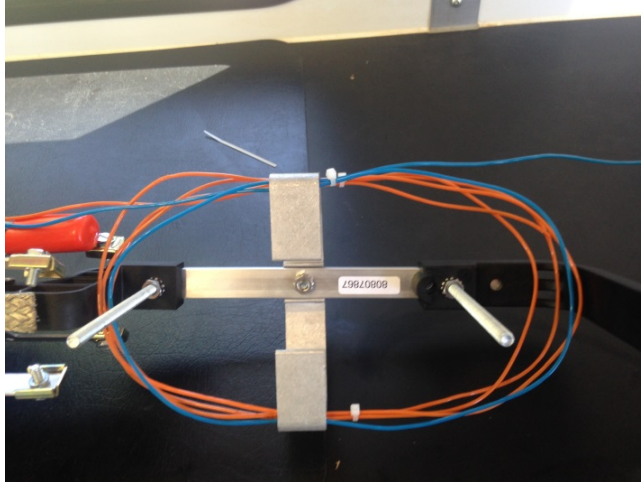


Install braided bond from strength member bracket to bulkhead

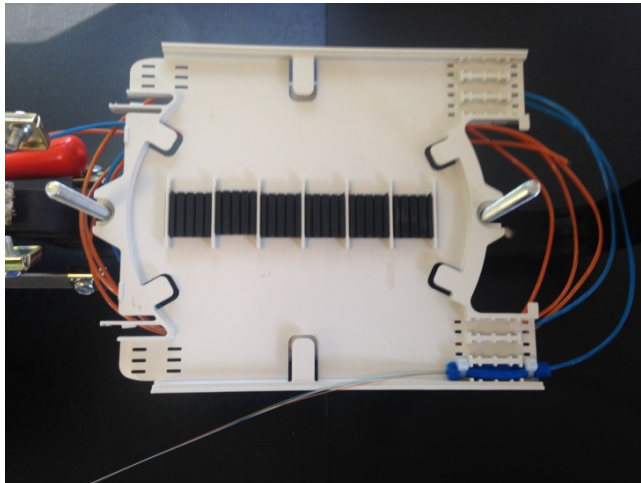


Install ground lug (L70)

4. Buffer tubes to be spliced shall be wrapped one time around storage basket.



5. Buffer tubes shall enter the splice tray at the end opposite of the bulkhead.
6. Buffer tubes shall be wrapped in felt tape and tie wrapped in the tray as shown below.



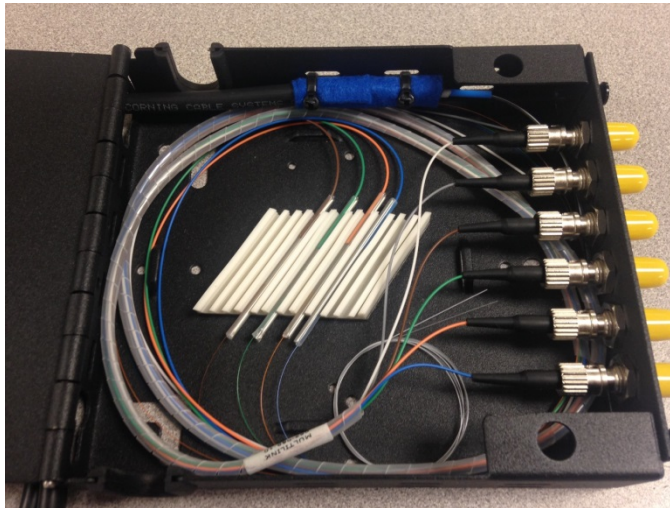
7. Fiber should be pre-measured and trimmed prior to splicing. With cable prepped to 90 inches, this will allow for approximately 2 wraps around splice tray.
8. Splice trays must be neat and orderly and should not contain more splices than designed for. With the exception of trays where a fiber drop will be spliced, only then is it acceptable to double stack the two extra splices.
9. Cables must be labeled with the "From Destination" and "To Destination" as shown below.



CDOT Standards for Fiber Distribution Units (FDU)

Cable Preparation:

1. Remove 36 inches of sheath from the 6 or 12 fiber cable. Leave one inch of buffer tube and remove the rest.
2. Bring 6 or 12 fiber through the back side of the FDU, wrap with felt tape and secure to the side of the unit with two tie wraps.
3. After splicing, wrap the 250 micron fiber in first so that the 900 micron fiber will hold the smaller fiber in place.



2.28 Insurance Requirements

Contractor's Liability and Other Insurance: The Contractor shall purchase and maintain with a company acceptable to the City and authorized to do business in the State of North Carolina, such insurance as will protect him from claims under workers' compensation laws, disability benefit laws or other similar employee benefit laws; from claims of damages because of bodily injury, occupational sickness or disease, or death of his employees; from claims for damages because of bodily injury and personal injury; and from claims for damage and destruction of tangible property, including loss of use resulting there-from – any or all of which may arise out of or result from the Contractor's operations under the Contract Documents, whether such operations be by himself or any subcontractor or anyone directly or indirectly employed by any of them or for whose acts any of them may be legally liable.

The insurance shall be written for not less than the limits of liability specified below.

Automobile: Bodily injury and property liability covering all owned, non-owned and hired automobiles for limits of not less than \$1,000,000.00 bodily injury each person, each accident and \$1,000,000.00 property damage, or \$1,000,000.00 combined single limit – bodily injury and property damage combined.

Commercial General Liability: Bodily injury and property damage liability as shall protect the Contractor and any subcontractor performing work under this Contract from claims of bodily injury or property damage which arise from operations of this Contracts, whether such operations are performed by the Contractor, any subcontractor, or anyone directly or indirectly employed by either. The amounts of such insurance shall not be less than \$1,000,000.00 bodily injury each occurrence/aggregate and \$1,000,000.00 property damage each occurrence/aggregate or \$1,000,000.00 bodily injury and property damage combined single limits each

occurrence/aggregate. This insurance shall include coverage for products/completed operations, personal injury liability and contractual liability assumed under the indemnity provision of this Contract and broad form property damage, explosion, collapse and underground property damage (XC&U). The coverage shall be on an occurrence basis.

Workers' Compensation and Employers' Liability: Shall meet the statutory requirement of the State of North Carolina, in an amount of \$100,000.00 each accident and disease – each employee and \$500,000.00 disease policy limit providing coverage for employees and owners.

The City shall be named as an additional insured under the commercial liability insurance for operations or services rendered under this Contract.

At the time of execution of the Contract, the Contractor shall provide the City with insurance certificates certifying that the foregoing insurance is in force; and such insurance certificates shall include provisions that the insurance shall not be cancelled, allowed to expire, or be materially changed without giving the City thirty (30) days advance written notice by mail.

The insurance certificate **shall** include the following language in the "Description of Operations/Locations/Vehicles" box of the insurance form next to the project name: "**City of Charlotte is listed as an additional insured on the general liability policy.**" Failure to provide this specific language will delay the execution of this contract.

The Contractor is advised that if any part of the work under this Contract is sublet, he shall require the subcontractor(s) to carry insurance as required above. However, this will in no way relieve the Contractor from providing full insurance coverage on all phases of the Project, including any that are sublet.

When certain work is performed inside rights-of-way owned by railroads, North Carolina Department of Transportation or other agencies, both the Contractor and any subcontractors may be required to furnish individual insurance certificates made in favor by the controlling agency, with limits established by that agency.

2.28 Holiday Work Restrictions

No work shall be performed on the Project which is subject to measurement or payment when City offices are closed for observed City holidays. This restriction does not relieve the Contractor from the responsibility of ensuring the safety and well-being of pedestrian and vehicular traffic, and for the protection of public and private property.

In emergencies and certain other conditions deemed necessary by the Engineer, the Contractor may be directed to work on weekends or holidays. There will be no separate measurement or payment for work done under these directives other than those established in the Contract.

2.29 Drainage Structures

The Contractor shall build inverts in all drainage structures in accordance with City Standards. There will be no separate measurement or payment for this work.

2.30 Termination

TERMINATION BY THE CITY FOR CAUSE

1. The City may terminate the Contract if the Contractor:
 - a. Persistently or repeatedly refuses or fails to supply enough properly skilled workers or proper materials;
 - b. Fails to make payment to subcontractors for materials or labor in accordance with the respective agreements between the Contractor and the subcontractors;

- c. Persistently disregards laws, ordinances, or rules, regulations or orders of a public authority having jurisdiction; or
 - d. Otherwise is guilty of substantial breach of a provision of the Contract Documents.
2. When any of the above reasons exist, the City, upon certification by the Engineer that sufficient cause exists to justify such action, may without prejudice to any other rights or remedies of the City and after giving the Contractor and the Contractor's surety, if any, seven days written notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:
 - a. Take possession of the site and all materials, equipment, tools and construction equipment and machinery thereon owned by the Contractor;
 - b. Accept assignment of subcontracts; and
 - c. Finish the work by whatever reasonable method the City may deem expedient. Upon request of the Contractor, the City shall furnish the Contractor a detailed accounting of the costs incurred by the Owner in finishing the work.
3. When the City terminates the Contract for one of the reasons stated above, the Contractor shall not be entitled to receive further payment until the work is finished.

The City Engineer shall have authority to terminate the Contract without additional authorization by City Council.

4. If the unpaid balance of the Contract Sum exceeds the costs of finishing the work, including compensation for the Engineer's services and expenses made necessary thereby, and other damages incurred by the City and not expressly waived, such expenses shall be paid to the Contractor. If such costs and damages exceed the unpaid balance, the Contractor shall pay the difference to the City. The amount paid to the Contractor or the City, as the case may be, shall be certified by the Engineer, upon application, and this obligation for payment shall survive the termination of the Contract.

TERMINATION BY THE CITY FOR CONVENIENCE

1. The City may, at any time, terminate the Contract for the City's convenience and without cause. Upon written notice from the City of such termination for the City's convenience, the Contractor shall:
 - a. Cease operations as directed by the City in the notice;
 - b. Take actions necessary, or that the City may direct, for the protection and preservation of the work; and
 - c. Except for the work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.
2. The City Engineer shall have authority to terminate the Contract without additional authorization by City Council.
3. In case of such termination for the City's convenience, the Contractor shall be entitled to receive payment for work executed, and costs incurred by reason of such termination, along with reasonable overhead and profit for the completed work.

2.31 Dispute Resolution

It is understood and agreed that projects subject to NCGS 143-128(g-h) requires that disputes arising under a Contract subject to a dispute resolution process specified by the Owner (i.e., the City). In compliance with this statutory provision, the City specifies this Article as the dispute resolution process to be used on this Project, regardless if the Project is or is not subject to NCGS 143-128(g-h). It is further understood and agreed that this

dispute resolution process is based on non-binding mediation and will only be effective to the extent that the Parties to any mediated dispute participate in the mediation in good faith. It is also understood and agreed that the City is under no obligation under any circumstance to secure or enforce the participation of any other Party in the mediation of any dispute subject to this Article and NCGS 143-128(g-h).

- A. Any dispute arising between or among the Parties listed in Section C of this Article that arises from an agreement to perform services in conjunction with the Project, including without limitation a breach of such agreement, shall be subject to non-binding mediation administered by the American Arbitration Association under the industry appropriate Mediation Rules ("Rules"). To the extent any provision of the Rules is inconsistent with the provisions of this Article, the provisions of this Article shall control. The mediation provided in this Article shall be used pursuant to this Contract and NCGS 143-128(g-h) and is in lieu of any dispute resolution process adopted by any other government entity, which process shall not apply to this Project.
- B. For purposes of this Article the following definitions shall apply:
 - i) Party or Parties refers to the parties listed in Section C of this Article.
 - ii) Project means project pursuant to this Contract.
- C. The City and any Party contracting with the City or with any first-tier or lower-tier subcontractor for the performance of the Project agree to participate in good faith in any mediation of a dispute subject to this Article and NCGS 143-128(g-h), including without limitation the following Parties (if any): Contractor, independent contractor(s) of the City, surety(ies), subcontractor(s), and supplier(s).
- D. The Contractor and all other Parties shall include this Article in every agreement to which it (any of them) is a Party in performing the Services of the Project without variation or exception. Failure to do so will constitute a breach of this Contract, and the Contractor or other Party failing to include this Article in any agreement required by this Article shall indemnify and hold harmless the remaining Parties from and against any and all claims, including without limitation reasonable attorney fees and other costs of litigation, arising in any manner from such breach. Notwithstanding the foregoing provisions of this Section, it is expressly understood and agreed that the Parties are intended to be and shall be third-party beneficiaries of the provisions of this Article and can enforce the provisions hereof.
- E. The following disputes are not subject to mediation: (i) a dispute seeking a non-monetary recovery; and (ii) a dispute seeking a monetary recovery of \$15,000 or less.
- F. A dispute seeking the extension of any time limit set forth in an agreement to perform the Services for the Project shall be subject to mediation pursuant to this Article and NCGS 143-128(g-h), but only if the damages which would be suffered by the Party seeking the extension would exceed \$15,000 if the disputed extension is denied. To the extent that liquidated damages are set forth in such agreement as the measurement of damages for failure by such Party to meet such time limit, such liquidated damages shall be the exclusive standard for determining the amount of damages associated with such dispute.
- G. For purposes of this Article, a dispute is limited to the recovery of monetary damages from the same transaction or occurrence against a single Party or two or more Parties alleged to be liable jointly, severally or in the alternative. Two or more disputes may not be consolidated or otherwise combined without the consent of all Parties to such disputes.
- H. In addition to such matters as are required by the Rules, a request for mediation shall include the amount of the monetary relief requested.

- I. Prior to requesting mediation, a Party shall form a good faith belief that it is entitled under applicable law to recover the monetary amount to be included in the request from one or more of the remaining Parties. Such belief must be based on a reasonable and prudent investigation into the dispute that is the subject of the request. The request for mediation must be based on such investigation and may not include any amount or the name of any remaining Party, unless supported by such investigation and good faith belief by the Party requesting the mediation.
- J. If a Party breaches any provision of Section I of this Article, it shall indemnify and hold harmless all other Parties from any costs, including reasonable attorney fees and other costs of litigation, and damages incurred by such other Parties that arise from such breach.
- K. All expenses incurred by a Party to a dispute in preparing and presenting any claim or defense at the mediation shall be paid by the Party. Such expenses include without limitation preparation and production of witnesses and exhibits and attorney fees. All other expenses of the mediation, including filing fees and required traveling and other expenses of the mediator, shall be borne as follows: one half by the Party requesting the mediation, with the remaining parties paying equal shares of the remaining expenses and costs; provided that, if the City is named as a party to the mediation, the City shall pay at least one-third of the mediation expenses and costs divided among the Parties. If more than one Party to a dispute requests a mediation, the mediation expenses and costs to be divided among the Parties shall be borne equally by the Parties to the dispute; provided that, if the City is named as a Party to the mediation, the City shall pay at least one-third of the mediation expenses and costs divided among the Parties.
- L. The mediation shall be held at a location agreeable to the mediator and all of the Parties; provided that, if no agreement can be reached, the mediation will be held at such location in Mecklenburg County as the mediator shall determine.
- M. The provisions of this Article are subject to any other provision of this Contract concerning the submission, documentation and/or proof of any claim or dispute. Such other provisions shall apply in full force and shall be satisfied as a condition precedent to mediation pursuant to this Article.
- N. The Parties understand and agree that mediation in accordance with this Article shall be a condition precedent to institution of any legal or equitable proceeding seeking monetary recovery based on any dispute that is subject to mediation pursuant to this Article.

[End of Standard Special Provisions]

PROJECT SPECIAL PROVISIONS

CONSTRUCTION OPERATIONS:

The number of cable/conduit placement operations used at any one time shall not exceed **3**. Additional crews may be allowed if conditions warrant and approved by the Engineer.

CONTRACT PERIOD AND LIQUIDATED DAMAGES:

The Contract Period will begin upon issuance of Notice to Proceed, and will extend **75** calendar days thereafter, including weekends and excluding holidays ([1] day each for Memorial Day, Labor Day, Thanksgiving, Christmas, New Year and [2] days for Independence Day).

Liquidated Damages will be assessed at the rate of **\$500.00** per calendar day for failure to complete the project within the Contract Period.

CONTRACT TIME EXTENSIONS:

The Contractor's attention is directed to Article 108-10 in the Standard Specifications. Item number 5 of sub-article 108-10(B) shall be deleted in its entirety.

CONTINGENCY ALLOWANCE:

Included as a line item in the bid form is a **15 % Contingency** allowance that is to be added to the subtotal. This allowance shall be used only upon issuance of a written change order. Any unused portion of the allowance remaining at the completion of the contract will revert back to the City as a credit. The City reserves the right to delete the contingency allowance from the contract prior to award.

TREE PROTECTION:

All tree root systems shall be protected during all phases of construction. All tree protection and related work shall be in accordance with the Charlotte "Landscape Construction Standards" Tree Preservation and Protection Section 01000.

There will be no separate measurement or payment for this work.

PRUNING AND THINNING OF TREES:

Any pruning shall be carried out by proper arbor cultural standards and in accordance with the "Landscape Construction Standards" Tree Preservation and Protection Section 01000.

TRAFFIC CONTROL

Protection for Construction Staking: The Contractor is responsible for providing, placing, maintaining and removing upon completion, all traffic control devices necessary for the protection of survey crews performing construction staking requested by the Contractor for construction of this project when any

offset, reference points, benchmark or any other control point is within the travel lane of any roadway, drive, parking lot or other area where vehicles could endanger or obstruct the survey crew.

Beginning Work and Street Closings: The Contractor is responsible for notifying the Transportation Engineering Division of CDOT (Gus Jordi: 704-336-7086) in accordance with Sections “ Approval and Notification Requirements for Work in the Public Right-Of-Way” and “Notifications for complete Roadway Closure” of the WATCH of any work where the number of travel lanes is reduced from normal conditions.

The Contractor shall install advance warning signs for the Project. These signs shall be in place for one week before construction activity begins. The Contractor shall begin construction activity on a street on the scheduled date for the closing of the travel lane.

During daily construction work hours, the Contractor will maintain at least one lane of traffic. During periods of construction inactivity, all lanes of traffic will be open unless otherwise shown on the plans or noted in the specifications.

Right-of-Way Use Permit: Contractors and service providers wanting to temporarily (more than five minutes and less than 30 days) occupy a traffic lane, planting strip or sidewalk within the public right of way (ROW) shall obtain a Right of Way Use Permit from CDOT. Each request to occupy the ROW is considered on a case-by-case basis to ensure that there is no adverse impact to public safety. Additionally, all requests shall comply with CDOT's [Work Area Traffic Control Handbook \(WATCH\)](#). The Contractor will be responsible for obtaining the Right-of-Way Use Permit(s) from CDOT for approval to work in the street rights-of-way in Charlotte. The permit(s) shall be obtained from:

Charlotte Department of Transportation

Development Services Division
Right of Way Management Section
704-432-1562
600 East Fourth Street
Charlotte, NC 28202

Traffic Control Plan: Traffic control will be performed by the Contractor based upon the Traffic Control Special Provisions. The Traffic Control Special Provisions may refer to plan sheets for major work items or details in the WATCH, or both.

The Contractor shall be thoroughly familiar with the current edition of the Work Area Traffic Control Handbook (WATCH). All traffic control devices and procedures shall conform to the requirements of the WATCH, the current edition of the Federal Highway Administration (FHWA) *Manual on Uniform Traffic Control Devices* (MUTCD), the current edition of the North Carolina Department of Transportation (NCDOT) Supplement to the *Manual on Uniform Traffic Control Devices for Streets and Highways*, the NCDOT Roadway Standard Drawings and the current edition of the NCDOT Standard Specifications for Roads and Structures.

Under no circumstances shall the WATCH requirements be less restrictive than what is required by the MUTCD or NCDOT Supplement to the MUTCD. Any requirements prescribed by the MUTCD or amendments by the NCDOT Supplement to the MUTCD will supersede the requirements of the WATCH should conflict arise.

The Contractor shall maintain the traffic control as described herein unless the Contractor submits an alternate traffic control plan to the Engineer and it is approved by the Engineer. The Engineer may direct the Contractor to modify the traffic control if, in the Engineer's opinion, traffic is not moving safely or efficiently.

Traffic Control Phasing for this project shall be in accordance with the Traffic Control Plans and the reference diagrams from the WATCH. The contractor shall adhere rigidly to these plans and diagrams. If these diagrams are not typical for field conditions, the diagrams may be combined or altered upon approval of the Engineer. The standards and diagrams are the minimum required. Additional signs, cones, drums, barricades and warning devices may be used, but at no time will less than what is specified on the plans, in the standards, and on diagrams be acceptable.

Maintenance of Traffic: The Contractor shall maintain all travel lanes in accordance with the Traffic Control Plan sheets, and the WATCH diagrams referenced in the Traffic Control Phasing.

Construction or maintenance work that involves closure of a lane of traffic will not be allowed during the peak flow hours as described in **Section "Peak Flow Hours"** of the WATCH, unless otherwise specified in the Contract Documents.

The Contractor shall use flagger control in accordance with the WATCH diagrams referenced in the Traffic Control Phasing and with **Sections "Flagging Procedures", "Duration of Work", and "Temporary Traffic Control Zone Devices"** of the WATCH.

In areas of drop-offs and low shoulders, the Contractor shall backfill up to the edge and elevation of the existing pavement in accordance with **Section "Miscellaneous Considerations, DROP-OFFS AND LOW SHOULDERS"** of the WATCH.

The Contractor will be required to maintain ingress and egress to all businesses and dwellings, and easy access to fire hydrants in accordance with **Section "Miscellaneous Considerations, INGRESS AND EGRESS"** of the WATCH.

The Contractor shall not work on both sides of the road simultaneously within the same area.

The Contractor shall provide adequate drainage under driveways and within the Project area for the duration of the Project.

The Contractor shall mark all hazards within the Project limits with well-maintained signs, barricades, warning and/or channelizing devices.

Traffic Control Devices: The Contractor shall furnish, install, operate, relocate, maintain and remove all temporary traffic control devices necessary for controlling traffic in accordance with the WATCH. The

Contractor shall notify CDOT regarding conflicting permanent signs. Only CDOT forces shall install, remove or relocate any permanent signs within the right-of-way. All construction signs and barricades shall remain in place until the appropriate permanent signs and pavement markings are installed.

Pedestrian Considerations: The Contractor shall accommodate the needs of all pedestrians in accordance with **Section "Pedestrian Considerations"** of the WATCH.

Equipment and Material Storage: During periods of construction inactivity, all construction materials and equipment shall be stored by the Contractor as specified in **Section "Miscellaneous Considerations, STORAGE OF EQUIPMENT AND MATERIALS"** of the WATCH.

Traffic Signals: CDOT will furnish, erect, operate, maintain, relocate and remove all traffic signal equipment on the Project as necessary in accordance with the Project plans and specifications. The Contractor shall notify the Implementation Section Manager of CDOT at least 30 days prior to the installation, relocation or removal of traffic signal equipment on the Project. The Contractor shall not disturb any traffic signal equipment unless otherwise noted on the traffic control plans or directed to do so by the Engineer.

Excavation and Trenches: Excavations and trenches that cannot be properly backfilled and patched prior to the end of the workday shall be secured as specified in **Section "Excavations and Trenches"** of the WATCH.

Use of Police Officers: When it is necessary for the CONTRACTOR to use Police Officers for intersection traffic control, they shall be off duty and/or subcontracted by the CONTRACTOR. On duty Police Officers will only be listed during emergency situations.

MEASUREMENT AND PAYMENT

There will be no separate measurement made for Traffic Control.

[End of Project Special Provisions]

SPECIFICATIONS

All work on the project shall be done in accordance with the 2012 North Carolina Department of Transportation Standard Specifications for Roads and Structures, unless otherwise specified below.

Location of Poles: Pole locations will be staked by the engineer a minimum of 72 hours prior to the contractor’s scheduled commencement of operations.

SECTION A - POLE UNITS

Item Number	Description	Unit
()-()PB/BD	CAMERA POLE AND FOUNDATION UNIT	EACH

Consists of all labor and material necessary to install one (1) self-auguring pole foundation and pole. The pole length in feet is given in the first set of parenthesis and the foundation size (length in inches x diameter in inches) in the second set. The poles shall be constructed of 6063T6 aluminum alloy, with a Black DURONOTIC finish. The pole base and bolt covers shall be constructed of 356-T6 aluminum alloy. The poles shall be round, tapered and of the dimensions listed below. A 1" thick cast aluminum pole cap shall be provided for each pole. The pole cap shall be secured to the pole by a minimum of 2 set screws provided by the pole manufacturer. A 4" by 6" access hole with grounding provisions shall also be provided at the base of the pole. Additional access holes shall be provided 3 feet from the bottom of the pole (180° from the bottom access hole) and 4 feet from the top of the pole (in line with the bottom access hole). Anchor bolts, nuts, flat and lock washers shall be of hot dip galvanized steel. A top deflection of less than one inch at 30 MPH is required with the cameras installed. The poles tabulated below meet the minimum specifications detailed above and have been evaluated for use with the corresponding pole foundations.

The poles and anchors shall be installed in accordance with the manufacturer’s installation instructions. A 10' long, 5/8" diameter copper clad steel ground rod shall be installed for each pole. The bonding jumper between the ground rod and the pole ground lug shall be No. 4 AWG solid copper wire.

Also included in this unit is all labor and material required in the repair and/or replacement of streets, sidewalks, roads, drives, fences, lawns, shrubbery, water mains, pipes, pipelines and contents, underground power and telecommunications facilities, buried sewerage and drainage facilities, and any other property damaged during the unit installation.

Examples:

30-608PB/BD - 30' Valmont Lexington pole, Catalog No.2908-60108T4-335-LAB-1VDA on A.B. Chance foundation, Catalog No. C11242NG4VP.

35-608PB/BD - 35' Valmont Lexington pole, Catalog No.3408-60108T4-335-LAB-1VDA on A.B. Chance foundation, Catalog No. C11242NG4VP.

MEASUREMENT AND PAYMENT

Labor, equipment, and materials required in the installation of each item.

Payment will be made under:

() ()PB/BD	CAMERA POLE AND FOUNDATION UNIT	EACH
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Section BM - MISCELLANEOUS ASSEMBLY UNITS - BURIED PLANT

BM53A(OF) ADHESIVE FIBER WARNING SIGN ASSEMBLY UNIT EACH
Consists of all labor and material to install one (1) adhesive backed reflective vinyl sign, printed with "WARNING FIBER OPTIC CABLE - before digging in this area call" and with "Charlotte DOT 704-336-2050" added. The sign should be mounted 5' above ground level on a cable riser guard as shown on the construction sheets.

Example: REPNET Inc., sign No. SD-5956R.

The following suffix may be used:

OF - The unit is identical to the BM53A unit except that the Contractor-furnished sign is replaced by a CDOT-furnished sign.

MEASUREMENT AND PAYMENT

Labor, equipment, and materials required in the installation of each item.

Payment will be made under:

() BM53A(OF)	ADHESIVE FIBER WARNING ASSEMBLY UNIT	EACH
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BM53CM FIBER CURB MARKER ASSEMBLY UNIT EACH
Consists of all labor and material necessary to install one circular 2.5-inch diameter, plastic, permanent curb marker, in place, as shown on the construction drawings. The marker is to be installed in accordance with the manufacturer's directions, utilizing a manufacturer supplied or approved adhesive. The marker is to have an orange background, with a printed message of "CDOT Fiber Optic Cable - 811 Know what's below. Call before you dig." in black letters.

Example: das Manufacturing Inc., P.N.# 2.5 CDOT-811 with#RS-222-5 adhesive.

MEASUREMENT AND PAYMENT

Labor, equipment, and materials required in the installation of each item.

Payment will be made under:

() BM53CM	FIBER CURB MARKER ASSEMBLY UNIT	EACH
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BM81 CABLE RISER GUARD UNIT EACH
Consists of all labor and material necessary to install one (1) 2-inch inside diameter by 8 feet cable riser guard with two (2) riser guard straps and four (4) lag screws. All pole line hardware to be hot dipped galvanized steel.

MEASUREMENT AND PAYMENT

Labor, equipment, and materials required in the installation of each item.

Payment will be made under:

() BM81	CABLE RISER GUARD UNIT	EACH
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SECTION C - CAMERA/FIBER OPTIC/TRAFFIC EQUIPMENT ASSEMBLY UNITS

C(CAMERA)IP() AX CAMERA ASSEMBLY INSTALLATION UNIT EACH
Consists of all labor and material required to install one (1) Camera Assembly. The camera assembly includes camera, power supply, enclosure, Edco surge suppression, mounting arm, pole mount adapter, 1 1/2 -inch threaded pipe nipple (Premier Mounts CLSW), and any other materials necessary to mount the camera per the manufacturer's specifications. Straight, liquid tight, aluminum, strain relief cable connectors such as Hubbell-Kellems, Cat. No. SHC1034 shall be

SPECIFICATIONS

provided to seal the cable opening in the camera mounting arm and pole. The connectors shall have a 3/4-inch N.P.T. hub and shall accommodate a cord diameter of 0.500 to 0.625 inches. Also provided are aluminum or stainless steel washers and locknuts to secure the connectors and seal the openings. This unit covers drilling a hole in the aluminum pole to accommodate the cable connector. The hole will be drilled 4 feet from the top of the pole in line with the camera mounting position. An access hole will be provided in the pole for securing the connector with a locknut. The C(Camera)IP shall be installed in accordance with the drawing "Unit Detail: C(Camera)IP". The camera must be compatible with the Synergy camera control software and Eyevis display software. This unit is not considered complete until the camera is fully functioning from the camera control panel. The contractor will need to coordinate work with the City to install cabling from the transceivers to the video switch and PTZ control boxes in the CTMC and update the camera control software.

The Camera shall be ONVIF compliant and meet or exceed the following requirements:

1. Video compression: H.264 (MPEG-4 Part 10/AVC) Baseline and Main Profiles, Motion JPEG
2. Image settings: Wide Dynamic Range (WDR): Up to 120 dB depending on scene, manual shutter time, compression, color, brightness, sharpness, white balance, exposure control, exposure zones, backlight compensation, fine tuning of behavior at low light, rotation: 0°, 180°, text and image overlay, 32 individual 3D privacy masks, image freeze on PTZ, highlight compensation, automatic defog
3. Output Connection: RJ45 10BASE
4. -T/100BASE-TX PoE, RJ45 Push-pull Connector (IP66).
5. Power: POE or Axis High PoE midspan 1-port: 100-240 V AC, max 74 W.

Zoom lens shall meet or exceed the following requirements:

1. 4.44-142.6 mm, F1.6-4.41
2. Horizontal angle of view: 62.8°-2.23°
3. Vertical angle of view: 36.8°-1.3°
4. Autofocus, Auto-iris

Pan and Tilt Units shall meet or exceed the following:

1. Pan: continuous 360 Degrees.
2. Tilt: up/down 210 degrees minimum.
3. Input voltage: POE or Axis High PoE midspan 1-port: 100-240 V AC, max 74 W

Cameras shall be equipped with the following:

1. Variable pan, tilt and zoom speeds.
2. Minimum of 64 PTZ preset positions.
3. Freeze frame between preset selections.
4. Password protection for camera settings.
5. Image stabilization.

Control Receiver/Drivers shall meet or exceed the following functions:

1. Zoom in/out.
2. Automatic focus with manual override.
3. Tilt up/down.
4. Automatic iris with manual override.
5. Minimum 64 preset positions for pan, tilt, and zoom.

Example: AXIS Q60-E PTZ Dome Network Camera, Model AXIS Q6044-E

(including AXIS High PoE Midspan, Model T8124) – CE(POE)

Example: Edco (RJ-45(MF) CAT6-5POE-MF) surge suppression

(AX) – An AXIS POE camera is to be provided.

MEASUREMENT AND PAYMENT

Labor, equipment, and materials required in the installation of each item.

Payment will be made under:

()C(CAMERA)IP() AX	CAMERA ASSEMBLY INSTALLATION UNIT	EACH
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CAT5() **ETHERNET DATA CABLE (X-METER)** **EACH**

Consists of all labor and material necessary to install a CAT5e communications cable with RJ-45 connectors at each end. The length (in meters) of the cable shall be indicated in the parentheses. The cable shall be routed between ETHERNET switch and the new or existing CISCO switch in the Traffic Control Box (TCB).

MEASUREMENT AND PAYMENT

Labor, equipment, and materials required in the installation of each item.

Payment will be made under:

()CAT5()	ETHERNET DATA CABLE	EACH
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CF-CAT6ES **CATEGORY 6 ETHERNET SERVICE CABLE** **EACH**

Consists of all labor and material necessary to install one (1) 300-foot outdoor-rated Category 6 Ethernet Cable Assembly on an aerial supporting messenger, existing strand and cable(s), or in conduit. The cable for this unit shall be CAT6 Outdoor Rated Industrial Cable with 4 twisted pairs of 23 AWG wire, 600MHz High Speed rated and pre-terminated with one (1) IP-66 Rated RJ45 Push/Pull Connector. The Push/Pull connector end is to be terminated at the camera, the other end to be terminated in the controller cabinet with a contractor-provided, field-installed, shielded RJ45 connector. The supporting messenger (as required) for this unit shall be 6.6M class A galvanized steel, extra high strength grade strand, with 0.45-inch stainless steel lashing wire and hardware, double lashing the cable to the strand in accordance with the Construction Sheets. All pole line hardware to be hot-dipped galvanized steel.

Examples:

360ns Network Solutions CAT6 STP-IP66-300 cable assembly (includes one factory installed AXIS IP-66 Rated RJ45 Push/Pull Connector and separately, one (1) 360ns Network Solutions CAT6-RJ45-SHLD connector, unless otherwise approved by the Engineer).

MEASUREMENT AND PAYMENT

Labor, equipment, and materials required in the installation of each item.

Payment will be made under:

CF-CAT6ES	CATEGORY 6 ETHERNET SERVICE CABLE	EACH
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Section CH - FIBER OPTIC JUMPER ASSEMBLY UNITS

CHO-4() FIBER OPTIC JUMPER ASSEMBLY UNIT EACH

Consists of all labor and material necessary to install a duplex, single mode fiber jumper. All jumpers for SC and ST connectors shall have a 3mm jacket. Jumpers for the LC connectors shall have a minimum jacket of 2mm jacket, but can be up to a 3mm jacket. The length (in meters) of the jumper shall be indicated in the parentheses. The fiber jumper shall be routed between patch panels or equipment in a splice cabinet, traffic control box (TCB), camera control box (CCB) or traffic management center (TMC). The jumper connections are shown in the splice details.

Options designated by the following suffixes apply:

- SC/ST - SC connector and ST connector.
- ST/LC – ST connector and LC connector.
- ST/ST - ST connectors on both ends.
- LC/LC - LC connectors on both ends.

MEASUREMENT AND PAYMENT

Labor, equipment, and materials required in the installation of each item.
Payment will be made under:

()CHO-4()	FIBER OPTIC JUMPER ASSEMBLY UNIT	EACH
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Section CO - AERIAL FIBER OPTIC CABLE ASSEMBLY UNITS

CO()/E AERIAL FIBER OPTIC CABLE ASSEMBLY UNIT LF

Identical to CO()/6.6M unit except the aerial fiber optic cable will be lashed to existing strand and cable(s).

MEASUREMENT AND PAYMENT

Labor, equipment, and materials required in the installation of each item.
Payment will be made under:

()CO()/E	AERIAL FIBER OPTIC CABLE ASSEMBLY UNIT	LF
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Section FO – FIBER OPTIC ETHERNET SWITCH/MODEM UNIT

FOE(TRX)(ESU)CI ETHERNET SWITCH UNIT/MODULE –CISCO EACH

Consists of all labor and materials necessary to securely mount one (1) industrial (ruggedized) Ethernet switch in an existing traffic control box. The mounting method shall be approved by the Engineer before installation. The unit will be an industrially hardened, fully managed Ethernet switch with a minimum operating temperature range of -40 to 165 degrees F. The unit will have a minimum of four (4) copper 10/100 Ethernet ports and two (2) dual purpose up-link ports which support one (1) 10/100/1000TX port and one (1) Small Form-factor Pluggable (SFP) port. The fiber optic ports will be single mode, LC type. The contractor is to provide all power supplies, modules, ancillary equipment, transformers and power cords (4' minimum) necessary to have a fully functioning 10/100 Ethernet switch that can be powered from a standard 110 VAC 3 pronged outlet. The unit shall be fully compatible and support interoperability with the traffic control network core Cisco 6500 switch. The fiber jumpers routed between the patch panel stub and the transceiver are not part of this unit and will be compensated under the CHO-4() unit. The unit will support expansion of up to eight (8) more copper 10/100 ports, eight (8) more 100BaseFX ports, and 110/220 VAC. The unit will include a 5-year Cisco SMARTnet warranty.

The Ethernet switch will meet the following specifications:

- IEEE 1588v2.
- NEMA TS-2 Compliant.
- Customized Industrial Automation Smartport configuration templates.
- DIN-rail, wall, and 19" rack mount options.
- Small Form-factor Pluggable (SFP) options for 100Base-LX, 100Base-FX, 1000Base-SX, 1000Base-LX, and 1000Base-ZX deployments.
- Common Industrial Protocol (CIP) management support.
- Swappable flash memory for easy switch replacement.

The Ethernet switch will support the following protocol/security features sets:

- Virtual Local Area Networks (VLANs)/Quality of Service (QoS).
- Resilient Ethernet Protocol support for fast convergence (50ms).
- IGMPv3 snooping
- IGMP Filtering
- IEEE 802.1d
- IEEE 802.1x.
- Port Based Access Control Lists for Layer 2 Interfaces.
- MAC Address Filtering.
- Secure Shell (SSH) v2 Protocol.
- SNMPv3.
- TACACS+ and RADIUS authentication.
- MAC address notification.
- DHCP snooping.
- DHCP Interface Tracker (Option 82).
- Port Security.
- Support for up to 512 ACLs with two Profiles:
- Security (384 security ACL entries and 128 QoS Policies).
- QoS (128 Security ACL entries and 384 QoS Policies).
- Configurable up to 8000 MAC addresses
- Configurable up to 255 IGMP groups.
- Configurable maximum transmission unit (MTU) of up to 9000 bytes, with a maximum Ethernet frame size of 9018 bytes (jumbo frames) for bridging on Gigabit Ethernet ports, and up to 1998 bytes for bridging of Multiprotocol Label Switching (MPLS) tagged frames on both 10/100 and 10/100/1000 ports.

Options designated by the following suffixes apply:

4-Four (4) copper 10/100 Ethernet ports

Model: Cisco IE-3000-4TC Cisco PWR-IE3000-AC Power First 1FD97 Cisco SMARTnet 8X5XNBD for 4-port switches

8-Eight (8) copper 10/100 Ethernet ports

SPECIFICATIONS

Model: Cisco IE-3000-8TC Cisco PWR-IE3000-AC Power First 1FD97 Cisco SMARTnet 8X5XNBD for 8-port switches

MEASUREMENT AND PAYMENT

Labor, equipment, and materials required in the installation of each item.
 Payment will be made under:

() FOE(TRX)(ESU)CI	ETHERNET SWITCH UNIT/MODULE –CISCO	EACH
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FOE(TRX)(ESU)(SFP)() ETHERNET SMALL FORM-FACTOR PLUGGABLE PORT EACH

Consists of all labor and material necessary to securely install one (1) fiber optic Ethernet Small Form-Factor Pluggable (SFP) port that plugs into the Fast Ethernet port or slot on the Ethernet switch. The port shall be compatible with IEEE 802.3ah Draft 3.0 and with standard as specified in IEEE 802.3. The connectors shall be dual LC connectors. The SFP furnished shall be a “hot swappable”, ruggedized, industrial rated transceiver with an operating temperature range of –40 to 85 degrees C and be of the same manufacturer as the FOE(TRX)(ESU) Ethernet switch.

Options designated by the following suffixes apply:

LX-R A 1310nm, single-mode, Fast Ethernet, ruggedized, 100Base-LX10 SFP transceiver with an operating range of 10km and industrial rated with an operating temperature range of -40to 85 degrees C.
 Model: Cisco GLC-FE-100LX-RGD

GLX-R A 1310nm, single-mode, ruggedized, Gigabit 1000Base-LX/LH SFP transceiver with an operating range of 10km and industrial rated with an operating temperature range of -40 to 85 degrees C.
 Model: Cisco GLC-LX-SM-RGD

GZX-R A 1550nm, single-mode, ruggedized, Gigabit 1000Base-ZX SFP transceiver with an operating range of 70km and industrial rated with an operating temperature range of -40 to 85 degrees C.
 Model: Cisco GLC-ZX-SM-RGD

GEX-E A 1310nm, single-mode, non-ruggedized, Gigabit 1000Base-EX SFP transceiver with an operating range of 40km and commercial rated with an operating temperature range of -5 to 85 degrees C. SFP shall support digital optical monitoring (DOM) functions.
 Model: Cisco GLC-EX-SMD

GZX-E A 1550nm, single-mode, non-ruggedized, Gigabit 1000 Base-ZX SFP transceiver with an operating range of 70km and commercial rated with an operating temperature range of -5 to 85 degrees C. SFP shall support digital optical monitoring (DOM) functions.
 Model: Cisco SFP-GE-Z

GLX-E A 1310nm, single-mode, non-ruggedized, Gigabit Ethernet 1000Base-LX SFP transceiver with an operating range of 10km and commercial rated with an operating temperature range of -5 to 85 degrees C. SFP shall support digital optical monitoring (DOM) functions.
 Model: Cisco SFP-GE-L

GZX-C A 1550nm, single-mode, non-ruggedized, Gigabit 1000 Base-ZX SFP transceiver with an operating range of 70km and commercial rated with an operating temperature range of 0 to 70 degrees C. SFP shall support digital optical monitoring (DOM) functions.

Model: Cisco GLC-ZX-SM

MEASUREMENT AND PAYMENT

Labor, equipment, and materials required in the installation of each item.

Payment will be made under:

()FOE(TRX)(ESU)(SFP)() EHTERNET SMALL FORM-FACTOR PLUGGABLE PORT	EACH
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Section HU - UNDERGROUND SPLICE CLOSURE ASSEMBLY UNITS

HUO() UNDERGROUND FIBER OPTIC CLOSURE ASSEMBLY UNIT EACH

Consists of all labor and material necessary to install a 6.5"x17" or 9.5"x19" underground fiber optic splice closure in accordance with the manufacturer's installation instructions. Armored cables are to be bonded together and secured to one bolt on the bulkhead and a ground lug put on that bolt on the exterior side of the bulkhead. This closure is to be equipped with enough splice trays to accommodate the number of splices in parenthesis. The number of splices in each tray shall not exceed the manufacturer's recommendation. At buffer tube entry points into the splice tray each buffer tube is to be wrapped with felt tape and secured with tie wraps. Fiber cables are to be labeled on the outside of the splice case with the "From" destination and the "To" destination noted on a cable marker tag and secured to the cables. For mid-entry applications, all buffer tubes shall be unwrapped and secured separately in the storage basket. For mid-entry applications, remove 180 inches of outer sheathing and armored jacket and for all other applications remove 90 inches of outer sheathing and armored jacket. The below table should be used to identify splice enclosure design. The part numbers are shown in bold.

Example: **HUO(24)** COYOTE Dome Express 6.5" x 17" (Loose Tube) Splice Case 8006988 with (2) 8003701 grommets included.

Prefix	None	L	G	G1/G2	T
Cables For Mid-Entry Splice	COYOTE Dome Express 6.5" x 17" (Loose Tube) Splice Case (2) 8003701 Included 8006988	COYOTE Dome 9.5" x 19" Closure Splice Case (2) 8003693 Included (2) 8003693 Included COYD919B-000	COYOTE Grommet for adding 6F Drop (Up to 4 cables) 8003664	COYOTE Grommet for adding cables: 6F to 144F 8003701 For 192F & 288F Use 8003693	Additional single fusion 24 Count splice trays needed 80809958
24 Fiber Cable	X		X	X	1
36 Fiber Cable	X		X	X	1
48 Fiber Cable	X		X	X	2
72 Fiber	X		X	X	3

SPECIFICATIONS

Cable					
96 Fiber Cable	X		X	X	4
144 Fiber Cable		X	X	X	6
192 Fiber Cable		X	X	X	8
288 Fiber Cable		X	X	X	12

Section PM - MISCELLANEOUS ASSEMBLY UNITS - AERIAL PLANT

PM2 POLE GROUND ASSEMBLY UNIT EACH

Consists of all labor and material necessary to construct and install, using #4 AWG bare copper ground wire, a pole ground assembly. This unit also includes all labor and material required in the repair and/or replacement of streets, sidewalks, roads, drives, fences, lawns, shrubbery, water mains, pipes, pipelines and contents, underground power and telecommunications facilities, buried sewerage and drainage facilities, and any other property damaged during the unit installation. The following items will be required.

- 1 5/8" by 10' copper clad steel ground rod
- 1 ground rod clamp
- #4 AWG bare copper ground wire and ground wire staples as required

Staples on ground wire should be about 18-inches apart. Ground wire should clear all hardware by 2-inches minimum and be stapled to maintain this position. The ground rod should be driven 24 inches from the pole with the ground wire and top of the rod at a minimum 24-inch depth.

MEASUREMENT AND PAYMENT

Labor, equipment, and materials required in the installation of each item.

Payment will be made under:

()PM2	POLE GROUND ASSEMBLY UNIT	EACH
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Section UD - UNDERGROUND CONDUIT ASSEMBLY UNITS

UD() UNDERGROUND CONDUIT ASSEMBLY UNIT LF

Consists of all labor and material necessary to install one (1) foot of single or multi duct conduit. The number of conduits and the inside diameter of the conduits shall be indicated in the parentheses. All conduits are to be HDPE SDR11 unless the conduit size is followed by SCH40, SCH80 or GS which indicates sched plugs 40 PVC, schedule 80 PVC or galvanized steel conduit. All conduits will be proofed with a mandrel of at least 50% the diameter of the conduit and a pull line installed in each as verification. Also included are the conduit bends, couplings, adapters, fittings, plugs or seals and spacers. This unit also includes all labor and material required in the repair and/or replacement of streets, sidewalks, roads, drives, fences, lawns, shrubbery, water mains, pipes, pipelines and contents, underground power and telecommunications facilities, and any other property damaged during the unit installation.

Options designated by the following suffixes apply:

DB – Obtain approval before beginning drill operations. Conduits to be placed by Directional Bore SDR 11 smooth-wall multicolored conduits will be used. Boring to be done at a minimum depth of 4-feet except under roadways. Boring to be done at a minimum depth of 4-feet under city maintained roads and 8-feet under state maintained roads. In addition, the Contractor will maintain drilling logs for each bore which shall be furnished to the Engineer.

(B)- When boring more than one conduit under state-maintained roads, bundle the conduits together by taping (bundling) securely together at intervals of not more than four (4) feet (or other suitable means of bundling) or maintain a separation of 5-feet between conduits. The number of conduits and the inside diameter of the conduits shall be indicated in the parentheses.

HD - Conduits to be placed by hand-digging at a minimum depth of 3-feet. Included is the shoring, backfilling, tamping and disposal of water and excess or unusable material. Also included is 3" wide extra stretch orange colored plastic signal cable warning tape placed during backfill operations one foot belowground level.

ID - Inner-Ducts to be pulled into Existing Conduit.

LW - Consists of all necessary labor and material to install simultaneously with the conduit an insulated #10 AWG solid copper locate wire. The sections of locate wire shall be joined together with compression couplers or terminated on a ground rod.

Example: Sosmetal Products, Inc. Non-Insulated, seamless, #10AWG crimp butt connector.

PC - 3" wide extra stretch red colored plastic power cable warning tape placed during backfill operations one foot below ground level. This tape is in addition to the signal cable warning tape.

RB - Conduits to be placed by directional or jack-and-bore method. This unit includes the excavation of existing utilities and bore pits, including shoring, necessary to accomplish the bore in a restricted right-of-way.

TR - Conduits to be placed by Trenching at a minimum depth of 3-feet. Included is the trench shoring, backfilling, tamping and disposal of water and excess or unusable material. Also included is 3" wide extra stretch orange colored plastic signal cable warning tape placed during backfill operations one foot belowground level. For trenches parallel to State maintained roadways the bottom of excavation shall not be nearer to the edge of pavement (measured in a horizontal plane) than the depth of the excavations so that the theoretical slope from the edge of the pavement to the bottom of the ditch will be no steeper than a one-to-one slope.

RC - Riser conduit with attaching hardware. Paid on a per foot of riser basis.

RC/WH - Riser conduit with weather head and attaching hardware. Paid on a per foot of riser basis.

S -Conduits shall be schedule 40 and factory split (both straight and bend sections).

2LB - Install two (2) 1.5" PVC pulling elbow fittings to access CCB. Includes drilling 1.5" diameter hole in the cabinet bottom, to accept a 2" long 1.5" threaded nipple.

**Follow NCDOT Standard Specification 1715 (D) when Directional Bore operations take place within State Right-of-Way:*

At all points where HDPE conduit will traverse under roadways, driveways, sidewalks or Controlled Access Areas including entrance/exit ramps, maintain a minimum depth of 4 ft or 8 times the back reamer’s diameter, whichever is deeper. For an installation that runs parallel to a controlled access area or entrance/exit ramps maintain a minimum depth of 30" below finished grade. Maintain a minimum clearance of 30" below finished grade when crossing ditch lines. For the following structures, the minimum clearance requirements are:

TABLE 1715-1: Minimum Clearance Requirements for Structures	
Man-made Structure	Minimum Clearance Requirement
Bridge Foundation	5 ft horizontal and 4 ft vertical (clearances greater than minimum horizontal should continue to use the 4V:5H ratio, i.e., 10 ft horizontal should be no deeper than 8 ft)
Drainage Pipes 60" or Less	1 ft above or below [while maintaining a minimum depth of 30" below grade]
Drainage Pipes Greater than 60"	1 ft above or 4 ft below
	[while maintaining a minimum depth of 30" below grade]
Box Culverts	1 ft above or 4 ft below [while maintaining a minimum depth of 30" below grade]
Slope Protection	2 ft below
Slope Protection Foundation Footing	5 ft below

Provide a means of collecting and containing drilling 1 fluid/slurry that returns to the surface such as a slurry pit. Provide measures to prevent drilling fluids from entering drainage ditches and storm sewer systems. Prevent drilling fluid/slurry from accumulating on or flowing onto pedestrian walkways, driveways and streets. Immediately remove all drilling fluids/slurry that are accidentally spilled. Use drill head suitable for type of material being drilled and sized no more than 2" larger than the outer diameter of the conduit. Direct drill to obtain proper depth and desired destination. Pressure grout with an approved bentonite/polymer slurry mixture to fill all voids. Do not jet alone or wet bore with water. Upon completion of conduit installation, perform a mandrel test on conduit system to ensure conduit has not been damaged. Furnish non-metallic mandrel with a diameter of approximately 50% of the inside diameter of the conduit in which it is to be pulled through. If damage has occurred, replace the entire length of conduit and ensure that pull line is re-installed.

Drilling Fluids

Use lubrication for subsequent removal of material and immediate installation of the conduit. The use of water and other fluids in connection with directional drilling operations will be permitted only to the extent necessary to lubricate cuttings. Do not jet alone or wet bore with water. Use drilling fluid/slurry consisting of at least 10% high-grade bentonite/polymer slurry to consolidate excavated material and seal drill hole walls. Transport waste drilling fluid/slurry from site and dispose of in a method that complies with Federal, State and local laws and regulations. Consists of all necessary labor and materials to encase the conduit assembly in concrete as determined by the Engineer.

MEASUREMENT AND PAYMENT

Labor, equipment, and materials required in the installation of each item.
 Payment will be made under:

()UD()	UNDERGROUND CONDUIT ASSEMBLY UNIT	LF
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UD-CB() CONDUIT BUILDING ENTRANCE UNIT EACH

Consists of all labor and material necessary to core-bore a masonry building wall or concrete floor to accommodate installation of a new conduit in accordance with the construction drawings. The Contractor is to provide appropriate fire seal for penetrating floor slabs and rated walls. The fire sealant is to be UL Listed with a 2-hour minimum fire rating. The diameter of the hole, in inches, shall be indicated in the parentheses. The conduit is not a part of this unit and will be inventoried under the UD() unit.

MEASUREMENT AND PAYMENT

Labor, equipment, and materials required in the installation of each item.

Payment will be made under:

()UD-CB()	CONDUIT BUILDING ENTRANCE UNIT	EACH
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UD-EX PROOF EXISTING CONDUIT LF

Consists of all labor and material necessary to proof all existing conduits through which proposed fiber is routed, per linear foot. Proof existing conduit with a mandrel of at least 50% the diameter of the existing conduit and a pull line installed in each as verification before installation of fiber cable. Repair and/or replace damaged sections of existing conduit per UD(). Payment for repairing and/or replacing damaged sections of existing conduit shall be at the contract unit price for the applicable UD() unit. Exposing and accessing existing conduit to connect to new replacement conduit shall be paid for under (W)UD.

MEASUREMENT AND PAYMENT

Labor, equipment, and materials required in the installation of each item.

Payment will be made under:

()UD-EX	PROOF EXISTING CONDUIT	LF
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UD-SW CONCRETE REPAIR UNIT SQUARE YARD

Consists of all labor and material necessary for the removal and restoration of concrete surfaces, from 4 to 6 inches in thickness, per square yard. This unit applied to sidewalks and driveways. The concrete shall be replaced to the standards of CDOT or other governing authority. All concrete surfaces shall be saw cut prior to removal. This unit includes the replacement of any gravel base required. Any section of sidewalk temporarily removed shall be back-filled with gravel, and made passable by wheelchair within twenty-four hours of disruption; pending permanent repair. Any concrete removal and repair NOT shown on the Construction Sheets shall be approved by the Engineer in advance. This unit does not include curbs damaged by the Contractor during construction.

The following suffix may be used:

(WIN) - The unit is identical to the UD-SW unit except that the concrete repair is for the placement of a Windstream Handhole not a CDOT handhole. This suffix is used for accounting purposes.

MEASUREMENT AND PAYMENT

Labor, equipment, and materials required in the installation of each item.

Payment will be made under:

()UD-SW	CONCRETE REPAIR UNIT	SQUARE YARD
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Section UH - UNDERGROUND HANDHOLE ASSEMBLY UNITS

UH-1 UNDERGROUND HANDHOLE ASSEMBLY UNIT EACH

SPECIFICATIONS

Consists of all labor and material necessary to install a NCDOT approved 17"x30"x30" polymer concrete handhole with a cover embossed "CDOT Fiber Optic" on a 6" deep layer of #57 crushed stone tamped down with a compacting device. Included is a 5/8" by 10' copper clad steel ground rod placed in the corner of the handhole with a hand coil of #6AWG copper ground wire. Also included is the restoration of the surface around the handhole and the removal and disposal of all excess dirt and debris. This unit also includes all labor and material required in the repair and/or replacement of streets, roads, drives, fences, lawns, shrubbery, water mains, pipes, pipelines and contents, underground power and telecommunications facilities, buried sewerage and drainage facilities, and any other property damaged during the unit installation. The Contractor will be compensated for sidewalk restoration under the UD-SW unit. This unit also consists of all labor and materials necessary to install one (1) 4-ounce bag of fire ant killer in and/or around the handhole as directed by the Engineer.

Example: Quazite Part #PG1730BA30 handhole with a #PG1730H500cover and Rainbow Technology Corp., Cat. No. 4480.

MEASUREMENT AND PAYMENT

Labor, equipment, and materials required in the installation of each item.

Payment will be made under:

()UH-1	UNDERGROUND HANDHOLE ASSEMBLY UNIT	EACH
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UH-2 UNDERGROUND HANDHOLE ASSEMBLY UNIT EACH

Consists of all labor and material necessary to install a NCDOT approved 24"x36"x30" polymer concrete handhole with a cover embossed "CDOT Fiber Optic" on a 6" deep layer of #57 crushed stone tamped down with a compacting device. Included is a 5/8" by 10' copper clad steel ground rod placed in the corner of the handhole with a hand coil of #6AWG copper ground wire. Also included is the restoration of the surface around the handhole and the removal and disposal of all excess dirt and debris. This unit also includes all labor and material required in the repair and/or replacement of streets, roads, drives, fences, lawns, shrubbery, water mains, pipes, pipelines and contents, underground power and telecommunications facilities, buried sewerage and drainage facilities, and any other property damaged during the unit installation. The Contractor will be compensated for sidewalk restoration under the UD-SW unit. This unit also consists of all labor and materials necessary to install one (1) 4-ounce bag of fire ant killer in and/or around the handhole as directed by the Engineer.

Example: Quazite Part #PG2436BA30 handhole with a #PG2436H509 cover and Rainbow Technology Corp., Cat. No. 4480, or equivalents to be approved by the Engineer.

The following suffix may be used:

(WIN) - The unit is identical to the UH-2 unit except that the handhole is for Windstream not CDOT with a cover embossed "WINDSTREAM". This suffix is used for accounting purposes.

MEASUREMENT AND PAYMENT

Labor, equipment, and materials required in the installation of each item.

Payment will be made under:

()UH-2	UNDERGROUND HANDHOLE ASSEMBLY UNIT	EACH
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Section UO - UNDERGROUND FIBER OPTIC CABLE ASSEMBLY UNITS

U()ST()JML	UNDERGROUND FILLED FIBER OPTIC PATCH PANEL STUB UNIT	EACH
	SPECIFICATIONS	

Consists of all labor and material to install one (1) fiber optic cable stub with a field-terminated patch panel. The number in the first set of parentheses provides for the number of fibers in the fiber stub and should match precisely the number of ports of the housing. The number in the second set of parentheses is the length, in feet, of the fiber optic stub. The stub shall be riser-rated, single-mode, indoor/outdoor, gel-free, all- dielectric cable with flame retardant UV-resistant outer jacket, and an attenuation loss not exceeding 0.4db/km @ 1310nm. The patch panel shall be equipped with enough ST-type connector ports to accommodate all fibers in the stub, and each port shall have a factory- installed fiber jumper of one meter in length. The attenuation loss for the complete assembly shall not exceed 1.5db. Also, included is the placing of a CDOT-provided cable identification tag at each handhole or pull box. The stub shall be placed on a traffic control box shelf, but not permanently secured. This unit includes the required number of single fusion splices to splice each fiber of the fiber optic stub to the jumpers of the patch panel. The position number associated with each port shall be stenciled, at the factory, on the face of the housing

Examples: Multilink FWM-1X-SP wall-mount enclosure, Part # ML-33-006-B-SM6-T9-001-00-00.

Corning FREEDM® LST™ Cables, Part # 006ESF-T4101D20 (6 fiber, single mode, Gel-free Cable, indoor/outdoor riser, 12-fibers per tube standard, with markings every 4 feet, performance rated for SMFO with no additional special requirements)

The following suffix may be used:

LW – Consists of all necessary labor and material to install, simultaneously with the underground fiber optic cable, an insulated #10 AWG solid copper locate wire. The sections of locate wire shall be joined together with compression couplers or terminated on a ground rod.

MEASUREMENT AND PAYMENT

Labor, equipment, and materials required in the installation of each item.

Payment will be made under:

() U()ST()ML	UNDERGROUND FILLED FIBER OPTIC PATCH PANEL STUB UNIT	EACH
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UO() **UNDERGROUND FIBER OPTIC CABLE ASSEMBLY UNIT** **LF**

Consists of all labor and material necessary to install one (1) foot of underground dry tube fiber optic cable in underground conduit and handholes. This unit also consists of setting up the cable within the handhole, providing and placing pull lines, duct seals or plugs, and rodding and cleaning of ducts, all as required in accordance with the Construction Sheets. The Contractor shall not exceed the maximum pulling tension of the cable as specified by the manufacturer. Also included is the placing of a CDOT provided cable identification tag at each handhole or pullbox.

A. The fiber optic cable will be single mode, low water peak, single jacket, shielded, sunlight resistant, outdoor rated, with loose buffer tube and dielectric strength member construction. The number of fibers required is shown in parenthesis. The cable will be double window tested at 1310nm and 1550nm with .35db/km and .25db/km attenuation, respectively.

B. The length of underground cable measured for compensation purposes is determined by measuring the distances paralleling the cable plus the vertical lengths of cable installed on supporting structures

Example: UO12 - An underground fiber optic cable with 12 fibers.

The following suffix may be used:

LW - Consists of all necessary labor and material to install simultaneously with the underground fiber optic cable an insulated #10 AWG solid copper locate wire. The sections of locate wire shall be joined together with compression couplers or terminated on a ground rod.

Example: Sosmetal Products, Inc. Non-Insulated, seamless, #10AWG crimp butt connector.

+MAX(1) -The unit is identical to the UO() unit except that a single Max Cell, of the size indicated in parenthesis, will be pulled in with the cable.

ISP - the unit is identical to the UO() unit except that the cable shall be Indoor/Outdoor rated.

MEASUREMENT AND PAYMENT

Labor, equipment, and materials required in the installation of each item.

Payment will be made under:

(UO)	UNDERGROUND FIBER OPTIC CABLE ASSEMBLY UNIT	LF
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Section W - REARRANGEMENT UNIT

(W)10(15)-5335 PEDESTRIAN SIGNAL POLE REPLACEMENT UNIT **EACH**

Consists of the necessary labor and material to replace an existing 10' Pedestrian Signal pole with a 15' Schedule 40, 6061-T6 spun aluminum 4" diameter pole. The pole is to be threaded to match the existing base, which is to be retained unless directed otherwise by the Engineer. Existing unsatisfactorily secured pole bases will be retro-fitted in- place with additional anchor bolts as detailed on the construction plan sheets. Ground lugs are to be installed inside the existing bases. Transfer of any Pedestrian Sign or Signal assemblies will be inventoried separately under the appropriate (W)PM25 unit.

Example: Pelco PB-5100-15 spun aluminum pole, Pelco PB-5323-PNC Grounding Lug, Pelco PB-5401 Acorn-type Pole Cap and Red Head SWW-5850 Type 316 Stainless Steel 5/8"x3/4" concrete anchor, or equivalent as approved by the Engineer.

MEASUREMENT AND PAYMENT

Labor, equipment, and materials required in the installation of each item.

Payment will be made under:

(W)10(15)-5335	PEDESTRIAN SIGNAL POLE REPLACEMENT UNIT	EACH
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(W)CC **ACCESS TO THE TRAFFIC SIGNAL CONTROLLER CABINET** **EACH**

Consists of all labor and material necessary to install the cable into existing traffic signal controller cabinet (TSCC) through a CDOT provided conduit entrance/access. The Contractor shall contact CDOT to make sure CDOT has created a spare conduit entrance/access. It is the Contractor's responsibility to ensure a spare conduit entrance has been created by CDOT before the cable and conduit are routed to the TSCC. At locations shown on the plans the Contractor shall connect the new or existing conduit/riser/handhole to the existing TSCC where the CDOT provided spare conduit terminates. If the terminus of the CDOT created conduit entrance to the TSCC is not marked, it is the Contractors responsibility to locate the entrance terminus and ensure it is usable. This unit also includes all labor and material required to repair and/or replacement of street, sidewalks, roads, drives, lawns, shrubbery, watermaines, pipes, pipelines and contents, underground power and telecommunications facilities, buried sewerage and drainage facilities, and any other property damaged during the unit installation.

MEASUREMENT AND PAYMENT

Labor, equipment, and materials required in the installation of each item.

Payment will be made under:

(/)(W)CC	ACCESS TO THE TRAFFIC SIGNAL CONTROLLER CABINET	EACH
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(W)CO72/E

CABLE RE-LASHING UNIT

LF

Consists of all labor and material necessary to re-lash one (1) foot of existing 72 strand cable or cables onto one (1) existing strand.

MEASUREMENT AND PAYMENT

Labor, equipment, and materials required in the installation of each item.

Payment will be made under:

(/)(W)CO72/E	CABLE RE-LASHING UNIT	LF
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(W)PM25(EP SA)

ELECTRIC PEDESTRIAN SIGNAL ASSEMBLY UNIT

EACH

Consists of the necessary labor and material to transfer one Pedestrian Signal or other electric device from one pole to a new pole set nearby, or to a new location on the same pole. This includes disconnecting the device prior to transfer, and reconnecting upon transfer. Existing hardware, in good condition, should be utilized to the greatest extent possible. This unit required coordination with CDOT forces so they may turn power off and on to the device as required. The Pedestrian Signal shall be reinstalled at the same height and orientation. The Pedestrian Signal shall not be installed such that the bottom of the housing is less than 7 feet from the ground. The Pedestrian Signals shall be reinstalled and working within 24 hours of removal unless otherwise approved by the Engineer. See Guide Drawing #1 and the (W)PM25 Unit Detail Drawing for placement information and parts list.

MEASUREMENT AND PAYMENT

Labor, equipment, and materials required in the installation of each item.

Payment will be made under:

(/)(W)PM25(EP SA)	ELECTRIC PEDESTRIAN SIGNAL ASSEMBLY UNIT	EACH
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(W)PM25(P SA) PEDESTRIAN SIGN ASSEMBLY REARRANGEMENT UNIT

EACH

Consists of the necessary labor and material to transfer one Pedestrian Sign from one pole to a new pole set nearby, or to a new location on the same pole. Existing hardware, in good condition, should be utilized to the greatest extent possible. See Guide Drawing #1 and the (W)PM25 Unit Detail Drawing for placement information and parts list.

MEASUREMENT AND PAYMENT

Labor, equipment, and materials required in the installation of each item.

Payment will be made under:

(/)(W)PM25(P SA)	PEDESTRIAN SIGN ASSEMBLY REARRANGEMENT UNIT	EACH
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(W)PM-ELB

IN-SPAN FIBER OPTIC CABLE-SLACK STOW REARRANGEMENT UNIT

EACH

Consists of all labor and material necessary to rearrange two (2) aluminum, 10" diameter, aerial storage racks and associated hardware. The cable to be stowed is NOT a part of this unit and will be compensated for under the CO(/)ELB Unit.

MEASUREMENT AND PAYMENT

Labor, equipment, and materials required in the installation of each item.

Payment will be made under:

(/)(W)PM-ELB	IN-SPAN FIBER OPTIC CABLE-SLACK STOW REARRANGEMENT UNIT	EACH
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SPECIFICATIONS

00 90 00 – ADDENDA