

# 010

**Letting June 12, 2026**

## **Notice to Bidders, Specifications and Proposal**



**Contract No. 62W83  
COOK County  
Section 2024-957-TS  
Various Routes  
Project CMAQ-7SJQ(574)  
District 1 Construction Funds**

Prepared by

Checked by

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(Printed by authority of the State of Illinois)



- 1. TIME AND PLACE OF OPENING BIDS.** Electronic bids are to be submitted to the electronic bidding system (iCX-Integrated Contractors Exchange). All bids must be submitted to the iCX system prior to 12:00 p.m. June 12, 2026 at which time the bids will be publicly opened from the iCX SecureVault.
- 2. DESCRIPTION OF WORK.** The proposed improvement is identified and advertised for bids in the Invitation for Bids as:

**Contract No. 62W83  
COOK County  
Section 2024-957-TS  
Project CMAQ-7SJQ(574)  
Various Routes  
District 1 Construction Funds**

**This project adds 35 traffic signals into the Central Traffic Management System and 2 traffic signals to an existing closed loop system including installing fiber optic cable, network switches, PTZ Cameras and traffic signal controllers among other equipment to allow for remote access and monitoring capabilities at these locations. The Project is in three different areas of Cook County.**

- 3. INSTRUCTIONS TO BIDDERS.** (a) This Notice, the invitation for bids, proposal and letter of award shall, together with all other documents in accordance with Article 101.09 of the Standard Specifications for Road and Bridge Construction, become part of the contract. Bidders are cautioned to read and examine carefully all documents, to make all required inspections, and to inquire or seek explanation of the same prior to submission of a bid.  
  
(b) State law, and, if the work is to be paid wholly or in part with Federal-aid funds, Federal law requires the bidder to make various certifications as a part of the proposal and contract. By execution and submission of the proposal, the bidder makes the certification contained therein. A false or fraudulent certification shall, in addition to all other remedies provided by law, be a breach of contract and may result in termination of the contract.
- 4. AWARD CRITERIA AND REJECTION OF BIDS.** This contract will be awarded to the lowest responsive and responsible bidder considering conformity with the terms and conditions established by the Department in the rules, Invitation for Bids and contract documents. The issuance of plans and proposal forms for bidding based upon a prequalification rating shall not be the sole determinant of responsibility. The Department reserves the right to determine responsibility at the time of award, to reject any or all proposals, to re-advertise the proposed improvement, and to waive technicalities.

By Order of the  
Illinois Department of Transportation

Gia Biagi,  
Secretary

INDEX  
 FOR  
 SUPPLEMENTAL SPECIFICATIONS  
 AND RECURRING SPECIAL PROVISIONS

Adopted January 1, 2026

This index contains a listing of SUPPLEMENTAL SPECIFICATIONS, frequently used RECURRING SPECIAL PROVISIONS, and LOCAL ROADS AND STREETS RECURRING SPECIAL PROVISIONS.

ERRATA Standard Specifications for Road and Bridge Construction  
 (Adopted 1-1-22) (Revised 1-1-26)

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## STATE OF ILLINOIS

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### SPECIAL PROVISIONS

The following Special Provisions supplement the "Standard Specifications for Road and Bridge Construction," adopted January 1, 2022, the latest edition of the "Manual on Uniform Traffic Control Devices for Streets and Highways," and the "Manual of Test Procedures for Materials" in effect on the date of invitation for bids, and the Supplemental Specifications and Recurring Special Provisions indicated on the Check Sheet included herein which apply to and govern the construction of Various Routes, Project CMAQ-7SJQ(574), Section 2024-957-TS, Cook County, Contract No. 62W83 and in case of conflict with any part or parts of said Specifications, the said Special Provisions shall take precedence and shall govern.

Various Routes  
Project CMAQ-7SJQ(574)  
Section 2024-957-TS  
Cook County  
Contract No. 62W83

### LOCATION OF PROJECT

The Project is located in three different areas of Cook County. The first location is located along IL Rte 21 (Milwaukee Ave) from Lake Ave to Sanders Rd in the Village of Glenview. The second location is located along US Rte 14 (Dempster St) from IL Rte 21 (Milwaukee Ave) to Ozark Ave in the Villages of Niles and Morton Grove. The third location is located primarily along Touhy Ave from IL Rte 43 (Harlem Ave) to Kostner Ave with additional intersections located off of Touhy Ave along IL Rte 43 (Harlem Ave), IL Rte 21 (Milwaukee Ave), US Rte 14 (Caldwell Ave), Carpenter Rd/Niles Center Rd, IL Rte 50 (Cicero Ave)/Devon Ave, and US Rte 41 (Lincoln Ave). The third location is located within the City of Chicago and the Villages of Niles, Skokie and Lincolnwood.

### DESCRIPTION OF PROJECT

This project proposes to add 35 traffic signals into the Central Traffic Management System and add 2 traffic signals to an existing closed loop system. This project will install fiber optic cable, network switches, PTZ Cameras and traffic signal controllers among other equipment to allow for remote access and monitoring capabilities at these locations. This project will improve traffic progression at these locations and allow for the District 1 network to expand for remote control and access to each traffic signal.

**MAINTENANCE OF ROADWAYS (D1)**

Effective: September 30, 1985                      Revised: November 1, 1996

Beginning on the date that work begins on this project, the Contractor shall assume responsibility for normal maintenance of all existing roadways within the limits of the improvement. This normal maintenance shall include all repair work deemed necessary by the Engineer, but shall not include snow removal operations. Traffic control and protection for maintenance of roadways will be provided by the Contractor as required by the Engineer.

If items of work have not been provided in the contract, or otherwise specified for payment, such items, including the accompanying traffic control and protection required by the Engineer, will be paid for in accordance with Article 109.04 of the Standard Specifications.

**STATUS OF UTILITIES (D-1)**

Effective: June 1, 2016  
 Revised: April 1, 2025

Utility companies and/or municipal owners located within the construction limits of this project have provided the following information regarding their facilities and the proposed improvements. The tables below contain a description of specific conflicts to be resolved and/or facilities which will require some action on the part of the Department's contractor to proceed with work. Each table entry includes an identification of the action necessary and, if applicable, the estimated duration required for the resolution.

**UTILITIES TO BE ADJUSTED**

Conflicts noted below have been identified by following the suggested staging plan included in the contract. The company has been notified of all conflicts and will be required to obtain the necessary permits to complete their work; in some instances, resolution will be a function of the construction staging. The responsible agency must relocate, or complete new installations as noted below; this work has been deemed necessary to be complete for the Department's contractor to then work in the stage under which the item has been listed.

**Pre-Stage**

STAGE / LOCATION	TYPE	DESCRIPTION	RESPONSIBLE AGENCY	DURATION OF TIME

**Stage 1**

STAGE / LOCATION	TYPE	DESCRIPTION	RESPONSIBLE AGENCY	DURATION OF TIME

**Stage 2**

STAGE / LOCATION	TYPE	DESCRIPTION	RESPONSIBLE AGENCY	DURATION OF TIME

No conflicts to be resolved (or if there are conflicts, they are to be listed as noted above)

Pre-Stage: \_\_\_\_\_ Days Total Installation  
 Stage 1: \_\_\_\_\_ Days Total Installation  
 Stage 2: \_\_\_\_\_ Days Total Installation

The following contact information is what was used during the preparation of the plans as provided by the Agency/Company responsible for resolution of the conflict.

Agency/Company Responsible to Resolve Conflict	Name of contact	Phone	E-mail address

**UTILITIES TO BE WATCHED AND PROTECTED**

The areas of concern noted below have been identified by following the suggested staging plan included for the contract. The information provided is not a comprehensive list of all remaining utilities, but those which during coordination were identified as ones which might require the Department's contractor to take into consideration when making the determination of the means and methods that would be required to construct the proposed improvement. In some instances, the contractor will be responsible to notify the owner in advance of the work to take place so necessary staffing on the owner's part can be secured.

**Pre-Stage**

STAGE / LOCATION	TYPE	DESCRIPTION	OWNER

**Stage 1**

STAGE / LOCATION	TYPE	DESCRIPTION	OWNER

**Stage 2**

STAGE / LOCATION	TYPE	DESCRIPTION	OWNER

No facilities requiring extra consideration *(or listed as noted above)*

The following contact information is what was used during the preparation of the plans as provided by the owner of the facility.

Agency/Company Responsible to Resolve Conflict	Name of contact	Phone	E-mail address

The above represents the best information available to the Department and is included for the convenience of the bidder. The days required for conflict resolution should be considered in the bid as this information has also been factored into the timeline identified for the project when setting the completion date. The applicable portions of the Standard Specifications for Road and Bridge Construction shall apply.

Estimated duration of time provided above for the first conflicts identified will begin on the date of the executed contract regardless of the status of the utility relocations. The responsible agencies will be working toward resolving subsequent conflicts in conjunction with contractor activities in the number of days noted.

The estimated relocation duration must be part of the progress schedule submitted by the contractor. A utility kickoff meeting will be scheduled between the Department, the Department's contractor, and the utility companies when necessary.

The contractor is responsible for contacting JULIE (or DIGGER within the City of Chicago) prior to any excavation work. Please note that IDOT electrical facilities are not part of the one-call locating services, such as JULIE or DIGGER.

If the contract requires the services of an electrical contractor, it is the contractor's responsibility, at their own expense, to locate existing IDOT electrical facilities before commencing work. For contracts that do not require an electrical contractor, the contractor may request one free locate of IDOT electrical facilities by contacting the Department's Electrical Maintenance Contractor. Additional locate requests will be at the contractor's expense.

The Department's Electrical Maintenance Contractor must be notified at least 72 hours in advance of the work by calling 773-287-7600 or emailing [dispatch@meade100.com](mailto:dispatch@meade100.com) to arrange for the locating of underground electrical facilities.

Please note, the marking of underground facilities does not absolve the contractor of their responsibility to repair or replace any facilities damaged during construction at their expense.

**PUBLIC CONVENIENCE AND SAFETY (D1)**

Effective: May 1, 2012

Revised: July 15, 2012

Add the following to the end of the fourth paragraph of Article 107.09:

“If the holiday is on a Saturday or Sunday, and is legally observed on a Friday or Monday, the length of Holiday Period for Monday or Friday shall apply.”

Add the following sentence after the Holiday Period table in the fourth paragraph of Article 107.09:

“The Length of Holiday Period for Thanksgiving shall be from 5:00 AM the Wednesday prior to 11:59 PM the Sunday After”

Delete the fifth paragraph of Article 107.09 of the Standard Specifications:

“On weekends, excluding holidays, roadways with Average Daily Traffic of 25,000 or greater, all lanes shall be open to traffic from 3:00 P.M. Friday to midnight Sunday except where structure construction or major rehabilitation makes it impractical.”

**WORK RESTRICTION**

The Contractor shall not start work on this contract until **June 1, 2027**. Contractor shall then start work on locations 1 through location 4 (Area 1 and 2) before starting work on locations 5-24A (Area 3). When starting work on Area 3, contractor shall start work at the main fiber connection with I-94 between locations 19 to 20 and then work outward to provide system connections with minimal disruptions.

**ENGINEER’S FIELD OFFICE TYPE A (D1)**

Effective: January 1, 2022

Revise the first paragraph of Article 670.02 to read:

**670.02 Engineer's Field Office Type A (D1).** Type A (D1) field offices shall have a ceiling height of not less than 7 feet and a floor space of not less than 1000 square feet with a minimum of two separate offices. The office shall also have a separate storage room capable of being locked for the storage of the nuclear measuring devices. The office shall be provided with sufficient heat, natural and artificial light, and air conditioning. Doors and windows shall be equipped with locks approved by the Engineer.

Add the following to Article 670.07 Basis of Payment.

The building or buildings, fully equipped, will be paid for at the contract unit price per calendar month or fraction thereof for ENGINEER'S FIELD OFFICE, TYPE A (D1).

**TRAFFIC CONTROL PLAN (D1)**

Effective: September 30, 1985

Revised: January 1, 2007

Traffic Control shall be according to the applicable sections of the Standard Specifications, the Supplemental Specifications, the "Illinois Manual on Uniform Traffic Control Devices for Streets and Highways", any special details and Highway Standards contained in the plans, and the Special Provisions contained herein.

Special attention is called to Article 107.09 of the Standard Specifications and the following Highway Standards, Details, Quality Standard for Work Zone Traffic Control Devices, Recurring Special Provisions and Special Provisions contained herein, relating to traffic control.

The Contractor shall contact the District One Bureau of Traffic at least 72 hours in advance of beginning work.

STANDARDS:

701001, 701006, 701101, 701106, 701301, 701400, 701401, 701426, 701427, 701446, 701501, 701502, 701601, 701602, 701606, 701701, 701801, 701901

Standard 701101 – NOT to be used on expressway or ramps and is only intended for arterial routes.

DETAILS:

Entrance and Exit-Ramp Closure Details (TC-08)

Traffic Control Details for Freeway Single & Multi-Lane Weave (TC-09)

Traffic Control and Protection for Side Roads, Intersections, and Driveways (TC-10)

Traffic Control and Protection at Turn Bays (To Remain Open to Traffic) (TC-14)

Traffic control for shoulders closures and partial ramp closures (TC – 17)

Arterial Road Information Sign (TC-22)

SPECIAL PROVISIONS:

Maintenance of Roadways (D1)

Public Convenience and Safety (D1)

Temporary Information Signing

Keeping Arterial Roadways Open to Traffic (Lane Closures Only)

Work Zone Traffic Control Devices (BDE)

Vehicle and Equipment Warning Lights (BDE)

Work Restriction

Keeping the expressways open to traffic (D1)

Failure to open traffic lanes to traffic (D1)

Traffic control and protection (Expressways) (D-1)

## REMOVAL AND DISPOSAL OF REGULATED SUBSTANCES (PROJECT SPECIFIC)

**Description.** This work shall consist of the removal and disposal of regulated substances according to Section 669 of the Standard Specifications as revised below.

**Contract Specific Sites.** The excavated soil and groundwater within the areas listed below shall be managed as either “uncontaminated soil”, hazardous waste, special waste or non-special waste. For stationing, the lateral distance is measured from centerline and the farthest distance is the offset distance or construction limit, whichever is less.

**Soil Disposal Analysis.** When the waste material requires sampling for landfill disposal acceptance, the Contractor shall secure a written list of the specific analytical parameters and analytical methods required by the landfill. The Contractor shall collect and analyze the required number of samples for the parameters required by the landfill using the appropriate analytical procedures. A copy of the required parameters and analytical methods (from landfill email or on landfill letterhead) shall be provided as Attachment 4A of the BDE 2733 (Regulated Substances Final Construction Report). The price shall include all sampling materials and effort necessary for collection and management of the samples, including transportation of samples from the job site to the laboratory. The Contractor shall be responsible for determining the specific disposal facilities to be utilized; and collect and analyze any samples required for disposal facility acceptance using a NELAP certified analytical laboratory registered with the State of Illinois.

### Intersection of US 14 (Dempster Street) and IL 21 (N. Milwaukee Avenue), Niles, Cook County

- All excavation planned at the southeast quadrant at the intersection of US 14 Dempster Street and IL 21 (N. Milwaukee Avenue). The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(5). Contaminants of concern sampling parameters: VOCs, SVOCs and Metals.

### Intersection of US 14 (Dempster Street) and Elmore Street, Niles, Cook County

- All excavation planned at the southeast quadrant at the intersection of US 14 Dempster Street and Elmore Street. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(1). Contaminants of concern sampling parameters: VOCs, SVOCs and Metals.

### Intersection of US 14 (Dempster Street) and Ozanam Avenue, Niles, Cook County

- All excavation planned at the southeast quadrant at the intersection of US 14 Dempster Street and Ozanam Avenue. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(5). Contaminants of concern sampling parameters: VOCs, SVOCs and Metals.

Intersection of Touhy Avenue and I-94, Niles / Lincolnwood, Cook County

- All excavation planned at the north side of Touhy Avenue, approximately 130 feet west of I-94 East off-ramp gore. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(5). Contaminants of concern sampling parameters: VOCs, SVOCs and Metals.
- All excavation planned at the north side of Touhy Avenue, approximately 135 feet west of I-94 East on-ramp gore. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(5). Contaminants of concern sampling parameters: VOCs, SVOCs and Metals.
- All excavation planned at the north side of Touhy Avenue, approximately 310 feet east of I-94 East on-ramp gore. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(1). Contaminants of concern sampling parameters: VOCs, SVOCs and Metals.
- All excavation planned at the north side of Touhy Avenue, approximately 84 feet west of I-94 West off-ramp gore. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(1). Contaminants of concern sampling parameters: VOCs, SVOCs and Metals.
- All excavation planned at the north side of Touhy Avenue, approximately 60 feet west of I-94 West on-ramp gore. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(1). Contaminants of concern sampling parameters: VOCs, SVOCs and Metals.
- All excavation planned at the north side of Touhy Avenue, approximately 25 feet west of I-94 West on-ramp gore. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(1). Contaminants of concern sampling parameters: VOCs, SVOCs and Metals.
- All excavation planned at the south side of Touhy Avenue, approximately 55 feet east of I-94 West on-ramp gore. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(1). Contaminants of concern sampling parameters: VOCs, SVOCs and Metals.

Intersection of N. Central Avenue / N. Carpenter Road and Pratt Avenue, Lincolnwood / Skokie, Cook County

- All excavation planned at the northeast quadrant at the intersection of N. Central Avenue / N. Carpenter Road and Pratt Avenue. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(1). Contaminants of concern sampling parameters: VOCs, SVOCs and Metals.

Intersection of N. Central Avenue / N. Carpenter Road and Morse Avenue, Skokie / Chicago, Cook County

- All excavation planned at the northeast quadrant at the intersection of N. Central Avenue / N. Carpenter Road and Morse Avenue. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(1). Contaminants of concern sampling parameters: VOCs, SVOCs and Metals.

Intersection of N. Central Avenue / N. Carpenter Road and South Mall Entrance, Skokie / Chicago, Cook County

- All excavation planned at the east side of N. Central Avenue / N. Carpenter Road, approximately 143 feet south of the south mall entrance. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(1). Contaminants of concern sampling parameters: VOCs, SVOCs and Metals.

Intersection of N. Central Avenue / N. Carpenter Road and Fairview Lane, Skokie / Chicago, Cook County

- All excavation planned at the northeast quadrant at the intersection of N. Central Avenue / N. Carpenter Road and Fairview Lane. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(1). Contaminants of concern sampling parameters: VOCs, SVOCs and Metals.

**Work Zones**

Three distinct OSHA HAZWOPER work zones (exclusion, decontamination, and support) shall apply to projects adjacent to or within sites with documented leaking underground storage tank (LUST) incidents, or sites under management in accordance with the requirements of the Site Remediation Program (SRP), Resource Conservation and Recovery Act (RCRA), or Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), or as deemed necessary. For this project, the work zones apply for the following ISGS PESA Sites:  
**None**

**FIBER OPTIC CABLE, SINGLE MODE (TRAFFIC SIGNALS)**

Effective: January 1, 2026

**Description.** The Contractor shall furnish and install loose-tube, single-mode, fiber optic cable of the number of fibers specified as shown in the plans and as directed by the Engineer.

Other ancillary components, required to complete the fiber optic cable plant, including but not limited to, moisture and water sealants, cable caps, fan-out kits, etc., shall be included in the cost of fiber optic cable and will not be paid for separately.

**Materials** The single-mode, fiber optic cable shall incorporate a loose, buffer-tube design. The cable shall be an accepted product of the United States Department of Agriculture Rural Utilities Service (RUS) 7 CFR 1755.900 and meet the requirements of ANSI/ICEA Standard for Fiber Optic Outside Plant Communications Cable.

**Fibers.**

The cables shall use dispersion unshifted fibers. The optical and physical characteristics of the un-cabled fibers shall include:

The single-mode fiber shall meet EIA/TIA-492CAAA, "Detail Specification for Class IVa Dispersion-Unshifted Single-Mode Optical Fibers," and ITU recommendation G.652.D, "Characteristics of a single-mode optical fiber cable."

<b>Physical Construction</b>			
<b>Requirement</b>		<b>Units</b>	<b>Value</b>
Cladding Diameter		( $\mu\text{m}$ )	125.0 $\pm$ 0.7
Core-to-Cladding Concentricity		( $\mu\text{m}$ )	$\leq$ 0.5
Cladding Non-Circularity			$\leq$ 0.7 %
Mode Field Diameter	1310 nm	( $\mu\text{m}$ )	9.2 $\pm$ 0.4
	1550 nm		10.4 $\pm$ 0.5
Coating Diameter		( $\mu\text{m}$ )	245 $\pm$ 5
Colored Fiber Nominal Diameter		( $\mu\text{m}$ )	253 - 259
Fiber Curl radius of curvature		(m)	> 4.0 m

<b>Optical Characteristics</b>			
<b>Requirement</b>		<b>Units</b>	<b>Value</b>
Cabled Fiber Attenuation	1310 nm	(dB/km)	$\leq$ 0.4
	1550 nm		$\leq$ 0.3
Point discontinuity	1310 nm	(dB)	$\leq$ 0.1
	1550 nm		$\leq$ 0.1
Macrobend Attenuation	Turns	Mandrel OD	
	1	32 $\pm$ 2 mm	< 0.05 at 1550 nm
	100	50 $\pm$ 2 mm	< 0.05 at 1310 nm
	100	50 $\pm$ 2 mm	< 0.10 at 1550 nm
	100	60 $\pm$ 2 mm	< 0.05 at 1550 nm
	100	60 $\pm$ 2 mm	< 0.05 at 1625 nm
Cable Cutoff Wavelength ( $\lambda_{ccf}$ )		(nm)	< 1260
Zero Dispersion Wavelength ( $\lambda_0$ )		(nm)	1302 $\leq$ $\lambda_0$ $\leq$ 1322
Zero Dispersion Slope ( $S_0$ )		(ps/(nm <sup>2</sup> •km))	$\leq$ 0.089
Total Dispersion	1550 nm	(ps/(nm•km))	$\leq$ 3.5
	1285-1330 nm		$\leq$ 17.5
	1625 nm		$\leq$ 21.5
Cabled Polarization Mode Dispersion		(ps/km <sup>2</sup> )	$\leq$ 0.2
IEEE 802.3 GbE - 1300 nm Laser Distance		(m)	up to 5000
Water Peak Attenuation: 1383 $\pm$ 3 nm		(dB/km)	$\leq$ 0.4

### **Cable Construction.**

The number of fibers in each cable shall be as specified on the plans.

Optical fibers shall be placed inside a loose buffer tube. The nominal outer diameter of the buffer tube shall be 3.0 mm. Each buffer tube shall contain up to 12 fibers. The fibers shall not adhere to the inside of the buffer tube.

Each fiber shall be distinguishable by means of color coding in accordance with TIA/EIA-598-B, "Optical Fiber Cable Color Coding." The fibers shall be colored with ultraviolet (UV) curable inks.

Buffer tubes containing fibers shall be color coded with distinct and recognizable colors in accordance with TIA/EIA-598-B, "Optical Fiber Cable Color Coding." Buffer tube colored stripes shall be inlaid in the tube by means of co-extrusion when required. The nominal stripe width shall be 1 mm.

For cables containing more than 12 buffer tubes, standard colors are used for tubes 1 through 12 and stripes are used to denote tubes 13 through 24. The color sequence applies to tubes containing fibers only, and shall begin with the first tube. If fillers are required, they shall be placed in the inner layer of the cable. The tube color sequence shall start from the inside layer and progress outward.

In buffer tubes containing multiple fibers, the colors shall be stable across the specified storage and operating temperature range and shall not be subject to fading or smearing onto each other. Colors shall not cause fibers to stick together.

The buffer tubes shall be resistant to external forces and shall meet the buffer tube cold bend and shrinkback requirements of 7 CFR 1755.900.

Fillers may be included in the cable core to lend symmetry to the cable cross-section where needed. Fillers shall be placed so that they do not interrupt the consecutive positioning of the buffer tubes. In dual layer cables, any fillers shall be placed in the inner layer. Fillers shall be nominally 2.5 mm or 3.0 mm in outer diameter.

The central member shall consist of a dielectric, glass reinforced plastic (GRP) rod (optional steel central member). The purpose of the central member is to provide tensile strength and prevent buckling. The central member shall be overcoated with a thermoplastic when required to achieve dimensional sizing to accommodate buffer tubes/fillers.

Each buffer tube shall contain a water-swallowable yarn for water-blocking protection. The water-swallowable yarn shall be non-nutritive to fungus, electrically non-conductive, and homogeneous. It shall also be free from dirt or foreign matter. This yarn will preclude the need for other water-blocking material; the buffer-tube shall be gel-free. The optical fibers shall not require cleaning before placement into a splice tray or fan-out kit.

Buffer tubes shall be stranded around the dielectric central member using the reverse oscillation, or "S-Z", stranding process.

Water swellable yarn(s) shall be applied longitudinally along the central member during stranding.

Two polyester yarn binders shall be applied contrahelically with sufficient tension to secure each buffer tube layer to the dielectric central member without crushing the buffer tubes. The binders shall be non-hygroscopic, non-wicking, and dielectric with low shrinkage.

For single layer cables, a water swellable tape shall be applied longitudinally around the outside of the stranded tubes/fillers. The water swellable tape shall be non-nutritive to fungus, electrically non-conductive, and homogenous. It shall also be free from dirt and foreign matter.

For dual layer cables, a second (outer) layer of buffer tubes shall be stranded over the original core to form a two layer core. A water swellable tape shall be applied longitudinally over both the inner and outer layer. The water swellable tape shall be non-nutritive to fungus, electrically non-conductive, and homogenous. It shall also be free from dirt and foreign matter.

The cables shall contain one ripcord under the sheath for easy sheath removal.

Tensile strength shall be provided by the central member, and additional dielectric yarns as required.

The dielectric yarns shall be helically stranded evenly around the cable core.

The cables shall be sheathed with medium density polyethylene (MDPE). The minimum nominal jacket thickness shall be 1.4 mm. Jacketing material shall be applied directly over the tensile strength members (as required) and water swellable tape. The polyethylene shall contain carbon black to provide ultraviolet light protection and shall not promote the growth of fungus.

The MDPE jacket material shall be as defined by ASTM D1248, Type II, Class C, Category 4 and Grades J4, E7 and E8.

The jacket or sheath shall be free of holes, splits, and blisters.

The cable jacket shall contain no metal elements and shall be of a consistent thickness.

Cable jackets shall be marked with the manufacturer's name, month and year of manufacture, sequential meter or foot markings, a telecommunication handset symbol as required by Section 350G of the National Electrical Safety Code (NESC), fiber count, and fiber type. The actual length of the cable shall be within -0/+1% of the length markings. The print color shall be white, with the exception that cable jackets containing one or more co-extruded white stripes, which shall be printed in light blue. The height of the marking shall be approximately 2.5 mm.

The maximum pulling tension shall be 2700 N (608 lbf) during installation (short term) and 890 N (200 lbf) long term installed.

The shipping, storage, and operating temperature range of the cable shall be -40°C to +70°C. The installation temperature range of the cable shall be -30°C to +70°C.

## General Cable Performance Specifications

The fiber optic cable manufacturer shall provide documentation and certify that the fiber optic cable complies with the following EIA-455-~~xxx~~ Fiber Optic Test Procedures (FOTP):

When tested in accordance with FOTP-3, "*Procedure to Measure Temperature Cycling Effects on Optical Fibers, Optical Cable, and Other Passive Fiber Optic Components*," the change in attenuation at extreme operational temperatures (-40°C and +70°C) shall not exceed 0.15 dB/km at 1550 nm for single-mode fiber and 0.3 dB/km at 1300 nm for multimode fiber.

When tested in accordance with FOTP-82, "*Fluid Penetration Test for Fluid-Blocked Fiber Optic Cable*," a one meter length of unaged cable shall withstand a one meter static head or equivalent continuous pressure of water for one hour without leakage through the open cable end.

When tested in accordance with FOTP-81, "*Compound Flow (Drip) Test for Filled Fiber Optic Cable*," the cable shall exhibit no flow (drip or leak) of filling and/or flooding material at 70°C.

When tested in accordance with FOTP-41, "*Compressive Loading Resistance of Fiber Optic Cables*," the cable shall withstand a minimum compressive load of 220 N/cm (125 lbf/in) applied uniformly over the length of the sample. The 220 N/cm (125 lbf/in) load shall be applied at a rate of 2.5 mm (0.1 in) per minute. The load shall be maintained for a period of 1 minute. The load shall then be decreased to 110 N/cm (63 lbf/in). Alternatively, it is acceptable to remove the 220 N/cm (125 lbf/in) load entirely and apply the 110 N/cm (63 lbf/in) load within five minutes at a rate of 2.5 mm (0.1 in) per minute. The 110 N/cm (63 lbf/in) load shall be maintained for a period of 10 minutes. Attenuation measurements shall be performed before release of the 110 N/cm (63 lbf/in) load. The change in attenuation shall not exceed 0.15 dB at 1550 nm for single-mode fibers and 0.30 dB at 1300 nm for multimode fiber.

When tested in accordance with FOTP-104, "*Fiber Optic Cable Cyclic Flexing Test*," the cable shall withstand 25 mechanical flexing cycles around a sheave diameter not greater than 20 times the cable diameter. The change in attenuation shall not exceed 0.15 dB at 1550 nm for single-mode fiber and 0.30 dB at 1300 nm for multimode fiber.

When tested in accordance with FOTP-25, "*Repeated Impact Testing of Fiber Optic Cables and Cable Assemblies*," except that the number of cycles shall be two at three locations along a one meter cable length and the impact energy shall be at least 4.4 Nm (in accordance with ICEA S-87-640)", the change in attenuation shall not exceed 0.15 dB at 1550 nm for single-mode fiber and 0.30 dB at 1300 nm for multimode fiber.

When tested in accordance with FOTP-33, "*Fiber Optic Cable Tensile Loading and Bending Test*," using a maximum mandrel and sheave diameter of 560 mm, the cable shall withstand a rated tensile load of 2670N (601 lbf) and residual load of 30% of the rated installation load. The axial fiber strain shall be  $\leq 60\%$  of the fiber proof level after completion of 60 minute conditioning and while the cable is under the rated installation load. The axial fiber strain shall be  $\leq 20\%$  of the fiber proof level after completion of 10 minute conditioning and while the cable is under the residual load. The change in attenuation at residual load and after load removal shall not exceed 0.15 dB at 1550 nm for single mode fiber and 0.30 dB at 1300 nm for multimode fiber.

When tested in accordance with FOTP-85, "*Fiber Optic Cable Twist Test*," a length of cable no greater than 2 meters shall withstand 10 cycles of mechanical twisting. The change in attenuation shall not exceed 0.15 dB at 1550 nm for single-mode fiber and 0.30 dB at 1300 nm for multimode fiber.

When tested in accordance with FOTP-37, "*Low or High Temperature Bend Test for Fiber Optic Cable*," the cable shall withstand four full turns around a mandrel of  $\leq 20$  times the cable diameter after conditioning for four hours at test temperatures of  $-30^{\circ}\text{C}$  and  $+60^{\circ}\text{C}$ . Neither the inner or outer surfaces of the jacket shall exhibit visible cracks, splits, tears, or other openings. The change in attenuation shall not exceed 0.30 dB at 1550 nm for single mode fiber and 0.50 dB at 1300 nm for multimode fiber.

### **Quality Assurance Provision**

All cabled optical fibers > 1000 meters in length shall be 100% attenuation tested. The attenuation of each fiber shall be provided with each cable reel. The cable manufacturer shall be TL 9000 registered.

### **Packaging**

Top and bottom ends of the cable shall be available for testing. Both ends of the cable shall be sealed to prevent the ingress of moisture. Each reel shall have a weather resistant reel tag attached identifying the reel and cable. The reel tag shall include the following information:

- Cable Number
- Gross Weight
- Shipped Cable Length in Meters
- Job Order Number
- Product Number
- Customer Order Number
- Date Cable was Tested
- Manufacturer Order Number
- Cable Length Markings
  - a: Top (inside end of cable)
  - b: Bottom (outside end of cable)

The reel (one flange) marking shall include:

- Manufacturer
- Country of origin
- An arrow indicating proper direction of roll when handling
- Fork lift-handling illustration
- Handling Warnings.

Each cable shall be accompanied by a cable data sheet. The cable data sheet shall include the following information:

- Manufacturer Cable Number
- Manufacturer Product Number
- Manufacturer Factory Order Number
- Customer Name
- Customer Cable Number
- Customer Purchase Order Number
- Mark for Information
- Ordered Length
- Maximum Billable Length
- Actual Shipped Length
- Measured Attenuation of Each Fiber

The cable shall be capable of withstanding a minimum-bending radius of 20 times its outer diameter during installation and 10 times its outer diameter during operation without changing the characteristics of the optical fibers.

The cable shall meet all of specified requirements under the following conditions:

- Shipping/storage temperature: -58° F to +158° F (-50° C to +70° C)
- Installation temperature: -22° F to +158° F (-30° C to +70° C)
- Operating temperature: -40° F to +158° F (-40° C to +70° C)
- Relative humidity from 0% to 95%, non-condensing

#### **Optical Patch Cords and Pigtails.**

The optical patch cords and pigtails shall comply with the following:

- The optical patch cords shall consist of a section of single fiber, jacketed cable equipped with optical connectors at both ends.
- The factory installed connector furnished as part of the optical patch cords and pigtails shall meet or exceed the requirements for approved connectors specified herein.
- The fiber portion of each patch cord and pigtail shall be a single, jacketed fiber with optical properties identical to the optical cable furnished under this contract.
- The twelve fiber single-mode fiber optic cable shall be installed as a pigtail with factory installed ST compatible connectors.
- The patch cords shall comply with Telcordia GR-326-CORE

**Connectors.**

The optical connectors shall comply with the following:

- All connectors shall be factory installed ST compatible connectors. Field installed connectors shall not be allowed.
- Maximum attenuation 0.4dB, typical 0.2dB.
- No more than 0.2dB increase in attenuation after 1000 insertions.
- Attenuation of all connectors will be checked and recorded at the time of installation with an insertion test minimum 5 times checked with an OTDR.
- All fibers shall be connectorized at each end.
- All fibers shall terminate at a fiber patch panel
- Unused fibers will be protected with a plastic cap to eliminate dust and moisture.
- Termination shall be facilitated by splicing factory OEM pigtailed on the end of the bare fiber utilizing the fusion splicing method. Pigtailed shall be one meter in length.

**CONSTRUCTION REQUIREMENTS**

**Experience Requirements.**

Personnel involved in the installation, splicing and testing of the fiber optic cables shall meet the following requirements:

- A minimum of three (3) years experience in the installation of fiber optic cables, including fusion splicing, terminating and testing single mode fibers.
- Install two systems where fiber optic cables are outdoors in conduit and where the systems have been in continuous satisfactory operation for at least two years. The Contractor shall submit as proof, photographs or other supporting documents, and the names, addresses and telephone numbers of the operating personnel who can be contacted regarding the installed fiber optic systems.
- One fiber optic cable system (which may be one of the two in the preceding paragraph), which the Contractor can arrange for demonstration to the Department representatives and the Engineer.

Installers shall be familiar with the cable manufacturer's recommended procedures for installing the cable. This shall include knowledge of splicing procedures for the fusion splicer being used on this project and knowledge of all hardware such as breakout (furcation) kits and splice closures. The Contractor shall submit documented procedures to the Engineer for approval and to be used by Construction inspectors.

Personnel involved in testing shall have been trained by the manufacturer of the fiber optic cable test equipment to be used, in fiber optic cable testing procedures. Proof of this training shall be submitted to the Engineer for approval. In addition, the Contractor shall submit documentation of the testing procedures and a copy of the test equipment operation manual for approval by the Engineer.

### **Installation in Raceways.**

Prior to installation, the Contractor shall provide a cable-pulling plan. The plan shall include the following information:

- Identify where each cable will enter the underground system and the direction each pull.
- Identify locations where the cable is pulled out of a handhole, coiled in a figure eight, and pulled back into the hand hole.
- The plan shall address the physical protection of the cable during installation and during periods of downtime.
- Identify the location of slack storage locations
- Identify the locations of splices.
- Identify distances between fiber access points and crossings.

The cable-pulling plan shall be provided to the Engineer for approval a minimum of 15 working days prior to the start of installation. The Engineer's approval shall be for the operation on the freeway and does not include an endorsement of the proposed procedures. The Contractor is responsible for the technical adequacy of the proposed procedures.

During cable pulling operations, the Contractor shall ensure that the minimum bending of the cable is maintained during the unreeling and pulling operations. Unless specified otherwise by the fiber optic cable manufacturer, the outside bend radius of the cable during installation shall be no less than 20 times the outside diameter of the fiber optic cable. Entry guide chutes shall be used to guide the cable into the handhole conduit ports. Lubricating compound shall be used to minimize friction. Corner rollers (wheels), if used, shall not have radii less than the minimum installation-bending radius of the cable. A series array of smaller wheels can be used for accomplishing the bend if the cable manufacturers specifically approve the array.

If figure-eight techniques are used during cable installation, the cable shall be handled manually and stored on the ground. The cable shall be placed on tarps to prevent damage from gravel, rocks, or other abrasive surfaces. Tarps should also be used in muddy conditions to keep the cable clean. Enough area to accommodate the cable length to be stored and sufficient personnel to maintain the required minimum-bending diameter as well as avoid kinking or otherwise damaging the cable shall be provided. If the cable has been figure-eighted in preparation for a forward feed, the figure-eight must be flipped over to access the outside cable end. Provide sufficient personnel to avoid kinking the cable as the figure-eight is flipped over. When removing the cable from the figure-eight, use care to avoid kinking the cable and violating the minimum-bending diameter.

Power assisted or figure-eight eliminator equipment, which is used to eliminate manual figure-eight procedures, shall not be used unless specifically allowed by the cable manufacturer in writing.

The pulling tension shall be continuously measured and shall not be allowed to exceed the maximum tension specified by the manufacturer of the cable. A dynamometer or in-line tensiometer shall be used to monitor tension in the pull-line near the winch. This device must be visible to the winch operator or used to control the winch. The pulling system shall have an audible alarm that sounds whenever a pre-selected tension level is reached. Tension levels shall be recorded continuously and shall be given to the engineer as well as included in the record drawing package.

The use of a breakaway link (swivel) may be used to ensure that the maximum tension of the cable is not exceeded. Breakaway links react to tension at the pulling eye and shall not be used in lieu of tension measuring devices. All pulling equipment and hardware which will contact the cable during installation must maintain the cable's minimum bend radius. Equipment including sheaves, capstans, bending shoes, and quadrant blocks shall be designed for use with fiber optic cable.

The cable shall be pulled into the conduit as a single component, absorbing the pulling force in all tension elements. The central strength member and Aramid yarn shall be attached directly to the pulling eye during cable pulling. "Basket grip" type attachments, which only attach to the cable's outer jacket, shall not be permitted. A breakaway swivel, rated at 95% of the cable manufacturer's approved maximum tensile loading, shall be used on all pulls. When simultaneously pulling fiber optic cable with other cables, separate grooved rollers shall be used for each cable.

To minimize the exposure of the backbone cable and to facilitate the longer lengths of fiber optic cable, the Contractor shall use a "blown cable" (pneumatically assisted) technique to place the fiber optic cable. A Compressed air cooler shall be used when ambient air temperatures reaches 90°F or more.

Where cable is to be pulled through existing conduit which contains existing cables, optical or other, the existing cables shall be removed and reinstalled with the fiber optic cable as indicated on the plans. The removal of the cable(s) shall be paid for separately. Reinstallation of the existing cables, if indicated on the plans, along with the fiber optic cable shall be included in this item for payment.

Armored fiber optic cables shall be grounded as shown on the plans.

### **Tracer Wire**

Tracer wire shall be paid for separately and installed with all fiber optic cable runs as specified for Tracer Wire.

### **Aerial Fiber Optic Cable**

Aerial fiber optic cable assemblies shall be a self-supporting figure-8 design. The fiber optic cable shall be as described herein and shall be waterblocked utilizing water-swellaable materials. The cable assembly shall be designed and manufactured to facilitate midspan access.

The submittal information must include a copy of the standard installation instructions for the proposed cable. Installed cable sag shall not exceed 1% of the span distance. The submittal information must also include catalog cuts for all hardware to be utilized in the installation.

### **Construction Documentation Requirements**

#### Installation Practices for Outdoor Fiber Optic Cable Systems

The Contractor shall examine the proposed cable plant design. At least one month prior to starting installation of the fiber optic cable plant, the Contractor shall prepare and submit to the Engineer for review and approval, ten (10) copies of the Contractor's "Installation Practices for Outdoor Fiber Optic Cable Systems" manual. This manual shall address the Contractor's proposed practices covering all aspects of the fiber optic cable plant. This submittal shall include all proposed procedures, list of installation equipment, and splicing and test equipment. Test and quality control procedures shall be detailed as well as procedures for corrective action.

### **Operation and Maintenance Documentation**

After the fiber optic cable plant has been installed, ten (10) complete sets of Operation and Maintenance Documentation shall be provided. The documentation shall, as a minimum, include the following:

- Complete and accurate as-built diagrams showing the entire fiber optic cable plant including locations of all splices.
- Final copies of all approved test procedures
- Complete performance data of the cable plant showing the losses at each splice location and each terminal connector.
- Complete parts list including names of vendors.

### **Testing Requirements**

The Contractor shall submit detailed test procedures for approval by the Engineer as specified in the General Electrical Provisions.

### **Splicing Requirements**

Splices shall be made at locations shown on the Plans. Any other splices shall be permitted only with the approval of the Engineer. All splice locations must be identified in the Record Drawings. **Cable runs which dead-end at a handhole, communications vault, interconnect cabinet, or any other type of enclosure, shall be dead ended in a splice enclosure.**

**Slack Storage of Fiber Optic Cables.**

Included as a part of this item, slack fiber shall be supplied as necessary to allow splicing the fiber optic cables in a controlled environment, such as a splicing van or tent. After splicing has been completed, the slack fiber shall be stored underground in handholes or vaults or in above ground fiber optic junction boxes in accordance with the fiber optic cable manufacturer’s guidelines. Fiber optic cable slack shall be **a minimum of 100 feet** for each cable at each access point location, above or below ground unless otherwise directed by the Engineer. The following table is included as an approximate guide only; actual measurements shall be made for documentation.

Access Point	Approximate Dimensions (inches)			Slack in Feet and resulting loop count		
	L	W	Coil Dia	50	100	150
CommVault	60	36	34	6	12	17
CommVault	48	48	46	5	9	13
HD Handhole	21	22	20	10	20	29
Double Handhole	48	24	22	9	18	27
Junction Box	42	36	34	6	12	17

If the innerduct is cut, the ends of the innerduct should extend beyond the first vertical rack so they can be secured at that point. This slack shall be measured for payment.

**Fiber optic cables shall be tagged.**

Tag material:

Thickness: 20.0 mils, +/- 2.0 mils. The self-laminating portion shall be clear polyester with a vinyl printable portion.

Labels shall be mechanically imprinted or handwritten and shall be smear resistant, fade resistant, wrap around, self-laminating type.

Fiber optic cables shall be tagged inside all access points, no closer than 12-inches from point of entry

Labels shall be three (3) lines of text. The first line shall be the cable name.

Labels shall clearly visible/viewable from point of final resting orientation.

**Method of Measurement** Fiber optic cable will be measured for payment in feet in place installed and tested. Fiber optic cable will be measured horizontally and vertically between the changes in direction, including slack cable. The entire lengths of cables installed in buildings will be measured for payment

**Basis of Payment** This work will be paid for at the contract unit price per foot for **FIBER OPTIC CABLE** of the number of fibers, **SINGLE MODE**; or **FIBER OPTIC CABLE ARMORED** of the number of fibers, **SINGLE MODE** specified. The unit price shall include the required number of proposed fiber optic cable splices and terminations shown on the plans. Additional terminations and/or splices required for existing fiber optic cables shall be paid for as TERMINATE FIBER IN CABINET and/or SPLICE FIBER IN CABINET. Payment shall not be made until the cable is installed, spliced and tested in compliance with these special provisions.

**KEEPING THE EXPRESSWAY OPEN TO TRAFFIC**

Effective: March 22, 1996  
 Revised: October 9, 2020

Whenever work is in progress on or adjacent to an expressway, the Contractor shall provide the necessary traffic control devices to warn the public and to delineate the work zone as required in these Special Provisions, the Standard Specifications, the State Standards and the District Freeway details. All Contractors' personnel shall be limited to these barricaded work zones and shall not cross the expressway.

The Contractor shall request and gain approval from the Illinois Department of Transportation's Expressway Traffic Operations Engineer at [www.idotlcs.com](http://www.idotlcs.com) twenty-four (24) hours in advance of all daily lane, ramp and shoulder closures and 7 days in advance of all permanent and weekend closures on all Freeways and/or Expressways in District One. This advance notification is calculated based on workweek of Monday through Friday and shall not include weekends or Holidays.

**LOCATION: I-94 Edens at Touhy Ave work within limits of interchange**

WEEKNIGHT	TYPE OF CLOSURE	ALLOWABLE LANE CLOSURE HOURS		
Sunday-Thursday	1-Lane/Ramp	9:00 P.M.	to	5:00 A.M.
	2-Lane	11:00 P.M.	to	5:00 A.M.
Friday	1-Lane/Ramp	10:00 P.M. (Fri)	to	8:00 A.M. (Sat)
	2-Lane	11:59 P.M. (Fri)	to	6:00 A.M. (Sat)
Saturday	1-Lane/Ramp	9:00 P.M. (Sat)	to	10:00 A.M. (Sun)
	2-Lane	11:59 P.M. (Sat)	to	8:00 A.M. (Sun)

In addition to the hours noted above, temporary shoulder and non-system interchange partial ramp closures are allowed weekdays between 9:00 A.M. and 3:00 P.M. and between 7:00 P.M. and 5:00 A.M or as approved by the Expressway Traffic Operations Engineer.

Narrow Lanes and permanent shoulder closures will not be allowed between Dec. 1<sup>st</sup> and April 1<sup>st</sup>. Permanent shoulder closures per District Detail TC-17 will only be permitted if called for in the plans or as approved by the Expressway Traffic Operations Engineer.

All daily lane closures shall be removed during adverse weather conditions such as rain, snow, and/or fog and as determined by the Engineer. Also, the contractor shall promptly remove their lane closures when Maintenance forces are out for snow and ice removal.

Additional lane closure hour restrictions may have to be imposed to facilitate the flow of traffic to and from major sporting events and/or other events.

All lane closure signs shall not be erected any earlier than one-half (1/2) hour before the starting hours listed above. Also, these signs should be taken down within one-half (1/2) hour after the closure is removed.

The Contractor will be required to cooperate with all other contractors when erecting lane closures on the expressway. All lane closures (includes the taper lengths) without a three (3) mile gap between each other, in one direction of the expressway, shall be on the same side of the pavement. Lane closures on the same side of the pavement with a one (1) mile or less gap between the end of one work zone and the start of taper of next work zone should be connected. The maximum length of any lane closure on the project and combined with any adjacent projects shall be three (3) miles. Gaps between successive permanent lane closures shall be no less than two (2) miles in length.

Private vehicles shall not be parked in the work zone. Contractor's equipment and/or vehicles shall not be parked on the shoulders or in the median during non-working hours. The parking of equipment and/or vehicles on State right-of-way will only be permitted at the locations approved by the Engineer.

Check barricades shall be placed every 1000' within a lane closure to prevent vehicles from driving through closed lanes.

Temporary ramp closures for service interchanges will only be permitted at night during the restricted hours listed for temporary one-lane closures within the project limits. However, no two (2) adjacent entrance and exit ramps in one direction of the expressway shall be closed at the same time.

Should the Contractor fail to completely open, and keep open, the ramps to traffic in accordance with the above limitations, the Contractor shall be liable to the Department for liquidated damages as noted under the Special Provision, "Failure to Open Traffic Lanes to Traffic".

## **TRAFFIC CONTROL AND PROTECTION (EXPRESSWAYS)**

Effective: March 8, 1996

Revised: January 25, 2024

Description. This work shall include furnishing, installing, maintaining, replacing, relocating, and removing all traffic control devices used for the purpose of regulating, warning, or directing traffic. Traffic control and protection shall be provided as called for in the plans, applicable Highway Standards, District One Expressway details, Standards and Supplemental Specifications, these Special Provisions, or as directed by the Engineer.

General. The governing factor in the execution and staging of work for this project is to provide the motoring public with the safest possible travel conditions on the expressway through the construction zone. The Contractor shall arrange his operations to keep the closing of lanes and/or ramps to a minimum.

The Contractor shall be responsible for the proper location, installation, and arrangement of all traffic control devices. Special attention shall be given to existing warning signs and overhead guide signs during all construction operations. Warning signs and existing guide signs with down arrows shall be kept consistent with the barricade placement at all times. The Contractor shall immediately remove, completely cover, or turn from the motorist's view all signs which are inconsistent with lane assignment patterns.

The Contractor shall coordinate all traffic control work on this project with adjoining or overlapping projects, including barricade placement necessary to provide a uniform traffic detour pattern. When directed by the Engineer, the Contractor shall remove all traffic control devices that were furnished, installed, or maintained by him under this contract, and such devices shall remain the property of the Contractor. All traffic control devices shall remain in place until specific authorization for relocation or removal is received from the Engineer.

Additional requirements for traffic control devices shall be as follows.

(a) Traffic Control Setup and Removal. The setting and removal of barricades for the taper portion of a lane closure shall be done under the protection of a vehicle with a truck/trailer mounted attenuator and arrow board per State Standard 701428 and Section 701 of the Standard Specifications. Failure to meet this requirement will be subject to a Traffic Control Deficiency. The deficiency will be calculated as outlined in Article 105.03 of the Standard Specifications. Truck/trailer mounted attenuators shall comply with Article 1106.02(g) or shall meet the requirements of NCHRP 350 Test Level 3 with vehicles used in accordance with manufacturer's recommendations and requirements.

(b) Sign Requirements

(1) Sign Maintenance. Prior to the beginning of construction operations, the Contractor will be provided a sign log of all existing signs within the limits of the construction zone. The Contractor is responsible for verifying the accuracy of the sign log. Throughout the duration of this project, all existing traffic signs shall be maintained by the Contractor. All provisions of Article 107.25 of the Standard Specifications shall apply.

- (2) Work Zone Speed Limit Signs. Work zone speed limit signs shall be installed as required in Article 701.14(b) and as shown in the plans and Highway Standards. Based upon the existing posted speed limit, work zone speed limits shall be established and signed as follows.
- a. Existing Speed Limit of 55mph or higher. The initial work zone speed limit assembly, located approximately 4200' before the closure, and shall be 55mph as shown in 701400. Additional work zone 45mph assemblies shall be used as required according to Article 701.14(b) and as shown in the Highway Standards and plans. WORK ZONE SPEED LIMIT 55 PHOTO ENFORCED assemblies may be omitted when this assembly would normally be placed within 1500 feet of the END WORK ZONE SPEED LIMIT sign. If existing speed limit is over 65mph then additional signage should be installed per 701400.
  - b. Existing Speed Limit of 45mph. The advance 55mph work zone speed limit assembly shown in 701400 shall be replaced with a 45mph assembly. Additional work zone 45mph assemblies shall be used as required according to Article 701.14(b) and as shown in the Highway Standards and plans. WORK ZONE SPEED LIMIT 55 PHOTO ENFORCED assemblies shall be eliminated in all cases. END WORK ZONE SPEED LIMIT signs are required.
- (3) Exit Signs. The exit gore signs as shown in Standard 701411 shall be a minimum size of 48 inch by 48 inch with 12 inch capital letters and a 20 inch arrow. EXIT OPEN AHEAD signs shown in Standard 701411 shall be a minimum size of 48 inch by 48 inch with 8 inch capital letters.
- (4) Uneven Lanes Signs. The Contractor shall furnish and erect "UNEVEN LANES" signs (W8-11) on both sides of the expressway, at any time when the elevation difference between adjacent lanes open to traffic equals or exceeds one inch. Signs shall be placed 500' in advance of the drop-off, within 500' of every entrance, and a minimum of every mile.
- (c) Drums/Barricades. Check barricades shall be placed in work areas perpendicular to traffic every 1000', one per lane and per shoulder, to prevent motorists from using work areas as a traveled way. Check barricades shall also be placed in advance of each open patch, or excavation, or any other hazard in the work area, the first at the edge of the open traffic lane and the second centered in the closed lane. Check barricades, either Type I or II, or drums shall be equipped with a flashing light.

To provide sufficient lane widths (10' minimum) for traffic and also working room, the Contractor shall furnish and install vertical barricades, in lieu of Type II or drums, along the cold milling and asphalt paving operations. The vertical barricades shall be placed at the same spacing as the drums.

- (d) Vertical Barricades. Vertical barricades shall not be used in lane closure tapers, lane shifts, exit ramp gores, or staged construction projects lasting more than 12 hours. Also, vertical barricades shall not be used as patch barricades or check barricades. Special attention shall be given, and ballast provided per manufacture's specification, to maintain the vertical barricades in an upright position and in proper alignment.
- (e) Temporary Concrete Barrier Wall. Prismatic barrier wall reflectors shall be installed on both the face of the wall next to traffic, and the top of sections of the temporary concrete barrier wall as shown in Standard 704001. The color of these reflectors shall match the color of the edgelines (yellow on the left and crystal or white on the right). If the base of the temporary concrete barrier wall is 12 inches or less from the travel lane, then the lower slope of the wall shall also have a 6 inch wide temporary pavement marking edgeline (yellow on the left and white on the right).
- (f) Flaggers. One flagger will be required for each separate activity of an operation that requires frequent construction vehicles to enter or leave a work zone to or from a lane open to traffic. Temporary traffic control and flagger position shall be according to District One Detail TC-18 – Expressway Flagging, or as directed by the Engineer.
- (g) Full Expressway Closures. Full Expressway Closures will only be permitted for a maximum of 15 minutes during the allowable hours listed in the Keeping the Expressway Open to Traffic Special Provision. During Full Expressway Closures, the Contractor will be required to close off all lanes except one, using Freeway Standard Closures. The Contractor will be required to provide one changeable message sign to be placed at the direction of the Engineer. The sign shall display a message as directed by the Engineer. A Maintenance of Traffic Plan shall be submitted to the District One Expressway Traffic Control Supervisor 14 days in advance of the planned work; including all stage changes. The Maintenance of Traffic Plan shall include, but not be limited to: lane and ramp closures, existing geometrics, and equipment and material location. The District One Expressway Traffic Control Supervisor (847-705-4151) shall be contacted at least 3 working days in advance of the proposed road closure and will coordinate the closure operation with police forces.

Method of Measurement. This item of work will be measured on a lump sum basis for furnishing, installing, maintaining, replacing, relocating, and removing traffic control devices required in the plans and these Special Provisions. Traffic control and protection required under Standards 701101, 701400, 701401, 701402, 701406, 701411, 701416, 701426, 701428, 701446, 701901 and District details TC-8, TC-9, TC-17, TC-18 and TC-25 will be included with this item.

Basis of Payment.

- (a) This work will be paid for at the contract lump sum price for TRAFFIC CONTROL AND PROTECTION (EXPRESSWAYS). This price shall be payment in full for all labor, materials, transportation, handling, and incidental work necessary to furnish, install, maintain, replace, relocate, and remove all Expressway traffic control devices required in the plans and specifications.

In the event the sum total value of all the work items for which traffic control and protection is required is increased or decreased by more than ten percent (10%), the contract bid price for TRAFFIC CONTROL AND PROTECTION (EXPRESSWAYS) will be adjusted as follows:

Adjusted contract price =  $.25P + .75P [1 \pm (X - 0.1)]$

Where: "P" is the bid unit price for Traffic Control and Protection

Where: "X" =

Difference between original and final sum total value of all work items for which traffic control and protection is required

Original sum total value of all work items for which traffic control and protection is required.

The value of the work items used in calculating the increase and decrease will include only items that have been added to or deducted from the contract under Article 104.02 of the Standard Specifications and only items which require use of Traffic Control and Protection.

Temporary traffic control costs due to delay will be paid for according to the Compensable Delay Costs (BDE) Special Provision.

- (b) The Engineer may require additional traffic control be installed in accordance with standards and/or designs other than those included in the plans. In such cases, the standards and/or designs will be made available to the Contractor at least one week in advance of the change in traffic control. Payment for any additional traffic control required will be in accordance with Article 109.04 of the Standard Specifications.
- (c) Revisions in the phasing of construction or maintenance operations, requested by the Contractor, may require traffic control to be installed in accordance with standards and/or designs other than those included in the plans. Revisions or modifications to the traffic control shown in the contract shall be submitted by the Contractor for approval by the Engineer. No additional payment will be made for a Contractor requested modification.
- (d) Temporary concrete barrier wall will be measured and paid for according to Section 704.
- (e) Impact attenuators, temporary bridge rail, and temporary rumble strips will be paid for separately.
- (f) Temporary pavement markings shown on the Standard will be measured and paid for according to Section 703 and Section 780.
- (g) All pavement marking removal will be measured and paid for according to Section 703 or Section 783.
- (h) Temporary pavement marking on the lower slope of the temporary concrete barrier wall will be measured and paid for as TEMPORARY PAVEMENT MARKING, 6".
- (i) The Changeable Message Sign required for Full Expressway Closures shall not be paid for separately.

### **FAILURE TO OPEN TRAFFIC LANES TO TRAFFIC**

Effective: March 22, 1996

Revised: February 9, 2005

Should the Contractor fail to completely open and keep open all the traffic lanes to traffic in accordance with the limitations specified under the Special Provisions for "Keeping the Expressway Open to Traffic", the Contractor shall be liable to the Department for the amount of:

One lane or ramp blocked = \$ 3,000.00

Two lanes blocked = \$ 6,000.00

Not as a penalty but as liquidated and ascertained damages for each and every 15 minute interval or a portion thereof that a lane is blocked outside the allowable time limitations. Such damages may be deducted by the Department from any monies due the Contractor. These damages shall apply during the contract time and during any extensions of the contract time.

### **TEMPORARY INFORMATION SIGNING**

Effective: November 13, 1996

Revised: January 29, 2020

#### Description.

This work shall consist of furnishing, installing, maintaining, relocating for various states of construction and eventually removing temporary informational signs. Included in this item may be ground mount signs, skid mount signs, truss mount signs, bridge mount signs, and overlay sign panels which cover portions of existing signs.

#### Materials.

Materials shall be according to the following Articles of Section 1000 - Materials:

	<u>Item</u>	<u>Article/Section</u>
a.)	Sign Base (Note 1)	1090
b.)	Sign Face (Note 2)	1091
c.)	Sign Legends	1091
d.)	Sign Supports	1093
e.)	Overlay Panels (Note 3)	1090.02

Note 1. The Contractor may use 5/8 inch (16 mm) instead of 3/4 inch (19 mm) thick plywood.

Note 2. The sign face material shall be in accordance with the Department's Fabrication of Highway Signs Policy.

Note 3. The overlay panels shall be 0.08 inch (2 mm) thick.

## GENERAL CONSTRUCTION REQUIREMENTS

### Installation.

The sign sizes and legend sizes shall be verified by the Contractor prior to fabrication.

Signs which are placed along the roadway and/or within the construction zone shall be installed according to the requirements of Article 701.14 and Article 720.04. The signs shall be 7 ft (2.1 m) above the near edge of the pavement and shall be a minimum of 2 ft (600 mm) beyond the edge of the paved shoulder. A minimum of two (2) posts shall be used.

The attachment of temporary signs to existing bridges, sign structures or sign panels shall be approved by the Engineer. Any damage to the existing signs and/or structures due to the Contractor's operations shall be repaired or signs replaced, as determined by the Engineer, at the Contractor's expense.

### Method of Measurement.

This work shall be measured for payment in square feet (square meters) edge to edge (horizontally and vertically).

All hardware, posts or skids, supports, bases for ground mounted signs, connections, which are required for mounting these signs will be included as part of this pay item.

### Basis Of Payment.

This work shall be paid for at the contract unit price per square foot (square meter) for TEMPORARY INFORMATION SIGNING.

## KEEPING ARTERIAL ROADWAYS OPEN TO TRAFFIC (LANE CLOSURES ONLY)

Effective: January 22, 2003

Revised: August 10, 2017

The Contractor shall provide the necessary traffic control devices to warn the public and to delineate the work zone as required in these Special Provisions, the Standard Specifications, the State Standards, and the District Details.

Arterial lane closures shall be in accordance with the Standard Specifications, Highway Standards, District Details, and the direction of the Engineer. The Contractor shall request and gain approval from the Engineer seventy-two (72) hours in advance of all long-term (24 hrs. or longer) lane closures.

Arterial lane closures not shown in the staging plans will not be permitted during **peak traffic volume hours**.

Peak traffic volume hours are defined as weekdays (Monday through Friday) from **6:00 AM to 8:30 AM and 4:30 PM to 6:00 PM**.

Private vehicles shall not be parked in the work zone. Contractor's equipment and/or vehicles shall not be parked on the shoulders or in the median during non-working hours. The parking of equipment and/or vehicles on State right-of-way will only be permitted at locations approved by the Engineer in accordance with Articles 701.08 and 701.11 of the Standard Specifications.

Should the Contractor fail to completely open and keep open all the traffic lanes to traffic in accordance with the limitations specified above, the Contractor shall be liable to the Department for the amount of:

One lane or ramp blocked = \$ 1,000.00

Two lanes blocked = \$ 2,500.00

Not as a penalty but as liquidated and ascertained damages for each and every 15 minute interval or a portion thereof that a lane is blocked outside the allowable time limitations. Such damages may be deducted by the Department from any monies due the Contractor. These damages shall apply during the contract time and during any extensions of the contract time.

#### **TRAFFIC SIGNAL GENERAL REQUIREMENTS**

Effective: May 22, 2002

Revised: April 1, 2026

800.01TS

These Traffic Signal Special Provisions and the "District One Standard Traffic Signal Design Details" supplement the requirements of the State of Illinois "Standard Specifications for Road and Bridge Construction." The intent of these Special Provisions is to prescribe the materials and construction methods commonly used for traffic signal installations.

All material furnished shall be new unless otherwise noted herein. Traffic signal construction and maintenance work shall be performed by personnel holding current International Municipal Signal Association (IMSA)/Illinois Public Service Institute (IPSI) Traffic Signal Technician Level II certification. A copy of the certification shall be immediately available upon request of the Engineer. The work to be done under the Contract consists of furnishing, installing, and maintaining all traffic signal work and items as specified in the plans and as specified herein in a manner acceptable and approved by the Engineer.

#### Definitions of Terms.

Add the following to Section 101 of the Standard Specifications:

**101.56 Manufacturer.** Company that sells a particular type of product directly to the Contractor or the Vendor.

**101.57 Vendor.** Company that supplies, represents, and provides technical support for IDOT District One approved traffic signal controllers and other related equipment. The Vendor shall be located within IDOT District One and shall:

- (1) Be full service with on-site facilities to assemble, test and troubleshoot traffic signal controllers and cabinet assemblies.
- (2) Maintain an inventory of IDOT District One approved controllers and cabinets.
- (3) Be staffed with permanent sales and technical personnel able to provide traffic signal controller and cabinet expertise and support.
- (4) Have technical staff that hold current IMSA/IPSI Traffic Signal Technician Level III certification and shall attend traffic signal turn-ons as well as cabinet and/or controller modifications.

Submittals.

Revise Article 801.05 of the Standard Specifications to read:

“All material approval requests shall be submitted electronically following District guidelines unless directed otherwise by the Engineer. Submittal requirements shall include, but not limited to the following:

- (1) All material approval requests shall be made prior to or no later than the date of the preconstruction meeting. A list of major traffic signal items can be found in Article 801.05. Material or equipment which is similar or identical shall be the product of the same manufacturer, unless necessary for system continuity. Traffic signal materials and equipment shall bear the U.L. label whenever such labeling is available.
- (2) Product data and shop drawings shall be assembled by pay item. Only the top sheet of each pay item submittal will be stamped by the Department with the review status, except shop drawings for mast arm pole assemblies and the like will be stamped with the review status on each sheet.
- (3) Original manufacturer published product data and shop drawing sheets with legible dimensions and details shall be submitted for review.
- (4) When hard copy submittals are necessary, four (4) complete copies of the manufacturer’s descriptive literatures and technical data for the traffic signal materials shall be submitted. For hard copy or electronic submittals, the descriptive literature and technical data shall be adequate for determining whether the materials meet the requirements of the plans and specifications. If the literature contains more than one item, the Contractor shall indicate which item or items will be furnished.

- (5) When hard copy submittals are necessary for structural elements, four (4) complete copies of the shop drawings for the mast arm assemblies and poles, and the combination mast arm assemblies and poles showing, in detail, the fabrication thereof and the certified mill analyses of the materials used in the fabrication, anchor rods, and reinforcing materials shall be submitted.
- (6) Partial or incomplete submittals will be returned without review.
- (7) Certain non-standard mast arm poles and special structural elements will require additional review from IDOT's Central Office. Examples include ornamental/decorative, non-standard length mast arm pole assemblies and monotube structures.
- (8) The Contract number or Permit number, project location/limits, and corresponding pay code number must be on each sheet of correspondence, material approval, and mast arm poles and assemblies drawings.
- (9) Where certifications and/or warranties are specified, the information submitted for approval shall include certifications and warranties. Certifications involving inspections and/or tests of material shall be complete with all test data, dates, and times.
- (10) After the Engineer reviews the submittals for conformance with the design concept of the project, the Engineer will stamp the drawings indicating their status as 'Approved', 'Approved-As-Noted', 'Disapproved', or 'Incomplete'. Since the Engineer's review is for conformance with the design concept only, it is the Contractor's responsibility to coordinate the various items into a working system as specified. The Contractor shall not be relieved from responsibility for errors or omissions in the shop, working, layout drawings, or other documents by the Department's approval thereof. The Contractor must still be in full compliance with Contract and specification requirements.
- (11) The Contractor shall secure approved materials in a timely manner to assure construction schedules are not delayed.
- (12) All submitted items reviewed and marked 'APPROVED AS NOTED', 'DISAPPROVED', or 'INCOMPLETE' are to be resubmitted in their entirety, unless otherwise indicated within the submittal comments, with a disposition of previous comments to verify Contract compliance at no additional cost to the Contract.
- (13) Exceptions to and deviations from the requirements of the Contract Documents will not be allowed. It is the Contractor's responsibility to note any deviations from Contract requirements at the time of submittal and to make any requests for deviations in writing to the Engineer. In general, substitutions will not be acceptable. Requests for substitutions must demonstrate that the proposed substitution is superior to the material or equipment required by the Contract Documents. No exceptions, deviations or substitutions will be permitted without the approval of the Engineer.

(14) The Contractor shall not order major equipment such as mast arm assemblies prior to Engineer approval of the Contractor marked proposed traffic signal equipment locations to assure proper placement of Contract required traffic signal displays, push buttons and other facilities. Field adjustments may require changes in proposed mast arm length and other coordination.

(15) Revised cabinet wiring diagrams shall be submitted whenever any wiring modifications are made to the traffic signal cabinet.”

Marking Proposed Locations.

Revise “Marking Proposed Locations for Highway Lighting System” of Article 801.09 to read “Marking Proposed Locations for Highway Lighting System and Traffic Signals.”

Add the following to Article 801.09 of the Standard Specifications:

“It shall be the Contractor's responsibility to verify all dimensions and conditions existing in the field prior to ordering materials and beginning construction. This shall include locating the mast arm foundations and verifying the mast arms lengths.”

Inspection of Electrical Systems.

Add the following to Article 801.10 of the Standard Specifications:

(c) All cabinets, including temporary traffic signal cabinets, shall be assembled by an approved Vendor in District One. The Department reserves the right to request any controller and cabinet to be tested at the Vendor's facility prior to field installation at no extra cost to the Contract.

Maintenance and Responsibility of Traffic Signal and Flashing Beacon Installations.

Replace Article 801.11(b) of the Standard Specifications to read:

(b) Traffic Signals and Flashing Beacons. The Contractor shall be responsible for maintaining the traffic signal/flashing beacon installation in proper operating condition.

(1) General.

a. The Contractor must notify the Area Traffic Signal Maintenance and Operations Engineer of their intent to begin any physical construction work on the Contract or any portion thereof. This notification must be made a minimum of seven (7) working days prior to the start of construction to allow sufficient time for inspection of the existing traffic signal installation(s) and transfer of maintenance to the Contractor. The Department will attempt to fulfill the Contractor's inspection date request(s); however, workload and other conditions may prevent the Department from accommodating specific dates or times. The Contractor shall not be entitled to any other compensation if the requested inspection date(s) cannot be scheduled by the Department.

- b. Full maintenance responsibility shall start upon the successful completion of a maintenance transfer inspection, or as directed by the Engineer. If the Contractor begins any physical work on the Contract or any portion thereof prior to a traffic signal inspection, maintenance of the traffic signal installation(s) will be transferred to the Contractor without an inspection. The Contractor will become responsible for repairing or replacing all equipment that is not operating properly or is damaged at the time of transfer at no cost to the owner of the traffic signal equipment. Final repairs or replacement of damaged equipment must meet the approval of the Engineer prior to or at the time of final inspection, otherwise the traffic signal installation will not be accepted.
- c. All traffic signals within the limits of the Contract or those which have the item "MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION," "TEMPORARY TRAFFIC SIGNAL INSTALLATION", "TEMPORARY BRIDGE TRAFFIC SIGNAL INSTALLATION", "TEMPORARY PORTABLE BRIDGE TRAFFIC SIGNAL INSTALLATION", and/or "MAINTENANCE OF EXISTING FLASHING BEACON INSTALLATION" shall become the full responsibility of the Contractor. Maintenance responsibility shall end upon issuance of final acceptance by the Engineer.
- d. The Contractor shall have electricians with IMSA/IPSI Traffic Signal Technician Level II certification on staff to provide signal maintenance. A copy of the certification shall be immediately available upon request by the Engineer.
- e. This item shall include maintenance of all traffic signal equipment and other connected and related equipment such as flashing beacons, emergency vehicle preemption (EVP) equipment, master controllers, network switches, uninterruptable power supply (UPS) and batteries, pan-tilt-zoom (PTZ) cameras, vehicle detection, handholes, lighted signs, telephone service installations, cellular modems, radios, communication cables, and other traffic signal equipment. All conduit and related equipment to adjacent intersections shall be maintained to the far back handhole, or as directed by the Engineer. If adjacent intersections are part of Contract work, then maintenance of all conduit and related equipment shall be included in this item.
- f. Regional transit, County, and other agencies may also have equipment connected to existing traffic signal or peripheral equipment such as network switches and transit signal priority (TSP, SCP, and BRT) servers, radios, and other devices, where maintenance shall be coordinated with the owner.

- g. Maintenance shall not include automatic traffic enforcement equipment such as red light enforcement cameras, detectors, or peripheral equipment. This equipment is operated and maintained by others and shall be deactivated while on Contractor maintenance.
- h. The energy charges for the operation of the traffic signal installation shall be paid for by the Contractor.

(2) Maintenance.

- a. The Contractor shall inspect all traffic signal equipment and appurtenances every two (2) weeks to ensure they are functioning properly. Signal heads shall be properly adjusted, including plumb, and tightly mounted. All controller cabinets, signal posts, and controller pedestals shall be tight on their foundations and in alignment. Deficient equipment shall be repaired or replaced as necessary. The Contractor shall check signal system communications and phone lines to assure proper operation. This item includes, as routine maintenance, all portions of EVP equipment. The Contractor shall always maintain enough materials and equipment in stock to provide effective temporary and permanent repairs. The Contractor shall supply a detailed maintenance log monthly that includes dates, locations, names of electricians performing the required checks and inspections, and any other information requested by the Engineer. The Contractor shall attend any additional inspections as requested by the Engineer. The Contractor shall check the controllers, relays, and detectors after receiving complaints or calls to ascertain that they are functioning properly and make all necessary repairs and replacement.
- b. The Contractor is advised that the existing and/or temporary traffic signal installation must remain in operation during all construction stages, except for the most essential down time. Any shutdown of the traffic signal installation which exceeds fifteen (15) minutes must have prior approval from the Engineer. Approval to shut down the traffic signal installation will only be granted during the period extending from 9:00 a.m. to 3:00 p.m. on weekdays. Shutdowns shall not be allowed during inclement weather or holiday periods.

- c. The Contractor shall provide immediate corrective action when any part(s) of the signal fail to function properly. Two far side heads facing each approach shall be considered the minimum acceptable signal operation pending permanent repairs. When repairs at a signalized intersection require that the controller be disconnected or otherwise removed from normal operation, and power is available, the Contractor shall place the traffic signal installation in flashing operation. The signals shall flash RED for all directions unless a different indication has been specified by the Engineer. The Contractor shall install cones on all lane lines at the stop bar on each approach, R1-1 (36 in. minimum) "STOP" signs at the stop bar on each approach on the right side and on raised medians (where applicable), and black on fluorescent orange "SIGNALS OUT AHEAD" warning signs followed by fluorescent orange W3-1 symbolic stop ahead warning signs on all approaches to the intersection.
- d. Temporary replacement of a damaged or knocked down mast arm pole assembly shall require construction of a full or partial span wire signal installation or other method approved by the Engineer to assure signal heads are located overhead and over traveled pavement. Temporary replacement of mast arm mount signals with post mount signals is not permitted.
- e. The Contractor shall provide the Engineer with two (2) 24-hour telephone numbers for the maintenance of the traffic signal installation and for emergency calls by the Engineer.
- f. Traffic signal equipment which is lost, damaged, or not returned to the Department for any reason shall be replaced with new equipment meeting the requirements of the Standard Specifications and these special provisions.

- g. The Contractor shall be fully responsible for the safe and efficient operation of the traffic signals and other equipment noted herein. The Contractor shall respond to all emergency calls from the Department or others within one (1) hour after notification and provide immediate corrective action. When equipment has been damaged or becomes faulty beyond repair, the Contractor shall replace it with new equipment meeting current District One traffic signal specifications. The cost of furnishing and installing the replaced equipment shall be borne by the Contractor at no additional cost to the Contract. The Contractor may institute action to recover damages from a responsible third party. If at any time the Contractor fails to perform all work as specified herein to keep the traffic signal installation in proper operating condition, or if the Engineer cannot contact the Contractor's designated personnel, the Engineer shall have the Department's Electrical Maintenance Contractor perform the maintenance work. The Contractor shall be responsible for all of the Department's Electrical Maintenance Contractor's costs and liquidated damages of \$1,000 per day per occurrence. The Department's Electrical Maintenance Contractor shall bill the Contractor for the total cost of the work. The Contractor shall pay this bill within thirty (30) days of the date of receipt of the invoice or the cost of such work will be deducted from the amount due the Contractor. The Contractor shall allow the Electrical Maintenance Contractor to inspect the traffic signal installation that has been transferred to the Contractor for maintenance. Final replacement of damaged equipment must meet the approval of the Engineer prior to or at the time of final inspection, otherwise the traffic signal installation will not be accepted. Cable splices outside the controller cabinet shall not be allowed. The Department may inspect any signaling device on the Department's highway system at any time without notification. The Contractor shall not install padlocks on traffic signal cabinets or otherwise restrict the Department's access to the cabinet or controller.
- h. Any proposed activity in the vicinity of a highway-rail grade crossing must adhere to the guidelines set forth in the current edition of the Manual on Uniform Traffic Control Devices (MUTCD) regarding work in temporary traffic control zones in the vicinity of highway-rail grade crossings which states that lane restrictions, flagging, or other operations shall not create conditions where vehicles can be queued across the railroad tracks. If the queuing of vehicles across the tracks cannot be avoided, a uniformed law enforcement officer or flagger shall be provided at the crossing to prevent vehicles from stopping on the tracks, even if automatic warning devices are in place.
- i. The Contractor shall be responsible to clear snow, ice, dirt, debris, vegetation, temporary fence, or other condition that obstructs visibility of any traffic signal display or access to traffic signal equipment.

- j. The Contractor shall maintain the traffic signal in normal operation during any loss of utility or battery backup power. Temporary power to the traffic signal must meet applicable NEC and OSHA guidelines and may include portable generators and/or replacement batteries. Temporary power shall not be paid for separately but shall be included in the Contract.

(3) Basis of Payment. This work will be paid for at the Contract unit price per each for MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION, TEMPORARY TRAFFIC SIGNAL INSTALLATION, TEMPORARY BRIDGE TRAFFIC SIGNAL INSTALLATION, or TEMPORARY PORTABLE BRIDGE TRAFFIC SIGNAL INSTALLATION. Each location will be paid for separately. Maintenance of a flashing beacon shall be paid for at the Contract unit price for MAINTENANCE OF EXISTING FLASHING BEACON INSTALLATION. Each flashing beacon will be paid for separately.

Damage to Traffic Signal System.

Add the following to Article 801.12(b) of the Standard Specifications:

“Any traffic signal control equipment that is damaged and non-repairable or not operating properly from any cause shall be replaced with new equipment meeting current District One traffic signal specifications and provided by the Contractor at no additional cost to the Contract and/or owner of the traffic signal system, all as approved by the Engineer. Final replacement of damaged equipment must meet the approval of the Engineer prior to or at the time of final inspection. Repair or replace any equipment damaged within the time shown in the table below:

ITEM	RESPONSE TIME	SERVICE RESTORATION	PERMANENT REPAIR (calendar days)
Cabinet	1 hour	24 hours	21 days
Controllers and Peripheral Equipment	1 hour	4 hours	21 days
System Detector Loop	1 hour	N/A	7 days
All Other Detectors	1 hour	N/A	21 days
Signal Head and Lenses	1 hour	4 hours	7 days
Aviation Red Beacon	1 hour	4 hours	7 days
Mast Arm Assembly and Pole	1 hour	4 hours	7 days
Traffic Signal Post	1 hour	4 hours	7 days
Cable and Conduit	1 hour	4 hours	7 days
Interconnect and Telemetry	1 hour	4 hours	7 days
Graffiti Removal	N/A	N/A	7 days
Misalignment of Signal Heads	1 hour	4 hours	4 hours
Closed Loop Monitoring System	1 hour	24 hours	14 days
Post and Poles Plumb Vertically	N/A	N/A	21 days
Controller, Post & Pole Foundations	N/A	N/A	21 days
Complaints, Calls, Controller or System Alarms, Timing, Phasing, Programming	1 hour	4 hours	N/A
Patrol Truck Deficiencies	N/A	24 hours	24 hours
Signal Heads Visibility	1 day	2 days	14 days

Temporary replacement of a damaged or knocked down mast arm pole assembly shall require construction of a full or partial span wire signal installation or other method approved by the Engineer to assure signal heads are located overhead and over traveled pavement. Temporary replacement of mast arm mount signals with post mount signals will not be permitted.

Replacement of any equipment for any reason shall be reported to the Area Traffic Signal Maintenance and Operations Engineer in writing within 24 hours. Permanent and temporary replacement of the controller and/or cabinet shall require inspection and testing by the Vendor.

Automatic Traffic Enforcement equipment, such as red light enforcement cameras, detectors, and peripheral equipment, that is damaged or not operating properly from any cause, shall be the responsibility of the municipality or the automatic traffic enforcement company per Permit agreement.”

Traffic Signal Inspection (TURN-ON).

Revise Article 801.15(b) of the Standard Specifications to read:

“Turn-on. It is the intent to have all electric work completed and equipment field tested by the Contractor and/or Vendor prior to the Department’s “turn-on” field inspection. If in the event the Engineer determines work is not complete and the inspection will require more than two (2) hours to complete, the inspection shall be canceled, and the Contractor will be required to reschedule at another date. The maintenance of the traffic signals will not be accepted until all punch list work is corrected and re-inspected.

When the Contractor requests a turn-on and inspection of the completed traffic signal installation(s), the request must be made to the Area Traffic Signal Maintenance and Operations Engineer a minimum of seven (7) working days prior to the time of the requested inspection. The Department will attempt to fulfill the Contractor’s turn-on and inspection date request(s); however, workload and other conditions may prevent the Department from accommodating specific dates or times. The Contractor shall not be entitled to any other compensation if the requested turn-on and inspection date(s) cannot be scheduled by the Department. The Department will not grant a field inspection until written or electronic notification is provided from the Contractor that the equipment has been field tested and the intersection is operating according to Contract requirements. The Contractor must invite local fire department personnel to the turn-on when emergency vehicle preemption (EVP) is included in the project. When the Contract includes the item RE-OPTIMIZE TRAFFIC SIGNAL SYSTEM, OPTIMIZE TRAFFIC SIGNAL SYSTEM, and/or TEMPORARY TRAFFIC SIGNAL TIMING, the Contractor must notify the SCAT Consultant of the turn-on/detour implementation schedule, as well as stage changes and phase changes during construction.

The Contractor must have all traffic signal work completed and the electrical service installation connected by the utility company prior to requesting an inspection and turn-on of the traffic signal installation. The Contractor shall be responsible to provide a police officer to assist with traffic control at the time of testing.

The Contractor shall provide a representative from the Vendor who is knowledgeable of the cabinet design and controller functions to attend the traffic signal inspection for both permanent and temporary traffic signal turn-ons.

Upon demonstration that the signals are operating and all work is completed in accordance with the Contract and to the satisfaction of the Engineer, the Engineer will then allow the signals to be placed in continuous operation. The signals shall continue to be maintained by the Contractor until final acceptance.

The Department requires the following Final Project Documentation from the Contractor at traffic signal turn-ons in electronic format in addition to hard copies where noted. An electronic media device shall be submitted with separate folders corresponding to each numbered title below. The electronic media device shall be labeled with date, project location, company, and Contract or Permit number. Electronic record drawings and material approvals shall be submitted prior to traffic signal turn-on for review by the Department as described in the Record Drawings section herein.

Final Project Documentation:

- (1) Record Drawings. Electronically produced signal plans of record with field revisions marked in red. Two (2) hard copies of 11 in. x 17 in. record drawings shall also be provided.
- (2) Field Testing. Written notification from the Contractor and the Vendor of satisfactory field testing with corresponding material performance measurements, such as for detector loops and fiber optic systems (see Article 801.13).
- (3) Material Approvals. Material approval documentation.
- (4) Manuals. Operation and service manuals of the signal controller and associated control equipment.
- (5) Cabinet Wiring Diagram and Cable Logs. Five (5) hard copies of 11 in. x 17 in. cabinet wiring diagrams shall be provided along with electronic PDF and DGN files of the cabinet wiring diagram. Five (5) hard copies of the cable logs and electronic Excel files shall be provided with cable #, number of conductors and spares, connected device/signal head and intersection location.
- (6) Warrantees and Guarantees. All manufacturer and Contractor warrantees and guarantees required by Article 801.14.
- (7) GPS Coordinates. GPS coordinates of traffic signal equipment as described in the Record Drawings section herein.

Acceptance of the traffic signal equipment by the Department shall be based upon inspection results at the traffic signal “turn-on”, completeness of the required documentation, and successful operation during a minimum 72 hour “burn-in” period following activation of traffic signal equipment. If approved, traffic signal acceptance shall be verbal at the final inspection followed by written correspondence from the Engineer. The Contractor shall be responsible for all traffic signal equipment and associated maintenance thereof until Departmental acceptance is granted.

All equipment and/or parts to keep the traffic signal installation operating shall be furnished by the Contractor. No spare traffic signal equipment is available from the Department.

All punch list work shall be completed within two (2) weeks after the turn-on. The Contractor shall notify the Area Traffic Signal Maintenance and Operations Engineer to schedule an inspection of all punch list work. Failure to meet these time constraints shall result in liquidated damage charges of \$500 per month per incident.

All cost of work and materials required to comply with the requirements herein shall be included in the pay item bid prices, under which the subject materials and signal equipment are paid, and no additional compensation will be allowed. Materials and signal equipment not complying with the requirements herein shall be subject to removal and disposal at the Contractor's expense.”

Record Drawings.

The requirements listed for Electrical Installation shall apply for Traffic Signal Installations in Article 801.16. Revise the second and third paragraphs of Article 801.16 of the Standard Specifications to read:

“When the work is complete, and seven (7) days before the request for a final inspection, electronic Contract drawings, stamped “RECORD DRAWINGS”, shall be submitted to the Engineer for review and approval and shall be stamped with the date and the signature of the Contractor’s supervising Engineer or electrician. The record drawings shall be submitted in PDF format. If the Contract consists of multiple intersections, each intersection shall be saved as an individual PDF file with TS# and location name in its file name.

In addition to the record drawings, copies of the final material approvals which have been Approved or Approved as Noted shall be submitted in PDF format. The PDF files shall clearly indicate the pay item either by filename or PDF Table of Contents referencing the respective pay item number for multi-item PDF files. Specific part or model numbers of items which have been selected shall be clearly visible.

The Contractor shall provide two (2) 11 in. x 17 in. hard copies of electronically produced final record drawings to be kept inside each traffic signal cabinet within project limits.”

Add the following to Article 801.16 of the Standard Specifications:

“In addition to the specified record drawings, the Contactor shall record GPS coordinates of the following traffic signal components being installed, modified or being affected in other ways by the Contract:

- All Mast Arm Poles and Posts
- Traffic Signal Wood Poles
- Railroad Bungalow
- UPS
- Handholes
- Controller Cabinets
- Communication Cabinets
- Electric Service Disconnect locations
- CCTV/PTZ Camera installations

Datum to be used shall be North American 1983.

Data shall be provided in electronic format and shall be in .csv format. Latitude and Longitude shall be in decimal degrees with a minimum of 6 decimal places. Each coordinate shall have the following information:

- File shall be named: TSXXX\_YY-MM-DD.csv (i.e. TS22157\_24-01-01.csv)
- Each intersection shall have its own file
- Row 1 should have the location name (i.e. IL 31 @ Klausen)
- Row 2 is blank
- Row 3 is the headers for the columns
- Row 4 starts the data
- Column A (Date) – should be in the following format: MM/DD/YYYY
- Column B (Item) – as shown in the table below
- Column C (Description) – as shown in the table below
- Column D and E (GPS Data) – should be in decimal form

Examples:

Date	Item	Description	Latitude	Longitude
01/01/2024	MP (Mast Arm Pole)	NEQ, NB, Dual, Combination Pole	41.580493	-87.793378
01/01/2024	HH (Handhole)	Heavy Duty, Fiber, Intersection, Double	41.558532	-87.792571
01/01/2024	ES (Electrical Service)	Ground mount, Pole mount	41.765532	-87.543571
01/01/2024	CC (Controller Cabinet)		41.602248	-87.794053
01/01/2024	PTZ (PTZ)	NEQ extension pole	41.593434	-87.769876
01/01/2024	POST (Post)		41.651848	-87.762053
01/01/2024	MCC (Master Controller Cabinet)		41.584593	-87.793378
01/01/2024	COMC (Communication Cabinet)		41.584600	-87.793432
01/01/2024	BBS (Battery Backup System)		41.558532	-87.792571

Data collection can be made as construction progresses or can be collected after all items are installed. If the data is unacceptable, the Contractor shall make corrections to the data collection equipment and/or process and resubmit the data for review and approval as specified.

Data shall have a minimum 1 ft accuracy after post processing.”

Restoration of Work Area.

Add the following article to Section 801 of the Standard Specifications:

**“801.17 Restoration of Work Area.** Restoration of the traffic signal work area shall be included in the related pay items such as foundation, conduit, handhole, underground raceways, detector loop installation or replacement, etc. All roadway surfaces such as shoulders, medians, sidewalks, pavement, etc. shall be replaced in kind. All damage to mowed lawns shall be replaced with an approved sod, and all damage to unmowed fields shall be seeded. All brick pavers disturbed in the work area shall be restored to their original configuration as directed by the Engineer. All damaged brick pavers shall be replaced with a comparable material approved by the Engineer.

Exposed holes created from removal or relocation of traffic signal equipment shall be sealed using a zinc-plated fender washer with toggle bolt.

Restoration of the work area shall be included in the Contract without any extra compensation allowed to the Contractor.

Removal, Disposal, and Salvage of Existing Traffic Signal Equipment.

The removal, disposal, and/or salvage of existing traffic signal equipment shall become the property of the Contractor unless specific equipment is requested to be kept or sent to IDOT Spare Parts by the Engineer. Any equipment not kept by the Department shall be disposed of by the Contractor outside the State’s right-of-way, unless otherwise noted. No additional compensation shall be provided to the Contractor for removal, disposal, Spare Parts delivery, or salvage expense for the work in the Contract.”

Bagging Signal Heads.

Light tan colored traffic and pedestrian signal reusable covers shall be used to cover dark/un-energized signal sections, visors, and retroreflective backplates. Covers shall be made of outdoor fabric with urethane coating for repelling water, have elastic fully sewn around the cover ends for a tight fit over the visor, and have a minimum of two (2) straps with buckles to secure the cover to the backplate. A center mesh strip allows viewing without removal for signal status testing purposes. Covers shall include a message indicating the signal is not in service. Pedestrian pushbuttons that are not in service shall be covered with a durable material such as described above or burlap that is secured in a weather-resistant manner. The entire housing, including the pedestrian sign, shall also be covered on the front side.

Turn-on of New Traffic Signal Installations.

The following only applies to new traffic signals at previously unsignalized locations.

The signal responsibility shall begin at the start of signal construction and shall end upon issuance of final acceptance by the Engineer. New traffic signal heads and indications may not be installed more than two (2) weeks (14 calendar days) prior to the scheduled turn-on of the traffic signal to avoid motorist confusion caused by the presence of new signal heads, even if properly covered. Unenergized signal indications shall be bagged until one (1) hour prior to the scheduled turn-on per the Bagging Signal Heads section above.

New stop bars and crosswalks on approaches that did not previously have stop control shall NOT be installed until the day of the traffic signal turn-on.

A Portable Changeable Message Sign (PCMS) must be placed two (2) weeks prior to the scheduled new traffic signal turn-on for all approaches to the intersection with the following messages:

NEW  
TRAFFIC  
SIGNAL

STARTING  
MMM ##

where “MMM” and “##” are the 3-character month abbreviation and day of the scheduled turn-on, respectively.

On the day of the turn-on, change messages to read:

NEW  
SIGNAL  
AHEAD

BE  
PREPARED  
TO STOP

The PCMS must remain in place for two (2) weeks following the day of the turn-on.

Conflicting Stop signs shall be removed immediately at the time of the traffic signal turn-on.

Locating Underground Facilities.

Revise Section 803 to the Standard Specifications to read:

“IDOT traffic signal facilities are not part of any of the one-call locating service such as J.U.L.I.E or Digger. If the Contract requires the maintenance services of an Electrical Contractor, the Contractor shall be responsible at their own expense for locating all existing IDOT electrical facilities, including but not limited to interconnect conduit and handholes, prior to performing any work. A maintenance transfer is required prior to any locating work. If this Contract does not require the maintenance services of an Electrical Contractor, the Contractor may request one free locate for existing IDOT electrical facilities from the District One Electrical Maintenance Contractor prior to the start of any work. Additional requests will be at the expense of the Contractor. The location of underground traffic facilities does not relieve the Contractor of their responsibility to repair any facilities damaged during construction at their expense.

The exact location of all utilities shall be field verified by the Contractor before the installation of any components of the traffic signal system. For locations of utilities, locally owned equipment, and leased enforcement camera system facilities, the local Counties or Municipalities may need to be contacted: in the City of Chicago contact Digger at (312) 744-7000, and for all other locations contact J.U.L.I.E. at 1-800-892-0123 or 811.

The Contractor shall take whatever precautions to protect the electric cable or electric conductors in conduit from damage during location and construction operations. If the wiring is damaged, the Contractor shall replace the entire length of cable or conductors in conduit, in a manner satisfactory to the Engineer. Splicing below grade will not be permitted.

In the event the repairs are not made by the Contractor, the Contractor shall reimburse the Department for such repairs within sixty (60) days of receiving written notification of said damage. Otherwise, the cost of such repairs will be deducted from monies due or which will become due the Contractor under the terms of the Contract.”

Grounding of Traffic Signal Systems

Revise Section 806 of the Standard Specifications to read:

“All traffic signal systems, equipment and appurtenances shall be properly grounded in strict conformance with the NEC. This work shall be in accordance with IDOT’s District One Traffic Signal Design Details.

The grounding electrode system shall include a ground rod installed with each traffic signal controller concrete foundation and all mast arm and post concrete foundations. An additional ground rod will be required at locations where measured resistance exceeds 25 ohms. Ground rods are included in the applicable concrete foundation or service installation pay item and will not be paid for separately.

Testing shall be according to Article 801.13 (a) (4) and (5).

- (a) The grounded conductor (neutral conductor) shall be white color coded. This conductor shall be bonded to the equipment grounding conductor only at the Electric Service Installation. All power cables shall include one neutral conductor of the same size.
- (b) The equipment grounding conductor shall be green color coded. The following is in addition to Article 801.04 of the Standard Specifications:
  - (1) Equipment grounding conductors shall be bonded to the grounded conductor (neutral conductor) only at the Electric Service Installation. The equipment grounding conductor is paid for separately and shall be continuous. The Earth shall not be used as the equipment grounding conductor.
  - (2) Equipment grounding conductors shall be bonded, using a UL Listed grounding connector, to all traffic signal mast arm poles, traffic signal posts, pedestrian posts, pull boxes, handhole frames and covers, conduits, and other metallic enclosures throughout the traffic signal wiring system, except where noted herein. Bonding shall be made with a splice and pigtail connection, using a sized compression type copper sleeve, sealant tape, and heat-shrinkable cap. A UL listed electrical joint compound shall be applied to all conductors’ terminations, connector threads and contact points. Conduit grounding bushings shall be installed at all conduit terminations, including spare or empty conduits and conduit protruding from handhole walls.
  - (3) All metallic and non-metallic raceways, including spare or empty raceways, shall have a continuous equipment grounding conductor, except raceways containing only detector loop lead-in circuits, circuits under 50 V and/or fiber optic cable will not be required to include an equipment grounding conductor.
  - (4) Individual conductor splices in handholes shall be soldered and sealed with heat shrink. When necessary to maintain effective equipment grounding, a full cable heat shrink shall be provided over individual conductor heat shrinks.

- (c) The grounding electrode conductor shall be similar to the equipment grounding conductor in color coding (green) and size. The grounding electrode conductor is used to connect the ground rod to the equipment grounding conductor and is bonded to ground rods via exothermic welding, UL listed pressure connectors, and UL listed clamps.”

### **OPTIMIZE TRAFFIC SIGNAL SYSTEM**

Effective: May 22, 2002

Revised: November 1, 2023

800.02TS

#### Description.

This work shall consist of optimizing a traffic signal system.

OPTIMIZE TRAFFIC SIGNAL SYSTEM applies when a new or existing traffic signal system is to be optimized and a formal Signal Coordination and Timing (SCAT) Report is to be prepared. The purpose of this work is to improve system performance by optimizing traffic signal timings and developing both a Time Of Day (TOD) program and a Traffic Responsive Program (TRP).

After the signal improvements are completed, the signal system shall be optimized as specified by an approved Consultant who has previous experience in optimizing traffic signal systems for District One of the Illinois Department of Transportation. The Contractor shall contact the Traffic Signal Engineer at (847) 705-4734 for a listing of approved Consultants. Traffic signal system optimization work, including fine-tuning adjustments of the optimized system, shall follow the requirements stated in the most recent IDOT District 1 SCAT Guidelines, except as noted herein.

A listing of existing signal equipment, interconnect information, phasing data, timing patterns, and SCAT Report may be obtained from the Department, if available and as appropriate. The Consultant shall confer with the Area Traffic Signal Maintenance and Operations Engineer prior to optimizing the system to determine if any extraordinary conditions exist that would affect traffic flows in the vicinity of the system, in which case, the Consultant may be instructed to wait until the conditions return to normal or to follow specific instructions regarding the optimization.

(a) The following tasks are associated with OPTIMIZE TRAFFIC SIGNAL SYSTEM:

1. Appropriate signal timings and offsets shall be developed for each intersection and appropriate cycle lengths shall be developed for the signal system. Consultant shall be present at the turn-on(s), if applicable, to implement initial timing plans.
2. Traffic counts shall be taken at all intersections after the permanent traffic signals are approved for operation by the Area Traffic Signal Maintenance and Operations Engineer. Manual turning movement counts shall be conducted from 6:30 a.m. to 9:30 a.m., 11:00 a.m. to 1:00 p.m., and 3:30 p.m. to 6:30 p.m. on a typical weekday from midday Monday to midday Friday and on a Saturday or Sunday, as directed by the Engineer, to account for special traffic generators such as shopping centers, educational institutes and special event facilities. The turning movement counts shall identify cars, and single-unit and multi-unit heavy vehicles.

3. The intersections shall be re-addressed and all system detectors reassigned as necessary according to the current standard practice of District One. System detector quantities and locations shall be assessed for optimal performance. The Department shall be notified of any proposed changes during Data Collection.
4. A Traffic Responsive Program shall be developed, which considers both volume and occupancy. A Time Of Day program shall be developed for use as a back-up system.
5. Proposed signal timing plan for the new or modified intersection shall be forwarded to IDOT for review prior to implementation.
6. Consultant shall conduct on-site implementation of the timings and make fine-tuning adjustments to the timings in the field to alleviate observed adverse operating conditions and to enhance operations. The consultant shall respond to IDOT comments and public complaints for a minimum period of six (6) months from date of timing plan implementation.
7. Speed and delay studies shall be conducted during each of the count periods along the system corridor in the field before and after implementation of the proposed timing plans for comparative evaluations.

(b) The following deliverables shall be provided for OPTIMIZE TRAFFIC SIGNAL SYSTEM:

Consultant shall provide to IDOT one (1) USB flash drive for the optimized system containing the following:

1. Electronic copy of the SCAT Report in PDF format
2. Copies of the Synchro (or other appropriate, approved optimization software) files for the optimized system
3. Traffic counts for the optimized system

The flash drive shall be labeled with the IDOT system number and master location (if applicable), as well as the submittal date and the consultant logo.

The SCAT Report shall include the following elements:

<b>Cover Page in color showing a System Map</b>
<b>Figures</b> <ol style="list-style-type: none"> <li>1. System overview map showing system number, system schematic map with numbered system detectors, oversaturated movements, master location (if applicable), system phone number (if applicable), cycle lengths, and date of completion.</li> <li>2. General location map in color showing signal system location in the metropolitan area.</li> <li>3. Detail system location map in color showing cross street names and local controller addresses.</li> <li>4. Controller sequence showing controller phase sequence diagrams.</li> </ol>
<b>Table of Contents</b>
<b>Tab 1: Final Report</b> <ol style="list-style-type: none"> <li>1. Project Overview</li> <li>2. System and Location Description (Project specific)</li> <li>3. Methodology</li> <li>4. Data Collection</li> <li>5. Data Analysis and Timing Plan Development</li> <li>6. Implementation           <ol style="list-style-type: none"> <li>a. Traffic Responsive Programming (Table of TRP vs. TOD Operation) with AM, Midday, and PM cycle lengths</li> </ol> </li> <li>7. Evaluation           <ol style="list-style-type: none"> <li>a. Speed and Delay runs</li> </ol> </li> </ol>
<b>Tab 2. Turning Movement Counts</b> <ol style="list-style-type: none"> <li>1. Turning Movement Counts (Showing turning movement counts in the intersection diagram for each period, including truck percentage)</li> </ol>
<b>Tab 3. Synchro Analysis</b> <ol style="list-style-type: none"> <li>1. AM: Time-Space diagram in color, followed by intersection Synchro report (timing report) summarizing the implemented timings.</li> <li>2. Midday: same as AM</li> <li>3. PM: same as AM</li> <li>4. Special weekend or off-peak traffic generators (shopping centers, educational facilities, arenas, etc.): same as AM</li> </ol>
<b>Tab 4: Speed, Delay Studies</b> <ol style="list-style-type: none"> <li>1. Summary of before and after runs results in two (2) tables showing travel time and delay time.</li> <li>2. Plot of the before and after runs diagram for each direction and time period.</li> </ol>
<b>Tab 5: Environmental Report</b> <ol style="list-style-type: none"> <li>1. Environmental impact report including gas consumption, NO<sub>2</sub>, HCCO, improvements.</li> </ol>

Basis of Payment.

The work shall be paid for at the contract unit each for OPTIMIZE TRAFFIC SIGNAL SYSTEM, which price shall be payment in full for performing all work described herein for the entire traffic signal system. Following the completion of traffic counts, 25 percent of the bid price will be paid. Following the completion of the Synchro analysis, 25 percent of the bid price will be paid. Following the setup and fine tuning of the timings, the speed-delay study, and the TRP programming, 25 percent of the bid price will be paid. The remaining 25 percent will be paid when the USB flash drive containing the SCAT report has been submitted and the system is operating to the satisfaction of the Engineer.

**COILABLE NON-METALLIC CONDUIT**

Effective: May 22, 2002

Revised: July 1, 2015

810.01TS

Description.

This work shall consist of furnishing and installing empty coilable non-metallic conduit (CNC).

General.

The CNC installation shall be in accordance with Sections 810 and 811 of the Standard Specifications except for the following:

Add the following to Article 810.03 of the Standard Specifications:

CNC meeting the requirements of NEC Article 353 shall be used for detector loop raceways to the handholes.

Add the following to Article 811.03 of the Standard Specifications:

On temporary traffic signal installations with detector loops, CNC meeting the requirements of NEC Article 353 shall be used for detector loop raceways from the saw-cut to 10 feet (3m) up the wood pole, unless otherwise shown on the plans

Basis of Payment.

All installations of CNC for loop detection shall be included in the contract and not paid for separately.

## **UNDERGROUND RACEWAYS**

Effective: May 22, 2002

Revised: March 1, 2024

810.02TS

Revise Article 810.04 of the Standard Specifications to read:

“Installation. All underground conduits shall have a minimum depth of 30 in. (700 mm) below the finished grade and shall be installed to avoid existing and proposed utilities within the project limits.”

Add the following to Article 810.04 of the Standard Specifications:

“All metal conduit installed underground shall be Rigid Steel Conduit unless otherwise indicated on the plans.”

All raceways which extend outside of a structure or duct bank but are not terminated in a cabinet, junction box, pull box, handhole, post, pole, or pedestal shall extend a minimum of 1 ft (300 mm) or the length shown on the plans beyond the structure or duct bank. The end of this extension shall be capped and sealed with a cap designed for the conduit to be capped.

The ends of rigid metal conduit to be capped shall be threaded, the threads protected with full galvanizing, and capped with a threaded galvanized steel cap.

The ends of rigid nonmetallic conduit and coilable nonmetallic conduit shall be capped with a rigid PVC cap of not less than 1/8 in. (3 mm) thick. The cap shall be sealed to the conduit using a room-temperature-vulcanizing (RTV) sealant compatible with the material of both the cap and the conduit. A washer or similar metal ring shall be glued to the inside center of the cap with epoxy, and the pull cord shall be tied to this ring.”

## **ROD AND CLEAN EXISTING CONDUIT**

Effective: January 1, 2015

Revised: July 1, 2015

810.03TS

### Description.

This work shall consist of inserting a duct rod or electrical fish rod or tape of sufficient length and rigidity into an electrical conduit opening in one electrical handhole, and pushing the said rod through the conduit to emerge at the next or subsequent handhole in the conduit system at the location(s) shown on the plans. The duct rod may be inserted and removed by any standard construction method which causes no damage to the conduit. The size of the conduit may vary, but there shall be no differentiation in cost for the size of the conduit.

The conduit which is to be rodded and cleaned may exist with various amounts of standing water in the handholes to drain the conduit and to afford compatible working conditions for the installation of the duct rods and/or cables. Pumping of handholes shall be included with the work of rodding and cleaning of the conduit.

Any handhole which, in the opinion of the Engineer contains excessive debris, dirt or other materials to the extent that conduit rodding and cleaning is not feasible, shall be cleaned at the Engineer's order and payment approval as a separate pay item.

Prior to removal of the duct rod, a duct cleaning attachment such as a properly sized wire brush or cleaning mandrel shall be attached to the duct rod, which by removal of the duct rod shall be pulled through the conduit to remove sand, grit, or other light obstructions from the duct to provide a clean, clear passage for the installation of cable. Whenever the installation of cables is not performed as an adjunct to or immediately following the cleaning of the duct, a light weight pulling line such as a 1/8" polyethylene line or conduit measuring tape shall be placed and shall remain in the conduit to facilitate future work. When great difficulty of either inserting the duct rod or removal of the cleaning mandrel is encountered, the duct may require further cleaning by use of a compressed air gun, or a low pressure water hose. In the case of a broken conduit, the conduit must be excavated and repaired. The existence and location of breaks in the conduit may be determined by rodding, but the excavation and repair work required will be paid for separately.

This work shall be measured per lineal foot for each conduit cleaned. Measurements shall be made from point to point horizontally. No vertical rises shall count in the measurement.

Basis of Payment.

This work shall be paid for at the contract unit price per lineal foot for ROD AND CLEAN EXISTING CONDUIT for the installation of new electric cables in existing conduits. Such price shall include the furnishing of all necessary tools, equipment, and materials required to prepare a conduit for the installation of cable.

**HANDHOLES**

Effective: January 01, 2002  
Revised: November 1, 2023  
814.01TS

Description.

Add the following to Section 814 of the Standard Specifications:

All conduits shall enter the handhole at a depth of 30 in. (762 mm) except for the conduits for detector loops when the handhole is less than 5 ft (1.52 m) from the detector loop. All conduit ends should be sealed with a waterproof sealant to prevent the entrance of contaminants into the handhole.

Steel cable hooks shall be epoxy coated and must meet the specifications set forth in 1006.10. Hooks shall be a minimum of 5/8 in. (16 mm) diameter with 90-degree bend and extend into the handhole at least 6 in. (152 mm). Hooks shall be placed a minimum of 12 in. (305 mm) below the lid or lower if additional space is required.

Precast round handholes shall not be used unless called out on the plans.

The cover of the handhole frame shall be labeled "Traffic Signals" with legible raised letters. Only handholes serving IDOT traffic signal equipment shall have this label. Handhole covers for Red Light Running Cameras shall be labeled "RLRC".

Revise the third paragraph of Article 814.03 of the Standard Specifications to read:

"Handholes shall be constructed as shown on the plans and shall be cast-in-place or precast concrete units. Heavy duty handholes shall be either cast-in-place or precast concrete units."

Revise Article 814.03(c) of the Standard Specifications to read:

"Precast Concrete. Precast concrete handholes shall be fabricated according to Article 1042.17. Where a handhole is contiguous to a sidewalk, preformed joint filler of 1/2 in. (13 mm) thickness shall be placed between the handhole and the sidewalk."

Add the following to Section 814 of the Standard Specifications:

Cast-In-Place Handholes.

All cast-in-place handholes shall be concrete with minimum inside dimensions of 21-1/2 in. (546 mm). Frames and lid openings shall match this dimension.

For grounding purposes, the handhole frame shall have provisions for a 7/16 in. (11 mm) diameter stainless steel bolt cast into the frame. The covers shall have a stainless steel threaded stint extended from the eye hook assembly for the purpose of attaching the grounding conductor to the handhole cover.

The minimum wall thickness for heavy duty hand holes shall be 1 ft (305mm).

Precast Round Handholes.

All precast handholes shall be concrete with an inside diameter of 30 in. (762mm). Frames and covers shall have a minimum opening of 26 in. (660mm) and no larger than the inside diameter of the handhole.

For grounding purposes, the handhole frame shall have provisions for a 7/16 in. (11 mm) diameter stainless steel bolt cast into the frame. For the purpose of attaching the grounding conductor to the handhole cover, the covers shall either have a 7/16 in. (11 mm) diameter stainless steel bolt cast into the cover or a stainless steel threaded stint extended from an eye hook assembly. A hole may be drilled for the bolt if one cannot be cast into the frame or cover. The head of the bolt shall be flush or lower than the top surface of the cover.

The minimum wall thickness for precast heavy duty hand holes shall be 6 in. (152 mm).

Precast round handholes shall be only produced by an approved precast vendor.

**FIBER OPTIC TRACER CABLE**

Effective: May 22, 2002

Revised: November 1, 2023

817.02TS

The cable shall meet the requirements of Section 817 of the Standard Specifications, except for the following:

Add the following to Article 817.03 of the Standard Specifications:

“In order to trace the fiber optic cable after installation, the tracer cable shall be installed in the same conduit as the fiber optic cable in locations shown on the plans. The tracer cable shall be continuous, extended into the controller cabinet and terminated on a barrier type terminal strip mounted on the side wall of the controller cabinet. The barrier type terminal strip and tracer cable shall be clearly marked and identified. All tracer cable splices shall be kept to a minimum and shall incorporate maximum lengths of cable supplied by the manufacturer. The tracer cable will be allowed to be spliced at handholes only. The tracer cable splice shall use a Western Union Splice soldered with resin core flux and shall be soldered using a soldering iron. Blow torches or other devices which oxidize copper cable shall not be allowed for soldering operations. All exposed surfaces of the solder shall be smooth. The splice shall be covered with a black shrink tube meeting UL 224 guidelines, Type V and rated 600V, minimum length 4 in. (100 mm) and with a minimum 1 in. (25 mm) coverage over the XLP insulation, underwater grade.”

Revise Article 817.05 of the Standard Specifications to read:

“Basis of Payment. The tracer cable shall be paid for separately as ELECTRIC CABLE IN CONDUIT, TRACER, NO. 14 1C per foot (meter), which price shall include all associated labor and material for installation.”

**FULL-ACTUATED CONTROLLER IN EXISTING CABINET**

Effective: September 26, 1995

Revised: November 1, 2023

857.01TS

Description.

This work shall consist of furnishing and installing a(n) "Cable plan sheet with designation 'TACTICS' requires Eagle/Yunex controller and Cable plan sheet with designation 'CENTRACS' requires Econolite Cobalt controller" brand traffic actuated solid state digital controller meeting the requirements of the current District One Traffic Signal Special Provisions 857.02TS FULL-ACTUATED CONTROLLER AND CABINET and 857.02TS RAILROAD, FULL-ACTUATED CONTROLLER AND CABINET. This pay item shall include furnishing and installing the controller complete including malfunction management unit, load switches and flasher relays, and all necessary connections for proper operation.

Materials.

Add the following to Article 857.02 of the Standard Specifications:

“Controllers shall be Econolite Cobalt or Eagle/Yunex M60 unless specified otherwise on the plans or elsewhere on these specifications. Only controllers supplied by one of the District One approved vendors will be allowed. The controller shall be of the most recent approved model and software version supplied by the vendor at the time of the traffic signal TURN-ON, unless specified otherwise on the plans or these specifications. A removable controller data key shall also be provided. Individual load switches shall be provided for each vehicle, pedestrian, and overlap phase. The controller shall prevent phases from being omitted during program changes and after all preemption events and shall inhibit simultaneous display of circular yellow and yellow arrow indications.

For integration into an Advanced Traffic Management System (ATMS) such as Centracs, Tactics, or TransSuite, the controller shall have the latest version of approved NTCIP software installed. For operation prior to integration into an ATMS, the controller shall maintain existing communications.”

Basis of Payment.

This work will be paid for at the contract unit price each for FULL-ACTUATED CONTROLLER IN EXISTING CABINET.

**FULL-ACTUATED CONTROLLER AND CABINET**

Effective: January 1, 2002

Revised: April 1, 2026

857.02TS

Description.

This work shall consist of furnishing and installing a traffic actuated solid state digital controller in the controller cabinet of the type specified, meeting the requirements of Section 857 of the Standard Specifications, as modified herein, including malfunction management unit, load switches and flasher relays, and all necessary connections for proper operation.

If the intersection is part of an existing system and/or when specified in the plans, this work shall consist of furnishing and installing a(n) "Cable plan sheet with designation 'TACTICS' requires Eagle/Yunex controller and Cable plan sheet with designation 'CENTRACS' requires Econolite Cobalt controller" brand traffic actuated solid state controller.

Materials.

Add the following to Article 857.02 of the Standard Specifications:

“Controllers shall be Econolite Cobalt or Eagle/Yunex M60 unless specified otherwise on the plans or elsewhere on these specifications. Only controllers supplied by one of the District One approved Vendors will be allowed. The controller shall be of the most recent approved model and software version supplied by the Vendor at the time of the traffic signal TURN-ON unless specified otherwise on the plans or these specifications. A removable controller data key shall also be provided. Individual load switches shall be provided for each vehicle, pedestrian, and overlap phase. The controller shall prevent phases from being omitted during program changes and after all preemption events and shall inhibit simultaneous display of circular yellow and yellow arrow indications.

For integration into an Advanced Traffic Management System (ATMS) such as Centracs, Tactics, or TransSuite, the controller shall have the latest version of approved NTCIP software installed. For operation prior to integration into an ATMS, the controller shall maintain existing communications.”

Revise Article 1074.03 (a) (5) paragraph “b.” to read:

“Thermostatically Controlled Exhaust Fans. The cabinet shall be equipped with two (2) thermostatically controlled exhaust fans. Each fan shall have a minimum air delivery capacity of 100 cfm (2.8 cu m/min) and shall be mounted on self-lubricating ball bearings. The thermostat control shall be adjustable between 91 and 113 °F (33 and 45 °C) and shall be set to turn the fan on at 95 °F (35 °C).”

Add the following to Article 1074.03 of the Standard Specifications:

(a) (6) Cabinets shall be designed for NEMA TS2 Type 1 operation. All cabinets shall be pre-wired for a minimum of eight (8) phases of vehicular, four (4) phases of pedestrian and four (4) phases of overlap operation.

Revise the second sentence in Article 1074.03 (b) (1) paragraph “a” to read:

“The malfunction management unit shall have a minimum of 16 fully programmable channels.”

Add the following to Article 1074.03 of the Standard Specifications:

(a) (1) Optionally, a “Type 4.5/Type IV Stretched” cabinet shall be provided. This cabinet has the same dimensions as a Type IV cabinet with an additional height. Additionally, it shall include a front and rear door with double, vented overhangs for protection from water intrusion.

(a) (2) a. The gaskets shall be permanently bonded to the cabinet. The gaskets shall include a polyester film to prevent the gaskets from sticking to the cabinet surface.

- (a) (2) e. A rain channel shall be incorporated into the design of the main door opening to prevent liquids from entering the enclosure. The cabinet door opening shall be a minimum of 80 percent of the front surface of the cabinet. A stiffener plate shall be welded across the inside of the main door to prevent flexing.
- (a) (2) f. The top of the cabinet shall incorporate a 1 in. slope towards the rear to prevent rain accumulation.
- (b) (5) Cabinets – Provide 1/8 in. (3.2 mm) thick unpainted aluminum alloy 5052-H32. The surface shall be smooth, free of marks and scratches. All external hardware shall be stainless steel.
- (b) (6) Controller Harness – Provide a TS2 Type 2 “A” wired harness in addition to the TS2 Type 1 harness.
- (b) (7) Surge Protection – Shall be a 120 VAC Single phase Modular filter Plug-in type, supplied from an approved Vendor.
- (b) (8) BIU – shall be secured by mechanical means.
- (b) (9) Transfer Relays – Solid state or mechanical flash relays are acceptable.
- (b) (10) Switch Guards – All switches shall be guarded.
- (b) (11) Heating – One (1) 800 W, thermostatically controlled, electric heater with automatic fan function.
- (b) (12) Lighting – One (1) LED Panel shall be placed inside the cabinet top panel and one (1) LED Panel shall be placed on each side of the pull-out drawer/shelf assembly located beneath the controller support shelf. The LED Panels shall be controlled by a door switch. The LED Panels shall be provided from an approved Vendor.
- (b) (13) The cabinet shall be equipped with a pull-out drawer/shelf assembly. A 1-1/2 in. (38mm) deep drawer shall be provided in the cabinet, mounted directly beneath the controller support shelf. The drawer shall have a hinged top cover and shall be capable of accommodating one (1) complete set of cabinet prints and manuals. This drawer shall support 50 lb (23 kg) in weight when fully extended. The drawer shall open and close smoothly. Drawer dimensions shall make maximum use of available depth offered by the controller shelf and be a minimum of 18 in. (610mm) wide.
- (b) (14) Plan & Wiring Diagrams – 12 in. x 15 in. (305mm x 406mm) moisture sealed container attached to door.
- (b) (15) Detector Racks – Fully wired and labeled for four (4) channels of emergency vehicle preemption and sixteen channels (16) of vehicular operation.
- (b) (16) Field Wiring Labels – All field wiring shall be labeled.
- (b) (17) Field Wiring Termination – Approved channel lugs required.
- (b) (18) Power Panel – Provide a nonconductive shield.
- (b) (19) Circuit Breaker – The circuit breaker shall be sized for the proposed load but shall not be rated less than 30 A.
- (b) (20) Police Door – Provide wiring and termination for plug in manual phase advance switch.
- (b) (21) Insulation - minimum half inch polystyrene rigid board insulation with a minimum R-3 thermal resistance attached to the top of cabinet on the interior side.

Installation.

Add the following to the second paragraph of Article 857.03 of the Standard Specifications:

“All existing multiconductor cable to be reinstalled shall be cut back to expose individual conductors beneath the outer jacket. Individual conductors shall be stripped and trained as necessary for a complete professional and efficient installation.”

Basis of Payment.

This work will be paid for at the contract unit price each for FULL-ACTUATED CONTROLLER AND TYPE IV STRETCHED CABINET; FULL-ACTUATED CONTROLLER AND TYPE SUPER R CABINET; FULL-ACTUATED CONTROLLER AND TYPE IV STRETCHED CABINET, SPECIAL; FULL-ACTUATED CONTROLLER AND TYPE SUPER R CABINET (SPECIAL).

**RAILROAD, FULL-ACTUATED CONTROLLER AND CABINET**

Effective: January 1, 2002

Revised: April 1, 2026

857.03TS

Description.

This work shall consist of furnishing and installing a traffic actuated solid state digital controller in the controller cabinet of the type specified, meeting the requirements of Section 857 of the Standard Specifications as modified herein and including conflict monitor or malfunction management unit, load switches and flasher relays, interlock function to the railroad preemptor, and all necessary connections for proper operation.

If the intersection is part of an existing system and/or when specified in the plans, this work shall consist of furnishing and installing a(n) "Cable plan sheet with designation 'TACTICS' requires Eagle/Yunex controller and Cable plan sheet with designation 'CENTRACS' requires Econolite Cobalt controller" brand traffic actuated solid state controller.

Controller and cabinet shall be assembled only by an approved IDOT District One traffic signal Vendor. The equipment shall be tested and approved in the Vendor's District One facility prior to field installation.

Materials.

Add the following to Article 857.02 of the Standard Specifications:

“Controllers shall be Econolite Cobalt or Eagle/Yunex M60 unless specified otherwise on the plans or elsewhere on these specifications. Only controllers supplied by one of the District One approved Vendors will be allowed. The controller shall be of the most recent model and software version approved by the Department for use with railroad intersections supplied by the Vendor at the time of the traffic signal TURN-ON unless specified otherwise on the plans. A removable controller data key shall also be provided. Individual load switches shall be provided for each vehicle, pedestrian, and overlap phase. The controller shall prevent phases from being omitted during program changes and after all preemption events and shall inhibit simultaneous display of circular yellow and yellow arrow indications. The controller shall have remote monitoring and dial-out capabilities.

For integration into an Advanced Traffic Management System (ATMS) such as Centrac, Tactics, or TransSuite, the controller shall have the latest version of approved NTCIP software installed. For operation prior to integration into an ATMS, the controller shall maintain existing communications.”

Controller shall comply with Article 1073.01 as amended herein.

Controller Cabinet and Peripheral Equipment shall comply with Article 1074.03 as amended in these Traffic Signal Special Provisions.

Revise Article 1074.03 (a) (5) paragraph “b.” to read:

“Thermostatically Controlled Exhaust Fans. The cabinet shall be equipped with two (2) thermostatically controlled exhaust fans. Each fan shall have a minimum air delivery capacity of 100 cfm (2.8 cu m/min) and shall be mounted on self-lubricating ball bearings. The thermostat control shall be adjustable between 91 and 113 °F (33 and 45 °C) and shall be set to turn the fan on at 95 °F (35 °C).”

Add the following to Articles 1073.01 (c) (2) and 1074.03 (a) (5) paragraph “e” of the Standard Specifications:

“Controllers and cabinets shall be new and NEMA TS2 Type 1 or NEMA TS2 Type 2 design.

Railroad interconnected controllers and cabinets shall be assembled only by an approved traffic signal equipment Manufacturer/Vendor. All railroad interconnected (including temporary railroad interconnected) controllers and cabinets shall be new, built, tested and approved by the Vendor, the Department, and the Illinois Commerce Commission in the Vendor’s District One facility, prior to field installation. The Vendor shall provide the technical equipment and assistance as required by the Engineer to fully test this equipment.

Each cabinet shall have Controller Preempt Input Verification. This feature monitors the integrity of the controller railroad preemption input and associated wiring within the traffic controller cabinet. This utilizes a secondary railroad preemption input that is normally active/on when no demand for railroad preemption is present. When a demand for railroad preemption is received, the normal railroad preemptor input is applied, and the secondary input is dropped. If both inputs are either simultaneously on or simultaneously off for more than one (1) second, the controller recognizes this as an input failure. When a failure occurs, the traffic controller is configured to provide a track clearance interval followed by a flashing red condition. This occurrence sets a preempt input alarm and requires a manual reset of the controller.”

Add the following to Article 1074.03 of the Standard Specifications:

- (a) (6) Cabinets shall be designed for NEMA TS2 Type 1 or NEMA TS2 Type 2 Operation. All cabinets shall be pre-wired for a minimum of eight (8) phases of vehicular, four (4) phases of pedestrian and four (4) phases of overlap operation.

Revise the second sentence in Article 1074.03 (b) (1) paragraph “a” to read:

“The malfunction management unit or conflict monitor shall have a minimum of 16 fully programmable channels.”

Add the following to Article 1074.03 of the Standard Specifications:

(a) (1) Optionally, a “Type 4.5/Type IV Stretched” cabinet shall be provided. This cabinet has the same dimensions as a Type IV cabinet with an additional height. Additionally, it shall include a front and rear door with double, vented overhangs for protection from water intrusion.

(a) (2) a. The gaskets shall be permanently bonded to the cabinet. The gaskets shall include a polyester film to prevent the gaskets from sticking to the cabinet surface.

(a) (2) e. A rain channel shall be incorporated into the design of the main door opening to prevent liquids from entering the enclosure. The cabinet door opening shall be a minimum of 80 percent of the front surface of the cabinet. A stiffener plate shall be welded across the inside of the main door to prevent flexing.

(a) (2) f. The top of the cabinet shall incorporate a 1 in. slope towards the rear to prevent rain accumulation.

(b) (5) Cabinets – Provide 1/8 in. (3.2 mm) thick unpainted aluminum alloy 5052-H32. The surface shall be smooth, free of marks and scratches. All external hardware shall be stainless steel.

(b) (6) Controller Harness – Provide a TS2 Type 2 “A” wired harness in addition to the TS2 Type 1 harness.

(b) (7) Surge Protection – Shall be a 120 VAC Single phase Modular filter Plug-in type, supplied from an approved vendor.

(b) (8) BIU – shall be secured by mechanical means.

(b) (9) Transfer Relays – Solid state or mechanical flash relays are acceptable.

(b) (10) Switch Guards – All switches shall be guarded.

(b) (11) Heating – One (1) 800 W, thermostatically controlled, electric heater with automatic fan function.

(b) (12) Lighting – One (1) LED Panel shall be placed inside the cabinet top panel and one (1) LED Panel shall be placed on each side of the pull-out drawer/shelf assembly located beneath the controller support shelf. The LED Panels shall be controlled by a door switch. The LED Panels shall be provided from an approved vendor.

- (b) (13) The cabinet shall be equipped with a pull-out drawer/shelf assembly. A 1-1/2 in. (38mm) deep drawer shall be provided in the cabinet, mounted directly beneath the controller support shelf. The drawer shall have a hinged top cover and shall be capable of accommodating one (1) complete set of cabinet prints and manuals. This drawer shall support 50 lb (23 kg) in weight when fully extended. The drawer shall open and close smoothly. Drawer dimensions shall make maximum use of available depth offered by the controller shelf and be a minimum of 18 in. (610mm) wide.
- (b) (14) Plan & Wiring Diagrams – 12 in. x 15 in. (3.05mm x 4.06mm) moisture sealed container attached to door.
- (b) (15) Detector Racks – Fully wired and labeled for four (4) channels of emergency vehicle pre-emption and sixteen channels (16) of vehicular operation.
- (b) (16) Field Wiring Labels – All field wiring shall be labeled.
- (b) (17) Field Wiring Termination – Approved channel lugs required.
- (b) (18) Power Panel – Provide a nonconductive shield.
- (b) (19) Circuit Breaker – The circuit breaker shall be sized for the proposed load but shall not be rated less than 30 A.
- (b) (20) Police Door – Provide wiring and termination for plug in manual phase advance switch.
- (b) (21) Railroad Preemption Test Switch – Shall be provided from an approved vendor.
- (b) (22) Insulation - minimum half inch polystyrene rigid board insulation with a minimum R-3 thermal resistance attached to the top of cabinet on the interior side.

#### Installation.

Add the following to the second paragraph of Article 857.03 of the Standard Specifications:

“All existing multiconductor cable to be reinstalled shall be cut back to expose individual conductors beneath the outer jacket. Individual conductors shall be stripped and trained as necessary for a complete professional and efficient installation.”

Add the following to Article 857.03 of the Standard Specifications:

“The Contractor shall arrange to install a cellular modem and all equipment to dial into the controller and have the controller dial out to the RAILROAD, FULL-ACTUATED CONTROLLER AND CABINET as called for on the traffic signal installation plans. If the traffic signal installation is part of a traffic signal system, a cellular modem is usually not required unless called for on the traffic signal plans. The Contractor shall follow the requirements for the cellular modem installation as contained in the current District One Traffic Signal Special Provision 892.01TS CELLULAR MODEM.”

#### Basis of Payment.

This work will be paid for at the contract unit price each for RAILROAD, FULL-ACTUATED CONTROLLER AND TYPE IV STRETCHED CABINET; RAILROAD, FULL-ACTUATED CONTROLLER AND TYPE SUPER R CABINET; RAILROAD, FULL-ACTUATED CONTROLLER AND TYPE IV STRETCHED CABINET, SPECIAL; or RAILROAD, FULL-ACTUATED CONTROLLER AND TYPE SUPER R CABINET (SPECIAL).

**UPGRADE EXISTING CONTROLLER TO NTCIP SPECIAL**

Effective: November 1, 2023  
857.04TS

Description.

This work shall comply with Section 857 of the Standard Specifications and shall also comply with the following requirements.

General.

This item shall consist of installing the latest version of software, PROM, or PROM SET as well as enabling the NTCIP mode of the operations in an existing traffic signal controller. At locations that contain coordination modules, all PROMS in the controller module, telemetry module, and coordination module must be of the same version and revision. New system interface board shall be included in this item. updating all the communication parameters necessary for communication in the Ethernet-based signal system, including the NTCIP address. Contact IDOT System Engineer for the approved most up to date software version to be used for this item. Any modifications required for the completion of this work shall be included in the cost of this item.

Basis of Payment.

This work will be paid for at the contract unit price per each for UPGRADE EXISTING CONTROLLER TO NTCIP SPECIAL, which price shall be payment in full for performing all work described herein and includes furnishing, installing, testing, and all appurtenances necessary for a complete and operational unit as directed/approved by the Traffic Signal Engineer.

**UNINTERRUPTABLE POWER SUPPLY, SPECIAL**

Effective: January 1, 2013  
Revised: March 1, 2024  
862.01TS

This work shall be in accordance with section 862 of the Standard Specification except as modified herein.

Add the following to Article 862.01 of the Standard Specifications:

“The UPS shall have the power capacity to provide normal operation of a signalized intersection that utilizes all LED type signal head optics for a minimum of six (6) hours.”

Add the following to Article 862.02 of the Standard Specifications:

“Materials shall be according to Article 1074.04 as modified in UNINTERRUPTABLE POWER SUPPLY, SPECIAL.”

Add the following to Article 862.03 of the Standard Specifications:

“The UPS shall additionally include, but not be limited to, a battery cabinet, where applicable. For Super P and Super R cabinets, the battery cabinet is integrated to the traffic signal cabinet and shall be included in the cost for the traffic signal cabinet of the size and type indicated on the plans.”

Revise Article 862.04 of the Standard Specifications to read:

Installation.

When a UPS is installed at an existing traffic signal cabinet, the UPS cabinet shall partially rest on the lip of the existing controller cabinet foundation and be secured to the existing controller cabinet by means of at least four (4) stainless steel bolts. The UPS cabinet shall be completely enclosed with the bottom and back constructed of the same material as the cabinet.

When a UPS is installed at a new signal cabinet and foundation, it shall be mounted as shown on the plans.

At locations where UPS is installed and an emergency vehicle priority system is in use, any existing incandescent confirmation beacons shall be replaced with LED lamps in accordance with the District One Emergency Vehicle Priority System specification at no additional cost to the Contract. A concrete apron shall be provided and be in accordance with Articles 424 and 202 of the Standard Specifications. The concrete apron shall also follow the District 1 Standard Traffic Signal Design Detail, Type D for Ground Mounted Controller Cabinet and UPS Battery Cabinet.

For a ground mounted UPS, the UPS shall be mounted on its own Type A concrete foundation which will be paid for separately. A concrete apron shall be provided with a dimension of 36 in. in front of the UPS cabinet, 5 in. deep, and a width sized appropriately to the width of the concrete foundation. The concrete apron shall follow Articles 424 and 202 of the Standard Specifications.

This item shall include any required modifications to an existing traffic signal controller as a result of the addition of the UPS including the addition of alarms.

Materials.

Revise Article 1074.04(a)(1) of the Standard Specifications to read:

“The UPS shall be line interactive or double conversion and provide voltage regulation and power conditioning when utilizing utility power. The UPS shall be sized appropriately for the intersection(s) normal traffic signal operating load. The UPS must be able to maintain the intersection’s normal operating load plus 20 percent of the intersection’s normal operating load. When installed at a railroad-interconnected intersection, the UPS must maintain the railroad preemption load, plus 20 percent of the railroad preemption-operating load. The total connected traffic signal load shall not exceed the published ratings for the UPS. The UPS shall provide a minimum of six (6) hours of normal operation run-time for signalized intersections with LED type signal head optics at 77 °F (25 °C) (minimum 1000 W active output capacity, with 86 percent minimum inverter efficiency).”

Revise the first paragraph of Article 1074.04(a)(3) of the Standard Specifications to read:

“The UPS shall have a minimum of four (4) sets of normally open (NO) and normally closed (NC) single-pole double-throw (SPDT) relay contact closures, available on a panel mounted terminal block or locking circular connectors, rated at a minimum 120 V/1 A, and labeled so as to identify each contact according to the plans.”

Revise Article 1074.04(a)(17) of the Standard Specifications to read:

“When the intersection is in battery backup mode, the UPS shall bypass all internal cabinet lights, ventilation fans, cabinet heaters, service receptacles, luminaires, any lighted street name signs, any automated enforcement equipment and any other devices directed by the Engineer.”

Revise Article 1074.04(b)(2) paragraph “b.” of the Standard Specifications to read:

“Batteries, inverter/charger and power transfer relay shall be housed in a separate NEMA Type 3R cabinet. The cabinet shall be Aluminum alloy, 5052-H32, 0.125 in. thick and have a natural mill finish.”

Revise Article 1074.04(b)(2) paragraph “c.” of the Standard Specifications to read:

“No more than three (3) batteries shall be mounted on individual shelves for a cabinet housing six batteries and no more than four (4) batteries per shelf for a cabinet housing eight batteries.”

Revise Article 1074.04(b)(2) paragraph “e.” of the Standard Specifications to read:

“The battery cabinet housing shall have the following nominal outside dimensions: a width of 25 in. (785 mm), a depth of 16 in. (440 mm), and a height of 41 to 48 in. (1.1 to 1.3 m). Clearance between shelves shall be a minimum of 10 in. (250 mm).”

Revise Article 1074.04(b)(2) paragraph “g.” of the Standard Specifications to read:

“The door shall open to the entire cabinet, have a neoprene gasket, an Aluminum continuous piano hinge with stainless steel pin, and a three point locking system. The door shall be equipped with a two position doorstop, one a 90° and one at 120°. The cabinet shall be provided with a main door lock which shall operate with a traffic industry conventional No. 2 key. Provisions for padlocking the door shall be provided.”

Add the following to Article 1074.04(b)(2) of the Standard Specifications:

- j. The battery cabinet shall have provisions for an external generator connection.

Add the following to Article 1074.04(c) of the Standard Specifications:

- (8) The UPS shall include a tip or kill switch installed in the battery cabinet, which shall completely disconnect power from the UPS when the switch is manually activated.
- (9) The UPS shall include standard RS-232 and internal Ethernet interface.
- (10) The UPS shall incorporate a flanged electric generator inlet for charging the batteries and operating the UPS. The generator connector shall be male type, twist-lock, rated as 15A, 125VAC with a NEMA L5-15P configuration and weatherproof lift cover plate. Access to the generator inlet shall be from a secured weatherproof lift cover plate or behind a locked battery cabinet police panel.
- (11) The bypass switch shall include an internal power transfer relay that allows removal of the battery back-up unit, while the traffic signal is connected to utility power, without impacting normal traffic signal operation.

Revise Article 1074.04(d)(3) of the Standard Specifications to read:

“All batteries supplied in the UPS shall be either gel cell or AGM type, deep cycle, completely sealed, prismatic lead calcium based, silver alloy, valve regulated lead acid (VRLA) requiring no maintenance. All batteries in a UPS installation shall be the same type; mixing of gel cell and AGM types within a UPS installation is not permitted.”

Revise Article 1074.04(d)(4) of the Standard Specifications to read:

“Batteries shall be certified by the manufacturer to operate over a temperature range of -13°F to 160 °F (-25°C to 71 °C) for gel cell batteries and -40°F to 140°F (-40°C to 60 °C) for AGM type batteries.”

Add the following to Article 1074.04(d) of the Standard Specifications:

- (9) The UPS shall consist of an even number of batteries that are capable of maintaining normal operation of the signalized intersection for a minimum of six (6) hours. Calculations shall be provided showing the number of batteries of the type supplied that are needed to satisfy this requirement. A minimum of four (4) batteries shall be provided.
- (10) Battery heater mats shall be provided when gel cell type batteries are supplied.

Add the following to Article 1074.04 of the Standard Specifications:

- (e) Warranty. The warranty for an uninterruptable power supply (UPS) and batteries (full replacement) shall cover a minimum of five (5) years from date the equipment is placed in operation.
- (f) Installation. Bypass switch shall completely disconnect the traffic signal cabinet from the utility provider.

- (g) The UPS shall be set-up to run the traffic signal continuously without going to a red flashing condition when switched to battery power unless otherwise directed by the Engineer. The Contractor shall confirm set-up with the Engineer. The continuous operation mode when switched to battery may require modification to unit connections and these modifications are included in the unit price for this item.

Revise Article 862.04 of the Standard Specifications to read:

Basis of Payment.

This work will be paid for at the Contract unit price per each for UNINTERRUPTABLE POWER SUPPLY, SPECIAL, UNINTERRUPTABLE POWER SUPPLY, GROUND MOUNTED, or UNINTERRUPTABLE POWER SUPPLY AND CABINET, SPECIAL. Replacement of emergency vehicle priority system confirmation beacons and any required modifications to the traffic signal controller shall be included in the cost of the UNINTERRUPTABLE POWER SUPPLY, SPECIAL, UNINTERRUPTABLE POWER SUPPLY, GROUND MOUNTED, or UNINTERRUPTABLE POWER SUPPLY AND CABINET, SPECIAL item. The concrete apron and earth excavation required shall be included in the cost of the UNINTERRUPTABLE POWER SUPPLY, GROUND MOUNTED or UNINTERRUPTABLE POWER SUPPLY AND CABINET, SPECIAL item.

**REMOVE AND REPLACE BATTERIES FOR UNINTERRUPTABLE POWER SUPPLY**

Effective: November 1, 2023

862.03TS

Description.

Remove and Replace Batteries for Uninterruptable Power Supply (UPS) shall meet the requirements of Special Provision 862.01TS Uninterruptable Power Supply, Special for the batteries requirements including sizing, rating, and warranty. This item requires that the Contractor remove the existing batteries in the uninterruptable power supply and replace them with new batteries that provide a minimum of six (6) hours of full run- time operation.

The Contractor is responsible for modifying the existing uninterruptable power supply to make the cabinet and controller compatible for extra batteries if needed to ensure a minimum of six (6) hours of full run-time operation. Any connectors, wiring, seals, battery heating mats if needed shall be part of this pay item and included in the cost of this pay item. The Contractor is responsible for verifying that the existing battery heating mats are working properly and relocate these or replace with new heating mats as needed. This work shall also include properly cleaning of the inside of UPS cabinet of any battery acid residue or other debris to the satisfaction of the Engineer.

The existing batteries at an intersection shall be removed and recycled at an electronics recycling facility in an environmentally and properly way in meeting all applicable sections of US EPA and IL EPA publications along with the Code of Federal Regulations for transportation. Salvage value shall be included in the bid price.

All batteries in a UPS installation shall be the same type; mixing of gel cell and AGM types within a UPS installation is not permitted. All batteries shall have a clear label with the date it was manufactured and date it was installed inside a UPS.

Basis of Payment.

This work shall be paid for at the contract unit price each of all batteries in cabinet per intersection for REMOVE AND REPLACE BATTERIES FOR UNINTERRUPTABLE POWER SUPPLY, the price of which shall include the cost for all of the work and material described herein and includes furnishing, installing, and all mounting hardware necessary for proper operation to the satisfaction of the Traffic Engineer.

**SPLICE FIBER IN CABINET**

Effective: November 1, 2023

Revised: March 1, 2026

871.02TS

Description.

This work shall consist of fusion splicing singlemode or multimode fibers in a field cabinet, inside a building, as shown on the plans and/or as directed by the Traffic Engineer.

General.

This pay item shall include splices between existing fiber optic cables and any splices shown on the plans as a bid item. Splices shall utilize the Coyote In-Line Runt style or better watertight enclosure when made at handhole or communication vault and shall be secured in fiber optic splice trays within enclosures. All fusion splices shall be secured on aluminum splice trays capable of accommodating the required number of fusion splices, including necessary splice holders and a compatible splice tray cover. The watertight enclosure dimensions shall fit inside existing traffic signal handholes with sufficient room around these. The tray dimensions shall not exceed 7.5" x 4.1" x 0.45" and shall be mounted within the enclosure using suitable hardware that allows removal for maintenance purposes without the use of tools. All individual splice trays shall be labelled. Splice trays and enclosures shall be included in the unit cost of SPLICE FIBER IN CABINET.

The quality of all fiber splices shall be verified by testing and documentation according to Article 801.13(d) of the "Standard Specifications," to the satisfaction of the Traffic Engineer.

All optical fibers shall be spliced to provide continuous runs. Splices shall only be allowed in equipment cabinets, in buildings, as shown on the plans and/or as directed by the Traffic Engineer.

All splices shall be made using a fusion splicer that automatically positions the fibers using a system of light injection and detection. The Contractor shall provide all equipment and consumable supplies.

An OTDR trace and power meter readings must be provided from end point termination to end point termination for any fiber that is spliced.

Basis of Payment.

This work shall be paid for at the contract unit price per each for SPLICE FIBER IN CABINET. The unit price shall include all equipment; materials; fiber optic splice trays; watertight enclosure; testing and documentation; and labor required to fusion splice singlemode fiber optic cable. Splices involving new fiber optic cable installed under this contract, and any splices shown on the plans as an included item, shall be included in the unit cost of the applicable FIBER OPTIC CABLE of the type, size, and number of fibers specified.

**TERMINATE FIBER IN CABINET**

Effective: November 1, 2023  
871.03TS

Description.

This work shall consist of terminating existing or new fibers in a field cabinet, inside a building, as shown on the plans and/or as directed by the Traffic Engineer.

General.

This pay item shall include splices between existing fiber optic cables and any splices shown on the plans as a bid item. All multimode connectors shall be LC compatible, with ceramic ferrules. Singlemode fiber terminations shall utilize pre-fabricated, factory-terminated (LC compatible with ceramic ferrules) pigtailed fusion spliced to bare fibers. The splicing of pigtailed for singlemode fibers is included in the cost of TERMINATE FIBER IN CABINET. The prefabricated pigtailed shall have all of their fibers color coded to match the singlemode fibers in the fiber optic cable. All fusion splices shall be secured on aluminum splice trays capable of accommodating the required number of fusion splices, including necessary splice holders and a compatible splice tray cover. The tray dimensions shall not exceed 7.5" x 4.1" x 0.45" and shall be mounted within the enclosure using suitable hardware that allows removal for maintenance purposes without the use of tools. All individual splice trays shall be labelled. Splice trays and connector bulkheads shall be included in the cost of TERMINATE FIBER IN CABINET. Connector bulkheads shall be the proper type for the fiber enclosure at the location, and shall be properly secured to the enclosure.

The quality of all fiber splices and terminations shall be verified by OTDR and power meter testing and documented according to Article 801.13(d) of the "Standard Specifications," to the satisfaction of the Traffic Engineer.

All bulkhead connectors / adapters shall be labeled with the fiber numbers and direction (i.e. 13-14N, 1-2W, etc.) with a laminated machine printed label.

Basis of Payment.

This work will be paid for at the contract unit price per each for TERMINATE FIBER IN CABINET, The unit price shall include all equipment; materials; connectors; pigtailed; splice trays; bulkheads; testing and documentation; and labor required to terminating each required multimode or singlemode fiber. Terminations involving new fiber optic cable installed under this contract, including any terminations shown on the plans as an included item, shall be included in the unit cost of the applicable FIBER OPTIC CABLE of the type, size, and number of fibers specified.

**FIBER OPTIC INTERCONNECT CENTER, 24 PORT OR 48 PORT**

Effective: November 1, 2023

Revised: March 1, 2026

871.04TS

Description.

This work shall consist of removal of existing fiber optic interconnect center (FOIC) and replacement with a new FOIC wall mount in a traffic signal cabinet, as shown on the plans and/or as directed by the Traffic Engineer.

General.

This pay item shall include providing and installing a Corning WIC-024 (24 Port) or CCH-04U (48 Port) or approved equivalent. The connector panels shall be populated with LC connectors.

When installing inside of a traffic signal cabinet the FOIC shall be installed away from the cabinet doors such that any cable entering or exiting FOIC does not come in contact with other equipment and has sufficient room from other components. Traffic signal cabinet shelf may need to be raised, lowered, or other equipment may need to be adjusted. This work shall be included in the cost of FOIC installation.

The existing FOIC shall be removed and disposed of. The existing terminations shall remain intact if LC or replaced with LC if not, and any active connections shall be restored. New fiber jumpers shall be provided as part of this pay item if required.

All bulkhead connectors / adapters shall be labeled with the fiber numbers and direction (i.e. 13-14N, 1-2W, etc.) with a laminated machine printed label.

Basis of Payment.

This work shall be paid for at the contract unit price per each for FIBER OPTIC INTERCONNECT CENTER, 24 PORT or FIBER OPTIC INTERCONNECT CENTER, 48 PORT. The unit price shall include all equipment; materials; fiber optic splice trays; testing and documentation; and labor required to fusion splice singlemode and multimode fiber optic cable.

**ELECTRIC CABLE**

Effective: May 22, 2002

Revised: July 1, 2015

873.01TS

Delete "or stranded, and No. 12 or" from the last sentence of Article 1076.04 (a) of the Standard Specifications.

Add the following to the Article 1076.04(d) of the Standard Specifications:

Service cable may be single or multiple conductor cable.

**CAMERA MOUNTING ASSEMBLY**

Effective: November 1, 2023

877.02TS

Description.

This work shall consist of modifying an existing traffic signal mast arm pole to accommodate an extension pole suitable for mounting a CCTV Camera.

Materials.

The pole extension shall be a Schedule 40 galvanized steel pipe, 20 feet in length and 4 inch in diameter.

General.

The pole extension shall be fastened to the existing mast arm pole with adjustable, galvanized steel clamps as shown on the plan detail. The galvanized clamps shall fit securely around the tapered mast arm. The contractor shall use galvanized shims and shall modify clamps as required to maintain a plumb vertical alignment of the camera mounting assembly pole. The exposed wires shall be trained into a drip loop and protected with black plastic spiral cable wrap. Relocation, adjustments or any temporary removal and reinstallation of any mast arm mounted sign panels or any other equipment in conflict with the installation of Camera Mounting Assembly shall be part of this pay item and included in the unit price.

All holes drilled into signal poles, mast arm, or posts shall require a rubber grommets to prevent the chafing of wires.

Basis of Payment.

This work will be paid for at the contract unit price each for CAMERA MOUNTING ASSEMBLY. The unit price shall include all equipment, materials, mounting hardware, shims, gromets, cable wrap, components, and labor required to securely fasten the assembly to an existing pole and place the camera into operation to the satisfaction of the Traffic Engineer. The camera and cables will be paid for separately as part of unit price for REMOTE CONTROLLER VIDEO SYSTEM, and OUTDOOR RATED NETWORK CABLE.

**RELOCATE EXISTING EMERGENCY VEHICLE PRIORITY SYSTEM, PHASING UNIT**

Effective: January 1, 2002

Revised: July 1, 2015

887.03TS

This item shall consist of relocating the existing emergency vehicle priority system phasing unit from an existing traffic signal controller cabinet to a new traffic signal controller cabinet, as indicated in the plans or as directed by the Engineer.

The work shall include disconnecting the emergency vehicle priority system phasing unit(s) and reconnecting it into the new traffic signal controller cabinet.

The emergency vehicle system is not to be inoperative for more than 8 hours and the Contractor must notify the Municipality or Fire Protection District 72 hours prior to the disconnection of the equipment. The Contractor must demonstrate to the satisfaction of the Engineer that the emergency vehicle system operates properly.

Basis of Payment.

This item will be paid for on a basis of one (1) each per intersection for RELOCATE EXISTING EMERGENCY VEHICLE PRIORITY SYSTEM, PHASING UNIT.

**OUTDOOR RATED NETWORK CABLE**

Effective: November 1, 2023

887.04TS

Description.

This work shall consist of furnishing and installing a network cable from the traffic signal cabinet to the associated field device as shown on the plans

Materials.

The outdoor rated network cable shall be a black Category 5e cable, meeting the TIA/EIA 568-B.2 telecommunication standards. The cable shall be composed of 24 AWG solid bare copper conductors, twisted pairs, polyolefin insulation, inner LLPE jacket, overall shield (100% coverage), 24 AWG stranded TC drain wire, industrial grade sunlight- and oil-resistant LLPE jacket. The cable shall be capable of performing from -40 °F to 160 °F.

Each end of the cable shall be terminated with an RJ-45 connector installed according to the TIA/EIA 568B standard. The drain wire at the cabinet end shall be terminated with a ring lug and attached to a suitable ground point.

The work shall be performed according to the applicable portions of Section 873 of the "Standard Specifications", and details as shown on the plans.

Basis of Payment.

This work will be paid for at the contract unit price per foot for OUTDOOR RATED NETWORK CABLE, the unit price shall include all equipment, materials and labor required to furnish and install the cable and making all connections necessary for proper operation. The unit price shall also include furnishing and installing the RJ-45 connectors, ring terminals and grounding the cable.

**CELLULAR MODEM**

Effective: November 1, 2023  
892.01TS

Description.

The work shall include but not be limited to installation, set-up, support and configuration of the cellular communication system to work with IDOT District One's network. Equipment shall include but limited to 1) a rugged cellular modem certified with Verizon Wireless designed with 2 ethernet ports and an RS232 port for connection the traffic signal controller, 2) an external low profile antenna mounted to the traffic signal cabinet, 3) a router with 2 ethernet ports with static IP address assigned by IDOT, 4) for those traffic signals with controllers that are not ethernet compatible, additional hardware and cabling will be needed, 5) all appurtenances necessary to provide cellular communication for the closed-loop system or centralized management system as indicated on the plans. IDOT District One has installed cellular communication equipment at various locations within the District. For questions regarding these locations, please contact the Traffic Signal Engineer at 847-705-4424. The necessary SIM card will be provided by the District once testing has been completed and accepted by IDOT.

Method of Measurement.

Each item of equipment as noted above, furnished, and installed, inspected, accepted, and documented for one location shall be counted as a single unit for payment.

Basis of Payment.

This work will be paid for at the contract unit price per each for CELLULAR MODEM, which price shall be payment in full for performing all work described herein.

**POE EXTENDER**

Effective: November 1, 2023  
892.03TS

Description.

This work shall consist of furnishing and installing a long range power over ethernet (PoE) extender kit for devices powered by PoE with cable runs greater than 250 feet.

Materials.

The PoE extender kit shall consist of a base extender, device extender, power supply for base extender, mounts and all accessories required to install the PoE extender kit. The PoE extender shall support IEEE 802.3af and IEEE 802.3at compliant devices. The PoE extender shall be TS2 compatible. The PoE extender shall be able to extend PoE to a maximum distance of 3280 feet and be able to operate in temperatures from -40° F to 158° F with maximum humidity of 85% RH (non-condensing). The power supply shall have an input voltage of 90-265 V AC and an output voltage of 44-57 V DC with a max current of 0.7 A.

**Installation.**

The power supply and base extender shall be installed in the traffic signal control cabinet. The power supply shall be hard-wired to the cabinet power, not plugged into one of the traffic signal cabinet power outlets. The device extender shall be installed in the devices power supply cabinet located on the traffic signal mast arm pole.

**Basis of Payment.**

This work will be paid for at the contract unit price per each for POE EXTENDER, the price of which shall include all equipment, materials, and labor required to furnish, configure and install the switch, including all necessary connectors, cables, fiber optic jumpers, hardware, software, and other peripheral equipment required to place the switch in operation to the satisfaction of the Traffic Engineer.

The OUTDOOR RATED NETWORK cable from the traffic signal cabinet to the PoE device will be paid for separately.

**NETWORK SWITCH**

Effective: November 1, 2023

Revised: April 1, 2026

892.04TS

**Description.**

This item must consist of furnishing and installation of various network switches as shown in the plan. The network switches consist of Access, Distribution and Core Switch.

**Materials.** Materials must be according to the following:

**A. General Requirements:**

1. Management and Support Capabilities. Must include the following:
  - a. support full-duplex Ethernet
  - b. be capable Layer 2 LAN Base services
  - c. have American Standard Code for Information Interchange (ASCII) based configuration files for offline editing and bulk configuration
  - d. be managed using Simple Network Management Protocol (SNMP) Version 3.
  - e. be able to use Secure File Transfer Protocol (SFTP) to transfer configuration file to and from a central server.
  - f. be compliant with IEEE 802.1 and 802.3. Specifically, the switch must comply with the following IEEE 802.1 standards: (a) IEEE 802.1D - Media Access Control (MAC) Bridges, including Rapid Spanning Tree Protocol (RSTP). (b) IEEE 802.1Q - Virtual Local Area Network (VLAN) tagging and Multiple Spanning Tree Protocol (MSTP). (c) IEEE 802.1X (Port Based Network Access Protocol).

- g. perform multicast filtering using Internet Group Management Protocol (IGMP) snooping.
  - h. support Address Resolution Protocol (ARP)
  - i. Need to have TACACS/RADIUS access via SSH
  - j. Need to support CDP protocol for neighbor reporting/discovery
  - k. Support for MAB security (ISE)
2. Power Requirements:
    - a. Input Voltage to Power Supply Modules: 100 to 240 VAC
    - b. Capable of using Redundant Power Supplies
    - c. Must use Manufacturer approved power supply.
  3. Must utilize Single Mode Fiber Small Form-Factor Plug (SFP) Modules that have the following:
    - a. Minimum performance of 1Gbps
    - b. From the manufacturer of the switch.
    - c. See plans for distance, type and quantity requirements
  4. All ports must have Diagnostic light-emitting diodes (LED). These indicators must include link, activity, and power LEDs.
  5. Must include a 1-year hardware support agreement and license (contract type SNT)

**B. Additional Requirements for Distribution and Core Switches:**

1. Switches must support the following Layer 3 capabilities:
  - a. Support of Enhanced Interior Gateway Routing Protocol (EIGRP).
  - b. Support of Border Gateway Protocol (BGP).
  - c. Internet Protocol Version 4 (IPv4);
  - d. Internet Protocol Version 6 (IPv6);
  - e. Open Shortest Path First (OSPF);
  - f. Generic Routing Encapsulation (GRE);
  - g. Inter-VLAN Internet Protocol (IP) routing for full Layer 3 routing between two or more VLANs;
  - h. Virtual Router Redundancy Protocol (VRRP);
  - i. IP multicast routing utilizing Protocol Independent Multicast (PIM) and Internet Group Management Protocol, Version 2 (IGMPv2).
  - j. Support for PIM sparse mode (PIM-SM) and PIM dense mode (PIM-DM);
  - k. Security utilizing Access Control Lists (ACLs).

### C. Switch Types:

#### 1. Access Switch:

##### a. Must include:

1. **General Requirements.**
2. the following port types or better:
  - 10/100/1000 Mbps copper Ethernet ports, RJ-45 connector
  - FE/GE SFP ports

##### b. Environmental Requirements:

1. Operating Temperature: -34° to +70°C
2. Humidity: 0 to 95% (non-condensing)
3. IEC/EN/EN61000-4-2 (Electro Static Discharge), 8kV air/6kV contact
4. IEC/EN 61000-4-3 (Radiated Immunity, 10 V/m 80-2000MHz, 3V/m 2000-2700MHz)
5. IEC/EN 61000-4-4 (Fast Transients - 2kV DC power, 2kV data line, 4kv earth)
6. IEC/EN 61000-4-5 (Surge 2 kV/1 kV DC power, 2 kV shielded and unshielded data line)
7. IEC/EN 61000-4-6 (Conducted Immunity, 10 V/emf 0.15-80MHz)
8. IEC/EN 61000-4-8 (Power Frequency Magnetic Field Immunity 30A/m 60 sec, 300A/m 3 sec)
9. IEC/EN 61000-4-9 (Pulse Magnetic Field Immunity 300A/m)
10. IEC/EN 61000-4-29 (Voltage Dips Immunity)
11. IEC 60068-2-27 (Operational Shock: 30G 11ms, half sine)
12. IEC 60068-2-27 (Non-Operational Shock 65-80G, trapezoidal)
13. IEC 60068-2-6, IEC 60068-2-64 (Operational Vibration)
14. EC 60068-2-6, IEC 60068-2-64, IEC 60068-2-47 (Non-operational Vibration)

#### 2. Distribution Switch:

##### a. Must include:

1. **General Requirements.**
2. **Additional Requirements for Distribution and Core Switches**
3. The following port types or better:
  - 10/100/1000 Mbps copper Ethernet ports, RJ-45 connector
  - FE/GE SFP ports

- b. Environmental Requirements:
1. Operating Temperature: -40° to +75°C
  2. Operate in a cabinet enclosure
  3. Humidity: 5 to 95% (non-condensing)
  4. CISPR 24 / CISPR 35
  5. EN55024 / EN55035
  6. KN 35
  7. EN 61000-4-2 Electro Static Discharge (air – 15kV, contact – 8kV)
  8. EN 61000-4-3 Radiated RF (10V/m UTP, 20V/m STP)
  9. EN 61000-4-4 Electromagnetic Fast Transients (4kV)
  10. EN 61000-4-5 Surge (2KV/1KV Power, 4KV STP)
  11. EN 61000-4-6 Conducted RF (10Vrms UTP)
  12. EN 61000-4-8 Power Frequency Magnetic Field (1000A/m)
  13. EN 61000-4-10 Damped Oscillatory Magnetic Field (100 A/m)
  14. EN 61000-4-16 Conducted CM Disturbances (30V, Cont/ 300V, 1 sec)
  15. EN 61000-4-17 Ripple Immunity DC Power (10%)
  16. EN 61000-4-18 Damped Oscillatory Wave (2.5kV, 1MHz)
  17. EN-61000-4-29 DC Voltage Dips and Interruptions
  18. ANSI/ISA 12.12.01 (Class1, Div2 A-D)
  19. EN 60079-0, -15 ATEX certificate (Class 1, Zone2 A-D)
  20. EC 60079-0, 15 (report only)
  21. UL 60079-0, 15
  22. IEC 60068-2-27 (operational shock, 50G, 3ms, half sine)
  23. IEC 60068-2-27 (non-operational shock, 65-80G, 9ms, trapezoidal)
  24. IEC 60068-2-6 (vibration-sinusiodal, 5Hz-150Hz)

3. Core Switch:

- a. Must include:
1. **General Requirements.**
  2. **Additional Requirements for Distribution and Core Switches**
  3. Network Port Requirements:
    - 48x 1/10/25G Gigabit Ethernet SFP ports
    - 4x 40/100G Uplink
    - Or better
- b. Environmental requirements:
1. Operating Temperature: -5°C to +35°C (23° to 95° F)
  2. Relative humidity operating: 10 to 85% (noncondensing)
  3. Must be installed in a temperature-controlled environment.

**Configuration.**

Thirty (30) days prior to the installation of the network switches, The Contractor must deliver the switches, for configuration, to the Traffic Systems Center (TSC) located at 445 Harrison St Oak Park, IL.

The switches must be delivered with markings on the box indicating the cabinet the item will be installed in per the plans. TSC will provide final network label on the switch.

After the switch is configured, the Contractor must coordinate an appointment to pick up the switches from the TSC and install it.

**Installation.**

Access and Distribution Switches are to be installed in cabinets identified in the plans. Core Switches are only to be installed in temperature-controlled environments identified in the plans.

**Documentation.**

In addition to the initial submittal(s) prior to procurement, the Contractor must provide installation and operation manuals, documentation of exact equipment model and serial numbers, software/firmware version numbers, location installed in PDF formats on flash drive or via electronic delivery.

**Basis of Payment.**

This work will be paid for at the contract price per each for NETWORK SWITCH, (of the type specified), the price of which shall include all equipment, materials, and labor required to furnish, and install the switch, including all necessary connectors, cables, fiber optic jumpers, hardware, software and other peripheral equipment required to place the switch in operation to the satisfaction of the Engineer.

**CENTRACS LICENSE EXPANSION**

Effective: November 1, 2023  
892.06TS

Description.

This work shall consist of providing a license for the addition of a traffic signal controller to the existing CENTRACS system and programming the intersection into the existing CENTRACS system.

General.

This pay item may be grouped per job. For example a 50 unit license pack is acceptable for a job with 45 intersections. Individual licenses not needed but part of package shall be provided to IDOT Electrical Maintenance Contractor. Vendor shall coordinate with EMC contractor to transfer the unused licenses.

The CENTRACS system shall be programmed for complete functionality of the intersection traffic signal controller.

Basis of Payment.

This work shall be paid for at the contract unit price per each for CENTRACS LICENSE EXPANSION. The unit price shall include all equipment; materials; licenses, programming; testing and documentation; and labor required to add a traffic signal controller to the CENTRACS system

**TACTICS LICENSE EXPANSION**

Effective: November 1, 2023  
892.07TS

Description.

This work shall consist of providing a license for the addition of a traffic signal controller to the existing TACTICS system and programming the intersection into the existing TACTICS system.

General.

This pay item may be grouped per job. For example a 50 unit license pack is acceptable for a job with 45 intersections. Individual licenses not needed but part of package shall be provided to IDOT Electrical Maintenance Contractor. Vendor shall coordinate with EMC contractor to transfer the unused licenses.

The TACTICS system shall be programmed for complete functionality of the intersection traffic signal controller.

Basis of Payment.

This work shall be paid for at the contract unit price per each for TACTICS LICENSE EXPANSION. The unit price shall include all equipment; materials; licenses, programming; testing and documentation; and labor required to add a traffic signal controller to the TACTICS system.

## **REMOTE CONTROLLED VIDEO SYSTEM**

Effective: November 1, 2023

Revised: April 1, 2026

892.08TS

### Description.

This work shall consist of furnishing and installing an IP based remote controlled video system at a location designated by the Traffic Engineer. The work shall include a color camera, dome assembly, all mounting hardware, connectors, cables, power injectors, and related equipment necessary to complete the installation according to the manufacturer's specifications. Any licensing required for adding the camera to the CENTRACS CCTV VIDEO MODULE will be provided by The Department. Configuration of the camera into the centralized system shall be part of this pay item. The Contractor shall contact the Traffic Engineer for specific camera settings configuration before installation. All camera setting including analytics, tracking, reporting shall be verified for operation and demonstrated at the time of Traffic Engineer inspection.

### Materials.

The PTZ camera shall be one of the following approved models:

- AXIS Q6355-LE
- Bosch Autodome 7100i IR 2MP

The Contractor shall furnish the required number of power injectors for the camera make and model selected, including operation of the camera heater, as well as all required mounting hardware, connectors, patch cables, and power supplies. The system shall have anonymous FTP capabilities disabled by the vendor/equipment supplier or provide a feature for the user to disable the functionality through the standard internal menu.

### Installation.

The camera shall be installed as shown on the plans, either on the luminaire arm near the luminaire, or on the combination mast arm assembly pole, angled toward the center of the intersection using a mounting bracket compatible with the camera and procured from one of the approved camera manufacturers. When installed on the pole, the camera shall be mounted to provide a minimum of 12 inches clear space between face of the pole and the camera housing. When installed on the luminaire arm, the camera shall be installed with a 30-degree tilt-adjustable bracket. The camera and any external hardware and housing shall be installed with stainless steel straps.

All holes drilled into signal poles, mast arms, or posts shall require rubber grommets to prevent the chafing of wires.

The Contractor shall contact the Traffic Engineer prior to installing the camera and associated wiring, to receive final approval on the camera location. If the Remote Controlled Video System will be connected to the Gigabit Ethernet network, then a Access, Distribution and/or Core Switch shall be required. Access, Distribution and/or Core Switch switches shall be installed as shown on the plans. Contractor to coordinate with IDOT Electric Maintenance Contractor and Network engineer for proper set up and IP configuration. The remote controlled video system shall be warranted, free from material and workmanship defects for a period of five years from final acceptance.

Basis of Payment.

This work will be paid for at the contract unit price per each for REMOTE CONTROLLED VIDEO SYSTEM, The unit price shall include all associated equipment, hardware, cables, materials and labor required to install the complete system in place and in operation to the satisfaction of the Traffic Engineer. The OUTDOOR RATED NETWORK cable from the traffic signal cabinet will be paid for separately. If required, the Access, Distribution and/or Core Switch will be paid for separately.

**REMOVE EXISTING TRAFFIC SIGNAL EQUIPMENT**

Effective: May 22, 2002

Revised: April 1, 2026

895.02TS

Add the following to Article 895.05 of the Standard Specifications:

“The traffic signal equipment which is to be removed and is to become the property of the Contractor unless specific equipment is requested to be kept or sent to IDOT Spare Parts by the Engineer. Any equipment not kept by the Department shall be disposed of outside the right-of-way at the Contractor’s expense.

All equipment to be returned to the State shall be delivered by the Contractor to the State's Traffic Signal Maintenance Contractor's main facility. The Contractor shall contact the State's Electrical Maintenance Contractor to schedule an appointment to deliver the equipment. No equipment will be accepted without a prior appointment. All equipment shall be delivered within thirty (30) days of removing it from the traffic signal installation. The Contractor shall provide one hard copy and one electronic file of a list of equipment that is to remain the property of the State, including model and serial numbers, where applicable. The Contractor shall also provide a copy of the Contract plan or special provision showing the quantities and type of equipment. Controllers and peripheral equipment from the same location shall be boxed together (equipment from different locations may not be mixed) and all boxes and controller cabinets shall be clearly marked or labeled with the location from which they were removed. If equipment is not returned according to these requirements, it will be rejected by the State's Electrical Maintenance Contractor. The Contractor shall be responsible for the condition of the traffic signal equipment from the time Contractor takes maintenance of the signal installation until approval by the Department. A delivery receipt will be signed by the State's Electrical Maintenance Contractor indicating the items have been returned.

The Contractor shall safely store and arrange for pick up or delivery of all equipment to be returned to agencies other than the State. The Contractor shall package the equipment and provide all necessary documentation as stated above.

Traffic signal equipment which is lost, damaged, or not returned to the Department for any reason shall be replaced with new equipment meeting the requirements of these Specifications at no cost to the contract.”

### **REBUILD EXISTING HANDHOLE**

Effective: January 1, 2002

Revised: March 1, 2025

895.04TS

This item shall consist of rebuilding and bringing to grade a handhole, double handhole, or heavy duty handhole at a location shown on the plans or as directed by the Engineer. The work shall consist of removing the handhole frame and cover and the walls of the handhole to a depth of eight (8) inches below the finished grade.

#### Handhole and Heavy Duty Handhole

Four (4) holes, four (4) inches in depth and one half (1/2) inch in diameter, shall be drilled into the remaining concrete; one hole centered on each of the four handhole walls. Four (4) #3 epoxy coated steel rebar, eight (8) inches in length, shall be furnished and shall be installed in the drilled holes with a masonry epoxy.

#### Double Handhole

Six (6) holes, four (4) inches in depth and one half (1/2) inch in diameter, shall be drilled into the remaining concrete; one hole centered on both short walls and two spaced equally on both long walls. Six (6) #3 epoxy coated steel rebar, eight (8) inches in length, shall be furnished and shall be installed in the drilled holes with a masonry epoxy.

All concrete debris shall be disposed of outside the right-of-way. All rebar must meet the specifications set forth in 1006.10.

The area adjacent to each side of the handhole shall be excavated to allow forming. All steel hooks, handhole frame, cover, and concrete shall be provided to construct a rebuilt handhole according to applicable portions of Section 814 of the Standard Specification and as modified in 814.01TS HANDHOLES Special Provision. The existing frame and cover shall be replaced if it was damaged during removal or as determined by the Engineer.

#### Basis of Payment.

This work shall be paid for at the contract unit price each for REBUILD EXISTING HANDHOLE, which price shall be payment in full for all labor, materials, and equipment necessary to complete the work described above and as indicated on the drawings.

**CEMENT, FINELY DIVIDED MINERALS, ADMIXTURES, CONCRETE, AND MORTAR (BDE)**

Effective: January 1, 2025

Revised: January 1, 2026

Revise the first paragraph of Article 285.05 of the Standard Specifications to read:

**“285.05 Fabric Formed Concrete Revetment Mat.** The grout shall consist of a mixture of cement, fine aggregate, and water so proportioned and mixed as to provide a pumpable slurry. Fly ash or ground granulated blast furnace (GGBF) slag, and concrete admixtures may be used at the option of the Contractor. The grout shall have an air content of not less than 6.0 percent nor more than 9.0 percent of the volume of the grout. The mix shall obtain a compressive strength of 2500 psi (17,000 kPa) at 28 days according to Article 1020.09.”

Revise Article 302.02 of the Standard Specifications to read:

**“302.02 Materials.** Materials shall be according to the following.

Item	Article/Section
(a) Cement .....	1001
(b) Water .....	1002
(c) Hydrated Lime .....	1012.01
(d) By-Product, Hydrated Lime .....	1012.02
(e) By-Product, Non-Hydrated Lime .....	1012.03
(f) Lime Slurry .....	1012.04
(g) Fly Ash .....	1010
(h) Soil for Soil Modification (Note 1) .....	1009.01
(i) Bituminous Materials (Note 2) .....	1032

Note 1. This soil requirement only applies when modifying with lime (slurry or dry).

Note 2. The bituminous materials used for curing shall be emulsified asphalt RS-2, CRS-2, HFE 90, or HFE 150; rapid curing liquid asphalt RC-70; or medium curing liquid asphalt MC-70 or MC-250.”

Revise Article 312.07(c) of the Standard Specifications to read:

“(c) Cement .....1001”

Add Article 312.07(i) of the Standard Specifications to read:

“(i) Ground Granulated Blast Furnace (GGBF) Slag .....1010”

Revise the first paragraph of Article 312.09 of the Standard Specifications to read:

**“312.09 Proportioning and Mix Design.** At least 60 days prior to start of placing CAM II, the Contractor shall submit samples of materials to be used in the work for proportioning and testing. The mixture shall contain a minimum of 200 lb (120 kg) of cement per cubic yard (cubic meter). Cement may be replaced with fly ash or ground granulated blast furnace (GGBF) slag according to Article 1020.05(c)(1) or 1020.05(c)(2), respectively, however the minimum cement content in the mixture shall be 170 lbs/cu yd (101 kg/cu m). Blends of coarse and fine aggregates will be permitted, provided the volume of fine aggregate does not exceed the volume of coarse aggregate. The Engineer will determine the proportions of materials for the mixture according to the “Portland Cement Concrete Level III Technician Course” manual. However, the Contractor may substitute their own mix design. Article 1020.05(a) shall apply, and a Level III PCC Technician shall develop the mix design.”

Revise Article 352.02 of the Standard Specifications to read:

**“352.02 Materials.** Materials shall be according to the following.

Item	Article/Section
(a) Cement (Note 1) .....	1001
(b) Soil for Soil-Cement Base Course .....	1009.03
(c) Water .....	1002
(d) Bituminous Materials (Note 2) .....	1032

Note 1. Bulk cement may be used for the traveling mixing plant method if the equipment for handling, weighing, and spreading the cement is approved by the Engineer.

Note 2. The bituminous materials used for curing shall be emulsified asphalt RS-2, CRS-2, HFE 90, or HFE 150; rapid curing liquid asphalt RC-70; or medium curing liquid asphalt MC-70 or MC-250.”

Revise Article 404.02 of the Standard Specifications to read:

**“404.02 Materials.** Materials shall be according to the following.

Item	Article/Section
(a) Cement .....	1001
(b) Water .....	1002
(c) Fine Aggregate .....	1003.08
(d) Bituminous Material (Tack Coat) .....	1032.06
(e) Emulsified Asphalts (Note 1) (Note 2) .....	1032.06
(f) Fiber Modified Joint Sealer .....	1050.05
(g) Additives (Note 3)	

Note 1. When used for slurry seal, the emulsified asphalt shall be CQS-1h according to Article 1032.06(b).

Note 2. When used for micro-surfacing, the emulsified asphalt shall be CQS-1hP according to Article 1032.06(e).

Note 3. Additives may be added to the emulsion mix or any of the component materials to provide the control of the quick-traffic properties. They shall be included as part of the mix design and be compatible with the other components of the mix.

Revise the last sentence of the fourth paragraph of Article 404.08 of the Standard Specifications to read:

“When approved by the Engineer, the sealant may be dusted with fine sand, cement, or mineral filler to prevent tracking.”

Revise Note 2 of Article 516.02 of the Standard Specifications to read:

“Note 2. The sand-cement grout mix shall be according to Section 1020 and shall be a 1:1 blend of sand and cement comprised of a Type I, IL, or II cement at 185 lb/cu yd (110 kg/cu m). The maximum water cement ratio shall be sufficient to provide a flowable mixture with a typical slump of 10 in. (250 mm).”

Revise Note 2 of Article 543.02 of the Standard Specifications to read:

“Note 2. The grout mixture shall be 6.50 hundredweight/cu yd (385 kg/cu m) of cement plus fine aggregate and water. Fly ash or ground granulated blast furnace (GGBF) slag may replace a maximum of 5.25 hundredweight/cu yd (310 kg/cu m) of the cement. The water/cement ratio, according to Article 1020.06, shall not exceed 0.60. An air-entraining admixture shall be used to produce an air content, according to Article 1020.08, of not less than 6.0 percent nor more than 9.0 percent of the volume of the grout. The Contractor shall have the option to use a water-reducing or high range water-reducing admixture.”

Revise Article 583.01 of the Standard Specifications to read:

“**583.01 Description.** This work shall consist of placing cement mortar along precast, prestressed concrete bridge deck beams as required for fairing out any unevenness between adjacent deck beams prior to placing of waterproofing membrane and surfacing.”

Revise Article 583.02(a) of the Standard Specifications to read:

“(a) Cement ..... 1001”

Revise the first paragraph of Article 583.03 of the Standard Specifications to read:

“ **583.03 General.** This work shall only be performed when the air temperature is 45 °F (7 °C) and rising. The mixture for cement mortar shall consist of three parts sand to one part cement by volume. The amount of water shall be no more than that necessary to produce a workable, plastic mortar.”

Revise Article 606.02(h) of the Standard Specifications to read:

“(h) Fibers (Note 1) .....1014”

Revise Note 1 in Article 606.02(h) of the Standard Specifications to read:

“Note 1. Fibers, when required, shall only be used in the concrete mixture for slipform applications.”

Revise the third paragraph in Article 606.10 of the Standard Specifications to read:

“Welded wire fabric shall be 6 x 6 in. (150 x 150 mm) mesh, #4 gauge (5.74 mm), 58 lb (26 kg) per 100 sq ft (9 sq m).”

Revise Article 1001.01(d) of the Standard Specifications to read:

“(d) Rapid Hardening Cement. Rapid hardening cement shall be according to the Bureau of Materials Policy Memorandum “Portland or Blended Cement Acceptance Procedure for Qualified and Non-Qualified Plants”, and ASTM C 1600, Type URH, Type VRH, or Type RH-CAC. It shall be used according to Article 1020.04 or when approved by the Engineer. The Contractor shall submit a report from the manufacturer or an independent lab that contains results for testing according to ASTM C 1600 which shows the cement meets the requirements of either Type URH, Type VRH, or Type RH-CAC. Test data shall be less than 1 year old from the date of submittal.

Revise Article 1001.01(e) of the Standard Specifications to read:

“(e) Other Cements. Other cements shall be according to the Bureau of Materials Policy Memorandum “Portland or Blended Cement Acceptance Procedure for Qualified and Non-Qualified Plants”, and ASTM C 1157 or ASTM C 1600, as applicable. Other cements shall be used according to Article 1020.04 or when approved by the Engineer. For cements according to ASTM C 1157, the Contractor shall submit a report from the manufacturer or an independent lab that contains results of tests which shows the cement meets the requirements Type GU, HE, MS, MH, or LH. For cements according to ASTM C 1600, the Contractor shall submit a report from the manufacturer or an independent lab that contains results of tests which shows the cement meets the requirements Type MRH or GRH. Test data shall be less than 1 year old from the date of submittal.”

Revise Article 1002.02 of the Standard Specifications to read:

“**1002.02 Quality.** Water used with cement in concrete or mortar and water used for curing concrete shall be clean, clear, and free from sugar. In addition, water shall be tested and evaluated for acceptance according to one of the following options.

OPTION 1.

(a) Acceptable limits for acidity and alkalinity when tested according to ITP T 26.

- (1) Acidity -- 0.1 Normal NaOH ..... 2 ml max.\*
  - (2) Alkalinity -- 0.1 Normal HCl..... 10 ml max.\*
- \*To neutralize 200 ml sample.

(b) Acceptable limits for solids when tested according to the following.

- (1) Organic (ITP T 26)..... 0.02% max.
- (2) Inorganic (ITP T 26)..... 0.30% max.
- (3) Sulfate (SO<sub>4</sub>) (ASTM D 516-82) ..... 0.05% max.
- (4) Chloride (ASTM D 512) ..... 0.06% max.

(c) The following tests shall be performed on the water sample and on deionized water. The same cement and sand shall be used for both tests.

- (1) Unsoundness (ASTM C 151).
- (2) Initial and Final Set Time (ASTM C 266).
- (3) Strength (ASTM C 109).

The test results for the water sample shall not deviate from the test results for the deionized water, except as allowed by the precision in the test method.

OPTION 2. Water shall meet the requirements ASTM C 1602 Tables 1 and 2 as outlined in Sections 5.1, 5.2, and 5.4.”

Revise Note 2/ in Article 1003.01(b) of the Standard Specifications to read:

“2/ Applies only to sand. Sand exceeding the colorimetric test standard of 11 (Illinois Modified AASHTO T 21) will be checked for mortar making properties according to Illinois Modified ASTM C 87 and shall develop a compressive strength at the age of 14 days when using Type I, IL, or II cement of not less than 95 percent of the comparable standard.

Revise the second sentence of Article 1003.02(e)(1) of the Standard Specifications to read:

“The test will be performed with Type I, IL, or II portland cement having a total equivalent alkali content (Na<sub>2</sub>O + 0.658K<sub>2</sub>O) of 0.90 percent or greater.”

Revise the first sentence of the second paragraph of Article 1003.02(e)(3) of the Standard Specifications to read:

“The ASTM C 1293 test shall be performed with Type I, IL, or II portland cement having a total equivalent alkali content ( $\text{Na}_2\text{O} + 0.658\text{K}_2\text{O}$ ) of 0.80 percent or greater.”

Revise the second sentence of Article 1004.02(g)(1) of the Standard Specifications to read:

“The test will be performed with Type I, IL, or II portland cement having a total equivalent alkali content ( $\text{Na}_2\text{O} + 0.658\text{K}_2\text{O}$ ) of 0.90 percent or greater.”

Add the following Section to the Standard Specifications.

#### **“SECTION 1014. FIBERS FOR CONCRETE**

**1014.01 General.** Fibers used in concrete shall be Type II or Type III (polyolefin or carbon) according to ASTM C 1116. The testing required for Type II fibers or Type III polyolefin fibers shall be performed by an independent lab a minimum of once every five years, and the test results provided to the Department. Manufacturers of Type III carbon fibers shall provide materials certification documentation not more than 6 years old a minimum of once every 5 years to the Department. The Department will maintain a qualified product list. The method of inclusion of fibers into concrete mixtures shall be according to the manufacturer’s specifications.

At the discretion of the Engineer, the concrete mixture shall be evaluated in a field demonstration for fiber clumping, ease of placement, and ease of finishing. The field demonstration shall consist of a minimum 2 cu yd (1.5 cu m) trial batch placed in a 12 ft x 12 ft (3.6 m x 3.6 m) slab.

**1014.02 Concrete Gutter, Curb, Median and Paved Ditch.** Fibers shall be Type III. Fibers shall have a minimum length of 1/2 in. (13 mm) and a maximum length of 0.75 in. (19 mm). The maximum dosage rate in the concrete mixture shall not exceed 1.5 lb/cu yd (0.9 kg/cu m). The minimum dosage rate shall be per the manufacturer’s recommendation.

**1014.03 Concrete Inlay or Overlay.** Fibers shall be Type III. Fibers shall have a minimum length of 1.0 in. (25 mm), a maximum length of 2 1/2 in. (63 mm), and a maximum aspect ratio (length divided by the equivalent diameter of the fiber) of 150. The maximum dosage rate shall not exceed 5.0 lb/cu yd (3.0 kg/cu m). The minimum dosage rate shall be per the manufacturer’s recommendation.

**1014.04 Bridge Deck Fly Ash, Ground Granulated Blast Furnace (GGBF) Slag, High Reactivity Metakaolin, or Microsilica (Silica Fume) Concrete Overlay.** Fibers shall be Type III. The dosage rate shall be a minimum of 3.0 lb/cu yd (1.8 kg/cu m), unless a field demonstration according to Article 1014.01 indicates that a lower dosage rate is necessary. Based on the results of the field demonstration, the Department has the option to reduce the dosage rate of fibers, but the dosage will not be reduced to less than 2.0 lb / cu yd (1.2 kg/cu m).

**1014.05 Bridge Deck Latex Concrete Overlay.** Fibers shall be Type II or III. Fibers shall have a minimum length of 0.75 in. (19 mm), a maximum length of 1.75 in. (45 mm), and an aspect ratio (length divided by the equivalent diameter of the fiber) of between 70 and 100. The dosage rate shall be a minimum of 3.0 lb/cu yd (1.8 kg/cu m), unless a field demonstration according to Article 1014.01 indicates that a lower dosage rate is necessary. Based on the results of the field demonstration, the Department has the option to reduce the dosage rate of fibers, but the dosage will not be reduced to less than 2.0 lb/cu yd (1.2 kg/cu m).”

Add the following Section to the Standard Specifications:

**“SECTION 1015. HIGH PERFORMANCE SHOTCRETE**

**1015.01 Packaged Shotcrete With Aggregate.** The packaged shotcrete with aggregate shall be a pre-blended dry combination of materials for the wet-mix shotcrete method according to ASTM C 1480, Type FA or CA, Grade FR, Class I. The fibers shall be Type III according to Article 1014.01. The cement and finely divided minerals in the mixture shall be a minimum 6.65 cwt/cu yd (395 kg/cu m), and the portland cement shall not be below 4.70 cwt/cu yd (279 kg/cu m). Microsilica is required in the mixture and shall be a minimum of 5 percent by weight (mass) of cementitious material, and a maximum of 10 percent. Strength requirements shall be according to ASTM C 1480 except that the strength at 28 days shall be at least 4000 psi (27,500 kPa). Strength testing shall be according to ASTM C 1140. The air content as shot shall be 4.0 – 8.0 percent when tested according to AASHTO T 152, and the coarse aggregate shall be a maximum size of 1/2 in. (12.5 mm).

The packaged shotcrete shall have a water soluble chloride ion content of less than 0.15% by weight of cementitious material when tested according to ASTM C 1218 or AASHTO T 260.

The testing according to ASTM C 1480, ASTM C 1140, AASHTO 152, and ASTM C 1218 or AASHTO T 260 shall be performed by an independent lab a minimum of once every 5 years, and the test results shall be provided to the Department. The Department will maintain a qualified product list. Batching and mixing shall be per the manufacturer’s recommendations.

**1015.02 Packaged Shotcrete Without Aggregate.** The packaged shotcrete that does not include pre-blended aggregate shall be according to Article 1015.01, except the added aggregate shall be according to Articles 1003.02 and 1004.02. The aggregate gradation shall be according to the manufacturer. The Department will maintain a qualified product list. Batching and mixing shall be per the manufacturer’s recommendations.”

Revise Section 1017 of the Standard Specifications to read:

**“SECTION 1017. PACKAGED, DRY, COMBINED MATERIALS FOR MORTAR AND CONCRETE**

**1017.01 Mortar.** The mortar shall be high-strength according to ASTM C 387 and shall have a minimum 80.0 percent relative dynamic modulus of elasticity when tested according to AASHTO T 161. For prestressed concrete applications, the mortar shall have a water-soluble chloride ion content of less than 0.06 percent by weight of cementitious material when tested according to ASTM C 1218 or AASHTO T 260; and for non-prestressed concrete applications, the water soluble chloride content shall be less than 0.15 percent by weight of cementitious material. The testing according to ASTM C 387, AASHTO T 161, and either ASTM C 1218 or AASHTO T 260 shall be performed by an independent lab a minimum of once every five years, and the test results shall be provided to the Department. The Department will maintain a qualified product list. Mixing of the high-strength mortar shall be according to the manufacturer’s specifications.

**1017.02 Concrete.** The materials, testing, and preparation of aggregate for the “high slump” packaged concrete mixture shall be according to ASTM C 387. The mixture shall be air entrained, the slump shall be 5-10 in. (125-250 mm), and the coarse aggregate shall be a maximum size of 1/2 in. (12.5 mm). Strength requirements shall be according to ASTM C 387 except that the strength at 28 days shall be at least 4000 psi (27,500 kPa). The “high slump” packaged concrete mixture shall have a water soluble chloride ion content of less than 0.15% by weight of cementitious material when tested according to ASTM C 1218 or AASHTO T 260. The testing according to ASTM C 387, and either ASTM C 1218 or AASHTO T 260 shall be performed by an independent lab a minimum of once every 5 years, and the test results shall be provided to the Department. The Department will maintain a qualified product list. Mixing shall be per the manufacturer’s recommendations.

**1017.02 Self-Consolidating Concrete.** The materials, testing, and preparation of aggregate for the “self-consolidating concrete” packaged concrete mixture shall be according to ASTM C 387. The mixture shall be air entrained, it should be uniformly graded, and the coarse aggregate shall be a maximum size of 1/2 in. (12.5 mm). Strength requirements shall be according to ASTM C 387 except that the strength at 28 days shall be at least 4000 psi (27,500 Pa). Slump flow range shall be 22 in. (550 mm) minimum to 28 in. (700 mm) maximum when tested according to AASHTO T 347. The visual stability index shall be a maximum of 1 when tested according to AASHTO T 351. At the option of the manufacturer, either the J-Ring value shall be a maximum of 2 in. (50 mm) when tested according to AASHTO T 347 or the L-Box blocking ratio shall be a minimum of 80 percent when tested according AASHTO T 419. The hardened visual stability index shall be a maximum of 1 when tested according to AASHTO R 81.

The “self -consolidating concrete” packaged concrete mixture shall have a water soluble chloride ion content of less than 0.15 percent by weight of cementitious material when tested according to ASTM C 1218 or AASHTO T 260.

The testing according to ASTM C 387, AASHTO T 347, AASHTO T 351, AASHTO T 419, AASHTO R 81, ASTM C 1218 and AASHTO T 260 shall be performed by an independent lab a minimum of once every 5 years, and the test results shall be provided to the Department. The Department will maintain a qualified product list. Mixing shall be per the manufacturer's recommendations."

Revise Article 1018.01 of the Standard Specifications to read:

**"1018.01 Requirements.** The rapid hardening mortar or concrete shall be according to ASTM C 928 and shall have successfully completed and remain current with the AASHTO Product Eval and Audit Rapid Hardening Concrete Patching Materials (RHCP) testing program. R1, R2, or R3 concrete shall be air entrained, the slump shall be 5-10 in. (125-250 mm), and the coarse aggregate shall be a maximum size of 1/2 in. (12.5 mm). For prestressed concrete applications, the mortar or concrete shall have a water-soluble chloride ion content of less than 0.06 percent by weight of cementitious material when tested according to ASTM C 1218 or AASHTO T 260; and for non-prestressed concrete applications, the water soluble chloride content shall be less than 0.15 percent by weight of cementitious material. The Department will maintain a qualified product list. Mixing of the mortar or concrete shall be according to the manufacturer's specifications.."

Revise Article 1019.02 of the Standard Specifications to read:

**"1019.02 Materials.** Materials shall be according to the following.

Item	Article/Section
(a) Cement .....	1001
(b) Water .....	1002
(c) Fine Aggregate for Controlled Low-Strength Material (CLSM) .....	1003.06
(d) Fly Ash .....	1010
(e) Ground Granulated Blast Furnace (GGBF) Slag.....	1010
(f) Admixtures (Note 1)	

Note 1. The air-entraining admixture may be in powder or liquid form. The air content produced by the admixture shall be 15-25 percent when incorporated into Mix 2 or an equivalent mixture as determined by the Department and tested according to AASHTO T 121 or AASHTO T 152. The testing according to AASHTO T 121 or AASHTO T 152 shall be performed by an independent lab a minimum of once every five years, and the test results shall be provided to the Department. The Department will maintain a qualified product list."

Revise the third paragraph of Article 1019.04 of the Standard Specifications to read:

"The Engineer will instruct the Contractor to adjust the proportions of the mix design in the field as needed to meet the design criteria, provide adequate flowability, maintain proper solid suspension, or other criteria established by the Engineer."

Revise Article 1019.05 of the Standard Specifications to read:

**“1019.05 Department Mix Design.** The Department mix design shall be Mix 1, 2, or 3 and shall be proportioned to yield approximately one cubic yard (cubic meter).

Mix 1	
Cement	50 lb (30 kg)
Fly Ash – Class C or F, and/or GGBF Slag	125 lb (74 kg)
Fine Aggregate – Saturated Surface Dry	2900 lb (1720 kg)
Water	50-65 gal (248-322 L)
Air Content	No air is entrained

Mix 2	
Cement	125 lb (74 kg)
Fine Aggregate – Saturated Surface Dry	2500 lb (1483 kg)
Water	35-50 gal (173-248 L)
Air Content	15-25 %

Mix 3	
Cement	40 lb (24 kg)
Fly Ash – Class C or F, and/or GGBF Slag	125 lb (74 kg)
Fine Aggregate – Saturated Surface Dry	2500 lb (1483 kg)
Water	35-50 gal (179-248 L)
Air Content	15-25 %”

Revise Article 1020.04, Table 1, Note (8) of the Standard Specifications to read:

“(8) In addition to the Type III portland cement, 100 lb/cu yd of ground granulated blast-furnace slag and 50 lb/cu yd of microsilica (silica fume) shall be used. For an air temperature greater than 85 °F, the Type III portland cement may be replaced with Type I, IL, or II portland cement.”

Revise Article 1020.04, Table 1 (Metric), Note (8) of the Standard Specifications to read:

“(8) In addition to the Type III portland cement, 60 kg/cu m of ground granulated blast-furnace slag and 30 kg/cu m of microsilica (silica fume) shall be used. For an air temperature greater than 30 °C, the Type III portland cement may be replaced with Type I, IL, or II portland cement.”

Revise Note 9 of Table 1 of Article 1020.04 of the Standard Specifications to read:

“(9) The cement shall be a rapid hardening according to Article 1001.01(d). Minimum or maximum cement factor may be adjusted when approved by the Engineer.”

Revise the second paragraph of Article 1020.05(a) of the Standard Specifications to read:

“For a mix design using a portland-pozzolan cement, portland blast-furnace slag cement, portland-limestone cement, or replacing portland cement with finely divided minerals per Articles 1020.05(c) and 1020.05(d), the Contractor may submit a mix design with a minimum portland cement content less than 400 lbs/cu yd (237 kg/cu m), but not less than 375 lbs/cu yd (222 kg/cu m), if the mix design is shown to have a minimum relative dynamic modulus of elasticity of 80 percent determined according to AASHTO T 161. Testing shall be performed by an independent laboratory accredited by AASHTO re:source for Portland Cement Concrete.”

Revise the first sentence of the first paragraph of Article 1020.05(b) of the Standard Specifications to read:

“Corrosion inhibitors and concrete admixtures shall be according to the qualified product lists.”

Delete the fourth and fifth sentences of the second paragraph of Article 1020.05(b) of the Standard Specifications.

Revise Article 1020.05(b)(5) of the Standard Specifications to read:

“(5) For Class PP-4 concrete, a high range water-reducing admixture, retarder, and/or hydration stabilizer may be used in addition to the air-entraining admixture. The Contractor also has the option to use a water-reducing admixture with the high range water-reducing admixture. An accelerator shall not be used. A mobile portland cement concrete plant shall be used to produce the patching mixture.

For PP-5 concrete, a non-chloride accelerator, high range water-reducing admixture, retarder, hydration stabilizer, and/or air-entraining admixture may be used. The accelerator, high range water-reducing admixture, retarder, hydration stabilizer, and/or air-entraining admixture shall be per the Contractor’s recommendation and dosage. The qualified product list of concrete admixtures shall not apply. A mobile portland cement concrete plant shall be used to produce the patching mixture.”

Revise second paragraph of Article 1020.05(b)(10) of the Standard Specifications to read:

“When calcium nitrite is used, it shall be added at the rate of 4 gal/cu yd (20 L/cu m) and shall be added to the mix immediately after all compatible admixtures have been introduced to the batch. Other corrosion inhibitors shall be added per the manufacturer’s specifications.”

Delete the third paragraph of Article 1020.05(b)(10) of the Standard Specifications.

Revise Article 1020.15(b)(1)c. of the Standard Specifications to read:

- “c. The minimum portland cement content in the mixture shall be 375 lbs/cu yd (222 kg/cu m). When the total of organic processing additions, inorganic processing additions, and limestone addition exceed 5.0 percent in the cement, the minimum portland cement content in the mixture shall be 400 lbs/cu yd (237 kg/cu m). For a drilled shaft, foundation, footing, or substructure, the minimum portland cement may be reduced to as low as 330 lbs/cu yd (196 kg/cu m) if the concrete has adequate freeze/thaw durability. The Contractor shall provide freeze/thaw test results according to AASHTO T 161, and the relative dynamic modulus of elasticity of the mix design shall be a minimum of 80 percent. Testing shall be performed by an independent laboratory accredited by AASHTO re:source for Portland Cement Concrete. Freeze/thaw testing will not be required for concrete that will not be exposed to freezing and thawing conditions as determined by the Engineer.”

Revise Article 1021.01 of the Standard Specifications to read:

“**1021.01 General.** Admixtures shall be furnished in liquid or powder form ready for use. The admixtures shall be delivered in the manufacturer's original containers, bulk tank trucks or such containers or tanks as are acceptable to the Engineer. Delivery shall be accompanied by a ticket which clearly identifies the manufacturer, the date of manufacture, and trade name of the material. Containers shall be readily identifiable as to manufacturer, the date of manufacture, and trade name of the material they contain.

Concrete admixtures shall be on one of the Department's qualified product lists. Unless otherwise noted, admixtures shall have successfully completed and remain current with the AASHTO Product Eval and Audit Concrete Admixture (CADD) testing program. For admixture submittals to the Department; the product brand name, manufacturer name, admixture type or types, an electronic link to the product's technical data sheet, and the NTPEP testing number which contains an electronic link to all test data shall be provided. In addition, a letter shall be submitted certifying that no changes have been made in the formulation of the material since the most current round of tests conducted by AASHTO Product Eval and Audit. After 28 days of testing by AASHTO Product Eval and Audit, air-entraining admixtures may be provisionally approved and used on Departmental projects. For all other admixtures, unless otherwise noted, the time period after which provisionally approved status may be earned is 6 months.

The manufacturer shall include the following in the submittal to the AASHTO Product Eval and Audit CADD testing program: the manufacturing range for specific gravity, the midpoint and manufacturing range for residue by oven drying, and manufacturing range of pH. The submittal shall also include an infrared spectrophotometer trace no more than five years old.

For air-entraining admixtures according to Article 1021.02, the specific gravity allowable manufacturing range established by the manufacturer shall be according to AASHTO M 194. For residue by oven drying and pH, the allowable manufacturing range and test methods shall be according to AASHTO M 194.

For admixtures according to Articles 1021.03, 1021.04, 1021.05, 1021.06, 1021.07, and 1021.08, the pH allowable manufacturing range established by the manufacturer shall be according to ASTM E 70. For specific gravity and residue by oven drying, the allowable manufacturing range and test methods shall be according to AASHTO M 194.

All admixtures, except chloride-based accelerators, shall contain a maximum of 0.3 percent chloride by weight (mass) as determined by an appropriate test method. To verify the test result, the Department will use Illinois Modified AASHTO T 260, Procedure A, Method 1.

Prior to final approval of an admixture, the Engineer reserves the right to request a sample for testing. The test and reference concrete mixtures tested by the Engineer will contain a cement content of 5.65 cwt/cu yd (335 kg/cu m). For freeze-thaw testing, the Department will perform the test according to Illinois Modified AASHTO T 161. The flexural strength test will be performed according to AASHTO T 177. If the Engineer decides to test the admixture, the manufacturer shall submit AASHTO T 197 water content and set time test results on the standard cement used by the Department. The manufacturer may select their lab or an independent lab to perform this testing. The laboratory is not required to be accredited by AASHTO.

Random field samples may be taken by the Department to verify an admixture meets specification. A split sample will be provided to the manufacturer if requested. Admixtures that do not meet specification requirements or an allowable manufacturing range established by the manufacturer shall be replaced with new material.”

Revise Article 1021.03 of the Standard Specifications to read:

“**1021.03 Retarding and Water-Reducing Admixtures.** The admixture shall be according to the following.

- (a) Retarding admixtures shall be according to AASHTO M 194, Type B (retarding) or Type D (water-reducing and retarding).
- (b) Water-reducing admixtures shall be according to AASHTO M 194, Type A.
- (c) High range water-reducing admixtures shall be according to AASHTO M 194, Type F (high range water-reducing) or Type G (high range water-reducing and retarding).”

Revise Article 1021.05 of the Standard Specifications to read:

“**1021.05 Self-Consolidating Admixtures.** Self-consolidating admixture systems shall consist of either a high range water-reducing admixture only or a high range water-reducing admixture combined with a separate viscosity modifying admixture. The one or two component admixture system shall be capable of producing a concrete that can flow around reinforcement and consolidate under its own weight without additional effort and without segregation.

High range water-reducing admixtures shall be according to AASHTO M 194, Type F.

Viscosity modifying admixtures shall be according to AASHTO M 194, Type S (specific performance).”

Revise Article 1021.06 of the Standard Specifications to read:

“**1021.06 Rheology-Controlling Admixture.** Rheology-controlling admixtures shall be capable of producing a concrete mixture with a lower yield stress that will consolidate easier for slipform applications used by the Contractor. Rheology-controlling admixtures shall be according to AASHTO M 194, Type S (specific performance).”

Revise Article 1021.07 of the Standard Specifications to read:

“**1021.07 Corrosion Inhibitor.** The corrosion inhibitor shall be according to one of the following.

(a) Calcium Nitrite. Corrosion inhibitors shall contain a minimum 30 percent calcium nitrite by weight (mass) of solution and shall comply with either the requirements of AASHTO M 194, Type C (accelerating) or the requirements of ASTM C 1582. The corrosion inhibiting performance requirements of ASTM C 1582 shall not apply.

(b) Other Materials. The corrosion inhibitor shall be according to ASTM C 1582.

For submittals requiring testing according to ASTM M 194, Type C (accelerating), the admixture shall meet the requirements of the AASHTO Product Eval and Audit CADD testing program according to Article 1021.01.

For submittals requiring testing according to ASTM C 1582, a report prepared by an independent laboratory accredited by AASHTO re:source for portland cement concrete shall be provided. The report shall show the results of physical tests conducted no more than five years prior to the time of submittal, according to applicable specifications. However, ASTM G 109 test information specified in ASTM C 1582 is not required to be from an independent accredited lab. All other information in ASTM C 1582 shall be from an independent accredited lab. Test data and other information required to be submitted to AASHTO Product Eval and Audit according to Article 1021.01, shall instead be submitted directly to the Department.”

Add Article 1021.08 of the Standard Specifications as follows:

“**1021.08 Other Specific Performance Admixtures.** Other specific performance admixtures shall, at a minimum, be according to AASHTO M 194, Type S (specific performance). The Department also reserves the right to require other testing, as determined by the Engineer, to show evidence of specific performance characteristics.

Initial testing according to AASHTO M 194 may be conducted under the AASHTO Product Eval and Audit CADD testing program according to Article 1021.01, or by an independent laboratory accredited by AASHTO re:source for Portland Cement Concrete. In either case, test data and other information required to be submitted to AASHTO Product Eval and Audit according to Article 1021.01, shall also be submitted directly to the Department. The independent accredited lab report shall show the results of physical tests conducted no more than five years prior to the time of submittal, according to applicable specifications.”

Add Article 1021.09 of the Standard Specifications as follows:

**“1021.09 Latex Admixtures.** The latex admixture shall be a uniform, homogeneous, non-toxic, film-forming, polymeric emulsion in water to which all stabilizers have been added at the point of manufacture. The latex admixture shall not contain any chlorides and shall contain 46-49 percent solids.

In lieu of meeting the requirements of Article 1021.01, the Contractor shall submit a manufacturer's certification that the latex emulsion meets the requirements of FHWA Research Report RD-78-35, Chapter VI. The certificate shall include the date of manufacture of the latex admixture, batch or lot number, quantity represented, manufacturer's name, and the location of the manufacturing plant. The latex emulsion shall be sampled and tested in accordance with RD-78-35, Chapter VII, Certification Program.

The latex admixture shall be packaged and stored in containers and storage facilities which will protect the material from freezing and from temperatures above 85°F (30°C). Additionally, the material shall not be stored in direct sunlight and shall be shaded when stored outside of buildings during moderate temperatures.”

Revise Article 1024.01 of the Standard Specifications to read:

**“1024.01 Requirements for Grout.** The grout shall be proportioned by dry volume, thoroughly mixed, and shall have a minimum temperature of 50 °F (10 °C). Water shall not exceed the minimum needed for placement and finishing.

Materials for the grout shall be according to the following.

Item	Article/Section
(a) Cement .....	1001
(b) Water .....	1002
(c) Fine Aggregate .....	1003.02
(d) Fly Ash .....	1010
(e) Ground Granulated Blast Furnace (GGBF) Slag.....	1010
(f) Concrete Admixtures .....	1021”

Revise Note 1 of Article 1024.02 of the Standard Specifications to read:

“Note 1. Nonshrink grout shall be according to ASTM C 1107.

For prestressed concrete applications, the nonshrink grout shall have a water soluble chloride ion content of less than 0.06 percent by weight of cementitious material when tested according to ASTM C 1218 or AASHTO T 260; and for non-prestressed concrete applications, the water soluble chloride ion content shall be less than 0.15 percent by weight of cementitious material. The testing according to ASTM 1107, and either ASTM C 1218 or AASHTO T 260 shall be performed by an independent lab a minimum of once every five years, and the test results shall be provided to the Department. The Department will maintain a qualified product list. Mixing of the nonshrink grout shall be according to the manufacturer’s specifications.”

Revise Article 1029.02 of the Standard Specifications to read:

“ **1029.02 Materials.** Materials shall be according to the following.

Item	Article/Section
(a) Cement.....	1001
(b) Fly Ash .....	1010
(c) Ground Granulated Blast Furnace (GGBF) Slag .....	1010
(d) Water.....	1002
(e) Fine Aggregate.....	1003
(f) Concrete Admixtures .....	1021
(g) Foaming Agent (Note 1)	

Note 1. The manufacturer shall submit infrared spectrophotometer trace and test results indicating the foaming agent meets the requirements of ASTM C 869 in order to be on the Department’s qualified product list. Submitted data/results shall not be more than five years old.”

Revise the second paragraph of Article 1103.03(a)(4) the Standard Specifications to read:

“The dispenser system shall provide a visual indication that the liquid admixture is actually entering the batch, such as via a transparent or translucent section of tubing or by independent check with an integrated secondary metering device. If approved by the Engineer, an alternate indicator may be used for admixtures dosed at rates of 25 oz/cwt (1630 mL/100 kg) or greater, such as accelerating admixtures, corrosion inhibitors, and viscosity modifying admixtures.”

Revise Article 1103.04 of the Standard Specifications to read:

“ **1103.04 Mobile Portland Cement Concrete Plants.** The mobile concrete plant shall be according to AASHTO M 241 and the Bureau of Materials Policy Memorandum “Approval of Volumetric Mobile Mixers for Concrete”. The mixer shall be capable of carrying sufficient unmixed materials to produce not less than 6 cu yd (4.6 cu m) of concrete.”

Revise the first two sections of Check Sheet #11 “Subsealing of Concrete Pavements” of the Recurring Special Provisions to read:

“Description. This work shall consist of filling voids beneath rigid and composite pavements with cement grout.

Materials. Materials shall be according to the following Articles/Sections of the Standard Specifications:

Item	Article/Section
(a) Cement .....	1001
(b) Water .....	1002
(c) Fly Ash .....	1010
(d) Ground Granulated Blast Furnace (GGBF) Slag.....	1010
(e) Admixtures .....	1021
(f) Packaged Rapid Hardening Mortar or Concrete .....	1018”

Revise the Materials section of Check Sheet #28 “Portland Cement Concrete Inlay or Overlay” of the Recurring Special Provisions to read:

“Materials. Materials shall be according to the following Articles/Sections of the Standard Specifications.

Item	Article/Section
(a) Portland Cement Concrete (Note 1) .....	1020
(b) Fibers for Concrete.....	1014
(c) Protective Coat.....	1023.01

Note 1. Class PV concrete shall be used, except the cement factor for central mixed concrete shall be 6.05 cwt/cu yd (360 kg/cu m). A cement factor reduction according to Article 1020.05(b)(8) of the Standard Specifications will be permitted. CA 5 shall not be used and CA 7 may only be used for overlays that are a minimum of 4.5 in. (113 mm) thick. The Class PV concrete shall have a minimum flexural strength of 550 psi (3800 kPa) or a minimum compressive strength of 3000 psi (20,700 kPa) at 14 days.”

## COMPENSABLE DELAY COSTS (BDE)

Effective: June 2, 2017

Revised: April 1, 2019

Revise Article 107.40(b) of the Standard Specifications to read:

“(b) Compensation. Compensation will not be allowed for delays, inconveniences, or damages sustained by the Contractor from conflicts with facilities not meeting the above definition; or if a conflict with a utility in an unanticipated location does not cause a shutdown of the work or a documentable reduction in the rate of progress exceeding the limits set herein. The provisions of Article 104.03 notwithstanding, compensation for delays caused by a utility in an unanticipated location will be paid according to the provisions of this Article governing minor and major delays or reduced rate of production which are defined as follows.

- (1) Minor Delay. A minor delay occurs when the work in conflict with the utility in an unanticipated location is completely stopped for more than two hours, but not to exceed two weeks.
- (2) Major Delay. A major delay occurs when the work in conflict with the utility in an unanticipated location is completely stopped for more than two weeks.
- (3) Reduced Rate of Production Delay. A reduced rate of production delay occurs when the rate of production on the work in conflict with the utility in an unanticipated location decreases by more than 25 percent and lasts longer than seven calendar days.”

Revise Article 107.40(c) of the Standard Specifications to read:

“(c) Payment. Payment for Minor, Major, and Reduced Rate of Production Delays will be made as follows.

- (1) Minor Delay. Labor idled which cannot be used on other work will be paid for according to Article 109.04(b)(1) and (2) for the time between start of the delay and the minimum remaining hours in the work shift required by the prevailing practice in the area.

Equipment idled which cannot be used on other work, and which is authorized to standby on the project site by the Engineer, will be paid for according to Article 109.04(b)(4).

- (2) Major Delay. Labor will be the same as for a minor delay.

Equipment will be the same as for a minor delay, except Contractor-owned equipment will be limited to two weeks plus the cost of move-out to either the Contractor’s yard or another job and the cost to re-mobilize, whichever is less. Rental equipment may be paid for longer than two weeks provided the Contractor presents adequate support to the Department (including lease agreement) to show retaining equipment on the job is the most economical course to follow and in the public interest.

- (3) Reduced Rate of Production Delay. The Contractor will be compensated for the reduced productivity for labor and equipment time in excess of the 25 percent threshold for that portion of the delay in excess of seven calendar days. Determination of compensation will be in accordance with Article 104.02, except labor and material additives will not be permitted.

Payment for escalated material costs, escalated labor costs, extended project overhead, and extended traffic control will be determined according to Article 109.13.”

Revise Article 108.04(b) of the Standard Specifications to read:

“(b) No working day will be charged under the following conditions.

- (1) When adverse weather prevents work on the controlling item.
- (2) When job conditions due to recent weather prevent work on the controlling item.
- (3) When conduct or lack of conduct by the Department or its consultants, representatives, officers, agents, or employees; delay by the Department in making the site available; or delay in furnishing any items required to be furnished to the Contractor by the Department prevents work on the controlling item.
- (4) When delays caused by utility or railroad adjustments prevent work on the controlling item.
- (5) When strikes, lock-outs, extraordinary delays in transportation, or inability to procure critical materials prevent work on the controlling item, as long as these delays are not due to any fault of the Contractor.
- (6) When any condition over which the Contractor has no control prevents work on the controlling item.”

Revise Article 109.09(f) of the Standard Specifications to read:

“(f) Basis of Payment. After resolution of a claim in favor of the Contractor, any adjustment in time required for the work will be made according to Section 108. Any adjustment in the costs to be paid will be made for direct labor, direct materials, direct equipment, direct jobsite overhead, direct offsite overhead, and other direct costs allowed by the resolution. Adjustments in costs will not be made for interest charges, loss of anticipated profit, undocumented loss of efficiency, home office overhead and unabsorbed overhead other than as allowed by Article 109.13, lost opportunity, preparation of claim expenses and other consequential indirect costs regardless of method of calculation.

The above Basis of Payment is an essential element of the contract and the claim cost recovery of the Contractor shall be so limited.”

Add the following to Section 109 of the Standard Specifications.

**“109.13 Payment for Contract Delay.** Compensation for escalated material costs, escalated labor costs, extended project overhead, and extended traffic control will be allowed when such costs result from a delay meeting the criteria in the following table.

Contract Type	Cause of Delay	Length of Delay
Working Days	Article 108.04(b)(3) or Article 108.04(b)(4)	No working days have been charged for two consecutive weeks.
Completion Date	Article 108.08(b)(1) or Article 108.08(b)(7)	The Contractor has been granted a minimum two week extension of contract time, according to Article 108.08.

Payment for each of the various costs will be according to the following.

- (a) Escalated Material and/or Labor Costs. When the delay causes work, which would have otherwise been completed, to be done after material and/or labor costs have increased, such increases will be paid. Payment for escalated material costs will be limited to the increased costs substantiated by documentation furnished by the Contractor. Payment for escalated labor costs will be limited to those items in Article 109.04(b)(1) and (2), except the 35 percent and 10 percent additives will not be permitted.
- (b) Extended Project Overhead. For the duration of the delay, payment for extended project overhead will be paid as follows.
  - (1) Direct Jobsite and Offsite Overhead. Payment for documented direct jobsite overhead and documented direct offsite overhead, including onsite supervisory and administrative personnel, will be allowed according to the following table.

Original Contract Amount	Supervisory and Administrative Personnel
Up to \$5,000,000	One Project Superintendent
Over \$ 5,000,000 - up to \$25,000,000	One Project Manager, One Project Superintendent or Engineer, and One Clerk
Over \$25,000,000 - up to \$50,000,000	One Project Manager, One Project Superintendent, One Engineer, and One Clerk
Over \$50,000,000	One Project Manager, Two Project Superintendents, One Engineer, and One Clerk

(2) Home Office and Unabsorbed Overhead. Payment for home office and unabsorbed overhead will be calculated as 8 percent of the total delay cost.

(c) Extended Traffic Control. Traffic control required for an extended period of time due to the delay will be paid for according to Article 109.04.

When an extended traffic control adjustment is paid under this provision, an adjusted unit price as provided for in Article 701.20(a) for increase or decrease in the value of work by more than ten percent will not be paid.

Upon payment for a contract delay under this provision, the Contractor shall assign subrogation rights to the Department for the Department's efforts of recovery from any other party for monies paid by the Department as a result of any claim under this provision. The Contractor shall fully cooperate with the Department in its efforts to recover from another party any money paid to the Contractor for delay damages under this provision."

### CONSTRUCTION AIR QUALITY – DIESEL RETROFIT (BDE)

Effective: June 1, 2010

Revised: January 1, 2025

The reduction of emissions of particulate matter (PM) for off-road equipment shall be accomplished by installing retrofit emission control devices. The term "equipment" refers to diesel fuel powered devices rated at 50 hp and above, to be used on the jobsite in excess of seven calendar days over the course of the construction period on the jobsite (including rental equipment).

Contractor and subcontractor diesel powered off-road equipment assigned to the contract shall be retrofitted according to the table below.

Horsepower Range	Model Year and Older
50-99	2003
100-299	2002
300-599	2000
600-749	2001
750 and up	2005

The retrofit emission control devices shall achieve a minimum PM emission reduction of 50 percent and shall be:

- a) Included on the U.S. Environmental Protection Agency (USEPA) *Verified Retrofit Technology List* (<https://www.epa.gov/verified-diesel-tech/verified-technologies-list-clean-diesel>), or verified by the California Air Resources Board (CARB) (<http://www.arb.ca.gov/diesel/verdev/vt/cvt.htm>); or

- b) Retrofitted with a non-verified diesel retrofit emission control device if verified retrofit emission control devices are not available for equipment proposed to be used on the project, and if the Contractor has obtained a performance certification from the retrofit device manufacturer that the emission control device provides a minimum PM emission reduction of 50 percent.

Note: Large cranes (Crawler mounted cranes) which are responsible for critical lift operations are exempt from installing retrofit emission control devices if such devices adversely affect equipment operation.

Diesel powered off-road equipment with engine ratings of 50 hp and above, which are unable to be retrofitted with verified emission control devices or if performance certifications are not available which will achieve a minimum 50 percent PM reduction, may be granted a waiver by the Department if documentation is provided showing good faith efforts were made by the Contractor to retrofit the equipment.

Construction shall not proceed until the Contractor submits a certified list of the diesel powered off-road equipment that will be used, and as necessary, retrofitted with emission control devices. The list(s) shall include (1) the equipment number, type, make, Contractor/rental company name; and (2) the emission control devices make, model, USEPA or CARB verification number, or performance certification from the retrofit device manufacturer. Equipment reported as fitted with emissions control devices shall be made available to the Engineer for visual inspection of the device installation, prior to being used on the jobsite.

The Contractor shall submit an updated list of retrofitted off-road construction equipment as retrofitted equipment changes or comes on to the jobsite. The addition or deletion of any diesel powered equipment shall be included on the updated list.

If any diesel powered off-road equipment is found to be in non-compliance with any portion of this special provision, the Engineer will issue the Contractor a diesel retrofit deficiency deduction.

Any costs associated with retrofitting any diesel powered off-road equipment with emission control devices shall be considered as included in the contract unit prices bid for the various items of work involved and no additional compensation will be allowed. The Contractor's compliance with this notice and any associated regulations shall not be grounds for a claim.

### **Diesel Retrofit Deficiency Deduction**

When the Engineer determines that a diesel retrofit deficiency exists, a daily monetary deduction will be imposed for each calendar day or fraction thereof the deficiency continues to exist. The calendar day(s) will begin when the time period for correction is exceeded and end with the Engineer's written acceptance of the correction. The daily monetary deduction will be \$1,000.00 for each deficiency identified.

The deficiency will be based on lack of diesel retrofit emissions control.

If a Contractor accumulates three diesel retrofit deficiency deductions for the same piece of equipment in a contract period, the Contractor will be shutdown until the deficiency is corrected. Such a shutdown will not be grounds for any extension of the contract time, waiver of penalties, or be grounds for any claim.

### **REMOVAL AND DISPOSAL OF REGULATED SUBSTANCES (BDE)**

Effective: January 1, 2024

Revised: April 1, 2026

Revise the first paragraph of Article 669.04 of the Standard Specifications to read:

**“669.04 Regulated Substances Monitoring.** Regulated substances monitoring includes environmental observation and field screening during regulated substances management activities. The excavated soil and groundwater within the work areas shall be managed as either uncontaminated soil, hazardous waste, special waste, or non-special waste.

As part of the regulated substances monitoring, the monitoring personnel shall perform and document the applicable duties listed on form BDE 2732 “Regulated Substances Monitoring Daily Record (RSMDR)”.

Revise the first two sentences of the nineteenth paragraph of Article 669.05 of the Standard Specifications to read:

“The Contractor shall coordinate waste disposal approvals with the disposal facility and provide the specific analytical testing requirements of that facility. The Contractor shall make all arrangements for collection, transportation, and analysis of landfill acceptance testing.”

Revise the last paragraph of Article 669.05 of the Standard Specifications to read:

“The Contractor shall select a permitted landfill facility or CCDD/USFO facility meeting the requirements of 35 Ill. Admin. Code Parts 810-814 or Part 1100, respectively. The Department will review and approve or reject the facility proposed by the Contractor based upon information provided in BDE 2730. The Contractor shall verify whether the selected facility is compliant with those applicable standards as mandated by their permit and whether the facility is presently, has previously been, or has never been, on the United States Environmental Protection Agency (U.S. EPA) National Priorities List or the Resource Conservation and Recovery Act (RCRA) List of Violating Facilities. The use of a Contractor selected facility shall in no manner delay the construction schedule or alter the Contractor's responsibilities as set forth.”

Revise the first paragraph of Article 669.07 of the Standard Specifications to read:

**“669.07 Temporary Staging.** Soil classified according to Articles 669.05(a)(2), (b)(1), or (c) may be temporarily staged at the Contractor’s option. All other soil classified according to Articles 669.05(a)(1), (a)(3), (a)(4), (a)(5), (a)(6), or (b)(2) shall be managed and disposed of without temporary staging to the greatest extent practicable. If circumstances beyond the Contractor’s control require temporary staging of these latter materials, the Contractor shall request approval from the Engineer in writing.

Topsoil for re-use as final cover which has been field screened and found not to exhibit PID readings over daily background readings as documented on the BDE 2732, visual staining or odors, and is classified according to Articles 669.05(a)(2), (a)(3), (a)(4), (b)(1), or (c) may be temporarily staged at the Contractor’s option.”

Add the following paragraph after the fourth paragraph of Article 669.10 of the Standard Specifications.

“Regulated substances monitoring will be measured for payment per calendar day, where 4 or more hours of monitoring activities is defined as 1.0 calendar day and less than 4 hours of monitoring activities is defined as 0.5 calendar day.”

Revise the second paragraph of Article 669.11 of the Standard Specification to read:

“Regulated substances monitoring, including completion of form BDE 2732 for each day of work, will be paid for at the contract unit price per calendar day for REGULATED SUBSTANCES MONITORING. In no case will more than 1.0 calendar day be paid on a given calendar day.”

Add the following paragraph after the sixth paragraph of Article 669.11 of the Standard Specifications.

“The sampling and testing of effluent water derived from dewatering discharges for priority pollutants volatile organic compounds (VOCs), priority pollutants semi-volatile organic compounds (SVOCs), or priority pollutants metals, will be paid for at the contract unit price per each for VOCS GROUNDWATER ANALYSIS using EPA Method 8260B, SVOCs GROUNDWATER ANALYSIS using EPA Method 8270C, or RCRA METALS GROUNDWATER ANALYSIS using EPA Methods 6010B and 7471A. This price shall include transporting the sample from the job site to the laboratory.”

Revise the first sentence of the eight paragraph of Article 669.11 of the Standard Specifications to read:

“Payment for temporary staging of soil classified according to Articles 669.05(a)(1), (a)(3), (a)(4), (a)(5), (a)(6), or (b)(2) to be managed and disposed of, if required and approved by the Engineer, will be paid according to Article 109.04.”

**SOURCE OF SUPPLY AND QUALITY REQUIREMENTS (BDE)**

Effective: January 2, 2023

Revised: January 1, 2026

Revise the third through ninth paragraphs of Article 106.01 of the Standard Specifications to read:

“Articles, materials, and supplies shall be classified into only one of the following categories.

- (a) Iron and Steel. All iron and steel products, which are to be incorporated into the work, shall be domestically manufactured or produced and fabricated, unless an exception is expressly permitted under Federal and/or State law and written permission is given by the Department. The Contractor shall obtain from the iron or steel producer and/or fabricator, in addition to the mill analysis, a certification that all iron or steel materials meet these domestic source requirements.

The applications of all coatings, epoxy, galvanizing, painting, etc. to iron and steel products shall be domestically applied.

- (b) Manufactured Products. Manufactured products shall include articles, materials or supplies that have been processed into a specific form or shape; or have been combined with other articles, materials, or supplies to create a product with different properties than the individual articles, materials, or supplies. Manufactured products incorporated into the work shall have the final assembly for the manufacturing process occur domestically.

A manufactured product may include components that are construction materials, iron or steel products, or exempt materials.

Precast concrete products and intelligent transportation systems (ITS) or other electronic hardware systems shall comply with the requirements of Article 106.01(a) in addition to the requirements of manufactured products.

- (c) Construction Materials. All manufacturing processes for construction materials shall occur within the United States. Construction materials shall include an article, material, or supply consisting of only one of the following.

- (1) Non-ferrous metals;
- (2) Plastic and polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cables);
- (3) Glass (including optic glass);
- (4) Fiber optic cable (including drop cable);
- (5) Optical fiber;

- (6) Lumber;
- (7) Drywall;
- (8) Engineered wood.

Minor additions of articles, materials, supplies, or binding agents to a construction material do not change the categorization of the construction material.

- (d) Exempt Materials. Materials exempt from domestic production requirements are cement or cementitious materials, aggregates, aggregate binding agents or additives, or items not permanently incorporated into the work. Exempt materials may be combined with other materials into a final form to produce a manufactured product.”

### **SUBCONTRACTOR AND DBE PAYMENT REPORTING (BDE)**

Effective: April 2, 2018

Add the following to Section 109 of the Standard Specifications.

**“109.14 Subcontractor and Disadvantaged Business Enterprise Payment Reporting.**  
The Contractor shall report all payments made to the following parties:

- (a) first tier subcontractors;
- (b) lower tier subcontractors affecting disadvantaged business enterprise (DBE) goal credit;
- (c) material suppliers or trucking firms that are part of the Contractor’s submitted DBE utilization plan.

The report shall be made through the Department’s on-line subcontractor payment reporting system within 21 days of making the payment.”

**SUBCONTRACTOR MOBILIZATION PAYMENTS (BDE)**

Effective: November 2, 2017

Revised: April 1, 2019

Replace the second paragraph of Article 109.12 of the Standard Specifications with the following:

“This mobilization payment shall be made at least seven days prior to the subcontractor starting work. The amount paid shall be at the following percentage of the amount of the subcontract reported on form BC 260A submitted for the approval of the subcontractor’s work.

Value of Subcontract Reported on Form BC 260A	Mobilization Percentage
Less than \$10,000	25%
\$10,000 to less than \$20,000	20%
\$20,000 to less than \$40,000	18%
\$40,000 to less than \$60,000	16%
\$60,000 to less than \$80,000	14%
\$80,000 to less than \$100,000	12%
\$100,000 to less than \$250,000	10%
\$250,000 to less than \$500,000	9%
\$500,000 to \$750,000	8%
Over \$750,000	7%”

**SUBMISSION OF BIDDERS LIST INFORMATION (BDE)**

Effective: January 2, 2025

Revised: March 2, 2025

In accordance with 49 CFR 26.11(c) all DBE and non-DBEs who bid as prime contractors and subcontractors shall provide bidders list information, including all DBE and non-DBE firms from whom the bidder has received a quote or bid to work as a subcontractor, whether or not the bidder has relied upon that bid in placing its bid as the prime contractor.

The bidders list information shall be submitted with the bid using the link provided within the “Integrated Contractor Exchange (iCX)” application of the Department’s “EBids System”.

**SUBMISSION OF PAYROLL RECORDS – FEDERAL AID CONTRACT (BDE)**

Effective: April 1, 2026

If the prevailing rate of wages published by the Illinois Department of Labor (IDOL) is equal to or greater than the prevailing wage determination by the United States Secretary of Labor for the same locality for the same type of construction used to classify the federal construction project, the requirements of the Illinois Prevailing Wage Act (820 ILCS 130) shall apply, including the “ILLINOIS PREVAILING WAGE ACT” section below. If not, only the requirements of the Davis-Bacon Act shall apply, including the “DAVIS-BACON ACT” section below.

DAVIS-BACON ACT. Revise the following section of Check Sheet #1 of the Recurring Special Provisions to read:

“STATEMENTS AND PAYROLLS

The payroll records shall include the worker’s name, social security number, last known address, telephone number, email address, classification(s) of work actually performed, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof), daily and weekly number of hours actually worked in total, deductions made, and actual wages paid.

The Contractor and each subcontractor shall submit certified payroll records to the Department each week from the start to the completion of their respective work, except that full social security numbers, last known addresses, telephone numbers, and email addresses shall not be included on weekly submittals. Instead, the payrolls need only include an identification number for each employee (e.g., the last four digits of the employee’s social security number). The submittals shall be made using LCPTracker Pro software. The software is web-based and can be accessed at <https://lcptracker.com/>. When there has been no activity during a work week, a payroll record shall still be submitted with the appropriate option (“No Work”, “Suspended”, or “Complete”) selected.”

ILLINOIS PREVAILING WAGE ACT. Revise the following section of Check Sheet #1 of the Recurring Special Provisions to read:

“STATEMENTS AND PAYROLLS

- (1) Prevailing Wages. All wages paid by the Contractor and each subcontractor shall be in compliance with The Prevailing Wage Act (820 ILCS 130), as amended, except where a prevailing wage violates a federal law, order, or ruling, the rate conforming to the federal law, order, or ruling shall govern. The Contractor shall be responsible to notify each subcontractor of the wage rates set forth in this contract and any revisions thereto. If the Department of Labor revises the wage rates, the Contractor will not be allowed additional compensation on account of said revisions.

- (2) Payroll Records. The Contractor and each subcontractor shall make and keep, for a period of five years from the later of the date of final payment under the contract or completion of the contract, records of the wages paid to his/her workers. The payroll records shall include the worker's name, the worker's address, the worker's telephone number when available, the worker's social security number, the worker's classification or classifications, the worker's gross and net wages paid in each pay period, the worker's number of hours worked each day, and the worker's starting and ending times of work each day. However, any Contractor or subcontractor who remits contributions to a fringe benefit fund that is not jointly maintained and jointly governed by one or more employer and one or more labor organization must additionally submit the worker's hourly wage rate, the worker's hourly overtime wage rate, the worker's hourly fringe benefit rates, the name and address of each fringe benefit fund, the plan sponsor of each fringe benefit, if applicable, and the plan administrator of each fringe benefit, if applicable. Upon seven business days' notice, these records shall be available at a location within the State, during reasonable hours, for inspection by the Department or the Department of Labor; and Federal, State, or local law enforcement agencies and prosecutors.
- (3) Submission of Payroll Records. The Contractor and each subcontractor shall, no later than the 15<sup>th</sup> day of each calendar month, file a certified payroll for the immediately preceding month to the Illinois Department of Labor (IDOL) through the Certified Transcript of Payroll Portal in compliance with the State Prevailing Wage Act (820 ILCS 130). The portal can be found on the IDOL website at <https://labor.illinois.gov>. Payrolls shall be submitted in the format prescribed by the IDOL.

In addition to filing certified payroll(s) with the IDOL, the Contractor and each subcontractor shall certify and submit payroll records to the Department each week from the start to the completion of their respective work, except that full social security numbers shall not be included on weekly submittals. Instead, the payrolls shall include an identification number for each employee (e.g., the last four digits of the employee's social security number). In addition, starting and ending times of work each day may be omitted from the payroll records submitted. The submittals shall be made using LCPTracker Pro software. The software is web-based and can be accessed at <https://lcptracker.com/>. When there has been no activity during a work week, a payroll record shall still be submitted with the appropriate option ("No Work", "Suspended", or "Complete") selected.

- (4) Employee Interviews. The Contractor and each subcontractor shall permit his/her employees to be interviewed on the job, during working hours, by compliance investigators of the Department or the Department of Labor."

### **SURVEYING SERVICES (BDE)**

Effective: April 1, 2025

Delete the fourth paragraph of Article 667.04 of the Standard Specifications.

Delete Section 668 of the Standard Specifications.

## **TRAINING SPECIAL PROVISIONS (BDE)**

Effective: October 15, 1975

Revised: September 2, 2021

This Training Special Provision supersedes Section 7b of the Special Provision entitled "Specific Equal Employment Opportunity Responsibilities," and is in implementation of 23 U.S.C. 140(a).

As part of the Contractor's equal employment opportunity affirmative action program, training shall be provided as follows:

The Contractor shall provide on-the-job training aimed at developing full journeyman in the type of trade or job classification involved. The number of trainees to be trained under this contract will be 1. In the event the Contractor subcontracts a portion of the contract work, it shall determine how many, if any, of the trainees are to be trained by the subcontractor, provided however, that the Contractor shall retain the primary responsibility for meeting the training requirements imposed by this special provision. The Contractor shall also ensure that this Training Special Provision is made applicable to such subcontract. Where feasible, 25 percent of apprentices or trainees in each occupation shall be in their first year of apprenticeship or training.

The number of trainees shall be distributed among the work classifications on the basis of the Contractor's needs and the availability of journeymen in the various classifications within the reasonable area of recruitment. Prior to commencing construction, the Contractor shall submit to the Illinois Department of Transportation for approval the number of trainees to be trained in each selected classification and training program to be used. Furthermore, the Contractor shall specify the starting time for training in each of the classifications. The Contractor will be credited for each trainee it employs on the contract work who is currently enrolled or becomes enrolled in an approved program and will be reimbursed for such trainees as provided hereinafter.

Training and upgrading of minorities and women toward journeyman status is a primary objective of this Training Special Provision. Accordingly, the Contractor shall make every effort to enroll minority trainees and women (e.g. by conducting systematic and direct recruitment through public and private sources likely to yield minority and women trainees) to the extent such persons are available within a reasonable area of recruitment. The Contractor will be responsible for demonstrating the steps it has taken in pursuance thereof, prior to a determination as to whether the Contractor is in compliance with this Training Special Provision. This training commitment is not intended, and shall not be used, to discriminate against any applicant for training, whether a member of a minority group or not.

No employee shall be employed as a trainee in any classification in which he or she has successfully completed a training course leading to journeyman status or in which he or she has been employed as a journeyman. The Contractor should satisfy this requirement by including appropriate questions in the employee application or by other suitable means. Regardless of the method used, the Contractor's records should document the findings in each case.

The minimum length and type of training for each classification will be as established in the training program selected by the Contractor and approved by the Illinois Department of Transportation and the Federal Highway Administration. The Illinois Department of Transportation and the Federal Highway Administration shall approve a program, if it is reasonably calculated to meet the equal employment opportunity obligations of the Contractor and to qualify the average trainee for journeyman status in the classification concerned by the end of the training period. Furthermore, apprenticeship programs registered with the U.S. Department of Labor, Bureau of Apprenticeship and Training, or with a State apprenticeship agency recognized by the Bureau and training programs approved by not necessarily sponsored by the U.S. Department of Labor Employment Training Administration shall also be considered acceptable provided it is being administered in a manner consistent with the equal employment obligations of Federal-aid highway construction contracts. Approval or acceptance of a training program shall be obtained from the State prior to commencing work on the classification covered by the program. It is the intention of these provisions that training is to be provided in the construction crafts rather than clerk-typists or secretarial-type positions. Training is permissible in lower level management positions such as office engineers, estimators, timekeepers, etc., where the training is oriented toward construction applications. Training in the laborer classification may be permitted provided that significant and meaningful training is provided and approved by the Illinois Department of Transportation and the Federal Highway Administration. Some offsite training is permissible as long as the training is an integral part of an approved training program and does not comprise a significant part of the overall training.

Except as otherwise noted below, the Contractor will be reimbursed 80 cents per hour of training given an employee on this contract in accordance with an approved training program. As approved by the Engineer, reimbursement will be made for training of persons in excess of the number specified herein. This reimbursement will be made even though the Contractor receives additional training program funds from other sources, provided such other source does not specifically prohibit the Contractor from receiving other reimbursement. Reimbursement for offsite training indicated above may only be made to the Contractor where he does one or more of the following and the trainees are concurrently employed on a Federal-aid project; contributes to the cost of the training, provides the instruction to the trainee or pays the trainee's wages during the offsite training period.

No payment shall be made to the Contractor if either the failure to provide the required training, or the failure to hire the trainee as a journeyman, is caused by the Contractor and evidences a lack of good faith on the part of the Contractor in meeting the requirement of this Training Special Provision. It is normally expected that a trainee will begin his training on the project as soon as feasible after start of work utilizing the skill involved and remain on the project as long as training opportunities exist in his work classification or until he has completed his training program.

It is not required that all trainees be on board for the entire length of the contract. A Contractor will have fulfilled his responsibilities under this Training Special Provision if he has provided acceptable training to the number of trainees specified. The number trained shall be determined on the basis of the total number enrolled on the contract for a significant period.

Trainees will be paid at least 60 percent of the appropriate minimum journeyman's rate specified in the contract for the first half of the training period, 75 percent for the third quarter of the training period, and 90 percent for the last quarter of the training period, unless apprentices or trainees in an approved existing program are enrolled as trainees on this project. In that case, the appropriate rates approved by the Departments of Labor or Transportation in connection with the existing program shall apply to all trainees being trained for the same classification who are covered by this Training Special Provision.

The Contractor shall furnish the trainee a copy of the program he will follow in providing the training. The Contractor shall provide each trainee with a certification showing the type and length of training satisfactorily complete.

The Contractor shall provide for the maintenance of records and furnish periodic reports documenting its performance under this Training Special Provision.

For contracts with an awarded contract value of \$500,000 or more, the Contractor is required to comply with the Illinois Works Apprenticeship Initiative (30 ILCS 559/20-20 to 20-25) and all applicable administrative rules to the extent permitted by Section 20-20(g). For federally funded projects, the number of trainees to be trained under this contract, as stated in the Training Special Provisions, will be the established goal for the Illinois Works Apprenticeship Initiative 30 ILCS 559/20-20(g). The Contractor shall make a good faith effort to meet this goal. For federally funded projects, the Illinois Works Apprenticeship Initiative will be implemented using the FHWA approved OJT procedures. The Contractor must comply with the recordkeeping and reporting obligations of the Illinois Works Apprenticeship Initiative for the life of the project, including the certification as to whether the trainee/apprentice labor hour goals were met.

Method of Measurement. The unit of measurement is in hours.

Basis of Payment. This work will be paid for at the contract unit price of 80 cents per hour for TRAINEES. The estimated total number of hours, unit price, and total price have been included in the schedule of prices.

## **IDOT TRAINING PROGRAM GRADUATE ON-THE-JOB TRAINING SPECIAL PROVISION**

Effective: August 1, 2012

Revised: February 2, 2017

In addition to the Contractor's equal employment opportunity (EEO) affirmative action efforts undertaken as required by this Contract, the Contractor is encouraged to participate in the incentive program described below to provide additional on-the-job training to certified graduates of the IDOT pre-apprenticeship training program, as outlined in this Special Provision.

IDOT funds, and various Illinois community colleges operate, pre-apprenticeship training programs throughout the State to provide training and skill-improvement opportunities to promote the increased employment of minority groups, disadvantaged persons and women in all aspects of the highway construction industry. The intent of this IDOT Pre-Apprenticeship Training Program Graduate (TPG) special provision (Special Provision) is to place these certified program graduates on the project site for this Contract in order to provide the graduates with meaningful on-the-job training. Pursuant to this Special Provision, the Contractor must make every reasonable effort to recruit and employ certified TPG trainees to the extent such individuals are available within a practicable distance of the project site.

Specifically, participation of the Contractor or its subcontractor in the Program entitles the participant to reimbursement for graduates' hourly wages at \$15.00 per hour per utilized TPG trainee, subject to the terms of this Special Provision. Reimbursement payment will be made even though the Contractor or subcontractor may also receive additional training program funds from other non-IDOT sources for other non-TPG trainees on the Contract, provided such other source does not specifically prohibit the Contractor or subcontractor from receiving reimbursement from another entity through another program, such as IDOT through the TPG program. With regard to any IDOT funded construction training program other than TPG, however, additional reimbursement for other IDOT programs will not be made beyond the TPG Program described in this Special Provision when the TPG Program is utilized.

No payment will be made to the Contractor if the Contractor or subcontractor fails to provide the required on-site training to TPG trainees, as solely determined by IDOT. A TPG trainee must begin training on the project as soon as the start of work that utilizes the relevant trade skill and the TPG trainee must remain on the project site through completion of the Contract, so long as training opportunities continue to exist in the relevant work classification. Should a TPG trainee's employment end in advance of the completion of the Contract, the Contractor must promptly notify the IDOT District EEO Officer for the Contract that the TPG's involvement in the Contract has ended. The Contractor must supply a written report for the reason the TPG trainee involvement terminated, the hours completed by the TPG trainee on the Contract, and the number of hours for which the incentive payment provided under this Special Provision will be, or has been claimed for the separated TPG trainee.

Finally, the Contractor must maintain all records it creates as a result of participation in the Program on the Contract, and furnish periodic written reports to the IDOT District EEO Officer that document its contractual performance under and compliance with this Special Provision. Finally, through participation in the Program and reimbursement of wages, the Contractor is not relieved of, and IDOT has not waived, the requirements of any federal or state labor or employment law applicable to TPG workers, including compliance with the Illinois Prevailing Wage Act.

**Method of Measurement:** The unit of measurement is in hours.

**Basis of Payment:** This work will be paid for at the contract unit price of \$15.00 per hour for each utilized certified TPG Program trainee (TRAINEES TRAINING PROGRAM GRADUATE). The estimated total number of hours, unit price, and total price must be included in the schedule of prices for the Contract submitted by Contractor prior to beginning work. The initial number of TPG trainees for which the incentive is available for this contract is 1.

The Department has contracted with several educational institutions to provide screening, tutoring and pre-training to individuals interested in working as a TPG trainee in various areas of common construction trade work. Only individuals who have successfully completed a Pre-Apprenticeship Training Program at these IDOT approved institutions are eligible to be TPG trainees. To obtain a list of institutions that can connect the Contractor with eligible TPG trainees, the Contractor may contact: HCCTP TPG Program Coordinator, Office of Business and Workforce Diversity (IDOT OBWD), Room 319, Illinois Department of Transportation, 2300 S. Dirksen Parkway, Springfield, Illinois 62764. Prior to commencing construction with the utilization of a TPG trainee, the Contractor must submit documentation to the IDOT District EEO Officer for the Contract that provides the names and contact information of the TPG trainee(s) to be trained in each selected work classification, proof that that the TPG trainee(s) has successfully completed a Pre-Apprenticeship Training Program, proof that the TPG is in an Apprenticeship Training Program approved by the U.S. Department of Labor Bureau of Apprenticeship Training, and the start date for training in each of the applicable work classifications.

To receive payment, the Contractor must provide training opportunities aimed at developing a full journeyworker in the type of trade or job classification involved. During the course of performance of the Contract, the Contractor may seek approval from the IDOT District EEO Officer to employ additional eligible TPG trainees. In the event the Contractor subcontracts a portion of the contracted work, it must determine how many, if any, of the TPGs will be trained by the subcontractor. Though a subcontractor may conduct training, the Contractor retains the responsibility for meeting all requirements imposed by this Special Provision. The Contractor must also include this Special Provision in any subcontract where payment for contracted work performed by a TPG trainee will be passed on to a subcontractor.

Training through the Program is intended to move TPGs toward journeyman status, which is the primary objective of this Special Provision. Accordingly, the Contractor must make every effort to enroll TPG trainees by recruitment through the Program participant educational institutions to the extent eligible TPGs are available within a reasonable geographic area of the project. The Contractor is responsible for demonstrating, through documentation, the recruitment efforts it has undertaken prior to the determination by IDOT whether the Contractor is in compliance with this Special Provision, and therefore, entitled to the Training Program Graduate reimbursement of \$15.00 per hour.

Notwithstanding the on-the-job training requirement of this TPG Special Provision, some minimal off-site training is permissible as long as the offsite training is an integral part of the work of the contract, and does not compromise or conflict with the required on-site training that is central to the purpose of the Program. No individual may be employed as a TPG trainee in any work classification in which he/she has previously successfully completed a training program leading to journeyman status in any trade, or in which he/she has worked at a journeyman level or higher.

**VEHICLE AND EQUIPMENT WARNING LIGHTS (BDE)**

Effective: November 1, 2021

Revised: November 1, 2022

Add the following paragraph after the first paragraph of Article 701.08 of the Standard Specifications:

“The Contractor shall equip all vehicles and equipment with high-intensity oscillating, rotating, or flashing, amber or amber-and-white, warning lights which are visible from all directions. In accordance with 625 ILCS 5/12-215, the lights may only be in operation while the vehicle or equipment is engaged in construction operations.”

**WORK ZONE TRAFFIC CONTROL DEVICES (BDE)**

Effective: March 2, 2020

Revised: January 1, 2026

Add the following to Article 701.03 of the Standard Specifications:

“(q) Temporary Sign Supports .....1106.02”

Revise Article 701.03(p) of the Standard Specifications to read:

“(p) Detectable Pedestrian Channelizing Barricades ..... 1106.02(m)”

Revise the third paragraph of Article 701.14 of the Standard Specifications to read:

“For temporary sign supports, the Contractor shall provide a FHWA eligibility letter for each device used on the contract. The letter shall provide information for the set-up and use of the device as well as a detailed drawing of the device. The signs shall be supported within 20 degrees of vertical. Weights used to stabilize signs shall be attached to the sign support per the manufacturer’s specifications.”

Revise the first paragraph of Article 701.15 of the Standard Specifications to read:

“ **701.15 Traffic Control Devices.** For devices that must meet crashworthiness standards, the Contractor shall provide a manufacturer’s self-certification or a FHWA eligibility letter for each Category 1 device and a FHWA eligibility letter for each Category 2 and Category 3 device used on the contract. The self-certification or letter shall provide information for the set-up and use of the device as well as a detailed drawing of the device.”

Revise the first six paragraphs of Article 1106.02 of the Standard Specifications to read:

“ **1106.02 Devices.** Work zone traffic control devices and combinations of devices shall meet crashworthiness standards for their respective categories. The categories are as follows.

Category 1 includes small, lightweight, channelizing and delineating devices that have been in common use for many years and are known to be crashworthy by crash testing of similar devices or years of demonstrable safe performance. These include cones, tubular markers, plastic drums, and delineators, with no attachments (e.g. lights). Category 1 devices shall be MASH compliant.

Category 2 includes devices that are not expected to produce significant vehicular velocity change but may otherwise be hazardous. These include vertical panels with lights, barricades, temporary sign supports, and Category 1 devices with attachments (e.g. drums with lights). Category 2 devices shall be MASH compliant.

Category 3 includes devices that are expected to cause significant velocity changes or other potentially harmful reactions to impacting vehicles. These include crash cushions (impact attenuators), truck mounted attenuators, and other devices not meeting the definitions of Category 1 or 2. Category 3 devices manufactured after December 31, 2019 shall be MASH compliant. Category 3 devices manufactured on or before December 31, 2019, and compliant with NCHRP 350, may be used on contracts let before December 31, 2029. Category 3 devices shall be crash tested for Test Level 3 or the test level specified.

Category 4 includes portable or trailer-mounted devices such as sign supports, speed feedback displays, arrow boards, changeable message signs, temporary traffic signals, and area lighting supports. It is preferable for Category 4 devices manufactured after December 31, 2019 to be MASH-16 compliant; however, there are currently no crash tested devices in this category, so it remains exempt from the NCHRP 350 or MASH compliance requirement.

For each type of device, when no more than one MASH compliant is available, an NCHRP 350 compliant device may be used, even if manufactured after December 31, 2019.”

Revise the first paragraph of Section 1106.02(a) of the Standard Specifications to read:

“(a) Lights. Lights shall meet the requirements of Chapter 13 of the “Equipment and Materials Standards of the Institute of Transportation Engineers,” 1998, Institute of Transportation Engineers, and shall be visible on a clear night from a distance of 3000 ft (900 m). Lights are classified as follows.”

Revise Articles 1106.02(g), 1106.02(k), 1106.02(l), and 1106.02(m) of the Standard Specifications to read:

“(g) Truck Mounted/Trailer Mounted Attenuators. The attenuator shall be approved for use at Test Level 3. Test Level 2 may be used for normal posted speeds less than or equal to 45 mph.

(k) Temporary Water Filled Barrier. The water filled barrier shall be a lightweight plastic shell designed to accept water ballast and be on the Department’s qualified product list.

Shop drawings shall be furnished by the manufacturer and shall indicate the deflection of the barrier as determined by acceptance testing; the configuration of the barrier in that test; and the vehicle weight, velocity, and angle of impact of the deflection test. The Engineer shall be provided one copy of the shop drawings.

(l) Movable Traffic Barrier. The movable traffic barrier shall be on the Department’s qualified product list.

Shop drawings shall be furnished by the manufacturer and shall indicate the deflection of the barrier as determined by acceptance testing; the configuration of the barrier in that test; and the vehicle weight, velocity, and angle of impact of the deflection test. The Engineer shall be provided one copy of the shop drawings. The barrier shall be capable of being moved on and off the roadway on a daily basis.

(m) Detectable Pedestrian Channelizing Barricades. The top panel or handrail shall be continuous and there should be at least a 2 in. (50 mm) gap between the hand trailing edge and its support. When visible to vehicular traffic, the top rail shall have alternating white and orange retroreflective stripes sloping at 45 degrees. The bottom panel shall be continuous and have alternating white and orange retroreflective stripes sloping at 45 degrees. Barricade stripes shall be 6 in. (150 mm) in width. The predominant color for other barricade components shall be white, orange, or silver.”

**WORKING DAYS (BDE)**

Effective: January 1, 2002

The Contractor shall complete the work within **65** working days.

**REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS**

- I. General
- II. Nondiscrimination
- III. Non-segregated Facilities
- IV. Davis-Bacon and Related Act Provisions
- V. Contract Work Hours and Safety Standards Act Provisions
- VI. Subletting or Assigning the Contract
- VII. Safety: Accident Prevention
- VIII. False Statements Concerning Highway Projects
- IX. Implementation of Clean Air Act and Federal Water Pollution Control Act
- X. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion
- XI. Certification Regarding Use of Contract Funds for Lobbying
- XII. Use of United States-Flag Vessels:

**ATTACHMENTS**

A. Employment and Materials Preference for Appalachian Development Highway System or Appalachian Local Access Road Contracts (included in Appalachian contracts only)

**I. GENERAL**

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under title 23, United States Code, as required in 23 CFR 633.102(b) (excluding emergency contracts solely intended for debris removal). The contractor (or subcontractor) must insert this form in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services). 23 CFR 633.102(e).

The applicable requirements of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider. 23 CFR 633.102(e).

Form FHWA-1273 must be included in all Federal-aid design-build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services) in accordance with 23 CFR 633.102. The design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Contracting agencies may reference Form FHWA-1273 in solicitation-for-bids or request-for-proposals documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract). 23 CFR 633.102(b).

2. Subject to the applicability criteria noted in the following sections, these contract provisions shall apply to all work

performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract. 23 CFR 633.102(d).

3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.

4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. 23 U.S.C. 114(b). The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors. 23 U.S.C. 101(a).

**II. NONDISCRIMINATION** (23 CFR 230.107(a); 23 CFR Part 230, Subpart A, Appendix A; EO 11246)

The provisions of this section related to 23 CFR Part 230, Subpart A, Appendix A are applicable to all Federal-aid construction contracts and to all related construction subcontracts of \$10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

In addition, the contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR Part 60, 29 CFR Parts 1625-1627, 23 U.S.C. 140, Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. 2000d et seq.), and related regulations including 49 CFR Parts 21, 26, and 27; and 23 CFR Parts 200, 230, and 633.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60-1.4(b) and, for all construction contracts exceeding \$10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR Part 60, and 29 CFR Parts 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with 23 U.S.C. 140, Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), and Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. 2000d et seq.), and related regulations including 49 CFR Parts 21, 26, and 27; and 23 CFR Parts 200, 230, and 633.

The following provision is adopted from 23 CFR Part 230, Subpart A, Appendix A, with appropriate revisions to conform to the U.S. Department of Labor (US DOL) and FHWA requirements.

**1. Equal Employment Opportunity:** Equal Employment Opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (see 28 CFR Part 35, 29 CFR Part 1630, 29 CFR Parts 1625-1627, 41 CFR Part 60 and 49 CFR Part 27) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140, shall constitute the EEO and specific affirmative action standards for the contractor's project activities under this contract. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR Part 35 and 29 CFR Part 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract. 23 CFR 230.409 (g)(4) & (5).

b. The contractor will accept as its operating policy the following statement:

"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, sexual orientation, gender identity, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training."

**2. EEO Officer:** The contractor will designate and make known to the contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program and who must be assigned adequate authority and responsibility to do so.

**3. Dissemination of Policy:** All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action or are substantially involved in such action, will be made fully cognizant of and will implement the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer or other knowledgeable company official.

b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.

c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minorities and women.

d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

**4. Recruitment:** When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.

a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minorities and women. To meet this requirement, the contractor will identify sources of potential minority group employees and establish with such identified sources procedures whereby minority and women applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, the contractor is expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Federal nondiscrimination provisions.

c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such applicants will be discussed with employees.

**5. Personnel Actions:** Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to ensure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with its obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action

within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of their avenues of appeal.

#### **6. Training and Promotion:**

a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs (i.e., apprenticeship and on-the-job training programs for the geographical area of contract performance). In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of employees who are minorities and women and will encourage eligible employees to apply for such training and promotion.

**7. Unions:** If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. 23 CFR 230.409. Actions by the contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:

a. The contractor will use good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.

b. The contractor will use good faith efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, sexual orientation, gender identity, national origin, age, or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the contracting agency and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, age, or disability; making full efforts to obtain qualified and/or qualifiable minorities and women. The failure of a union to provide

sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the contractor from the requirements of this paragraph. In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the contracting agency.

**8. Reasonable Accommodation for Applicants / Employees with Disabilities:** The contractor must be familiar with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established thereunder. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.

**9. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment:** The contractor shall not discriminate on the grounds of race, color, religion, sex, sexual orientation, gender identity, national origin, age, or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.

a. The contractor shall notify all potential subcontractors, suppliers, and lessors of their EEO obligations under this contract.

b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.

#### **10. Assurances Required:**

a. The requirements of 49 CFR Part 26 and the State DOT's FHWA-approved Disadvantaged Business Enterprise (DBE) program are incorporated by reference.

b. The contractor, subrecipient or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate, which may include, but is not limited to:

- (1) Withholding monthly progress payments;
- (2) Assessing sanctions;
- (3) Liquidated damages; and/or
- (4) Disqualifying the contractor from future bidding as non-responsible.

c. The Title VI and nondiscrimination provisions of U.S. DOT Order 1050.2A at Appendixes A and E are incorporated by reference. 49 CFR Part 21.

**11. Records and Reports:** The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.

a. The records kept by the contractor shall document the following:

(1) The number and work hours of minority and non-minority group members and women employed in each work classification on the project;

(2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women; and

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women.

b. The contractors and subcontractors will submit an annual report to the contracting agency each July for the duration of the project indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on [Form FHWA-1391](#). The staffing data should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

### III. NONSEGREGATED FACILITIES

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of more than \$10,000. 41 CFR 60-1.5.

As prescribed by 41 CFR 60-1.8, the contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, sexual orientation, gender identity, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location under the contractor's control where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

### IV. DAVIS-BACON AND RELATED ACT PROVISIONS

This section is applicable to all Federal-aid construction projects exceeding \$2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size), in accordance with 29 CFR 5.5. The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. 23 U.S.C. 113. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. 23 U.S.C. 101. Where applicable law requires that projects be treated as a project on a Federal-aid highway, the provisions of this subpart will apply regardless of the location of the project. Examples include: Surface Transportation Block Grant Program projects funded under 23 U.S.C. 133 [excluding recreational trails projects], the Nationally Significant Freight and Highway

Projects funded under 23 U.S.C. 117, and National Highway Freight Program projects funded under 23 U.S.C. 167.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 "Contract provisions and related matters" with minor revisions to conform to the FHWA- 1273 format and FHWA program requirements.

#### 1. Minimum wages (29 CFR 5.5)

a. *Wage rates and fringe benefits.* All laborers and mechanics employed or working upon the site of the work (or otherwise working in construction or development of the project under a development statute), will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act ([29 CFR part 3](#))), the full amount of basic hourly wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics. As provided in paragraphs (d) and (e) of 29 CFR 5.5, the appropriate wage determinations are effective by operation of law even if they have not been attached to the contract. Contributions made or costs reasonably anticipated for bona fide fringe benefits under the Davis-Bacon Act ([40 U.S.C. 3141\(2\)\(B\)](#)) on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph 1.e. of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics must be paid the appropriate wage rate and fringe benefits on the wage determination for the classification(s) of work actually performed, without regard to skill, except as provided in paragraph 4. of this section. Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: *Provided*, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classifications and wage rates conformed under paragraph 1.c. of this section) and the Davis-Bacon poster (WH-1321) must be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

b. *Frequently recurring classifications.* (1) In addition to wage and fringe benefit rates that have been determined to be prevailing under the procedures set forth in [29 CFR part 1](#), a wage determination may contain, pursuant to § 1.3(f), wage and fringe benefit rates for classifications of laborers and mechanics for which conformance requests are regularly submitted pursuant to paragraph 1.c. of this section, provided that:

(i) The work performed by the classification is not performed by a classification in the wage determination for which a prevailing wage rate has been determined;

(ii) The classification is used in the area by the construction industry; and

(iii) The wage rate for the classification bears a reasonable relationship to the prevailing wage rates contained in the wage determination.

(2) The Administrator will establish wage rates for such classifications in accordance with paragraph 1.c.(1)(iii) of this section. Work performed in such a classification must be paid at no less than the wage and fringe benefit rate listed on the wage determination for such classification.

c. *Conformance.* (1) The contracting officer must require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract be classified in conformance with the wage determination. Conformance of an additional classification and wage rate and fringe benefits is appropriate only when the following criteria have been met:

(i) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(ii) The classification is used in the area by the construction industry; and

(iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(2) The conformance process may not be used to split, subdivide, or otherwise avoid application of classifications listed in the wage determination.

(3) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken will be sent by the contracting officer by email to [DBAconformance@dol.gov](mailto:DBAconformance@dol.gov). The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(4) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer will, by email to [DBAconformance@dol.gov](mailto:DBAconformance@dol.gov), refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(5) The contracting officer must promptly notify the contractor of the action taken by the Wage and Hour Division

under paragraphs 1.c.(3) and (4) of this section. The contractor must furnish a written copy of such determination to each affected worker or it must be posted as a part of the wage determination. The wage rate (including fringe benefits where appropriate) determined pursuant to paragraph 1.c.(3) or (4) of this section must be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

d. *Fringe benefits not expressed as an hourly rate.*

Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor may either pay the benefit as stated in the wage determination or may pay another bona fide fringe benefit or an hourly cash equivalent thereof.

e. *Unfunded plans.* If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, *Provided*, That the Secretary of Labor has found, upon the written request of the contractor, in accordance with the criteria set forth in § 5.28, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

f. *Interest.* In the event of a failure to pay all or part of the wages required by the contract, the contractor will be required to pay interest on any underpayment of wages.

## 2. Withholding (29 CFR 5.5)

a. *Withholding requirements.* The contracting agency may, upon its own action, or must, upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor so much of the accrued payments or advances as may be considered necessary to satisfy the liabilities of the prime contractor or any subcontractor for the full amount of wages and monetary relief, including interest, required by the clauses set forth in this section for violations of this contract, or to satisfy any such liabilities required by any other Federal contract, or federally assisted contract subject to Davis-Bacon labor standards, that is held by the same prime contractor (as defined in § 5.2). The necessary funds may be withheld from the contractor under this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract that is subject to Davis-Bacon labor standards requirements and is held by the same prime contractor, regardless of whether the other contract was awarded or assisted by the same agency, and such funds may be used to satisfy the contractor liability for which the funds were withheld. In the event of a contractor's failure to pay any laborer or mechanic, including any apprentice or helper working on the site of the work all or part of the wages required by the contract, or upon the contractor's failure to submit the required records as discussed in paragraph 3.d. of this section, the contracting agency may on its own initiative and after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

b. *Priority to withheld funds.* The Department has priority to funds withheld or to be withheld in accordance with paragraph

2.a. of this section or Section V, paragraph 3.a., or both, over claims to those funds by:

- (1) A contractor's surety(ies), including without limitation performance bond sureties and payment bond sureties;
- (2) A contracting agency for its procurement costs;
- (3) A trustee(s) (either a court-appointed trustee or a U.S. trustee, or both) in bankruptcy of a contractor, or a contractor's bankruptcy estate;
- (4) A contractor's assignee(s);
- (5) A contractor's successor(s); or
- (6) A claim asserted under the Prompt Payment Act, [31 U.S.C. 3901–3907](#).

### 3. Records and certified payrolls (29 CFR 5.5)

*a. Basic record requirements (1) Length of record retention.* All regular payrolls and other basic records must be maintained by the contractor and any subcontractor during the course of the work and preserved for all laborers and mechanics working at the site of the work (or otherwise working in construction or development of the project under a development statute) for a period of at least 3 years after all the work on the prime contract is completed.

*(2) Information required.* Such records must contain the name; Social Security number; last known address, telephone number, and email address of each such worker; each worker's correct classification(s) of work actually performed; hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in [40 U.S.C. 3141\(2\)\(B\)](#) of the Davis-Bacon Act); daily and weekly number of hours actually worked in total and on each covered contract; deductions made; and actual wages paid.

*(3) Additional records relating to fringe benefits.* Whenever the Secretary of Labor has found under paragraph 1.e. of this section that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in [40 U.S.C. 3141\(2\)\(B\)](#) of the Davis-Bacon Act, the contractor must maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits.

*(4) Additional records relating to apprenticeship.* Contractors with apprentices working under approved programs must maintain written evidence of the registration of apprenticeship programs, the registration of the apprentices, and the ratios and wage rates prescribed in the applicable programs.

*b. Certified payroll requirements (1) Frequency and method of submission.* The contractor or subcontractor must submit weekly, for each week in which any DBA- or Related Acts-covered work is performed, certified payrolls to the contracting

agency. The prime contractor is responsible for the submission of all certified payrolls by all subcontractors. A contracting agency or prime contractor may permit or require contractors to submit certified payrolls through an electronic system, as long as the electronic system requires a legally valid electronic signature; the system allows the contractor, the contracting agency, and the Department of Labor to access the certified payrolls upon request for at least 3 years after the work on the prime contract has been completed; and the contracting agency or prime contractor permits other methods of submission in situations where the contractor is unable or limited in its ability to use or access the electronic system.

*(2) Information required.* The certified payrolls submitted must set out accurately and completely all of the information required to be maintained under paragraph 3.a.(2) of this section, except that full Social Security numbers and last known addresses, telephone numbers, and email addresses must not be included on weekly transmittals. Instead, the certified payrolls need only include an individually identifying number for each worker (e.g., the last four digits of the worker's Social Security number). The required weekly certified payroll information may be submitted using Optional Form WH-347 or in any other format desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division website at <https://www.dol.gov/sites/dolgov/files/WHDLegacy/files/wh347.pdf> or its successor website. It is not a violation of this section for a prime contractor to require a subcontractor to provide full Social Security numbers and last known addresses, telephone numbers, and email addresses to the prime contractor for its own records, without weekly submission by the subcontractor to the contracting agency.

*(3) Statement of Compliance.* Each certified payroll submitted must be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor, or the contractor's or subcontractor's agent who pays or supervises the payment of the persons working on the contract, and must certify the following:

(i) That the certified payroll for the payroll period contains the information required to be provided under paragraph 3.b. of this section, the appropriate information and basic records are being maintained under paragraph 3.a. of this section, and such information and records are correct and complete;

(ii) That each laborer or mechanic (including each helper and apprentice) working on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in [29 CFR part 3](#); and

(iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification(s) of work actually performed, as specified in the applicable wage determination incorporated into the contract.

*(4) Use of Optional Form WH-347.* The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 will satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 3.b.(3) of this section.

(5) *Signature.* The signature by the contractor, subcontractor, or the contractor's or subcontractor's agent must be an original handwritten signature or a legally valid electronic signature.

(6) *Falsification.* The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under [18 U.S.C. 1001](#) and [31 U.S.C. 3729](#).

(7) *Length of certified payroll retention.* The contractor or subcontractor must preserve all certified payrolls during the course of the work and for a period of 3 years after all the work on the prime contract is completed.

c. *Contracts, subcontracts, and related documents.* The contractor or subcontractor must maintain this contract or subcontract and related documents including, without limitation, bids, proposals, amendments, modifications, and extensions. The contractor or subcontractor must preserve these contracts, subcontracts, and related documents during the course of the work and for a period of 3 years after all the work on the prime contract is completed.

d. *Required disclosures and access* (1) *Required record disclosures and access to workers.* The contractor or subcontractor must make the records required under paragraphs 3.a. through 3.c. of this section, and any other documents that the contracting agency, the State DOT, the FHWA, or the Department of Labor deems necessary to determine compliance with the labor standards provisions of any of the applicable statutes referenced by § 5.1, available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and must permit such representatives to interview workers during working hours on the job.

(2) *Sanctions for non-compliance with records and worker access requirements.* If the contractor or subcontractor fails to submit the required records or to make them available, or refuses to permit worker interviews during working hours on the job, the Federal agency may, after written notice to the contractor, sponsor, applicant, owner, or other entity, as the case may be, that maintains such records or that employs such workers, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available, or to permit worker interviews during working hours on the job, may be grounds for debarment action pursuant to § 5.12. In addition, any contractor or other person that fails to submit the required records or make those records available to WHD within the time WHD requests that the records be produced will be precluded from introducing as evidence in an administrative proceeding under [29 CFR part 6](#) any of the required records that were not provided or made available to WHD. WHD will take into consideration a reasonable request from the contractor or person for an extension of the time for submission of records. WHD will determine the reasonableness of the request and may consider, among other things, the location of the records and the volume of production.

(3) *Required information disclosures.* Contractors and subcontractors must maintain the full Social Security number and last known address, telephone number, and email address

of each covered worker, and must provide them upon request to the contracting agency, the State DOT, the FHWA, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or other compliance action.

#### **4. Apprentices and equal employment opportunity (29 CFR 5.5)**

a. *Apprentices* (1) *Rate of pay.* Apprentices will be permitted to work at less than the predetermined rate for the work they perform when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship (OA), or with a State Apprenticeship Agency recognized by the OA. A person who is not individually registered in the program, but who has been certified by the OA or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice, will be permitted to work at less than the predetermined rate for the work they perform in the first 90 days of probationary employment as an apprentice in such a program. In the event the OA or a State Apprenticeship Agency recognized by the OA withdraws approval of an apprenticeship program, the contractor will no longer be permitted to use apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(2) *Fringe benefits.* Apprentices must be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringe benefits must be paid in accordance with that determination.

(3) *Apprenticeship ratio.* The allowable ratio of apprentices to journeyworkers on the job site in any craft classification must not be greater than the ratio permitted to the contractor as to the entire work force under the registered program or the ratio applicable to the locality of the project pursuant to paragraph 4.a.(4) of this section. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated in paragraph 4.a.(1) of this section, must be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under this section must be paid not less than the applicable wage rate on the wage determination for the work actually performed.

(4) *Reciprocity of ratios and wage rates.* Where a contractor is performing construction on a project in a locality other than the locality in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyworker's hourly rate) applicable within the locality in which the construction is being performed must be observed. If there is no applicable ratio or wage rate for the locality of the project, the ratio and wage rate specified in the contractor's registered program must be observed.

b. *Equal employment opportunity.* The use of apprentices and journeyworkers under this part must be in conformity with

the equal employment opportunity requirements of Executive Order 11246, as amended, and [29 CFR part 30](#).

c. Apprentices and Trainees (programs of the U.S. DOT).

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. 23 CFR 230.111(e)(2). The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeyworkers shall not be greater than permitted by the terms of the particular program.

**5. Compliance with Copeland Act requirements.** The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract as provided in 29 CFR 5.5.

**6. Subcontracts.** The contractor or subcontractor must insert FHWA-1273 in any subcontracts, along with the applicable wage determination(s) and such other clauses or contract modifications as the contracting agency may by appropriate instructions require, and a clause requiring the subcontractors to include these clauses and wage determination(s) in any lower tier subcontracts. The prime contractor is responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in this section. In the event of any violations of these clauses, the prime contractor and any subcontractor(s) responsible will be liable for any unpaid wages and monetary relief, including interest from the date of the underpayment or loss, due to any workers of lower-tier subcontractors, and may be subject to debarment, as appropriate. 29 CFR 5.5.

**7. Contract termination: debarment.** A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

**8. Compliance with Davis-Bacon and Related Act requirements.** All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract as provided in 29 CFR 5.5.

**9. Disputes concerning labor standards.** As provided in 29 CFR 5.5, disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

**10. Certification of eligibility.** a. By entering into this contract, the contractor certifies that neither it nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of [40 U.S.C. 3144\(b\)](#) or § 5.12(a).

b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of [40 U.S.C. 3144\(b\)](#) or § 5.12(a).

c. The penalty for making false statements is prescribed in the U.S. Code, Title 18 Crimes and Criminal Procedure, [18 U.S.C. 1001](#).

**11. Anti-retaliation.** It is unlawful for any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, or to cause any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, any worker or job applicant for:

a. Notifying any contractor of any conduct which the worker reasonably believes constitutes a violation of the DBA, Related Acts, this part, or [29 CFR part 1](#) or [3](#);

b. Filing any complaint, initiating or causing to be initiated any proceeding, or otherwise asserting or seeking to assert on behalf of themselves or others any right or protection under the DBA, Related Acts, this part, or [29 CFR part 1](#) or [3](#);

c. Cooperating in any investigation or other compliance action, or testifying in any proceeding under the DBA, Related Acts, this part, or [29 CFR part 1](#) or [3](#); or

d. Informing any other person about their rights under the DBA, Related Acts, this part, or [29 CFR part 1](#) or [3](#).

## V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

Pursuant to 29 CFR 5.5(b), the following clauses apply to any Federal-aid construction contract in an amount in excess of \$100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchpersons and guards.

**1. Overtime requirements.** No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek. 29 CFR 5.5.

**2. Violation; liability for unpaid wages; liquidated damages.** In the event of any violation of the clause set forth in paragraph 1. of this section the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages and interest from the date of the underpayment. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or

mechanic, including watchpersons and guards, employed in violation of the clause set forth in paragraph 1. of this section, in the sum currently provided in 29 CFR 5.5(b)(2)\* for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph 1. of this section.

\* \$31 as of January 15, 2023 (See 88 FR 88 FR 2210) as may be adjusted annually by the Department of Labor, pursuant to the Federal Civil Penalties Inflation Adjustment Act of 1990.

### 3. Withholding for unpaid wages and liquidated damages

a. *Withholding process.* The FHWA or the contracting agency may, upon its own action, or must, upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor so much of the accrued payments or advances as may be considered necessary to satisfy the liabilities of the prime contractor or any subcontractor for any unpaid wages; monetary relief, including interest; and liquidated damages required by the clauses set forth in this section on this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract subject to the Contract Work Hours and Safety Standards Act that is held by the same prime contractor (as defined in § 5.2). The necessary funds may be withheld from the contractor under this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract that is subject to the Contract Work Hours and Safety Standards Act and is held by the same prime contractor, regardless of whether the other contract was awarded or assisted by the same agency, and such funds may be used to satisfy the contractor liability for which the funds were withheld.

b. *Priority to withheld funds.* The Department has priority to funds withheld or to be withheld in accordance with Section IV paragraph 2.a. or paragraph 3.a. of this section, or both, over claims to those funds by:

- (1) A contractor's surety(ies), including without limitation performance bond sureties and payment bond sureties;
- (2) A contracting agency for its procurement costs;
- (3) A trustee(s) (either a court-appointed trustee or a U.S. trustee, or both) in bankruptcy of a contractor, or a contractor's bankruptcy estate;
- (4) A contractor's assignee(s);
- (5) A contractor's successor(s); or
- (6) A claim asserted under the Prompt Payment Act, [31 U.S.C. 3901](#)–3907.

4. **Subcontracts.** The contractor or subcontractor must insert in any subcontracts the clauses set forth in paragraphs 1. through 5. of this section and a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor is responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs 1. through 5. In the

event of any violations of these clauses, the prime contractor and any subcontractor(s) responsible will be liable for any unpaid wages and monetary relief, including interest from the date of the underpayment or loss, due to any workers of lower-tier subcontractors, and associated liquidated damages and may be subject to debarment, as appropriate.

5. **Anti-retaliation.** It is unlawful for any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, or to cause any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, any worker or job applicant for:

- a. Notifying any contractor of any conduct which the worker reasonably believes constitutes a violation of the Contract Work Hours and Safety Standards Act (CWHSSA) or its implementing regulations in this part;
- b. Filing any complaint, initiating or causing to be initiated any proceeding, or otherwise asserting or seeking to assert on behalf of themselves or others any right or protection under CWHSSA or this part;
- c. Cooperating in any investigation or other compliance action, or testifying in any proceeding under CWHSSA or this part; or
- d. Informing any other person about their rights under CWHSSA or this part.

### VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System pursuant to 23 CFR 635.116.

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the contracting agency. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635.116).

a. The term "perform work with its own organization" in paragraph 1 of Section VI refers to workers employed or leased by the prime contractor, and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions: (based on longstanding interpretation)

- (1) the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;
- (2) the prime contractor remains responsible for the quality of the work of the leased employees;

- (3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and
- (4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of compliance and all other Federal regulatory requirements.

b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid or propose on the contract as a whole and in general are to be limited to minor components of the overall contract. 23 CFR 635.102.

2. Pursuant to 23 CFR 635.116(a), the contract amount upon which the requirements set forth in paragraph (1) of Section VI is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. Pursuant to 23 CFR 635.116(c), the contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the contracting agency has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract. (based on long-standing interpretation of 23 CFR 635.116).

5. The 30-percent self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements. 23 CFR 635.116(d).

## VII. SAFETY: ACCIDENT PREVENTION

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR Part 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract. 23 CFR 635.108.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and

health standards (29 CFR Part 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704). 29 CFR 1926.10.

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704).

## VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, Form FHWA-1022 shall be posted on each Federal-aid highway project (23 CFR Part 635) in one or more places where it is readily available to all persons concerned with the project:

18 U.S.C. 1020 reads as follows:

"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 11, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined under this title or imprisoned not more than 5 years or both."

**IX. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT (42 U.S.C. 7606; 2 CFR 200.88; EO 11738)**

This provision is applicable to all Federal-aid construction contracts in excess of \$150,000 and to all related subcontracts. 48 CFR 2.101; 2 CFR 200.327.

By submission of this bid/proposal or the execution of this contract or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, subcontractor, supplier, or vendor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act (42 U.S.C. 7401-7671q) and the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251-1387). Violations must be reported to the Federal Highway Administration and the Regional Office of the Environmental Protection Agency. 2 CFR Part 200, Appendix II.

The contractor agrees to include or cause to be included the requirements of this Section in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements. 2 CFR 200.327.

**X. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION**

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, consultant contracts or any other covered transaction requiring FHWA approval or that is estimated to cost \$25,000 or more – as defined in 2 CFR Parts 180 and 1200. 2 CFR 180.220 and 1200.220.

**1. Instructions for Certification – First Tier Participants:**

a. By signing and submitting this proposal, the prospective first tier participant is providing the certification set out below.

b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective first tier participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective first tier participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction. 2 CFR 180.320.

c. The certification in this clause is a material representation of fact upon which reliance was placed when the contracting agency determined to enter into this transaction. If it is later determined that the prospective participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the contracting agency may terminate this transaction for cause of default. 2 CFR 180.325.

d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if any time the prospective first tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances. 2 CFR 180.345 and 180.350.

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180, Subpart I, 180.900-180.1020, and 1200. "First Tier Covered Transactions" refers to any covered transaction between a recipient or subrecipient of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a recipient or subrecipient of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

f. The prospective first tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction. 2 CFR 180.330.

g. The prospective first tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold. 2 CFR 180.220 and 180.300.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. 2 CFR 180.300; 180.320, and 180.325. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. 2 CFR 180.335. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the System for Award Management website (<https://www.sam.gov/>). 2 CFR 180.300, 180.320, and 180.325.

i. Nothing contained in the foregoing shall be construed to require the establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of the prospective participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

j. Except for transactions authorized under paragraph (f) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default. 2 CFR 180.325.

\* \* \* \* \*

**2. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – First Tier Participants:**

a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:

(1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency, 2 CFR 180.335;

(2) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property, 2 CFR 180.800;

(3) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (a)(2) of this certification, 2 CFR 180.700 and 180.800; and

(4) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default. 2 CFR 180.335(d).

(5) Are not a corporation that has been convicted of a felony violation under any Federal law within the two-year period preceding this proposal (USDOT Order 4200.6 implementing appropriations act requirements); and

(6) Are not a corporation with any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability (USDOT Order 4200.6 implementing appropriations act requirements).

b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant should attach an explanation to this proposal. 2 CFR 180.335 and 180.340.

\* \* \* \* \*

**3. Instructions for Certification - Lower Tier Participants:**

(Applicable to all subcontracts, purchase orders, and other lower tier transactions requiring prior FHWA approval or estimated to cost \$25,000 or more - 2 CFR Parts 180 and 1200). 2 CFR 180.220 and 1200.220.

a. By signing and submitting this proposal, the prospective lower tier participant is providing the certification set out below.

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which

this transaction originated may pursue available remedies, including suspension and/or debarment.

c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances. 2 CFR 180.365.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180, Subpart I, 180.900 – 180.1020, and 1200. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations. "First Tier Covered Transactions" refers to any covered transaction between a recipient or subrecipient of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a recipient or subrecipient of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated. 2 CFR 1200.220 and 1200.332.

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold. 2 CFR 180.220 and 1200.220.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the System for Award Management website (<https://www.sam.gov>), which is compiled by the General Services Administration. 2 CFR 180.300, 180.320, 180.330, and 180.335.

h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily

excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment. 2 CFR 180.325.

\* \* \* \* \*

**4. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Participants:**

a. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals:

(1) is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency, 2 CFR 180.355;

(2) is a corporation that has been convicted of a felony violation under any Federal law within the two-year period preceding this proposal (USDOT Order 4200.6 implementing appropriations act requirements); and

(3) is a corporation with any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability. (USDOT Order 4200.6 implementing appropriations act requirements)

b. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant should attach an explanation to this proposal.

\* \* \* \* \*

**XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING**

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts which exceed \$100,000. 49 CFR Part 20, App. A.

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or

cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

3. The prospective participant also agrees by submitting its bid or proposal that the participant shall require that the language of this certification be included in all lower tier subcontracts, which exceed \$100,000 and that all such recipients shall certify and disclose accordingly.

**XII. USE OF UNITED STATES-FLAG VESSELS:**

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, or any other covered transaction. 46 CFR Part 381.

This requirement applies to material or equipment that is acquired for a specific Federal-aid highway project. 46 CFR 381.7. It is not applicable to goods or materials that come into inventories independent of an FHWA funded-contract.

When oceanic shipments (or shipments across the Great Lakes) are necessary for materials or equipment acquired for a specific Federal-aid construction project, the bidder, proposer, contractor, subcontractor, or vendor agrees:

1. To utilize privately owned United States-flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material, or commodities pursuant to this contract, to the extent such vessels are available at fair and reasonable rates for United States-flag commercial vessels. 46 CFR 381.7.

2. To furnish within 20 days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading for shipments originating outside the United States, a legible copy of a rated, 'on-board' commercial ocean bill-of-lading in English for each shipment of cargo described in paragraph (b)(1) of this section to both the Contracting Officer (through the prime contractor in the case of subcontractor bills-of-lading) and to the Office of Cargo and Commercial Sealift (MAR-620), Maritime Administration, Washington, DC 20590. (MARAD requires copies of the ocean carrier's (master) bills of lading, certified onboard, dated, with rates and charges. These bills of lading may contain business sensitive information and therefore may be submitted directly to MARAD by the Ocean Transportation Intermediary on behalf of the contractor). 46 CFR 381.7.

**ATTACHMENT A - EMPLOYMENT AND MATERIALS  
PREFERENCE FOR APPALACHIAN DEVELOPMENT HIGHWAY  
SYSTEM OR APPALACHIAN LOCAL ACCESS**

**ROAD CONTRACTS** (23 CFR 633, Subpart B, Appendix B)  
This provision is applicable to all Federal-aid projects funded under the Appalachian Regional Development Act of 1965.

1. During the performance of this contract, the contractor undertaking to do work which is, or reasonably may be, done as on-site work, shall give preference to qualified persons who regularly reside in the labor area as designated by the DOL wherein the contract work is situated, or the subregion, or the Appalachian counties of the State wherein the contract work is situated, except:

a. To the extent that qualified persons regularly residing in the area are not available.

b. For the reasonable needs of the contractor to employ supervisory or specially experienced personnel necessary to assure an efficient execution of the contract work.

c. For the obligation of the contractor to offer employment to present or former employees as the result of a lawful collective bargaining contract, provided that the number of nonresident persons employed under this subparagraph (1c) shall not exceed 20 percent of the total number of employees employed by the contractor on the contract work, except as provided in subparagraph (4) below.

2. The contractor shall place a job order with the State Employment Service indicating (a) the classifications of the laborers, mechanics and other employees required to perform the contract work, (b) the number of employees required in each classification, (c) the date on which the participant estimates such employees will be required, and (d) any other pertinent information required by the State Employment Service to complete the job order form. The job order may be placed with the State Employment Service in writing or by telephone. If during the course of the contract work, the information submitted by the contractor in the original job order is substantially modified, the participant shall promptly notify the State Employment Service.

3. The contractor shall give full consideration to all qualified job applicants referred to him by the State Employment Service. The contractor is not required to grant employment to any job applicants who, in his opinion, are not qualified to perform the classification of work required.

4. If, within one week following the placing of a job order by the contractor with the State Employment Service, the State Employment Service is unable to refer any qualified job applicants to the contractor, or less than the number requested, the State Employment Service will forward a certificate to the contractor indicating the unavailability of applicants. Such certificate shall be made a part of the contractor's permanent project records. Upon receipt of this certificate, the contractor may employ persons who do not normally reside in the labor area to fill positions covered by the certificate, notwithstanding the provisions of subparagraph (1c) above.

5. The provisions of 23 CFR 633.207(e) allow the contracting agency to provide a contractual preference for the use of mineral resource materials native to the Appalachian region.

6. The contractor shall include the provisions of Sections 1 through 4 of this Attachment A in every subcontract for work which is, or reasonably may be, done as on-site work.