



# INSTRUCTIONS TO RESPONDENTS

THE ATTACHED SOLICITATION SHOULD BE RETURNED AS FOLLOWS:

All responses for Solicitation No. 601290000028812 must be received before the hour and date specified 5/15/2024 3:00PM

All reference to time in the solicitation shall mean Central Time.

Email responses must be sent to Taylor.Blevins@txdot.gov. Email responses must not exceed 20 MB and be in portable document format (PDF) or Excel format for pricing schedules, signed by respondent, and attached to the email to be considered for award. Emails exceeding 20 MB must be sent to Taylor.Blevins@txdot.gov through managed file transfer services such as, but not restricted to, Dropbox™. TxDOT will not be responsible for failure of electronic equipment, operator error, server delays, or system outages. Responses that are late, illegible, incomplete, file corrupted, flagged as a virus, or otherwise non-responsive will not be considered.

**Respondent must place the following in the subject line of their email submission: Solicitation Number, Company Name.**

**The response must be sent only to Taylor.Blevins@txdot.gov. Any response sent to any email address other than Taylor.Blevins@txdot.gov - whether directly, courtesy copy (cc), or blind copy (bcc) - will be considered non-responsive.**

For hand delivery or courier service, United States Postal Service, Federal Express, United Parcel Service, or other mail delivery service, contact the purchaser for assistance.

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## USE OF NATIONAL INSTITUTE OF GOVERNMENTAL PURCHASING CODE

The Texas Department of Transportation (TxDOT) uses the National Institute of Governmental Purchasing, Inc., (NIGP) code to standardize purchases by conforming to the class, item, and group structure of the code. The NIGP code is used to select vendors for our master vendor file from the Texas Comptroller of Public Accounts (CPA) Centralized Master Bidders List (CMBL).

New suppliers and other vendors wishing to furnish materials, equipment, supplies and services to TxDOT should apply to be on the CMBL to receive bidding opportunities.

Existing TxDOT vendors need only be concerned that the information listed on the CMBL file is correct, and that the applicable NIGP class and item are selected for those you can provide.

**CMBL information is available online at: <https://comptroller.texas.gov/purchasing/vendor/cmbi/> or by phoning 1-512-463-3459.**

**Early Payment Program** - TxDOT is offering an important program to all respondents that provide prioritized invoice processing and payments (prior to the 30th day after receipt of a correct invoice). The program provides enrolled vendors enhanced benefits from improved invoice processing to priority handling to cash advancement and technology efficiencies.

Respondents offering a cash discount in exchange for TxDOT's priority invoice processing and early payment agreement should complete and return the attached form entitled "Priority Invoice and Early Payment Program" with the response.

Additional information may be found at the following website: <http://www.txdot.gov/business/vendors/epp.html>



# INVITATION FOR BID

Page 1

05/08/2024

SOLICITATION NO: 60129000028812

OPENING DATE 03:00 PM May 15, 2024

<b>To:</b> Blank Vendor X Austin TX 78701		<b>Return Sealed Response To:</b> See Body of Solicitation for <b>Specific Return Instructions</b>				
<b>VENDOR ID:</b> 999999999 - 999		<b>BUYER:</b> Blevins, Taylor <b>PHONE:</b> 903/427-3561				
Shows opening date and number in lower left hand corner of sealed response envelope and show return address of vendor. Vendor agrees to comply with the solicitation below and at terms and conditions. F.O.B. destination means vendor retain title to goods until delivered and the price quoted includes all freight charges.		Delivery in _____ Days Cash Discount _____ % _____ Days				
		<b>QUOTE F.O.B. DESTINATION</b>				
Item No.	Item Description	Quantity	Unit	Make/ Model	Unit Price	Extended Price
1	<p><b>SHIP TO THE FOLLOWING LOCATION UNLESS OTHERWISE NOTED</b> SEE SPECIFIC INSTRUCTIONS FOR EACH LINE ITEM. United States SEE SPECIFIC INSTRUCTIONS FOR EACH LINE ITEM</p> <p><b>SHIP THIS ITEM TO THE FOLLOWING LOCATION</b> SEGUIN REGIONAL SUPPLY CENTER 2024 HWY 46 NORTH SEGUIN TX 78155-2206 United States</p> <p>Example: Econolite Cobalt C Controller, Part Number C0BS22120120000 or TxDOT approved equal</p> <p>F.O.B. Destination; Freight to be included in unit price.</p> <p>Respondent must specify below the make and model of the item bid.</p> <p>Make: _____</p> <p>Model: _____</p> <p><b>The following comments apply to the entire Solicitation</b></p>	50.00	EA			

**IF RESPONDING, FORM MUST BE SIGNED. IF NOT RESPONDING, DO NOT RETURN THIS FORM.**

**Failure to sign  
will disqualify  
response.**

Authorized Signature \_\_\_\_\_ Date \_\_\_\_\_

Printed Name \_\_\_\_\_

By signing solicitation, respondent certifies that if the Texas address is shown as the address of the respondent,  
respondent qualifies as a Texas Bidder as defined in 34 T AC Rule 20.306



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<b>VENDOR ID:</b> 9999999999 - 999	<b>BUYER:</b> Blevins, Taylor <b>PHONE:</b> 903/427-3561					
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	<b>QUOTE F.O.B. DESTINATION</b>					
Item No.	Item Description	Quantity	Unit	Make/ Model	Unit Price	Extended Price
	<p>1. Description of Goods: This solicitation is to establish a contract for traffic signal controllers for Seguin Regional Distribution Center.</p> <p>2. Emergency: This solicitation is for an emergency purchase made under Texas Government Code, §2155.137 and 34 TAC 20.82.</p> <p>3. Electronic State Business Daily (ESBD): This solicitation is posted on the ESBD. It is the responsibility of the respondents to check the ESBD for addenda or additional information related to the solicitation. Vendors active on the CMBL at the time the solicitation was posted will receive notifications regarding addenda or additional information related to the solicitation.</p> <p><a href="http://www.txsmartbuy.com/esbd">http://www.txsmartbuy.com/esbd</a></p> <p>4. Proprietary: This solicitation is being advertised under Texas Government Code, §2155.067. TxDOT believes the requested items or service are proprietary to one provider and/or specification. Only responses conforming exactly to the specifications or statement of work will be considered in determining award. The issuing office strongly encourages responses from all qualified vendors who may be able to provide the specified items or service.</p> <p>5. Order of Precedence: In the event of any conflict, terms contained in the document shall prevail in the order as listed below:</p> <p>5.1. Solicitation No. 60129000028812</p> <p>5.2. TxDOT Terms and Conditions, October 2023</p> <p>5.2.1. Payment will be made in accordance with Part 4, Para. 4.04 (b)</p> <p>5.3. Specification No. DMS 11170 Fully Actuated, Solid State Traffic Signal Controller Assembly</p>					



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Item No.	Item Description	Quantity	Unit	Make/ Model	Unit Price	Extended Price
	<p>6. Estimated Quantities Quantities are estimates only to be used for the purpose of comparing responses. The respondent must enter their unit price on Solicitation.</p> <p>Total price will be evaluated by multiplying the unit price for each line by the estimated quantities listed on Solicitation.</p> <p>TxDOT will order only the amount needed to satisfy operating requirements; no guarantee of any minimum or maximum purchase is made or implied. Total amount ordered must not exceed the aggregate contract amount unless additional funds are allocated, and the total contract amount is increased in accordance with the terms and conditions.</p> <p>7. Delivery Delivery must be made between 8 AM and 4 PM Monday through Friday except on regularly observed state or federal holidays, unless prior approval has been obtained from TxDOT.</p> <p>8. Contact Information The individuals listed below are the only authorized TxDOT contacts. Contacting any other TxDOT personnel regarding this solicitation, may result in the respondent being disqualified. Any changes as a result of questions will be made by TxDOT in the form of an addendum to the solicitation; no oral changes will be considered.</p> <p>For clarification or questions regarding this solicitation, respondents may contact:</p> <p>Add certification after each contact's name: Primary Contact: Taylor Blevins, CTCD Phone: 903-737-9293 Email: Taylor.Blevins@txdot.gov</p> <p>Secondary Contact: Leigh Wilson, CTCD Phone: 903-510-9276 Email: Leigh.Wilson@txdot.gov</p>					



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	<b>QUOTE F.O.B. DESTINATION</b>					
Item No.	Item Description	Quantity	Unit	Make/ Model	Unit Price	Extended Price
	9. Vendor Performance: TxDOT will monitor performance on a regular basis.  9.1. TxDOT may consider the following performance by the vendor as unsatisfactory performance - An unsatisfactory performance determination includes, but is not limited to:  9.1.1. Failure to deliver any portion of the work product.  9.1.2. Failure to deliver a useable work product during the term of the contract  9.1.3. Unsatisfactory performance of any service requirements in the contract  9.2. Exceptional performance determination includes, but is not limited to:  9.2.1. Deliverables made early upon TxDOT member request.  9.2.2. Vendor commended for exceptional customer service  9.2.3. Exceptional service provided  10. Packaging Requirements All cardboard boxes must be labeled, listing the manufacturer's name, part number, description, quantity, and box weight.  All cardboard boxes must be suitable in bursting strength to allow for the weight of the contents and to allow for the stacking of the boxes a maximum of four high on a pallet for shipping and storage.  Packaging other than specified herein is acceptable only with the prior written approval of TxDOT's designated TxDOT representative.  11. Response Submission  11.1. GENERAL FORMAT: The respondent must submit one signed and dated response to include the documentation required per response paragraph  11.3 to the email address as indicated					



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Item No.	Item Description	Quantity	Unit	Make/ Model	Unit Price	Extended Price
	<p>on the "Instructions to Respondents" page.</p> <p>11.2. The respondent shall not encrypt or password protect response or embed documents within the response; each section must be its own separate document.</p> <p>11.3. RESPONSE: Failure by the respondent to submit the documentation listed below will result in the response being considered non-responsive. The response submission must be submitted with each section named with the "Section #" and brief description not to exceed 30 total characters as a separate document in the following format:</p> <p>11.3.1. Section 1 – Signed Invitation for Bid</p> <p>11.3.2. Section 2 – Texas Family Code Schedule</p> <p>11.3.3. Section 3 – Addenda (if applicable)</p> <p>12. Vendor Point of Contact: Name: _____ Phone: _____ Email: _____</p> <p>13. Vendor Verification of Federal Employer Identification Number: Vendor to provide current company name: _____ Vendor to provide federal EIN: _____</p> <p>If invoice will be submitted by, and/or payment made to an EIN or company name different from the vendor on the contract, vendor must complete the following to authorize payment:</p> <p>EIN of company authorized to invoice for vendor: Name of Invoicing Company: _____</p> <p>EIN of company authorized to receive payment: Name of company to be paid: _____</p> <p>14. Preferences Check below if preference claimed under</p>					



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	rule 34TAC 20.306. Tie-Bid Preferences: _Supplies, materials or equipment produced in Texas or offered by a Texas bidder. _Agricultural products produced or grown in Texas. _Agricultural products and services offered by Texas bidder. _USA produced supplies, material or equipment. Products produced at facilities located on formerly contaminated property Products and services from economically depressed or blighted areas. Goods produced or offered by a Texas bidder that is owned by a service-disabled veteran who is a Texas resident.  Source Preferences: Products of persons with mental or physical disabilities Vendors that meet or exceed air quality standards. For contracts to be performed, in whole or in part, in a designated non-attainment area or an affected county, as those terms are defined by Health and Safety Code 386.001 Texas emission reduction plan Manufacturer that has a recycle program for computer equipment Contractor providing foods of higher nutritional value Specification Preferences: Point lines made of recycled materials, remanufactured, or environmentally sensitive materials including recycled steel Energy efficient products Rubberized asphalt paving materials Recycled motor oil and lubricants  If the name of your company is not printed on the heading of this solicitation, you must write the full name of company, full name of signer, mailing address, and respondent's employer identification number (EIN) on the face of the solicitation. To minimize identity theft, every company must have an employer Identification number (EIN), also known as a federal tax identification number, prior to award of a contract.					



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<b>QUOTE F.O.B. DESTINATION</b>						
Item No.	Item Description	Quantity	Unit	Make/ Model	Unit Price	Extended Price
	For information on obtaining your EIN, call 800-829-4933 or visit the following website: <a href="https://www.irs.gov/businesses/small-businesses-self-employed/employer-id-numbers">https://www.irs.gov/businesses/small-businesses-self-employed/employer-id-numbers</a>  (NOTE: this link will not work if capitalization is used. Type in navigation bar using lower case letters)  15. Calendar of Events  Estimated Solicitation Posting Date: 5/8/2024  Response Due Date: 05/15/2024, 3:00 p.m. central time  Tentative Date for Contract Award: 5/29/2024					

**DMS - 11170****FULLY ACTUATED, SOLID-STATE TRAFFIC SIGNAL CONTROLLER  
ASSEMBLY****EFFECTIVE DATE: JULY 2012**

**11170.1. Description.** This Specification governs for a shelf-mounted, 16-phase, full-actuated, solid-state controller unit with internal time based coordination (TBC), railroad and fire (emergency vehicle) preemption (PE), diamond-intersection operation, and closed-loop secondary operation in a traffic signal controller assembly and cabinet assembly.

**11170.2. Units of Measurements.** The values given in parentheses (if provided) are not standard and may not be exact mathematical conversions. Use each system of units separately. Combining values from the two systems may result in nonconformance with the standard.

**11170.3. Material Producer List.** The Traffic Engineering Section of the Traffic Operations Division (TRF-TE) maintains the Material Producer List (MPL) of all materials conforming to the requirements of this Specification. Materials appearing on the MPL, entitled "[Traffic Signals](#)," require no further testing, unless deemed necessary by the Project Engineer or TRF.

**11170.4. Bidders' and Suppliers' Requirements.** To be accepted on bids, materials must have approved product codes or designations and be from pre-qualified producers.

The supplier's facilities must be of sufficient size and staffing to allow warranty repairs to the cabinet assembly on a timely basis. Timely return of equipment is no more than 18 calendar days from the date of receipt by the supplier to the return receipt of the equipment at the specified location. This requirement may be met by field service. Failure to meet these requirements may result in rejection of future bids.

Ship the controller cabinet enclosed in cardboard on 4 × 4 in. (100 × 100 mm) runners covered with 0.5-in. (12.5-mm) plywood to facilitate handling. Runners consisting of stacked 2 × 2 in. (50 × 50 mm) boards are not acceptable.

For ventilation purposes while testing, do not bubble wrap or package cabinet components in boxes when shipping.

Use polypropylene strapping material to secure all cabinet components for shipping. Glass filament tape may be used to secure load switches and flash transfer relays. Other means of securing components are acceptable but require written approval by the TRF Signal Operations Engineer.

**11170.5. Pre-Qualification Procedure.**

**A. Pre-Qualification Request.** Submit a request for evaluation to the Texas Department of Transportation, Traffic Operations Division, Traffic Engineering Section (TRF-TE), 9500 North Lake Creek Parkway, Austin, Texas 78717.

**B. Pre-Qualification Sample.** Submit one signal controller cabinet assembly with the pre-qualification request.

All materials submitted for pre-qualification tests will be at no cost to the Department.

**C. Documentation.**

**1. Cabinet.** Provide each cabinet with the following documentation:

- Three complete, accurate, and fully legible diagrams and one schematic for every electronic device (This must include but not be limited to cabinet-wiring, back panel, detector-panel, power-panel, PE-panel, flasher-circuit, load-switch, card-rack-power-supply, bus-interface-unit, and power-supply diagrams.)
- Complete parts list including names of vendors for parts not identified by universal part numbers such as JEDEC, RETMA, or EIA
- Manufacturer's specifications for cooling fans including the CFM rating of fans

**2. Controller Unit.** Provide each controller unit with one service manual per unit that includes description of controller unit, description of its operation, and basic maintenance and troubleshooting information.

**3. Malfunction Management Unit (MMU).** Provide each MMU with one service manual per unit that includes description of MMU unit, description of its operation and basic maintenance, and troubleshooting information

Bidders must be prepared to furnish NEMA certification for the complete cabinet assembly from an independent laboratory.

**D. Sampling and Testing.** Signal controller cabinet assemblies must meet or exceed the requirements of all applicable National Electrical Manufacturers Association (NEMA), Texas Manual on Uniform Traffic Control Devices (TMUTCD), and Institute of Transportation Engineers (ITE) Standards and this Specification. In addition to testing of pre-shipment samples, complete testing of signal controller assemblies may be required at any time before acceptance.

Burn-in each controller cabinet assembly for a period of 48 hr. at a temperature of 60°C or for a period of 96 hr. at a temperature of 23°C. Include with or attach a certification to each controller cabinet indicating the dates of the burn-in period, number of hours, burn-in temperature, and results.

The Department may test any controller cabinet assembly under load in a shop environment for a period of at least 120 hr. During this time, the Department will inspect the entire controller cabinet assembly for compliance with the Specifications.

The Department may then perform any or all tests described in NEMA Standard Publication TS 2 1998 on one or more complete controller cabinet assemblies on a random sample basis. Environmental sampling and testing will be in accordance with Tex-1170-T. Testing will be performed in the normal operating (i.e., non-flashing) range of 95-135 VAC. All traffic signal cabinet assembly components must operate normally at 95 VAC, just as the unit would operate at 120 VAC.

Provide TRF with closed-loop software, hardware, and cables needed to monitor controller operations during testing.

**E. Warranty.** All equipment must have no less than 95% of the manufacturer's standard warranty remaining on the date that the contractor submits equipment invoices for payment. The Department will not accept any equipment with less than 95% of its warranty remaining.

The cabinet assembly including all contents must be fully warranted for parts and labor for a minimum of 5 years from the date of acceptance.

Software and firmware updates must be included as part of the warranty.

**F. Evaluation.** TRF-TE will notify prospective bidders and suppliers after completion of material evaluation.

**1. Qualification.** If approved for use by the Department, the material will be added to the MPL. If material is listed on the MPL, no additional submittals are required for that product.

Date of acceptance will be date that TRF approves the controller cabinet assembly.

The traffic signal controllers and cabinets must be identical to the approved pre-qualification sample. Submit any deviations from the approved sample for evaluation and approval before any shipment is accepted for payment.

Deviations from the approved sample after shipment of any parts of the order will be cause for rejection and nonpayment of the remainder of the order. Excessive delays or noncompliance by the vendor at any point in the approval process may be cause for cancellation and nonpayment.

**2. Failure.** Producers not qualified under this Specification may not furnish materials for Department projects and must show evidence of correction of all deficiencies before reconsideration for qualification.

If any of the assemblies fail any of the tests, the supplier will be permitted to make one complete repair of the order on a timely basis, as determined by the Department. The supplier must reimburse the Department for any retesting required during acceptance. The Department will base the cost for each retest, estimated at \$1,500 per test, on time and charges.

Minor discrepancies noted in sampling and testing of this item must be corrected within 30 days of written notice of the discrepancies or as stated in the notice. Major discrepancies that in the opinion of the Department will substantially delay receipt and acceptance of the item will be cause for cancellation of the purchase order. Correct any discrepancies found in partial shipments before the delivery of subsequent shipments.

## 11170.6. Material Requirements.

**A. Controller Unit.** The controller unit must meet the requirements of NEMA Standards Publication TS 2-2003 (TS 2), latest edition. Where a difference occurs, these requirements govern. The purchase document must identify either a TS 2 Type 1 interface

or TS 2 Type 2 interface. This document specifies the cabinets for TS 2 Type 1 controllers. TS 2 Type 2 controller cabinets must use a cabinet specification identified in the bid document.

Each controller unit must have a unique serial number permanently and neatly displayed on the face of the unit. Affix an additional temporary label, neatly printed or typed, to the controller unit face if the serial number is not on the face of the unit.

Provide a controller unit that is completely solid state and digitally timed. All timing must be referenced to the 60-Hz power line.

The dimensions of the controller unit must not exceed 12.2 in. (305 mm) H, 17.6 in. (440 mm) W, and 12.2 in. (305 mm) D.

Supply both TS 2 Type 1 and TS 2 Type 2 controllers with Port 1 SDLC and Port 2 RS 232. The TS 2 specification defines the connectors. Provide either a 9 pin RS 232 or 25 pin RS 232 connector for Port 3 for radio communications. When specified in the plans, provide an additional 9 pin FSK connector capable of FSK communications with FSK modem installed. The controller must have a minimum of one Ethernet port on the front face of the unit.

The controller unit must be built using one or more vertical circuit boards. Requirement exceptions are the power supply, transformers, capacitors, and heat dissipating components.

No circuit cuts will be allowed on circuit boards in any of the equipment supplied. Any wire jumpers included on circuit boards must be in plated through-holes specifically designed to contain them. Jumpers that are tack soldered to circuit traces or are added to correct board layout errors are not acceptable.

Each of the following must be simultaneously displayed during standard NEMA dual-ring operation on the face of the unit:

- Phases in service (one per ring)
- Phases next to be serviced (one per ring)
- Presence of vehicle call (one per phase)
- Presence of pedestrian call (one per phase)
- Reason for green termination (one per ring)
  - Gap-out
  - Maximum time-out
  - Force-off
- Pedestrian service (one per ring)
- Max II in effect (one per ring)

User-programmed entries must be stored and maintained in nonvolatile memory. Battery power is not allowed for this application.

The controller unit must be designed to operate properly with the logic ground isolated from the AC neutral (common).

Provide a high-quality keyboard with a rated lifetime of  $1 \times 10^6$  operations or keystrokes on the front panel of the controller unit for use programming all user-entered timings and settings. Provide an operator entry that enables and disables the audible sound output (default must be enabled).

Provide a direct-reading, alphanumeric liquid crystal display (LCD) with back lighting on the front panel of the controller unit. The display must be clearly readable in ambient light—including the cabinet light, full sunlight, or the absence of light—from a distance of 1.0 m at a 45° angle. The display must have an automatic time-out feature approximately 10 minutes after the last keystroke, unless the display has an expected continuous life of 10 years or more, and must have an operating temperature range of -34°C to + 74°C.

The display must be a minimum 40-character  $\times$  4-line display. The bidder may be required to supply literature demonstrating that all display requirements of this Specification are met before the awarding of the bid. (If a LCD contrast adjustment is required for visibility at temperature extremes, then the control must be on the face of the controller unit, adjustable without the use of tools.)

**B. Time Clock.** The clock must use the 60-Hz power line frequency as time base when power is present. The clock operating voltage range must be 89 to 135 VAC over the temperature range of -34°C to +74°C. A 10-year lithium battery must maintain the time-of-day clock and digital data during a power outage lasting up to 30 days. Lead-acid, nickel-cadmium, or alkaline batteries are not acceptable.

The time base clock must be maintained to within  $\pm 0.005\%$  at 20°C and to within a  $\pm 0.02\%$  over the specified operating temperature range as compared to Coordinated Universal Time (WWV) standard for a period of 30 days during periods when AC power is not applied.

**C. Clock-Calendar Programming.** The clock must:

- Be easily set to the year, month, day of month, day of week, hour, minute, and second
- Must store sequences of operations in the form of 255 entries and 15-day plans

The keyboard must provide:

- Automatic daylight-savings time entry
- Capability for the user to program dates for fixed and floating holidays

Special Calendar adjustments for leap years must be automatic.

**Table 1**  
**Schedules**

Global Time Base Schedule					Actuated Traffic Signal Schedule
Entry	Months	Dates of Mo	Days of Wk.	Day Plan	Time Base Actions
1	1-12	1-31	1-7	1-15	entry 1 actions
:	"	"	"	"	:
255	"	"	"	"	entry 255 actions

**1. Structure and Interrelationship of Programs.** A day plan must consist of the following, where each *action* is unique:

**Table 2**  
**Structure and Interrelationship of Programs**

Hour : Minute	Action 1	(time to implement: action to implement)
:	:	:
Hour : Minute	Action 10	(time to implement: action to implement)

There must be a minimum of 10 actions per day plan.

There must be a minimum of 15-day plans.

Each *action in a day plan* must consist of a group of the following *objects*:

- Pattern, consisting of:
  - Cycle length
  - Offset
  - Split
  - MUTCD flash (on-off)
  - Free operation
- Sequence
- Special functions 1-8 (on-off)
- Auxiliary functions 1-3 (on-off)
- Mode of operation (a means of changing operating modes by time of day)
- Max II
- Gap / extension II
- Phase omits

Any or all of these may be selected within a single action.

Transfer into and out of FLASH must be in accordance with the Texas MUTCD. It must be possible to program each phase and overlap to flash either yellow or red via the front panel of the controller unit. This must be accomplished by flashing the load-switch driver outputs simultaneously.

An entry must consist of time period implemented: day plan, months, dates of the month, and days of the week.

A minimum of 255 entries must be programmable.

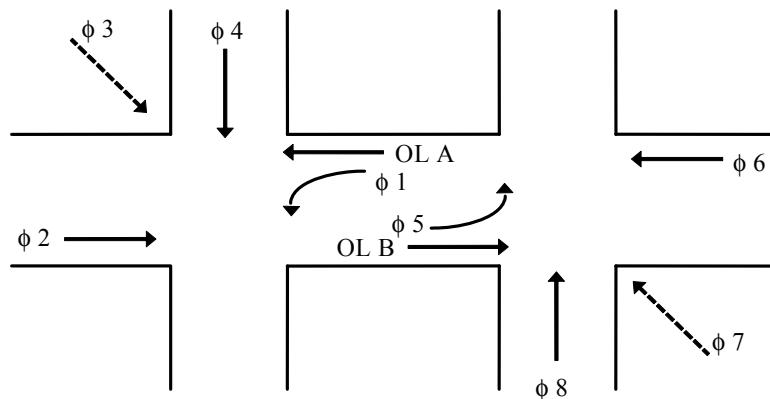
There must be a copy feature that allows the transfer of entries between day plans.

Other programming schemes that meet the functional intent are acceptable but require approval in writing by the TRF Signal Operations Engineer.

**D. TBC.** The internal reference sync pulse, from which the local offset is calculated, must resynchronize at midnight, or the resynchronization must be user programmable with a default to midnight. A pulse must be generated whenever the time-of-day clock shows a time that is an exact multiple of the current cycle length after this resynchronization. In case of a power failure, re-sync must be calculated from the programmed re-sync time. The power failure recovery routine must accommodate the case of a power failure at midnight.

#### E. Diamond Operation.

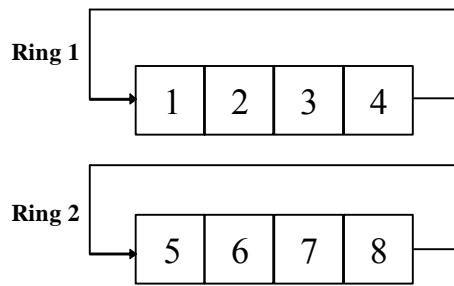
**1. Program Requirements.** Assign phase numbers to traffic movements as shown on the diamond intersection layout in the following figure. Overlap A (OL A) is defined as phases 1+2. Overlap B (OL B) is defined as phases 5+6.



**Figure 1**  
Assignment of phase numbers for diamond intersection layout.

There must be six additional user-programmable overlaps. All additional overlaps must be programmable through the keyboard and must function as specified by TS 2.

The controller unit must be programmable for four-phase and three-phase diamond operation as well as for two independent, four-phase rings (separate intersection operation) as shown in the following figure.



**Figure 2**  
Separate intersection ring structure.

The following modes must be available for each phase and for the intervals identified as special intervals in three-phase and four-phase operation:

- Maximum Recall
- Minimum Recall
- Pedestrian Recall
- Detector Locking and Non-Locking Memory
- Phase Omit

The controller unit must be designed to provide pedestrian phasing with phases two, four, six, and eight.

All timing entries and displays must be available for phases three and seven.

The operation of the controller unit as a four-phase, three-phase, or separate-intersection-operation diamond must be keyboard selectable. This must be overridden while under closed-loop system control or by TBC control.

**2. Four-Phase Operation.** The controller unit must perform the sequences for four-phase and 6-phase diamond operation defined in Figures 3–8.

The normal four-phase operation sequence must be: 25 → 45 → 16 → 18. The six-phase operation sequence must be: 25 → 35 → 45 → 16 → 17 → 18.

The point at which operation may be switched from four-phase to three-phase operation must be at the clearance interval 2516B or 2518B to the three-phase clearance interval 15.

**3. Concurrent Timing Requirements.** Refer to Figures 3–6 for the following descriptions:

Intervals 4516B and 4516C must time concurrently with interval 16; however, interval 16 may not terminate green until interval 4516C has timed out.

Intervals 3516B and 3516C must time concurrently with interval 16; however, interval 16 may not terminate green until interval 3516C has timed out.

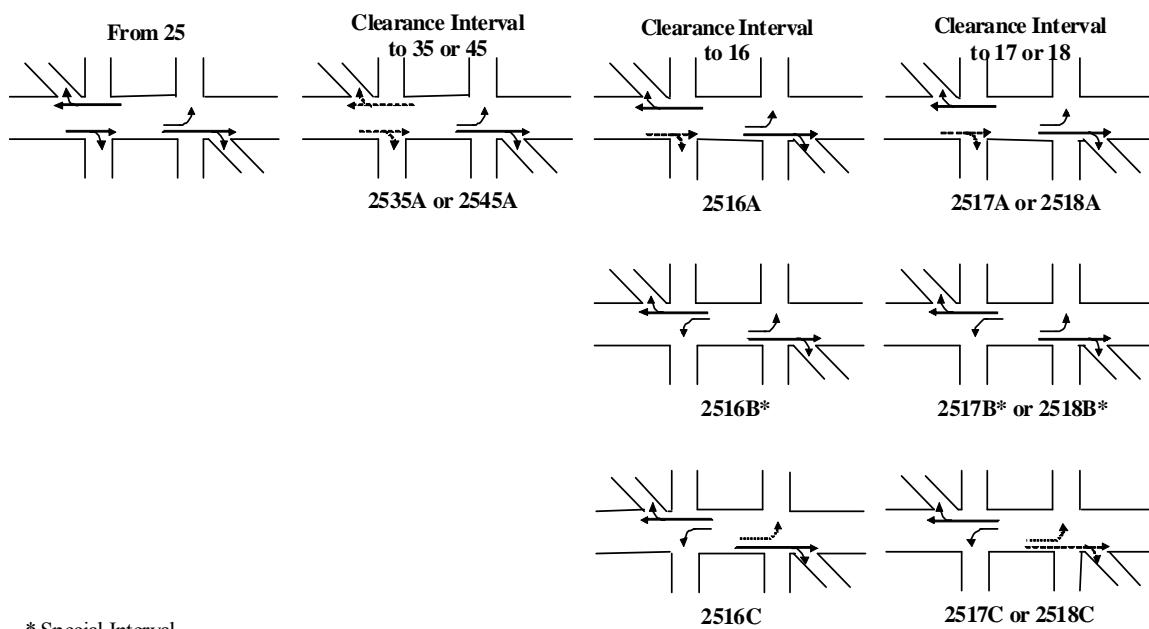
Intervals 1825B and 1825C must time concurrently with interval 25; however, interval 25 may not terminate green until interval 1825C has timed out.

Intervals 1725B and 1725C must time concurrently with interval 25; however, interval 25 may not terminate green until interval 1725C has timed out.

All left-to-right internal clearance times (intervals 4518B, 4517B, 3518B, 3517B, 2518B, 2517B, and 2516B) must use the same timing settings for minimum green, extension, maximum (max) green, yellow clearance, and red clearance.

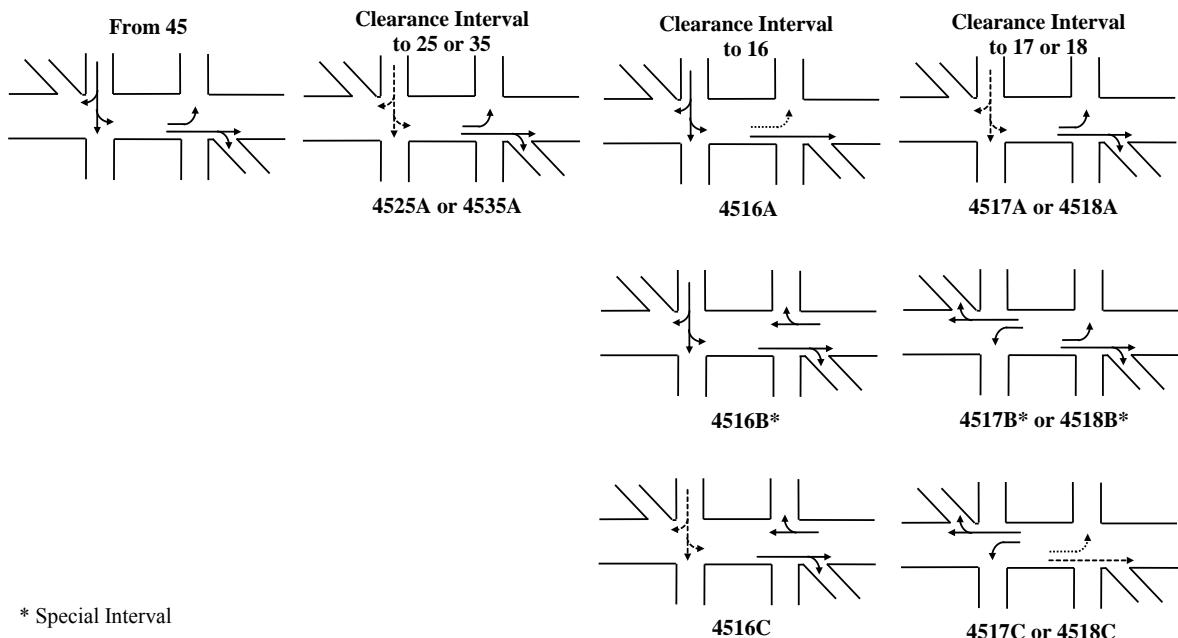
All right-to-left internal clearance times (intervals 1845B, 1835B, 1745B, 1735B, 1645B, 1635B, and 1625B) must use the same timing settings for minimum green, extension, max green, yellow clearance, and red clearance.

Separate timing settings for minimum green, extension, max green, yellow clearance, and red clearance must be provided for each of the four external clearance intervals (1825B, 1725B, 4516B, and 3516B).

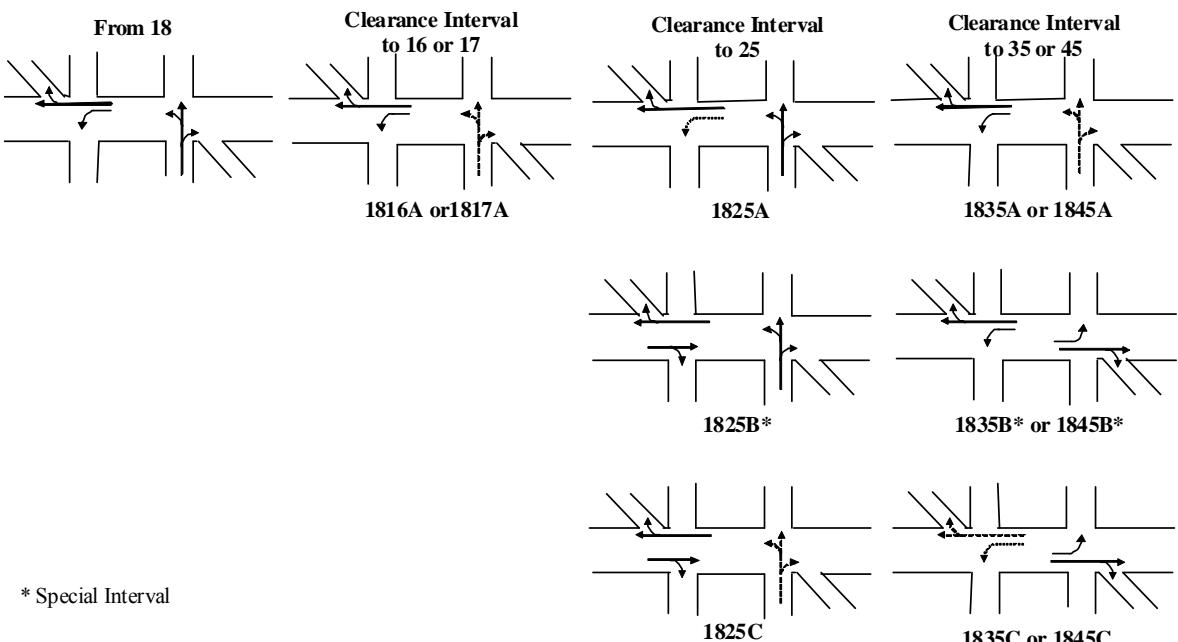


\* Special Interval

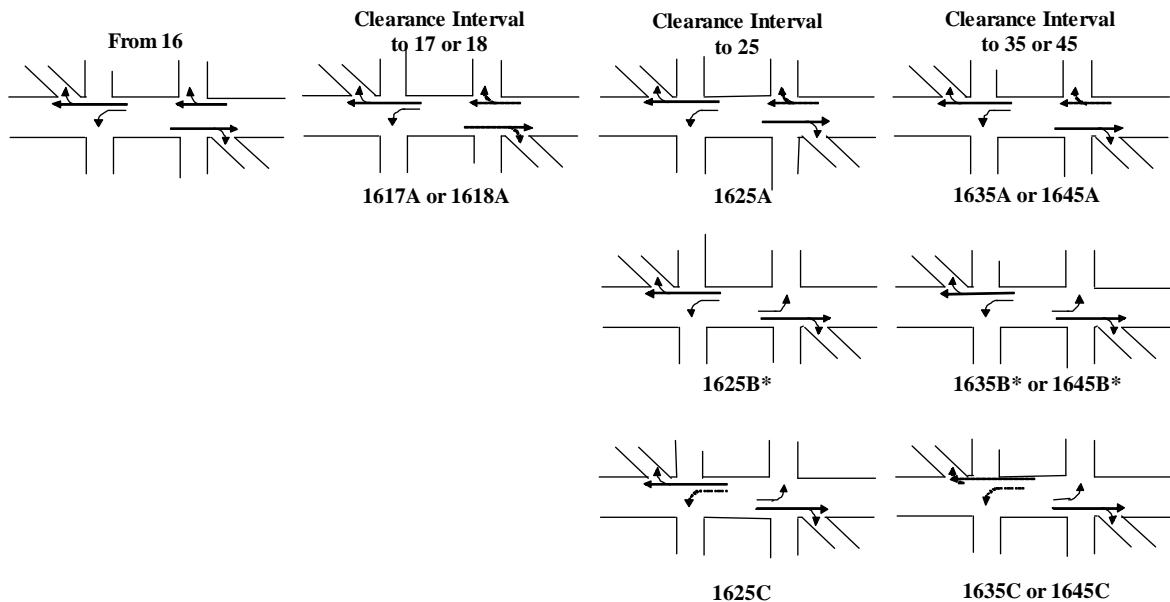
**Figure 3**  
**Four-phase operation sequence—clearance intervals from phase 25.**



**Figure 4**  
Four-phase operation sequence—clearance intervals from phase 45.

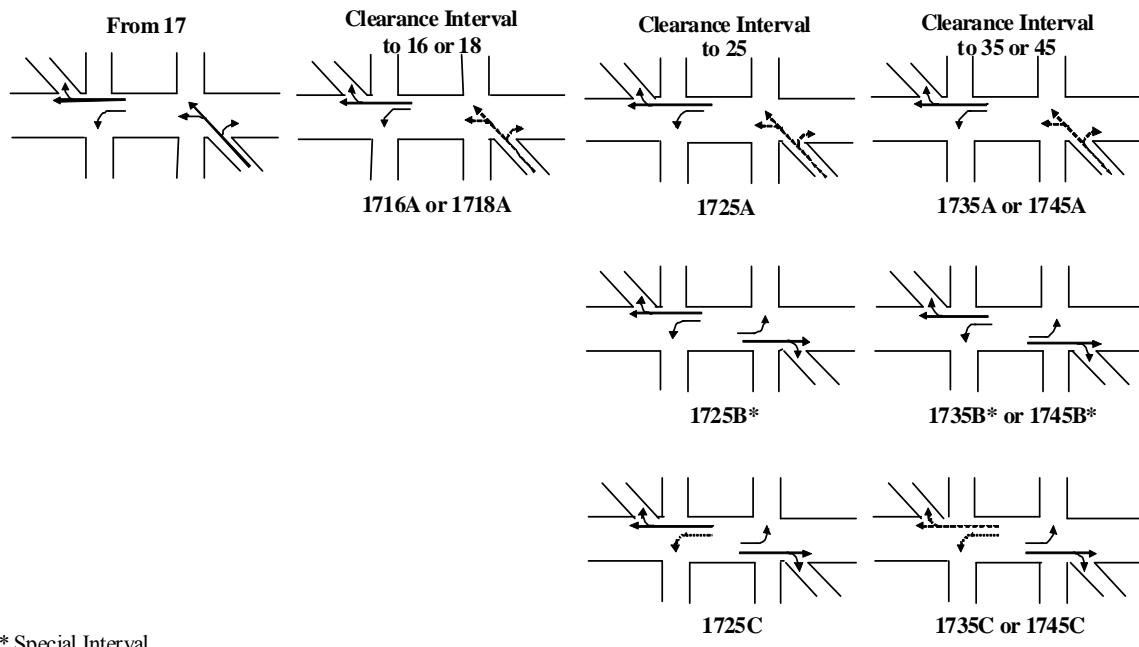


**Figure 5**  
Four-phase operation sequence—clearance intervals from phase 18.



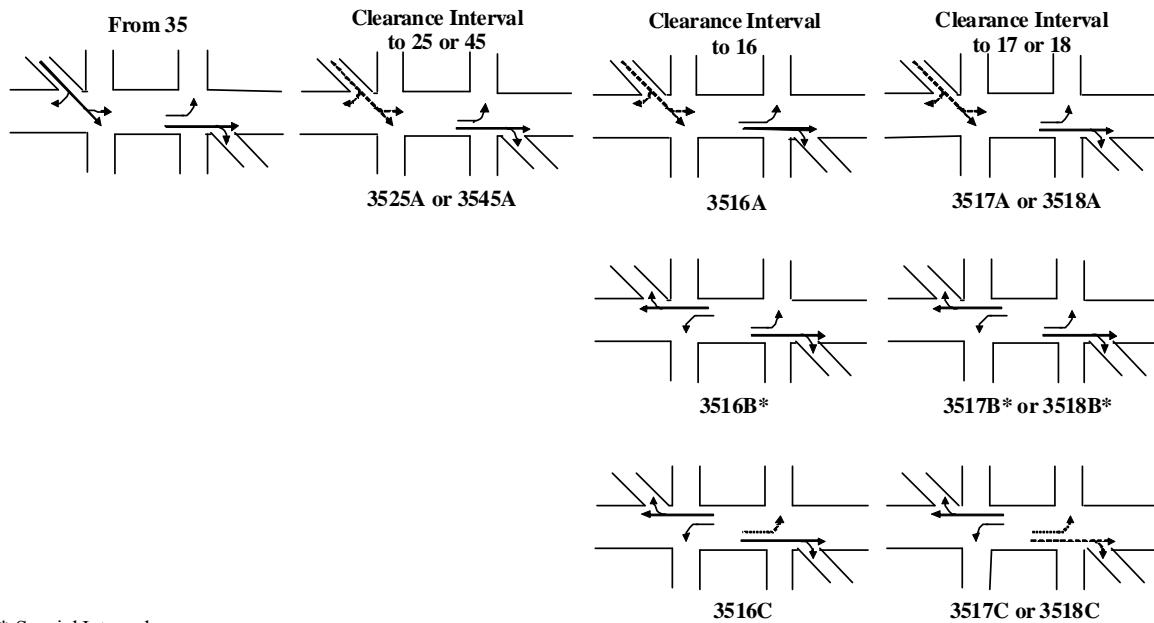
\* Special Interval

**Figure 6**  
Four-phase operation sequence—clearance intervals from phase 16.



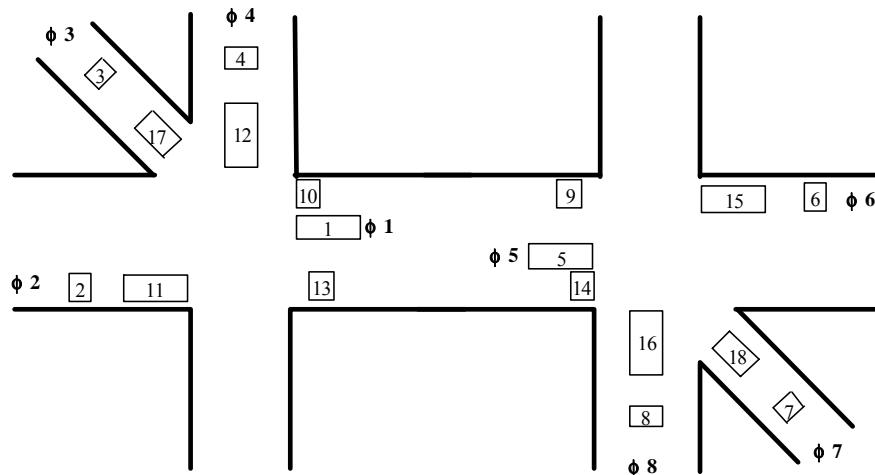
\* Special Interval

**Figure 7**  
Four-phase operation sequence—clearance intervals from phase 17.



**Figure 8**  
Four-phase operation sequence—clearance intervals from phase 35.

**4. Diamond Detector Operation.** The loop-detector layout for three-phase, four-phase, six-phase, or separate-intersection diamond operation must be as shown in the following figure. The detector operation defined must be automatically loaded when any diamond sequences are selected.



**Figure 9**  
Loop-detector layout for diamond-intersection operation.

The controller unit software must provide the logic for detector operation described in Table 3.

**Table 3**  
**Detector Operation Requirements**

<b>Detector</b>	<b>Four- and Three-Phase Requirements</b>
1	<p>In 4-phase operation:</p> <ul style="list-style-type: none"> <li>▪ Must call phase 6 if Overlap A is not green and phase 7 is not called.</li> <li>▪ Must call phase 6 if Overlap A is not green and phase 8 is not called.</li> <li>▪ Extend intervals 2516B, 2517B, 2518B, 4517B, 4518B, 3517B, and 3518B.</li> </ul> <p>In 3-phase operation:</p> <ul style="list-style-type: none"> <li>▪ Must call and extend phase 1 (left turn).</li> </ul>
5	<p>In 4-phase operation:</p> <ul style="list-style-type: none"> <li>▪ Must call phase 2 if Overlap B is not green and phase 3 is not called.</li> <li>▪ Must call phase 2 if Overlap B is not green and phase 4 is not called.</li> <li>▪ Extend Intervals 1625B, 1635B, 1645B, 1735B, 1745B, 1835B, and 1845B.</li> </ul> <p>In 3-phase operation:</p> <ul style="list-style-type: none"> <li>▪ Must call and extend phase 5 (left turn).</li> </ul>
2, 3, 4, 6, 7, and 8	These setback detectors (or detector sets) belong to the parent phases with the same number (e.g., detector 2 belongs to phase 2) as shown in Figure 9. These detectors must have a 2-sec. delay set during red conditions of their parent phase. The detectors are used to extend the parent phase during green.
11, 12, 15, 16, 17, and 18	These detectors are stop bar detectors and are used to call the associated parent phases shown in Figure 9. The parent phase green plus a call for that phase plus a 0.2-sec. gap on the detector must disable the detector until the end of green.
9 and 10	<p>In 4-phase operation:</p> <ul style="list-style-type: none"> <li>▪ Must extend phase 2 if phase 3 is called</li> <li>▪ Must extend phase 2 if phase 4 is called</li> <li>▪ Must call phase 6 if Overlap A is not green and phase 7 is not called</li> <li>▪ Must call phase 6 if Overlap A is not green and phase 8 is not called</li> <li>▪ Extend intervals 2516B, 2517B, 2518B, 4517B, 4518B, 3517B, and 3518B</li> </ul> <p>In 3 phase operation:</p> <ul style="list-style-type: none"> <li>▪ Must function as a phase-1 calling detector during phase 3 or 4 and as a phase-1 extending detector when a phase 3 or 4 call exists</li> </ul>
13 and 14	<p>In 4 phase operation:</p> <ul style="list-style-type: none"> <li>▪ Must extend phase 6 if phase 7 is called</li> <li>▪ Must extend phase 6 if phase 8 is called</li> <li>▪ Must call phase 2 if Overlap B is not green and phase 3 is not called</li> <li>▪ Must call phase 2 if Overlap B is not green and phase 4 is not called</li> <li>▪ Extend Intervals 1625B, 1635B, 1645B, 1735B, 1745B, 1835B, and 1845B</li> </ul> <p>In 3 phase operation:</p> <ul style="list-style-type: none"> <li>▪ Must function as a phase-5 calling detector during phase 7 or 8 and as a phase-5 extending detector when a phase 7 or 8 call exists</li> </ul>

**5. Three-Phase Operation.** The controller unit must be keyboard selectable for three-phase diamond operation.

The controller unit must perform the sequences for three-phase diamond operation defined in Figure 10 and in Table 4.

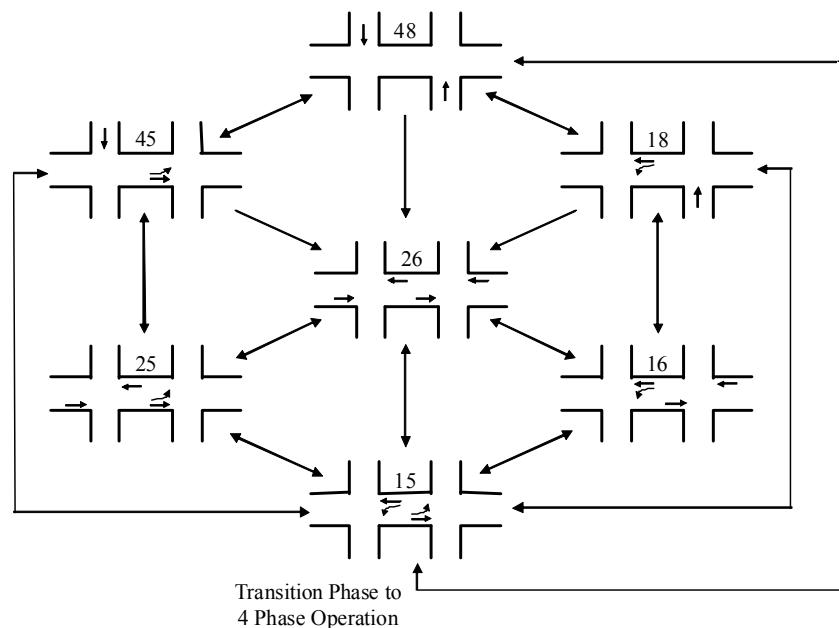
The normal sequence of operation must be  $4 + 8 \rightarrow 2 + 6 \rightarrow 1 + 5$ .

The point at which operation may be switched from three-phase to four-phase operation must be through the transition phase sequence to four-phase interval 25 as indicated in Figure 10.

The controller must be programmable for simultaneous gap operation for phases 4 and 8 in three-phase operation to allow a phase to extend out of a green rest state. When the phase or phases to be serviced next conflict with both phases being serviced, both concurrent phases must reach a green rest state together before they terminate.

Termination of the max timer or application of a force-off must override this feature.

The phases must not be allowed to advance to a green interval beyond the rest state that might override or defeat the simultaneous gap operation.



**Figure 10**  
**Three-phase diamond operation.**

**Table 4**  
**Three-Phase Diamond Sequence**

<b>From</b> <b>Interval</b>	<b>IF</b> <b>Call On</b>	<b>AND</b>	<b>GO TO</b>
		<b>No Call On</b>	<b>Interval</b>
48	2 and 6	----	2+6
	2 or 6	1 or 5	2+6
	1 and 6	2	1+6
	2 and 5	6	2+5
	5	1 or 2 or 6	4+5
	4 and 5	8	4+5 If Min Time of 5 Can be Serviced Before Max Time of 4
	1	2 or 5 or 6	1+8
	1 and 8	4	1+8 If Min Time of 1 Can be Serviced Before Max Time of 8
	1 and 5	2 or 6	1+5
45	8	----	4+8 if 4+8 Was Not Serviced Immediately Before 4+5
	8	1 or 2 or 6	4+8
	2 and 6	8	2+6
	6	8 or 1	2+6
	2	8 or 6	2+5
	1 and 6	8 or 2	1+6
	1	8 or 2 or 6	1+5
18	4	----	4+8 if 4+8 Was Not Serviced Immediately Before 1+8
	4	5 or 2 or 6	4+8
	2 and 6	4	2+6
	2	4 or 5	2+6
	6	4 or 2	1+6
	2 and 5	4 or 6	2+5
	5	4 or 2 or 6	1+5
26	(1 and 5) or 4 or 8	2 or 6	1+5
	5	6 or 4 or 8	2+5
	2 and 5	6	2+5
	1	2 or 4 or 8	1+6
	1 and 6	2	1+6
25	1 or 8	----	1+5
	4	1 or 8	4+5
	6	1 or 4 or 8	2+6

From Interval	IF Call On	AND No Call On	GO TO	
			Interval	
16	4 or 5	----	1+5	
	8	4 or 5	1+8	
	2	4 or 5 or 8	2+6	
15	4 and 8	----	4+8	
	4	8	4+5	
	8	4	1+8	
	2 and 6	4 or 8	2+6	
	2	4 or 6 or 8	2+5	
	6	2 or 4 or 8	1+6	

**F. Coordination-Control Hierarchy.** When the system switch is in the SYSTEM position, the controller unit must be under the control of the master controller or TBC.

In the absence of any on line closed-loop-system control by a master controller, the internal TBC must control the coordinated, free, and flash operation of the intersection when the system switch is in the SYSTEM position.

When a master controller brings the intersection on line, its control must supersede that of the internal time-base coordination.

When the system switch is in the FREE position, the controller unit must operate in a non-coordinated (free) mode.

**G. Preemption (PE).** The internal preemptor supplied must be easily programmable from the front panel for either railroad- or emergency-vehicle PE sequences.

Phases must be selectable such that a limited signal sequence may be operational during PE. It must be possible to add phases that are not in the intersection sequence to this special limited sequence without adding external logic.

The intervals shown in Table 5 must be provided as a minimum. Terminology may vary, but the meaning must be clear. Additional unspecified intervals that may lead to confusion must be programmable to zero. If abbreviations are used on the display, they must be defined on the front panel. While in PE, the display must clearly identify the intervals being timed as PE intervals. Yellow and red clearances from the phase timings may be used in place of the clearance intervals shown.

**Table 5**  
**PE Timing Interval Definitions**

<b>Interval<sup>1</sup></b>	<b>Description</b>
0. PE Delay	This time must start immediately when the PE command is received. It must not affect the normal operation of the controller unit until the delay time out occurs. This interval may be used for emergency-vehicle (fire-lane) PE delay. If zero time is set, the interval must be omitted.
1. PE Minimum Duration	The PE sequence must not terminate until the PE input signal is removed and the Minimum Duration time has expired.
2. PE Minimum Green	Any vehicle signal that is green at the time this interval becomes active must not terminate unless it has been displayed for at least the time programmed in this interval. If zero time is set, the interval must be omitted.
3. PE Minimum Walk	PE Minimum Walk Time (in seconds). A PE-initiated transition must not cause the termination of a Walk before its display for this period.
4. PE Ped Clearance	At the time of PE call, walk-indications must immediately change to Pedestrian Clearance interval. The Pedestrian Clearance interval must not terminate unless it has been displayed for at least the time programmed in this interval. If zero time is set, the interval must be omitted.
5. PE Track Green	Signals programmed as track (or fire-lane) signals must remain green or be changed to green. All other signals must be red. This interval must be optionally programmable to zero during emergency-vehicle PE.
6. PE Dwell Green	Minimum Dwell Time (entered in seconds). This parameter controls the minimum timing for the dwell movement. The phases allowed during the dwell interval must be selectable to include all phases that do not cross the track. The dwell interval must not terminate before the completion of PE-duration time and PE-dwell time, and until the call is no longer present. Each signal must be keyboard-programmable for red, red flash, yellow flash, or green. As an alternative, a limited cycle must be programmable for use with railroad PEs.
7. PE Exit Ped Clear	PE Exit Pedestrian Clear Time (in seconds). This parameter controls the pedestrian clear timing for a walk signal transition to the exit phase or phases.
8. PE Exit Yellow	This interval must provide a solid yellow clearance for indications that were green or flashing yellow. Red and flashing red displays must display solid red.
9. PE Exit Red Clearance	This interval must be an all-red clearance in preparation for return to the normal cycle. Return phases must be programmable from the keyboard.
10. PE Max Call	This interval is the amount of time that a PE call may remain active and be considered valid. When the PE call has been active for this amount of time, the controller must return to normal operation. The PE call must be considered invalid until the call is no longer active.

1. 1. All intervals are sequential.

Table 6 shows PE timing interval ranges.

**Table 6**  
**PE Timing Interval Ranges**

Timing Interval	Time (seconds)	Increments (seconds)
0. PE Delay (Emergency vehicle PE)	0–999	1
1. PE Minimum Duration	0–999	1
2. PE Minimum Green	1–255	1
3. PE Minimum Walk	1–255	1
4. PE Ped Clearance	1–255	1
5. PE Track Green	1–255	1
6. PE Dwell Green	1–255	1
7. PE Exit Ped Clear	0–255	1
8. PE Exit Yellow	3.0–25.5	0.1
9. PE Exit Red Clearance	0–25.5	0.1
10. PE Max Call	0–999	1

The phases to be serviced following the PE sequence must be front-panel-keyboard programmable.

PE sequences must be selectable using external inputs. PE priority must be assigned with #1 being the highest. If a higher-priority PE input is received during a PE sequence, the controller unit must immediately transition to the new sequence subject to the constraints of PE Minimum Green and PE Minimum Walk. The transition must take place in a safe manner from any point in the sequence and must meet all Texas MUTCD requirements. Provisions must be made to clear two conflicting track phases from a single PE input. This may be provided by two-track clearance phases for a single PE or by combining two PEs.

PE 1 must be reserved for a priority railroad PE. If more than two PEs are provided, it must be possible to delete the priority override for all but the railroad PE. If a non-priority PE is activated during another PE cycle, the one in progress must continue through its entire cycle. If the second PE input is still active when the first one is completed, the controller unit must immediately go to all-red flash or initiate the non-priority PE. When all PE inputs are removed, the controller unit must proceed through the normal sequence to Return Red Clearance (interval 9).

Once the controller unit has entered the first timed interval following PE Delay (interval 1), the sequence must continue to the end, even if the PE call is dropped. If the call returns, the Minimum Preempt Duration (interval 1) the controller unit should reinitiate track green and complete the PE sequence.

The controller unit must be programmable to be in flash or in limited sequence during interval 6. If flash is specified, the phases must flash yellow or red as programmed from the front panel. Flash must be implemented by simultaneously flashing the appropriate

load-switch driver outputs. If limited sequence is selected, all phases must be programmable even if not normally used in the intersection sequence.

In the event of a power interrupt as defined by TS 2, if the PE command is present when power is restored, the controller unit must power up in cabinet flash operation and remain there until the PE command is removed.

Overlap phases must begin and terminate with the parent phases as described in TS 2. If the PE call occurs during yellow or red displays between parent phases, the overlap phase must display a minimum of 3 sec. of yellow and a minimum of 1 sec. of red clearance.

“Don’t Walk” must be displayed throughout the PE sequence unless a limited cycle is run. During a limited cycle (interval 6), the pedestrian heads may be programmed to be dark.

PE routines must have priority over all controller functions.

The controller must be programmable to allow multiple track clearance phases either within a single PE sequence or by mapping multiple PEs together in all modes of operation including 3-phase and 4-phase diamond modes.

**H. Closed-Loop Operation and Monitoring Software (CLS).** The controller software must either be capable of implementing the NTCIP or be downward compatible with CLS masters supplied by the same manufacturer since January 1992 and provide all necessary components to upgrade to NTCIP, as specified by the plans. Short-haul FSK modems, necessary to operate the controller as a closed-loop-system secondary, must be provided internal to the timer. All necessary cables and communication ports needed for operation in a closed-loop-system cabinet must be provided. The modems must meet TS 2 environmental requirements for traffic signal equipment.

Window-based CLS software must be provided (with a minimum of five licensed users per copy), according to the plans or the Invitation to Bid, that allows the monitoring, setup, and programming of all controller unit timing entries, functions, and features. These functions and features must include but not be limited to the following:

- Monitoring signal indications, detectors, alarms, and time-based functions
- Controller-database error checking
- Coordination parameters
- Remote resetting of coordination errors
- Toggle-special function outputs from the controller
- Ability to receive reports and alarms generated from the controller
- Setting up the dial-up modem for the traffic-signal controller needed to accomplish remote operation through the controller or the PC software

The setup strings for Hayes-compatible modems (including Hayes, US Robotics, and Computer Peripherals modems as a minimum) must be provided.

All controller-keyboard capabilities must also be available remotely through the computer interface through a telephone modem connection. The controller unit must not have to be connected while making entries until the actual download-upload process.

Supply a cable to direct-connect the controller to a PC in order to upload and download data as well as monitor the controller operation.

The controller must have a minimum of eight detector inputs per intersection for use with closed-loop-system operation. The system must report volume and occupancy counts based on a user-selectable period for each detector. Storage of this data may take place at either the local controller or on-street master. Make allowances in the software for a minimum of eight system detectors at any local controller, in addition to any local detectors.

**I. NTCIP Compliance.** The software must comply with NEMA Standard Publication TS 3.2-1996 (TS 3.2) and must meet the requirements for Conformance Level 2. The software must comply with NEMA Standard Publication TS 3.3-1996 (TS 3.3) Class B profile and must include both an EIA/TIA 232-E and an FSK modem interface for NTCIP-based communications.

The software must implement all mandatory objects of all mandatory conformance groups as defined in “Global Object Definitions,” NEMA Standard Publication NTCIP 1201:1996 (TS 3.4):

- Configuration Conformance Group and Actuated Signal Controller Object Definitions, NEMA Standard Publication NTCIP 1202:1996 (TS 3.5)
- Phase Conformance Group
- Detector Conformance Group

The software must implement all mandatory objects of all optional conformance groups as defined in “Global Object Definitions,” NTCIP 1201:1996:

- Database Management Conformance Group
- Time Management Conformance Group
- Time Base Event Schedule Conformance Group
- Report Conformance Group
- STMF Conformance Group
- PMPP Conformance Group and Actuated Signal Controller Object Definitions, NTCIP 1202: 1996.
- Volume Occupancy Report Conformance Group
- Unit Conformance Group
- Special Function Conformance Group
- Coordination Conformance Group
- Time Base Conformance Group
- Preempt Conformance Group
- Ring Conformance Group
- Channel Conformance Group
- Overlap Conformance Group

- TS 2 Port 1 Conformance Group

The software must also implement the following optional objects as defined in “Global Object Definitions,” NTCIP 1201:1996:

- globalSetIDParameter
- dbMakeID
- eventLogOID
- eventConfigAction and
- eventClassDescription

The software must also implement the following optional objects as defined in “Actuated Signal Controller Object Definitions,” NTCIP 1202:1996:

- unitRedRevert
- phaseDynamicMaxLimit
- phaseDynamicMaxStep
- phaseControlGroupTable
- ringControlGroupForceOff
- vehicleDetectorQueueLimit
- vehicleDetectorFailTime
- vehicleDetectorReportedAlarms
- alarmGroupTable
- specialFunctionOutputTable
- preemptMinimumGreen
- preemptMinimumWalk
- preemptEnterPedClear
- preemptState
- preemptControlTable
- ringControlGroupMax2
- ringControlGroupMaxInhibit

All objects required by these procurement Specifications must support all values within their standardized ranges, unless otherwise approved by the Project Engineer. A size, range, or enumerated listing indicated in the object's SYNTAX field or through descriptive text in the object's DESCRIPTION field of the relevant standard defines the “standardized range.” Table 7 provides the current listing of known variances for this project.

**Table 7**  
**Object Range Values for Actuated Signal Controllers**

<b>Object</b>	<b>Minimum Project Requirements</b>
<b>NTCIP 1201:1996:</b>	
moduleType	Value 3
dbCreateTransaction	All Values
dbErrorType	All Values
globalDaylightSaving	Values 2 & 3
maxTimeBaseScheduleEntries	255
maxDayPlans	15
maxDayPlanEvents	10
maxEventLogConfigs	255
eventConfigMode	Values 2 thru 5
eventConfigAction	Values 2 & 3
maxEventLogSize	255
maxEventClasses	7
maxGroupAddress	2
<b>NTCIP 1202:1996:</b>	
maxPhases	16
phaseStartup	Values 2 thru 6
phaseOptions	All Values
maxPhaseGroups	2
maxVehicleDetectors	32
vehicleDetectorOptions	All Values
maxPedestrianDetectors	8
unitAutoPedestrianClear	All Values
unitControlStatus	All Values
unitFlashStatus	All Values
unitControl	All Values
maxAlarmGroups	1
maxSpecialFunctionOutputs	8
coordCorrectionMode	Values 2 thru 4
coordMaximumMode	Values 2 thru 4
coordForceMode	Values 2 & 3
maxPatterns	48
patternTableType	Either 2 or 3
maxSplits	16
splitMode	Values 2 thru 7
localFreeStatus	Values 2 thru 11

Object	Minimum Project Requirements
maxTimebaseASCActions	255
maxPreempts	6
preemptControl	All Values
preemptState	Values 2 thru 9
maxRings	4
maxSequences	16
maxChannels	16
channelControlType	Values 2 thru 4
channelFlash	All Values
channelDim	All Values
maxChannelStatusGroups	16
maxOverlaps	8
overlapType	Values 2 & 3
maxOverlapStatusGroups	8
maxPort1Addresses	255
port1Status	Values 2 & 3

The controller must be able to implement all NTCIP messages called for in this Specification without any additional vendor-specific proprietary statements.

The software must be supplied with full documentation, including a CD-ROM disc or other approved storage media containing ASCII versions of the relevant official NEMA standard MIB modules referenced by the device functionality. These must be in ASN.1 format. In addition, if the device does not support the full range of any given object within a NEMA standard MIB module, supply a manufacturer-specific version of the official NEMA standard MIB module with the supported range indicated in ASN.1 format in the SYNTAX field of the OBJECT-TYPE macro. The filename must be the same as the standard MIB filename, with ".man" as the extension.

The software documentation must also include a CD-ROM disc or other approved storage media containing ASCII versions of all manufacturer-specific objects supported by the device in ASN.1 format and in a manufacturer-specific MIB with accurate and meaningful DESCRIPTION fields and supported ranges indicated in the SYNTAX field of the OBJECT-TYPE macros.

The manufacturer may not place any restrictions on the dissemination of this documentation within the Department.

The manufacturer must provide a copy of the following table completed to describe the operation of its controller, including which objects are used and the procedures performed with these objects to implement the functions listed using NTCIP.

**Table 8**  
**Controller Operation**

Function	Objects	Procedures to Implementation
<i>Example:</i> Function X	Object T Object Y Object Z	Get object T then send objects Y and Z if T>0.
Change split time in an active coordination plan		
Change ring structure		
Change Min Green in an active coordination plan		
Change alternate sequence in an active coordination plan		

**J. Flashing Yellow Arrow Operation.** Provide a Flashing Yellow Arrow (FYA) routine that:

- is programmable in the controller unit,
- provides a minimum of up to 4 FYA left turn signal displays per MUTCD,
- uses data entries in the controller unit to define when the signal face displays the protected (green arrow) and the permissive (flashing yellow arrow), and
- can be programmed for permissive only, permissive-protected, or protected only operation by time of day. Transition from FYA permissive-protected operation to protected only operation must be accomplished after concurrent termination of both the FYA and the associated opposing through movement.

**K. Malfunction Management Unit (MMU).** This Specification sets forth the minimum requirements for a shelf-mountable, 16-channel, solid-state MMU. The MMU must meet, as a minimum, Section 4 of the NEMA Standards Publication TS 2-2003. Where differences occur, this Specification governs.

No circuit cuts are allowed on circuit boards in any of the equipment supplied. Any wire jumpers included on circuit boards must be placed in plated through-holes that are specifically designed to contain them. Jumpers tack soldered to circuit traces or added to correct board layout errors are not acceptable.

All ICs with 16 or more pins must be mounted in machine-tooled sockets or surface mounted. To eliminate solder wicking, all sockets must have two-piece, machined contacts and closed-end construction. The outer sleeve must be brass with tin or gold plating and tapered to allow easy IC insertion. The inner contact must be beryllium-copper sub-plated with nickel and plated with gold. All sockets must have thermoplastic bodies meeting UL 94V-0. Other high quality sockets may be acceptable but must have prior approval of the TRF Signal Operations Engineer. Surface-mount devices are allowed. Submit proposals for use of sockets meeting alternate specifications in writing with the bids. Zero-insertion-force sockets are not allowed.

The design must allow for removal or replacement of a circuit board without unplugging or removing other circuit boards.

One side of each board must be completely accessible for troubleshooting and testing the unit while it is still operating. This may be accomplished with extender boards or cables. This need apply to only one circuit board at a time. If extender boards are required to meet this requirement, provide one set for every ten MMUs ordered, or portion thereof, with the order.

No more than two circuit boards may be attached to each other to constitute a circuit assembly. Attaching hardware must use captive nuts or other approved method to secure the boards together. Submit alternate methods in writing with the bids. The design must allow for testing and operation of the controller unit with the boards separated.

If this Specification is used to support the purchase of a complete controller assembly, the unused red circuits must be connected to the AC line in the controller cabinet.

Preprogram the MMU in accordance with Table 9.

**Table 9**  
**MMU Pre-Programming Requirements**

Channel	Load Switch	Phase
Channel 1	Load Switch 1	Phase 1 Vehicle
Channel 2	Load Switch 2	Phase 2 Vehicle
Channel 3	Load Switch 3	Phase 3 Vehicle
Channel 4	Load Switch 4	Phase 4 Vehicle
Channel 5	Load Switch 5	Phase 5 Vehicle
Channel 6	Load Switch 6	Phase 6 Vehicle
Channel 7	Load Switch 7	Phase 7 Vehicle
Channel 8	Load Switch 8	Phase 8 Vehicle

Provide an MMU that displays by LCD or other approved graphics display, the active or inactive state of each circuit on all 16 channels. An icon must be used representing the red (Don't Walk), yellow, and green (Walk) circuit for each channel.

The MMU must be compatible with the controller and capable of monitoring FYA operation as defined by the MUTCD and still provide standard NEMA TS-2 monitoring functions.

Each MMU must have a unique serial number permanently and neatly displayed on the face of the unit. If this serial number is located elsewhere on the unit, affix an additional temporary label, neatly printed or typed, to the MMU face.

When required by the plans or bid documents, provide the MMU with an Ethernet port on the front face of the unit.

**L. TS 2 Cabinet Assembly.** This Specification describes the minimum acceptable requirements for a TS 2 cabinet assembly to house a NEMA TS 2 Type 1, solid-state, full-actuated controller unit. The assembly must include the cabinet, flasher, card rack or racks, an MMU, an external power supply, and six flash-transfer relays. For cabinet assemblies of configuration 4 (16 position), the assembly must include 16 load switches;

for cabinet assemblies of configuration 3 (12 position), the assembly must include 12 load switches. All cabinets must include appropriate mounting hardware.

**1. Cabinet Design.** The cabinet must be constructed of unpainted sheet aluminum with a minimum thickness of 3.2 mm. No wood, wood-fiber products, or other flammable material may be used in the cabinet. All welds must be neat and of uniform consistency.

The size of the cabinet must be size 5 or size 6, as defined by TS 2, Clause 7.3, of the NEMA Standard Publication TS 2-1998, as specified by the plans. The load bay must be configuration 3 (12 position) or configuration 4 (16 position) as defined by TS 2, Clause 5.3, as specified by the plans. Provide the cabinet option shown on the plans with features and configuration in accordance with Table 10.

**Table 10**  
**Cabinet Options and Configurations**

Cabinet Options	Size of Cabinet		Back Panel Configuration	Size of Load Bay
1	Pole Mount	TS 2 Size 5	3	12 position
2	Base Mount	TS 2 Size 5	3	12 position
3	Base Mount	TS 2 Size 6	3	12 position
4	Base Mount	TS 2 Size 6	4	16 position

Attach two aluminum lifting eyes or ears to the cabinet with dual or single carriage bolts to permit lifting with a sling. The corners of each eye or ear must be rounded and in the down position when shipped.

Provide vertical shelf support channels to permit adjustment of shelf location in the field. The channels must have a single continuous slot to allow placement of shelves at any height within the cabinet. Channels with fixed notches or holes are not acceptable.

Equip each cabinet with an extra set of unistrut channels or a keyhole panel on either side of the front section of the cabinet to permit the Department to mount additional equipment as necessary.

Shelves must be at least 330 mm deep and be located in the cabinet to provide a 12.5 mm clearance between the back of the shelf and the back of the cabinet. Provide a 38 mm drawer in the cabinet, mounted directly beneath the controller support shelf. The drawer must have a hinged top cover and be capable of storing documents and miscellaneous equipment. This drawer must support 22.5 kg when fully extended and must open and close smoothly. Drawer dimensions must make maximum use of available depth offered by the controller shelf. The drawer width must be at least 600 mm.

Provide two shelves in the cabinet with a minimum height of 305 mm. There must be sufficient shelf space to accommodate a controller unit 330 mm high, an MMU, one 8-position card rack, and an external power supply. Provide an additional space at least 305 mm high, 325 mm wide, and 305 mm deep. Place the controller unit, MMU, card racks, and power supply on the shelves in such a manner that ventilation is sufficiently

provided to all components. Provide labels showing the proper placement of each component along the shelves to ensure proper placement.

Provide two thermostatically controlled fans to vent and cool the cabinet. The fans must be a commercially available model with a capacity of at least 2.7 m<sup>3</sup>/min. The thermostats must be adjustable with a range of 20–43°C. Provide a press-to-test switch for testing the operation of the fans.

Stamp a unique five-digit serial number directly on the cabinet or engrave on a metal or metalized Mylar plate epoxied or riveted with aluminum rivets to the cabinet. The digits must be at least 5 mm in height and located on the upper right sidewall of the cabinet near the front.

**2. Cabinet Door.** Provide the cabinet with one door in front that will provide access to the cabinet. The door must have three hinges with non-removable stainless steel pins or a full-length piano hinge with stainless steel pins spot-welded at the top of the hinge. The hinges must be mounted so that it is not possible to remove them from the door or cabinet without first opening the door. The bottom of the door opening must extend at least to the bottom level of the back panel. Brace the door and hinges to withstand a 74 kg per vertical meter of door-height load applied to the outer edge of the door standing open. There must be no permanent deformation or impairment of any of the door or the cabinet body when the load is removed.

The cabinet door must be fitted with a Number-2 Corbin lock and a cast aluminum or chrome-plated steel handle with a minimum 16 mm diameter shaft (or equivalent cross-sectional area for a square shaft) and a three-point latch. The lock and latch design must be such that the handle cannot be released until the lock is released. Provide one key for each cabinet. Provide a gasket with a minimum thickness of 6.25 mm to act as a permanent dust- and weather-resistant seal at the controller cabinet door facing. The gasket must be of a nonabsorbent material and must maintain its resiliency after long-term exposure to the outdoor environment. The gasket must be located in a channel provided on the cabinet or on the door. An "L" bracket is acceptable in lieu of this channel if the gasket fits snugly against the bracket to insure a uniform dust- and weather-resistant seal around the entire door facing. Any other method is subject to written Departmental approval during inspection of an order.

Provide a locking, auxiliary police door in the door of the cabinet to provide access to a panel containing a signal-shutdown switch, a signal-flash switch, a manual-automatic switch, and a manual-advance, push-button switch on a 6-foot, retractable cord. Manual control of the controller unit from the police door must override any external control (external logic, etc.) in effect when the manual-automatic switch is in the manual position. Each actuation of the manual-advance push-button switch must advance the controller to the next interval. Manual control must not override any calls for PE. The police door must be gasketed to prevent entry of moisture or dust, and the lock must be provided with one brass key.

Fit the intake for the vent system with a permanent air filter with minimum dimensions of 406.4 mm wide, 304.8 mm high, and 25 mm thick. Securely mount so that any air entering the cabinet passes through the filter. The cabinet opening for intake of air must

be large enough to use the entire filter. The air-intake and exhaust vent must be screened to prevent entry of insects. The screen must have openings no larger than 8.1 mm<sup>2</sup>. The total free-air opening of the exhaust vent must be large enough to prevent excessive backpressure on the fan.

**3. Wiring.** All wiring within the cabinet must be neat and routed such that opening and closing the door or raising and lowering the back panel will not twist or crimp the wiring. All wiring harnesses must be braided, sheathed in nylon-mesh sleeving, or made of PVC or polyethylene-insulated jacketed cable. Wiring leading to the cabinet door must be sheathed in nylon-mesh sleeving or be PVC-jacketed cable only. All SDLC cabling must be Belden 7203A or approved equivalent.

Meet the following wire size requirements:

- All conductors between the main-power circuit breakers and the signal-power bus must be a minimum size 10 AWG stranded copper. All conductors carrying individual signal-lamp current must be a minimum size 16 AWG stranded copper. All AC service lines must be of sufficient size to carry the maximum current of the circuit or circuits they are provided for. Minimum cabinet conductor wire size must be 22 AWG stranded copper. All wiring and insulation must be rated for 600 V or greater.
- Conductors for AC common must be white. Conductors for equipment grounding must be green. All other conductors must be a color different from the foregoing.

Provide a barrier terminal block with a minimum of three compression-fitting terminals designed to accept up to a 4 AWG stranded wire for connection of the AC power lines. The block must be rated at 50 amperes.

Permanently identify all terminals in accordance with the cabinet wiring diagram. Where through-panel solder lugs or other suitable connectors are used, both sides of the panel must have the terminals properly identified. Identification must be permanently attached as close to the terminal strip as possible and must not be affixed to any part that is easily removable from the terminal block panel.

Meet the following additional identification requirements:

- At each terminal point in the cabinet, distinctly identify each controller input and output function with both a number and the function designation and with no obstructions to visibility. Use the same identification consistently on the cabinet wiring diagrams.
- Identify each load-switch socket by phase number, overlap number, and pedestrian phase number as applicable. No cabinet equipment, including the load switches themselves, may obstruct these identifications.
- Properly identify each flash-transfer base and power-relay base with no obstructions to visibility.
- Distinctly identify each harness within the cabinet by function on the connector end.
- Distinctly identify the flasher socket with no obstruction to visibility.

- Distinctly identify all other sockets needed within the cabinet to fulfill the minimum requirements of the plans or the Invitation to Bid or attachments thereof.

The controller unit harness (A plug) must be long enough to reach any point 400 mm above the timer shelf. The MMU harness and any required auxiliary harness must reach 600 mm from the MMU shelf.

Provide an unused, spare terminal block with ten terminals. This block must be double eight  $32 \times 5/16$ -in., binder-head screw design with shorting bars. These terminal strips must be located on the lower third of either side of the cabinet.

Provide copper ground buses for both the power-supply neutral (common) and chassis ground. Each bus bar must provide a minimum of ten unused terminals with eight  $32 \times 5/16$ -in. or larger screws. The AC neutral and chassis ground buses must be connected together (jumpered) with a minimum 10 AWG wire.

Two 15-ampere and one 30-ampere thermal-type circuit breakers must be mounted and wired in the cabinet. One 15-ampere breaker must protect the base light, trouble light, ground-fault-circuit-interruption (GFCI) receptacle, modem-duplex receptacle, and fans. The other 15-ampere breaker must be for the 2-circuit flasher. The 30-ampere breaker must protect the signal load circuits, controller circuits, MMU, and card-rack-detector power supply. The breakers must be Square "D," QUO-150 Series or approved equivalent.

Equip the circuit breakers with solderless connectors and install on the right side wall (facing the cabinet) or lower-right side of the back panel inside the cabinet. Position the breakers so that they are easily accessible and rating markings are visible.

Mount and wire a GFCI type duplex receptacle in the lower-right sidewall of the cabinet. Mount and wire an additional duplex receptacle (for use with communications modems) in the upper-left side of the cabinet behind the PE-interconnect panel. These receptacles must be wired on the load side of the 15-amp circuit breaker.

The above breakers are in addition to any auxiliary fuses furnished with the controller to protect component parts, such as transformers, etc.

The cabinet must include a surge protection device (spd) on the AC service input that meets or exceeds the following requirements:

- Installed on the load side of the cabinet over current device
- Equipped with a light or indicator to indicate when a failure has occurred in the surge protection circuitry and have NO/NC contacts for remote alarm.
- Able to withstand a peak surge current for an  $8 \times 20$  microsecond waveform; minimum 20,000 A for 15 occurrences at 3 minute intervals between surges without damage or degradation to the spd (less than a 10% change in operating parameters)
- Suppressed Voltage Rating as defined by UL1449, 2nd edition, of 400 V maximum and Voltage Protection Rating as defined by UL1449, 3rd edition, of 600 V maximum

- Devices that are wired in series rated for 30 A maximum continuous operating current at 120 V/60 Hz
- Nominal line or system voltage of 120 VAC
- Minimum short circuit current rating s of 20 kA
- Maximum continuous operating voltage (rms), minimum of 135 VAC
- Meet or exceed a temperature range of -34 to +74°C
- Must be tested by a nationally recognized test lab for compliance with current UL 1449, 2nd edition, or later (Provide a copy of the test results upon request)
- Protected modes must be L-G, L-N, and N-G
- Provided with documentation listing the following information:
  - Product/model number
  - Circuit description
  - Nominal operating voltage
  - Maximum continuous load current
  - Maximum continuous operating voltage
  - Modes of protection
  - Connection means
  - Maximum surge current
  - Suppressed, and suppressed voltage rating
  - Installation; and installation instructions
- Provided in an enclosure suitable for the temperature range and outdoor environments
- Provided with mounting hardware, surface mountable, and fits into a space 6 in. (L) × 5 in. (W) × 4 in. (D) or less
- Connections must be either wire clamping box terminals, lugs, or minimum 12 AWG wire. Connections for NO/NC contacts must accept or be minimum stranded #18 AWG wire.

Connect the spd ground connection to the cabinet ground bus by means of a short, copper ground strap or minimum 10 AWG insulated conductor.

If connected in series, connect the suppresser to the line filter as recommended by the manufacturer. Use 10 AWG or larger wire for connections to the suppresser, line filter, and load switch bus.

Install a fluorescent light with switch and rapid-start ballast or LED light with equivalent light quality in the cabinet. This light must turn on when the cabinet door is open and turn off when the cabinet door is closed. Place an MOV or other such transient suppression device across the AC power input to the light.

Provide a radio-frequency-interference (RFI) suppresser installed on the load side of the signal circuit breaker and protected by the surge protector. This filter must be rated at

50 amperes and must provide a minimum attenuation of 50 dB over the frequency range of 200 kHz to 75 MHz.

Place transient suppression devices on the coil side of all relays in the cabinet. DC relay coils must have, as a minimum, a reversed-biased diode across the coil. AC relays must have MOVs or equivalent suppression across their coils. RC networks are acceptable. Supply one suppression device for each relay.

Except where soldered, provide all wires with lugs or other approved terminal fittings for attachment to binding posts. Insulation parts and wire insulation must be insulated for a minimum of 600 V.

The outgoing traffic control signal circuits must be of the same polarity as the line side of the power source.

Provide a switch on the inside face of the cabinet door, labeled "TEST NORMAL." When the switch is in the NORMAL position, the call for flashing operation must remove the power from the controller unit. When the switch is in the TEST position, the call for flashing operation must permit the controller unit to continue to run so that its operation can be observed.

Provide a switch near the "TEST NORMAL" switch to cause the controller unit and any auxiliary equipment to stop timing. Label this switch "STOP TIMING."

Wire the cabinet so that activation of the MMU will cause the controller unit and any auxiliary equipment to stop timing.

Wire conflict and manual flash for all red.

Design and equip the cabinet with enough transfer relays for the Department to change any main-street indications (movements 2, 6, 1, or 5) to yellow for either the conflict or manual-flash operation or both. Such changes must be feasible on the face of the back panel or a side panel using only simple tools.

Transfer relays must be the plug-in type manufactured by Midtex (Part No. 136 62T3A1), AEMCO (Part No. 136 4992), or equivalent. The relays must have contacts a minimum of 3/8 in. in diameter and must be rated at a minimum of 30 amps 102/240 VAC, 20 amps 28 VDC.

The red enable and remote reset from the MMU must be terminated on the face of the back panel.

Wire a 75-amp, solid-state relay between the RFI filter output and the load-switch power bus. The signal-shutdown switch and the flash switch must control the relay. Mount the relay to a heat sink designed to allow maximum current flow at 74°C without damaging the relay.

Cover all exposed AC wiring points, including the RFI filter, surge suppresser, and solid-state relay, with a clear, nonconductive plastic cover to prevent accidental contact. Unless otherwise noted in this Specification, wiring at terminal strips is exempt from this requirement.

The load-switch outputs must be brought out through posted 10-32 × 5/16-in. binder-head screw terminals. Field wiring for the signal heads must be connected at this terminal strip.

**M. Detector Panel and Card Rack.** Mount a loop detector panel on the left side of the cabinet. This panel must provide for all connections between loops at the street and the detector amplifiers as described in this section.

**1. Detector Card Rack.** The card rack for cabinet configurations 1, 2, and 3 (12-position back panel) must be TS 2 detector rack configuration 2 and must accommodate up to eight 2-channel or four 4-channel TS 2 detector units. Provide two card racks, one TS 2 detector rack configuration 1 and one TS 2 detector rack configuration 2, for cabinet configuration for (16-position back panel) to accommodate up to twelve 2-channel or six 4-channel TS 2 detector units.

The detector card rack must have a rigid frame, be fabricated from aluminum, and have slots set in a modular fashion so that the PCB edge connectors plug into the rear while sliding between top and bottom card guides for each module. Provide mounting flanges turned outward for ease of access. Bolt the detector card rack to a cabinet shelf. It must be possible to unbolt the rack using simple tools.

Label wiring to the rack and neatly run all to other parts of the cabinet and to the detector-termination panel. Wire all loop inputs with shielded, twisted-pair leads (Beldon 9451, two conductor, 22 AWG with 24-AWG drain wire, shielded cable, or approved equivalent) to improve signal isolation. Connect all grounds within the twisted-pair leads at the detector terminal panel.

Number the slots from 1–8 left to right when viewed from the front of the rack. Provide a flange on the top and the bottom of the rack to label each individual channel.

The detector DC supply must be bussed to a common point and wired to the intersection detector panel.

The chassis ground must be bussed to a common point and wired to the detector panel.

The logic ground must be bussed to a common point and wired to the detector panel

The data address for the detector channels must be according to TS 2.

**2. Detector Panel.** The detector panel must provide all connections between the detector loops and the detector amplifiers.

Construct the panel of 0.125 in (3.2-mm) aluminum.

The panel must contain a 3-in. (76-mm) horizontal slot in each corner to accommodate 0.25-in. (6.3-mm) mounting bolts.

All inputs from the loops must be brought through posted 10-32 × 5/16-in. binder-screw terminals or 8-32 × 5/16-in. binder-screw terminals.

Each loop pair must be protected by lightning-surge suppressers pre-approved by the Department's TRF Signal Operations Engineer for use on loop detector inputs. Mount the suppressers either on the front or behind the panel.

The detector panel for cabinet configurations 1, 2, and 3 (12-position) must provide the connection points shown in Table 11 as a minimum for 16 detectors.

**Table 11**  
**Detector Panel Connection Points**  
**(for cabinet configurations 1, 2, and 3)**

Connection point	No. of Connection Points
External 24-V Power Supply	1
Loop Inputs	32, two for each detector
Logic Ground	1
Spares	6
Chassis Ground Bus	1 bus

The detector panel for cabinet configuration 4 (16-position) must provide the connection points shown in Table 12 as a minimum for 24 detectors.

**Table 12**  
**Detector Panel Connection Points**  
**(for cabinet configuration 4)**

Connection point	No. of Connection Points
External 24-V Power Supply	1
Loop Inputs	48, two for each detector
Logic Ground	1
Spares	0
Chassis Ground Bus	1 bus

Provide toggle switches to permit the user to input a vehicle or pedestrian call to the control unit. Provide switches as follows:

- 16 vehicle and 8 pedestrian switches on 12-position cabinets
- 24 vehicle and 8 pedestrian switches on 16-position cabinets

**N. PE/Communication Panel.** Provide a PE/communication panel on the left side of the cabinet interior that contains all interface circuits and wiring for PE and communication functions.

Provide three input relay circuits, with 120-VAC coil and contacts rated for the application, on the PE panel. These circuits must be used to isolate the incoming PE commands from the controller-unit logic circuitry. The circuits must be programmable to operate with either a normally open or normally closed relay contact by jumpers on a terminal strip. Supply a barrier strip protected from accidental contact by service personnel to connect the external input. It must be possible to use either a neutral or hot 120-VAC input.

Relays used must be plug-in Potter Brumfield K10P series, Magnecraft W 78 series, or interchangeable equivalent. Mount the relays in relay sockets.

Ensure adequate protection of the input relay circuits and the preemptor circuitry to eliminate damage or false PE commands caused by line transients or lightning surges. The devices must have a minimum rating of 20 joules.

Provide three momentary test switches, one for each PE circuit, on the PE panel. The operator must not be exposed to hazardous voltages during operation of the test switches.

Provide all necessary interconnection cables and mounting hardware.

Provide a switch on the PE/communication panel that releases the local controller to operate in an isolated, full-actuated manner when necessary for maintenance purposes. Label the switch positions "SYSTEM" and "FREE."

Provide terminal connections for two twisted-pair communication lines with a coordinated, four-stage electrical protection, including primary over-voltage protection, resettable over-current protection, secondary clamping-voltage protection, and fast transient filtering. The secondary over-voltage stage must allow peak voltages of no more than 250 V. The fast transient filtering stage must provide no less than 40 dB per decade of attenuation to transients above the required pass band. Provide the four-stage protection in an integrated closure with input-output terminations and ground connection.

**O. Power Supply.** The power supply must be a shelf mounted, enclosed, 24 VDC power supply in accordance with NEMA Standards Publication TS 2-1998, Clause 5.3.5.

Furnish and install one power-supply cable per power supply in each cabinet. Terminate the wires to bus bars, terminals on the front of the back panel, detector panels, or connector as appropriate. The connections must be with forked spade lugs or otherwise as needed. Cut each individual wire to the length required to reach the point at which it is to be connected.

Electrical requirements for the power supply must be in accordance with NEMA Standards Publication TS 2-1998, Clause 5.3.5, as stated above, except that the minimum-average-continuous-current capability must be as shown in Table 13 with DC voltages having less than 0.5 V peak-to-peak ripple.

**Table 13**  
**Minimum-Average-Continuous-Current Capability**

DC Voltage	Peak-to-Peak Ripple
+12 VDC	5.0 amps
+24 VDC	2.0 amps
12 VAC	0.250 amps

**P. Solid-State Two-Circuit Flasher.** The solid state, two-circuit flasher must meet the electrical and physical characteristics described in NEMA Standards Publication TS 2 1998, Clause 6.3. The flasher must be Type III unit (dual-circuit rated at 15 amps per circuit) constructed so that each component may be readily replaced if needed.

The two-circuit flasher must be of solid-state design and contain no electromechanical devices.

**Q. Load Switch.** The solid-state load switches must meet the requirements set forth in NEMA Standards Publication TS 2 1998, Clause 6.2, and must be “triple signal load switch” type.

Provide an indicator light for each circuit in each load switch. The indicator light must be on when a “Low Voltage Active” input to the load switch is present.

#### 11170.7. Program Requirements.

**A. Programming.** The controller unit must be programmable using a keyboard and display on the front of the controller unit. Programming must require only simple keystrokes aided by full menu displays.

Ease of programming through a well-organized menu structure and ease in interpreting the display are required for acceptance. The menu structure must contain a main menu that contains options for all sections of the controller on one screen. Each option must be selectable by a numeric entry. Each subsequent menu must be a detailed breakdown of one of the previous menu options. Each menu option must be a descriptive name to prompt the user to the desired section for programming. All entries must be displayed and entered in plain English. Toggle-type entries must be set by entering YES-or-NO or ON-or-OFF responses. Non-alphanumeric symbols and abbreviations used to display information must be clear and unambiguous in meaning. Numeric entries must be in the Base-ten (decimal) number system. Entries in other number bases, such as hexadecimal or binary, are not acceptable.

A user-selectable, minimum four-digit code must be available to secure access to timing and configuration of the unit. Display features must be available without the need to access the unit. The controller units must be supplied with the code preset to all zeros.

Instructions for use of the access code must not be provided on the face of the unit.

A keyboard-entered, coded command (a series of commands or entries, not a single entry) must be provided setting all controller and TBC timings and entries to a default or inactive value. This coded command must allow new values to be entered without first deleting prior entries.

With the intersection display active, a keyboard command must enable the keyboard for the user to place a call to each phase individually.

**B. Phase Operation.** In NEMA operating mode, the controller unit must provide a minimum of sixteen possible phases and eight possible overlaps. The overlaps must be numbered or designated as A, B, C, D, E, F, G, and H. All overlaps must be programmable through the keyboard and must function as specified by TS 2.

Each of the NEMA timing intervals must be programmable for a minimum of eight phases at a time from the same display screen in a spreadsheet format. The display may be rolled or paged down to display additional intervals or information.

The controller unit must have a copying mode whereby the user, after having programmed all intervals of one phase, may copy this information into all or selected remaining phases. Other versions of the copying process that meet the functional intent are acceptable.

In addition to the modes defined by TS 2, the following modes must be available on a per-phase basis:

- Soft Recall
- Phase Omit

The following configurations, as a minimum, must be programmable within the controller unit and be user selectable:

- Eight-Phase NEMA
- Eight-Phase Sequential
- NEMA phasing to the left of the barrier, sequential phasing to the right of the barrier (Quad Sequential)
- Four-Phase Diamond
- Three-Phase Diamond
- Separate Intersection (see Section 11170.6.E.1)

The controller must have a configuration that allows user-programmable rings (compatibility lines, reference points to prevent concurrent selection and timing of conflicting phases). A minimum of four rings must be available in this configuration.

The controller must have programmable conflicting phase settings where simultaneous operation of compatible phases is not allowed.

Provide a dynamic maximum operation that increments the current maximum in programmable steps (dynamic max step) in seconds to a maximum limit (dynamic max limit) in seconds. The operation must function as defined by NEMA Standard Publication National Transportation Communications for ITS Protocol's (NTCIP) 1202:1996 (TS 3.5), "National Transportation Communications for ITS Protocol (NTCIP) Object Definitions for Actuated Traffic Signal Controller Units."

The TBC must select and coordinate reversible left-turn sequence operations (dual leading, leading and lagging, or lagging and leading left turns). It must be possible to transfer operation from one sequence to another at a preprogrammed time. Transfer must take place at  $T_0$  during coordination (see "Coordination" under "Program Requirements," 2nd paragraph).

#### C. Pedestrian Timing. Actuated pedestrian movements must operate as follows.

- When no pedestrian calls are present, the normal phase timings will be effective for service of the intersection.
- When a pedestrian call is present, the call will be serviced by extended phase timings that account for pedestrian crossing times and override the normal phase timings. If the intersection is coordinated, it may drop out of coordination when servicing the pedestrian call if the pedestrian times exceed the vehicle splits. The controller must return to coordination in the manner described in this Specification after the call is serviced.

The controller must rest in main street green and Don't Walk when no actuated pedestrian calls are present.

**D. Coordination.** Provide a minimum of sixteen timing plans, each with a unique cycle length and split combination, in accordance with TS 2. Each of the sixteen timing plans must have three unique offsets available. Each cycle length selection must be changeable from 30 to 255 sec. in 1-sec. increments. Split and offset selections must be adjustable from 0 to 254 in 1-sec. increments.

The coordinator must reference a system-wide reference cycle timer (system cycle timer). The term  $T_0$  will refer to the point in the local cycle timer when the first coordinated phase (or leading coordinated phase if the user selected a pair of coordinated phases) is scheduled on for the first time.

**Note**—This may not be the beginning of green in the case of early return. The offset must be the amount the local cycle timer is behind the system cycle timer. Example: If the offset is +10 sec., then  $T_0$  (the point at which the local cycle timer is at zero) will occur when the system cycle timer is at 10 sec.

There must be two modes of automatic coordination programming: fixed and floating force-off modes. The following information must be all that is required from the user to establish a pattern:

- Basic NEMA controller timing
- Cycle length in seconds
- Phase sequence desired for the particular pattern
- Total seconds of the cycle that a phase is to be active including green, yellow, and red clearance times when there is constant demand on all input detectors
- The coordinated phase or phases (from ‘Coordination’ and its associated paragraph below)
- The offset of the first coordinated phase serviced in the sequence from the reference clock's  $T_0$  in seconds

Using the above information in fixed force-off mode, the coordinator must perform the following functions for each pattern.

- Guarantee the coordinated phase programmed time will be serviced in its entirety to achieve coordination between intersections (when not correcting). The programmed time of the first coordinated phase in the phase sequence must start at  $T_0$ .
- Calculate each phase's force-off point, which is the point at which a phase's green must terminate in order to not violate the following phases' programmed times.
- Calculate the beginning of each phase's permissive window, which is the point in the cycle when the coordination phase is allowed to yield to each corresponding phase.
- Calculate the end of each phase's vehicle permissive window, which is the point preceding a phase's force-off point by its minimum time and the prior phase's clearance time. Any phase receiving a vehicle call before the end of vehicle permissive window will be serviced during the current cycle.

- Calculate the end of each phase's pedestrian permissive window, which is the point preceding a phase's force-off point by pedestrian "Walk" and pedestrian-clearance times and the prior phase's clearance time. Any pedestrian call received by a phase before the end of pedestrian permissive window will be serviced during the current cycle up to the beginning of the phase vehicle green.
- Guarantee that each phase's programmed time be serviced in full if a call was received before the beginning of permissive window and the phase does not terminate due to gap out.

Using the same information in floating force-off mode, the coordinator must operate in the same manner as fixed force-off mode except that if a non-coordinated phase is entered early, it will remain active only for the time programmed in the split time. Automatically setting the max timer in each split to accomplish this function is acceptable.

No percentage inputs are allowed. Once the information for phase service is entered via the keyboard, the controller unit must test the plan to ensure that the plan does not violate any minimum times based on the specified numbers and cycle length. If a faulty plan is detected, the controller unit must show an error code indicating the problem. If the error is not corrected, the controller unit must run in free-operation mode whenever the erroneous plan is selected. If actuated pedestrian movements are programmed, the coordinator must ignore errors detected due to the pedestrian Walk and clearance times violating the phase split time for any actuated pedestrian.

The coordinator must be programmable to seek offsets by short-way (lengthening or shortening the cycle length up to 20%) and by dwell in the coordination phase awaiting the proper offset. The user will determine which method and may program the longest permissible dwell times.

The controller unit's coordination program must be designed to be programmed from the front panel to emulate the operation of a pre-timed controller by recall for applications where no vehicle detection is provided.

For each configuration, a coordinated phase must be selected from Ring 1. A coordinated phase must also be selected from other rings if a compatible phase with the Ring 1 coordination phase exists. The coordinated phase or phase pair must be selectable from one of the individual phases or phase pairs shown in Table 14.

**Table 14**  
**Configuration**

Coordinated Phase(s)	8 Phase NEMA dual ring and 3 $\phi$ Diamond	Quad Sequential	8 Phase Sequential	4 $\phi$ Diamond
Individual	—	4 or 8	2, 4, 6, or 8	—
Pairs	2 & 6 or 4 & 8	2 & 6	—	2 & 5, 4 & 5, 1 & 6, or 1 & 8

Compatible phase pairs must not be forced to begin simultaneously.

When establishing its offset from the reference point, the coordinator must reference only the leading edge of the sync pulse, regardless of its width.

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The internal coordination and upload and download programs must not interfere with normal intersection operation except when changing ring structure in the controller or active phases. These operations (i.e., changing ring structure and active phases) must require a confirmation and put the controller in a flash condition and a restart sequence. The implementation of revised timing parameters loaded into the timer must be programmed to occur only at points in the controller coordination cycles that do not alter the controller phase sequence. The controller unit may temporarily drop out of synchronization during the upload or download, but must continue to operate.

**11170.8. Procurement and Payment.** Payment for all materials under this Specification will be in conformance with provisions of the purchase order awarded by the Department or the conditions prescribed in the Contract awarded by the Department.

**11170.9. Archived Versions.** Archived versions are available.

**TEXAS FAMILY CODE SCHEDULE**  
**SOLICITATION NO. 601290000028812**

**Ineligibility to Receive State Grants or Loans or Receive Payment on State Contracts**

Respondent shall fill out the appropriate information, sign and return the schedule.

Under Family Code §231.006, relating to child support obligations, Respondent and any other individual or business entity named in this solicitation are eligible to receive the specified payment and acknowledge that this contract may be terminated and payment withheld if this certification is inaccurate. Any response submitted under this solicitation shall contain the names and social security numbers of person or entity holding at least a twenty-five percent ownership interest in the business entity submitting the response. Respondents meeting the ownership must complete the following:

Name	XXX-XX- Social Security Number
Name	XXX-XX- Social Security Number
Name	XXX-XX Social Security Number

If respondent does not meet the ownership criteria under Texas Family code - Section 231.006, check the box below, sign and return the schedule.

This Schedule is not applicable

**FEDERAL PRIVACY ACT NOTICE:** This notice is given pursuant to the Federal Privacy Act. Disclosure of your Social Security (SSN) is required under Section 231.006(c) and Section 231.302(c)(2) of the Texas Family Code. The SSN will be used to identify persons that may owe child support. The SSN will be kept confidential to the fullest extent allowed under Section 231.302(e), Texas Family Code.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Title

**THIS PAGE MUST BE RETURNED WITH THE RESPONSE. FAILURE TO SIGN AND RETURN THIS PAGE MAY RESULT IN THE RESPONSE BEING CONSIDERED NON-RESPONSIVE.**

**TEXAS DEPARTMENT OF TRANSPORTATION**  
**TERMS AND CONDITIONS**  
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**TEXAS DEPARTMENT OF TRANSPORTATION**  
**TERMS AND CONDITIONS**

**PART 1. INTRODUCTION**

**1.01 GENERAL:** These Terms and Conditions apply to the solicitation for goods and/or services [whether a Request for Quote (RFQ), Invitation for Bid (IFB), Request for Offer (RFO) or Request for Proposal (RFP)] offered by the Texas Department of Transportation (TxDOT) (“solicitation”) and any contract issued by TxDOT resulting from the solicitation (“purchase order” or “contract”). The term “response” or “bid” means the proposal, quote, bid, or offer made to TxDOT in response to the solicitation. The term “respondent” or “bidder” means the party who submits the response to the solicitation, including the vendor. The term “vendor” or “contractor” means the party listed as vendor in the contract. Any reference to time in the solicitation or contract shall mean central time.

**1.02 STATUTORY AUTHORITY:** The solicitation and contract are authorized by Government Code Title 10, Subtitle D (the “Purchasing Act”). The solicitation and contract are subject to all applicable requirements of the Purchasing Act [in particular, Government Code Chapter 2151 (General Provisions), Chapter 2155 (Purchasing: General Rules and Procedures), Chapter 2157 (Purchasing: Purchase of Automated Information Systems), and Chapter 2161 (Historically Underutilized Businesses, “HUBs”)] and those requirements established by rule of the Texas Comptroller of Public Accounts (CPA), Statewide Procurement Division (SPD), as contained in Title 34, Chapter 20, of the Texas Administrative Code (“TAC”), and to other applicable federal and state statutes and rules herein cited. Any references in this contract to the “Government Code” mean the Texas Government Code.

**1.03 TITLE VI ASSURANCE:** TxDOT, in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252, 42 U.S.C. §§ 2000d to 2000d-4) and 49 C.F.R. Part 21 and 28 CFR §50.3 (for purposes of this section and §6.10 only, the “Acts” and the “Regulations,” respectively), hereby notifies all bidders that it will affirmatively ensure that in any contract entered into pursuant to this advertisement, disadvantaged business enterprises will be afforded full and fair opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, or national origin in consideration for an award.

Nondiscrimination programs require that federal-aid recipients, sub-recipients, and contractors prevent discrimination and ensure nondiscrimination in all their programs and activities, whether those programs and activities are federally-funded or not.

**1.04 ENVIRONMENTAL IMPACT:** It is TxDOT’s intent to purchase goods, equipment, and services having the least adverse environmental impact within the constraints of statutory purchasing requirements, departmental need, availability, and sound economic considerations in accordance with 34 TAC §20.306 and 20.307.

**1.05 COMPLIANCE WITH LAWS:** Vendor must comply with all federal, state, and local laws, statutes, ordinances, rules and regulations, and the orders and decrees of any court or administrative bodies or tribunals in any matter affecting contract performance, including, if applicable, laws and regulations regarding workers’ compensation, minimum and maximum salaries and wages, prompt payment, and licensing. Vendor must maintain all licenses and certifications required by law or by the contract throughout the term of the contract. When required, vendor must furnish TxDOT with satisfactory proof of its compliance.

**PART 2. GENERAL INSTRUCTIONS**

**2.01 SPECIFICATIONS**

- (a) Respondent must carefully examine the solicitation. Respondent is responsible for securing any additional information from the TxDOT purchaser needed to gain a clear and full understanding of TxDOT’s requirements.

- (b) TxDOT will not be bound by any oral statement or representation contrary to the written specifications of the solicitation. Any revision, clarification, or interpretation pertaining to the solicitation will be in writing and issued by TxDOT as an addendum. Any change or interpretation not in an addendum will not legally bind TxDOT. Any addendum must be issued through TxDOT's Procurement Division.
- (c) The goods furnished or services performed shall be in accordance with the specifications set forth in the solicitation and with these Terms and Conditions. TxDOT will provide clarification of the specifications and determine the quality and acceptability of goods furnished or work performed. If the solicitation is for a service, TxDOT will determine the manner of performance, the rate of progress of the work, and whether vendor's performance of the service is acceptable.
- (d) Any catalog, brand name, or manufacturer's reference used in the solicitation is descriptive only (not restrictive) and is used to indicate type and quality desired. Responses on brands of like nature and quality will be considered unless advertised as proprietary or sole source under Government Code §2155.067. Respondent must show manufacturer, brand or trade name, and other description of the product offered in response to the solicitation. If offer is for other than example(s) shown in the solicitation, include illustration(s) and complete description(s) of product(s) in the response to the solicitation. If respondent takes no exception to specifications or reference data in the response, vendor will be required to furnish brand names, numbers, etc., as specified.
- (e) Unless otherwise specified, all goods offered must be new and in first-class condition, including shipping and storage containers. Verbal agreements to the contrary will not be recognized.
- (f) Manufacturer's standard warranty must apply unless otherwise stated in this solicitation.
- (g) All electrical items must meet all applicable OSHA standards and regulations and bear the appropriate listing from UL, FMRC, or NEMA.
- (h) Any iron or steel product produced through a manufacturing process and used in the project must be produced in the United States, to the extent required by Government Code Chapter 2252, Subchapter F. That Subchapter generally applies to contracts to (A) construct, remodel, or alter a building, a structure, or infrastructure; (B) supply a material for a project described by subsection (A); or (C) finance, refinance, or provide money from funds administered by a governmental entity for a project described by subsection (A).

## **2.02 RESPONSE SUBMISSIONS**

- (a) Response must be submitted as noted in the solicitation.
- (b) Response must be time stamped in TxDOT's mail room or hand-delivered to the address on the solicitation before the hour and date specified for the solicitation opening. Late responses will not be considered under any circumstances and will be returned unopened to respondent.
- (c) Documentation provided with the response should be complete and comprehensive. TxDOT will not be responsible for locating or securing information not included in the response. Failure to furnish required documentation with the response may result in the response being deemed incomplete and non-responsive, resulting in rejection. TxDOT will not be responsible for any expenses relating to responses or development of documentation that may result from this solicitation.
- (d) Failure to sign the solicitation will disqualify the response. The person signing the response must have authorization to contractually bind the company. The solicitation response must include an Employer Identification Number (EIN) and full firm name and address. The EIN should be entered in the space provided on the solicitation.
- (e) Facsimile (Fax) responses will not be considered unless otherwise stated in the solicitation. Fax responses must be received before the hour and date specified for the solicitation opening. TxDOT will not be responsible for failure of electronic equipment or operator error. Responses that are late, illegible, incomplete, or otherwise non-responsive will not be considered.

- (f) Email responses may be accepted if stated on the solicitation. Email responses must be received before the hour and date specified for the solicitation opening and be in Portable Document Format (PDF) (except for pricing schedules, which must be submitted in Excel format using the pricing spreadsheet developed by the department). All attached documents together must not exceed a total of 20 MB, must be signed by respondent, and be attached to the email to be considered for award. TxDOT will not be responsible for failure of electronic equipment, operator error, or system delays or outages. Responses that are late, illegible, incomplete, file-corrupted, flagged as a virus, or otherwise non-responsive will not be considered.
- (g) **RESPONDENT EXCEPTIONS OR CONDITIONED RESPONSES:** Exceptions taken by respondent to TxDOT's Terms and Conditions, or respondent's Terms and Conditions attached to a response, will not be considered unless specifically referred to and clearly identified as such within the response, including, without limitations, exceptions related to software maintenance and usage or equipment maintenance services. TxDOT may reject a response that takes exception to TxDOT's Terms and Conditions.
- (h) TxDOT reserves the right to accept or reject all or any part of any response, waive minor technicalities, and make an award to best serve the interests of the state. TxDOT reserves the right to reject any response not prepared and submitted in accordance with the solicitation requirements.
- (i) Response should indicate number of days required to deliver goods, or begin service (if required), at TxDOT's designated location. Failure to indicate delivery time obligates vendor to complete delivery in fourteen (14) calendar days.
- (j) Samples, when requested, must be furnished at no cost to TxDOT. TxDOT may perform tests on samples. If not destroyed in testing, samples will be returned upon request at respondent's expense. Each sample must be marked with respondent's name and address and TxDOT solicitation number. Samples must not be enclosed or attached to a response unless specified in the solicitation.
- (k) The response, including price, is irrevocable for 120 calendar days following the hour and date specified for the solicitation opening. TxDOT may extend this period with respondent's written agreement.

## **2.03 PRICING**

- (a) TxDOT's automated purchasing system requires pricing to be submitted per unit and extended by multiplying the submitted price by the quantity. Unit prices govern in the event of extension errors. If a trade discount is offered on the solicitation response, it should be deducted, and net line extensions should be shown.
- (b) All purchases are on a firm, fixed price basis unless otherwise stated in the solicitation.
- (c) Vendor must not increase price(s) during the term of the contract unless otherwise stated in the contract. Vendor must give price reductions to TxDOT that result from reduced cost to vendor during the term of the contract.
- (d) All prices must be F.O.B. destination, freight prepaid and allowed. This means vendor must prepay the freight charges and include them in the unit price.
- (e) Purchases made for state use are exempt from state and local sales tax and federal excise tax. Do not include tax in response pricing unless otherwise specified in the solicitation. State Sales Tax and Federal Excise Tax Exemption Certificates will be furnished by TxDOT on request.
- (f) The contract may contain a "Total Cost Not to Exceed" statement. Vendor must not perform any work that may exceed either the contract total or the not-to-exceed total without prior written authorization from TxDOT.
- (g) Consistent and continued tie response pricing may lead to rejection of the responses by TxDOT and investigation for antitrust violations.

**2.04 ADA CONSIDERATIONS AND NOTIFICATION:** Persons with special needs or disabilities who plan to attend any pre-response conference or bid opening and who require auxiliary aids or service should contact the purchaser noted on the solicitation as the point-of-contact a minimum of three (3) business days prior to the meeting so arrangements can be made.

**2.05 RESPONSE OPENINGS AND DISCLOSURE OF INFORMATION**

- (a) At the time of opening for RFOs or RFPs, only the names of respondents will be announced. Prices will not be disclosed.
- (b) At the time of opening for RFQs and IFBs, names of respondents will be announced, and pricing disclosed.
- (c) Information submitted in an accepted response will not be returned to respondent. Government Code Chapter 552 (the "Public Information Act") allows the public to have access to information in the possession of a governmental body through an open records request. Therefore, respondent must clearly identify in the response any confidential or proprietary information. Proprietary information identified by respondent in the response will be kept confidential by TxDOT to the extent permitted by state law. TxDOT will use best efforts to give respondent or vendor an opportunity to present to the Office of the Attorney General its arguments for non-disclosure of its identified confidential or proprietary information.

**2.06 ALTERATIONS OR WITHDRAWAL OF RESPONSES**

- (a) Any alterations to a response made before the opening date and time must be initiated by respondent or authorized agent. Response cannot be altered or amended after the opening date and time.
- (b) A response may be withdrawn if requested in writing prior to the opening or closing date and time. A response may be withdrawn from consideration after the opening date only with the approval of TxDOT based on respondent's written, acceptable reason. The response will not be considered for award but will be retained by TxDOT according to the response information confidentiality provision referenced in §2.05 (c).

**2.07 DETERMINING AWARD:** A response to a solicitation is an offer to contract with TxDOT based upon the terms, conditions, and specifications contained in the solicitation. Responses do not become contracts unless and until they are accepted through an authorized TxDOT designee by issuance of a contract. In determining the best value for the state, the purchase price and whether the goods or services meet specifications are the most important considerations, unless otherwise stated in the solicitation.

- (a) **BEST VALUE CRITERIA FOR PURCHASE OF GOODS OR SERVICES:** When specified in the solicitation, the factors listed in Government Code §2155.074 will be considered in making a best value award. This section allows TxDOT to apply best value criteria to obtain goods and services that provide the best value for TxDOT. Under these guidelines, a respondent is not automatically awarded a contract if they submit the lowest bid response. TxDOT will be the sole judge as to which response is the most advantageous and in the best interest of TxDOT.

Factors, other than price, that may be considered in making an award:

- (1) Installation costs.
- (2) Life cycle costs.
- (3) Quality and reliability of goods and services.
- (4) Delivery terms.
- (5) Indicators of probable vendor performance under the contract such as past vendor performance, the vendor's financial resources and ability to perform, the vendor's experience or demonstrated capability and responsibility, and the vendor's ability to provide reliable maintenance agreements and support.
- (6) Cost of any employee training associated with a purchase.

- (7) The effect of a purchase on agency productivity.
- (8) The impact of a purchase on the agency's administrative resources.
- (9) Other factors relevant to determining best value for the state set forth in the solicitation.

(b) ADDITIONAL BEST VALUE CRITERIA FOR RFO PURCHASES: As provided in Government Code §2157.003, additional best value criteria will be used on all information technology equipment or service purchases including but not limited to:

- (1) Purchase price.
- (2) Compatibility to facilitate exchange of existing data.
- (3) Capacity for expansion and upgrading to more advanced levels of technology.
- (4) Quantitative reliability factors.
- (5) Level of training required to bring end-users to a stated level of proficiency.
- (6) Technical support requirements for maintenance of data across a network platform and management of the network's hardware and software.
- (7) Items, features, etc., which are in addition to requirements listed, as well as factors which, in TxDOT's opinion, add value to the product or service but are not specifically required within the solicitation.

(c) NEGOTIATIONS FOR RFO AND RFP PURCHASES: TxDOT reserves the right to conduct formal negotiations with respondent(s) judged to have the best offer pertaining to price, goods, services, and terms.

(d) TxDOT reserves the right to reject a response from a respondent whose goods or services to TxDOT or other state agencies have been documented as unsatisfactory in providing the same goods or services.

(e) TIE RESPONSES: In case of tie responses, one or more preferences described in Government Code Chapter 2155 and 34 TAC §20.306 will be used to make an award. Tie responses which cannot be resolved by application of one or more preferences will be made by drawing lots.

**2.08 PREFERENCES:** A respondent may claim a preference under 34 TAC §20.306. To claim a preference, a respondent must identify the preference on the solicitation or on the response to the solicitation. If the appropriate area on the solicitation or response is not marked, a preference will not be granted unless other documents included in the response show a right to the preference.

**2.09 DELIVERY:** No substitutions or cancellations will be permitted without written approval from TxDOT. Approval must be issued in the form of a purchase order change notice issued by TxDOT's Procurement Division.

- (a) If delay is foreseen, vendor must promptly give written notice to TxDOT. TxDOT has the right to extend delivery or service date if reasons appear valid. Vendor must keep TxDOT advised at all times of the status of the order. Default in promised delivery or service date (unless vendor has received a written extension of the delivery or service date which has been signed by TxDOT) or failure to meet specifications authorizes TxDOT to purchase goods or services elsewhere and charge the full increase, if any, in cost and handling to defaulting vendor.
- (b) Delivery must be made between the days and hours stated in the solicitation.
- (c) Receipt of goods or services does not constitute acceptance.
- (d) Goods and materials must be properly packaged. Damaged goods and materials will not be accepted. If the damage is not readily apparent at the time of delivery, the goods shall be returned to vendor at no cost to TxDOT. TxDOT reserves the right to inspect goods at a reasonable time subsequent to delivery where circumstances or conditions prevent effective inspection of the goods at the time of delivery.

**2.10 INSPECTIONS AND TESTS:** TxDOT may test and inspect goods and services purchased under the contract to ensure compliance with the specifications of the contract. TxDOT may also test and inspect goods and services before they are purchased under the contract. Goods and services will be subject to inspection and testing by TxDOT to the extent practicable at all times and places, including, without limitation, vendor's place of business. To the extent practical, the inspections will not disrupt vendor's daily operations. Tests will be performed on samples taken from regular shipments. In the event samples tested fail to meet all conditions and requirements of the specification, TxDOT may, at its option, reject the goods in whole or in part. The cost of the sample used and the cost of the testing shall be borne by vendor. Goods which have been delivered and rejected in whole or in part may, at TxDOT's option, be returned to vendor or held for disposition at vendor's risk and expense. Latent defects may result in cancellation of the contract at no expense to TxDOT. Acceptance of services will be based on attainment of performance in accordance with specifications and the contract.

**2.11 VENDOR PERFORMANCE:** TxDOT may review vendor's performance under a contract of \$25,000 or more resulting from the solicitation as described in Government Code §2155.089. These reviews and any resulting classification grade will be posted on the Vendor Performance Tracking System as noted in §2262.055 of the Texas Government Code.

Past Performance: A respondent's past performance will be measured based upon pass/fail criteria, in compliance with applicable provisions of Government Code §§2155.074, 2155.075, 2156.007, 2157.003, and 2157.125. Respondents may fail this selection criterion for any of the following conditions:

- (a) A letter grade score below 'C' in the Vendor Performance System or a score of "legacy unsatisfactory" for historic reports submitted prior to the implementation of the current rating system.
- (b) Being currently under a Corrective Action Plan through the CPA.
- (c) Having repeated negative Vendor Performance Reports for the same reason.
- (d) Having purchase orders that have been cancelled or terminated in the previous twelve (12) months for non-performance (i.e., late delivery, etc.).

Vendor performance information is located on the CPA website at <http://www.txsmartbuy.com/vpts>.

TxDOT may conduct reference checks with other entities regarding past performance. In addition to evaluating performance through the Vendor Performance Tracking System (as authorized by 34 TAC §20.115) TxDOT may examine other sources of vendor performance including, but not limited to, notices of termination, cure notices, assessments of liquidated damages, litigation, audit reports, and non-renewals of contracts. Any such investigations will be at the sole discretion of TxDOT and any negative findings, as determined by TxDOT, may result in non-award to respondent.

### **PART 3. RESPONDENT AFFIRMATIONS**

**3.01 FALSE STATEMENTS:** Respondent represents and warrants that all statements and information in its submitted response are current, complete, true, and accurate. Submitting a response with a false statement or making material misrepresentations during the performance of a contract is a material breach of contract and may void the submitted response and any resulting contract and may result in removal of respondent from the Centralized Master Bidders List.

**3.02 REPRESENTATIONS, WARRANTIES, AND COVENANTS:** Respondent represents, warrants, and covenants that:

- (a) Personnel must be competent, knowledgeable, and experienced in the types of services to be provided under the contract and perform such services in a professional and workmanlike manner consistent with industry standards. Services must meet all specifications set forth in the contract provided, however, that where the contract specifies a particular standard or criteria for performance more particular than the foregoing, this warranty is not intended to and does not diminish that standard or criteria for performance. Further, in any case where detailed requirements for a service are not mutually agreed upon or set forth in the contract, such services shall be fit and sufficient for the purposes expressed in, or reasonably inferred from, such contract; and
- (b) All goods and services furnished in connection with the contract must be of good and merchantable quality, strictly conform in all respects to the terms of the contract including any drawings, specifications, or standards incorporated herein, and be free from any defects (latent or otherwise) in materials, workmanship, and design. In addition, respondent warrants that goods and services are suitable and sufficient for, and will perform in accordance with, the purposes for which they are intended.

**3.03 GRATUITIES:** Respondent has not given, offered to give, nor intends to give at any time hereafter any economic opportunity, future employment, gift, loan, gratuity, special discount, trip, favor, or service to a public servant in connection with respondent's submitted response.

**3.04 CERTAIN BIDS AND CONTRACTS PROHIBITED:** Under Government Code §2155.004, a state agency may not accept a bid or award a contract that includes proposed financial participation by a person who received compensation from the agency to participate in preparing the specifications or solicitation on which the bid or contract is based. Under Government Code §2155.004, respondent certifies that the individual or business entity named in the response or contract is eligible to receive the specified contract and acknowledges that this contract may be terminated and payment withheld if this certification is inaccurate.

**3.05 ANTITRUST LAWS:** Respondent represents and warrants that, in accordance with Government Code §2155.005, neither respondent nor the firm, corporation, partnership, or institution represented by respondent, or anyone acting for such firm, corporation, partnership, or institution has (1) violated any provision of the Texas Free Enterprise and Antitrust Act of 1983, Chapter 15, of the Texas Business and Commerce Code or the federal antitrust laws, or (2) communicated the contents of the response directly or indirectly to any competitor or any other person engaged in the same line of business as respondent.

**3.06 DECEPTIVE TRADE PRACTICES; UNFAIR BUSINESS PRACTICES:** Respondent represents and warrants that it has not been the subject of allegations of deceptive trade practices violations under Business & Commerce Code Chapter 17 or the subject of allegations of any unfair business practice in any administrative hearing or court suit, and that respondent has not been found to be liable for such practices in such proceedings. Respondent certifies that it has no officers who have served as officers of other entities who have been the subject of allegations of deceptive trade practices violations or the subject of allegations of any unfair business practices in an administrative hearing or court suit and such officers have not been found to be liable for such practices in such proceedings.

**3.07 COLLUSION:** Respondent has not colluded with, nor received any assistance from, any person who was paid by TxDOT to prepare specifications or a solicitation on which a respondent's bid is based and will not allow any person who prepared the respective specifications or solicitation to participate financially in any contract awarded.

**3.08 INELIGIBILITY UNDER FAMILY CODE:** Under Family Code §231.006, respondent certifies that respondent and any other individual or business entity named in the response are eligible to receive the specified payment and acknowledges that the contract may be terminated, and payment may be withheld if this certification is inaccurate. Any respondent subject to Family Code §231.006 must complete the Texas Family Code Schedule and return it with the response.

**3.09 CONTRACTING WITH EX-TXDOT EXECUTIVE DIRECTOR:** Under Government Code §669.003, respondent certifies that:

- (a) All the following are true:
  - (1) Respondent is not the executive director of TxDOT.
  - (2) Respondent was not the executive director of TxDOT at any time during the past four years.
  - (3) Respondent does not employ a current or former executive director of TxDOT.
- OR**

- (b) Respondent has disclosed its employment of any former executive director of TxDOT as an attachment to its response, including the name of the former executive director, the date of separation from TxDOT, and the date of employment with respondent.

**3.10 DEBT TO THE STATE:** Respondent agrees that any payments due under the contract will be applied toward any debt or delinquency that is owed to the state of Texas.

### **3.11 RESPONDENT ELIGIBILITY**

- (a) Respondent certifies that respondent and its principals are eligible to participate in this transaction and have not been subject to suspension, debarment, or similar ineligibility determined by any federal, state, or local governmental entity.
- (b) Respondent certifies that respondent is in compliance with the state of Texas statutes and rules relating to procurement.
- (c) Respondent certifies that respondent is not listed in the prohibited vendors list authorized by Executive Order No. 13224, "Blocking Property and Prohibiting Transactions with Persons Who Commit, Threaten to Commit, or Support Terrorism," published by the United States Department of the Treasury, Office of Foreign Assets Control.
- (d) Under Government Code §[2155.006](#), respondent certifies that the individual or business entity named in the response is not ineligible to receive the specified contract and acknowledges that the contract may be terminated and payment withheld if this certification is inaccurate.
- (e) Respondent certifies that respondent is not an abortion provider or an affiliate of an abortion provider under Government Code §2272.003.
- (f) Respondent certifies that it is not:
  - (1) A person required to register as a lobbyist under Government Code Chapter 305.
  - (2) A public-relations firm.
  - (3) A government consultant.

### **3.12 NEPOTISM DISCLOSURE**

- (a) In this section, the term "relative" means:
  - (1) A person's great grandparent, grandparent, parent, aunt or uncle, sibling, niece or nephew, spouse, child, grandchild, or great grandchild.
  - (2) The grandparent, parent, sibling, child, or grandchild of the person's spouse.

- (b) A notification required by this section must be submitted in writing to the person designated to receive official notices under the contract and by first-class mail addressed to Contract Services Division, Texas Department of Transportation, 125 East 11th Street, Austin, Texas 78701. The notice must specify vendor's firm name, the name of the person who submitted the notification, the purchase order number, the district, division, office or regional service center of TxDOT that is principally responsible for the contract, the name of the relevant vendor employee, the expected role of the vendor employee on the project, the name of the TxDOT employee who is a relative of the vendor employee, the title of the TxDOT employee, and the work location of the TxDOT employee.
- (c) By signing the solicitation, respondent is certifying that respondent does not have any knowledge that any of its employees or any employees of a subcontractor who are expected to work under the contract has a relative who is employed by TxDOT unless respondent has notified TxDOT of each instance as required by subsection (b).
- (d) If vendor learns at any time that any of its employees or that any of the employees of a subcontractor who are performing work under the contract have a relative who is employed by TxDOT, vendor must notify TxDOT under subsection (b) of each instance within thirty (30) calendar days of obtaining that knowledge.
- (e) If vendor violates this section, TxDOT may terminate the contract immediately for cause, impose any sanction permitted by law, and pursue any other remedy permitted by law.

**3.13 BOYCOTTING ISRAEL:** Pursuant to Government Code §2271.002, respondent certifies that either (i) respondent meets exemption criteria under §2271.002, or (ii) respondent does not boycott Israel and will not boycott Israel during the term of the contract. Respondent must state any facts that make it exempt from the boycott certification in its response.

**3.14 DISCLOSURE OF RESTRICTED EMPLOYMENT:** Respondent acknowledges that under Government Code §572.069, a former state officer or employee of a state agency who, during the period of state service or employment, participated in a procurement or contract negotiation involving a person may not accept employment from that person before the second anniversary of the date the contract is signed, or the procurement is terminated or withdrawn.

**3.15 ANTI-TERRORISM OR TERRORIST ORGANIZATION PROHIBITED:** Respondent represents and warrants that it is not engaged in business with Iran, Sudan, or a foreign terrorist organization, as prohibited by Government Code §2252.152.

**3.16 CONTRACTING INFORMATION RESPONSIBILITIES:** Respondent represents and warrants that it will comply with the requirements of Government Code §552.372(a). Except as provided by Government Code §552.374(c), the requirements of Subchapter J, Chapter 552 of the Government Code may apply to the contract, and respondent agrees that the contract can be terminated if respondent knowingly or intentionally fails to comply with a requirement of that subchapter.

**3.17 HUMAN TRAFFICKING PROHIBITION:** Under Government Code §2155.0061, respondent certifies that the individual or business entity named in the response or contract is eligible to receive the specified contract and acknowledges that this contract may be terminated and payment withheld if this certification is inaccurate.

**3.18 NO CONFLICTS OF INTEREST:** Respondent represents and warrants that the provision of goods and services or other performance under the contract will not constitute an actual or potential conflict of interest or reasonably create an appearance of impropriety.

**3.19 COVID VACCINE PASSPORTS:** Respondent certifies that it is in compliance with Texas Health and Safety Code §161.0085(c), which prohibits a business from requiring a customer to provide documentation certifying the customer's COVID-19 vaccination or post-transmission recovery on entry to, to gain access to, or to receive service from the business.

**3.20 FIREARM AND AMMUNITION DISCRIMINATION:** Pursuant to Government Code §2274.002, to the extent applicable to respondent and this contract, respondent certifies that respondent:

- (a) Does not have a practice, policy, guidance, or directive that discriminates against a firearm entity or firearm trade association.
- (b) Will not discriminate during the term of the contract against a firearm entity or firearm trade association.

Respondent acknowledges that the contract may be terminated and payment withheld if this certification is inaccurate.

**3.21 LONE STAR INFRASTRUCTURE PROTECTION ACT:** Pursuant to Government Code §2275.0102, respondent certifies that neither it nor its parent company, nor any affiliate of Respondent or its parent company, is: (1) majority owned or controlled by citizens or governmental entities of China, Iran, North Korea, Russia, or any other country designated by the Governor under Government Code §2275.0103, or (2) headquartered in any of those countries.

**3.22 BOYCOTTING ENERGY COMPANIES:** To the extent applicable to respondent and this contract, respondent certifies that respondent does not boycott energy companies and will not boycott energy companies during the term of the contract in accordance with Government Code §2276.002.

#### **PART 4. GENERAL TERMS AND CONDITIONS**

##### **4.01 CONTRACTS**

- (a) Only authorized TxDOT purchasers have the authority to issue contracts for goods and services. Contracts must be issued by a TxDOT purchaser prior to vendor providing the goods or services. The only exceptions are payment card orders and bona fide emergencies. In the case of an emergency, the TxDOT Procurement Division will confirm such orders with a signed contract.
- (b) Vendor acceptance of a purchase order and delivery of goods or services without an approved purchase order number or release number issued by TxDOT may result in the rejection of delivery, return of goods at vendor's cost, and non-payment.

**4.02 FUNDING:** Any contract resulting from the solicitation is subject to termination or cancellation, without penalty to TxDOT, either in whole or in part, subject to the availability of state funds. In the event of a termination under this section, TxDOT will not be liable to respondent for any damages that are caused or associated with such termination, and TxDOT will not be required to give prior notice.

**4.03 INVOICING:** No payment will be made under the contract without the prior submission of detailed and correct invoices which comply with the following requirements:

- (a) Each invoice must be submitted not later than the 15<sup>th</sup> day of the month after the goods have been delivered or services have been provided, or as otherwise stated on the contract. An electronic copy of the invoice must be sent as an email attachment to the email address shown on the purchase order. A link to a copy of the invoice will not be accepted in lieu of an electronic or physical copy of the invoice. If the vendor cannot submit invoices electronically as an email attachment, vendor must mail a hard copy to the physical address noted on the purchase order.
- (b) The invoice must, at a minimum, show the following:
  - (1) Vendor name as it appears on the purchase order.
  - (2) Remit-to address.
  - (3) Email address (if applicable).
  - (4) Employer Identification Number (EIN), federal tax I.D., or a valid Texas Identification Number (TIN).
  - (5) Complete PO number.
  - (6) Telephone number.
  - (7) Name of person designated to answer questions regarding the invoice.
  - (8) Description of item or service as it appears on the PO or pricing schedule in the same order as listed on purchase order or pricing schedule. Item numbers must correspond with the item numbers on the PO or pricing schedule.
  - (9) Quantity, unit of measure, unit price, and extended price of each line item.
  - (10) Grand total.
  - (11) Shipment date of merchandise or date of service. If lease, include payment number (e.g., 1 of 36).
  - (12) Any additional requirements as stated in the solicitation or specification.

**4.04 PAYMENT:** Payment for goods or services purchased with state funds is made by warrants or by direct deposit. Direct deposit is the preferred method of payment. No penalty for late payment will be incurred by TxDOT if payment is made in thirty (30) days or less from receipt of goods, services, or a correct invoice, whichever is later. Payments under this contract are subject to the availability of funds.

Additional information and a Direct Deposit Authorization application may be found at <https://comptroller.texas.gov/programs/systems/direct-deposit/>.

Payment will be made in accordance with Government Code Chapter 2251:

- (a) On a monthly basis and within thirty (30) days from receipt of a correct invoice for TxDOT-accepted goods or services.

**OR**
- (b) The service was completed to the satisfaction of TxDOT and within thirty (30) days from receipt of a correct invoice or billing statement.

**OR**
- (c) As otherwise stated in the solicitation.

**NOTE:** Texas Department of Transportation (TxDOT) offers an opportunity to participate in its Early Payment Program to accelerate payments in exchange for a discount. Additional information may be found at <http://www.txdot.gov/business/vendors/epp.html> or the Priority Invoice and Early Payment Program form (Appendix B).

#### **4.05 INTELLECTUAL PROPERTY**

- (a) All intellectual property developed and created in the course of the services rendered pursuant to the contract are works for hire, and all intellectual property rights, including but not limited to, publication rights, copyrights, trademarks, patents, and trade secrets to all products and materials developed and created pursuant to the contract, shall be exclusively owned by TxDOT. Vendor must provide TxDOT all assistance required to perfect such intellectual property rights without any charge or expense beyond those amounts payable for services rendered under the contract. To the extent that title to any work created under the contract is held by operation of law to not vest exclusively in TxDOT, such work is hereby irrevocably assigned to TxDOT.
- (b) Vendor must ensure that TxDOT's intellectual property rights, including but not limited to publication rights, copyrights, trademarks, patents, and trade secrets, are secured from all suppliers, contractors, and subcontractors.
- (c) When applicable, each vendor must obtain necessary licenses, copyrights, trademarks, or patents for TxDOT's use.
- (d) Vendor must not assert rights at common law or in equity or establish any claim to TxDOT's intellectual property, including but not limited to, licenses, claiming common law ownership of intellectual property, obtaining registrations for copyrights, trademarks, trade secrets, or patents for any intellectual property developed in performance of the services authorized.
- (e) VENDOR AGREES TO INDEMNIFY, HOLD HARMLESS, AND DEFEND TXDOT AND THE STATE FROM CLAIMS INVOLVING INFRINGEMENT OF THIRD PARTIES' LICENSES, TRADEMARKS, COPYRIGHTS, PATENTS, TRADE SECRETS, AND ANY OTHER INTELLECTUAL OR INTANGIBLE PROPERTY RIGHTS AS SET FORTH IN SECTION 4.15 BELOW.

#### **4.06 ELECTRONIC AND INFORMATION RESOURCES ACCESSIBILITY STANDARDS:** As required by 1 TAC Chapters 206 and 213:

- (a) Effective April 18, 2020, state agencies shall procure products which comply with the State of Texas Accessibility Requirements for Electronic and Information Resources specified in 1 TAC Chapters 206 and 213 when such products are available in the commercial marketplace or when such products are developed in response to a procurement solicitation. Vendor represents and warrants that technology to be provided to TxDOT and for TxDOT is in compliance with these requirements.
- (b) Vendor must provide accessibility information for the purchased goods or services in accordance with 1 TAC §213.18 (b).

#### **4.07 CYBER SECURITY TRAINING:** In accordance with Government Code §2054.5192, each vendor employee or subcontractor employee that will have access to a TxDOT computer system or database must complete a TxDOT-approved cyber security training program that is certified under Government Code §2054.5192. The training program must be completed by each vendor during the term of the purchase order and during any renewal period. Vendor must provide verification of completion of the cyber security training program in a method designated by TxDOT.

#### **4.08 SITE VISITS:** Prior to and after award of the contract, designated TxDOT representatives may conduct unannounced visits to inspect vendor's and its subcontractor's facilities during normal business hours to monitor compliance in accordance with TxDOT specifications or carry out performance audits of the service.

**4.09 NON-WAIVER OF RIGHTS:** Nothing in this contract shall be construed as a waiver of the state's sovereign immunity. This contract shall not constitute or be construed as a waiver of any of the privileges, rights, defenses, remedies, or immunities available to the state of Texas. The failure to enforce, or any delay in the enforcement, of any privileges, rights, defenses, remedies, or immunities available to the state of Texas under this contract or under applicable law shall not constitute a waiver of such privileges, rights, defenses, remedies, or immunities or be considered as a basis for estoppel. TxDOT does not waive any privileges, rights, defenses, or immunities available to TxDOT by entering into this contract or by its conduct prior to or subsequent to entering into this contract.

**4.10 LIMITATION ON AUTHORITY; NO OTHER OBLIGATIONS:** Vendor has no authority to act for or on behalf of TxDOT or the state of Texas except as expressly provided for in this contract. Vendor may not incur any debts, obligations, expenses, or liabilities of any kind on behalf of the state of Texas or TxDOT.

**4.11 VENUE AND JURISDICTION; APPLICABLE LAW:** Venue for any suit concerning the solicitation and any resulting contract is fixed in any court of competent jurisdiction in Travis County, Texas. The solicitation and any resulting contract shall be governed by and construed in accordance with the laws of the state of Texas without regard to the conflict of laws provisions.

**4.12 VENDOR ASSIGNMENTS:** Vendor hereby assigns TxDOT any and all claims for overcharges associated with this contract which arise under the antitrust laws of the United States (15 U.S.C.A. Chapter 1), and which arise under the antitrust laws of the state of Texas (Business & Commerce Code, Title 2, Chapter 15).

**4.13 FORCE MAJEURE:** TxDOT may, at its sole discretion, grant relief for time only from performance of the contract if vendor is prevented from performance by an act of war, order of legal authority, act of God, force of nature, pandemic, public health crisis, or other unavoidable cause not attributable to the fault or negligence of vendor (any such event or cause referred to herein as "force majeure"). To obtain relief based on force majeure, vendor must file a written request with TxDOT describing the events, dates, and effect of the events on vendor's ability to perform its obligations under the contract. Vendor must inform TxDOT in writing within three (3) business days of the existence of such force majeure; failure to do so will waive the right to seek relief under this Section 4.12. Upon an event of force majeure, vendor must use commercially reasonable efforts to commence performance whenever and to whatever extent possible without delay. An event of force majeure does not excuse vendor from any obligation under the contract unless TxDOT grants relief in writing in response to a request for relief under this Section 4.13.

#### **4.14 RIGHT TO AUDIT**

- (a) The state auditor may conduct an audit or investigation of vendor or any other entity or person receiving funds from the state directly under the contract or indirectly through a subcontract under the contract. Acceptance of funds directly under the contract or indirectly through a subcontract under the contract acts as acceptance of the authority of the state auditor, under the direction of the legislative audit committee, to conduct an audit or investigation in connection with those funds. Under the direction of the legislative audit committee, vendor or any other entity that is the subject of an audit or investigation by the state auditor must provide the state auditor access to any information the state auditor considers relevant to the investigation or audit.
- (b) TxDOT's internal auditors may conduct an audit or investigation of vendor or any other person receiving funds directly under the contract or indirectly through a subcontract under the contract. TxDOT has the right to audit vendor's books and records pertaining to the service during normal work hours. Vendor or any other entity that is the subject of an audit or investigation by TxDOT must provide TxDOT's internal auditor access to any information TxDOT considers relevant to the investigation or audit.
- (c) Vendor will ensure that this section concerning the authority of the state auditor and TxDOT to audit funds received indirectly by subcontractors through vendor and the requirement to cooperate is included in any subcontract it awards.

#### **4.15 INDEMNIFICATION: Acts or Omissions**

VENDOR SHALL DEFEND, INDEMNIFY AND HOLD HARMLESS THE STATE OF TEXAS AND TXDOT, AND/OR THEIR OFFICERS, AGENTS, EMPLOYEES, REPRESENTATIVES, CONTRACTORS, ASSIGNEES, AND/OR DESIGNEES FROM ANY AND ALL LIABILITY, ACTIONS, CLAIMS, DEMANDS, OR SUITS, AND ALL RELATED COSTS, ATTORNEY FEES, AND EXPENSES ARISING OUT OF, OR RESULTING FROM, ANY ACTS OR OMISSIONS OF VENDOR OR ITS AGENTS, EMPLOYEES, SUBCONTRACTORS, ORDER FULFILLERS, OR SUPPLIERS OF SUBCONTRACTORS IN THE EXECUTION OR PERFORMANCE OF THE CONTRACT. THE DEFENSE SHALL BE COORDINATED BY VENDOR WITH TXDOT AND THE OFFICE OF THE TEXAS ATTORNEY GENERAL WHEN THE STATE OF TEXAS OR TXDOT IS NAMED AS A DEFENDANT IN ANY LAWSUIT AND VENDOR MAY NOT AGREE TO ANY SETTLEMENT WITHOUT FIRST OBTAINING THE CONCURRENCE FROM TXDOT AND THE OFFICE OF THE TEXAS ATTORNEY GENERAL. VENDOR AND TXDOT AGREE TO FURNISH TIMELY WRITTEN NOTICE TO EACH OTHER OF ANY SUCH CLAIM.

Infringement:

- (a) VENDOR SHALL DEFEND, INDEMNIFY, AND HOLD HARMLESS THE STATE OF TEXAS AND TXDOT AND/OR THEIR EMPLOYEES, AGENTS, REPRESENTATIVES, CONTRACTORS, ASSIGNEES, AND/OR DESIGNEES FROM AND AGAINST ANY AND ALL CLAIMS INVOLVING VIOLATIONS, MISAPPROPRIATIONS OR INFRINGEMENT OF ANY PATENT, COPYRIGHT, TRADE AND SERVICE MARK, TRADE SECRET, OR OTHER INTELLECTUAL PROPERTY RIGHTS AND/OR INTANGIBLE PROPERTY, PUBLICITY OR PRIVACY RIGHTS, IN CONNECTION WITH OR ARISING FROM: (1) THE PERFORMANCE OR ACTIONS OF VENDOR PURSUANT TO THE CONTRACT; (2) ANY DELIVERABLE WORK PRODUCT, CONFIGURED SERVICE OR OTHER SERVICE PROVIDED UNDER THE CONTRACT; AND/OR (3) TXDOT'S AND/OR VENDOR'S USE OF OR ACQUISITION OF ANY REQUESTED SERVICES OR OTHER ITEMS PROVIDED TO TXDOT BY VENDOR OR OTHERWISE TO WHICH TXDOT HAS ACCESS AS A RESULT OF VENDOR'S PERFORMANCE UNDER THE CONTRACT. VENDOR AND TXDOT AGREE TO FURNISH TIMELY WRITTEN NOTICE TO EACH OTHER OF ANY SUCH CLAIM. VENDOR SHALL BE LIABLE TO PAY ALL COSTS OF DEFENSE, INCLUDING ATTORNEYS' FEES. THE DEFENSE SHALL BE COORDINATED BY VENDOR WITH TXDOT AND THE OFFICE OF THE TEXAS ATTORNEY GENERAL WHEN THE STATE OF TEXAS OR TXDOT ARE NAMED AS A DEFENDANT IN ANY LAWSUIT AND VENDOR MAY NOT AGREE TO ANY SETTLEMENT WITHOUT FIRST OBTAINING THE CONCURRENCE FROM TXDOT AND THE OFFICE OF THE TEXAS ATTORNEY GENERAL. IN ADDITION, VENDOR WILL REIMBURSE TXDOT AND THE STATE OF TEXAS FOR ANY CLAIMS, DAMAGES, COSTS, EXPENSES, OR OTHER AMOUNTS, INCLUDING BUT NOT LIMITED TO, ATTORNEYS' FEES ARISING FROM ANY SUCH CLAIM. IF TXDOT DETERMINES THAT A CONFLICT EXISTS BETWEEN ITS INTERESTS AND THOSE OF VENDOR OR IF TXDOT IS REQUIRED BY APPLICABLE LAW TO SELECT SEPARATE COUNSEL, TXDOT WILL BE PERMITTED TO SELECT SEPARATE COUNSEL AND VENDOR WILL PAY ALL REASONABLE COSTS OF TXDOT'S COUNSEL.
- (b) VENDOR WILL HAVE NO LIABILITY UNDER THIS SECTION IF THE ALLEGED INFRINGEMENT IS CAUSED IN WHOLE OR IN PART BY:
  - (1) ANY INTELLECTUAL PROPERTY RIGHT OWNED BY OR LICENSED TO TXDOT, OR
  - (2) ANY USE OF THE PRODUCT OR SERVICE BY TXDOT THAT IS NOT IN CONFORMITY WITH THE TERMS OF ANY APPLICABLE LICENSE AGREEMENT BETWEEN VENDOR AND TXDOT.
- (c) IF VENDOR BECOMES AWARE OF AN ACTUAL OR POTENTIAL CLAIM, OR TXDOT PROVIDES VENDOR WITH NOTICE OF AN ACTUAL OR POTENTIAL CLAIM, VENDOR MAY (OR IN THE CASE OF AN INJUNCTION AGAINST TXDOT, MUST), AT VENDOR'S SOLE OPTION AND EXPENSE:
  - (1) PROCURE FOR TXDOT THE RIGHT TO CONTINUE TO USE THE AFFECTED PORTION OF THE PRODUCT OR SERVICE, OR

(2) MODIFY OR REPLACE THE AFFECTED PORTION OF THE PRODUCT OR SERVICE WITH FUNCTIONALLY-EQUIVALENT OR SUPERIOR PRODUCT OR SERVICE SO THAT TXDOT'S USE IS NON-INFRINGEMENT.

**Taxes/Workers' Compensation/Unemployment Insurance – Including Indemnity**

(a) VENDOR AGREES AND ACKNOWLEDGES THAT DURING THE EXISTENCE OF THIS CONTRACT, VENDOR SHALL BE ENTIRELY RESPONSIBLE FOR THE LIABILITY AND PAYMENT OF VENDOR'S AND VENDOR'S EMPLOYEES' TAXES OF WHATEVER KIND, ARISING OUT OF THE PERFORMANCES IN THIS CONTRACT. VENDOR AGREES TO COMPLY WITH ALL STATE AND FEDERAL LAWS APPLICABLE TO ANY SUCH PERSONS, INCLUDING LAWS REGARDING WAGES, TAXES, INSURANCE, AND WORKERS' COMPENSATION. TXDOT AND/OR THE STATE SHALL NOT BE LIABLE TO VENDOR, ITS EMPLOYEES, AGENTS, OR OTHERS FOR THE PAYMENT OF TAXES OR THE PROVISION OF UNEMPLOYMENT INSURANCE AND/OR WORKERS' COMPENSATION OR ANY BENEFIT AVAILABLE TO A STATE EMPLOYEE OR EMPLOYEE OF ANOTHER GOVERNMENTAL ENTITY.

(b) VENDOR AGREES TO DEFEND, INDEMNIFY AND HOLD HARMLESS TXDOT, THE STATE OF TEXAS AND/OR THEIR EMPLOYEES, AGENTS, REPRESENTATIVES, CONTRACTORS, ASSIGNEES AND/OR DESIGNEES FROM ANY AND ALL LIABILITY, ACTIONS, CLAIMS, DEMANDS, OR SUITS, AND ALL RELATED COSTS, ATTORNEYS' FEES, AND EXPENSES, RELATING TO TAX LIABILITY, UNEMPLOYMENT INSURANCE, WORKERS' COMPENSATION, AND/OR ANY BENEFIT AVAILABLE TO A STATE EMPLOYEE OR EMPLOYEE OF ANOTHER GOVERNMENTAL ENTITY IN OR ARISING OUT OF ITS PERFORMANCE UNDER THIS CONTRACT. VENDOR SHALL BE LIABLE TO PAY ALL COSTS OF DEFENSE INCLUDING ATTORNEYS' FEES AND COURT COSTS. THE DEFENSE SHALL BE COORDINATED BY VENDOR WITH TXDOT AND THE OFFICE OF THE TEXAS ATTORNEY GENERAL WHEN THE STATE OF TEXAS OR TXDOT IS NAMED AS A DEFENDANT IN ANY LAWSUIT AND VENDOR MAY NOT AGREE TO ANY SETTLEMENT WITHOUT FIRST OBTAINING THE CONCURRENCE FROM TXDOT AND THE OFFICE OF THE TEXAS ATTORNEY GENERAL. VENDOR AND TXDOT AGREE TO FURNISH TIMELY WRITTEN NOTICE TO EACH OTHER OF ANY SUCH CLAIM.

**4.16 DAMAGE TO TXDOT PROPERTY:** Vendor shall be liable for damage to TxDOT's equipment, workplace, and its contents resulting from vendor's or vendor's subcontractor's work or negligence in performance of the work by vendor's or subcontractor's personnel or equipment.

**4.17 PUBLIC INFORMATION ACT AND CONFIDENTIALITY:** Information, documentation, and other material in connection with the solicitation or any resulting contract may be subject to public disclosure pursuant to the Public Information Act.

In accordance with §2252.907 of the Government Code, vendor is required to make any information created or exchanged with the state pursuant to the contract, and not otherwise excepted from disclosure under the Public Information Act, available in a format that is accessible by the public at no additional charge to the state. All information created by or accessible to a vendor while providing a good or service for TxDOT shall be treated by vendor as confidential. If applicable to a service, upon award of the contract, vendor may be required to complete and sign TxDOT Form 1828b, Information Resource Security Compliance and Confidentiality Agreement. Vendor and its employees or subcontractors must not divulge any information related to TxDOT business at any time to a third party without the prior written approval of TxDOT. Vendor will notify TxDOT within 24 hours of receipt of any third-party requests for information that was provided by TxDOT for use in performing the contract, including the contract itself. Upon request by TxDOT, vendor agrees to promptly provide any information created or exchanged with the state pursuant to the contract to TxDOT in any format reasonably required by TxDOT, including, without limitation, portable document format (PDF) and HTML.

**4.18 BUY TEXAS:** In accordance with Government Code §2155.4441, vendor agrees that during the performance of a contract for services, vendor shall purchase products and materials produced in the state of Texas when such products and materials are available at a comparable price and in a comparable period of time when compared to products and materials produced outside the state.

**4.19 COMPETENCE OF VENDOR:** To be entitled to consideration, vendor must have available the necessary organization and facilities to fulfill all the requirements under the contract. Only personnel trained to perform the solicited services or, if applicable, licensed to perform such services must be employed under and for the contract. Vendor must, at its own cost, obtain any licenses, certifications and permits required for the performance of the service.

**4.20 CORRECTIONS TO WORK:** If TxDOT determines it necessary to require corrections to work due to errors made by vendor, vendor must correct the work at no additional cost to TxDOT.

**4.21 IT SERVICE CONTRACTS SECURITY:** Vendor will implement appropriate administrative, physical, and technical safeguards which reasonably and appropriately protect the confidentiality, integrity, and availability of services provided to TxDOT. Vendor will immediately report to TxDOT any security incident of which it becomes aware. Vendor will submit for approval by TxDOT and conform its policies and procedures relating to the implementation of security safeguards to comply with TxDOT's information resources security program pursuant to 1 TAC §202.

**4.22 NOTICES:** Any notices required under the contract will be in writing and sent by hand delivery or by U.S. Mail, certified, return receipt requested to vendor at vendor's address specified on page 1 of the purchase order to TxDOT at 125 E. 11th Street, Austin, TX 78701-2483. Notice will be effective on receipt by the affected party. Either party may change the designated notice address in this section by written notification to the other party.

**4.23 PUBLIC DISCLOSURE:** No public disclosures or news releases pertaining to this contract shall be made without prior written approval of the Texas Department of Transportation.

**4.24 DISASTER RECOVERY PLAN:** If required in the solicitation, respondent must provide TxDOT descriptions of its business continuity and disaster recovery plans in accordance with 13 TAC §6.94(a)(9).

## PART 5. INSURANCE

**5.01 PRIOR TO CONTRACT AWARD:** Vendor must provide the required TxDOT insurance form upon written notice from TxDOT. Vendor must not perform services under the contract until this form is received by TxDOT. Failure to provide proof of insurance within the time frame requested by TxDOT may result in vendor's response being declared non-responsive and the contract being awarded to the next responsive, responsible respondent.

**5.02 DURING TERM OF CONTRACT:** Vendor must maintain all required insurance coverage throughout the term of the contract. Vendor must provide a correct TxDOT insurance form each time its insurance is renewed or updated. Failure to provide this form promptly may be cause for discontinuance of the work and termination of the contract.

**5.03 WAIVER OF SUBROGATION ENDORSEMENT:** Vendor's workers' compensation insurance policy must have a waiver of subrogation endorsement in favor of TxDOT. TxDOT will allow deductible policies. Vendor must pay the deductible amount.

**5.04 WORKERS' COMPENSATION INSURANCE:** Amounts of coverage are minimums and notice provisions are statutory (Texas Labor Code Chapter 406 and 28 TAC, Chapter 110). Vendor is responsible for both federal and state unemployment insurance coverage and standard workers' compensation insurance coverage. The state of Texas is not liable to vendor or its employees for any unemployment or workers' compensation coverage or any federal or state withholding requirements.

**5.05 WORKERS' COMPENSATION INSURANCE FOR BUILDING AND CONSTRUCTION SERVICES:** Vendor is responsible for providing workers' compensation insurance for building and construction services. Building or construction includes:

- (a) Erecting, or preparing to erect, a structure including a building, bridge, roadway, public utility facility, or related appurtenance; or

- (b) Remodeling, extending, repairing, or demolishing a structure; or
- (c) Otherwise improving real property or an appurtenance to real property through similar activities.

Vendor must provide workers' compensation insurance for building and construction services in accordance with 28 TAC §110.110(c)(7).

- (a) Definitions (applicable only to this Section 5.05):
  - (1) Certificate of coverage ("certificate") – A copy of a certificate of insurance, a certificate of authority to self-insure issued by the commission, or a coverage agreement (DWC-81, DWC-82, DWC-83, or DWC-84) showing statutory workers' compensation insurance coverage for the person's or entity's employees providing services on a project, for the duration of the project.
  - (2) Duration of the project - includes the time from the beginning of the work on the project until vendor's/person's work on the project has been completed and accepted by the governmental entity.
  - (3) Persons providing services on the project ("subcontractor" in Texas Labor Code §406.096) - includes all persons or entities performing all or part of the services vendor has undertaken to perform on the project, regardless of whether that person contracted directly with vendor and regardless of whether that person has employees. This includes, without limitation, independent vendors, subcontractors, leasing companies, motor carriers, owner-operators, employees of any such entity, or employees of any entity which furnishes persons to provide services on the project. "Services" include, without limitation, providing, hauling, or delivering equipment or materials, or providing labor, transportation, or other service related to a project. "Services" does not include activities unrelated to the project such as food/beverage vendors, office supply deliveries, and delivery of portable toilets.
- (b) Vendor must provide coverage, based on proper reporting of classification codes and payroll amounts and filing of any coverage agreements, which meets the statutory requirements of Texas Labor Code, Government Code §401.011(44), for all employees of vendor providing services on the project, for the duration of the project.
- (c) Vendor must provide a certificate of coverage to TxDOT prior to being awarded the contract.
- (d) If the coverage period shown on vendor's current certificate of coverage ends during the duration of the project, vendor must, prior to the end of the coverage period, file a new certificate of coverage with TxDOT showing that coverage has been extended.
- (e) Vendor must obtain from each person providing services on a project, and provide to TxDOT:
  - (1) A certificate of coverage, prior to that person's beginning work on the project, so TxDOT will have on file certificates of coverage showing coverage for all persons providing services on the project; and
  - (2) No later than seven (7) business days after receipt by vendor, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate of coverage ends during the duration of the project.
- (f) Vendor must retain all required certificates of coverage for the duration of the project and for one year thereafter.
- (g) Vendor must notify the governmental entity in writing by certified mail or personal delivery, within ten (10) business days after vendor knew or should have known, of any change that materially affects the provision of coverage of any person providing services on the project.
- (h) Vendor must post on each project site a notice, in the text, form, and manner prescribed by the Texas Workers' Compensation Commission, informing all persons providing services on the project that they are required to be covered, and stating how a person may verify coverage and report lack of coverage.

- (i) Vendor must contractually require each person with whom it contracts to provide services on a project, to:
  - (1) Provide coverage, based on proper reporting of classification codes and payroll amounts and filing of any coverage agreements, which meets the statutory requirements of Texas Labor Code, Government Code §401.011(44), for all its employees providing services on the project, for the duration of the project.
  - (2) Provide to vendor, prior to that person's beginning work on the project, a certificate of coverage showing that coverage is being provided for all employees of the person providing services on the project, for the duration of the project.
  - (3) Provide vendor, prior to the end of the coverage period, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate of coverage ends during the duration of the project.
  - (4) Obtain from each other person with whom it contracts, and provide to vendor:
    - (a) A certificate of coverage, prior to the other person's beginning work on the project.
    - (b) A new certificate of coverage showing extension of coverage, prior to the end of the coverage period, if the coverage period shown on the current certificate of coverage ends during the duration of the project.
  - (5) Retain all required certificates of coverage on file for the duration of the project and for one year thereafter.
  - (6) Notify TxDOT in writing by certified mail or personal delivery, within ten (10) business days after the person knew or should have known, of any change that materially affects the provision of coverage of any person providing services on the project.
  - (7) Contractually require each person with whom it contracts to perform as required by paragraphs (1) - (7), with the certificates of coverage to be provided to the person for whom they are providing services.
- (j) By signing the purchase order or providing or causing to be provided a certificate of coverage, vendor is representing to TxDOT that all employees of vendor who will provide services on the project will be covered by workers' compensation coverage for the duration of the project, that the coverage will be based on proper reporting of classification codes and payroll amounts, and that all coverage agreements will be filed with the appropriate insurance carrier or, in the case of a self-insured, with the commission's Division of Self-Insurance Regulation. Providing false or misleading information may subject vendor to administrative penalties, criminal penalties, civil penalties, or other civil actions.
- (k) Vendor's failure to comply with any of these provisions is a breach of contract by vendor which entitles TxDOT to declare the contract void if vendor does not remedy the breach within ten (10) business days after receipt of notice of breach from the governmental entity.

**5.06 COMMERCIAL GENERAL LIABILITY INSURANCE:** Bodily Injury/Property Damage. Required coverage must, at a minimum, be inclusive of the limits listed on the insurance form noted on the solicitation.

**5.07 COMMERCIAL AUTOMOBILE POLICY:** Required coverage must, at a minimum, be inclusive of the limits listed on the insurance form noted on the solicitation.

## PART 6. VENDOR PERSONNEL MANAGEMENT

**6.01 INDEPENDENT CONTRACTOR:** It is expressly understood and agreed to by both parties that TxDOT is contracting with vendor as an independent contractor. As such, vendor understands and agrees that individuals performing services in connection with the contract are not state employees and that vendor will be responsible and liable for the safety, injury, and health of its and its subcontractor's working personnel while its employees or subcontractor's employees are performing work for TxDOT. Should vendor subcontract any of the services required in the contract, vendor expressly acknowledges and agrees that TxDOT is in no manner liable to any subcontractor of vendor. In no event will this provision relieve vendor of the responsibility for ensuring that all services rendered under all subcontracts are rendered in compliance with the contract.

**6.02 ALCOHOL, DRUG, AND SMOKE-FREE WORKPLACE:** TxDOT is committed to maintaining an alcohol and drug-free workplace. Possession, use of, or being under the influence of alcohol or controlled substances by vendor's employees while in the performance of any service is prohibited. If any employee of the vendor violates this requirement, TxDOT may terminate the contract for cause, in addition to seeking any other available remedies. Vendor's employees must comply with TxDOT's policy prohibiting smoking in TxDOT buildings.

**6.03 REPLACEMENT OF PERSONNEL:** If TxDOT determines that an employee or subcontractor of vendor performing any part of vendor's work under this contract is unable to perform the work in accordance with the service requirements or to communicate effectively or is, in the opinion of TxDOT, otherwise objectionable, vendor must immediately remove that employee or subcontractor.

**6.04 LABOR/MATERIAL/EQUIPMENT:** Vendor must provide all labor, material, and equipment necessary to furnish the goods or perform the service(s) throughout the term of the contract. All employees of vendor must be a minimum of seventeen (17) years of age and experienced in the type of work to be performed. No visitors, wives, husbands, children, or other relatives of vendor's employees will be allowed on state property during working hours, unless they are bona fide employees of the vendor.

**6.05 ENGLISH-SPEAKING STAFF:** Vendor must, at all times, have a minimum of one English-speaking employee on the job. All employees must be well-groomed and appropriately dressed when on TxDOT property.

**6.06 FELONY CRIMINAL CONVICTIONS:** Vendor represents and warrants that neither vendor nor any of vendor's employees have been convicted of a felony criminal offense or that, if such a conviction has occurred, vendor has fully advised TxDOT as to the facts and circumstances surrounding the conviction and vendor agrees to defend, hold harmless, and indemnify TxDOT from any loss or claim due to any such employees.

**6.07 SUBCONTRACTING REQUIREMENTS:** In accordance with Government Code §§2161.181-182 and pursuant to the CPA Historically Underutilized Business (HUB) Rules and Transportation DBE/HUB/SBE Rules (relating to Disadvantaged Business Enterprises, HUB and Small Business Enterprises, DBE/HUB/SBE), all state agencies entering into a contract with an expected value of \$100,000 or more over the life of the contract (including renewals) shall, before the agency solicits bids, proposals, offers, or other applicable expressions of interest, determine if it is probable for subcontracting opportunities under the contract. If subcontracting opportunities are probable, the state agency will state such probability in its bids, proposals, offers, or other applicable expression of interest and require the submission of a HUB Subcontracting Plan (HSP). The HSP, if acceptable to the agency, will be a provision of the contract. The HSP, if required, may be found at:  
<https://comptroller.texas.gov/purchasing/vendor/hub/forms.php>.

**6.08 PAYMENT OF SUBCONTRACTORS:** As provided by Government Code §2251.022, vendor must pay a subcontractor the appropriate share of any payment vendor receives from TxDOT not later than the 10th day after the date the vendor receives the payment. The appropriate share is overdue on the 11th day after the date vendor receives the payment.

**6.09 VENDOR TITLE VI AFFIRMATIONS:** Vendor represents and warrants the following with regard to the work performed by it under the contract:

- (a) Vendor and its subcontractors shall not discriminate on the grounds of race, color, national origin, creed, religion, political belief, sex, sexual orientation, age, or disability in the performance of this contract, including without limitation in the selection and retention of subcontractors, including procurements of materials and leases of equipment. Vendor shall not participate either directly or indirectly in any discriminatory employment practices. Failure by vendor to carry out these requirements is a material breach of any contract awarded and may result in the termination of the contract or such other remedy as TxDOT deems appropriate.
- (b) In any solicitations for subcontractors, including procurements of materials or leases of equipment and in all solicitations either by competitive bidding or negotiation made by vendor for work to be performed under a subcontract, each potential subcontractor or supplier shall be notified by vendor of vendor's and subcontractor's obligations under its contract relative to nondiscrimination on the grounds of race, color, national origin, sex, age, or disability.
- (c) During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to collectively in this subsection (c) as the "contractor") agrees as follows:
  - (1) **Compliance with Regulations:** The contractor will comply with the acts and the regulations relative to nondiscrimination in federally-assisted programs of the U.S. Department of Transportation, Federal Highway Administration, as they may be amended from time to time, which are herein incorporated by reference and made a part of this contract.
  - (2) **Nondiscrimination:** The contractor, with regard to the work performed by it during the contract, will 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 will not participate either directly or indirectly in the discrimination prohibited by the acts and regulations, including employment practices when the contract covers any activity, project, or program set forth in Appendix B of 49 CFR Part 21.
  - (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 will be notified by the contractor of the contractor's obligations under this contract and the acts and regulations relative to nondiscrimination on the grounds of race, color, or national origin.
  - (4) **Information and Reports:** The contractor must provide all information and reports required by the acts, regulations, and directives issued pursuant thereto and must permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by TxDOT or the Federal Highway Administration (FHWA) to be pertinent and to ascertain compliance with such acts, regulations, 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 must so certify to TxDOT or the FHWA, as appropriate, and must set forth what efforts it has made to obtain the information.
  - (5) **Sanctions for Noncompliance:** In the event of a contractor's noncompliance with the nondiscrimination provisions of this contract, TxDOT will impose such contract sanctions as it or the FHWA may determine to be appropriate, including, but not limited to:
    - (a) Withholding payments to the contractor under the contract until the contractor complies; and/or
    - (b) Cancelling, terminating, or suspending a contract, in whole or in part.

(6) Incorporation of Provisions: The contractor must include the provisions of paragraphs (1) through (6) in every subcontract, including procurements of materials and leases of equipment, unless exempt by the acts, the regulations and directives issued pursuant thereto. The contractor must take action with respect to any subcontract or procurement as TxDOT or the FHWA may direct as a means of enforcing such provisions including sanctions for non-compliance. Provided that if the contractor becomes involved in litigation with, or is threatened with litigation by, a subcontractor or supplier because of such direction, the contractor may request TxDOT to enter into any litigation to protect the interests of TxDOT. In addition, the contractor may request the United States to enter into the litigation to protect the interests of the United States.

(d) The contractor agrees to comply with the provisions of Appendix A attached hereto, which is incorporated by reference and made a part hereof.

**6.10 E-VERIFY:** Pursuant to Executive Order RP-80, vendor certifies and ensures that for all contracts for services, vendor shall, to the extent permitted by law, utilize the United States Department of Homeland Security's E-Verify system during the term of this agreement to determine the eligibility of:

- (a) All persons employed by vendor during the term of this agreement to perform duties within the State of Texas.
- (b) All persons, including subcontractors, assigned by vendor to perform work pursuant to this agreement within the United States of America.

## PART 7. DISPUTE RESOLUTION

**7.01 DISPUTE RESOLUTION:** The dispute resolution process provided for in Government Code Chapter 2260 and 43 TAC §§9.1 and 9.2 must be used by TxDOT and the vendor to attempt to resolve disputes arising under the contract. Notwithstanding any provision of the contract to the contrary, unless otherwise agreed in writing by TxDOT, vendor must continue performance and will not be excused from performance during the period of contract claim or dispute is pending; however, vendor may suspend performance during the pendency of such claim or dispute if vendor has complied with all provisions of Government Code §2251.051, and such suspension of performance is expressly applicable and authorized under that law.

## PART 8. CONTRACT TERMS

**8.01 TERM OF CONTRACT:** The term of the contract will be as stated on the purchase order.

**8.02 ORDER OF PRECEDENCE:** In the event of conflicts or inconsistencies between this contract and its exhibits or attachments, such conflicts or inconsistencies will be resolved by reference to the documents in the order specified on the purchase order.

### **8.03 TERMINATION OF A CONTRACT**

- (a) **FOR CAUSE:** If vendor fails to provide a good or service according to the provisions of the contract or fails to comply with any term or condition of the contract, or if any representation or certification made in the contract or any related document is false, incomplete, or inaccurate, vendor shall be in default under the contract and TxDOT may immediately terminate all or any part of the contract upon written notice to vendor. Termination is not an exclusive remedy but will be in addition to any other remedies TxDOT may have by law, in equity, or under the contract.
- (b) **FOR CONVENIENCE:** The contract may be terminated by TxDOT in whole or in part, without cost or penalty, by providing thirty (30) calendar days written notice. In the event of such termination, vendor must, unless otherwise agreed in writing, cease all work immediately upon the effective date of termination. TxDOT will be liable only for payments for goods or services ordered before the termination date. With regard to services, TxDOT will pay vendor the contract price prorated for acceptable service performed up to the date specified in the notice of termination. Termination under this paragraph will not relieve vendor of any obligation or liability that has occurred prior to termination. Vendor must refund any balance of unused prepaid funds.
- (c) **FUNDING:** The contract may be terminated by TxDOT in whole or in part, without cost or penalty, pursuant to §4.02 of these Terms and Conditions.

**8.04 REMEDIES:** If vendor is in default under the contract, in addition to its right of termination set forth in Section 8.03, TxDOT may, in its sole discretion:

- (a) Purchase the goods or services elsewhere and charge any increase in cost to the defaulting vendor.
- (b) Proceed by appropriate court action to enforce the provisions of the contract.
- (c) Exercise any other right, remedy, or privilege which may be available to it under law, equity, or this contract.

The exercise of any of the foregoing remedies will not constitute a termination of the contract unless TxDOT notifies vendor in writing that TxDOT has elected to terminate the contract prior to the exercise of such remedy. Vendor shall be responsible for all costs and expenses, including court costs, incurred by TxDOT with respect to the enforcement of any of the remedies listed herein. The remedies listed above and elsewhere in this contract are not exclusive. Failure to exercise a remedy shall not constitute a waiver by TxDOT.

**8.05 SALE OR ASSIGNMENT:** Vendor may not assign its rights under the contract or delegate the performance of its duties under the contract without prior written approval from TxDOT. Any attempted assignment in violation of this provision is void and without effect. Vendor must provide written notification of changes to company name, address, telephone number, and other contact information to TxDOT as soon as possible but not later than thirty (30) calendar days from the date of change.

**8.06 RENEWAL OF CONTRACT:** The contract may be renewed by TxDOT, in its sole discretion, for up to three additional like periods of time at the same terms and conditions with prior written notice to vendor, or as otherwise stated in the solicitation.

### **8.07 EXTENSION OF CONTRACTS**

- (a) TxDOT reserves the right to extend a contract, for time only, for a period not to exceed 180 calendar days past the stated term to allow vendor to complete the requirements or to accommodate unanticipated events or requirements prior to the expiration of the contract.
- (b) A contract in its final renewal period may be further extended for time and money for a period up to ninety (90) calendar days at the option of TxDOT.
- (c) Vendor may request a time only extension of a contract by submitting written justification to TxDOT. TxDOT will approve or decline the request for extension in writing. An extension will be effective only if it is issued by the TxDOT Procurement Division in the form of a purchase order change notice.

**8.08 SEVERABILITY CLAUSE:** In the event that any provision(s) of this contract may later be determined to be invalid, void, or unenforceable, then the remaining provisions of this contract will remain in full force and effect.

**8.09 AMENDING THE CONTRACT:** All alterations, additions, or deletions to the contract must be in writing and mutually agreed upon by both parties and put into effect with a purchase order change notice issued by TxDOT. Vendor will not be entitled to payment for any additional services, work, or products that are not authorized by a properly-executed purchase order change notice. All alterations, additions, or deletions to the terms of the contract that are required by changes in federal or state law or regulations are automatically incorporated into the contract without a purchase order change notice and will become effective on the date designated by such law or by regulation.

**8.10. THIRD-PARTY BENEFICIARIES:** The contract is made solely and specifically among and for the benefit of the parties named herein and their respective successors and assigns, and no other person will have any right, interest, or claims hereunder or be entitled to any benefits pursuant to or on account of the contract as a third-party beneficiary or otherwise.

**8.11 BINDING EFFECT AND SURVIVAL OF OBLIGATIONS**

- (a) By submitting the response, respondent binds itself, its respective successors, and assignees to the faithful performance of the terms and conditions and provisions of a contract issued to respondent in connection with the solicitation.
- (b) Expiration or termination of the contract for any reason will not release vendor from any liabilities or obligations set forth in the terms and conditions and contract or any work orders that are expressly stated to survive any such expiration or termination or which by their nature are intended to be applicable following such expiration or termination, including any and all provisions regarding warranty, confidentiality, indemnification, transition, records, audit, property rights, dispute resolution, invoice and fees verification. Upon expiration or termination of the contract for any reason, TxDOT will retain ownership of all associated work products and documentation obtained from or created by vendor under the contract. Vendor must deliver all documents or other work product to TxDOT upon request, including original versions if so specified in the request.
- (c) The term of service stated on the purchase order is binding on vendor regardless of the term on the originating agency contract.

## Appendix A

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to in this Appendix A as the "contractor") agrees to comply with the following nondiscrimination statutes and authorities; including but not limited to:

### **Pertinent Nondiscrimination Authorities:**

- Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d et seq., 78 stat. 252), (prohibits discrimination on the basis of race, color, national origin); and 49 CFR Part 21.
- The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (42 U.S.C. § 4601) (prohibits unfair treatment of persons displaced or whose property has been acquired because of federal or federal-aid programs and projects).
- Federal-Aid Highway Act of 1973 (23 U.S.C. §324 et seq.) (prohibits discrimination on the basis of sex).
- Section 504 of the Rehabilitation Act of 1973 (29 U.S.C. §794 et seq.), as amended, (prohibits discrimination on the basis of disability); and 49 CFR Part 27.
- The Age Discrimination Act of 1975, as amended, (42 U.S.C. §6101 et seq.) (prohibits discrimination on the basis of age).
- The Civil Rights Restoration Act of 1987 (PL 100-209) (Broadened the scope, coverage, and applicability of Title VI of the Civil Rights Act of 1964, The Age Discrimination Act of 1975, and Section 504 of the Rehabilitation Act of 1973, by expanding the definition of the terms "programs or activities" to include all of the programs or activities of the federal-aid recipients, sub-recipients, and contractors, whether such programs or activities are federally funded or not).
- Titles II and III of the Americans with Disabilities Act, which prohibit discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities (42 U.S.C. §§12131-12189) as implemented by Department of Transportation regulations at 49 C.F.R. parts 37 and 38.
- The Federal Aviation Administration's Nondiscrimination statute (49 U.S.C. §47123) (prohibits discrimination on the basis of race, color, national origin, and sex).
- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, which ensures non-discrimination against minority populations by discouraging programs, policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations.
- Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, and resulting agency guidance, national origin discrimination includes discrimination because of limited English proficiency (LEP). To ensure compliance with Title VI, you must take reasonable steps to ensure that LEP persons have meaningful access to your programs (70 Fed. Reg. at 74087 to 74100).
- Title IX of the Education Amendments of 1972, as amended, which prohibits you from discriminating because of sex in education programs or activities (20 U.S.C. 1681, et seq.).

## Appendix B



### EARLY PAYMENT PROGRAM

TxDOT has partnered with Oxygen Finance Americas, Inc. to offer all bidders and active TxDOT vendors the opportunity to enroll in the Early Payment Program (EPP). The EPP gives vendors more flexibility and control of their business and finances. Benefits include:

- Electronic invoice submissions sent to one email address for all TxDOT divisions
- Invoices are time-stamped upon receipt
- Rejection notices are usually sent within 1 business day with instructions on how to revise & resubmit for payment
- Payments are typically made within 10 business days\*, providing you cash sooner
- Monthly remittance statements are provided to EPP vendors for reconciliation
- Live supplier support specialists are available to help EPP vendors through all stages of invoicing and payments

Please fill out the information below and return this form with your completed response

Company: _____	Tax ID/EIN: _____
Contact Name: _____	Title: _____
Address: _____	
Email: _____	Phone: _____
Billing Contact: _____	Title: _____
Address: _____	
Email: _____	Phone: _____

**OPTIONS (Please check one):**

Yes, I would like to enroll in the EPP with the following terms for all future invoices: \_\_\_\_\_ % / 10 Days / Net 30 \*\*  
 Texas State Agencies are allowed to make early payments to vendors, but are required to take a discount in return. (Texas Government Code, Chapter 2155.382). TxDOT allows EPP vendors to determine the invoice discount rate (%) that best suits their business needs.

- I confirm that I am an authorized representative of this company and that if TxDOT pays any Invoiced Debt owed to the aforementioned company under or in connection with any Contract prior to the date by which such payment would otherwise be required to be made under the terms of that Contract, TxDOT shall be entitled to deduct and retain from that Invoiced Debt, for its own benefit, an Early Payment Discount which it will deduct and retain from that Invoiced Debt. These terms will apply to all invoices unpaid as of the date of signature as printed on this form. Early payment discounts are dynamically calculated, with a target payment date of 10 days from the date of invoice acceptance. The final discount taken is proportionate to the number of days the payment is accelerated. A discount is taken ONLY if payment is made before 30 days from the date of invoice acceptance.
- I confirm that I am an authorized representative of this company and agree to the Oxygen Network Supplier Terms of Use found at <http://ftp.dot.state.tx.us/pub/txdot-info/fin/early-pmt/oxygen-network-terms.pdf>

I'm interested in the EPP, but would like a supplier support specialist to call me at this number \_\_\_\_\_

I am already enrolled in the EPP

No, I am not interested at this time

Printed Name \_\_\_\_\_ Signature \_\_\_\_\_ Date \_\_\_\_\_

\*Please note: Direct deposits post 1-3 business days after the payment date and paper checks could take up to 5 business days to receive

\*\*TxDOT reserves the right to approve or reject any proposed rates.

To learn more about the program and its benefits, visit [www.txdot.gov/business/vendors/epp.html](http://www.txdot.gov/business/vendors/epp.html)

To speak with a supplier support specialist, call 844.893.6837 or email at [earlypay@txdot.gov](mailto:earlypay@txdot.gov)

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