| | |
|---|---|
| **Control** | **6451-85-001** |
| **Project** | **RMC - 645185001** |
| **Highway** | **IH0610** |
| **County** | **HARRIS** |

# ADDENDUM ACKNOWLEDGMENT

**Each bidder is required to acknowledge receipt of an addendum issued for a specific project. This page is provided for the purpose of acknowledging an addendum.**

FAILURE TO ACKNOWLEDGE RECEIPT OF AN ADDENDUM WILL RESULT IN THE BID NOT BEING READ.

In order to properly acknowledge an addendum place a mark in the box next to the respective addendum.

ADDENDUM NO. 1 ☐

ADDENDUM NO. 2 ☐

ADDENDUM NO. 3 ☐

ADDENDUM NO. 4 ☐

ADDENDUM NO. 5 ☐

In addition, the bidder by affixing their signature to the signature page of the proposal is acknowledging that they have taken the addendum(s) into consideration when preparing their bid and that the information contained in the addendum will be included in the contract, if awarded by the Commission or other designees.

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| | |
|---|---|
| **Control** | **6451-85-001** |
| **Project** | **RMC - 645185001** |
| **Highway** | **IH0610** |
| **County** | **HARRIS** |

# PROPOSAL TO THE TEXAS TRANSPORTATION COMMISSION

**2014 SPECIFICATIONS**

**WORK CONSISTING OF TRAFFIC SIGNAL MAINTENANCE**

**HARRIS COUNTY, TEXAS**

The quantities in the proposal are approximate. The quantities of work and materials may be increased or decreased as considered necessary to complete the work as planned and contemplated.

This project is to be completed in 730 calendar days and will be accepted when fully completed and finished to the satisfaction of the Executive Director or designee.

Provide a proposal guaranty in the form of a Cashier's Check, Teller's Check (including an Official Check) or Bank Money Order on a State or National Bank or Savings and Loan Association, or State or Federally chartered Credit Union made payable to the Texas Transportation Commission in the following amount:

TWENTY-TWO THOUSAND (Dollars) **( $22,000 )**

A bid bond may be used as the required proposal guaranty. The bond form may be detached from the proposal for completion. The proposal may not be disassembled to remove the bond form. The bond must be in accordance with Item 2 of the specifications.

Any addenda issued amending this proposal and/or the plans that have been acknowledged by the bidder, become part of this proposal.

By signing the proposal the bidder certifies:

1. the only persons or parties interested in this proposal are those named and the bidder has not directly or indirectly participated in collusion, entered into an agreement or otherwise taken any action in restraint of free competitive bidding in connection with the above captioned project.
2. in the event of the award of a contract, the organization represented will secure bonds for the full amount of the contract.
3. the signatory represents and warrants that they are an authorized signatory for the organization for which the bid is submitted and they have full and complete authority to submit this bid on behalf of their firm.
4. that the certifications and representations contained in the proposal are true and accurate and the bidder intends the proposal to be taken as a genuine government record.

- **Signed: ****

(1) _____ (2) _____ (3) _____

**Print Name:**

(1) _____ (2) _____ (3) _____

**Title:**

(1) _____ (2) _____ (3) _____

**Company:**

(1) _____ (2) _____ (3) _____

- Signatures to comply with Item 2 of the specifications.

**Note: Complete (1) for single venture, through (2) for joint venture and through (3) for triple venture.

*** When the calendar days field contains an asterisk (*) refer to the Special Provisions and General Notes.**

# NOTICE TO CONTRACTORS

**ANY CONTRACTORS INTENDING TO BID ON ANY WORK TO BE AWARDED BY THIS DEPARTMENT MUST SUBMIT A SATISFACTORY "AUDITED FINANCIAL STATEMENT" AND "EXPERIENCE QUESTIONNAIRE" AT LEAST TEN DAYS PRIOR TO THE LETTING DATE.**

**UNIT PRICES MUST BE SUBMITTED IN ACCORDANCE WITH ITEM 2 OF THE STANDARD SPECIFICATIONS OR SPECIAL PROVISION TO ITEM 2 FOR EACH ITEM LISTED IN THIS PROPOSAL.**

# TEXAS DEPARTMENT OF TRANSPORTATION

## BID BOND

KNOW ALL PERSONS BY THESE PRESENTS,

That we, (Contractor Name) _____

_____

Hereinafter called the Principal, and (Surety Name) _____

_____

a corporation or firm duly authorized to transact surety business in the State of Texas, hereinafter called the Surety, are held and firmly bound unto the Texas Department of Transportation, hereinafter called the Obligee, in the sum of not less than two percent (2%) of the department's engineer's estimate, rounded to the nearest one thousand dollars, not to exceed one hundred thousand dollars ($100,000) as a proposal guaranty (amount displayed on the cover of the proposal), the payment of which sum will and truly be made, the said Principal and the said Surety, bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the principal has submitted a bid for the following project identified as:

| | |
|---|---|
| **Control** | **6451-85-001** |
| **Project** | **RMC - 645185001** |
| **Highway** | **IH0610** |
| **County** | **HARRIS** |

NOW, THEREFORE, if the Obligee shall award the Contract to the Principal and the Principal shall enter into the Contract in writing with the Obligee in accordance with the terms of such bid, then this bond shall be null and void. If in the event of failure of the Principal to execute such Contract in accordance with the terms of such bid, this bond shall become the property of the Obligee, without recourse of the Principal and/or Surety, not as a penalty but as liquidated damages.

Signed this _____ Day of _____ 20_____

By: _____

(Contractor/Principal Name)

_____

(Signature and Title of Authorized Signatory for Contractor/Principal)

*By: _____

(Surety Name)

_____

(Signature of Attorney-in-Fact)

*Attach Power of attorney (Surety) for Attorney-in-Fact

Impressed Surety Seal Only

**This form may be removed from the proposal.**

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# BIDDER'S CHECK RETURN

**IMPORTANT**

**The space provided for the return address must be completed to facilitate the return of your bidder's check. Care must be taken to provide a legible, accurate, and <u>complete</u> return address, including zip code. A copy of this sheet should be used for each different return address.**

**NOTE**

**Successful bidders will receive their guaranty checks with the executed contract.**

RETURN BIDDERS CHECK TO (PLEASE PRINT):

| |
|---|
| |
| |
| |

| | |
|---|---|
| **Control** | **6451-85-001** |
| **Project** | **RMC - 645185001** |
| **Highway** | **IH0610** |
| **County** | **HARRIS** |

**IMPORTANT**

**PLEASE RETURN THIS SHEET IN ITS ENTIRETY**

Please acknowledge receipt of this check(s) at your earliest convenience by signing below in longhand, in ink, and returning this acknowledgement in the enclosed self addressed envelope.

Check Received By: _____ Date:_____

Title: _____

For (Contractor's Name): _____

Project _____ County_____

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# NOTICE TO THE BIDDER

In the space provided below, please enter your total bid amount for this project. Only this figure will be read publicly by the Department at the public bid opening.

It is understood and agreed by the bidder in signing this proposal that the total bid amount entered below is not binding on either the bidder or the Department. It is further agreed that **the official total bid amount for this proposal will be determined by multiplying the unit bid prices for each pay item by the respective estimated quantities shown in this proposal and then totaling all of the extended amounts.**

**$_____**

**Total Bid Amount**

Control 0001-03-030
Project STP 2000(938)HES
Highway SH 20
County EL PASO

| ALT | ITEM | DESC | SP | Bid Item Description | Unit | Quantity | Bid Price | Amount | Seq |
|---|---|---|---|---|---|---|---|---|---|
| | 104 | 509 | | REMOV CONC (SDWLK) | SY | 266.400 | $10.000 | $2,664.00 | 1 |

EXAMPLE

Total Bid Amount _____$2,664.00_____

Signed _____
Title _____
Date _____

Additional Signature for Joint Venture:

Signed _____
Title _____
Date _____

**EXAMPLE OF BID PRICES SUBMITTED BY COMPUTER PRINTOUT**

# EXAMPLES

## BID PRICES SUBMITTED BY HAND WRITTEN FORMAT

| ALT | ITEM-CODE | | | UNIT BID PRICE ONLY WRITTEN IN WORDS | UNIT | APPROX QUANTITIES | DEPT USE ONLY |
|---|---|---|---|---|---|---|---|
| | ITEM NO | DESC NO | S.P. NO. | | | | |
| | 190 | 026 | | RED OAK 1 1/2 - 1 3/4 GAL BB | EA | 9.000 | 1 |
| | | | | EXAMPLE: One hundred fifty DLRS and No CENTS | | | |

**Unit price for each plant in place**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | 249 | 014 | | FLEX BASE(DEL)(DENSCOT)(TY A GR4 CL2) | TON | 56,787.00 | 14 |
| | | | | EXAMPLE: Seven DLRS and Fifty three CENTS | | | |

**Unit price for each ton of Flexible Base**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | 430 | 001 | 001 | CL A CONC FOR EXT STR (CULV) | CY | 45.000 | 27 |
| | | | | EXAMPLE: Three hundred five DLRS and No CENTS | | | |

**Unit price for each cubic yard of Concrete**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | 610 | 007 | 001 | RDWY ILL ASSEM(TY ST 50T-8-8)(.4 KW)S | EA | 13.000 | 7 |
| | | | | EXAMPLE: Fourteen hundred sixteen DLRS and Thirty seven CENTS | | | |

**Unit price of each Roadway Illumination Assembly**

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| ALT | ITEM-CODE | | | UNIT BID PRICE ONLY. WRITTEN IN WORDS | UNIT | APPROX QUANTITIES | DEPT USE ONLY |
|---|---|---|---|---|---|---|---|
| | ITEM NO | DESC CODE | S.P. NO. | | | | |
| | 500 | 6033 | | MOBILIZATION (CALLOUT)<br>DOLLARS<br>and CENTS | EA | 24.000 | 1 |
| | 500 | 6034 | | MOBILIZATION (EMERGENCY)<br>DOLLARS<br>and CENTS | EA | 2.000 | 2 |
| | 618 | 6078 | | CONDT (RM) (4")<br>DOLLARS<br>and CENTS | LF | 300.000 | 3 |
| | 6004 | 6031 | 001 | ITS COM CBL (ETHERNET)<br>DOLLARS<br>and CENTS | LF | 485.000 | 4 |
| | 6004 | 6032 | 001 | ITS COM CBL (SERIAL)<br>DOLLARS<br>and CENTS | LF | 485.000 | 5 |
| | 6004 | 6063 | 001 | ITS COM CBL CONNECTOR<br>DOLLARS<br>and CENTS | EA | 24.000 | 6 |
| | 6094 | 6001 | | VIVDS CAMERA<br>DOLLARS<br>and CENTS | EA | 294.000 | 7 |
| | 6094 | 6002 | | VIVDS CAMERA BRACKET<br>DOLLARS<br>and CENTS | EA | 37.000 | 8 |
| | 6094 | 6003 | | VIVDS PROCESSOR (ONE CAMERA UNIT)<br>DOLLARS<br>and CENTS | EA | 1.000 | 9 |
| | 6094 | 6004 | | VIVDS PROCESSOR (TWO CAMERA UNIT)<br>DOLLARS<br>and CENTS | EA | 112.000 | 10 |
| | 6094 | 6006 | | VIVDS MONITOR (9" BLACK/WHITE)<br>DOLLARS<br>and CENTS | EA | 110.000 | 11 |
| | 6094 | 6008 | | VIVDS SURGE SUPPRESSOR<br>DOLLARS<br>and CENTS | EA | 190.000 | 12 |

| ALT | ITEM-CODE | | | UNIT BID PRICE ONLY. WRITTEN IN WORDS | UNIT | APPROX QUANTITIES | DEPT USE ONLY |
|---|---|---|---|---|---|---|---|
| | ITEM NO | DESC CODE | S.P. NO. | | | | |
| | 6094 | 6009 | | SPAN CABLE (3/16 INCH)<br>DOLLARS<br>and CENTS | LF | 3,040.000 | 13 |
| | 6094 | 6010 | | LUMINAIRE MAST ARMS<br>DOLLARS<br>and CENTS | EA | 2.000 | 14 |
| | 6094 | 6012 | | CAMERA SUN SHIELD<br>DOLLARS<br>and CENTS | EA | 1.000 | 15 |
| | 6094 | 6013 | | VIVDS PREVENTIVE MAINTENANCE<br>DOLLARS<br>and CENTS | EA | 500.000 | 16 |
| | 6094 | 6014 | | CONDUIT (RMC)(1")<br>DOLLARS<br>and CENTS | LF | 10.000 | 17 |
| | 6094 | 6015 | | CONDUIT (RMC)(2")<br>DOLLARS<br>and CENTS | LF | 513.000 | 18 |
| | 6094 | 6016 | | JACKING AND BORING<br>DOLLARS<br>and CENTS | LF | 300.000 | 19 |
| | 6094 | 6017 | | PULL BOXES (TY D)<br>DOLLARS<br>and CENTS | EA | 2.000 | 20 |
| | 6094 | 6018 | | CABINET POWER SUPPLY (5 AMP)<br>DOLLARS<br>and CENTS | EA | 150.000 | 21 |
| | 6094 | 6019 | | VIVDS MULTI CON COM CAX CBL(3COND16AWG)<br>DOLLARS<br>and CENTS | LF | 65,000.000 | 22 |
| | 6094 | 6020 | | CABLE CONNECTORS (BNC)<br>DOLLARS<br>and CENTS | EA | 442.000 | 23 |
| | 6094 | 6021 | | CABLE CONNECTORS (DEUTSCH)<br>DOLLARS<br>and CENTS | EA | 100.000 | 24 |

| ALT | ITEM-CODE | | | UNIT BID PRICE ONLY. WRITTEN IN WORDS | UNIT | APPROX QUANTITIES | DEPT USE ONLY |
|---|---|---|---|---|---|---|---|
| | ITEM NO | DESC CODE | S.P. NO. | | | | |
| | 6185 | 6002 | 002 | TMA (STATIONARY)<br>DOLLARS<br>and CENTS | DAY | 349.000 | 25 |
| | 6185 | 6005 | 002 | TMA (MOBILE OPERATION)<br>DOLLARS<br>and CENTS | DAY | 175.000 | 26 |
| | 6292 | 6004 | | RVDS(PRESENCE DET ONLY)(INSTALL ONLY)<br>DOLLARS<br>and CENTS | EA | 2.000 | 27 |
| | 6292 | 6005 | | RVDS(ADVANCE DET ONLY)(INSTALL ONLY)<br>DOLLARS<br>and CENTS | EA | 2.000 | 28 |
| | 6292 | 6006 | | RVDS(PRES AND ADV DET)(INSTALL ONLY)<br>DOLLARS<br>and CENTS | EA | 2.000 | 29 |
| | 6292 | 6007 | | RELOCATE RVDS<br>DOLLARS<br>and CENTS | EA | 2.000 | 30 |
| | 6292 | 6008 | | REMOVE RVDS<br>DOLLARS<br>and CENTS | EA | 5.000 | 31 |

# CERTIFICATION OF INTEREST IN OTHER BID PROPOSALS FOR THIS WORK

By signing this proposal, the bidding firm and the signer certify that the following information, as indicated by checking “Yes” or “No” below, is true, accurate, and complete.

A. Quotation(s) have been issued in this firm's name to other firm(s) interested in this work for consideration for performing a portion of this work.

_____ YES

_____ NO

B. If this proposal is the low bid, the bidder agrees to provide the following information prior to award of the contract.

1. Identify firms which bid as a prime contractor and from which the bidder received quotations for work on this project.
2. Identify all the firms which bid as a prime contractor to which the bidder gave quotations for work on this project.

# ENGINEER SEAL

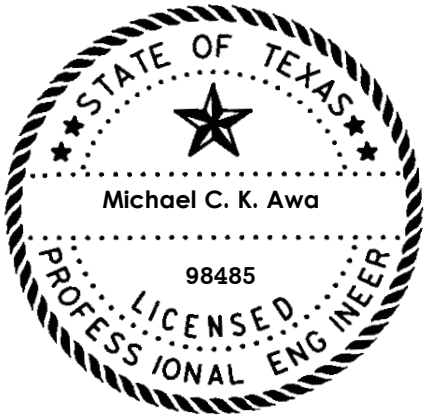
**Control** **6451-85-001**

**Project** **RMC - 645185001**

**Highway** **IH0610**

**County** **HARRIS**

**The enclosed Texas Department of Transportation Specifications, Special Specifications, Special Provisions, General Notes and Specification Data in this document have been selected by me, or under my responsible supervision as being applicable to this project. Alteration of a sealed document without proper notification to the responsible engineer is an offense under the Texas Engineering Practice Act.**




**The seal appearing on this document was authorized by**

Michael C. K. Awa, P.E.

**MARCH 12, 2024**

**GENERAL NOTES:**

Contractor questions on this project are to be addressed to the following individual(s):

*Robbie J. Pugh*
Phone: (713) 802-5571
*Robbie.Pugh@txdot.gov*

*Arnold Trevino*
Phone: (713) 866-7101
*Atrevino1@txdot.gov*

Questions may be submitted via the Letting Pre-Bid Q&A web page. This webpage can be accessed from the Notice to Contractors dashboard located at the following address:

https://tableau.txdot.gov/views/ProjectInformationDashboard/NoticetoContractors

All contractor questions will be reviewed by the Engineer. All questions and any corresponding responses that are generated will be posted through the same Letting Pre-Bid Q&A web page.

The Letting Pre-Bid Q&A web page for each project can be accessed by using the dashboard to navigate to the project you are interested in by scrolling or filtering the dashboard using the controls on the left. Hover over the blue hyperlink for the project you want to view the Q&A for and click on the link in the window that pops up.

This project will be managed by, and request for payment addressed to:

> Mr. Arnold Trevino, Traffic Systems Supervisor
> 6810 Old Katy Road
> Houston, Texas 77024
> (713) 866-7101

This is a Routine Maintenance Non-Site-Specific Call-Out contract.

TxDOT will supply all RADAR.

Procure permits and licenses, which are to be issued by the City, County, or Municipal Utility District.

Work requests will be composed with a minimum 3 days of work at no less than $1,000 per day. A Callout and/or work request may consist of various locations.

Begin physical work within 48 hours of the work notification.

For Emergency Call-out work, make repairs within 4 hours of notification.

Accessibility to the Houston Toll Roads will be the responsibility of the Contractor.

The Contractor is responsible for acquiring "E-Z Tag" for all vehicles requiring access to toll road. Tolls incurred by the Contractor are incidental to the various bid Items.

Troubleshooting for this project will be incidental to the various bid Items.

References to manufacturer's trade name or catalog numbers are for the purpose of identification only. Similar materials from other manufacturers are permitted if they are of equal quality, comply with the specifications for this project, and are approved, except for roadway illumination, electrical, and traffic signal items.

The cost for materials, labor, and incidentals to provide for traffic across the roadway and for ingress and egress to private property in accordance with Section 7.2.4 of the standard specifications is subsidiary to the various bid items. Restore access roadways to their original condition upon completing construction.

Where directed, secure all loop lead-in, electrical, communication, pedestrian, or illumination cable, with a lashed cable support. Lashed cable support will be of aluminum or stainless steel, with a ¼ inch width and 16-inch length.

A Pre-Construction conference will be arranged before operations begin on the contract. This meeting will be arranged by TxDOT personnel. In this meeting, outline proposed work procedures and present plans for performing the work while providing for the safe passage of traffic at all times.

The Contractor will begin call out work within the required time for each work order. Work orders are expected to be completed per the contract plans within the number of days allowed for each work order. All call out work orders will have a begin date and number of working days. The Contractor will begin work within 48 hours of notification for routine call outs, unless otherwise approved by the Engineer. Work will be completed within the required number of working days. The Contractor will begin work within 4 hours of notification for emergency call outs and complete within 48 hours, unless otherwise approved by the Engineer. Failure to begin work within the required time and proceed to completion within the required time will result in the assessment of liquidated damages.

Perform work during good weather. If work is damaged by a weather event, the Contractor is responsible for all costs associated with replacing damaged work.

This action does not relieve the Contractor of the responsibilities under the terms of the contract on the plans and specifications. Repair damage caused by the Contractor's operations at no expense to the Department and restore the facilities to service in a timely manner.

Provide one or more crews seven (7) days a week, 24 hrs. a day, for duration of the contract. Provide for the safe passage of traffic, at all times.

**General: Site Management**

Do not mix or store materials, or store or repair equipment, on top of concrete pavement or bridge decks unless authorized by the Engineer. Permission will be granted to store materials on surfaces if no damage or discoloration will result.

Personal vehicles of employees are not permitted to park within the right of way, including sections closed to public traffic. Employees may park on the right of way at the Contractor's office, equipment, and materials storage yard sites.

Assume ownership of debris and dispose of at an approved location. Do not dispose of debris on private property unless approved in writing by the District Engineer.

**General: Utilities**

Consider the locations of underground utilities depicted in the plans as approximate and employ responsible care to avoid damaging utility facilities. Depending upon scope and magnitude of planned construction activities, advanced field confirmation by the utility owner or operator may be prudent. Where possible, protect and preserve permanent signs, markers, and designations of underground facilities.

If the Contractor damages or causes damage (breaks, leaks, nicks, dents, gouges, etc.) to the utility, contact the utility facility owner or operator immediately.

At least 72 hours before starting work, make arrangements for locating existing Department-owned above ground and underground fiber optic, communications, power, illumination, and traffic signal cabling and conduit. Do this by calling the Department's Houston District Traffic Signal Operations Office at 713-802-5662, or by e-mailing the Department's Houston District Traffic Signal Operations Office at **HOU-locaterequest@txdot.gov**, to schedule marking of underground lines on the ground. Use caution if working in these areas to avoid damaging or interfering with existing facilities.

Be aware that an operational Computerized Transportation Management System (CTMS) exists within the limits of this project and that the system must remain operational throughout construction. If the Contractor damages or causes damage to this system, repair such damage within 8 hours of occurrence at no cost to the Department. In the event of system damage, notify the Director of Traffic Management Systems at 713-881-3283 within one hour of occurrence. Failure of the Contractor to repair damage to the main fiber optic cable and CCTV cable trunk lines, which convey all corridor information to TranStar, will result in the Contractor being billed for the full cost of emergency repairs.

Before excavating near existing utilities, contact the utility companies or the utility coordinating committee for exact locations to prevent damage or interference with present facilities.

If overhead or underground power lines need to be de-energized, contact the electrical service provider to perform this work. Costs associated with de-energizing the power lines or other protective measures required are at no expense to the Department.

If working near power lines, comply with the appropriate sections of Texas State Law and Federal Regulations relating to the type of work involved.

### General: Roadway Illumination and Electrical

Perform electrical work in conformance with the National Electrical Code (NEC) and Department standard sheets.

The Contractor may make the electrical grounding connections and permissible splices using the thermal fusion process, Cadweld, ThermOweld, or approved equal, instead of bolted connections and splices.

### General: Traffic Control and Construction

When design details are not shown on the plans, provide signs and arrows conforming to the latest "Standard Highway Sign Designs for Texas" manual.

### Item 5: Control of Work

Submit shop drawings electronically for the fabrication of items as documented in Table 1 below. Information and requirements for electronic submittals can be viewed in the "Guide to Electronic Shop Drawing Submittal" which can be accessed through the following web link, ftp://ftp.dot.state.tx.us/pub/txdot-info/library/pubs/bus/bridge/e_submit_guide.pdf. References to 11 in. x 17 in. sheets in individual specifications for structural items imply electronic CAD sheets.

**Table 1**

**2014 Construction Specification Required Shop/Working Drawing Submittals - TxDOT Generated Plans**

| Spec Item No.'s | Product | Submittal Required | Approval Required (Y/N) | Contractor/ Fabricator P.E. Seal Required | Reviewing Party | Shop or Working Drawing (Note 1) |
|---|---|---|---|---|---|---|
| SS | Fiber Optic/Communication Cable | Y | Y | N | TMS | SD |
| SS | VIVDS System for Signals | Y | Y | N | T | SD |

Notes:

1. Document flow for Working Drawings differs from Shop Drawings in that Working Drawings must be submitted to the Engineer rather than the Engineer of Record and they are for the information of the Engineer only; an approval stamp and distribution to all project offices is not required.

**Key to Reviewing Party**

| | |
|---|---|
| T - Traffic Engineer | |
| Traffic Operations | HOU-TrfShpDrwgs@txdot.gov |

**Item 7: Legal Relations and Responsibilities**

During the hurricane season (June 1 through November 30), do not close any travel lanes except when the Contractor can demonstrate that he/she can provide labor, equipment, material, a work plan, and quality of work to satisfactorily return all lanes to an open, all-weather travel surface within 3 days of receiving written or verbal notice but no later than 3 days before the predicted hurricane landfall. Construction of temporary lanes to an all-weather surface will be paid for in accordance with Article 9.7, "Payment for Extra Work and Force Account Method."

In addition to lane closures, cease work 3 days before the predicted hurricane landfall on or near the roadway that adversely impacts the flow of traffic and reduces the capacity of the highway during an evacuation. Vehicles of the Contractor, subcontractors, or material suppliers will not be allowed to enter or exit the traffic stream, including those for the purpose of material hauling and delivery, and mobilization or demobilization of equipment. When directed, this prohibition will include a reasonable time period for the evacuees to return to their point of origin.

This project does not require a U.S. Army Corps of Engineers (USACE) Section 404 Permit before letting, but if a permit is needed during construction, assume responsibility for preparing the permit application. Submit the permit application to the Department's District Environmental Section for approval. Once the permit application is approved, the Department will submit it to the USACE. Assume responsibility for the requested revisions, in coordination with the Department's District Environmental Section.

No significant traffic generator events identified.

**Item 8: Prosecution and Progress**

Working days will be computed and charged based on a Calendar Day workweek in accordance with Section 8.3.1.5.

The Lane Closure Assessment Fee is shown on the following table. This fee applies to the Contractor for closures or obstructions that overlap into restricted hour traffic for each hour or portion thereof, per lane, regardless of the length of the lane closure or obstruction. For Restricted Hours subject to Lane Assessment Fee refer to Item, Barricades, Signs and Traffic Handling.

**Lane Closure Assessment Fee Table**

| Roadway (Brazoria County) | Lane Assessment Fee |
|---|---|
| BS 35C | $400.00 |
| BS 35E | $200.00 |
| BS 288B | $400.00 |
| BS 288B FRD | $50.00 |
| FM 517 | $300.00 |
| FM 518 | $500.00 |

| | |
|---|---|
| FM 521 | $200.00 |
| FM 522 | $100.00 |
| FM 523 | $300.00 |
| FM 524 | $200.00 |
| FM 528 | $400.00 |
| FM 655 | $50.00 |
| FM 865 | $500.00 |
| FM 1128 | $200.00 |
| FM 1301 | $100.00 |
| FM 1459 | $200.00 |
| FM 1462 | $300.00 |
| FM 1495 | $200.00 |
| FM 2004 | $300.00 |
| FM 2234 | $500.00 |
| FM 2403 | $200.00 |
| FM 2611 | $100.00 |
| FM 2852 | $0.00 |
| FM 2917 | $100.00 |
| FM 2918 | $0.00 |
| SH 6 | $500.00 |
| SH 35 | $500.00 |
| SH 35 FRD | $300.00 |
| SH 36 | $400.00 |
| SH 288 | $2,000.00 |
| SH 288 FRD | $500.00 |
| SH 332 | $500.00 |
| SL 274 | $400.00 |
| SS 419 | $0.00 |
| SS 273 | $50.00 |
| SS 28 | $50.00 |
| | |
| **Roadway (Fort Bend County)** | **Lane Assessment Fee** |
| FM 359 | $500.00 |
| FM 360 | $100.00 |
| FM 361 | $200.00 |
| FM 442 | $100.00 |
| FM 521 | $500.00 |
| FM 723 | $500.00 |
| FM 762 | $500.00 |
| FM 1092 | $1,000.00 |
| FM 1093 | $500.00 |

| | |
|---|---|
| FM 1093 FRD | $400.00 |
| FM 1236 | $200.00 |
| FM 1462 | $200.00 |
| FM 1463 | $500.00 |
| FM 1464 | $500.00 |
| FM 1489 | $100.00 |
| FM 1640 | $500.00 |
| FM 1875 | $100.00 |
| FM 1876 | $400.00 |
| FM 1952 | $50.00 |
| FM 1994 | $100.00 |
| FM 2218 | $300.00 |
| FM 2234 | $500.00 |
| FM 2759 | $500.00 |
| FM 2919 | $50.00 |
| FM 2977 | $300.00 |
| FM 3155 | $200.00 |
| FM 3345 | $500.00 |
| IH 10 | $2,500.00 |
| IH 10 FRD | $500.00 |
| IH 69 | $4,500.00 |
| IH 69 FRD | $500.00 |
| SL 540 | $100.00 |
| SL 541 | $0.00 |
| FS/LP 762 | $300.00 |
| SH 6 | $1,500.00 |
| SH 6 FRD | $300.00 |
| SH 36 | $500.00 |
| SH 99 | $2,000.00 |
| SH 99 FRD | $500.00 |
| SS 10 | $300.00 |
| SS 529 | $200.00 |
| US 59 | $500.00 |
| US 59 FRD | $200.00 |
| US 90 | $300.00 |
| US 90A | $1,500.00 |
| US 90A FRD | $400.00 |
| | |
| **Roadway (Galveston County)** | **Lane Assessment Fee** |
| FM 188 | $50.00 |
| FM 270 | $500.00 |

| | |
|---|---|
| FM 517 | $500.00 |
| FM 518 | $500.00 |
| FM 519 | $200.00 |
| FM 528 | $500.00 |
| FM 646 | $500.00 |
| FM 1266 | $200.00 |
| FM 1764 | $500.00 |
| FM 1764 FRD | $200.00 |
| FM 1765 | $400.00 |
| FM 2004 | $500.00 |
| FM 2094 | $500.00 |
| FM 2351 | $500.00 |
| FM 3005 | $500.00 |
| FM 3436 | $100.00 |
| IH 45 | $3,500.00 |
| IH 45 FRD | $400.00 |
| SS/LP 197 | $200.00 |
| SH 3 | $500.00 |
| SH 6 | $500.00 |
| SH 87 | $500.00 |
| SH 96 | $500.00 |
| SH 124 | $100.00 |
| SH 146 | $1,000.00 |
| SH 146 FRD | $200.00 |
| SH 168 | $0.00 |
| SH 275 | $300.00 |
| SS 342 | $500.00 |
| | |
| **Roadway (Harris County)** | **Lane Assessment Fee** |
| BF 1960 A | $500.00 |
| BS 146 D | $100.00 |
| BS 146 E | $400.00 |
| BS 249 B | $500.00 |
| BU 90 U | $500.00 |
| BU 290 H | $200.00 |
| BU 290 L | $200.00 |
| FM 270 | $1,000.00 |
| FM 270 FRD | $0.00 |
| FM 521 | $500.00 |
| FM 525 | $500.00 |
| FM 526 | $500.00 |

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|---|---|
| FM 528 | $500.00 |
| FM 529 | $1,000.00 |
| FM 865 | $500.00 |
| FM 1092 | $500.00 |
| FM 1093 | $1,000.00 |
| FM 1485 | $300.00 |
| FM 1488 | $200.00 |
| FM 1876 | $400.00 |
| FM 1942 | $500.00 |
| FM 1959 | $500.00 |
| FM 1960 | $1,000.00 |
| FM 1960 FRD | $400.00 |
| FM 2100 | $500.00 |
| FM 2100 FRD | $50.00 |
| FM 2351 | $500.00 |
| FM 2553 | $200.00 |
| FM 2920 | $1,000.00 |
| FM 2978 | $500.00 |
| FS 525 | $300.00 |
| IH 10 | $7,500.00 |
| IH 10 FRD | $500.00 |
| IH 45 | $6,500.00 |
| IH 45 FRD | $1,000.00 |
| IH 69 | $6,500.00 |
| IH 69 FRD | $500.00 |
| IH 610 | $7,000.00 |
| IH 610 FRD | $1,500.00 |
| SL 8 | $4,500.00 |
| SL 8 FRD | $500.00 |
| SH NASA | $1,000.00 |
| SH NASA FRD | $300.00 |
| SH 3 | $500.00 |
| SH 6 | $1,500.00 |
| SH 6 FRD | $500.00 |
| SH 35 | $500.00 |
| SH 99 | $2,500.00 |
| SH 99 FRD | $500.00 |
| SH 146 | $2,000.00 |
| SH 146 FRD | $200.00 |
| SH 225 | $3,000.00 |
| SH 225 FRD | $400.00 |

| | |
|---|---|
| SH 249 | $3,000.00 |
| SH 249 FRD | $500.00 |
| SH 288 | $3,500.00 |
| SH 288 FRD | $500.00 |
| SL 494 | $300.00 |
| SS 5 | $500.00 |
| SS 5 FRD | $100.00 |
| SS 330 | $1,000.00 |
| SS 330 FRD | $200.00 |
| SS 501 | $100.00 |
| SS 261 | $500.00 |
| SS 527 | $1,000.00 |
| SS 527 FRD | $300.00 |
| SS 548 | $1,000.00 |
| US 90 | $1,000.00 |
| US 90 FRD | $300.00 |
| US 90A | $2,000.00 |
| US 90A FRD | $200.00 |
| US 290 | $5,000.00 |
| US 290 FRD | $500.00 |
| | |
| **Roadway (Montgomery County)** | **Lane Assessment Fee** |
| BU 59L | $400.00 |
| FM 149 | $300.00 |
| FM 830 | $300.00 |
| FM 1097 | $400.00 |
| FM 1314 | $500.00 |
| FM 1375 | $50.00 |
| FM 1484 | $300.00 |
| FM 1485 | $500.00 |
| FM 1486 | $200.00 |
| FM 1488 | $1,000.00 |
| FM 1774 | $400.00 |
| FM 1791 | $50.00 |
| FM 2090 | $400.00 |
| FM 2432 | $200.00 |
| FM 2854 | $300.00 |
| FM 2978 | $500.00 |
| FM 3083 | $500.00 |
| IH 45 | $5,500.00 |
| IH 45 FRD | $500.00 |

| | |
|---|---|
| IH 69 | $3,000.00 |
| IH 69 FRD | $500.00 |
| SL 336 | $500.00 |
| SL 494 | $400.00 |
| SH 75 | $400.00 |
| SH 99 | $1,000.00 |
| SH 99 FRD | $400.00 |
| SH 105 | $500.00 |
| SH 242 | $1,000.00 |
| SH 242 FRD | $200.00 |
| SH 249 | $400.00 |
| SH 249 FRD | $300.00 |
| FS/SP 149 | $200.00 |
| US 59 | $2,000.00 |
| | |
| **Roadway (Waller County)** | **Lane Assessment Fee** |
| BU 290H | $300.00 |
| FM 359 | $300.00 |
| FM 362 | $200.00 |
| FM 529 | $200.00 |
| FM 1098 | $300.00 |
| FM 1485 | $100.00 |
| FM 1488 | $300.00 |
| FM 1489 | $200.00 |
| FM 1736 | $50.00 |
| FM 1774 | $200.00 |
| FM 1887 | $100.00 |
| FM 2855 | $200.00 |
| FM 2979 | $0.00 |
| FM 3318 | $0.00 |
| FM 3346 | $100.00 |
| IH 10 | $1,500.00 |
| IH 10 FRD | $300.00 |
| SH 6 | $500.00 |
| SH 159 | $300.00 |
| US 90 | $300.00 |
| US 290 | $1,000.00 |
| US 290 FRD | $200.00 |

**Item 500: Mobilization**

This contract consists of Call-out Mobilization for routine work and Emergency Mobilization for any emergency or unexpected work.

The purpose of this Item is to move personnel, equipment, and supplies to and from the project or vicinity of the project site to begin work or complete work on Contract Items.

This contract will commence upon issuance of a work order by the Engineer. Subsequent work orders will be issued for additional work to be accomplished during the contract.

Mobilization callout will coincide with the work order.

The mobilization "callout" work request may consist of one or more locations.

Failure to complete the mobilization callout work, or a work order within the number of working days specified, will result in liquidated damages for each working day charged over the number of working days specified.

The bonding company will be notified each time liquidated damages begin accruing.

**Item 502: Barricades, Signs and Traffic Handling**

Traffic Control under this project will be subsidiary to the various bid Items.

All lane closures are considered subsidiary to the various bid Items.

Use a traffic control plan for handling traffic through the various phases of the project. Follow the phasing sequence unless otherwise agreed upon by the Area Engineer and the Project Manager. Ensure this plan conforms to the latest "Texas Manual on Uniform Traffic Control Devices" and the latest Barricade and Construction (BC) Standard Sheets. The latest versions of Work Zone Standard Sheets WZ(BTS-1) and WZ(BTS-2) are the traffic control plan for the signal installations.

Use shadow vehicles with Truck Mounted Attenuators (TMA) for lane closures during construction.

Before detouring traffic onto the mainlane shoulders, remove dirt, debris, vegetation, and other deleterious material from the surface of the shoulders. Appropriately sign the detour in an approved manner. This work is subsidiary to the various bid items.

All work and materials furnished with this Item are subsidiary to the pertinent bid Items except:

- Emergency lane closures not associated with other contract work items and performed as directed, will be payable under Item 500-6034.
- Truck mounted attenuators payable under Item 6185.

Do not reduce the existing number of lanes open to traffic except as shown on the following time schedule:

**One Lane Closure**
**(INCLUDES ALL ROADWAYS LISTED ON THE LANE CLOSURE ASSESSMENT FEE TABLE, including, US 59 Fort Bend, IH 10 Fort Bend, IH 69 Fort Bend, IH 10 Harris, IH 45 Harris, US 69 Harris, IH 610 Harris, US 69 Montgomery & IH 45 Montgomery)**

| Day | Daytime Closure Hours | Nighttime Closure Hours | Restricted Hours Subject to Lane Assessment Fee |
|---|---|---|---|
| Monday | 9:00 AM – 3:00 PM . | 12:00 AM – 5:00 AM<br>9:00 PM – 12:00 AM | 3:00 PM – 9:00 PM<br>5:00 AM – 9:00 AM |
| Tuesday | 9:00 AM – 3:00 PM | 12:00 AM – 5:00 AM<br>9:00 PM – 12:00 AM | 3:00 PM – 9:00 PM<br>5:00 AM – 9:00 AM |
| Wednesday | 9:00 AM – 3:00 PM | 12:00 AM – 5:00 AM<br>9:00 PM – 12:00 AM | 3:00 PM – 9:00 PM<br>5:00 AM – 9:00 AM |
| Thursday | 9:00 AM – 3:00 PM | 12:00 AM – 5:00 AM<br>9:00 PM – 12:00 AM | 3:00 PM – 9:00 PM<br>5:00 AM – 9:00 AM |
| Friday | 9:00 AM – 3:00 PM | 12:00 AM – 5:00 AM<br>9:00 PM – 12:00 AM | 3:00 PM – 9:00 PM<br>5:00 AM – 9:00 AM |
| Saturday | 9:00 AM – 3:00 PM | 12:00 AM – 5:00 AM<br>9:00 PM – 12:00 AM | 3:00 PM – 9:00 PM<br>5:00 AM – 9:00 AM |
| Sunday | 9:00 AM – 3:00 PM | 12:00 AM – 5:00 AM<br>9:00 PM – 12:00 AM | 3:00 PM – 9:00 PM<br>5:00 AM – 9:00 AM |

**Two Lane Closure**
**(INCLUDES ALL ROADWAYS LISTED ON THE LANE CLOSURE ASSESSMENT FEE TABLE, including, US 59 Fort Bend, IH 10 Fort Bend, IH 69 Fort Bend, IH 10 Harris, IH 45 Harris, US 69 Harris, IH 610 Harris, US 69 Montgomery & IH 45 Montgomery)**

| Day | Daytime Closure Hours | Nighttime Closure Hours | Restricted Hours Subject to Lane Assessment Fee |
|---|---|---|---|
| Monday | NONE | 7:00 PM – 5:00 AM | 5:00 AM – 7 PM |
| Tuesday | NONE | 7:00 PM – 5:00 AM | 5:00 AM – 7 PM |
| Wednesday | NONE | 7:00 PM – 5:00 AM | 5:00 AM – 7 PM |
| Thursday | NONE | 7:00 PM – 5:00 AM | 5:00 AM – 7 PM |

| Day | Daytime Closure Hours | Nighttime Closure Hours | Restricted Hours Subject to Lane Assessment Fee |
|---|---|---|---|
| Friday | NONE | 7:00 PM – 5:00 AM | 5:00 AM – 7 PM |
| Saturday | NONE | 7:00 PM – 5:00 AM | 5:00 AM – 7 PM |
| Sunday | NONE | 7:00 PM – 5:00 AM | 5:00 AM – 7 PM |

The above times are approved for the traffic control conditions listed. The Area Engineer may approve other closure times if traffic counts warrant. The Area Engineer may reduce the above times for special events.

Law enforcement assistance will be required for this project and is expected to be required for major traffic control changes and lane closures. Coordinate with local law enforcement and arrange for law enforcement as directed or agreed by the Engineer. Before payment will be made, complete the "Daily Report on Law Enforcement Force Account Work" (Form 318), provided by the Department and submit daily invoices that agree with this form for any day during the month in which approved services were provided.

Provide full-time, off-duty, uniformed, certified peace officers, as part of traffic control operations. The peace officers must be able to show proof of certification by the Texas Commission on Law Enforcement Officers Standards. The cost of the officers is paid for on a force account basis.

The number of peace officers and working hours will be determined in advance of the work and approved by the Engineer.

Submit changes to the traffic control plan to the Area Engineer. Provide a layout showing the construction phasing, signs, striping, and signalizations for changes to the original traffic control plan.

Furnish and maintain the barricades and warning signs, including the necessary temporary and portable traffic control devices, during the various phases of construction. Place and construct these barricades and warning signs in accordance with the latest "Texas Manual on Uniform Traffic Control Devices" for typical construction layouts.

Installation and/or removal of Temporary Rumble Strips will be considered incidental to the various bid Items.

Cover work zone signs when work related to the signs is not in progress, or when any hazard related to the signs no longer exists.

Erect temporary signs when exit ramps are closed or moved to new locations during construction.

Use traffic cones for daytime work only. Replace the cones with plastic drums during nighttime hours.

Keep the delineation devices, signs, and pavement markings clean. This work is subsidiary to the Item, "Barricades, Signs, and Traffic Handling."

Do not mount signs on drums or barricades, except those listed in the latest Barricades and Construction standard sheets.

The Contractor Force Account "Safety Contingency" that has been established for this project is intended to be utilized for work zone enhancements, to improve the effectiveness of the Traffic Control Plan, that could not be foreseen in the project planning and design stage. These enhancements will be mutually agreed upon by the Engineer and the Contractor's Responsible Person based on weekly or more frequent traffic management reviews on the project. The Engineer may choose to use existing bid items if it does not slow the implementation of enhancement.

**Item 506: Temporary Erosion, Sedimentation and Environmental Controls**

The use of hay bales is not permitted as Storm Water Pollution Prevention Plan (SWP3) measures.

The Storm Water Pollution Prevention Plan (SWP3) consists of temporary erosion control measures needed and provided for under this Item. The disturbed area is less than one acre and use of erosion control measures is not anticipated. If physical conditions encountered at the job site require necessary controls, BMP installation, maintenance, and removal will be paid as extra work on a force account basis per Articles 4.4 and 9.7. Since the disturbed area is less than 5 acres, a "Notice of Intent" (NOI) is not required.

Implement temporary and permanent erosion control measures to comply with the National Pollution Discharge Elimination System (NPDES) general permit under the Clean Water Act.

**Item 618: Conduit**

When backfilling bore pits, ensure that the conduit is not damaged during installation or due to settling backfill material. Compact select backfill in 3 equal lifts to the bottom of the conduit; or if using sand, place it 2 in. above the conduit. Ensure backfill density is equal to that of the existing soil. Prevent material from entering the conduit.

Construct bore pits a minimum of 5 ft. from the edge of the base or pavement. Close the bore pit holes overnight.

Unless otherwise shown on the plans, install underground conduit a minimum of 24 in. deep. Install the conduit in accordance with the latest National Electrical Code (NEC) and applicable Department standard sheets. Place conduit under driveways or roadways a minimum of 24 in. below the pavement surface.

If using casing to place bored conduit, the casing is subsidiary to the conduit.

Locate the underground utilities within the project limits. Provide the equipment necessary for locating these utilities, locate, and mark them before starting any excavation work in the area. This work is subsidiary to the various bid items. If the Contractor damages or cause damage to any existing underground utilities, repair such damage at no cost to the Department.

Ensure the interconnection of new equipment to the existing system does not interfere with the operation of the remaining system components. Ensure the system remains completely operational between the hours of 6:00 a.m. Monday and 12:00 a.m. (midnight) Saturday.

Do not interrupt system operation without coordinating with the Department's operations personnel at Houston Transtar at (713) 881-3285.

Perform work to be done on cables during weekends only.

Provide Liquid-Tight Flexible Metal (LTFM) conduit if the plans refer to flexible metal conduit. Do not use flexible metal conduit.

Unless otherwise shown on the plans, place conduit runs behind curbs at locations where curbs exist.

Use schedule 80 PVC conduit to house conductor runs under paved riprap, roadway, or driveways, unless otherwise shown on the plans.

Use Rigid Metal Conduit (RMC) for exposed conduit.

Before backfilling conduit trenches, place a detectable underground metalized mylar marking tape above the conduit and concrete encasement. Imprint the marking tape with, "TxDOT CONDUIT AND FIBER OPTIC CABLE SYSTEM. CALL (713) 802-5909 BEFORE PROCEEDING" every 18 in. Supplying and installing the marking tapes is subsidiary to the various bid items.

Conduit elbows and rigid metal extensions required when installing PVC conduit systems are subsidiary to the various bid items.

Install a continuous bare or green insulated copper wire No. 8 AWG or larger in every conduit throughout the electrical system in accordance with the Electrical Detail Standard Sheets, and the latest edition of the NEC.

Provide a single 1/C #14 insulated wire in conduit runs which have been identified in the plans to carry fiber optic cable. Provide UL-listed solid copper wire with orange color low density polyethylene insulation, suitable for conduit installation, rated for a temperature range of -20 C to +60 C and a voltage rating of 600V. This wire will serve as a tracer, or locate, wire for locating underground conduit containing fiber optic cabling and will be paid for under Item 620, "Electrical Conductors."

Where PVC, duct cable, and HDPE conduit 1 in. and larger is allowed and installed per Department standards, provide a PVC elbow in place of the galvanized rigid metal elbow required by the Electrical Details standards. Ensure the PVC elbow is of the same schedule rating as the conduit to which it is connected. Use only a flat, high tensile strength polyester fiber pull tape to pull conductors through the PVC conduit system.

Remove conductor and conduit to be abandoned to 1 ft. below the ground level. This work is subsidiary to the various bid items.

Do not use cast iron junction boxes in concrete traffic barriers and single slope traffic barriers. Use polymer concrete junction boxes as shown on standard sheet ED(4)-14. Mount the junction boxes flush (+ 0 in., - 1/2 in.) with the concrete surface of the concrete barrier.

**Item 624: Ground Boxes**

The ground box locations are approximate. Alternate ground box locations may be used as directed, to avoid placing in sidewalks or driveways.

Ground metal ground box covers.

Ground the existing metal ground box covers as shown on the latest standard sheet ED (4)-14 or replace with TY D Pull Box W/Concrete Apron.

If metal lids are encountered, check for proper grounding.

**Item 6185: Truck Mounted Attenuator (TMA) and Trailer Attenuator (TA)**

A shadow vehicle with Truck Mounted Attenuators (TMAs) or Trailer Attenuators (TAs) is required as shown on the appropriate Traffic Control Plan (TCP) sheets. TMAs/TAs must meet the requirements of the Compliant Work Zone Traffic Control Device List.

Level 3 Compliant TMAs/TAs are required for this project.

A total of one (1) shadow vehicle with a TMA/TA is required for the work with the exception of Pavement Marking Operations. The Contractor is responsible for determining if one or more of these operations will be ongoing at the same time to determine the total number of TMAs/TAs needed on the project.

A total of three (3) shadow vehicles with a TMA/TA are required for Pavement Marking Operations. The Contractor is responsible for determining if one or more of these operations will be ongoing at the same time to determine the total number of TMAs/TAs needed on the project.

**Item 6292: Radar Vehicle Detection System for Signalized Intersection Control**

The Contractor will provide two (2) field-hardened configuration equipment (laptops). This equipment will be used for programming the radar presence detector and the radar advance detection devices.

The vendors' representative of the radar equipment supplied for this project must supervise the installation, setup and testing of this equipment and be factory certified. The representative must be on site during this time. Any equipment used for setup and operation of the radar devices must be returned to the Department upon completion. The vendors' representative must provide training to the municipalities who will be responsible for the maintenance of the radar equipment after acceptance of the project.

The radar presence detector and radar advance detection devices must be compatible with each other and from the same manufacturer.

Department personnel will program or configure the radar presence detector and radar advance detection devices for full operation.

After configuration of each unit, the Contractor shall return the configuration equipment to the Department unharmed or damaged.

All communication cables necessary to make the RVDS fully operational will be subsidiary to the various bid Items.

CONTROL : 6451-85-001
PROJECT : RMC - 645185001
HIGHWAY : IH0610
COUNTY : HARRIS

TEXAS DEPARTMENT OF TRANSPORTATION

**GOVERNING SPECIFICATIONS AND SPECIAL PROVISIONS**

ALL SPECIFICATIONS AND SPECIAL PROVISIONS APPLICABLE TO THIS PROJECT ARE IDENTIFIED AS FOLLOWS:

STANDARD SPECIFICATIONS: ADOPTED BY THE TEXAS DEPARTMENT OF TRANSPORTATION NOVEMBER 1, 2014. STANDARD SPECIFICATIONS ARE INCORPORATED INTO THE CONTRACT BY REFERENCE.

ITEMS 1 TO 9 INCL., GENERAL REQUIREMENTS AND COVENANTS
ITEM 500 MOBILIZATION <502><506>
ITEM 506 TEMPORARY EROSION, SEDIMENTATION, AND ENVIRONMENTAL CONTROLS (161)(432)(556)
ITEM 618 CONDUIT (400)(476)<502><506>

SPECIAL PROVISIONS: SPECIAL PROVISIONS WILL GOVERN AND TAKE PRECEDENCE OVER THE SPECIFICATIONS ENUMERATED HEREON WHEREVER IN CONFLICT THEREWITH.

SPECIAL PROVISION "NONDISCRIMINATION" (000---002)
SPECIAL PROVISION "CERTIFICATE OF INTERESTED PARTIES (FORM 1295)" (000--1019)
SPECIAL PROVISION "SCHEDULE OF LIQUIDATED DAMAGES" (000--1243)
SPECIAL PROVISION "NOTICE OF CONTRACTOR PERFORMANCE EVALUATIONS" (000---659)
SPECIAL PROVISIONS TO ITEM 2 (002---013)(002---014)(002---015)
SPECIAL PROVISIONS TO ITEM 3 (003---011)(003---013)
SPECIAL PROVISIONS TO ITEM 5 (005---002)(005---003)
SPECIAL PROVISIONS TO ITEM 6 (006---001)(006---012)
SPECIAL PROVISIONS TO ITEM 7 (007---004)(007---010)(007---011)(007---013)
SPECIAL PROVISIONS TO ITEM 8 (008---030)(008---033)(008---045)(008---054)
SPECIAL PROVISIONS TO ITEM 9 (009---010)(009---016)
SPECIAL PROVISION TO ITEM 502 (502---008)
SPECIAL PROVISION TO ITEM 506 (506---002)
SPECIAL PROVISION TO SPECIAL SPECIFICATION ITEM 6004 (6004--001)

SPECIAL PROVISION TO SPECIAL SPECIFICATION ITEM 6185 (6185--002)

SPECIAL SPECIFICATIONS:
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ITEM 6004 NETWORKING INTELLINGENT TRANSPORTATION SYSTEM (ITS) COMMUNICATIONS CABLE <502><506>
ITEM 6094 MAINTENANCE OF VIDEO IMAGING VEHICLE DETECTION SYSTEMS <476><502><506><614><618><624><684><690>
ITEM 6185 TRUCK MOUNTED ATTENUATOR (TMA) AND TRAILER ATTENUATOR (TA) <502><506>
ITEM 6292 RADAR VEHICLE DETECTION SYSTEMFOR SIGNALIZED INTERSECTION CONTROL <502><506>

GENERAL: THE ABOVE-LISTED SPECIFICATION ITEMS ARE THOSE UNDER WHICH
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PAYMENT IS TO BE MADE. THESE, TOGETHER WITH SUCH OTHER PERTINENT ITEMS, IF ANY, AS MAY BE REFERRED TO IN THE ABOVE-LISTED SPECIFICATION ITEMS, AND INCLUDING THE SPECIAL PROVISIONS LISTED ABOVE, CONSTITUTE THE COMPLETE SPECIFICATIONS FOR THIS PROJECT.

# CHILD SUPPORT STATEMENT

**Under Section 231.006, Family Code, the vendor or applicant certifies that the individual or business entity named in this contract, bid, or application is not ineligible to receive the specified grant, loan, or payment and acknowledges that this contract may be terminated and payment may be withheld if this certification is inaccurate.**

# CONFLICT OF INTEREST CERTIFICATION

Pursuant to Texas Government Code Section 2261.252(b), the Department is prohibited from entering into contracts in which Department officers and employees have a financial interest.

By signing the Contract, the Contractor certifies that it is not prohibited from entering into a Contract with the Department as a result of a financial interest as defined under Texas Government Code Section 2261.252(b), and that it will exercise reasonable care and diligence to prevent any actions or conditions that could result in a conflict of interest with the Department.

The Contractor also certifies that none of the following individuals, nor any of their family members within the second degree of affinity or consanguinity, owns 1% or more interest or has a financial interest as defined under Texas Government Code Section 2261.252(b) in the Contractor:

- Any member of the Texas Transportation Commission; and
- The Department's Executive Director, General Counsel, Chief of Procurement and Field Support Operations, Director of Procurement, and Director of Contract Services.

Violation of this certification may result in action by the Department.

# E-VERIFY CERTIFICATION

Pursuant to Texas Transportation Code §223.051, all TxDOT contracts for construction, maintenance, or improvement of a highway must include a provision requiring Contractors and subcontractors to use the U.S. Department of Homeland Security's E-Verify system to determine employment eligibility. By signing the contract, the Contractor certifies that prior to the award of the Contract:

- the Contractor has registered with and will, to the extent permitted by law, utilize the United States Department of Homeland Security's E-Verify system during the term of the Contract to determine the eligibility of all persons hired to perform duties within Texas during the term of the agreement; and
- the Contractor will require that all subcontractors also register with and, to the extent permitted by law, utilize the United States Department of Homeland Security's E-Verify system during the term of the subcontract to determine the eligibility of all persons hired to perform duties within Texas during the term of the agreement.

Violation of this requirement constitutes a material breach of the Contract, subjects a subcontractor to removal from the Contract, and subjects the Contractor or subcontractors to possible sanctions in accordance with Title 43, Texas Administrative Code, Chapter 10, Subchapter F, "Sanctions and Suspension for Ethical Violations by Entities Doing Business with the Department."

# Certification Regarding Disclosure of Public Information

Pursuant to Subchapter J, Chapter 552, Texas Government Code, contractors executing a contract with a governmental body that results in the expenditure of at least $1 million in public funds must:

1) preserve all contracting information* as provided by the records retention requirements applicable to Texas Department of Transportation (TxDOT) for the duration of the contract,
2) on request of TxDOT, promptly provide any contracting information related to the contract that is in the custody or possession of the entity, and
3) on completion of the contract, either:
    A. provide, at no cost to TxDOT, all contracting information related to the contract that is in the custody or possession of the entity, or
    B. preserve the contracting information related to the contract as provided by the records retention requirements applicable to TxDOT

The requirements of Subchapter J, Chapter 552, Government Code, may apply to this contract, and the contractor or vendor agrees that the contract can be terminated if the contractor or vendor knowingly or intentionally fails to comply with a requirement of that subchapter.

By entering into Contract, the Contractor agrees to:

- provide, or make available, to TxDOT and any authorized governmental investigating or auditing agency all records, including electronic and payment records related to the contract, for the same period provided by the records retention schedule applicable to TxDOT, and
- ensure that all subcontracts include a clause requiring the same.

* As defined in Government Code §552.003, "Contracting information" means the following information maintained by a governmental body or sent between a governmental body and a vendor, contractor, potential vendor, or potential contractor:

1) information in a voucher or contract relating to the receipt or expenditure of public funds by a governmental body;
2) solicitation or bid documents relating to a contract with a governmental body;
3) communications sent between a governmental body and a vendor, contractor, potential vendor, or potential contractor during the solicitation, evaluation, or negotiation of a contract;
4) documents, including bid tabulations, showing the criteria by which a governmental body evaluates each vendor, contractor, potential vendor, or potential contractor responding to a solicitation and, if applicable, an explanation of why the vendor or contractor was selected; and
5) communications and other information sent between a governmental body and a vendor or contractor related to the performance of a final contract with the governmental body or work performed on behalf of the governmental body.

# CERTIFICATION TO NOT BOYCOTT ISRAEL

Pursuant to Texas Government Code §2271.002, the Department must include a provision requiring a written verification affirming that the Contractor does not boycott Israel, as defined in Government Code §808.001, and will not boycott Israel during the term of the contract. This provision applies to a contract that:

1) is with a Contractor that is not a sole proprietorship,
2) is with a Contractor with 10 or more full-time employees, and
3) has a value of $100,000 or more.

By signing the contract, the Contractor certifies that it does not boycott Israel and will not boycott Israel during the term of this contract. “Boycott” means refusing to deal with, terminating business activities with, or otherwise taking any action that is intended to penalize, inflict economic harm on, or limit commercial relations specifically with Israel, or with a person or entity doing business in Israel or in an Israeli-controlled territory, but does not include an action made for ordinary business purposes.

Violation of this certification may result in action by the Department.

# CERTIFICATION TO NOT BOYCOTT ENERGY COMPANIES

Pursuant to Texas Government Code §2274.002, the Department must include a provision requiring a written verification affirming that the Contractor does not boycott energy companies, as defined in Government Code §809.001, and will not boycott energy companies during the term of the contract. This provision applies to a contract that:

1) is with a Contractor that is not a sole proprietorship,
2) is with a Contractor with 10 or more full-time employees, and
3) has a value of $100,000 or more.

By signing the contract, the Contractor certifies that it does not boycott energy companies and will not boycott energy companies during the term of this contract. “Boycott” means taking any action that is intended to penalize, inflict economic harm on, or limit commercial relations with a company because the company: (1) engages in the exploration, production, utilization, transportation, sale, or manufacturing of fossil fuel-based energy and does not commit or pledge to meet environmental standards beyond applicable federal and state law; or (2) does business with a company described by (1).

Violation of this certification may result in action by the Department.

# CERTIFICATION TO NOT DISCRIMINATE AGAINST FIREARM ENTITIES OR FIREARM TRADE ASSOCIATIONS

Pursuant to Texas Government Code §2274.002, the Department must include a provision requiring a written verification affirming that the Contractor:

1) does not have a practice, policy, guidance, or directive that discriminates against a firearm entity or firearm trade association, as defined in Government Code §2274.001, and
2) will not discriminate against a firearm entity or firearm trade association during the term of the contract.

This provision applies to a contract that:

1) is with a Contractor that is not a sole proprietorship,
2) is with a Contractor with 10 or more full-time employees, and
3) has a value of $100,000 or more.

By signing the contract, the Contractor certifies that it does not discriminate against a firearm entity or firearm trade association as described and will not do so during the term of this contract. "Discriminate against a firearm entity or firearm trade association" means, with respect to the entity or association, to: (1) refuse to engage in the trade of any goods or services with the entity or association based solely on its status as a firearm entity or firearm trade association; (2) refrain from continuing an existing business relationship with the entity or association based solely on its status as a firearm entity or firearm trade association; or (3) terminate an existing business relationship with the entity or association based solely on its status as a firearm entity or firearm trade association. "Discriminate against a firearm entity or firearm trade association" does not include: (1) the established policies of a merchant, retail seller, or platform that restrict or prohibit the listing or selling of ammunition, firearms, or firearm accessories; (2) a company's refusal to engage in the trade of any goods or services, decision to refrain from continuing an existing business relationship, or decision to terminate an existing business relationship to comply with federal, state, or local law, policy, or regulations or a directive by a regulatory agency, or for any traditional business reason that is specific to the customer or potential customer and not based solely on an entity 's or association's status as a firearm entity or firearm trade association.

Violation of this certification may result in action by the Department.

# Special Provision to Item 000
# Nondiscrimination

## 1. DESCRIPTION

All recipients of federal financial assistance are required to comply with various nondiscrimination laws including Title VI of the Civil Rights Act of 1964, as amended, (Title VI). Title VI forbids discrimination against anyone in the United States on the grounds of race, color, or national origin by any agency receiving federal funds.

Texas Department of Transportation, as a recipient of Federal financial assistance, and under Title VI and related statutes, ensures that no person shall on the grounds of race, religion (where the primary objective of the financial assistance is to provide employment per 42 U.S.C. § 2000d-3), color, national origin, sex, age or disability be excluded from participation in, be denied the benefits of, or otherwise be subjected to discrimination under any Department programs or activities.

## 2. DEFINITION OF TERMS

Where the term “contractor” appears in the following six nondiscrimination clauses, the term “contractor” is understood to include all parties to contracts or agreements with the Texas Department of Transportation.

## 3. NONDISCRIMINATION PROVISIONS

During the performance of this contract, the contractor agrees as follows:

3.1. **Compliance with Regulations**. The Contractor shall comply with the Regulations relative to nondiscrimination in Federally-assisted programs of the Department of Transportation (hereinafter, “DOT”) Title 49, Code of Federal Regulations, Part 21, as they may be amended from time to time, (hereinafter referred to as the Regulations), which are herein incorporated by reference and made a part of this contract.

3.2. **Nondiscrimination**. The contractor, with regard to the work performed by it during the contract, shall not discriminate on the grounds of race, color, or national origin in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The contractor shall not participate either directly or indirectly in the discrimination prohibited by section 21.5 of the Regulations, including employment practices when the contract covers a program set forth in Appendix B of the Regulations.

3.3. **Solicitations for Subcontracts, Including Procurements of Materials and Equipment:** In all solicitations either by competitive bidding or negotiation made by the contractor for work to be performed under a subcontract, including procurements of materials or leases of equipment, each potential subcontractor or supplier shall be notified by the contractor of the contractor's obligations under this contract and the Regulations relative to nondiscrimination on the grounds of race, color, or national origin.

3.4. **Information and Reports:** The contractor shall provide all information and reports required by the Regulations or directives issued pursuant thereto, and shall permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Recipient or the Texas Department of Transportation to be pertinent to ascertain compliance with such Regulations, orders and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish this information the contractor shall so certify to the Recipient, or the Texas Department of Transportation as appropriate, and shall set forth what efforts it has made to obtain the information.

3.5. **Sanctions for Noncompliance**. In the event of the contractor's noncompliance with the nondiscrimination provisions of this contract, the Recipient shall impose such contract sanctions as it or the Texas Department of Transportation may determine to be appropriate, including, but not limited to:

- withholding of payments to the contractor under the contract until the contractor complies, and/or
- cancellation, termination or suspension of the contract, in whole or in part.

3.6. **Incorporation of Provisions**. The contractor shall include the provisions of paragraphs (1) through (6) in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Regulations, or directives issued pursuant thereto. The contractor shall take such action with respect to any subcontract or procurement as the Recipient or the Texas Department of Transportation may direct as a means of enforcing such provisions including sanctions for non-compliance: Provided, however, that, in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or supplier as a result of such direction, the contractor may request the Recipient to enter into such litigation to protect the interests of the Recipient, and, in addition, the contractor may request the United States to enter into such litigation to protect the interests of the United States.

# Special Provision 000
# Certificate of Interested Parties (Form 1295)

Submit a notarized Form 1295, "Certificate of Interested Parties," in the following instances:

- at Contract execution for Contracts awarded by the Commission;
- at Contract execution for Contracts awarded by the District Engineer or Chief Engineer with an award amount of $1,000,000 or more; at any time an existing Contract awarded by the District Engineer or Chief Engineer increases in value to $1,000,000 or more due to changes in the Contract; at any time there is an increase of $1,000,000 or more to an existing Contract (change orders, extensions, and renewals); or
- at any time there is a change to the information in Form 1295, when the form was filed for an existing Contract.

Form 1295 and instructions on completing and filing the form are available on the Texas Ethics Commission website.

# Special Provision 000
# Important Notice to Contractors

| For Dollar Amount of Original Contract | | Dollar Amount of Daily Contract Administration Liquidated Damages per Working Day |
|---|---|---|
| From More Than | To and including | |
| 0 | 1,000,000 | 618 |
| 1,000,000 | 3,000,000 | 832 |
| 3,000,000 | 5,000,000 | 940 |
| 5,000,000 | 15,000,000 | 1317 |
| 15,000,000 | 25,000,000 | 1718 |
| 25,000,000 | 50,000,000 | 2411 |
| 50,000,000 | Over 50,000,000 | 4265 |

In addition to the amount shown in Table 1, the Liquidated Damages will be increased by the amount shown in Item 8 of the General Notes for Road User Cost (RUC), when applicable.

# Special Provision 000
# Notice of Contractor Performance Evaluations

## 1. GENERAL

In accordance with Texas Transportation Code §223.012, the Engineer will evaluate Contractor performance based on quality, safety, and timeliness of the project.

## 2. DEFINITIONS

2.1. **Project Recovery Plan (PRP)**—a formal, enforceable plan developed by the Contractor, in consultation with the District, that documents the cause of noted quality, safety, and timeliness issues and specifies how the Contractor proposes to correct project-specific performance deficiencies.

In accordance with Title 43, Texas Administrative Code (TAC), §9.23, the District will request a PRP if the Contractor's performance on a project is below the Department's acceptable standards and will monitor the Contractor's compliance with the established plan.

2.2. **Corrective Action Plan (CAP)**—a formal, enforceable plan developed by the Contractor, and proposed for adoption by the Construction or Maintenance Division, that documents the cause of noted quality, safety, and timeliness issues and specifies how the Contractor proposes to correct statewide performance deficiencies.

In accordance with 43 TAC §9.23, the Division will request a CAP if the average of the Contractor's statewide final evaluation scores falls below the Department's acceptable standards for the review period and will monitor the Contractor's compliance with the established plan.

## 3. CONTRACTOR EVALUATIONS

In accordance with Title 43, Texas Administrative Code (TAC) §9.23, the Engineer will schedule evaluations at the following intervals, at minimum:

- Interim evaluations—at or within 30 days after the anniversary of the notice to proceed, for Contracts extending beyond 1 yr., and
- Final evaluation—upon project closeout.

In case of a takeover agreement, neither the Surety nor its performing Contractor will be evaluated.

In addition to regularly scheduled evaluations, the Engineer may schedule an interim evaluation at any time to formally communicate issues with quality, safety, or timeliness. Upon request, work with the Engineer to develop a PRP to document expectations for correcting deficiencies.

Comply with the PRP as directed. Failure to comply with the PRP may result in additional remedial actions available to the Engineer under Item 5, "Control of the Work." Failure to meet a PRP to the Engineer's satisfaction may result in immediate referral to the Performance Review Committee for consideration of further action against the Contractor.

The Engineer will consider and document any events outside the Contractor's control that contributed to the failure to meet performance standards or comply with a PRP, including consideration of sufficient time.

Follow the escalation ladder if there is a disagreement regarding an evaluation or disposition of a PRP. The Contractor may submit additional documentation pertaining to the dispute. The District Engineer's decision

on a Contractor's evaluation score and recommendation of action required in a PRP or follow up for non-compliance is final.

## 4. DIVISION OVERSIGHT

Upon request of the Construction or Maintenance Division, develop and submit for Division approval a proposed CAP to document expectations for correcting deficiencies in the performance of projects statewide.

Comply with the CAP as directed. The CAP may be modified at any time up to completion or resolution after written approval of the premise of change from the Division. Failure to meet an adopted or revised adopted CAP to the Division's satisfaction within 120 days will result in immediate referral to the Performance Review Committee for consideration of further action against the Contractor.

The Division will consider and document any events outside the Contractor's control that contributed to the failure to meet performance standards or comply with a CAP, including consideration of sufficient time and associated costs as appropriate.

## 5. PERFORMANCE REVIEW COMMITTEE

The Performance Review Committee, in accordance with 43 TAC §9.24, will review at minimum all final evaluations, history of compliance with PRPs, any adopted CAPs including agreed modifications, any information about events outside a Contractor's control contributing to the Contractor's performance, and any documentation submitted by the Contractor and may recommend one or more of the following actions:

- take no action,
- reduce the Contractor's bidding capacity,
- prohibit the Contractor from bidding on one or more projects,
- immediately suspend the Contractor from bidding for a specified period of time, by reducing the Contractor's bidding capacity to zero, or
- prohibit the Contractor from being awarded a Contract on which they are the apparent low bidder.

The Deputy Executive Director will determine any further action against the Contractor.

## 6. APPEALS PROCESS

In accordance with 43 TAC §9.25, the Contractor may appeal remedial actions determined by the Deputy Executive Director.

# Special Provision to Item 2
# Instructions to Bidders

Item 2, "Instructions to Bidders" of the Standard Specifications is amended with respect to the clauses cited below. No other clauses or requirements of this Item are waived or changed.

**Article 3., "Issuing Proposal Forms,"** is supplemented by the following:

The Electronic State Business Daily (ESBD), the Integrated Contractor Exchange (iCX) system, and the project proposal are the official sources of advertisement and bidding information for the State and Local Lettings. Bidders should bid the project using the information found therein, including any addenda. These sources take precedence over information from other sources, including TxDOT webpages, which are unofficial and intended for informational purposes only.

# Special Provision to Item 2
# Instructions to Bidders

Item 2, "Instructions to Bidders," of the Standard Specifications is amended with respect to the clauses cited below. No other clauses or requirements of this Item are waived or changed.

**Section 2.8.2., "Proposal Guaranty,"** third paragraph is replaced by the following.

It is the Bidder's responsibility to ensure the electronic bid bond is issued in the name or Department vendor identification numbers of the Bidder or Bidders.

# Special Provision to Item 2
# Instructions to Bidders

Item 2, "Instructions to Bidders," of the Standard Specifications is amended with respect to the clauses cited below. No other clauses or requirements of this Item are waived or changed.

**Article 2.3., "Issuing Proposal Forms,"** is supplemented by the following:

- the Bidder or affiliate of the Bidder that was originally determined as the apparent low Bidder on a project but was deemed nonresponsive for failure to register or participate in the Department of Homeland Security's (DHS) E-Verify system as specified in Article 2.15., "Department of Homeland Security (DHS) E-Verify System," is prohibited from rebidding that specific project.

**Article 2.7., "Nonresponsive Bid,"** is supplemented by the following:

- the Bidder failed to participate in the Department of Homeland Security's (DHS) as specified in Article 2.15., "Department of Homeland Security (DHS) E-Verify System."

**Article 2.15., "Department of Homeland Security (DHS) E-Verify System,"** is added.

The Department will not award a Contract to a Contractor that is not registered in the DHS E-Verify system. Remain active in E-Verify throughout the life of the Contract. In addition, in accordance with paragraph six of Article 8.2., "Subcontracting," include this requirement in all subcontracts and require that subcontractors remain active in E-Verify until their work is completed.

If the apparent low Bidder does not appear in the DHS E-Verify system before award, the Contractor must submit documentation showing that they are compliant within 5 calendar days after bid opening. A Contractor that fails to comply or respond within the deadline will be declared nonresponsive. The Bidder forfeiting the proposal guaranty will not be considered in future proposals for the same work unless there has been a substantial change in the scope of the work.

The Department may recommend that the Commission:

- reject all bids, or
- award the Contract to the new apparent low Bidder, if the Department is able to verify the Bidder's participation in the DHS E-Verify system.

If the Department is unable to verify the new apparent low Bidder's participation in the DHS E-Verify system:

- the new apparent low Bidder will not be deemed nonresponsive,
- the new apparent low Bidder's guaranty will not be forfeited,
- the Department will reject all bids,
- the new apparent low Bidder will remain eligible to receive future proposals for the same project, and
- the proposal guaranty of the original low bidder will become the property of the State, not as a penalty, but as liquidated damages.

# Special Provision to Item 3
# Award and Execution Contract

Item 3, Award and Execution of Contract," of the Standard Specifications is amended with respect to the clauses cited below. No other clauses or requirements of this Item are waived or changed.

**Section 4.3, "Insurance**." The first sentence is voided and replaced by the following:

For construction and building Contracts, submit a certificate of insurance showing coverages in accordance with Contract requirements. For routine maintenance Contracts, refer to Article 8, "Beginning of Work."

**Article 8, "Beginning of Work**." The first sentence is supplemented by the following:

For a routine maintenance Contract, do not begin work until a certificate of insurance showing coverages in accordance with the Contract requirements is provided and accepted.

# Special Provision to Item 3
# Award and Execution of Contract

Item 3, "Award and Execution of Contract" of the Standard Specifications is amended with respect to the clauses cited below. No other clauses or requirements of this Item are waived or changed.

**Section 4.3 "Insurance" is being amended by the following:**

**Table 2**
**Insurance Requirements**

| Type of Insurance | Amount of Coverage |
|---|---|
| Commercial General Liability Insurance | Not Less Than:<br>$600,000 each occurrence |
| Business Automobile Policy | Not Less Than:<br>$600,000 combined single limit |
| Workers' Compensation | Not Less Than:<br>Statutory |
| All Risk Builder's Risk Insurance<br>(For building-facilities contracts only) | 100% of Contract Price |

# Special Provision to Item 5
# Control of the Work

Item 5, "Control of the Work," of the Standard Specifications is amended with respect to the clauses cited below. No other clauses or requirements of this Item are waived or changed.

Article 5.1, "Authority of Engineer," is voided and replaced by the following.

The Engineer has the authority to observe, test, inspect, approve, and accept the work. The Engineer decides all questions about the quality and acceptability of materials, work performed, work progress, Contract interpretations, and acceptable Contract fulfillment. The Engineer has the authority to enforce and make effective these decisions.

The Engineer acts as a referee in all questions arising under the terms of the Contract. The Engineer's decisions will be final and binding.

The Engineer will pursue and document actions against the Contractor as warranted to address Contract performance issues. Contract remedies include, but are not limited to, the following:

- conducting interim performance evaluations requiring a Project Recovery Plan, in accordance with Title 43, Texas Administrative Code (TAC) §9.23,
- requiring the Contractor to remove and replace defective work, or reducing payment for defective work,
- removing an individual from the project,
- suspending the work without suspending working day charges,
- assessing standard liquidated damages to recover the Department's administrative costs, including additional project-specific liquidated damages when specified in the Contract in accordance with 43 TAC §9.22,
- withholding estimates,
- declaring the Contractor to be in default of the Contract, and
- in case of a Contractor's failure to meet a Project Recovery Plan, referring the issue directly to the Performance Review Committee for consideration of further action against the Contractor in accordance with 43 TAC §9.24.

The Engineer will consider and document any events outside the Contractor's control that contributed to the failure to meet performance standards, including consideration of sufficient time.

Follow the issue escalation ladder if there is disagreement regarding the application of Contract remedies.

# Special Provision to Item 5
# Control of the Work

Item 5, “Control of the Work” of the Standard Specifications is amended with respect to the clauses cited below. No other clauses or requirements of this Item are waived or changed.

**Article 5.4, “Coordination of Plans, Specifications, and Special Provisions,” the last sentence of the last paragraph is replaced by the following:**

Failure to promptly notify the Engineer will constitute a waiver of all contract claims against the Department for misunderstandings or ambiguities that result from the errors, omissions, or discrepancies.

# Special Provision to Item 6
# Control of Materials

For this project, Item 6, "Control of Materials," of the Standard Specifications, is hereby amended with respect to the clauses cited below, and no other clauses or requirements of this Item are waived or changed hereby.

**Article 4., "Sampling, Testing, and Inspection,"** is supplemented by the following:

Meet with the Engineer and choose either the Department or a Department-selected Commercial Lab (CL) for conducting the subset of project-level sampling and testing shown in Table 1, "Select Guide Schedule Sampling and Testing." Selection may be made on a test by test basis. CLs will meet the testing turnaround times shown (includes test time and time for travel/sampling and reporting) and in all cases issue test reports as soon as possible.

If the Contractor chooses a Department-selected CL for any Table 1 sampling and testing:

- notify the Engineer, District Lab, and the CL of project scheduling that may require CL testing;
- provide the Engineer, District Lab, and CL at least 24 hours' notice by phone and e-mail;
- reimburse the Department for CL Table 1 testing using the contract fee schedule for the CL (including mileage and travel/standby time) at the minimum guide schedule testing frequencies;
- reimburse the Department for CL Table 1 testing above the minimum guide schedule frequencies for retesting when minimum frequency testing results in failures to meet specification limits;
- agree with the Engineer and CL upon a policy regarding notification for testing services;
- give any cancellation notice to the Engineer, District Lab, and CL by phone and e-mail;
- reimburse the Department a $150 cancellation fee to cover technician time and mileage charges for previously scheduled work cancelled without adequate notice, which resulted in mobilization of technician and/or equipment by the CL; and
- all CL charges will be reimbursed to the Department by a deduction from the Contractor's monthly pay estimate.

If the CL does not meet the Table 1 turnaround times, testing charge to the Contractor will be reduced by 50% for the first late day and an additional 5% for each succeeding late day.

Approved CL project testing above the minimum testing frequencies in the Guide Schedule of Sampling and Testing, and not as the result of failing tests, will be paid by the Department.

Other project-level Guide Schedule sampling and testing not shown on Table 1 will be the responsibility of the Department.

**Table 1**
**Select Guide Schedule Sampling and Testing (Note 1)**

| TxDOT Test | Test Description | Turn-Around Time (Calendar days) |
|---|---|---|
| **SOILS/BASE** | | |
| Tex-101-E | Preparation of Soil and Flexible Base Materials for Testing (included in other tests) | |
| Tex-104-E | Liquid Limit of Soils (included in 106-E) | |
| Tex-105-E | Plastic Limit of Soils (included in 106-E) | |
| Tex-106-E | Calculating the Plasticity Index of Soils | 7 |
| Tex-110-E | Particle Size Analysis of Soils | 6 |
| Tex-113-E | Moisture-Density Relationship of Base Materials | 7 |
| Tex-114-E | Moisture-Density Relationship of Subgrade and Embankment Soil | 7 |
| Tex-115-E | Field Method for In-Place Density of Soils and Base Materials | 2 |
| Tex-116-E | Ball Mill Method for the Disintegration of Flexible Base Material | 5 |
| Tex-117-E, Part II | Triaxial Compression Tests For Disturbed Soils and Base Materials (Part II) | 6 |
| Tex-113-E **w/** Tex-117-E | Moisture-Density Relationship of Base Materials **with** Triaxial Compression Tests For Disturbed Soils and Base Materials (Part II) | 10 |
| Tex-140-E | Measuring Thickness of Pavement Layer | 2 |
| Tex-145-E | Determining Sulfate Content in Soils - Colorimetric Method | 4 |
| **HOT MIX ASPHALT** | | |
| Tex-200-F | Sieve Analysis of Fine and Coarse Aggregate (dry, from ignition oven with known correction factors) | 1 (Note 2) |
| Tex-203-F | Sand Equivalent Test | 3 |
| Tex-206-F, **w/** Tex-207-F, Part I, **w/** Tex-227-F | **(Lab-Molded Density of Production Mixture – Texas Gyratory)** Method of Compacting Test Specimens of Bituminous Mixtures **with** Density of Compacted Bituminous Mixtures, Part I - Bulk Specific Gravity of Compacted Bituminous Mixtures, **with** Theoretical Maximum Specific Gravity of Bituminous Mixtures | 1 (Note 2) |
| Tex-207-F, Part I **&/or** Part VI | **(In-Place Air Voids of Roadway Cores)** Density of Compacted Bituminous Mixtures, Part I- Bulk Specific Gravity of Compacted Bituminous Mixtures **&/or** Part VI - Bulk Specific Gravity of Compacted Bituminous Mixtures Using the Vacuum Method | 1 (Note 2) |
| Tex-207-F, Part V | Density of Compacted Bituminous Mixtures, Part V- Determining Mat Segregation using a Density-Testing Gauge | 3 |
| Tex-207-F, Part VII | Density of Compacted Bituminous Mixtures, Part VII - Determining Longitudinal Joint Density using a Density-Testing Gauge | 4 |
| Tex-212-F | Moisture Content of Bituminous Mixtures | 3 |
| Tex-217-F | Deleterious Material and Decantation Test for Coarse Aggregate | 4 |
| Tex-221-F | Sampling Aggregate for Bituminous Mixtures, Surface Treatments, and LRA (included in other tests) | |
| Tex-222-F | Sampling Bituminous Mixtures (included in other tests) | |
| Tex-224-F | Determination of Flakiness Index | 3 |
| Tex-226-F | Indirect Tensile Strength Test (production mix) | 4 |
| Tex-235-F | Determining Draindown Characteristics in Bituminous Materials | 3 |
| Tex-236-F (Correction Factors) | Asphalt Content from Asphalt Paving Mixtures by the Ignition Method (Determining Correction Factors) | 4 |
| Tex-236-F | Asphalt Content from Asphalt Paving Mixtures by the Ignition Method (Production Mixture) | 1 (Note 2) |
| Tex-241-F **w/** Tex-207-F, Part I, **w/** Tex-227-F | **(Lab-Molded Density of Production Mixture – Superpave Gyratory)** Superpave Gyratory Compacting of Specimens of Bituminous Mixtures (production mixture) **with** Density of Compacted Bituminous Mixtures, Part I- Part I - Bulk Specific Gravity of Compacted Bituminous Mixtures, **with** Theoretical Maximum Specific Gravity of Bituminous Mixtures | 1 (Note 2) |
| Tex-242-F | Hamburg Wheel-Tracking Test (production mix, molded samples) | 3 |
| Tex-244-F | Thermal Profile of Hot Mix Asphalt | 1 |
| Tex-246-F | Permeability of Water Flow of Hot Mix Asphalt | 3 |
| Tex-280-F | Flat and Elongated Particles | 3 |
| Tex-530-C | Effect of Water on Bituminous Paving Mixtures (production mix) | 4 |

| | | |
|---|---|---|
| **AGGREGATES** | | |
| Tex-400-A | Sampling Flexible Base, Stone, Gravel, Sand, and Mineral Aggregates | 3 |
| Tex-410-A | Abrasion of Coarse Aggregate Using the Los Angeles Machine | 5 |
| Tex-411-A | Soundness of Aggregate by Use of Sodium Sulfate or Magnesium Sulfate | 12 |
| Tex-461-A | Degradation of Coarse Aggregate by Micro-Deval Abrasion | 5 |
| **CHEMICAL** | | |
| Tex-612-J | Acid Insoluble Residue for Fine Aggregate | 4 |
| **GENERAL** | | |
| HMA Production Specialist [TxAPA – Level 1-A] ($/hr) | | |
| HMA Roadway Specialist [TxAPA – Level 1-B] ($/hr) | | |
| Technician Travel/Standby Time ($/hr) | | |
| Per Diem ($/day – meals and lodging) | | |
| Mileage Rate ($/mile from closest CL location) | | |

**Note 1– Turn-Around Time includes test time and time for travel/sampling and reporting.**
**Note 2 – These tests require turn-around times meeting the governing specifications. Provide test results within the stated turn-around time. CL is allowed one additional day to provide the signed and sealed report.**

# Special Provision to Item 6
# Control of Materials

Item 6, "Control of Materials" of the Standard Specifications is amended with respect to the clauses cited below. No other clauses or requirements of this Item are waived or changed.

Article 6.10., "Hazardous Materials," is voided and replaced by the following:

Comply with the requirements of Article 7.12., "Responsibility for Hazardous Materials."

Notify the Engineer immediately when a visual observation or odor indicates that materials on sites owned or controlled by the Department may contain hazardous materials. Except as noted herein, the Department is responsible for testing, removing, and disposing of hazardous materials not introduced by the Contractor. The Engineer may suspend work wholly or in part during the testing, removing, or disposing of hazardous materials, except in the case where hazardous materials are introduced by the Contractor.

Use materials that are free of hazardous materials. Notify the Engineer immediately if materials are suspected to contain hazardous materials. If materials delivered to the project by the Contractor are suspected to contain hazardous materials, have an approved commercial laboratory test the materials for the presence of hazardous materials as approved. Remove, remediate, and dispose of any of these materials found to contain hazardous materials. The work required to comply with this section will be at the Contractor's expense if materials are found to contain hazardous materials. Working day charges will not be suspended and extensions of working days will not be granted for activities related to handling hazardous material introduced by the Contractor. If suspected materials are not found to contain hazardous materials, the Department will reimburse the Contractor for hazardous materials testing and will adjust working day charges if the Contractor can show that this work impacted the critical path.

10.1. Painted Steel Requirements. Coatings on existing steel contain hazardous materials unless otherwise shown on the plans. Remove paint and dispose of steel coated with paint containing hazardous materials is in accordance with the following:

10.1.1. Removing Paint From Steel For contracts that are specifically for painting steel, Item 446, "Field Cleaning and Painting Steel" will be included as a pay item. Perform work in accordance with that item.

For projects where paint must be removed to allow for the dismantling of steel or to perform other work, the Department will provide for a separate contractor (third party) to remove paint containing hazardous materials prior to or during the Contract. Remove paint covering existing steel shown not to contain hazardous materials in accordance with Item 446, "Field Cleaning and Painting Steel."

10.1.2. Removal and Disposal of Painted Steel. For steel able to be dismantled by unbolting, paint removal will not be performed by the Department. The Department will remove paint, at locations shown on the plans or as agreed, for the Contractor's cutting and dismantling purposes. Utilize Department cleaned locations for dismantling when provided or provide own means of dismantling at other locations.

Painted steel to be retained by the Department will be shown on the plans. For painted steel that contains hazardous materials, dispose of the painted steel at a steel recycling or smelting facility unless otherwise shown on the plans. Maintain and make available to the Engineer invoices and other records obtained from the facility showing the received weight of the steel and the facility name. Dispose of steel that does not contain hazardous material coatings in accordance with federal, state and local regulations.

10.2. Asbestos Requirements. The plans will indicate locations or elements where asbestos containing materials (ACM) are known to be present. Where ACM is known to exist or where previously unknown ACM has been found, the Department will arrange for abatement by a separate contractor prior to or during the Contract. Notify the Engineer of proposed dates of demolition or removal of structural elements with ACM at least 60 days before beginning work to allow the Department sufficient time for abatement.

The Department of State Health Services (DSHS), Asbestos Programs Branch, is responsible for administering the requirements of the National Emissions Standards for Hazardous Air Pollutants, 40 CFR Part 61, Subpart M and the Texas Asbestos Health Protection Rules (TAHPR). Based on EPA guidance and regulatory background information, bridges are considered to be a regulated “facility” under NESHAP. Therefore, federal standards for demolition and renovation apply.

The Department is required to notify the DSHS at least 10 working days (by postmarked date) before initiating demolition or renovation of each structure or load bearing member shown on the plans. If the actual demolition or renovation date is changed or delayed, notify the Engineer in writing of the revised dates in sufficient time to allow for the Department’s notification to DSHS to be postmarked at least 10 days in advance of the actual work.

Failure to provide the above information may require the temporary suspension of work under Article 8.4., “Temporary Suspension of Work or Working Day Charges,” due to reasons under the control of the Contractor. The Department retains the right to determine the actual advance notice needed for the change in date to address post office business days and staff availability.

10.3. Lead Abatement. Provide traffic control as shown on the plans, and coordinate and cooperate with the third party and the Department for managing or removing hazardous materials. Work for the traffic control shown on the plans and coordination work will not be paid for directly but will be subsidiary to pertinent Items.

# Special Provision to Item 7
# Legal Relations and Responsibilities

Item 7, "Legal Relations and Responsibilities," of the Standard Specifications is amended with respect to the clauses cited below. No other clauses or requirements of this Item are waived or changed.

**Section 7.7.2., "Texas Pollutant Discharge Elimination System (TPDES) Permits and Storm Water Pollution Prevention Plans (SWP3),"** is voided and replaced by the following:

**7.2. Texas Pollution Discharge Elimination System (TPDES) Permits and Storm Water Pollution Prevention Plans (SWP3).**

**7.2.1. Projects with less than one acre of soil disturbance including required associated project specific locations (PSL's) per TPDES GP TXR 150000.**

No posting or filing will be required for soil disturbances within the right of way. Adhere to the requirements of the SWP3.

**7.2.2. Projects with one acre but less than five acres of soil disturbance including required associated PSL's per TPDES GP TXR 150000.**

The Department will be considered a primary operator for Operational Control Over Plans and Specifications as defined in TPDES GP TXR 150000 for construction activity in the right of way. The Department will post a small site notice along with other requirements as defined in TPDES GP TXR 150000 as the entity of having operational control over plans and specifications for work shown on the plans in the right of way.

The Contractor will be considered a Primary Operator for Day-to-Day Operational Control as defined in TPDES GP TXR 150000 for construction activity in the right of way. In addition to the Department's actions, the Contractor will post a small site notice along with other requirements as defined in TPDES GP TXR 150000 as the entity of having day-to-day operational control of the work shown on the plans in the right of way. This is in addition to the Contractor being responsible for TPDES GP TXR 150000 requirements for on- right of way and off- right of way PSL's. Adhere to all requirements of the SWP3 as shown on the plans. The Contractor will be responsible for Implement the SWP3 for the project site in accordance with the plans and specifications, TPDES General Permit TXR150000, and as directed.

**7.2.3. Projects with 5 acres or more of soil disturbance including required associated PSL's per TPDES GP TXR 150000.**

The Department will be considered a primary operator for Operational Control Over Plans and Specifications as defined in TPDES GP TXR 150000 for construction activities in the right of way. The Department will post a large site notice, file a notice of intent (NOI), notice of change (NOC), if applicable, and a notice of termination (NOT) along with other requirements per TPDES GP TXR 150000 as the entity having operational control over plans and specifications for work shown on the plans in the right of way.

The Contractor will be considered a primary operator for Day-to-Day Operational Control as defined in TPDES GP TXR 150000 for construction activities in the right of way. In addition to the Department's actions, the Contractor shall file a NOI, NOC, if applicable, and NOT and post a large site notice along with other requirements as the entity of having day-to-day operational control of the work shown on the plans in the right of way. This is in addition to the Contractor

being responsible for TPDES GP TXR 150000 requirements for on- right of way and off- right of way PSL's. Adhere to all requirements of the SWP3 as shown on the plans.

# Special Provision to Item 7
# Legal Relations and Responsibilities

Item 7, "Legal Relations and Responsibilities," of the Standard Specifications is amended with respect to the clauses cited below. No other clauses or requirements of this Item are waived or changed.

**Section 7.2.4., "Public Safety and Convenience."** The first paragraph is deleted and replaced by the following.

Ensure the safety and convenience of the public and property as provided in the Contract and as directed. Keep existing roadways open to traffic or construct and maintain detours and temporary structures for safe public travel. Manage construction to minimize disruption to traffic. Maintain the roadway in a good and passable condition, including proper drainage and provide for ingress and egress to adjacent property.

If the construction of the project requires the closing of a highway, as directed, coordinate the closure with the Engineer and work to ensure all lanes and ramps possible are available during peak traffic periods before, during, and after significant traffic generator events to avoid any adverse economic impact on the municipalities during:

- dates or events as shown on the plans, and
- other dates as directed.

# Special Provision to Item 007
# Legal Relations and Responsibilities

Item 7, "Legal Relations and Responsibilities," of the Standard Specifications is amended with respect to the clauses cited below.

**Section 2.6., "Barricades, Signs, and Traffic Handling,"** the first paragraph is voided and replaced by the following:

2.6. **Barricades, Signs, and Traffic Handling.** Comply with the requirements of Item 502 "Barricades, Signs, and Traffic Handling," and as directed. Provide traffic control devices that conform to the details shown on the plans, the TMUTCD, and the Department's Compliant Work Zone Traffic Control Device List maintained by the Traffic Safety Division. When authorized or directed, provide additional signs or traffic control devices not required by the plans.

**Section 2.6.1., "Contractor Responsible Person and Alternative,"** is voided and replaced by the following:

2.6.1. **Contractor Responsible Person and Alternative.** Designate in writing, a Contractor's Responsible Person (CRP) and an alternate to be the representative of the Contractor who is responsible for taking or directing corrective measures regarding the traffic control. The CRP or alternate must be accessible by phone 24 hr. per day and able to respond when notified. The CRP and alternate must comply with the requirements of Section 2.6.5., "Training."

**Section 2.6.2, "Flaggers,"** the first paragraph is voided and replaced by the following:

2.6.2. **Flaggers.** Designate in writing, a flagger instructor who will serve as a flagging supervisor and is responsible for training and assuring that all flaggers are qualified to perform flagging duties. Certify to the Engineer that all flaggers will be trained and make available upon request a list of flaggers trained to perform flagging duties.

**Section 2.6.5, "Training,"** is voided and replaced by the following:

2.6.5. **Training.** Train workers involved with the traffic control using Department-approved training as shown on the "Traffic Control Training" Material Producer List.

Coordinate enrollment, pay associated fees, and successfully complete Department-approved training or Contractor-developed training. Training is valid for the period prescribed by the provider. Except for law enforcement personnel training, refresher training is required every 4 yr. from the date of completion unless otherwise specified by the course provider. The Engineer may require training at a frequency instead of the period prescribed based on the Department's needs. Training and associated fees will not be measured or paid for directly but are considered subsidiary to pertinent Items.

Certify to the Engineer that workers involved in traffic control and other work zone personnel have been trained and make available upon request a copy of the certification of completion to the Engineer. Ensure the following is included in the certification of completion:

- name of provider and course title,
- name of participant,
- date of completion, and
- date of expiration.

Where Contractor-developed training or a Department-approved training course does not produce a certification, maintain a log of attendees. Make the log available upon request. Ensure the log is legible and includes the following:

- printed name and signature of participant,
- name and title of trainer, and
- date of training.

2.6.5.1. **Contractor-developed Training.** Develop and deliver Contractor-developed training meeting the minimum requirements established by the Department. The outline for this training must be submitted to the Engineer for approval at the preconstruction meeting. The CRP or designated alternate may deliver the training instead of the Department-approved training. The work performed and materials furnished to develop and deliver the training will not be measured or paid for directly but will be considered subsidiary to pertinent Items.

2.6.5.1.1. **Flagger Training Minimum Requirements.** A Contractor's certified flagging instructor is permitted to train other flaggers.

2.6.5.1.2. **Optional Contractor-developed Training for Other Work Zone Personnel.** For other work zone personnel, the Contractor may provide training meeting the curriculum shown below instead of Department-approved training.

Minimum curriculum for Contractor-provided training is as follows:

Contractor-developed training must provide information on the use of personnel protection equipment, occupational hazards and health risks, and other pertinent topics related to traffic management. The type and amount of training will depend on the job duties and responsibilities. Develop training applicable to the work being performed. Develop training to include the following topics.

- The Life You Save May Be Your Own (or other similar company safety motto).
- Purpose of the training.
  - It's the Law.
  - To make work zones safer for workers and motorist.
  - To understand what is needed for traffic control.
  - To save lives including your own.
- Personal and Co-Worker Safety.
  - **High Visibility Safety Apparel.** Discuss compliant requirements; inspect regularly for fading and reduced reflective properties; if night operations are required, discuss the additional and appropriate required apparel in addition to special night work risks; if moving operations are underway, discuss appropriate safety measures specific to the situation and traffic control plan.
  - **Blind Areas.** A blind area is the area around a vehicle or piece of construction equipment not visible to the operators, either by line of sight or indirectly by mirrors. Discuss the "Circle of Safety" around equipment and vehicles; use of spotters; maintain eye contact with equipment operators; and use of hand signals.
  - **Runovers and Backovers.** Remain alert at all times; keep a safe distance from traffic; avoid turning your back to traffic and if you must then use a spotter; and stay behind protective barriers, whenever possible. Note: It is not safe to sit on or lean against a concrete barrier, these barriers can deflect four plus feet when struck by a vehicle.
  - Look out for each other, warn co-workers.
  - Be courteous to motorists.
  - Do not run across active roadways.
  - Workers must obey traffic laws and drive courteously while operating vehicles in the work zones.
  - Workers must be made aware of company distracted driving policies.
- **Night Time Operations.** Focus should be placed on projects with a nighttime element.

- **Traffic Control Training.** Basics of Traffic Control.
  - Identify work zone traffic control supervisor and other appropriate persons to report issues to when they arise.
  - Emphasize that work zone traffic control devices must be in clean and in undamaged condition. If devices have been hit but not damaged, put back in their correct place and report to traffic control supervisor. If devices have been damaged, replace with new one and report to traffic control supervisor. If devices are dirty, faded or have missing or damaged reflective tape clean or replace and report to traffic control supervisor. Show examples of non-acceptable device conditions. Discuss various types of traffic control devices to be used and where spacing requirements can be found.
  - **Channelizing Devices and Barricades with Slanted Stripes.** Stripes are to slant in the direction you want traffic to stay or move to; demonstrate this with a device.
  - **Traffic Queuing.** Workers must be made aware of traffic queuing and the dangers created by it. Workers must be instructed to immediately notify the traffic control supervisor and other supervisory personnel if traffic is queuing beyond advance warning sign and devices or construction limits.
  - **Signs.** Signs must be straight and not leaning. Report problems to the traffic control supervisor or other as designated for immediate repair. Covered signs must be fully covered. If covers are damaged or out of place, report to traffic control supervisor or other as designated.

# Special Provision to Item 7
# Legal Relations and Responsibilities

Item 7, "Legal Relations and Responsibilities" of the Standard Specifications is amended with respect to the clauses cited below. No other clauses or requirements of this Item are waived or changed.

**Article 7.20., "Security Incidents,"** is added**.**

**20.1.** **Reporting of Security Incidents.** Immediately notify the Department's Cyber Security Operations Center (CSOC) via the Report Cybersecurity Incident Page on www.txdot.gov, of any potential cybersecurity incident or breach involving Department data**.** A breach of system security is the unauthorized acquisition of computerized data that compromises the security, confidentiality, or integrity of sensitive personal information maintained by a person, including data that is encrypted if the person accessing the data has the key required to decrypt the data.

**20.2.** **Liability for costs incurred.** The Department reserves the right to hold the Contractor liable for all costs incurred by the Department to resolve a security incident introduced by the Contractor, their Subcontractors, or their Suppliers.

# Special Provision to Item 8
# Prosecution and Progress

Item 8, "Prosecution and Progress" of the Standard Specification is amended with respect to the clauses cited below. No other clauses or requirements of this Item are waived or changed.

Article 8.2., "Subcontracting," is supplemented by the following paragraph, which is added as paragraph six to this article:

The Contractor certifies by signing the Contract that the Contractor will not enter into any subcontract with a subcontractor that is not registered in the Department of Homeland Security's (DHS) E-Verify system. Require that all subcontractors working on the project register and require that all subcontractors remain active in the DHS E-Verify system until their work is complete on the project.

# Special Provision to Item 8
# Prosecution and Progress

Item 8, "Prosecution and Progress" of the Standard Specifications is amended with respect to the clause cited below. No other clauses or requirements of this Item are waived or changed.

**Article 8.7.2., "Wrongful Default,"** is revised and replaced by the following:

If it is determined after the Contractor is declared in default, that the Contractor was not in default, the rights and obligations of all parties will be the same as if termination had been issued for the convenience of the public as provided in Article 8.8 "Termination of Contract."

# Special Provision to Item 8
# Prosecution and Progress

Item 8, "Prosecution and Progress," of the Standard Specifications, is amended with respect to the clauses cited below. No other clauses or requirements of this Item are waived or changed.

**Article 8.6., "Failure to Complete Work on Time,"** is supplemented by the following:

**8.6.1. Lane Closure Assessment Fees.**

Monetary assessment, as shown on the plans, will be made against the Contractor for any lane closure or obstruction that overlaps into the peak hour traffic for each time increment defined on the plans or portion thereof, per lane, regardless of the length of lane closure or obstruction.

**8.6.1.1. Definition of Terms.** For this Contract, the following definitions apply:

**8.6.1.1.1. Time increment.** Any continuous defined increment of time period or portion thereof for a period beginning at that point when lanes are closed or obstructed by the Contractor's operations.

**8.6.1.1.2. Assessment Fee.** The amount shown on the proposal for each defined time increment, representing the average cost of interference and inconvenience to the road user for each lane closed or obstructed during peak hour traffic. The Engineer may allow a proportional fee assessment for closures that do not involve an entire defined time increment.

**8.6.1.1.3. Closure or Obstruction.** When the Contractor's operations result in a reduced lane width of the travel way or shoulder less than that specified on the plan documents.

**8.6.1.1.4. Peak Hour Traffic Times.** Schedule of days and times described in the General Notes, when lane closures or obstructions are not allowed.

**8.6.1.2. Fee Calculation and Collection.** The assessment fee will be deducted from the amount due to the Contractor on the monthly construction estimate, and thus retained by the Department. The Engineer will determine the time of overlap of lane closures or obstructions for calculating the assessment fee. The assessment fee is based on road user costs and is assessed not as a penalty, but for added expense incurred by the traveling public.

# Special Provision to Item 8
# Prosecution and Progress

Item 8, "Prosecution and Progress" of the Standard Specifications is amended with respect to the clauses cited below. No other clauses or requirements of this Item are waived or changed.

**Article 3., "Computation of Contract Time for Completion."** The second paragraph is voided and replaced by the following:

The development of the conceptual time determination is intended to establish the number of working days on the Contract. Upon request, the Engineer will provide the conceptual time determination schedule to the Contractor for informational purposes only. The schedule assumes generic resources, production rates, sequences of construction, and average weather conditions based on historic data. Schedule labor, equipment, procurement of materials, subcontractor work, and all other necessary means to prosecute the work within the number of working days specified by the Contract.

# Special Provision to Item 009
# Measurement and Payment

Item 009 "Measurement and Payment" of the Standard Specifications is amended with respect to the clauses cited below. No other clauses or requirements of this Item are waived or changed.

**Article 9.5., "PROGRESS PAYMENTS" is supplemented with the following:**

It is the Department's desire to pay a Contractor for work through the last working day of the month; however, the use of early cut-off dates for monthly estimates and MOH is a project management practice to manage workload at the Area Office level. Approval for using early cut-off dates is at the District's discretion. The earliest cut-off date for estimates is the 25th of the month.

**Article 9.6., "PAYMENT FOR MATERIAL ON HAND (MOH)" first paragraph is amended as follows:**

If payment for MOH is desired, request compensation for the invoice cost of acceptable nonperishable materials that have not been used in the work before the request, and that have been delivered to the work location or are in acceptable storage places. Nonperishable materials are those that do not have a shelf life or whose characteristics do not materially change when exposed to the elements. Include only materials that have been sampled, tested, approved, or certified, and are ready for incorporation into the work. Only materials which are completely constructed or fabricated on the Contractor's order for a specific Contract and are so marked and on which an approved test report has been issued are eligible. Payment for MOH may include the following types of items: concrete traffic barrier, precast concrete box culverts, concrete piling, reinforced concrete pipe, and illumination poles. Any repairs required after fabricated materials have been approved for storage will require approval of the Engineer before being made and will be made at the Contractor's expense. Include only those materials and products, when cumulated under an individual item or similar bid items, that have an invoice cost of at least $1,000 in the request for MOH payment (e.g. For MOH eligibility, various sizes of conductor are considered similar bid items and may be cumulated to meet the threshold; for small roadside signs, the sign supports, mounting bolts, and the sign face is considered one bid item or similar bid items for more than one pay item for sign supports.) Requests for MOH are to be submitted at least two days before but not later than the estimate cutoff date unless otherwise agreed. If there is a need to request MOH after the established cut-off date, the district can make accommodation as the need arises. This needed accommodation is to be the exception, though, and not the rule.

# Special Provision to Item 9
# Measurement and Payment

Item 9, "Measurement and Payment" of the Standard Specifications is amended with respect to the clauses cited below. No other clauses or requirements of this Item are waived or changed.

**Section 7.1.4.3., "Standby Equipment Costs,"** is voided and replaced by the following:

7.1.4.3. **Standby Equipment Costs.** Payment for standby equipment will be made in accordance with Section 9.7.1.4., "Equipment." The 15% markup will be paid when standby is associated with extra work but will not be paid when standby is associated with damages.

**Section 7.1.4.3.1., "Contractor-Owned Equipment,"** is voided and replaced by the following:

7.1.4.3.1. **Contractor-Owned Equipment**. For Contractor-owned equipment:

- Standby will be paid at 50% of the monthly Rental Rate Blue Book rate after the regional and age adjustment factors have been applied. Operating costs will not be allowed. Calculate the standby rate as follows.

  Standby rate = (FHWA hourly rate - operating costs) × 50%

- If an hourly rate is needed, divide the monthly Rental Rate Blue Book rate by 176.
- No more than 8 hr. of standby will be paid during a 24-hr. day period, nor more than 40 hr. per week.
- Standby costs will not be allowed during periods when the equipment would have otherwise been idle.

# Special Provision to Item 502
# Barricades, Signs and Traffic Handling

Item 502, "Barricades, Signs and Traffic Handling" of the Standard Specifications, is hereby amended with respect to the clauses cited below, and no other clauses or requirements of this Item are waived or changed hereby.

**Article 502.1., "Description,"** is supplemented by the following:

Temporary work-zone (TWZ) traffic control devices manufactured after December 31, 2019, must have been successfully tested to the crashworthiness requirements of the 2016 edition of the Manual for Assessing Safety Hardware (MASH). Such devices manufactured on or before this date and successfully tested to NCHRP Report 350 or the 2009 edition of MASH may continue to be used throughout their normal service lives. An exception to the manufacture date applies when, based on the project's date of letting, a category of MASH-2016 compliant TWZ traffic control devices are not approved, or are not self-certified after the December 31, 2019, date. In such case, devices that meet NCHRP-350 or MASH-2009 may be used regardless of the manufacture date.

Such TWZ traffic control devices include: portable sign supports, barricades, portable traffic barriers designated exclusively for use in temporary work zones, crash cushions designated exclusively for use in temporary work zones, longitudinal channelizers, truck and trailer mounted attenuators. Category I Devices (i.e., lightweight devices) such as cones, tubular markers and drums without lights or signs attached however, may be self-certified by the vendor or provider, with documentation provided to Department or as are shown on Department's Compliant Work Zone Traffic Control Device List.

**Article 502.4., "Payment,"** is supplemented by the following:

Truck mounted attenuators and trailer attenuators will be paid for under Special Specification, "Truck Mounted Attenuator (TMA) and Trailer Attenuator (TA)." Portable Changeable Message Signs will be paid for under Special Specification, "Portable Changeable Message Sign." Portable Traffic Signals will be paid for under Special Specification, "Portable Traffic Signals."

# Special Provision to Item 506

# Temporary Erosion, Sedimentation, and Environmental Controls

For this project, Item 506, "Temporary Erosion, Sedimentation, and Environmental Controls," of the Standard Specifications, is hereby amended with respect to the clauses cited below, and no other clauses or requirements of this Item are waived or changed hereby.

**Article 506.1., "Description,"** is voided and replaced by the following:

Install, maintain, and remove erosion, sedimentation, and environmental control measures to prevent or reduce the discharge of pollutants in accordance with the Storm Water Pollution Prevention Plan (SWP3) or as directed. Ensure the installation and maintenance of control measures is performed in accordance with the manufacturer's or designer's specifications. Erosion and sediment control devices must be selected from the "Erosion Control Approved Products" or "Sediment Control Approved Products" lists. Perform work in a manner to prevent degradation of receiving waters, facilitate project construction, and comply with applicable federal, state, and local regulations.

**Article 506.3., "Qualifications, Training, and Employee Requirements,"** is voided and not replaced.

**Section 506.4.1., "Contractor Responsibilities," Section 506.4.2., "Implementation," and Section 506.4.3., "General,"** are voided and replaced by the following:

4.1. **Contractor Responsibilities**. Implement the SWP3 for the project site in accordance with the plans and specifications, and as directed. Coordinate storm water management with all other work on the project. Develop and implement an SWP3 for project-specific material supply plants within and outside of the Department's right of way in accordance with the specific or general storm water permit requirements. Prevent water pollution from storm water associated with construction activity from entering any surface water or private property on or adjacent to the project site.

4.2. **Implementation**.

4.2.1. **Commencement**. Implement the SWP3 as shown and as directed. Contractor proposed recommendations for changes will be allowed as approved. Do not implement changes until approval has been received and changes have been incorporated into the plans by the Engineer. Minor adjustments to meet field conditions are allowed and will be recorded by the Engineer in the SWP3.

Implement control measures before the commencement of activities that result in soil disturbance. Phase and minimize the soil disturbance to the areas shown on the plans. Coordinate temporary control measures with permanent control measures and all other work activities on the project to assure economical, effective, safe, continuous water pollution prevention. Provide control measures that are appropriate to the construction means, methods, and sequencing allowed by the Contract.

Do not prolong final grading and shaping. Preserve vegetation where possible throughout the project and minimize clearing, grubbing, and excavation within stream banks, bed, and approach sections.

4.3. **General**.

4.3.1. **Temporary Alterations or Control Measure Removal**. Altering or removal of control measures is allowed when control measures are restored within the same working day.

4.3.2. **Stabilization**. Initiate stabilization for disturbed areas no more than 14 days after the construction activities in that portion of the site has temporarily or permanently ceased. Establish a uniform vegetative cover or use another stabilization practice as approved.

4.3.3. **Finished Work**. Upon the Engineer's acceptance of vegetative cover or other stabilization practice, remove and dispose of all temporary control measures unless otherwise directed. Complete soil disturbing activities and establish a uniform perennial vegetative cover. A project will not be considered for acceptance until a vegetative cover of 70% density of existing adjacent undisturbed areas is obtained or equivalent permanent stabilization is obtained as approved.

4.3.4. **Restricted Activities and Required Precautions**. Do not discharge onto the ground or surface waters any pollutants such as chemicals, raw sewage, fuels, lubricants, coolants, hydraulic fluids, bitumens, or any other petroleum product. Operate and maintain equipment on site in a manner as to prevent actual or potential water pollution. Manage, control, and dispose of litter on site such that no adverse impacts to water quality occur. Prevent dust from creating a potential or actual unsafe condition, public nuisance, or condition endangering the value, utility, or appearance of any property. Wash out concrete trucks only in approved contained areas. Use appropriate controls to minimize the offsite transport of suspended sediments and other pollutants if it is necessary to pump or channel standing water (i.e. dewatering). Prevent discharges that would contribute to a violation of Edwards Aquifer Rules, water quality standards, the impairment of a listed water body, or other state or federal law.

**Section 506.4.4., "Installation, Maintenance, and Removal Work."** The first paragraph is voided and replaced by the following.

Perform work in accordance with the SWP3, and according to the manufacturers' guidelines. Install and maintain the integrity of temporary erosion and sedimentation control devices to accumulate silt and debris until soil disturbing activities are completed and permanent erosion control features are in place or the disturbed area has been adequately stabilized as determined by the Engineer.

**Section 506.4.5., "Monitoring and Documentation,"** is voided and not replaced.

**Section 506.6.5.2., "Maintenance Earthwork for Erosion and Sediment Control for Cleaning and/or Restoring Control Measures,"** is voided and replaced by the following:

Earthwork needed to remove and obliterate of erosion-control features will not be paid for directly but is subsidiary to pertinent Items unless otherwise shown on the plans.

Sprinkling and rolling required by this Item will not be paid for directly but will be subsidiary to this Item.

# Special Provision to Special Specification 6004
# Networking Intelligent Transportation System (ITS) Communications Cable

Item 6004, "Networking Intelligent Transportation System (ITS) Communication Cable" of the Standard Specifications, is hereby amended with respect to the clauses cited below, and no other clauses or requirements of this Item are waived or changed hereby.

Article 4. "Measurement", is voided and replaced by the following:

This Item will be measured by the linear foot of cable or by each connector.

Article 5. "Payment", is voided and replaced by the following:

The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "ITS Communications Cable (Ethernet)", "ITS Communication Cable (Serial)" and "ITS Communication Cable Connector." For twisted pair communications cable runs, work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "ITS Communications Cable" of the type, size, and number of pairs specified. The price is full compensation for furnishing, installing, splicing and testing cable and connectors, as well as for installation equipment, materials, tools, and incidentals.

# Special Provision to Special Specification 6185
# Truck Mounted Attenuator (TMA) and Trailer Attenuator (TA)

Item 6185, "Truck Mounted Attenuator (TMA) and Trailer Attenuator (TA)" of the Standard Specifications, is hereby amended with respect to the clauses cited below, and no other clauses or requirements of this Item are waived or changed hereby.

**Article 4. "Measurement",** is voided and replaced by the following:

4.1. **Truck Mounted Attenuator/Trailer Attenuator (Stationary).** This Item will be measured by the day. TMA/TAs must be set up in a work area and operational before a calendar day can be considered measureable. A day will be measured for each TMA/TA set up and operational on the worksite.

4.2. **Truck Mounted Attenuator/Trailer Attenuator (Mobile Operation).** This Item will be measured by the hour or by the day. The time begins once the TMA/TA is ready for operation at the predetermined site and stops when notified by the Engineer. When measurement by the hour is specified, a minimum of 4 hr. will be paid each day for each operating TMA/TA used in a mobile operation. When measurement by the day is specified, a day will be measured for each TMA/TA set up and operational on the worksite.

# Special Specification 6004

# Networking Intelligent Transportation System (ITS) Communications Cable

## 1. DESCRIPTION

Furnish, install, and test twisted-pair cable for networking and telecommunication uses in the field environment.

## 2. MATERIALS

2.1. **General Requirements.** Provide new cable and connectors that are in conformance with the details shown on the plans and in the specifications. The cable must be free of deformations, holes, splits and splices.

ITS networking copper cables must be constructed for installation in an outdoor underground conduit environment. All cable provided for underground installation must contain the Outside Plant designation for outdoor usage and must be rated Non-Plenum.

Provide cable in compliance with the most current version of the following industry standards:

- NFPA National Electric Code (NEC),
- Rural Electrification Administration (REA) -PE-22 (7 CFR 1755.403), PE-39 (7 CFR 1755.390),
- ANSI /TIA-568-C, EIA/TIA-568-B.2-2001 (Category 5E Cable),
- EIA-232, EIA-422, EIA-485,
- TSB-36, and
- Underwriters Laboratory (UL).

Included in this Item are the ITS cable types listed in Table 1.

**Table 1**
**Common Networking ITS Communication Cable Types**

| Cable Type | Nominal AWG Gauge | Application |
|---|---|---|
| Category 5e Ethernet Cable | #24 AWG | Standard 100Base-Tx, Gigabit Ethernet, up to 100 MHz bandwidth performance |
| Category 6 Ethernet Cable | #24 AWG | Gigabit Ethernet; up to 250MHz bandwidth performance |
| Category 7 Ethernet Cable | #24 AWG | 10-Gigabit Ethernet, up to 600 MHz bandwidth performance. Category 7 cable is not typically utilized for ITS device applications. Category 7 cable applications include high bandwidth performance at network layer switches with 10 Gigabit connections. |
| Serial Communications Cable (RS-232, RS-422, RS-485) | #22, #24 AWG | Serial port applications, low bandwidth and small data rate transmission (<100 kb/s) |
| Shielded Twisted Pair Cable | #18-24 AWG | Telephone communications, below 16 MHz bandwidth performance |
| Unshielded Twisted Pair (UTP) Cable | #18-24 AWG | |

Included in this Item are all terminating connectors and associated equipment required for installation and testing in a field environment.

Provide cable conforming to the gauge, type, and length shown on the plans. Ensure the cable gauge supplied meets the bandwidth requirements specific to the cable application and run length.

Provide signal amplification or repeater locations for communications cable runs as shown on the plans and in the specifications.

When selecting serial communications cable for longer cable runs, verify the conductor gauge to be provided will meet signal loss requirements for cable application. Refer to Table 2 for typical cable distance limitations for ITS serial communications cable.

**Table 2**
**Typical Network Communications Cable**
**Distance Limitations**

| Cable Type | Recommended Maximum Cable Run[1] |
|---|---|
| RS-232 | 50 ft. |
| RS-422 (4 wire system) | 500 ft. |
| RS-485 (2 wire system) | 500 ft. |
| Category 5e | 300 ft. |
| Category 6 | 300 ft. |

1. Cable distance limitation to be verified according to manufacturer for the cable application.

All cable provided must be manufactured with permanent markings at approximate 2 ft. intervals on the outer jacket according to manufacturer name, serial number, type, UL list and classification for identification purposes. All pairs must be color coded using standard North American communication industry colors to uniquely identify each pair in the cable.

2.2. **Physical Requirements.** Provide networking communications cable meeting the following physical requirements.

2.2.1. **Conductor.** All networking cable must be constructed of solid bare copper conductor.

2.2.2. **Insulation.** All networking cable must be of foamed, cellular dielectric construction. Dielectric material must adhere to and support the center cable conductor.

2.2.2.1. **Insulation Material.** Serial communications cable insulation must be high-density polyethylene (HDPE) or equivalent. Ethernet networking cable insulation must be polyolefin or HDPE. UTP cable insulation must be polyethylene, polyolefin, polypropylene , or fluorinated ethylene propylene.

2.2.3. **Shielding.** Serial communications cable shielding must contain combination foil-polyester and copper braid shield to reduce EMI interference. Ethernet networking cable must contain a combination foil-polyester shield.

2.2.3.1. **Coverage.** Serial communications cable must be constructed of 100% effective foil coverage, minimum 65% braided coverage. Ethernet networking cable (Category 5e, 6, 7) must contain 100% effective foil cover.

2.2.4. **Outer Jacket.** Outer jacket must be rated for heavy duty ultraviolet (UV) exposure, sunlight, oil, and weather resistance necessary for outdoor installation.

2.2.4.1. **Jacket Material.** All networking cable outer jackets must be of PVC or polyethylene construction.

2.2.5. **Connectors.** Connectors must be matching, weather resistant, water and moisture proof, and outdoor-rated hardware that meet cable operating voltage, temperature, and impedance characteristics. Connectors must prevent the entry and collection of moisture to the cable and electrical connection point. Provide cable sealant during installation to seal connections from moisture and corrosion.

2.3. **Electrical and Mechanical Requirements.** Ethernet networking cable as shown on the plans must conform to the TIA/EIA-568-C standard, and according to performance characteristics defined in TIA/EIA-568-C.4-1. All Ethernet networking cable provided must meet IEEE 802.3af and IEEE 802.3at for Power over Ethernet (PoE) applications.

Serial communications cable and UTP must conform to the following requirements:

2.3.1. **Capacitance.** Serial communications cable capacitance must not exceed 35 picofarads (pF) per foot of cable. UTP cable capacitance must not exceed 15 pF per foot of cable.

2.3.2. **Inductance.** Serial communications cable inductance must not exceed 0.30 microhenry's (μH) per foot of cable.

2.3.3. **Impedance.** Provide 100 ohm nominal impedance for UTP cables and according to the manufacturer recommendation for cable application.

2.3.4. **Attenuation.** Attenuation of the cable must be compliant with requirements of the proposed application.

2.3.5. **Resistance**. The DC resistance of the serial communications cable inner conductor must not exceed 20 ohms per 1000 ft.

2.4. **Environmental Design Requirements.**

2.4.1. **Installation Temperature Rating.** Cable must be rated for an outside ambient temperature range of -20°F to 165°F.

2.4.2. **Storage Temperature Rating.** Cable must be rated for a storage temperature range of -40°F to 165°F.

## 3. CONSTRUCTION METHODS

3.1. **General.** Cable must be installed in accordance with the following industry procedures:

- ANSI/TIA -568-C,
- BICSI Telecommunications Distribution Methods Manual (TDMM) and Information Transport Systems Installation (ITSIM),
- NFPA National Electric Code (NEC),
- USDA Construction of Direct Buried Plant, and
- ICEA Standard for Aerial Service Wire - ANSI/ICEA 5-89-648.

3.1.1. **Cable Storage.** All uninstalled cable must be stored according to manufacturer recommended bend radius and cable reel requirements.

3.1.2. **Cable Labeling.** All cable must be labeled using pre-laminated labels with UV protection according to usage at all terminations. Provide weatherproof labels rated for outdoor use.

3.1.3. **Installation Procedure.** All cable must be inspected and tested for continuity when received, with results compared with factory pre-shipping tests. Inspect the cable nomenclature to make certain that the correct product has been received. Notify the supplier (or manufacturer) of all discrepancies for immediate correction.

Install the network cable routed as shown on the plans and follow the manufacturer recommendations for installation.

Ensure that all exposed cable ends are covered and protected against moisture and dust penetration at all times during installation. Protect cable ends during storage, cable pulls, and post-installation.

3.1.4. **Conduit Fill Requirements.** Install cable as shown on the plans and ensure that NEC and TIA/EIA fill requirements must be met for all cable runs.

3.1.5. **Cable Slack Requirements**. Provide 25 ft. cable slack maximum in pull boxes and per manufacturer requirements.

3.1.6. **Spacing Requirements.** Provide minimum 12 in. spacing between electrical power cable and communications cable types as described for underground installations within NEC Sections 840.44 and 840.47.

3.2. **Testing.** Procedures for the tests noted below are to be in accordance with industry standard practice and recorded in accordance with ANSI/TIA/EIA rules for documentation for the cable type. Perform tests in accordance with testing requirements in this Item. For all tests, provide test forms to be used that compare measured results with threshold values. The following tests must be performed, recorded, and submitted to verify the cable performance and installation:

3.2.1. **Cable Continuity.** Perform cable continuity test for center conductor and shield continuity and record results. The test must be performed on received cable reels to identify any discrepancies and upon final installed cable interconnections. Test continuity of each pair to show a resistance of not more than 8 ohms per 1000 ft. of conductor. Use meter with a minimum input resistance measurement to comply with RUS 7 CFR 1755.403 Copper Cable Telecommunications Plant Measurements. .

3.2.2. **Time Domain Reflectometry (TDR)**. Perform TDR test for impedance continuity per manufacturer recommendations in coaxial cable interconnections and record results.

3.2.3. **Ground Resistance.** Use a Megohmmeter to perform ground resistance testing of all conductors including the shield, and conductor-to-conductor, including all individual conductors to the shield. Ensure that all conductor tests, including the shield, read infinity to ground, and from conductor to conductor and all individual conductors to the shield, read infinity. Replace cable not meeting the infinity test result at no expense to the department, whether one or multiple readings per cable are defective.

3.2.4. **Visual Inspection.** Where cable installation is visible, perform visual inspection (with a Department representative) to verify any evidence of the following:

- cable damage (cracks, shield damage, kinks, knots, jacket damage, crushed cable),
- bend radius violations (at conduit fittings, cabinet locations), and
- cable crimping method—use of manufacturers specified cable crimp tool only (use of pliers not permitted).

3.3. **Documentation.** Submit 3 copies of the following materials for each cable type provided for approval prior item supply:

- manufacturer cutsheets and complete specifications (physical, electrical, mechanical, and environmental),
- manufacturer warranty information,
- independent test lab certification, and
- blank test forms.

Submit 3 copies of the following materials for each cable run provided for approval post installation:

- test results,
  - completed test forms,

- cable continuity test,
- TDR test,

- "as-built" documentation for cable path as shown on the plans,
- complete maintenance and trouble-shooting procedures, and
- furnish additional information as shown on the plans.

3.4. **Warranty.** Warrant all cable against defects or failure in design, materials, and workmanship in accordance with the manufacturer's standard warranty.

Supply cable with no less than 95% of the manufacturer's warranty remaining on the date that equipment invoices are submitted for final payment. Any material with less than 95% warranty remaining will be rejected.

Warrant all cable furnished and installed to perform according to the manufacturer published specifications for a period of 1 year after final acceptance of the project by the Department. Provide for "on-site" repair or replacement within 2 working days and at no cost to the Department. Repair or replace any defective cable, at the manufacturer's option, at no cost to the Department.

## 4. MEASUREMENT

This Item will be measured by the linear foot of cable.

## 5. PAYMENT

The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "ITS Communications Cable (Ethernet)" and "ITS Communication Cable (Serial)." For twisted pair communications cable runs, work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "ITS Communications Cable" of the type, size, and number of pairs specified. The price is full compensation for furnishing, installing, splicing and testing cable and connectors, as well as for installation equipment, materials, tools, and incidentals.

# Special Specification 6094
# Video Imaging Vehicle Detection Systems Maintenance

## 1. DESCRIPTION

Install or replace Video Imaging Vehicle Detection System (VIVDS) components that monitor vehicles on a roadway by processing of video images and provide detector outputs to a traffic controller.

## 2. MATERIALS

Provide all material not supplied by the Department. Provide new materials that comply with the details shown on the plans, the requirement of this Item, and the requirements of Special Specification, "Video Imaging Vehicle Detection System."

Unless otherwise noted on the plans, the Department will furnish luminaire mast arms.

Pick up materials at the locations and times shown on the plans. Submit a material list for required material to the Engineer 24 hr. in advance. Designate in writing, persons authorized to pick up material.

Assume responsibility for all materials furnished by the Department. Use material furnished by the Department for this contract only. Upon completion of work and before final payment, return unused or removed material deemed salvageable by the Engineer to the Department.

## 3. EQUIPMENT

Furnish all equipment and labor for the proper prosecution of the work. This will include, but is not limited to, an aerial device capable of reaching VIVDS equipment, tools and incidentals necessary to complete the work. If at any time the equipment is determined defective to the point that it may affect the quality of work, that equipment will be immediately repaired or replaced.

## 4. WORK METHODS

Conform to the NEC, local utility requirements, the requirements of this Item, and the pertinent requirements of the following Items. Report damage, malfunctions, or items that require repair or maintenance. Complete an approved form for each visit to each site documenting all work, damage, or malfunctions to the Department. Provide the following services unless otherwise shown on the plans.

4.1. **VIVDS Camera.** Test and install replacement VIVDS cameras, furnished by the Contractor, as deemed necessary by the Engineer, to restore the VIVDS system to normal operation.

4.2. **VIVDS Camera Bracket.** Test and install replacement VIVDS camera brackets, furnished by the Contractor, as deemed necessary by the Engineer, to restore the VIVDS system to normal operation.

4.3. **VIVDS Processor.** Test and install replacement VIVDS processor, furnished by the Contractor, as deemed necessary by the Engineer, to restore the VIVDS system to normal operation.

4.4. **VIVDS Monitor.** Test and install replacement VIVDS monitors, furnished by the Contractor, as deemed necessary by the Engineer, to restore the VIVDS system to normal operation.

4.5. **VIVDS Surge Suppressors.** Install replacement surge suppressors, furnished by the Contractor, as deemed necessary by the Engineer to restore the VIVDS system to normal operation. Ensure surge suppressor is properly connected to the surge suppression panel including proper grounding. Ensure all

connections are tight. Ensure coaxial and electrical connectors are installed properly, undamaged and the proper type and size for the VIVDS surge suppressors.

4.6. **Span Cable.** Inspect all brackets, set screws, clamps, and fittings. Tighten, replace or align as directed. Make field measurements to determine the actual span wire height necessary to ensure a vertical clearance of all signal heads 17 ft. 6 in. minimum, 19 ft. maximum from the highest point on the roadway surface to the bottom tether.

Inspect each span cable and signal cable for damage or deterioration, proper attachment, excess slack and tangled cables. Re-lash, replace, tighten and straighten span cables as necessary. Document span and signal cables that show signs of damage or deterioration.

4.7. **Luminaire Mast Arm.** Install, replace, remove, or modify luminaire arms and hardware on timber or steel signal poles. Install material using manufacturer's specifications. Fuse luminaires individually in the signal pole hand hole. Install a separate cable from the breaker load panel to each luminaire.

4.8. **Splice Enclosure.** Install replacement splice enclosure, furnished by the Contractor, as deemed necessary by the Engineer to restore the VIVDS system to normal operation and provide a weather-tight enclosure for connection of the camera power and video feed to the field wiring. Ensure the splice enclosure is properly secured to the signal pole or camera mount bracket with the proper hardware. Ensure that entrance to the splice enclosure is through a CGB type connector or other acceptable liquid-tight strain relief cable connector that provides a strain relief termination for flexible type coaxial and power cable for use in wet or dry locations capable of sealing electrical connections against dust, dirt, oil, water, or other atmosphere containing moisture.

4.9. **Camera Sun Shield.** Install replacement camera sun shield, furnished by the Contractor, as deemed necessary by the Engineer, to restore the proper shade and glare protection to the VIVDS cameras and provide normal operation of the system.

4.10. **VIVDS Preventive Maintenance.** VIVDS Preventive Maintenance will consist of the following: check all cables, wires, connectors' splices, etc., at all connection points including the camera, splice enclosure, and signal cabinet to ensure sound connections. Inspect wiring for cracks, fraying, kinks, insulation, exposed wire or other problems and make repairs or replace as necessary. Repair or install waterproofing where needed.

Clean the camera lens using method recommended by the manufacturer. Observe that the VIVDS is operating properly and that all equipment including the cameras, monitors, processors, surge suppression is in proper condition. All wiring and cables should be neatly arranged in cabinet with appropriate strain relief. Any equipment not functioning properly and not immediately repairable should be made note of and reported to the Engineer to schedule replacement.

4.11. **Conduit.** Install, replace, remove, or modify conduits in accordance with Item 618, "Conduit"; as shown on the plans; or as directed. Use 90° "sweep" type elbow on conduits entering a ground box.

4.12. **Jacking and Boring.** Pits for jacking or boring must not be closer than 2 ft. to the back of the curb or the outside edge of the shoulder unless otherwise directed by the Engineer. The jacking and boring method used must not interfere with the operation of the street, highway, or other facility; and must not weaken or damage any embankment, structure, or pavement. Heavy jacks are to be used for jacking. Boring is to be done by mechanical means providing a maximum 1 in. over-cut for the conduit to be placed. The use of water or other fluids in connection with the boring operation will be permitted only to the extent needed to lubricate cuttings. Water jetting will not be permitted.

4.13. **Pull Boxes.** New pull boxes must be no more than 25 ft. from the edge of the pavement and set in such a manner that the existing conduit can be cut and terminated in the pull box. The cut conduit must be bent upward in the pull box as shown on the plans. Splices will not be allowed in new pull boxes unless otherwise approved.

4.14. **Cabinet Power Supply (5 Amp).** Install replacement cabinet power supply, furnished by Contractor, as deemed necessary by the Engineer.

4.15. **Cable Connectors.** Install or replace cable connectors, furnished by the Contractor, as deemed necessary by the Engineer. Ensure the cable connectors are weather-tight connector or other acceptable liquid-tight strain relief cable connectors that provide strain relief termination for flexible type coaxial and power cables for use in wet or dry locations capable of sealing electrical connections against dust, dirt, oil, water, or other atmosphere containing moisture. Ensure the cable connectors are properly secured.

4.16. **VIVDS Communication Cable.** Install or replace multi-conductor communication coaxial cable, furnished by the Contractor, from the camera to the controller cabinet. Form a two turn loop formed at camera termination, secure loop using cable ties suitable for outdoor use, install connectors and terminate the camera. Leave 5 ft. coiled inside controller cabinet. Identify cable runs, on each end of the cable and at hand hole with a different color tape for each run.

## 5. MEASUREMENT

This Item will be measured as follows:

5.1. **VIVDS Camera.** By each camera replaced.

5.2. **VIVDS Camera Brackets.** By each camera bracket replaced.

5.3. **VIVDS Processor.** By each processor replaced.

5.4. **VIVDS Monitor.** By each monitor replaced.

5.5. **VIVDS Surge Suppressors.** By each surge suppressor replaced.

5.6. **Span Cable.** By the foot of span cable replaced, type and size specified. A span is defined as the distance from one pole to the next pole.

5.7. **Luminaire Mast Arms.** By each luminaire mast arm replaced.

5.8. **Splice Enclosure.** By each splice enclosure replaced.

5.9. **Camera Sun Shield.** By each camera sun shield replaced.

5.10. **VIVDS Preventive Maintenance.** By each intersection.

5.11. **Conduit.** By the foot of conduit replaced, type and size specified.

5.12. **Jacking and Boring.** By the foot.

5.13. **Pull Boxes.** By each pull box replaced.

5.14. **Cabinet Power Supply.** By the each cabinet power supply replaced, type and size specified.

5.15. **Multi-Conductor Communication Coaxial Cable.** By the foot of multi-conductor communication coaxial cable replaced, type and size specified.

5.16. **Cable Connectors.** By each cable connector replaced, type and size specified.

## 6. PAYMENT

The work performed and the materials furnished in accordance with this Item and measured as provided under “Measurement” will be paid for at the unit prices bid for the various designations:

“VIVDS Camera,” “VIVDS Camera Brackets,” “VIVDS Processor,” of the type specified, “VIVDS Monitor” of the size and type specified, “VIVDS Surge Suppressors,” “Span Cable” of the size specified, “Luminaire Mast Arm,” “Splice Enclosure,” “Camera Sun Shield,” “VIVDS Preventive Maintenance,” “Conduit” of the types and sizes specified, “Pull Boxes” of the type specified, “Cabinet Power Supply” of the size specified, “Jacking and Boring,” “VIVDS Multi-Conductor Communication Coaxial Cable” of the type and size specified and “Cable Connector” of the type and size specified.

These prices must be full compensation for furnishing all materials, unless otherwise shown on the plans, labor, equipment, tools, supplies and incidentals necessary to complete the work.

# Special Specification 6185

# Truck Mounted Attenuator (TMA) and Trailer Attenuator (TA)

## 1. DESCRIPTION

Furnish, operate, maintain and remove upon completion of work, Truck Mounted Attenuator (TMA) or Trailer Attenuator (TA).

## 2. MATERIALS

Furnish, operate and maintain new or used TMAs or TAs. Assure used attenuators are in good working condition and are approved for use. A list of approved TMA/TA units can be found in the Department's Compliant Work Zone Traffic Control Devices List. The host vehicle for the TMA and TA must weigh a minimum of 19,000 lbs. Host vehicles may be ballasted to achieve the required weight. Any weight added to the host vehicle must be properly attached or contained within it so that it does not present a hazard and that proper energy dissipation occurs if the attenuator is impacted from behind by a large truck. The weight of a TA will not be considered in the weight of the host vehicle but the weight of a TMA may be included in the weight of the host vehicle. Upon request, provide either a manufacturer's curb weight or a certified scales weight ticket to the Engineer.

## 3. CONSTRUCTION

Place or relocate TMA/TAs as shown on the plans or as directed. The plans will show the number of TMA/TAs needed, for how many days or hours, and for which construction phases.

Maintain the TMA/TAs in good working condition. Replace damaged TMA/TAs as soon as possible.

## 4. MEASUREMENT

4.1. **Truck Mounted Attenuator/Trailer Attenuator (Stationary).** This Item will be measured by the each or by the day. TMA/TAs must be set up in a work area and operational before a calendar day can be considered measurable. When measurement by the day is specified, a day will be measured for each TMA/TA set up and operational on the worksite.

4.2. **Truck Mounted Attenuator/Trailer Attenuator (Mobile Operation).** This Item will be measured by the hour. The time begins once the TMA/TA is ready for operation at the predetermined site and stops when notified by the Engineer. A minimum of 4 hr. will be paid each day for each operating TMA/TA used in a mobile operation.

## 5. PAYMENT

The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Truck Mounted Attenuators/Trailer Attenuators (Stationary)," or "Truck Mounted Attenuators/Trailer Attenuators (Mobile Operation)." This price is full compensation for furnishing TMA/TA: set up; relocating; removing; operating; fuel; and equipment, materials, tools, labor, and incidentals.

# Special Specification 6292

# Radar Vehicle Detection System for Signalized Intersection Control

## 1. DESCRIPTION

Furnish, install, relocate, or remove radar vehicle detection systems (RVDS) of the specified devices at signalized intersections to provide the required zones of detection as shown on the plans, or as directed.

## 2. MATERIALS

2.1. **General**. Except as allowed for relocation of RVDS equipment, ensure all equipment and component parts are new in accordance with Section 1.0 through Section 6.0 of Division Specification TO-8000, "Radar Vehicle Detection System." and in an operable condition at time of delivery and installation.

The Traffic Management Section of the Traffic Operations Division (TRF-TM) maintains the Prequalified Products Master List (QPL) of all RVDS conforming to the requirements of this Specification. New materials appearing on the QPL for TO-8000 require no further sampling and testing before use unless deemed necessary by the Project Engineer or TRF-TM. Provide prequalified RVDSs from the Division's QPL.

Ensure all RVDS serving the same detection purpose within the project are from the same manufacturer. RVDS devices are classified by their functional requirements. The functional requirements are for radar presence detection devices (RPDD) and radar advance detection devices (RADD). The RVDS system classifications are RVDS (RPDD Only), RVDS (RADD Only)" and "RVDS (RPDD and RADD).

Provide each RVDS sensor with a mounting bracket designed to mount directly to a pole, mast-arm, or other structure. Ensure bracket is designed such that the sensor can be tilted both vertically and horizontally for alignment and then locked into place after proper alignment is achieved. All hardware must be designed to support the load of the RVDS sensor and mounting bracket.

2.2. **Configuration**. Ensure the RVDS will provide vehicle detection as required on the plans, or as directed.

Ensure the RVDS does not require tuning or recalibration to maintain performance once initial calibration and configuration is complete. RVDS must not require cleaning or adjustment to maintain performance.

RVDS must self-recover from power failure once power is restored.

2.3. **Cabling**. Provide appropriate length of all cables necessary to complete the work (of making the RVDS fully operational) at each installation site.

2.4. **Software**. Ensure the RVDS manufacturer includes all software required to configure and monitor operation of RVDS field equipment locally and remotely. RVDS software must be a stable production release.

Software must allow the user to configure, operate, exercise, diagnose, and read current status of all RVDS features and functions using a laptop computer.

Software must include the ability to save a local copy of RVDS field device configurations, and load saved configurations to RVDS field devices.

Ensure all licenses required for operation and use of software are included at no additional cost.

Software updates must be provided at no additional cost during the warranty period.

2.5. **Electrical**. All conductors supplying the equipment must meet National Electrical Code® (NEC) requirements.

Ensure equipment is designed to protect personnel from exposure to high voltage during installation, operation, and maintenance.

2.6. **Mechanical**. Ensure that all parts are fabricated from corrosion resistant materials, such as plastic, stainless steel, aluminum, or brass.

Ensure that all screws, nuts, and locking washers are corrosion resistant. Do not use self-tapping screws.

Ensure equipment is clearly and permanently marked with manufacturer name or trademark, part number, date of manufacture, and serial number.

Ensure RVDS is modular in design for ease of field replacement and maintenance. Provide a sensor that will minimize weight and wind loading when mounted on a traffic signal pole or mast arm.

All printed circuit boards (PCB) must have conformal coating.

2.7. **Environmental.** RVDS sensor must be able to withstand the maximum wind load based on the Department's basic wind velocity zone map standard without any damage or loosening from structure.

The RVDS enclosure must conform to criteria set forth in the NEMA 250 Standard for Type 4X enclosures.

The RVDS must meet all NEMA TS2 environmental requirements for temperature, humidity, transients, vibration, and shock.

2.8. **Connectors and Harnesses.** Ensure all conductors are properly color coded and identified.

Ensure cable connector design prohibits improper connections. Cable connector pins are plated to improve conductivity and resist corrosion.

Connections for both data and power must be made to the RVDS sensor using waterproof, quick disconnect connectors. Pigtails from the sensor to a waterproof junction box (NEMA 4) or an approved waterproof connector must be allowed for splicing. The pigtails must not be shorter than 3 ft. unless otherwise shown on the plans.

## 3. CONSTRUCTION

3.1. **System Installation**. Install RVDS system devices according to the manufacturer's recommendations to provide properly functioning detection as required. This will include the installation of sensors on signal poles or mast-arms, controller interface modules, power and surge protection panels, cabling and all associated equipment, software, serial and Ethernet communication ports, connectors and hardware required to setup and operate. Ensure that the supplier of the RVDS provides competent on-site support representative during installation to supervise installation and testing of the RVDS. Ensure the radar sensor locations are optimal for system operation and operate as required. Maintain safe construction practices during equipment installation.

Ensure installation and configuration of software on Department computers is included with the RVDS.

Use care to prevent damage to any support structures. Any equipment or structure damaged or lost must be replaced by the Contractor (with items approved by the Engineer) at no cost to the Department.

3.2. **Mechanical Components.** Ensure that all fasteners, including bolts, nuts, and washers with a diameter less than 5/8 in. are Type 316 or 304 stainless steel and meet the requirements of ASTM F593 and ASTM F594 for corrosion resistance. Ensure that all bolts and nuts 5/8 in. and over in diameter are galvanized and meet the requirements of ASTM A307. Separate dissimilar metals with an inert dielectric material.

3.3. **Wiring.** Install all wiring and electrical work supplying power to the equipment in a neat workmanlike manner. Supply and install all wiring necessary to interconnect RVDS sensors to the traffic signal cabinet and incidentals necessary to complete the work. Furnish and install any additional required wiring at no additional cost to the Department.

Wiring must be cut to proper length prior to installation. Provide cable slack for ease of removal and replacement. All cable slack must be neatly laced with lacing or straps in the bottom of the cabinet. Ensure cables are secured with clamps.

3.4. **Grounding.** Ensure all RVDS components, cabinets, and supports are grounded in accordance with the NEC and manufacturer recommendations.

3.5. **Relocation of RVDS Field Equipment.** Perform the relocation in strict conformance with the requirements herein and as shown on the plans. Completion of the work will present a neat, workmanlike, and finished appearance. Maintain safe construction practices during relocation.

Inspect the existing RVDS field equipment with a representative from the Department and document any evidence of damage prior to removal. Conduct a pre-removal test in accordance with the testing requirements contained in this Item to document operational functionality. Remove and deliver equipment that fails inspection to the Department.

Prior to removal of existing RVDS field equipment, disconnect and isolate the power cables from the electric power supply and disconnect all communication cabling from the equipment located inside the cabinet. Coil and store power and communication cabling inside the cabinet until relocation. Remove existing RVDS field equipment as shown on the plans only when authorized by the Engineer.

Use care to prevent damage to any support structures. Any equipment or structure damaged or lost must be replaced by the Contractor (with items approved by the Engineer) at no cost to the Department.

Make all arrangements for connection to the power supply and communication source including any permits required for the work to be done under the Contract. Provide wire for the power connection at least the minimum size indicated on the plans and insulated for 600 V. Meet the requirements of the NEC, latest edition.

3.6. **Removal of RVDS Field Equipment.** Perform the removal in strict conformance with the requirements herein and as shown on the plans. Completion of the work will present a neat, workmanlike, and finished appearance. Maintain safe construction practices during removal.

Disconnect and isolate any existing electrical supply prior to removal of existing field equipment.

Use care to prevent damage to any support structures. Any equipment or structure damaged or lost must be replaced by the Contractor (with items approved by the Engineer) at no cost to the Department.

All materials not designated for reuse or retention by the Department will become the property of the Contractor and be removed from the project site at the Contractor's expense. Deliver items to be retained by the Department to a location shown on the plans or general notes. The Contractor is fully responsible for any removed equipment until released by the Engineer.

3.7. **Documentation**. Provide electronic copy operation and maintenance manuals, along with a copy of all product documentation on electronic media. Include the following documentation:

- Complete and accurate schematic diagrams,

- Complete installation procedures,
- Manufacturer's specifications (functional, electrical, mechanical, and environmental),
- Complete maintenance and trouble-shooting procedures, and
- Explanation of product operation.
- Warranty as specified in Section 3.8.

The RVDS must pass testing to ensure functionality and reliability prior to delivery. These include functional tests for internal subassemblies, a 24 hr. minimum unit level burn-in test, and a unit functionality test. Provide test results and supporting documentation, including serial number tested, must be submitted for each RVDS. If requested, manufacturing data per serial number must be provided for each RVDS.

Unless deemed unnecessary by the Project Engineer or TRF-TM, Provide certification from an independent laboratory demonstrating compliance with NEMA TS2 environmental requirements for temperature, humidity, transients, vibration, and shock.

Unless deemed unnecessary by the Project Engineer or TRF-TM, Provide third party enclosure test results demonstrating the sensor enclosure meets Type 4X criteria.

Unless deemed unnecessary by the Project Engineer or TRF-TM, Provide evidence of RVDS manufacturer's quality assurance program, including proof that the manufacturer of the RVDS is either ISO 9001 certified or other quality management system programs for manufacturing RVDS.

3.8. **Warranty**. Ensure that the detection system has a manufacturer's warranty covering defects for a minimum of 5 years from the date of final acceptance. In addition to the terms required by Article 8 of TO-8000, Ensure the warranty includes providing replacements, within 10 calendar days of notification, for defective parts and equipment during the warranty period at no cost to the Department.

3.9. **Training and Support**. Provide manufacturer approved end user training to the Department and their representatives. Training must include instruction on system configuration, operation, and maintenance. Provide training for a minimum of 10 Department-designated representatives up to 8 hs., including both class and field training.

Ensure that the detection system manufacturer will provide product support for a minimum of 5 years from the date of final acceptance.

## 4. TESTING

Perform the following tests on equipment and systems unless otherwise shown on the plans. The Department may witness all the tests.

4.1. **Stand-Alone Test.** Conduct a Stand-Alone Test for each unit after installation. The test must exercise all stand-alone (non-network) functional operations and verify that RVDS is placing detector contact closure to assigned detector channels in the traffic signal controller assembly. Notify the Engineer 5 working days before conducting this test.

4.2. **Consequences of Test Failure.** If a unit fails a test, provide a new unit and then repeat the test until successfully completed.

4.3. **Final Acceptance Test.** Conduct a Final Acceptance Test on the complete functional system. Demonstrate all control, monitoring, and communication requirements and operate the system for 30 days. The Engineer will furnish a Letter of Approval stating the first day of the Final Acceptance Test.

4.4. **Consequences of Final Acceptance Test Failure.** If a defect within the system is detected during the Final Acceptance Test, document and correct the source of failure. Once corrective measures are taken, monitor the point of failure until a consecutive 30 day period free of defects is achieved.

4.5. **Relocation**

4.5.1. **Pre-Test.** Provide 5 copies of the test procedures to include tests of the basic functionality of the unit and blank data forms to the Engineer for review and comment as part of material documentation requirements. Functionality tests may include, but are not limited to, physical inspection of the unit and cable assemblies. Include the sequence of the tests in the procedures along with acceptance thresholds. The Engineer will comment, approve, or reject test procedures within 30 days after Contractor submittal of test procedures. Rejected test procedures must be resubmitted within 10 days. Review time is calendar days. Conduct all tests in accordance with the approved test procedures.

Conduct basic functionality testing prior to removal of RVDS field equipment. Test all functional operations of the equipment in the presence of representatives of the Contractor and the Department. Ensure that both representatives sign the test report indicating that the equipment has passed or failed each function. Once removed, the equipment becomes the responsibility of the Contractor until accepted by the Department. Compare test data prior to removal and after installation. The performance test results after relocation must be equal to or better than the test results prior to removal. Repair or replace those components within the system that failed after relocation but passed prior to removal.

4.5.2. **Post-Test.** Testing of the RVDS field equipment is to relieve the Contractor of system maintenance. The Contractor will be relieved of the responsibility for system maintenance in accordance with Item 7, “Legal Relations and Responsibilities” after a successful test period. The Contractor will not be required to pay for electrical energy consumed by the system.

After all existing RVDS field equipment has been installed, conduct approved continuity, stand alone, and performance tests. Furnish test data forms containing the sequence of tests including all the data taken as well as quantitative results for all tests. Submit the test data forms to the Engineer at least 30 days prior to the day the tests are to begin. Obtain Engineer’s approval of test procedures prior to submission of equipment for tests. Send at least 1 copy of the data forms to the Engineer.

Conduct an approved stand-alone test of the equipment installation at the field sites. At a minimum, exercise all stand-alone (non-network) functional operations of the field equipment with all the equipment installed per the plans as directed by the Engineer. Complete the approved data forms with test results and turn over to the Engineer for review and either acceptance or rejection of equipment. Give at least 30 working days’ notice prior to all tests to permit the Engineer or his representative to observe each test.

The Department will conduct approved RVDS field equipment system tests on the field equipment with the central equipment. The tests will, as a minimum, exercise all remote control functions and display the return status codes from the controller.

If any unit fails to pass a test, prepare and deliver a report to the Engineer. Describe the nature of the failure and the corrective action needed. If the failure is the result of improper installation or damage during reinstallation, reinstall or replace the unit and repeat the test until the unit passes successfully, at no additional cost to the Department or extension of the Contract period.

## 5. MEASUREMENT

New RVDS furnished and installed by the Contractor will be measured by each approach to the signalized intersection.

RVDS furnished by the Department for the Contractor to install only will be measured by each approach to the signalized intersection.

Existing RVDS to be relocated or removed will be measured by each sensor relocated or removed.

## 6. PAYMENT

6.1. **Furnish and Install.** The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit bid price for "RVDS (Presence Detection Only)", "RVDS (Advance Detection Only)" and "RVDS (Presence and Advance Detection)."

This price is full compensation for furnishing, installing, configuring, integrating, and testing the completed installation including RVDS equipment, voltage converters or injectors, cables, connectors, associated equipment, and mounting hardware; and for all labor, tools, equipment, any required equipment modifications for electrical service, documentation, testing, training, software, warranty and incidentals necessary to complete the work.

6.2. **Install Only.** The work performed and materials furnished in accordance with this Item will be paid for at the unit bid price for "RVDS (Presence Detection Only) (Install Only)", "RVDS (Advance Detection Only) (Install Only)" and "RVDS (Presence and Advance Detection) (Install Only)."

This price is full compensation for making fully operational a radar vehicle detection system furnished by the Department; installing, configuring, integrating, and testing the completed installation including RVDS equipment, voltage converters or injectors, cables, connectors, associated equipment, and mounting hardware; and for all labor, tools, equipment, any required equipment modifications for electrical service, documentation, testing, training, software, and incidentals necessary to complete the work.

6.3. **Relocate.** The work performed and materials furnished in accordance with this Item will be paid for at the unit bid price for "Relocate RVDS." This price is full compensation for relocating and making fully operational existing RVDS field equipment; furnishing and installing additional cables or connectors; for testing, delivery and storage of components designated for salvage or reuse; and all testing, training, software, equipment, any required equipment modifications for electrical service, labor, materials, tools, and incidentals necessary to complete the work.

6.4. **Remove.** The work performed and materials furnished in accordance with this Item will be paid for at the unit bid price for "Remove RVDS." This price is full compensation for removing existing RVDS equipment; removal of cables and connectors; for testing, delivery and storage of components designated for salvage; and all testing training, software, equipment, labor, materials, tools, and incidentals necessary to complete the work.

6.5. **Communication Cable.** All communication cables necessary to make the RVDS fully operational will be subsidiary to this Item.

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