PROPOSAL SUBMITTED BY:

_____

Contractor's Name

_____

Street *P.O. Box*

_____

City *State* *Zip Code*

CITY OF AURORA

KANE COUNTY

STATE OF ILLINOIS

PROPOSAL AND SPECIFICATIONS FOR

Farnsworth, Bilter, & Church Improvements

Bid 24-101

AURORA, ILLINOIS

September 2024

PREPARED BY
CITY OF AURORA
Engineering Division
77 S. Broadway Avenue
AURORA, ILLINOIS 60507

TABLE OF CONTENTS

City of Aurora
Bid 24-101
NOTICE TO BIDDERS

Time and Place of Opening of Bids

Sealed bids for the improvement described below will be received at the office of the City Clerk, 44 E Downer Place, First Floor, Aurora, IL 60505 until **11:00 AM, Wednesday, September 25, 2024**. Proposals will be opened and read publicly at the above address on **Wednesday, September 25, 2024** at **11:00 AM** for those wishing to attend in person. The bid opening will also be live streamed, access details to be provided to all plan holders.

All questions must be received by 2:00 pm (CST) on Tuesday September 17, 2024. A response to all questions received will be posted on the City's website via addendum by 5:00 pm (CST) on Wednesday September 18, 2024.

Description of Work

Name: Farnsworth, Bilter, & Church Improvements

Location:

FAP 0360 (Farnsworth Ave) – STA 80+00.00 to STA 119+84.50
FAU 0159 (Bilter Rd) – STA 44+50.00 to STA 109+88.47
FAU 2513 (Church Rd) – STA 203+50.00 to STA 213+50.00

Proposed Improvement: Approximate quantities of work to include Aggregate Subgrade Improvement (31,826 SQ YD), HMA Base Course (22,833 SQ YD), HMA Binder & Surface Course (26,011 TON), PCC Sidewalk (43,202 SQ FT), HMA Surface Removal (56,559 SQ YD), Storm Sewers (7,326 FT), Water Main (8,687 FT), Curb & Gutter (23,176 FT), Electric Cable in Conduit (45,555 FT), Traffic Signal Posts & Steel Mast Arms (19 EACH), Signal Heads (73 EACH), Trees (43 EACH), and other related items.

Bidder Instructions

1. Plans and proposal forms may be obtained online at: https://www.aurora-il.org/bids.aspx.
2. Prequalification of Bidders is required for this project. The 2 low bidders must file within 24 hours after the letting an "Affidavit of Availability" (Form BC 57), showing all uncompleted contracts awarded to them and all low bids pending award.
3. All proposals must be accompanied by a proposal guaranty as provided in BLRS Special Provision for Bidding Requirements and Conditions for Contract Proposals contained in the "Supplemental Specifications and Recurring Special Provisions".
4. The Awarding Authority reserves the right to waive technicalities and to reject any or all proposals as provided in Standard Provisions for Bidding Requirements and Conditions for Contract Proposals contained in the "Supplemental Specifications and Recurring Special Provisions".
5. Any bidder who owes the City money may be disqualified at the City's discretion.
6. The City encourages minority business firms to submit proposals and encourages the successful contract bidder to utilize minority businesses as subcontractors for supplies, equipment, services, and construction.
7. Submission of a bid shall be conclusive assurance and warranty the bidder has examined the plans and understands all requirements for the performance of work. The bidder will be responsible for all errors in the proposal resulting from failure or neglect to conduct an in-depth examination. The Awarding Authority will, in no case be responsible for any costs, expenses, losses or changes in anticipated profits resulting from such failure or neglect of the bidder.
8. The City of Aurora has a local preference ordinance that would apply to this contract.

By Order of
City Clerk
City of Aurora

Bid Number 24-101

INDEX
FOR
SUPPLEMENTAL SPECIFICATIONS
AND RECURRING SPECIAL PROVISIONS

Adopted January 1, 2024

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 1-1-24)

SUPPLEMENTAL SPECIFICATIONS

RECURRING SPECIAL PROVISIONS

The following RECURRING SPECIAL PROVISIONS indicated by an "X" are applicable to this contract and are included by reference:

LOCAL ROADS AND STREETS RECURRING SPECIAL PROVISIONS

Table of Contents

Illinois Department of Transportation

Check Sheet for Recurring Special Provisions

Local Public Agency	County	Section Number
City of Aurora	Kane	NA

☐ **Check this box for lettings prior to 01/01/2024.**

The Following Recurring Special Provisions Indicated By An "X" Are Applicable To This Contract And Are Included By Reference:

Recurring Special Provisions

Check Sheet #			Page No.
1	☐	Additional State Requirements for Federal-Aid Construction Contracts	59
2	☐	Subletting of Contracts (Federal-Aid Contracts)	62
3	☐	EEO	63
4	☐	Specific EEO Responsibilities Non Federal-Aid Contracts	73
5	☐	Required Provisions - State Contracts	78
6	☐	Asbestos Bearing Pad Removal	84
7	☐	Asbestos Waterproofing Membrane and Asbestos HMA Surface Removal	85
8	☒	Temporary Stream Crossings and In-Stream Work Pads	86
9	☒	Construction Layout Stakes	87
10	☐	Use of Geotextile Fabric for Railroad Crossing	90
11	☐	Subsealing of Concrete Pavements	92
12	☐	Hot-Mix Asphalt Surface Correction	96
13	☒	Pavement and Shoulder Resurfacing	98
14	☐	Patching with Hot-Mix Asphalt Overlay Removal	99
15	☐	Polymer Concrete	101
16	☐	Reserved	103
17	☐	Bicycle Racks	104
18	☐	Temporary Portable Bridge Traffic Signals	106
19	☐	Nighttime Inspection of Roadway Lighting	108
20	☐	English Substitution of Metric Bolts	109
21	☐	Calcium Chloride Accelerator for Portland Cement Concrete	110
22	☐	Quality Control of Concrete Mixtures at the Plant	111
23	☐	Quality Control/Quality Assurance of Concrete Mixtures	119
24	☐	Reserved	135
25	☐	Reserved	136
26	☐	Temporary Raised Pavement Markers	137
27	☐	Restoring Bridge Approach Pavements Using High-Density Foam	138
28	☐	Portland Cement Concrete Inlay or Overlay	141
29	☐	Portland Cement Concrete Partial Depth Hot-Mix Asphalt Patching	145
30	☐	Longitudinal Joint and Crack Patching	148
31	☐	Concrete Mix Design - Department Provided	150
32	☐	Station Numbers in Pavements or Overlays	151

Local Public Agency	County	Section Number
City of Aurora	Kane	NA

The Following Local Roads And Streets Recurring Special Provisions Indicated By An "X" Are Applicable To This Contract And Are Included By Reference:

Local Roads And Streets Recurring Special Provisions

Check Sheet #			Page No.
LRS 1		**Reserved**	153
LRS 2	☒	Furnished Excavation	154
LRS 3	☒	Work Zone Traffic Control Surveillance	155
LRS 4	☒	Flaggers in Work Zones	156
LRS 5	☒	Contract Claims	157
LRS 6	☒	Bidding Requirements and Conditions for Contract Proposals	158
LRS 7	☐	Bidding Requirements and Conditions for Material Proposals	164
LRS 8		**Reserved**	170
LRS 9	☐	Bituminous Surface Treatments	171
LRS 10		**Reserved**	175
LRS 11	☒	Employment Practices	176
LRS 12	☒	Wages of Employees on Public Works	178
LRS 13	☒	Selection of Labor	180
LRS 14	☐	Paving Brick and Concrete Paver Pavements and Sidewalks	181
LRS 15	☒	Partial Payments	184
LRS 16	☒	Protests on Local Lettings	185
LRS 17	☒	Substance Abuse Prevention Program	186
LRS 18	☐	Multigrade Cold Mix Asphalt	187
LRS 19	☐	Reflective Crack Control Treatment	188

Table of Contents

STATE OF ILLINOIS

SPECIAL PROVISIONS

The following Special Provisions supplement the Illinois Department of Transportation (IDOT) "Standard Specifications for Road and Bridge Construction," adopted January 1, 2022 (hereinafter referred to as the "Standard Specifications"); the latest edition of the "Manual on Uniform Traffic Control Devices for Streets and Highways"; the "American National Standard Practice for Roadway Lighting, ANSI/IES RP-8-22"; the latest edition of the National Electric Code"; the latest edition of the "Standard Specifications for Water and Sewer Main Construction in Illinois"; 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 govern the construction of FAP 360 (Farnsworth Avenue), FAU 0159 (Bilter Road), and FAU 2513 (Church Road) in the City of Aurora, Kane County; and in case of conflict with any part or parts of said Specifications, the said Special Provisions shall take precedence and shall govern.

LOCATION OF PROJECT

The project is located along Farnsworth Avenue, from north of I-88 to south of IL 56; along Bilter Road from Church Road to Premium Outlet Boulevard; and along Church Road from north of Corporate Boulevard to Bilter Road. The project is located entirely within the City of Aurora, Illinois. Farnsworth Avenue, Bilter Road and Church Road are all under the jurisdiction of the City of Aurora. The total length of the project is 9,133 feet (1.73 miles), which includes 3,985 feet (0.75 miles) along Farnsworth Avenue, 4,148 feet (0.79 miles) along Bilter Road, and 1,000 feet (0.19 miles) along Church Road.

DESCRIPTION OF PROJECT

The project consists of the widening and resurfacing of Farnsworth Avenue, Bilter Road and Church Road to improve traffic safety, capacity and access within the public right-of-way. The project includes new combination concrete curb and gutter, multi-use paths, sidewalks, storm sewer, traffic signals, and lighting. The project also includes water main relocation, grading, retaining walls, a culvert extension, and tree planting.

STATUS OF UTILITIES TO BE ADJUSTED

(Effective January 1, 2007; Revised January 24, 2011)

Name & Address of Utility	Type and Location	Estimated Date Relocation Complete	Notes
AT&T 1000 Commerce Drive, Floor 2 Oak Brook, IL 60523	UG Cable - Farnsworth Ave. Sta 82+20 LT to Sta 87+00 LT UG Conduit - Farnsworth Ave. Sta 82+20 LT to Sta 101+80 LT UG Conduit - Farnsworth Ave. Sta 101+80 RT to Sta 120+50 RT Aerial Cable - Farnsworth Ave. Sta 85+20 RT to Sta 101+00 RT UG Cable - Farnsworth Ave. Sta 101+80 LT to Sta 105+50 LT & Sta 115+50 LT to Sta 118+80 LT Aerial Cable - Farnsworth Ave. Sta 105+50 LT to Sta 115+50 LT UG Cable & Conduit - Crosses Bilter Road Sta 45+20 & Sta 45+20 LT to Sta 77+10 LT Aerial Cable - Farnsworth Ave. Sta 44+00 LT to Sta 46+00 LT UG Cable - Church Road Sta 203+30 RT to Sta 212+00 RT	TBD	

Com Ed, An Exelon Company Two Lincoln Centre, 8th Floor Oakbrook Terrace, Illinois 60181-4260	Aerial - Farnsworth Ave. Sta 84+50 RT to 100+50 RT Aerial - Farnsworth Ave. Sta 100+50 LT to 115+50 LT Aerial - Bilter Road Sta 40+00 RT to 46+00 RT Aerial - Bilter Road Sta 47+50 RT to 110+00 RT Aerial - Church Road Sta 203+30 LT to Sta 213+50 LT	TBD	
Comcast 688 Industrial Drive Elmhurst, Illinois 60126 Attn: Robert Stroll (630) 600-6213	Aerial - Farnsworth Ave. Sta 84+50 RT to 100+50 RT Aerial - Farnsworth Ave. Sta 100+50 LT to 115+50 LT Aerial - Bilter Road Sta 40+00 RT to 46+00 RT Aerial - Bilter Road Sta 47+50 RT to 110+00 RT Aerial - Church Road Sta 203+30 LT to Sta 213+50 LT	TBD	
Nicor Gas 1844 Ferry Road Naperville, Illinois 60563-9600 Attn: Bruce Koppang (630) 983-8676	30" UG Gas Main - Crossing Farnsworth Ave. Sta 88+24 12" UG Gas Main - Farnsworth Ave. Sta 87+73 RT to Sta 98+54 RT 12" UG Gas Main - Crossing Farnsworth Ave. Sta 98+54 12" UG Gas Main - Farnsworth Ave. Sta 98+54 LT to Sta 123+00 LT 4" UG Gas Main - Farnsworth Ave. Sta 84+53 LT to Sta 100+91 LT 4" UG Gas Main - Bilter Road Sta 39+95 RT to Sta 46+70 RT 4" UG Gas Main - Bilter Road Sta 48+80 RT to Sta	TBD	

	54+15 RT 4" UG Gas Main - Church Road Sta 199+95 RT to Sta 217+85 RT		
City Of Aurora Attn: Mike Houston (331) 254.2026	Sanitary Sewer - Sanitary sewer and manholes in various locations. See plans for structures to be adjusted or reconstructed. Water Main - Water main, valves and hydrants in various locations. See plans for relocations/adjustments.		
EVERSTREAM GLC HOLDING CO LLC Attn: Amanda Vander Kelen (331) 223.6612	Fiber - Farnsworth Ave. Sta 100+50 LT to Sta 120+00 LT Conduit - Church Road Sta 204+00 LT to Sta 213+50 LT Crosses Bilter Road Sta 45+00 Conduit - Bilter Road Sta 45+00 LT to Sta 50+50 LT Crosses Bilter Road Sta 50+50 Conduit - Bilter Road Sta 50+50 RT to Sta 54+00 RT	TBD	
FOX METRO WATER RECLAM.DIST Attn: Greg Weber (630) 301.6810	12" Sanitary Sewer - Crosses Farnsworth Ave. Sta 87+75 and continues along the north side of Corporate Blvd. 12" Sanitary Sewer - Crosses Farnsworth Ave. Sta 114+95		
ADESTA Attn: Amy Kuryliw (630) 288.9176	TBD	TBD	

MCI/VERIZON	Underground - Bilter Road Sta 44+00 RT to Sta 110+00 RT.		

The above represents the best information of the Department and is only included for the convenience of the bidder. The applicable provisions of Section 102 and Articles 105.07, 107.20, 107.37, 107.38, 107.39, 107.40, and 108.02 of the Standard Specifications for Road and Bridge Construction shall apply.

The estimated utility relocation dates should be part of the progress schedule submitted by the Contractor.

REDUCTION IN THE SCOPE OF WORK

The Summary of Quantities in the plans is a listing of the work to be completed under the contract. However, if necessary due to budgetary or other constraints, the awarding authority reserves the right to reduce the scope of work to be completed under the contract in accordance with Article 104.02 of the Standard Specifications. No allowance will be made for delays or loss of anticipated profits as the result of a decrease in the items or quantities of work to be performed.

INTERIM COMPLETION DATE

All work along the following sections of roadway shall be complete by Friday November 21, 2025:

- Farnsworth Avenue from the southern project limits to Bilter Road, including the intersection with Bilter Road.
- Bilter Road from the western project limits to Farnsworth Avenue, including the intersection with Farnsworth Avenue.
- Church Road, in its entirety.
- Corporate Drive, in its entirety.

This includes the construction of all roadway widening and resurfacing, paths, sidewalks, storm sewer, water main, traffic signals, lighting, grading, and final restoration. Should the Contractor fail to complete this work within the specified timeframe, the Contractor shall be liable and will be assessed liquidated damages in accordance with Article 108.09 of the Standard Specifications. The Contractor will not be held liable for delays due solely to work that is behind schedule on adjacent or overlapping projects/property.

The Contractor shall work on the remainder of the project as necessary in order to complete construction within the working days specified in the contract.

THANKSGIVING CLOSURE RESTRICTION

All roadways within the project limits shall be open to at least the same number of through and turn lanes as existing, pre-project conditions during Thanksgiving weekend. This restriction will be in place from 5:00pm on Wednesday November 27, 2024, until 7:00am on Monday December 2, 2024; and again from 5:00pm on Wednesday November 26, 2025, until 7:00am on Monday December 1, 2025. In addition, all entrances to the Chicago Premium Outlets shall be free of access restrictions during these periods.

CONTRACTOR COOPERATION

The Contractor is advised that certain operations will involve cooperation with City of Aurora personnel and other contractors performing work on or adjacent to this contract. The Contractor shall fully cooperate and coordinate with City personnel as well as any contractors working on adjacent or overlapping projects in accordance with the provisions of Article 105.08 of the Standard Specifications.

Adjacent projects expected to be under construction at the same time as the Farnsworth Avenue, Bilter Road and Church Road improvements include the onsite development for the new Hollywood Casino (area bounded by Farnsworth Avenue, Bilter Road, Church Road and Corporate Boulevard) and onsite development for the new Aurora Fire Station (southeast quadrant of Bilter Road and Nan Street).

GEOTECHNICAL REPORT

The following geotechnical report is hereby incorporated as part of the contract documents and shall govern the construction of the improvements along Farnsworth Avenue, Bilter Road and Church Road in the City of Aurora. HR Green, Inc. does not certify the accuracy of the geotechnical report. Additional copies of the report can be obtained by contacting Brian Witkowski, City of Aurora Project Engineer at (630) 256-3226.

- Roadway Geotechnical Report for Farnsworth Avenue, Bilter Road and Church Road Reconstruction and Widening (dated June 21, 2024)

CLEAN CONSTRUCTION AND DEMOLITION DEBRIS

No soil sampling or analysis was conducted specific to regulated substances, surplus, unsuitable, or organic materials during the preparation of these contract documents. All responsibility for coordination, documentation, sampling, analysis, certification, approval, and monitoring of soil for hauling and disposal at a CCDD facility or an uncontaminated soil fill operation (USFO) as needed to comply with Public Act 96-1416 and all related Federal, State, and local regulations shall be borne by the Contractor. This responsibility shall include, but shall not be limited to, preparation of LPC-662 and/or LPC-663 forms from the Illinois Environmental Protection Agency.

The cost of this work shall be considered as included in the unit bid prices of the contract, and no additional compensation will be allowed.

USACE NATIONWIDE PERMIT 14

This project is covered by the U.S. Army Corps of Engineers (USACE) Nationwide Permit (NWP) 14 for Linear Transportation Projects. All construction activities adjacent to regulated wetlands and/or Waters of the U.S. (WOUS) shall be in accordance with the General Conditions of NWP 14, which can be found on the USACE website:

https://usace.contentdm.oclc.org/digital/collection/p16021coll11/id/6613/rec/24

MAINTENANCE OF ROADWAYS

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

Beginning on the date 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.

DUST CONTROL - HAULING EARTH, GRANULAR MATERIALS OR WASTE MATERIAL

In addition to the general requirements of Section 107 of the Standard Specifications, the Contractor shall be required to prepare a plan for pavement cleaning and dust control for this project. A detailed plan outlining specific wetting, tarping, and/or cleaning procedures, or similar dust control methods is to be submitted for approval at the preconstruction meeting.

As required by Chapter 95 1/2, paragraphs 15-109 and 15-109.1 of the Illinois Vehicle Code, no blowing or spillage of material will be allowed during the hauling operations. The specific preventative measures proposed by the Contractor are to be included in the dust control plan.

If, in the opinion of the Engineer, excessive dust is produced during the hauling operations, the hauling shall stop until corrective action is taken.

Approval of the dust control and pavement cleaning procedures will not relieve the Contractor of his responsibility to provide a safe work zone for the traveling public.

The cost of this work shall be considered as included in the unit bid prices of the contract, and no additional compensation will be allowed.

REMOVE EXISTING SIGNS

Description. This work shall consist of the removal of any and all existing signs not designated to remain or for relocation along with their supports, posts, bases, and foundations, at the locations shown in the plans or as directed by the Engineer. This work shall be in accordance with Section 724 of the Standard Specifications and as modified herein.

Replace the third paragraph of Article 724.03 of the Standard Specifications to read:

"Any existing sign to be removed and relocated shall be stored by the Contractor in a secure location until it is ready to be reinstalled. The Contractor at his/her expense shall repair or replace any sign damaged by the Contractor during the removal, storage and/or relocation/reinstallation operations."

Measurement and Payment. This work will not be measured separately for payment. This work shall be considered as included in the unit bid prices of the contract, and no additional compensation will be allowed.

TREE PRUNING AND ROOT PRUNING

Description. This work shall consist of the pruning of existing trees, shrubs, bushes, and roots in accordance with Section 201 of the Standard Specifications and as modified herein, at locations shown in the plans.

General. In addition to the requirements of Article 201.05 (c), tree trimming, pruning, and root pruning shall extend along the entire length of the project.

Pruned and trimmed materials shall be disposed of in accordance with Article 202.03, except that open burning of organic materials will not be permitted.

If the plans do not identify specific trees, shrubs, or bushes that require pruning to accommodate the proposed improvements, pruning locations shall be as directed by the Engineer.

Measurement and Payment. This work will not be measured separately for payment. This work shall be considered as included in the unit bid prices of the contract, and no additional compensation will be allowed.

SUPPLEMENTAL WATERING

Description. This work will include watering new trees at the rates specified and as directed by the Engineer.

Schedule. Watering will only begin after the successful completion of all period of establishment requirements. New trees shall be watered every 7 days throughout the growing season (April 1 to November 30). The Engineer may direct the Contractor to adjust the watering rate and frequency depending upon weather conditions.

Watering must be completed in a timely manner. When the Engineer directs the Contractor to complete supplemental watering, the Contractor must begin the watering operation within 48 hours of notice. A minimum of 10 units of water per day must be applied until the work is complete. The Engineer must be present during the watering operation.

Source of Water. The Contractor shall notify the Engineer of the source of water used and provide written certification that the water does not contain chemicals harmful to plant growth.

Rate of Application. The normal rate of application for tree watering is 35 gallons per tree. The Engineer may adjust the rate as needed depending upon weather conditions.

Method of Application. A spray nozzle that does not damage small plants must be used when watering all vegetation. Water shall be applied at the base of the plant to keep as much water as possible off plant leaves. An open hose may be used to water trees, shrubs, and seedlings if mulch and soil are not displaced by watering. The water shall be applied to individual plants in such a manner that the plant hole shall be saturated without allowing the water to overflow beyond the earthen saucer. Watering of plants in beds shall be applied in such a manner that all plant holes are uniformly saturated without allowing the water flow beyond the periphery of the bed. Water shall slowly infiltrate into soil and completely soak the root zone. The Contractor must supply metering equipment as needed to assure the specified application rate of water.

Method of Measurement. Supplemental watering will be measured for payment in units of 1000 gal of water applied as directed.

Basis of Payment. This work will be paid for at the contract unit price per unit of SUPPLEMENTAL WATERING. Payment will include the cost of all water, equipment and labor needed to complete the work specified herein to the satisfaction of the Engineer.

EMBANKMENT II

Effective: March 1, 2011
Revised: November 1, 2013

Description. This work shall be according to Section 205 of the Standard Specifications except for the following.

Material. Reclaimed asphalt shall not be used within the ground water table or as a fill if ground water is present. The RAP used shall be according to the current Bureau of Materials and Physical Research Policy Memorandum, “Reclaimed Asphalt Pavement (RAP) for Aggregate Applications”. Gradation deleterious count shall not exceed 10% of total RAP and 5% of other by total weight.

CONSTRUCTION REQUIREMENTS

Samples. Embankment material shall be sampled and tested before use. The contractor shall identify embankment sources, and provide equipment as the Engineer requires, for the collection of samples from those sources. Samples will be furnished to the Geotechnical Engineer a minimum of three weeks prior to use in order that laboratory tests for compaction can be performed. Embankment material placement cannot begin until tests are completed.

Placing Material. In addition to Article 202.03, broken concrete, reclaimed asphalt with no expansive aggregate, or uncontaminated dirt and sand generated from construction or demolition activities shall be placed in 6 inches (150 mm) lifts and disked with the underlying lift until a uniform homogenous material is formed. This process also applies to the overlaying lifts. The disk must have a minimum blade diameter of 24 inches (600 mm).

When embankments are to be constructed on hillsides or existing slopes that are steeper than 3H:1V, steps shall be keyed into the existing slope by stepping and benching as shown in the plans or as directed by the Engineer.

Compaction. Soils classification for moisture content control will be determined by the Soils Inspector using visual field examination techniques and the IDH Textural Classification Chart.

When tested for density in place each lift shall have a maximum moisture content as follows.

a) A maximum of 110 percent of the optimum moisture for all forms of clay soils.

b) A maximum of 105 percent of the optimum moisture for all forms of clay loam soils.

Stability. The requirement for embankment stability in article 205.04 will be measured with a Dynamic Cone Penetrometer (DCP) according to the test method in the IDOT Geotechnical Manual. The penetration rate must be equal or less than 1.5 inches (38 mm) per blow.

Basis of Payment. This work will not be paid separately but will be considered as included in the various items of excavation.

FRICTION AGGREGATE (D1)

Effective: January 1, 2011
Revised: December 1, 2021

Revise Article 1004.03(a) of the Standard Specifications to read:

"1004.03 Coarse Aggregate for Hot-Mix Asphalt (HMA). The aggregate shall be according to Article 1004.01 and the following.

(a) Description. The coarse aggregate for HMA shall be according to the following table.

Use	Mixture	Aggregates Allowed
Class A	Seal or Cover	Allowed Alone or in Combination [5/]: Gravel Crushed Gravel Carbonate Crushed Stone Crystalline Crushed Stone Crushed Sandstone Crushed Slag (ACBF) Crushed Steel Slag Crushed Concrete
HMA Low ESAL	Stabilized Subbase or Shoulders	Allowed Alone or in Combination [5/]: Gravel Crushed Gravel Carbonate Crushed Stone Crystalline Crushed Stone Crushed Sandstone Crushed Slag (ACBF) Crushed Steel Slag[1/] Crushed Concrete

<table>
<tr><th>Use</th><th>Mixture</th><th>Aggregates Allowed</th></tr>
<tr><td>HMA
High ESAL
Low ESAL</td><td>Binder
IL-19.0
or IL-19.0L

SMA Binder</td><td><u>Allowed Alone or in Combination</u> [5/ 6/]:

Crushed Gravel
Carbonate Crushed Stone[2/]
Crystalline Crushed Stone
Crushed Sandstone
Crushed Slag (ACBF)
Crushed Concrete[3/]</td></tr>
<tr><td>HMA
High ESAL
Low ESAL</td><td>C Surface and Binder
IL-9.5
IL-9.5FG
or IL-9.5L</td><td><u>Allowed Alone or in Combination</u> [5/]:

Crushed Gravel
Carbonate Crushed Stone[2/]
Crystalline Crushed Stone
Crushed Sandstone
Crushed Slag (ACBF)
Crushed Steel Slag[4/]
Crushed Concrete[3/]</td></tr>
<tr><td rowspan="5">HMA
High ESAL</td><td rowspan="5">D Surface and Binder
IL-9.5
or IL-9.5FG</td><td><u>Allowed Alone or in Combination</u> [5/]:

Crushed Gravel
Carbonate Crushed Stone (other than Limestone)[2/]
Crystalline Crushed Stone
Crushed Sandstone
Crushed Slag (ACBF)
Crushed Steel Slag[4/]</td></tr>
<tr><td><u>Other Combinations Allowed:</u></td></tr>
<tr><td>Up to... | With...</td></tr>
<tr><td>25% Limestone | Dolomite</td></tr>
<tr><td>50% Limestone | Any Mixture D aggregate other than Dolomite
75% Limestone | Crushed Slag (ACBF) or Crushed Sandstone</td></tr>
</table>

<table>
<tr><th>Use</th><th>Mixture</th><th colspan="2">Aggregates Allowed</th></tr>
<tr><td rowspan="5">HMA
High ESAL</td><td rowspan="5">E Surface
IL-9.5

SMA
Ndesign 80
Surface</td><td colspan="2"><u>Allowed Alone or in Combination</u> [5/ 6/]:

Crushed Gravel
Crystalline Crushed Stone
Crushed Sandstone
Crushed Slag (ACBF)
Crushed Steel Slag

No Limestone.</td></tr>
<tr><td colspan="2"><u>Other Combinations Allowed:</u></td></tr>
<tr><td>Up to...</td><td>With...</td></tr>
<tr><td>50% Dolomite[2/]</td><td>Any Mixture E aggregate</td></tr>
<tr><td>75% Dolomite[2/]</td><td>Crushed Sandstone, Crushed Slag (ACBF), Crushed Steel Slag, or Crystalline Crushed Stone</td></tr>
<tr><td>75% Crushed Gravel[2/]</td><td>Crushed Sandstone, Crystalline Crushed Stone, Crushed Slag (ACBF), or Crushed Steel Slag</td></tr>
<tr><td rowspan="5">HMA
High ESAL</td><td rowspan="5">F Surface
IL-9.5

SMA
Ndesign 80
Surface</td><td colspan="2"><u>Allowed Alone or in Combination</u> [5/ 6/]:

Crystalline Crushed Stone
Crushed Sandstone
Crushed Slag (ACBF)
Crushed Steel Slag
No Limestone.</td></tr>
<tr><td colspan="2"><u>Other Combinations Allowed</u>:</td></tr>
<tr><td>Up to...</td><td>With...</td></tr>
<tr><td>50% Crushed Gravel[2/] or Dolomite[2/]</td><td>Crushed Sandstone, Crushed Slag (ACBF), Crushed Steel Slag, or Crystalline Crushed Stone</td></tr>
</table>

1/ Crushed steel slag allowed in shoulder surface only.
2/ Carbonate crushed stone (limestone) and/or crushed gravel shall not be used in SMA

Ndesign 80.
3/ Crushed concrete will not be permitted in SMA mixes.
4/ Crushed steel slag shall not be used as binder.
5/ When combinations of aggregates are used, the blend percent measurements shall be by volume."
6/ Combining different types of aggregate will not be permitted in SMA Ndesign 80."

HOT-MIX ASPHALT BINDER AND SURFACE COURSE (D1)

Effective: November 1, 2019
Revised: December 1, 2021

Revise Article 1004.03(c) to read:

"(c) Gradation. The coarse aggregate gradations shall be as listed in the following table.

Use	Size/Application	Gradation No.
Class A-1, A-2, & A-3	3/8 in. (10 mm) Seal	CA 16 or CA 20
Class A-1	1/2 in. (13 mm) Seal	CA 15
Class A-2 & A-3	Cover Coat	CA 14
HMA High ESAL	IL-19.0; Stabilized Subbase IL-19.0	CA 11 1/
	SMA 12.5 2/	CA 13 4/, CA 14, or CA 16
	SMA 9.5 2/	CA 13 3/4/ or CA 16 3/
	IL-9.5	CA 16, CM 13 4/
	IL-9.5FG	CA 16
HMA Low ESAL	IL-19.0L	CA 11 1/
	IL-9.5L	CA 16

1/ CA 16 or CA 13 may be blended with the CA 11.

2/ The coarse aggregates used shall be capable of being combined with the fine aggregates and mineral filler to meet the approved mix design and the mix requirements noted herein.

3/ The specified coarse aggregate gradations may be blended.

4/ CA 13 shall be 100 percent passing the 1/2 in. (12.5mm) sieve."

Revise Article 1004.03(e) of the Supplemental Specifications to read:

"(e) Absorption. For SMA the coarse aggregate shall also have water absorption ≤ 2.0 percent."

Revise the “High ESAL” portion of the table in Article 1030.01 to read:

“High ESAL	Binder Courses	IL-19.0, IL-9.5, IL-9.5FG, IL-4.75, SMA 12.5, Stabilized Subbase IL-19.0
	Surface Courses	IL-9.5, IL-9.5FG, SMA 12.5, SMA 9.5”

Revise Note 2. and add Note 6 to Article 1030.02 of the Standard Specifications to read:

“Item Article/Section

(g) Performance Graded Asphalt Binder (Note 6) 1032
(h) Fibers (Note 2)

Note 2. A stabilizing additive such as cellulose or mineral fiber shall be added to the SMA mixture according to Illinois Modified AASHTO M 325. The stabilizing additive shall meet the Fiber Quality Requirements listed in Illinois Modified AASHTO M 325. Prior to approval and use of fibers, the Contractor shall submit a notarized certification by the producer of these materials stating they meet these requirements. Reclaimed Asphalt Shingles (RAS) may be used in Stone Matrix Asphalt (SMA) mixtures designed with an SBA polymer modifier as a fiber additive if the mix design with RAS included meets AASHTO T305 requirements. The RAS shall be from a certified source that produces either Type I or Type 2. Material shall meet requirements noted herein and the actual dosage rate will be determined by the Engineer.

Note 6. The asphalt binder shall be an SBS PG 76-28 when the SMA is used on a full-depth asphalt pavement and SBS PG 76-22 when used as an overlay, except where modified herein. The asphalt binder shall be a SBS PG 76-22 for IL-4.75, except where modified herein..”

Revise table in Article 1030.05(a) of the Standard Specifications to read:

“MIXTURE COMPOSITION (% PASSING) [1/]												
Sieve Size	IL-19.0 mm		SMA 12.5		SMA 9.5		IL-9.5mm		IL-9.5FG		IL-4.75 mm	
	min	max	min	max	min	max	min	max	min	max	min	max

1 1/2 in (37.5 mm)												
1 in. (25 mm)		100										
3/4 in. (19 mm)	90	100		100								
1/2 in. (12.5 mm)	75	89	80	100		100		100		100		100
3/8 in. (9.5 mm)				65	90	100	90	100	90	100		100
#4 (4.75 mm)	40	60	20	30	36	50	34	69	60	75 6/	90	100
#8 (2.36 mm)	20	42	16	24 4/	16	32 4/	34 5/	52 2/	45	60 6/	70	90
#16 (1.18 mm)	15	30					10	32	25	40	50	65
#30 (600 μm)			12	16	12	18			15	30		
#50 (300 μm)	6	15					4	15	8	15	15	30
#100 (150 μm)	4	9					3	10	6	10	10	18
#200 (75 μm)	3.0	6.0	7.0	9.0 3/	7.5	9.5 3/	4.0	6.0	4.0	6.5	7.0	9.0 3/
#635 (20 μm)			≤ 3.0		≤ 3.0							
Ratio Dust/Asphalt Binder		1.0		1.5		1.5		1.0		1.0		1.0

1/ Based on percent of total aggregate weight.

2/ The mixture composition shall not exceed 44 percent passing the #8 (2.36 mm) sieve for surface courses with Ndesign = 90.

3/ Additional minus No. 200 (0.075 mm) material required by the mix design shall be mineral filler, unless otherwise approved by the Engineer.

4/ When establishing the Adjusted Job Mix Formula (AJMF) the percent passing the #8 (2.36 mm) sieve shall not be adjusted above the percentage stated on the table.

5/ When establishing the Adjusted Job Mix Formula (AJMF) the percent passing the #8 (2.36 mm) sieve shall not be adjusted below 34 percent.

6/ When the mixture is used as a binder, the maximum shall be increased by 0.5 percent passing."

Revise Article 1030.05(b) of the Standard Specifications to read:

(b) Volumetric Requirements. The target value for the air voids of the HMA shall be 4.0 percent, for IL-4.75 and SMA mixtures it shall be 3.5 percent and for Stabilized Subbase it shall be 3.0 percent at the design number of gyrations. The voids in the mineral aggregate (VMA) and

voids filled with asphalt binder (VFA) of the HMA design shall be based on the nominal maximum size of the aggregate in the mix and shall conform to the following requirements.

	Voids in the Mineral Aggregate (VMA), % Minimum for Ndesign				
Mix Design	30	50	70	80	90
IL-19.0		13.5	13.5		13.5
IL-9.5		15.0	15.0		
IL-9.5FG		15.0	15.0		
IL-4.75[1/]		18.5			
SMA-12.5[1/2/5/]				17.0[3/]/16.0[4/]	
SMA-9.5[1/2/5/]				17.0[3/]/16.0[4/]	
IL-19.0L	13.5				
IL-9.5L	15.0				

1/ Maximum draindown shall be 0.3 percent according to Illinois Modified AASHTO T 305.

2/ The draindown shall be determined at the JMF asphalt binder content at the mixing temperature plus 30°F.

3/ Applies when specific gravity of coarse aggregate is ≥ 2.760.

4/ Applies when specific gravity of coarse aggregate is < 2.760.

5/ For surface course, the coarse aggregate can be crushed steel slag, crystalline crushed stone or crushed sandstone. For binder course, coarse aggregate shall be crushed stone (dolomite), crushed gravel, crystalline crushed stone, or crushed sandstone”

Revise the last paragraph of Article 1102.01 (a) (5) of the Standard Specifications to read:

“IL-4.75 and Stone Matrix Asphalt (SMA) mixtures which contain aggregate having absorptions greater than or equal to 2.0 percent, or which contain steal slag sand, shall have minimum surge bin storage plus haul time of 1.5 hours.”

Add after third sentence of Article 1030.09(b) to read:

“If the Contractor and Engineer agree the nuclear density test method is not appropriate for the mixture, cores shall be taken at random locations determined according to the QC/QA document "Determination of Random Density Test Site Locations". Core densities shall be determined using the Illinois Modified AASHTO T 166 or T 275 procedure.”

Revise Table 1 and Note 4/ of Table 1 in Article 406.07(a) of the Standard Specifications to read:

	Breakdown/Intermediate Roller (one of the following)	Final Roller (one or more of the following)	Density Requirement
IL-9.5, IL-9.5FG, IL-19.0 1/	V_D, P , T_B, 3W, O_T, O_B	V_S, T_B, T_F, O_T	As specified in Section 1030
IL-4.75 and SMA 3/ 4/	T_B, 3W, O_T	T_F, 3W	As specified in Section 1030
Mixtures on Bridge Decks 2/	T_B	T_F	As specified in Articles 582.05 and 582.06.

"4/ The Contractor shall provide a minimum of two steel-wheeled tandem rollers (T_B), and/or three-wheel (3W) rollers for breakdown, except one of the (T_B) or (3W) rollers shall be 84 inches (2.14 m) wide and a weight of 315 pound per linear inch (PLI) (5.63 kg/mm) and one of the (T_B) or (3W) rollers can be substituted for an oscillatory roller (O_T). T_F rollers shall be a minimum of 280 lb/in. (50 N/mm). The 3W and T_B rollers shall be operated at a uniform speed not to exceed 3 mph (5 km/h), with the drive roll for T_B rollers nearest the paver and maintain an effective rolling distance of not more than 150 ft (45 m) behind the paver."

Add the following after the fourth paragraph of Article 406.13 (b):

"The plan quantities of SMA mixtures shall be adjusted using the actual approved binder and surface Mix Design's G_{mb}."

Revise first paragraph of Article 1030.10 of the Standard Specifications to read:

"A test strip of 300 ton (275 metric tons), except for SMA mixtures it will be 400 ton (363 metric ton), will be required for each mixture on each contract at the beginning of HMA production for each construction year according to the Manual of Test Procedures for Materials "Hot Mix Asphalt Test Strip Procedures". At the request of the Producer, the Engineer may waive the test strip if previous construction during the current construction year has demonstrated the constructability of the mix using Department test results."

Revise third paragraph of Article 1030.10 of the Standard Specifications to read:

"When a test strip is constructed, the Contractor shall collect and split the mixture according to the document "Hot-Mix Asphalt Test Strip Procedures". The Engineer, or a representative, shall deliver split sample to the District Laboratory for verification testing. The Contractor shall complete mixture tests stated in Article 1030.09(a). Mixture sampled shall include enough material for the Department to conduct mixture tests detailed in Article 1030.09(a) and in the document "Hot-Mix Asphalt Mixture Design Verification Procedure" Section 3.3. The mixture test results shall meet the requirements of Articles 1030.05(b) and 1030.05(d), except Hamburg wheel tests will only be conducted on High ESAL mixtures during production."

DETECTABLE WARNINGS

This work shall consist of the installation of pre-fabricated panels of truncated domes 24 inches on concrete sidewalk accessibility ramps at the locations indicated in the plans or as directed by the

Engineer. The truncated domes shall be in accordance with Article 424.09 of the Standard Specifications and this special provision.

The configuration of the domes shall be in accordance with the appropriate Highway Standard. The panel shall be red in color and meet the requirements of ASTM C1028 – Slip Resistance and ASTM G155 – Accelerated Weathering.

The detectable warning panel shall be one of the following products, or an equal approved by the City of Aurora:

ADA Solutions, Inc.
930 East Oak Street – Suite 1
Lake in the Hills, IL 60156
(844) 539-9195

Stetsons Building Products, Inc.
2425 20th Street
Rockford, IL 61104
Phone: (800) 383-2181

The product and method used for installing detectable warnings shall come with the following documents, which shall be given to the Engineer prior to installation:

(a) Manufacturer's certification stating the product is fully compliant with ADAAG.
(b) Manufacturer's specifications stating the required materials, equipment, installation procedures and conformance to ASTM C1028.

Detectable warnings will be measured and paid for in accordance with Articles 424.12 and 424.13 of the Standard Specifications, respectively.

DRIVEWAY PAVEMENT REMOVAL

Description. This work shall consist of the complete removal of existing driveway pavement at the locations shown in the plans or as directed by the Engineer. Removal of existing driveway pavement shall be in accordance with Section 440 of the Standard Specifications and this special provision.

General. Driveway material types to be removed include portland cement concrete and hot-mix asphalt. The removal of aggregate and earthen driveways will be measured and paid for as EARTH EXCAVATION. Additional compensation will not be allowed for the removal of existing driveways with varying material types and/or thicknesses.

Where a valve box or domestic water service valve (b-box) exists in the limits of removal, the Contractor shall surround the box with full-depth saw cuts and break out around the box before removing that section of pavement.

Reinforcing bars may be embedded in existing concrete driveways. Sawing, removal, and disposal of reinforcing bars will not be paid for separately, but shall be considered as included in the cost of the driveway pavement removal.

The Contractor shall form a perpendicular straight joint by full depth machine sawing at the end of the portion to be removed to prevent surface spalling. These areas must be marked and measured for payment by the Engineer prior to removal. The Contractor at his/her expense shall repair any driveway pavement damaged by the Contractor during the driveway pavement removal operations.

Method of Measurement. Driveway pavement removal will be measured for payment in place and the area computed in square yards.

Basis of Payment. This work will be paid for at the contract unit price per square yard for DRIVEWAY PAVEMENT REMOVAL, which price shall include saw cutting and the removal and disposal of the existing driveway pavement.

REMOVE EXISTING END SECTIONS

Description. This work shall consist of the removal and disposal of end sections attached to either a culvert or a section of storm sewer designated for removal in accordance with Section 551 of the Standard Specifications. For the purposes of this special provision, the end sections being removed shall be considered part of the adjacent structure being removed, and will be measured and paid for as such.

Method of Measurement. Removal and disposal of the existing end sections will be measured for payment in place, in feet along the invert of the end section.

Basis of Payment.
This work will be paid for at the contract unit price per foot for PIPE CULVERT REMOVAL or STORM SEWER REMOVAL, of the diameter specified.

DUCTILE IRON WATER MAIN

Description. This work shall consist of constructing ductile iron water main at the locations indicated in the plans or as directed by the Engineer. In addition to this special provision, this work shall be in accordance with the Standard Specifications for Water and Sewer Main Construction in Illinois, Section 561 of the Standard Specifications, the City of Aurora Standard Specifications for Improvements and the details included in the plans.

All ductile iron water main shall be wrapped with polyethylene encasement, 3-layer system at 8 mil thick with a biocide to deter corrosion. Pipe wrap joints shall be securely fastened to each other with tape or other methods meeting the approval of the Engineer.

At the locations indicated in the plans or as directed by the Engineer, the water main shall be constructed around existing utility structures or other obstacles by use of tees, bends or other appropriate fittings.

All water main connections and/or disconnections shall be done in such a manner as to not have any resident or business without water for more than four (4) hours. The connections and/or disconnections shall be reviewed with the Engineer. Water service shall not be disrupted without the prior consent of the Engineer.

Materials.
Pipe: The water main shall be "Ductile Iron," ANSI thickness Class 52 with metallic zinc coating layer (ISO 2004) and asphalt seal coat (min. 1 mil thickness), single gasket, double dealing pipe per AWWA 151/ANSI A21.51 (latest edition) with cement mortar lining per AWWA C104/ANSI A21.4 (latest edition). The manufacturer shall be Griffin, Clow, American Cast Iron Pipe Co. or U.S. Pipe & Foundry.

The exterior of the ductile iron pipe shall be coated with arc-sprayed zinc. The mass of zinc is to be 200 g/m2 of surface area. A bituminous top coat shall be provided on top of the zinc. Zinc coating shall meet ISO 8179, except where noted within the specifications.

Ductile iron pipe joints shall conform to AWWA C111/A21.11 (latest revision) and be push-on type. All mechanical joint fittings, valves, and hydrants shall be restrained with retainer glands. All mechanical joints shall have coated stainless steel, washers, bolts and nuts.

Polyethylene Encasement: All water main shall be encased in V-Bio enhanced polyethylene encasement, or approved equal, in accordance with ANSI/AWWA C105/A21.5.

Couplings: Couplings shall be ductile iron with coated stainless steel bolts and nuts. Couplings shall meet working pressure of 150 psi.

Brass Wedges: Brass wedges shall be installed per Section 41-2.05D of the Standard Specifications for Water and Sewer Main Construction in Illinois, latest edition.

Fittings: Fittings shall be cement lined, tar coated ductile iron with mechanical joints rated 250 psi per AWWA C110/ANSI 21.10 (latest revision) or AWWA C153/A21.53 (latest revision). Unless otherwise approved by the Engineer, all fittings shall have mechanical joints conforming to AWWA C111/A21.11 latest revision (Clow, Tyler or Union Foundry are required). All nuts and bolts required for the installation of a fitting shall be stainless steel, Grade 304 bolts and Grade 316 nuts.

All fittings shall have a pressure rating of 350 psi and shall be wrapped with an 8-mil thick polyethylene material per AWWA Standard C105 (AWWA Standard Polyethylene Encasement for Ductile-Iron Pipe Systems). Gasket material identical to that described above shall be utilized at all joints and fittings.

Thrust blocks shall be installed according to the details included in the plans or as directed by the Engineer. Thrust blocks shall be set in such a manner that the pipe, fittings and joints shall be accessible for future repair.

Construction Requirements. Water mains shall be laid at least 10 feet horizontally from any existing or proposed drain, storm sewer, sanitary sewer, combined sewer, or sewer service connection. Water mains may be laid closer than 10 feet to a sewer or drain when local conditions prevent a lateral separation of 10 feet and the water main invert is at least 18 inches above the crown of the sewer, or the water main is either in a separate trench or in the same trench on an undisturbed earth shelf located to one side of the sewer. The drain or sewer shall be pressure tested to the maximum expected surcharge head before backfilling.

The water main shall be laid so that its invert is 18 inches above the crown of the drain or sewer whenever water mains cross storm sewers, sanitary sewers, or sewer service connections. The vertical separation shall be maintained for that portion of the water main located within 10 feet

horizontally of any sewer or drain crossed. A length of water main pipe shall be centered over the sewer to be crossed with joints equidistant from the sewer or drain.

As directed by the Engineer, some joints may require deflection to attain the specified depth. The maximum allowable deflection at any joint is 2 degrees, unless otherwise specified by the manufacturer.

Where conditions exist that the minimum vertical separation cannot be maintained, or it is necessary for the water main to pass under a sewer or drain, the sewer should be partially removed and replaced with a length of STORM SEWER (WATER MAIN REQUIREMENTS) that extends at least 10 feet, measured normally to the pipe, on each side of the crossing.

Proper and suitable tools and appliances for the safe and convenient handling and laying of the pipe and fittings shall be used. Great care shall be taken to prevent the pipe from being damaged, particularly on the inside of the pipes and fittings. All pieces shall be carefully examined for defects and no piece shall be laid which is known to be defective. If any defective piece should be discovered after having been laid, it shall be removed and replaced with a sound one by the Contractor at his/her own expense. The interior of the pipe and fittings shall be thoroughly cleaned and, when laid, shall conform accurately to the lines and grades or depth of cover below established grade.

The minimum and maximum cover to the established grade shall be 5 feet 6 inches (5'-6") and 6 feet 0 inches (6'-0") respectively, unless otherwise specified. Bedding material and haunching material to 1 foot above the main shall be selected granular backfill, CA-7 washed (non-limestone). All open trenches shall be backfilled by the end of the day. The Contractor shall limit the amount excavated to the length of pipe that can be laid in the same day or the amount of acceptable trench backfill material available.

Where water is encountered in the trench, it shall be removed during pipe laying and jointing operations. Trench water shall not be allowed to enter the pipe at any time.

Pipefittings shall be laid on a good foundation, trimmed to shape, and, where required, secured against settlement in a manner approved by the Engineer. Pipes shall have a solid bearing throughout their entire length. When laid in tunnel, the pipe shall be blocked in such a manner as to take the weight off the bells. All bends, 22 ½ degrees or greater, tees, crosses, plugs, etc. shall be backed up and anchored with concrete so that there will be no movement of the pipe in the joints due to internal and external pressures. The concrete shall be placed around the fitting and the wall of the trench, from 6 inches below the fitting or pipe to 12 inches above the fittings. The anchor concrete shall be so placed that joints may be retightened, if necessary.

Ductile iron pipe and the enhanced polyethylene encasement used to protect it shall be installed in accordance with AWWA C600 and ANSI/AWWA C105/A21.5. Specifically, the wrap shall be overlapped 1 foot in each direction at joints and secured in place around the pipe. Any wrap at tap locations shall be wrapped tightly prior to tapping and inspected for any needed repairs following the tap.

Testing and Disinfection. Pressure testing, preliminary flushing, and chlorinating the water main shall be conducted under the supervision of the Engineer and the City of Aurora's Engineering Division or its designated representative.

The Contractor shall notify the Engineering Division a minimum of 48 hours in advance regarding dates of pressure testing, preliminary flushing and chlorination appointments.

The Contractor shall perform Hydrostatic Tests in accordance with Division IV, Section 41 of the Standard Specifications for Water and Sewer Main Construction in Illinois, latest edition, and applicable provisions of AWWA C-600 and C-603. The water mains shall maintain a 150 psi average for a period of not less than 2 hours. Allowable leakage shall be as set forth in Standard Specifications for Water and Sewer Main Construction in Illinois, latest edition, and at no time shall the pressure loss be greater than 2 psi. Duration of the test shall be 2 hours minimum. The Contractor shall provide and use a pressure gauge approved by the City for the test. The gauge should be of good quality and condition and be fluid filled. The gauge should have a large enough range for the pressure of 1 psi. The testing length shall be limited to 1000 lineal feet. If more than 1000 lineal feet of water main is tested, the allowable leakage will be based upon 1000 lineal feet. The City water operator in charge or person authorized by the City water operator in charge shall be present during all testing.

Upon completion of the newly laid water main, the water main shall be disinfected in accordance with the American Water Works Association, Procedure Destination, AWWA C-651. The Contractor is responsible for collecting samples and having bacteriological testing performed as required by the Illinois Environmental Protection Agency (IEPA). The Engineer shall be present when the samples are taken.

Water samples collected on 2 successive days from the treated piping system shall show satisfactory bacteriological results. Bacteriological analyses must be performed by a laboratory certified by the IEPA and approved by the Engineer.

Should the initial treatment result in an unsatisfactory bacterial test, the original chlorination procedure shall be repeated by the Contractor until satisfactory results are obtained at the Contractor's own expense.

The Contractor shall furnish to the Engineer the required documentation, test results, etc., required by the IEPA for placing the water main in service.

The testing and disinfection work will not be paid for separately, but shall be considered as included in the unit bid prices of the various water main pay items in the contract. Mueller corporation stops shall be installed within the valve vaults as necessary for flushing, testing, and chlorinating/de-chlorinating. The corporation stops will not be paid for separately, but shall be considered as included in the unit bid prices of the various water main pay items in the contract.

Submittals. At least 30 calendar days prior to installation of water mains covered in these specifications, the Contractor shall submit to the Engineer shop drawings of all items to be installed. The manufacturer's catalog description of all fittings and other related items shall also be submitted for review and approval by the Engineer.

Method of Measurement. Water main will be measured for payment in place in feet. The length measured will include stops, fittings, and valves.

Trench backfill will be measured for payment above the level of 1 foot above the top of the pipe according to Article 208.03.

Bedding material will not be measured for payment.

Basis of Payment. Water main will be paid for at the contract unit price per foot for WATER MAIN, of the diameter specified. This price shall include the excavation of the trench, removal of surplus material, trench shoring and dewatering, installation of water main pipe, polyethylene pipe wrap, all pipe fittings not listed as a separate pay item, mechanical joint megalug retainer glands, couplings, joint materials, bedding material 6 inches below the pipe, granular backfill to the level of 1 foot above the top of the pipe, copper locator wire, testing and disinfecting of the water main, and other work necessary to complete this item in accordance with this special provision.

Tees will be paid for at the contract unit price per each for DUCTILE IRON WATER MAIN TEE, of the size specified. Fittings will be paid for at the contract unit price per each for DUCTILE IRON WATER MAIN FITTINGS, of the size and degree bend specified.

Thrust blocks will not be paid for separately, but shall be considered as included in the contract unit bid price of the fitting.

Trench backfill will be paid for at the contract unit price per cubic yard for TRENCH BACKFILL.

FIRE HYDRANTS TO BE REMOVED

Description. This work shall consist of removing fire hydrants and their auxiliary valves and valve boxes at the locations indicated in the plans or as directed by the Engineer.

General. The City of Aurora Public Works and the City of Aurora Fire Department shall be notified a minimum of 48 hours prior to an existing fire hydrant being removed from service. All materials required must be on site prior to water turn off so that the service interruption will be minimal. Fire hydrants will remain the property of the City of Aurora and shall be delivered to their facility at 649 S. River Street and unloaded at the location directed by City personnel. All other removed material shall be disposed of according to Article 202.03 of the Standard Specifications.

The Contractor shall provide and install a mechanical cap on the existing fire hydrant lead to remain. The hole formed by the removal of a fire hydrant shall be backfilled with fine aggregate and mechanically compacted.

Any fire hydrant not in service shall be securely covered or bagged to prevent accidental use. Non-operative or out of service fire hydrants shall be reported to the City of Aurora Fire Department immediately.

Basis of Payment. This work will be paid for at the contract unit price per each for FIRE HYDRANTS TO BE REMOVED, which price shall include the furnishing and installation of the cap, trench backfill and disposal of the removed material.

FIRE HYDRANT WITH AUXILLARY VALVE AND VALVE BOX

Description. This work shall consist of furnishing and installing fire hydrants, auxiliary valves, valve boxes and associated pipes and fittings at the locations indicated in the plans or as directed by the Engineer in accordance with Section 564 of the Standard Specifications, the City of Aurora Standard Specifications for Improvements, and the details included in the plans.

Materials. Hydrants shall be Waterous Pacer WB-67-250. Gate valves shall be installed in each fire hydrant lead with an “O” ring stuffing box.

Thrust blocking shall be either precast concrete blocks or cast-in-place concrete. Granular backfill material shall be IDOT gradation CA-7 washed with a 5 ounce geotechnical, non-woven fabric. These materials shall be according to the following:

	Item	Article/Section
(a)	Portland Cement Concrete	1020
(b)	Coarse Aggregate	1004.01

Auxiliary valves shall be mechanical joint resilient wedge type, and Tyler adjustable valve boxes with a cover marked with the word “WATER”.

All hydrants and any required adjustment fittings should receive 1 coat of rustproof base federal safety red paint.

All nuts and bolts used for the mechanical fitting and restraint systems shall be stainless steel, Grade 304 bolts and Grade 316 nuts.

Water main from the branch tee to the hydrant must be made of ductile iron pipe and wrapped with polyethylene pipe wrap.

Fire hydrants shall have a permanent UV protected fiberglass flag installed on the hydrant such as Hydrafinder, as manufactured by RoDon Corporation, or an approved equal. The flag shall be 5 feet tall, 3/8 inch diameter, laminar matrix fiberglass shaft with 4 red reflective stripes, mounted on a chrome plated carbon steel spring mount that shall be bolted to the top flange of the hydrant.

Construction Requirements. All new fire hydrants shall be set on a firm foundation. Thrust blocks shall be set so as to not block or obstruct the hydrant drain, and in such a manner that the pipe, fittings and joints shall be accessible for future repair. Clean washed aggregate shall be placed in the excavation.

CA-7 open graded stone shall be utilized to backfill around the outside of valve boxes, and below the valve to prevent mud from penetrating the valve box.

All fire hydrants shall be tested and disinfected in accordance with Article 561.03 of the Standard Specifications.

Any fire hydrant not in service shall be securely covered or bagged to prevent accidental use. Non-operative or out of service fire hydrants shall be reported to the City of Aurora Fire Department immediately.

New fire hydrants shall be located as close as possible to the location shown on the plans, but the hydrant’s final location will depend on presence of utilities and will be field located with the approval of the Engineer and City personnel.

At least 30 calendar days prior to installation of water mains covered in these specifications, the Contractor shall submit to the Engineer shop drawings of all items to be installed. The

manufacturer's catalog description of all fittings and other related items shall also be submitted for review and approval by the Engineer.

Basis of Payment. This work shall be paid for at the contract unit price per each for FIRE HYDRANT WITH AUXILLARY VALVE AND VALVE BOX. The price shall include the fire hydrant, valve, valve box, 6 inch ductile iron hydrant lead, all connections and fittings, mechanical joints, trench backfill, thrust blocks, required testing, materials, labor, tools, equipment, and incidentals necessary to complete the work as specified herein.

CONTROLLED LOW-STRENGTH MATERIAL

Description. This work shall consist of cleaning and then filling existing storm sewer, culverts, and the associated drainage structures (inlets, manholes, etc.) to be abandoned, at the locations indicated in the plans or as directed by the Engineer.

Materials. The material to fill the pipes and structures shall be controlled low-strength material (CLSM) meeting the requirements of Section 1019 of the Standard Specifications.

General. The inside of the existing pipes and/or structures to be abandoned shall be cleaned of all unsuitable material and debris before placing the CLSM. The pipe and/or structure shall be completely filled. The method used for filling the pipe and/or structure and containing the CLSM at the pipe ends shall be at the Contractor's option.

The temperature and placement requirements of Section 593 of the Standard Specifications shall apply.

Method of Measurement. The filling of existing storm sewer and culverts will be measured for payment according to the volume of CLSM required. The volume for payment of CLSM will be the measured volume in cubic yards of the pipes to be filled.

The filling of existing drainage structures with CLSM will be measured for payment as individual items and the unit of measurement will be each.

The required cleaning of the pipes and structures will not be measured for payment.

Basis of Payment. The filling of existing storm sewer and culverts will be paid for at the contract unit price per cubic yard for CONTROLLED LOW-STRENGTH MATERIAL.

The filling of existing drainage structures will be paid for at the contract unit price per each for FILLING MANHOLES, FILLING CATCH BASINS, or FILLING INLETS.

CATCH BASINS, MANHOLES, AND INLETS

Description. This work shall consist of constructing drainage and water structures in accordance with Section 602 of the Standard Specifications, except as modified herein.

Add the following to Article 602.07:

"All new storm sewer structures shall be constructed using precast reinforced concrete sections. Final adjustments will be made using high density expanded polystyrene or expanded polypropylene adjusting rings. A maximum of 8" of adjusting rings will be permitted."

Replace Article 602.10 with the following:

"The Contractor shall be responsible for determining which structures require a flat slab top. Structures with flat slab tops and Type 8 grates shall be constructed with adjustment rings with a minimal height of 6 in. below the grate."

Add the following to Article 602.11(a):

"Castings must contain the text of environment notice stating, 'DUMP NO WASTE' and 'DRAINS TO WATERWAYS' or similar wording meeting the approval of the Engineer. The notice shall be cast into the top of lid, curb inlet, or grate."

VALVE VAULTS

Description. This work shall consist of constructing valve vaults with water valves at the locations shown in the plans or as directed by the Engineer. This work shall be in accordance with Section 602 of the Standard Specifications, the Standard Specifications for Water and Sewer Main Construction, latest edition, the details included in the plans, and this special provision.

General. The water valves (gate valves) shall be suitable for ordinary water works service, intended to be installed in a normal position on buried pipe lines for water distribution systems.

Each valve shall have manufacturer's name, pressure rating, and year in which manufactured cast on the body. Prior to shipment from the factory, each valve shall be tested by hydrostatic pressure equal to twice the specified working pressure.

Materials. Gate Valves shall be Mechanical Joint Resilient Wedge type, open left, manufactured by American Flow Control, 2500 Series, or approved equal.

Valve Vaults shall be reinforced precast concrete in accordance with ASTM C478. Valve vaults shall be 5' for valves 8" in diameter and above. The Contractor shall be responsible for determining which structures require a flat slab top.

Frame and lids for valve vaults shall be Neenah R-1713, Type B. For vaults on public water mains, "CITY OF AURORA" shall be cast in the lid. For vaults on water services, "WATER" shall be cast in the lid.

Precast vault structure joints shall receive an external polyethylene wrap or hydraulic tuckpointing at the Contractor's option. Final adjustments will be made using Cretex Pro-Ring and adhesive sealant. A maximum of 10" of adjusting rings will be permitted.

Blocking to prevent movement of lines under pressure at valves shall be a minimum 12" thick Precast Portland Cement Concrete Block, placed between the bottom of the vault and the fittings, and shall be anchored in such a manner that pipe and fitting joints will be accessible for repairs. The thrust blocking will not be paid for separately, but shall be considered as included in the contract unit bid price for the valves.

All nuts and bolts shall be stainless steel, Grade 304 bolts and Grade 316 nuts.

Basis of Payment. This work will be paid for at the contract unit price per each for VALVE VAULT, TYPE A, TYPE 1 FRAME, CLOSED LID, of the diameter specified, which price shall include providing and installing the valve, valve vault, mechanical joint fittings, trench backfill materials, and all other requirements as detailed on the plans or herein.

ADJUSTMENTS AND RECONSTRUCTIONS

Description. This work shall consist of adjusting or reconstructing catch basins, manholes, inlets, or valve vaults at the locations indicated in the plans or as directed by the Engineer.

General. In addition to the details included in the plans, this work shall be in accordance with Sections 602 and 603 of the Standard Specifications, except as modified herein. All sanitary related work shall be performed in accordance with the Standard Specifications for Water and Sewer Main Construction in Illinois, latest edition, and Fox Metro Water Reclamation District requirements.

The Contractor shall clean all existing structures that are to be adjusted or reconstructed. The cleaning shall consist of the removal of all debris from inside the structure to the satisfaction of the Engineer.

Revise the first paragraph of Article 602.04 to read:

"602.04 Concrete. Cast-in-place concrete for structures shall be constructed of Class SI concrete according to the applicable portions of Section 503. Cast-in-place concrete for pavement patching around adjustments and reconstructions shall be constructed of Class PP-2 concrete, unless otherwise noted in the plans, according to the applicable portions of Section 1020."

Add the following to Article 602.07:

"The frame, chimney, and top 'lip' of the cone section of sanitary manholes shall be sealed with an approved chimney seal (Adaptor-Seal, Infi-Shield, and Canusa Wrapid Seal are all pre-approved options)."

Revise the third, fourth and fifth sentences of the second paragraph of Article 602.11(c) to read:

"Castings shall be set to the finished pavement elevation so that no subsequent adjustment will be necessary, and the space around the casting shall be filled with Class PP-2 concrete, unless otherwise noted in the plans, to the elevation of the surface of the base course or binder course. HMA surface or binder course material shall not be allowed. The pavement may be opened to traffic according to Article 701.17(e)(3)b."

Revise Article 603.05 to read:

"**603.05 Replacement of Existing Flexible Pavement.** After the castings have been adjusted, the surrounding space shall be filled with Class PP-2 concrete, unless otherwise noted in the plans, to the elevation of the surface of the base course or binder course. HMA surface or binder course material shall not be allowed. The pavement may be opened to traffic according to Article 701.17(e)(3)b."

Revise Article 603.06 to read:

"**603.06 Replacement of Existing Rigid Pavement.** After the castings have been adjusted, the pavement and HMA that was removed, shall be replaced with Class PP-2 concrete, unless otherwise noted in the plans, not less than 9 in. (225 mm) thick. The pavement may be opened to traffic according to Article 701.17(e)(3)b.

The surface of the Class PP concrete shall be constructed flush with the adjacent surface."

Revise the first sentence of Article 603.07 to read:

"**603.07 Protection Under Traffic.** After the casting has been adjusted and the Class PP concrete has been placed, the work shall be protected by a barricade and two lights according to Article 701.17(e)(3)b."

Revise Article 603.08 to read:

"**603.08 Adjusting Rings.** High density expanded polystyrene or expanded polypropylene adjusting rings are to be used on all structure adjustments. The use of steel or precast concrete rings for adjustment will not be allowed. A maximum of 8 inches of adjusting rings will be permitted."

Add the following to Articles 602.16 and 603.09:

"This work will not be paid for until the hot-mix asphalt surface course has been placed, at which time the Contractor and Engineer shall open each casting and visually determine whether construction debris or asphalt has entered the structure during construction activities. In the event construction debris is found within the structure, the Contractor shall clean out the structure at no additional cost to the contract."

DRAINAGE AND INLET PROTECTION UNDER TRAFFIC (D1)

Effective: April 1, 2011
Revised: April 2, 2011

Add the following to Article 603.02 of the Standard Specifications:

"(i) Temporary Hot-Mix Asphalt (HMA) Ramp (Note 1) ……. 1030
(j) Temporary Rubber Ramps (Note 2)

Note 1. The HMA shall have maximum aggregate size of 3/8 in. (95 mm).

Note 2. The rubber material shall be according to the following.

Property	Test Method	Requirement
Durometer Hardness, Shore A	ASTM D 2240	75 ±15
Tensile Strength, psi (kPa)	ASTM D 412	300 (2000) min
Elongation, percent	ASTM D 412	90 min

Specific Gravity	ASTM D 792	1.0 - 1.3
Brittleness, °F (°C)	ASTM D 746	-40 (-40)"

Revise Article 603.07 of the Standard Specifications to read:

"**603.07 Protection Under Traffic.** After the casting has been adjusted and the Class PP concrete has been placed, the work shall be protected by a barricade and two lights according to Article 701.17(e)(3)b.

When castings are under traffic before the final surfacing operation has been started, properly sized temporary ramps shall be placed around the drainage and/or utility castings according to the following methods.

(a) Temporary Asphalt Ramps. Temporary hot-mix asphalt ramps shall be placed around the casting, flush with its surface and decreasing to a featheredge in a distance of 2 ft (600 mm) around the entire surface of the casting.

(b) Temporary Rubber Ramps. Temporary rubber ramps shall only be used on roadways with permanent posted speeds of 40 mph or less and when the height of the casting to be protected meets the proper sizing requirements for the rubber ramps as shown below.

Dimension	Requirement
Inside Opening	Outside dimensions of casting + 1 in. (25 mm)
Thickness at inside edge	Height of casting $\pm$ 1/4 in. (6 mm)
Thickness at outside edge	1/4 in. (6 mm) max.
Width, measured from inside opening to outside edge	8 1/2 in. (215 mm) min

Placement shall be according to the manufacturer's specifications.

Temporary ramps for castings shall remain in place until surfacing operations are undertaken within the immediate area of the structure. Prior to placing the surface course, the temporary ramp shall be removed. Excess material shall be disposed of according to Article 202.03."

VALVE BOXES TO BE ADJUSTED

Description. This work shall consist of adjusting valve boxes at the locations shown in the plans or as directed by the Engineer. This work shall be done in accordance with Section 602 of the Standard Specifications and this special provision.

General. It shall be the Contractor's responsibility to determine the type of valve box and the materials required to complete the adjustment. Care shall be taken to keep the inside of the

extension and box completely free of any material which would prevent the opening and closing of the water valve.

Basis of Payment. This work will be paid for at the contract unit price per each for VALVE BOXES TO BE ADJUSTED, which price shall include adjusting the valve box, re-setting the valve box, excavation, and backfilling.

COMBINATION CONCRETE CURB AND GUTTER, TYPE M (MODIFIED)

Description. This work shall consist of constructing combination concrete curb and gutter modified to conform to the details included in the plans, at the locations indicated in the plans.

General. In addition to the details included in the plans, the modified combination concrete curb and gutter shall conform to the applicable portions of Section 606 of the Standard Specifications and Standard 606001. Curb and gutter shall have continuous reinforcement installed as detailed in the plans and as directed by the Engineer.

Method of Measurement. The modified combination concrete curb and gutter will be measured for payment according to Article 606.14 of the Standard Specifications.

Basis of Payment. This work will be paid for at the contract unit price per foot for COMBINATION CONCRETE CURB AND GUTTER, TYPE M (MODIFIED).

TRAFFIC CONTROL PLAN

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 the following sections of the Standard Specifications, the Highway Standards, special provisions, and plan details relating to traffic control.

The Contractor will not be provided additional compensation for maintaining traffic control and protection through winter conditions. Any costs incurred by the Contractor due to winter shutdown shall be considered as included in the contract unit bid price for TRAFFIC CONTROL AND PROTECTION, (SPECIAL), and no additional compensation will be allowed.

The Contractor shall contact the City of Aurora at (630) 256-3200 at least 72 hours prior to beginning work. The Contractor shall contact PACE Bus at (847) 297-0135 a minimum of 14 calendar days prior to beginning work.

Standard Specifications:

- Article 107.09 – Public Convenience and Safety
- Section 701 – Work Zone Traffic Control and Protection
- Section 702 – Nighttime Work Zone Lighting
- Section 703 – Short Term and Temporary Pavement Markings
- Section 780 – Pavement Striping
- Section 783 – Pavement Marking and Marker Removal
- Section 1106 - Work Zone Traffic Control Devices

Highway Standards:

701502	701601	701602	701606	701611	701701
701801	701901				

In addition, the following also relate to traffic control for this project:

ERRATA – Standard Specifications for Road and Bridge Construction
(Adopted 1-1-22) (Revised 1-1-24)

SUPPLEMENTAL SPECIFICATIONS
N/A

RECURRING SPECIAL PROVISIONS
LRS 3 Work Zone Traffic Control Surveillance
LRS 4 Flaggers in Work Zones

SPECIAL PROVISIONS
Equipment Illumination
Traffic Control and Protection, (Special)
Changeable Message Sign (Special)
Temporary Information Signing
Automated Flagger Assistance Devices (BDE)
Work Zone Traffic Control Devices (BDE)

DETAILS
Traffic Control and Protection for Side Roads, Intersections, and Driveways
District One Typical Pavement Markings
Traffic Control and Protection at Turn Bays (To Remain Open To Traffic)
Short Term Pavement Marking Letters and Symbols
Arterial Road Information Sign
Driveway Entrance Signing

EQUIPMENT ILLUMINATION

(Revised January 26, 1998; Revised January 1, 2016)

The Contractor shall equip all vehicles entering and exiting the work area with flashing amber lights, installed so the illumination is visible from all directions.

MAST ARM SIGN PANELS

Effective: May 22, 2002
Revised: July 1, 2015
720.01TS

Add the following to Article 720.02 of the Standard Specifications:

Sign stiffening channel systems shall be aluminum and meet the requirements of ASTM 6261-T5. Sign mounting banding, buckles and buckle straps shall be manufactured from AISI 201 stainless steel.

GENERAL ELECTRICAL REQUIREMENTS

Effective: June 1, 2021

This special provision replaces Articles 801.01 – 801.07, 801.09 – 801-16 of the Standard Specifications.

Definition. Codes, standards, and industry specifications cited for electrical work shall be by definition the latest adopted version thereof, unless indicated otherwise.

Materials by definition shall include electrical equipment, fittings, devices, motors, appliances, fixtures, apparatus, all hardware and appurtenances, and the like, used as part of, or in connection with, electrical installation.

Standards of Installation. Materials shall be installed according to the manufacturer's recommendations, the NEC, OSHA, the NESC, and AASHTO's Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals.

All like materials shall be from the same manufacturer. Listed and labeled materials shall be used whenever possible. The listing shall be according to UL or an approved equivalent.

Safety and Protection. Safety and protection requirements shall be as follows.

Safety. Electrical systems shall not be left in an exposed or otherwise hazardous condition. All electrical boxes, cabinets, pole handholes, etc. which contain wiring, either energized or non-energized, shall be closed or shall have covers in place and be locked when possible, during nonworking hours.

Protection. Electrical raceway or duct openings shall be capped or otherwise sealed from the entrance of water and dirt. Wiring shall be protected from mechanical injury.

Equipment Grounding Conductor. All electrical systems, materials, and appurtenances shall be grounded. Good ground continuity throughout the electrical system shall be assured, even though every detail of the requirements is not specified or shown. Electrical circuits shall have a continuous insulated equipment grounding conductor. When metallic conduit is used, it shall be bonded to the equipment grounding conductor, but shall not be used as the equipment grounding conductor.

Detector loop lead-in circuits, circuits under 50 volts, and runs of fiber optic cable will not require an equipment grounding conductor.

Where connections are made to painted surfaces, the paint shall be scraped to fully expose metal at the connection point. After the connection is completed, the paint system shall be repaired to the satisfaction of the Engineer.

Bonding of all boxes and other metallic enclosures throughout the wiring system to the equipment grounding conductor shall be made using a splice and pigtail connection. Mechanical connectors shall have a serrated washer at the contact surface.

All connections to structural steel or fencing shall be made with exothermic welds. Care shall be taken not to weaken load carrying members. Where connections are made to epoxy coated reinforcing steel, the epoxy coating shall be sufficiently removed to facilitate a mechanical connection. The epoxy coating shall be repaired to the satisfaction of the Engineer. Where connections are made to insulated conductors, the connection shall be wrapped with at least four layers of electrical tape extended 6 in. (150 mm) onto the conductor insulation.

Submittals. At the preconstruction meeting, the Contractor shall submit a written listing of manufacturers for all major electrical and mechanical items. The list of manufacturers shall be binding, except by written request from the Contractor and approval by the Engineer. The request shall include acceptable reasons and documentation for the change.

Within 30 calendar days after contract execution, the Contractor shall submit, for approval, through the Traffic Operations Construction Submittals Application (TOCS) system the manufacturer's product data (for standard products and components) and detailed shop drawings (for fabricated items). Submittals for the materials for each individual pay item shall be complete in every respect. Submittals which include multiple pay items shall have all submittal material for each item or group of items covered by a particular specification, grouped together and the applicable pay item identified. Various submittals shall, when taken together, form a complete coordinated package. A partial submittal will be returned without review unless prior written permission is obtained from the Engineer.

Each PDF document must be a vector format PDF from the originating supplier or program and not scanned images.

The submittal must clearly identify the specific model number or catalog number of the item being proposed.

For further information and requirements regarding the TOCS system, the Contractor should reference the *TOCS Contractors User Guide*.

The submittal shall be properly identified by route, section, county, and contract number.

The Contractor shall have reviewed the submittal material and affixed his/her stamp of approval, with date and signature, for each individual item.

Illegible print, incompleteness, inaccuracy, or lack of coordination will be grounds for rejection.

Items from multiple disciplines shall not be combined on a single submittal and transmittal. Items for lighting, signals, surveillance and CCTV must be in separate submittals since they may be reviewed by various personnel in various locations.

The Department may provide a list of pay items broken out by discipline upon request for a particular contract.

The Engineer will review the submittals for conformance with the design concept of the project according to Article 105.04 and the following. The Engineer will stamp the drawings indicating their status as "Approved", "Approved as Noted", "Disapproved", or "Information Only". Since the Engineer's review is for conformance with the design concept only, it shall be 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, or layout drawings by the Engineer's approval thereof. The Contractor shall still be in full compliance with contract and specification requirements.

All submitted items reviewed and marked "Disapproved" or "Approved as Noted" shall be resubmitted by the Contractor in their entirety, unless otherwise indicated within the submittal comments.

Work shall not begin until the Engineer has approved the submittal. Material installed prior to approval by the Engineer, will be subject to removal and replacement at no additional cost to the Department.

Certifications. When certifications are specified and are available prior to material manufacture, the certification shall be included in the submittal information. When specified and only available after manufacture, the submittal shall include a statement of intent to furnish certification. All certificates shall be complete with all appropriate test dates and data.

Authorized Project Delay. See Article 801.08

Maintenance transfer and Preconstruction Inspection:

General. Before performing any excavation, removal, or installation work (electrical or otherwise) at the site, the Contractor shall request a maintenance transfer and preconstruction site inspection, to be held in the presence of the Engineer and a representative of the party or parties responsible for maintenance of any lighting and/or traffic control systems which may be affected by the work. The request for the maintenance transfer and preconstruction inspection shall be made no less than fourteen (14) calendar days prior to the desired inspection date. The maintenance transfer and preconstruction inspection shall:

Establish the procedures for formal transfer of maintenance responsibility required for the construction period.

Establish the approximate location and operating condition of lighting and/or traffic control systems which may be affected by the work

Marking of Existing Cable Systems. The party responsible for maintenance of any existing lighting and/or traffic control systems at the project site will, at the Contractor's request, mark and/or stake, once per location, all underground cable routes owned or maintained by the State. A project may involve multiple "locations" where separated electrical systems are involved (i.e. different controllers). The markings shall be taken to have a horizontal tolerance of at least 1 foot (304.8 mm) to either side. The request for the cable locations and marking shall be made at the same time the request for the maintenance transfer and preconstruction inspection is made. The Contractor shall exercise extreme caution where existing buried cable runs are involved. The markings of existing systems are made strictly for assistance to the Contractor and this does not relieve the Contractor of responsibility for the repair or replacement of any cable run damaged in the course of his work, as specified elsewhere herein. Note that the contractor shall be entitled to only one request for location marking of existing systems and that multiple requests may only be honored at the contractor's expense. No locates will be made after maintenance is transferred, unless it is at the contractor's expense.

Condition of Existing Systems. The Contractor shall conduct an inventory of all existing electrical system equipment within the project limits, which may be affected by the work, making note of any parts which are found broken or missing, defective or malfunctioning. Megger and load readings shall be taken for all existing circuits which will remain in place or be modified. If a circuit is to be taken out in its entirety, then readings do not have to be taken. The inventory and test data shall be reviewed with and approved by the Engineer and a record of the inventory shall be submitted to the Engineer for the record. Without such a record, all systems transferred to the Contractor for maintenance during construction shall be returned at the end of construction in complete, fully operating condition."

Maintenance and Responsibility During Construction.

Lighting Operation and Maintenance Responsibility. The scope of work shall include the assumption of responsibility for the continuing operation and maintenance of the existing, proposed, temporary, sign and navigation lighting, or other lighting systems and all appurtenances affected by the work as specified elsewhere herein. Maintenance of lighting systems is specified elsewhere and will be paid for separately

The proposed lighting system must be operational prior to opening the roadway to traffic unless temporary lighting exists which is designed and installed to properly illuminate the roadway.

Energy and Demand Charges. The payment of basic energy and demand charges by the electric utility for existing lighting which remains in service will continue as a responsibility of the Owner, unless otherwise indicated. Unless otherwise indicated or required by the Engineer duplicate lighting systems (such as temporary lighting and proposed new lighting) shall not be operated simultaneously at the Owner's expense and lighting systems shall not be kept in operation during long daytime periods at the Owner's expense. Upon written authorization from the Engineer to place a proposed new lighting system in service, whether the system has passed final acceptance or not, (such as to allow temporary lighting to be removed), the Owner will accept responsibility for energy and demand charges for such lighting, effective the date of authorization. All other energy and demand payments to the utility shall be the responsibility of the Contractor until final acceptance.

Damage to Electrical Systems. Should damage occur to any existing electrical systems through the Contractor's operations, the Engineer will designate the repairs as emergency or non-emergency in nature.

Emergency repairs shall be made by the Contractor, or as determined by the Engineer, the Department, or its agent. Non-emergency repairs shall be performed by the Contractor within six working days following discovery or notification. All repairs shall be performed in an expeditious manner to assure all electrical systems are operational as soon as possible. The repairs shall be performed at no additional cost to the Department.

Lighting. An outage will be considered an emergency when three or more lights on a circuit or three successive lights are not operational. Knocked down materials, which result in a danger to the motoring public, will be considered an emergency repair.

Temporary aerial multi-conductor cable, with grounded messenger cable, will be permitted if it does not interfere with traffic or other operations, and if the Engineer determines it does not require unacceptable modification to existing installations.

Marking Proposed Locations for Highway Lighting System. The Contractor shall mark or stake the proposed locations of all poles, cabinets, junction boxes, pull boxes, handholes, cable routes, pavement crossings, and other items pertinent to the work. A proposed location inspection by the Engineer shall be requested prior to any excavation, construction, or installation work after all proposed installation locations are marked. Any work installed without location approval is subject to corrective action at no additional cost to the Department.

Inspection of electrical work. Inspection of electrical work shall be according to Article 105.12 and the following.

Before any splice, tap, or electrical connection is covered in handholes, junction boxes, light poles, or other enclosures, the Contractor shall notify and make available such wiring for the Engineer's inspection.

Testing. Before final inspection, the electrical work shall be tested. Tests may be made progressively as parts of the work are completed or may be made when the work is complete. Tests shall be made in the presence of the Engineer. Items which fail to test satisfactorily shall be repaired or replaced. Tests shall include checks of control operation, system voltages, cable insulation, and ground resistance and continuity.

The forms for recording test readings will be available from the Engineer in electronic format. The Contractor shall provide the Engineer with a written report of all test data including the following:

- Voltage Tests
- Amperage Tests
- Insulation Resistance Tests
- Continuity tests
- Detector Loop Tests

Lighting systems. The following tests shall be made.

(1) Voltage Measurements. Voltages in the cabinet from phase to phase and phase to neutral, at no load and at full load, shall be measured and recorded. Voltage readings at the last termination of each circuit shall be measured and recorded.

(2) Insulation Resistance. Insulation resistance to ground of each circuit at the cabinet shall be measured and recorded with all loads disconnected. Prior to performance of the insulation resistance test, the Contractor shall remove all fuses within all light pole bases on a circuit to segregate the luminaire loads.

On tests of new cable runs, the readings shall exceed 50 megohms for phase and neutral conductors with a connected load over 20A and shall exceed 100 megohms for conductors with a connected load of 20A or less.

On tests of cable runs which include cables which were existing in service prior to this contract, the resistance readings shall be the same or better than the readings recorded at the maintenance transfer at the beginning of the contract. Measurements shall be taken with a megohm meter approved by the Engineer.

(3) Loads. The current of each circuit, phase main, and neutral shall be measured and recorded. The Engineer may direct reasonable circuit rearrangement. The current readings shall be within ten percent of the connected load based on material ratings.

(4) Ground Continuity. Resistance of the system ground as taken from the farthest extension of each circuit run from the controller (i.e. check of equipment ground continuity for each circuit) shall be measured and recorded. Readings shall not exceed 2.0 ohms, regardless of the length of the circuit.

(5) Resistance of Grounding Electrodes. Resistance to ground of all grounding electrodes shall be measured and recorded. Measurements shall be made with a ground tester during dry soil conditions as approved by the Engineer. Resistance to ground shall not exceed 10 ohms.

ITS. The following test shall be made in addition to the lighting system test above.

Detector Loops. Before and after permanently securing the loop in the pavement, the resistance, inductance, resistance to ground, and quality factor for each loop and lead-in circuit shall be tested. The loop and lead-in circuit shall have an inductance between 20 and 2500 microhenries. The resistance to ground shall be a minimum of 50 megohms under any conditions of weather or moisture. The quality factor (Q) shall be 5 or greater.

Fiber Optic Systems. Fiber optic testing shall be performed as required in the fiber optic cable special provision and the fiber optic splice special provision.

All test results shall be furnished to the Engineer seven working days before the date the inspection is scheduled.

Contract Guarantee. The Contractor shall provide a written guarantee for all electrical work provided under the contract for a period of six months after the date of acceptance with the following warranties and guarantees.

(a) The manufacturer's standard written warranty for each piece of electrical material or apparatus furnished under the contract. The warranty for light emitting diode (LED) modules, including the maintained minimum luminance, shall cover a minimum of 120 months from the date of delivery.

(b) The Contractor's written guarantee that, for a period of six months after the date of final acceptance of the work, all necessary repairs to or replacement of said warranted material or apparatus for reasons not proven to have been caused by negligence on the part of the user or acts of a third party shall be made by the Contractor at no additional cost to the Department.

(c) The Contractor's written guarantee for satisfactory operation of all electrical systems furnished and constructed under the contract for a period of six months after final acceptance of the work.

The warranty for an uninterruptable power supply (UPS) shall cover a minimum of two years from date the equipment is placed in operation; however, the batteries of the UPS shall be warranted for full replacement for a minimum of five years.

Record Drawings. Alterations and additions to the electrical installation made during the execution of the work shall be made on the PDF copy of the as-Let documents using a PDF editor. Hand drawn notations or markups and scanned plans are not acceptable. These drawings shall be updated daily and shall be available for inspection by the Engineer during the work. The record drawings shall include the following:

- Cover Sheet
- The Electrical Maintenance Contract Management System (EMCMS) location designation, i.e. “L” number
- Summary of Quantities, electrical items only
- Legends, Schedules, and Notes
- Plan Sheets
- Pertinent Details
- Single Line Diagrams
- Other useful information useful to locate and maintain the systems.

Any modifications to the details shall be indicated. Final quantities used shall be indicated on the Summary of Quantities. Foundation depths used shall also be listed.

As part of the record drawings, the Contractor shall inventory all materials, new or existing, on the project and record information on inventory sheets provided by the Engineer.

The inventory shall include:

- Location of Equipment, including rack, chassis, slot as applicable.
- Designation of Equipment
- Equipment manufacturer
- Equipment model number
- Equipment Version Number
- Equipment Configuration
    - Addressing, IP or other
    - Settings, hardware or programmed
- Equipment Serial Number

The following electronic inventory forms are available from the Engineer:

- Lighting Controller Inventory
- Lighting Inventory
- Light Tower Inspection Checklist
- ITS Location Inventory

The information shall be entered in the forms; handwritten entries will not be acceptable; except for signatures. Electronic file shall also be included in the documentation.

When the work is complete, and seven days before the request for a final inspection, the set of 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 through TOCS, on CD-ROM as well as hardcopies for review and approval.

In addition to the record drawings, PDF copies of the final catalog cuts which have been Approved and Approved as Noted with applicable follow-up shall be submitted along with the record drawings. The PDF files shall clearly indicate either by filename or PDF table of contents the respective pay item number. Specific part or model numbers of items which have been selected shall be clearly visible. Hard copies of the catalog are not required with this submittal.

The Contractor shall provide three sets of electronically produced drawings in a moisture proof pouch to be kept on the inside door of the controller cabinet or other location approved by the Engineer. These drawings shall show the final as-built circuit orientation(s) of the project in the form of a single line diagram with all luminaires numbered and clearly identified for each circuit.

Final documentation shall be submitted as a complete submittal package, i.e. record drawings, test results, inventory, etc. shall be submitted at the same time. Partial piecemeal submittals will be rejected without review.

A total of three hardcopies and two CD-ROMs of the final documentation shall be submitted. The identical material shall also be submitted through the TOCS system utilizing the following final documentation pay item numbers:

Pay Code	Description	Discipline
FDLRD000	Record Drawings - Lighting	Lighting
FDSRD000	Record Drawings - Surveillance	Surveillance
FDTRD000	Record Drawings - Traffic Signal	Traffic Signal
FDIRD000	Record Drawings - ITS	ITS
FDLCC000	Catalog Cuts - Lighting	Lighting
FDSCC000	Catalog Cuts – Surveillance	Surveillance
FDTCC000	Catalog Cuts – Traffic Signal	Traffic Signal
FDICC000	Catalog Cuts - ITS	ITS
FDLWL000	Warranty - Lighting	Lighting
FDSWL000	Warranty - Surveillance	Surveillance
FDTWL000	Warranty - Traffic Signal	Traffic Signal
FDIWL000	Warranty - ITS	ITS
FDLTR000	Test Results - Lighting	Lighting
FDSTR000	Test Results - Surveillance	Surveillance
FDTTR000	Test Results - Traffic Signal	Traffic Signal
FDITR000	Test Results - ITS	ITS
FDLINV00	Inventory - Lighting	Lighting
FDSINV00	Inventory - Surveillance	Surveillance
FDTINV00	Inventory - Traffic Signal	Traffic Signal
FDIINV00	Inventory - ITS	ITS
FDLGPS00	GPS - Lighting	Lighting

FDSGPS00	GPS - Surveillance	Surveillance
FDTGPS00	GPS - Traffic Signal	Traffic Signal
FDIGPS00	GPS - ITS	ITS

Record Drawings shall include Marked up plans, controller info, Service Info, Equipment Settings, Manuals, Wiring Diagrams for each discipline.

Test results shall be all electrical test results, fiber optic OTDR, and Fiber Optic power meter as applicable for each discipline.

GPS Documentation. In addition to the specified record drawings, the Contactor shall record GPS coordinates of the following electrical components being installed, modified or being affected in other ways by this contract:

- All light poles and light towers.
- Handholes and vaults.
- Junction Boxes
- Conduit roadway crossings.
- Controllers.
- Control Buildings.
- Structures with electrical connections, i.e. DMS, lighted signs.
- Electric Service locations.
- CCTV Camera installations.
- Roadway Surveillance installations.
- Fiber Optic Splice Locations.
- Fiber Optic Cables. Coordinates shall be recorded along each fiber optic cable route every 200 feet.
- All fiber optic slack locations shall be identified with quantity of slack cable included. When sequential cable markings are available, those markings shall be documented as cable marking into enclosure and marking out of enclosure.

Datum to be used shall be North American 1983.

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

1. District
2. Description of item
3. Designation
4. Use
5. Approximate station
6. Contract Number
7. Date
8. Owner
9. Latitude
10. Longitude
11. Comments

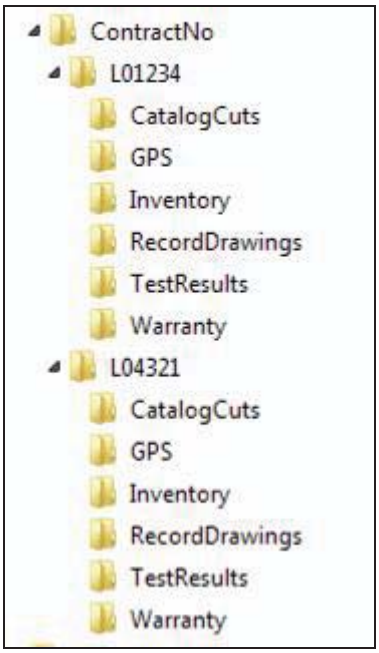
A spreadsheet template will be available from the Engineer for use by the Contractor.

Accuracy. Data collected is to be mapping grade. A handheld mapping grade GPS device shall be used for the data collection. The receiver shall support differential correction and data shall have minimum 5 meter accuracy after post processing.

GPS receivers integrated into cellular communication devices, recreational and automotive GPS devices are not acceptable.

The GPS shall be the product of an established major GPS manufacturer having been in the business for a minimum of 6 years."

The documents on the CD shall be organized by the Electrical Maintenance Contract Management System (EMCMS) location designation. If multiple EMCMS locations are within the contract, separate folders shall be utilized for each location as follows:



Extraneous information not pertaining to the specific EMCMS location shall not be included in that particular folder and sub-folder.

The inspection will not be made until after the delivery of acceptable record drawings, specified certifications, and the required guarantees.

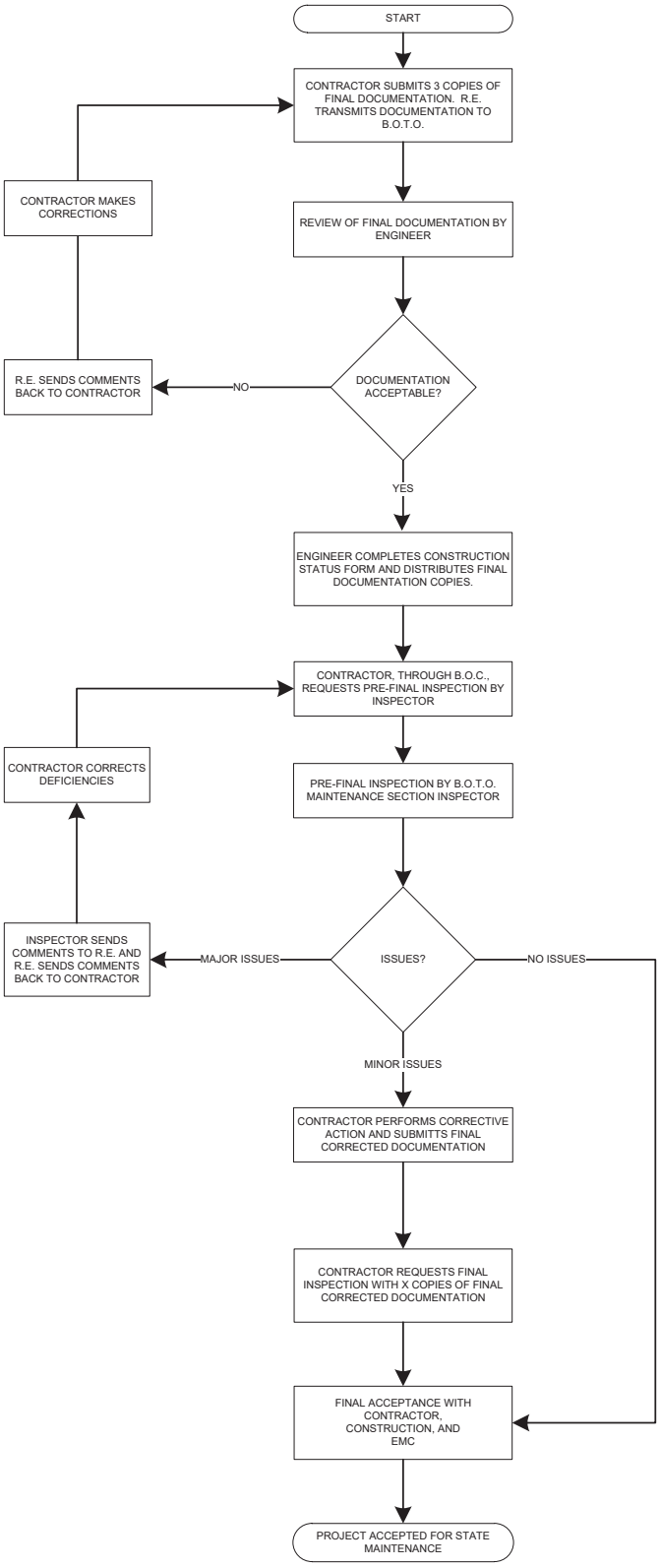
The Final Acceptance Documentation Checklist shall be completed and is contained elsewhere herein.

All CD's shall be labeled as illustrated in the CD Label Template contained herein.

Acceptance. Acceptance of electrical work will be given at the time when the Department assumes the responsibility to protect and maintain the work according to Article 107.30 or at the time of final inspection.

When the electrical work is complete, tested, and fully operational, the Contractor shall schedule an inspection for acceptance with the Engineer no less than seven working days prior to the desired inspection date. The Contractor shall furnish the necessary labor and equipment to make the inspection.

A written record of the test readings taken by the Contractor according to Article 801.13 shall be furnished to the Engineer seven working days before the date the inspection is scheduled. Inspection will not be made until after the delivery of acceptable record drawings, specified certifications, and the required guarantees.


START
CONTRACTOR SUBMITS 3 COPIES OF FINAL DOCUMENTATION. R.E. TRANSMITS DOCUMENTATION TO B.O.T.O.
REVIEW OF FINAL DOCUMENTATION BY ENGINEER
DOCUMENTATION ACCEPTABLE?
NO
R.E. SENDS COMMENTS BACK TO CONTRACTOR
CONTRACTOR MAKES CORRECTIONS
YES
ENGINEER COMPLETES CONSTRUCTION STATUS FORM AND DISTRIBUTES FINAL DOCUMENTATION COPIES.
CONTRACTOR, THROUGH B.O.C., REQUESTS PRE-FINAL INSPECTION BY INSPECTOR
PRE-FINAL INSPECTION BY B.O.T.O. MAINTENANCE SECTION INSPECTOR
ISSUES?
MAJOR ISSUES
INSPECTOR SENDS COMMENTS TO R.E. AND R.E. SENDS COMMENTS BACK TO CONTRACTOR
CONTRACTOR CORRECTS DEFICIENCIES
NO ISSUES
MINOR ISSUES
CONTRACTOR PERFORMS CORRECTIVE ACTION AND SUBMITTS FINAL CORRECTED DOCUMENTATION
CONTRACTOR REQUESTS FINAL INSPECTION WITH X COPIES OF FINAL CORRECTED DOCUMENTATION
FINAL ACCEPTANCE WITH CONTRACTOR, CONSTRUCTION, AND EMC
PROJECT ACCEPTED FOR STATE MAINTENANCE

Final Acceptance Documentation Checklist

LOCATION	
Route	Common Name
Limits	Section
Contract #	County
Controller Designation(s)	EMC Database Location Number(s)

ITEM	**Contractor (Verify)**	**Resident Engineer (Verify)**
Record Drawings -Three hardcopies (11" x 17") -Scanned to two CD-ROMs	☐ ☐	☐ ☐
Field Inspection Tests -Voltage -Amperage -Cable Insulation Resistance -Continuity -Controller Ground Rod Resistance (Three Hardcopies & scanned to two CD's)	☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐
GPS Coordinates -Excel file (Check Special Provisions, Excel file scanned to two CD's)	☐	☐
Job Warranty Letter (Three Hardcopies & scanned to two CD's)	☐	☐
Catalog Cut Submittals -Approved & Approved as Noted (Scanned to two CD's)	☐	☐
Lighting Inventory Form (Three Hardcopies & scanned to two CD's)	☐	☐
Lighting Controller Inventory Form (Three Hardcopies & scanned to two CD's)	☐	☐
Light Tower Inspection Form (If applicable, Three Hardcopies & scanned to two CD's)	☐	☐

Three Hardcopies & scanned to two CD's shall be submitted for all items above. The CD ROM shall be labeled as shown in the example contained herein.

General Notes:

Record Drawings – The record drawings should contain contract cover sheet, summary of quantities showing all lighting pay item sheets, proposed lighting plans and lighting detail sheets. Submit hardcopies shall be 11" x 17" size. Temporary lighting plans and removal lighting plans should not be part of the set.

Field Inspection Tests – Testing should be done for proposed cables. Testing shall be per standard specifications. Forms shall be neatly filled out.

GPS Coordinates – Check special provisions "General Electrical Requirements". Submit electronic "EXCEL" file.

Job Warranty Letter – See standard specifications.

Cutsheet Submittal – See special provisions "General Electrical Requirements". Scan Approved and Approved as Noted cutsheets.

Lighting Inventory Form – Inventory form should include only proposed light poles, proposed light towers, proposed combination (traffic/light pole) lighting and proposed underpass luminaires.

Lighting Controller Inventory Form – Form should be filled out for only proposed lighting controllers.

Light Tower Safety Inspection Form – Form should be filled out for each proposed light tower.

CD LABEL FORMAT TEMPLATE.

Label must be printed; hand written labels are unacceptable and will be rejected.

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TRAFFIC SIGNAL GENERAL REQUIREMENTS

Effective: May 22, 2002
Revised: March 1, 2024
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 signalizing 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	PERMANENTREPAIR (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 and 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 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 were 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."

ELECTRIC SERVICE INSTALLATION

Effective: January 1, 2012

Description. This item shall consist of all material and labor required to extend, connect or modify the electric services, as indicated or specified, which is over and above the work performed by the utility. Unless otherwise indicated, the cost for the utility work, if any, will be reimbursed to the Contractor separately under ELECTRIC UTILITY SERVICE CONNECTION. This item may apply to the work at more than one service location and each will be paid separately.

Materials. Materials shall be in accordance with the Standard Specifications.

CONSTRUCTION REQUIREMENTS

General. The Contractor shall ascertain the work being provided by the electric utility and shall provide all additional material and work not included by other contract pay items required to complete the electric service work in complete compliance with the requirements of the utility.

No additional compensation will be allowed for work required for the electric service, even though not explicitly shown on the drawings or specified herein.

Method of Measurement. Electric Service Installation shall be counted, each.

Basis of Payment. This work will be paid for at the contract unit price per each for ELECTRIC SERVICE INSTALLATION, which price shall be payment in full for the work specified herein.

ELECTRIC UTILITY SERVICE CONNECTION (COMED)

Effective: January 1, 2012

Description. This item shall consist of payment for work performed by ComEd in providing or modifying electric service as indicated. THIS MAY INVOLVE WORK AT MORE THAN ONE ELECTRIC SERVICE. For summary of the Electrical Service Drop Locations see the schedule contained elsewhere herein.

CONSTRUCTION REQUIREMENTS

General. It shall be the Contractor's responsibility to contact ComEd. The Contractor shall coordinate his work fully with the ComEd both as to the work required and the timing of the installation. No additional compensation will be granted under this or any other item for extra work caused by failure to meet this requirement. **Please contact ComEd, New Business Center Call Center, at 866 NEW ELECTRIC (1-866-639-3532) to begin the service connection process. The Call Center Representatives will create a work order for the service connection. The representative will ask the requestor for information specific to the request. The representative will assign the request based upon the location of project.**

The Contractor should make particular note of the need for the earliest attention to arrangements with ComEd for service. In the event of delay by ComEd, no extension of time will be considered

applicable for the delay unless the Contractor can produce written evidence of a request for electric service within 30 days of execution.

Method of Payment. The Contractor will be reimbursed to the exact amount of money as billed by ComEd for its services. Work provided by the Contractor for electric service will be paid separately as described under ELECTRIC SERVICE INSTALLATION. No extra compensation shall be paid to the Contractor for any incidental materials and labor required to fulfill the requirements as shown on the plans and specified herein.

For bidding purposes, this item shall be estimated as $10,000.00.

Basis of Payment. This work will be paid for at the contract lump sum price for ELECTRIC UTILITY SERVICE CONNECTION, which price shall be reimbursement in full for electric utility service charges.

SERVICE INSTALLATION (TRAFFIC SIGNALS)

Effective: May 22, 2002
Revised: March 1, 2024
805.01TS

Revise Section 805 of the Standard Specifications to read:

Description.
This work shall consist of all materials and labor required to install, modify, or extend the electric service installation. All installations shall meet the requirements of the “District One Standard Traffic Signal Design Details”.

General.
The electric service installation shall be the electric service disconnecting means and it shall be identified as suitable for use as service equipment.

The electric utility contact information is noted on the plans and represents the current information at the time of Contract preparation. The Contractor must request in writing for service and/or service modification within ten (10) days of Contract award and must follow-up with the electric utility to assure all necessary documents and payment are received by the utility. The Contractor shall forward copies of all correspondence between the Contractor and utility company to the Engineer and Area Traffic Signal Maintenance and Operations Engineer. The service agreement and sketch shall be submitted for signature to the IDOT’s Traffic Operations Programs Engineer.

Materials.

(a) General. The completed control panel shall be constructed in accordance with UL Std. 508A, Industrial Control Panel, and carry the UL label. Wire terminations shall be UL listed.

(b) Enclosures.

(1) Pole Mounted Cabinet. The cabinet shall be UL 50, NEMA Type 4X, unfinished single door design, fabricated from minimum 0.080 in. (2.03 mm) thick Type 5052 H-32 aluminum. Seams shall be continuous welded and ground smooth. Stainless steel screws and clamps shall secure the cover and assure a watertight seal. The cover shall be removable by pulling the continuous stainless steel hinge pin. The cabinet shall have an oil-resistant gasket and a lock kit shall be provided with an internal O-ring in the locking mechanism assuring a watertight and dust-tight seal. The cabinet shall be sized to adequately house all required components with extra space for arrangement and termination of wiring. A minimum size of 14 in. (350 mm) high, 9 in. (225 mm) wide and 8 in. (200 mm) in depth is required. The cabinet shall be channel mounted to a wooden utility pole using assemblies recommended by the Vendor.

(2) Ground Mounted Cabinet. The cabinet shall be UL 50, NEMA Type 3R unfinished single door design with back panel. The cabinet shall be fabricated from Type 5052 H-32 aluminum with the frame and door 0.125 in. (3.175 mm) thick, the top 0.250 in. (6.350 mm) thick and the bottom 0.500-inch (12.70 mm) thick. Seams shall be continuous welded and ground smooth. The door and door opening shall be double flanged. The door shall be approximately 80% of the front surface, with a full length tamperproof stainless steel .075 in. (1.91 mm) thick hinge bolted to the cabinet with stainless steel carriage bolts and nylock nuts. The locking mechanism shall be slam-latch type with a keyhole cover. The cabinet shall be sized to adequately house all required components with extra space for arrangement and termination of wiring. A minimum size of 40 in. (1000 mm) high, 16 in. (400 mm) wide and 15 in. (375 mm) in depth is required. The cabinet shall be mounted upon a Type A concrete foundation as indicated on the plans. The foundation is paid for separately.

(3) All enclosures shall include a green external power indicator LED light with circuitry as shown in the Electrical Service-Panel Diagram detail sheet. For pole mounted service enclosures, the power indicator light shall be mounted as shown in the detail. For ground mounted enclosures, the power indicator light shall be mounted on the side of the enclosure most visible from the major roadway.

(c) Electric Utility Meter Housing and Riser. The electric meter housing and meter socket shall be supplied and installed by the Contractor. The Contractor is to coordinate the work to be performed and the materials required with the utility company to make the final connection at the power source. Electric utility required risers, weather/service head, and any other materials necessary for connection shall also be included in the pay item. Materials shall be in accordance with the electric utility's requirements. For ground-mounted service, the electric utility meter housing shall be mounted to the enclosure. The meter shall be supplied by the utility company.

(d) Surge Protector. Overvoltage protection, with LED indicator, shall be provided for the 120 V load circuit by the means MOV and thermal fusing technology. The response time shall be < 5 ns and operate within a range of –40°C to +85°C. The surge protector shall be UL 1449 Listed.

(e) Circuit Breakers. Circuit breakers shall be standard UL listed molded case, thermal-magnetic bolt-on type circuit breakers with trip free indicating handles. 120 V circuit

breakers shall have an interrupting rating of not less than 65,000 rms symmetrical amperes. Unless otherwise indicated, the main disconnect circuit breaker for the traffic signal controller shall be rated 60 A, 120 V and the auxiliary circuit breakers shall be rated 10 A, 120 V.

(f) Fuses and Fuseholders. Fuses shall be small-dimensional cylindrical fuses of the dual element time-delay type. The fuses shall be rated for 600 VAC and shall have a UL listed interrupting rating of not less than 10,000 rms symmetrical amperes at rated voltage.

(g) Ground and Neutral Bus Bars. A single copper ground and neutral bus bar, mounted on the equipment panel shall be provided. Ground and neutral conductors shall be separated on the bus bar. Compression lugs, plus 2 spare lugs, shall be sized to accommodate the cables with the heads of the connector screws painted green for ground connections and white for neutral connections.

(h) Utility Services Connection. The Contractor shall notify the utility company marketing representative a minimum of thirty (30) working days prior to the anticipated date of hook-up. This 30-day advance notification will begin only after the utility company marketing representative has received service charge payments from the Contractor. Prior to contacting the utility company marketing representative for service connection, the service installation controller cabinet and cable must be installed for inspection by the utility company.

(i) Ground Rod. Ground rods shall be copper-clad steel, a minimum of 10 ft (3.0m) in length, and 3/4 in. (20mm) in diameter. Ground rod resistance measurements to ground shall be 25 ohms or less. If necessary additional rods shall be installed to meet resistance requirements at no additional cost to the Contract.

Installation.

(a) General. The Contractor shall confirm the orientation of the traffic service installation and its door side with the Engineer prior to installation. All conduit entrances into the service installation shall be sealed with a pliable waterproof material.

(b) Pole Mounted. Brackets designed for pole mounting shall be used. All mounting hardware shall be stainless steel. Mounting height shall be as noted on the plans or as directed by the Engineer.

(c) Ground Mounted. The service installation shall be mounted plumb and level on the foundation and fastened to the anchor bolts with hot-dipped galvanized or stainless steel nuts and washers. The space between the bottom of the enclosure and the top of the foundation shall be caulked at the base with silicone.

Basis of Payment.

The service installation will be paid for at the contract unit price each for SERVICE INSTALLATION of the type specified which shall be payment in full for furnishing and installing the service installation complete. The CONCRETE FOUNDATION, TYPE A, which includes the ground rod, will be paid for separately. SERVICE INSTALLATION, POLE MOUNTED shall include the 3/4 in. (20mm) grounding conduit, ground rod, and pole mount assembly. Any charges by the utility

companies shall be approved by the Engineer and paid for as an addition to the contract according to Article 109.05 of the Standard Specifications.

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."

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.

UNIT DUCT

Effective: January 1, 2012

Revise the first paragraph of Article 810.04 to read:

"The unit duct shall be installed at a minimum depth of 30-inches (760 mm) unless otherwise directed by the Engineer."

Revise Article 1088.01(c) to read:

"(c) Coilable Nonmetallic Conduit.

General:

The duct shall be a plastic duct which is intended for underground use and which can be manufactured and coiled or reeled in continuous transportable lengths and uncoiled for further processing and/or installation without adversely affecting its properties of performance. The duct shall be a plastic duct which is intended for underground use and can be manufactured and coiled or reeled in continuous transportable lengths and uncoiled for further processing and/or installation without adversely affecting its properties of performance.

The duct shall be made of high density polyethylene which shall meet the requirements of ASTM D 2447, for schedule 40. The duct shall be composed of black high density polyethylene meeting the requirements of ASTM D 3350, Class C, Grade P33. The wall thickness shall be in accordance with Table 2 for ASTM D 2447.

The duct shall be UL Listed per 651-B for continuous length HDPE coiled conduit. The duct shall also comply with NEC Article 354.100 and 354.120.

Submittal information shall demonstrate compliance with the details of these requirements.

Dimensions:

Duct dimensions shall conform to the standards listed in ASTM D2447. Submittal information shall demonstrate compliance with these requirements.

Nominal Size		Nominal I.D.		Nominal O.D.		Minimum Wall	
mm	in	mm	in	mm	in	mm	in
31.75	1.25	35.05	1.380	42.16	1.660	3.556 +0.51	0.140 +0.020
38.1	1.50	40.89	1.610	48.26	1.900	3.683 +0.51	0.145 +0.020

Nominal Size		Pulled Tensile	
mm	in	N	lbs
31.75	1.25	3322	747
38.1	1.50	3972	893

Marking:

As specified in NEMA Standard Publication No. TC-7, the duct shall be clearly and durably marked at least every 3.05 meters (10 feet) with the material designation (HDPE for high density polyethylene), nominal size of the duct and the name and/or trademark of the manufacturer.

Performance Tests:

Polyethylene Duct testing procedures and test results shall meet the requirements of UL 651. Certified copies of the test report shall be submitted to the Engineer prior to the installation of the duct. Duct crush test results shall meet or exceed the following requirements:

Duct Diameter		**Min. force required to deform sample 50%**	
mm	in	N	lbs
35	1.25	4937	1110
41	1.5	4559	1025

WIRE AND CABLE

Effective: January 1, 2012

Add the following to the first paragraph of Article 1066.02(a):

"The cable shall be rated at a minimum of 90°C dry and 75°C wet and shall be suitable for installation in wet and dry locations, and shall be resistant to oils and chemicals."

Revise the Aerial Electric Cable Properties table of Article 1066.03(a)(3) to read:

Aerial Electric Cable Properties

Phase Conductor				Messenger wire	
Size AWG	Stranding	Average Insulation Thickness		Minimum Size AWG	Stranding
		mm	mils		
6	7	1.1	(45)	6	6/1
4	7	1.1	(45)	4	6/1
2	7	1.1	(45)	2	6/1
1/0	19	1.5	(60)	1/0	6/1
2/0	19	1.5	(60)	2/0	6/1
3/0	19	1.5	(60)	3/0	6/1
4/0	19	1.5	(60)	4/0	6/1

Add the following to Article 1066.03(b) of the Standard Specifications:

"Cable sized No. 2 AWG and smaller shall be U.L. listed Type RHH/RHW and may be Type RHH/RHW/USE. Cable sized larger than No. 2 AWG shall be U.L. listed Type RHH/RHW/USE."

Revise Article 1066.04 to read:

"Aerial Cable Assembly. The aerial cable shall be an assembly of insulated aluminum conductors according to Section 1066.02 and 1066.03. Unless otherwise indicated, the cable assembly shall be composed of three insulated conductors and a steel reinforced bare aluminum conductor (ACSR) to be used as the ground conductor. Unless otherwise indicated, the code word designation of this cable assembly is "Palomino". The steel reinforced aluminum conductor shall conform to ASTM B-232. The cable shall be assembled according to ANSI/ICEA S-76-474."

Revise the second paragraph of Article 1066.05 to read:

"The tape shall have reinforced metallic detection capabilities consisting of a woven reinforced polyethylene tape with a metallic core or backing."

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.

LUMINAIRE, LED

Effective: April 1, 2024

Description. This work shall consist of furnishing and installing a roadway LED luminaire as shown on the plans, as specified herein.

General. The luminaire including the housing, driver and optical assembly shall be assembled in the U.S.A. The luminaire shall be assembled by and manufactured by the same manufacturer. The luminaire shall be mechanically strong and easy to maintain. The size, weight, and shape of the luminaire shall be designed so as not to incite detrimental vibrations in its respective pole and it shall be compatible with the pole and arm. All electrical and electronic components of the luminaire shall comply with the requirements of Restriction of Hazardous Materials (RoHS) regulations. The luminaire shall be listed for wet locations by an NRTL and shall meet the requirements of UL 1598 and UL 8750

Submittal Requirements. The Contractor shall also submit the following manufacturer's product data for each type of luminaire:

1. Descriptive literature and catalogue cuts for luminaire, LED driver, and surge protection device. Completed manufacturer’s luminaire ordering form with the full catalog number provided

2. LED drive current, total luminaire input wattage and total luminaire current at the system operating voltage or voltage range and ambient temperature of 25 C.

3. LED efficacy per luminaire expressed in lumens per watt (l/w).

4. Initial delivered lumens at the specified color temperature, drive current, and ambient temperature.

5. IES file associated with each submitted luminaire in the IES LM-63 format.

6. Computer photometric calculation reports as specified and in the luminaire performance table.

7. TM-15 BUG rating report.

8. Isofootcandle chart with max candela point and half candela trace indicated.

9. Documentation of manufacturers experience and verification that luminaires were assembled in the U.S.A. as specified.

10. Written warranty.

Upon request by the Engineer, the submittals shall also include any or all the following:

a. TM-21 calculator spreadsheet (XLSX or PDF format) and if available, TM-28 report for the specified luminaire or luminaire family. Both reports shall be for 50,000 hours at an ambient temperature of 77 °F (25 °C).

b. LM-79 report with National Voluntary Laboratory Accreditation Program (NVLAP) current at the time of testing in PDF format inclusive of the following: isofootcandle diagram with half candela contour and maximum candela point; polar plots through maximum plane and maximum cone; coefficient of utilization graph; candela table; and spectral distribution graph and chromaticity diagram.

c. LM-80 report for the specified LED package in PDF format and if available, LM-84 report for the specified luminaire or luminaire family in PDF format. Both reports shall be conducted by a laboratory with NVLAP certification current at the time of testing.

d. AGi32 calculation file matching the submittal package.

e. In Situ Temperature Measurement Test (ISTMT) report for the specified luminaire or luminaire family in PDF format.

f. Vibration test report in accordance with ANSI C136.31 in PDF format.

g. ASTM B117/ASTM D1654 (neutral salt spray) test and sample evaluation report in PDF format.

h. ASTM G154 (ASTM D523) gloss test report in PDF format.

i. LED drive current, total luminaire input wattage, and current over the operating voltage range at an ambient temperature of 77 °F (25 °C).

j. Power factor (pf) and total harmonic distortion (THD) at maximum and minimum supply and at nominal voltage for the dimmed states of 70%, 50%, and 30% full power.

k. Ingress protection (IP) test reports, conducted according to ANSI C136.25 requirements, for the driver and optical assembly in PDF format.

l. Installation, maintenance, and cleaning instructions in PDF format, including recommendations on periodic cleaning methods.

m. Documentation in PDF format that the reporting laboratory is certified to perform the required tests.

A sample luminaire shall also be provided upon request of the Engineer. The sample shall be as proposed for the contract and shall be delivered by the Contractor to the District Headquarters. After review, the Contractor shall retrieve the luminaire.

Manufacturer Experience. The luminaire shall be designed to be incorporated into a lighting system with an expected 20 year lifetime. The luminaire manufacturer shall have a minimum of 15 years' experience manufacturing LED roadway luminaires; parking lot, architectural, or residential luminaires are not applicable to this requirement. The manufacturer shall have a minimum of 100,000 total LED roadway luminaires installed on a minimum of 100 separate installations, all within the U.S.A.

Housing.

Material. The luminaire shall be a single device not requiring onsite assembly for installation. The driver for the luminaire shall be integral to the unit.

Finish. The luminaire shall have a baked acrylic enamel finish. The color of the finish shall be gray, unless otherwise indicated.

The finish shall have a rating of six or greater according to ASTM D1654, Section 8.0 Procedure A – Evaluation of Rust Creepage for Scribed Samples after exposure to1000 hours of testing according to ASTM B117 for painted or finished surfaces under environmental exposure.

The luminaire finish shall have less than or equal to 30% reduction of gloss according to ASTM D523 after exposure of 500 hours to ASTM G154 Cycle 6 QUV® accelerated weathering testing.

The luminaire shall slip-fit on a mounting arm with a 2" diameter tenon (2.375" outer diameter), and shall have a barrier to limit the amount of insertion. The slip fitter clamp shall utilize four (4) bolts to

clamp to the tenon arm. The luminaire shall be provided with a leveling surface and shall be capable of being tilted ±5 degrees from the axis of attachment in 2.5 degree increments and rotated to any degree with respect to the supporting arm.

All external surfaces shall be cleaned in accordance with the manufacturer's recommendations and be constructed in such a way as to discourage the accumulation of water, ice, and debris.

The effective projected area of the luminaire shall not exceed 1.6 sq. ft.

The total weight including accessories, shall not exceed 40 lb (18.14 kg).

A passive cooling method with no moving, rotating parts, or liquids shall be employed for heat management.

The luminaire shall include a fully prewired, 7-pin twist lock ANSI C136.41-compliant receptacle. Unused pins shall be connected as directed by the Manufacturer and as approved by the Engineer. A shorting cap shall be provided with the luminaire that is compliant with ANSI C136.10.

Vibration Testing. All luminaires shall be subjected to and pass vibration testing requirements at "3G" minimum zero to peak acceleration in accordance with ANSI C136.31 requirements using the same luminaire. To be accepted, the luminaire housing, hardware, and each individual component shall pass this test with no noticeable damage and the luminaire must remain fully operational after testing.

Labels. An internal label shall be provided indicating the luminaire is suitable for wet locations and indicating the luminaire is an NRTL listed product to UL1598 and UL8750. The internal label shall also comply with the requirements of ANSI C136.22.

An external label consisting of two black characters on a white background with the dimensions of the label and the characters as specified in ANSI C136.15 for HPS luminaires. The first character shall be the alphabetical character representing the initial lumen output as specified in Table 1 of Article 1067.06(c). The second character shall be the numerical character representing the transverse light distribution type as specified in IES RP-8 (i.e. Types 1, 2, 3, 4, or 5).

Hardware. All hardware shall be stainless steel or of other corrosion resistant material approved by the Engineer.

Luminaires shall be designed to be easily serviced, having fasteners such as quarter-turn clips of the heavy spring-loaded type with large, deep straight slot heads, complete with a receptacle and shall be according to military specification MIL-f-5591.

All hardware shall be captive and not susceptible to falling from the luminaire during maintenance operations. This shall include lens/lens frame fasteners as well hardware holding the removable driver and electronic components in place.

Provisions for any future house-side external or internal shielding should be indicated along with means of attachment.

Circuiting shall be designed to minimize the impact of individual LED failures on the operation of the other LED's.

Wiring. Wiring within the electrical enclosure shall be rated at 600v, 105°C or higher.

Driver.

The driver shall be integral to the luminaire shall be capable of receiving an indefinite open and short circuit output conditions without damage.

The driver shall incorporate the use of thermal foldback circuitry to reduce output current under abnormal driver case temperature conditions and shall be rated for a lifetime of 100,000 hours at an ambient temperature exposure of 77 °F (25 °C) to the luminaire. If the driver has a thermal shut down feature, it shall not turn off the LEDs when operated at 104 °F (40 °C) or less.

The driver shall have an input voltage range of 120 to 277 volts (± 10%) or 347 to 480 volts (± 10%) according to the contract documents. When the driver is operating within the rated input voltage range and in an un-dimmed state, the power factor measurement shall be not less than 0.9 and the THD measurement shall be no greater than 20%.

The driver shall meet the requirements of the FCC Rules and Regulations, Title 47, Part 15 for Class A devices with regard to electromagnetic compatibility. This shall be confirmed through the testing methods in accordance with ANSI C63.4 for electromagnetic interference.

The driver shall be dimmable using the protocol listed in the Luminaire Performance Table shown in the contract.

Surge Protection. The luminaire shall comply the requirements of ANSI C136.2 for electrical transient immunity at the “Extreme” level (20KV/10KA) and shall be equipped with a surge protective device (SPD) that is UL1449 compliant with indicator light. An SPD failure shall open the circuit to protect the driver.

LED Optical Assembly.

The optical assembly shall have an IP 65 or higher rating in accordance with ANSI C136.25. The circuiting of the LED array shall be designed to minimize the effect of individual LED failures on the operation of other LEDs. All optical components shall be made of glass or a UV stabilized, non-yellowing material.

The optical assembly shall utilize high brightness, long life, minimum 70 CRI, 4,000K color temperature (+/-300K) LEDs binned in accordance with ANSI C78.377. Lenses shall be UV-stabilized acrylic or glass.

Lumen depreciation at 50,000 hours of operation shall not exceed 15% of initial lumen output at the specified LED drive current and an ambient temperature of 25° C.

The luminaire may or may not have a glass lens over the LED modules. If a glass lens is used, it must be a flat lens. Material other than glass will not be acceptable. If a glass lens is not used, the LED modules may not protrude lower than the luminaire housing.

The assembly shall have individual serial numbers or other means for manufacturer tracking.

Photometric Performance.

Luminaires shall be tested according to IESNA LM-79. This testing shall be performed by a test laboratory holding accreditation from the National Institute of Standards and Technology (NIST) National Voluntary Laboratory Accreditation Program (NVLAP) for the IESNA LM-79 test procedure.

Data reports as a minimum shall yield an isofootcandle chart, with max candela point and half candela trace indicated, maximum plane and maximum cone plots of candela, a candlepower table (house and street side), a coefficient of utilization chart, a luminous flux distribution table, spectral distribution plots, chromaticity plots, and other standard report outputs of the above mentioned tests.

The luminaire shall have a BUG rating of Back Light B3 or less, Up Light rating of U0, and a Glare rating of G3 or less unless otherwise indicated in the luminaire performance table.

Photometric Calculations.

Calculations. Submitted report shall include a luminaire classification system graph with both the recorded lumen value and percent lumens by zone along with the BUG rating according to IESNA TM-15.

Complete point-by-point luminance and veiling luminance calculations as well as listings of all indicated averages and ratios as applicable shall be provided in accordance with IESNA RP-8 recommendations. Lighting calculations shall be performed using AGi32 software with all luminance calculations performed to one decimal place (i.e. x.x cd/m2). Uniformity ratios shall also be calculated to one decimal place (i.e. x.x:1). Calculation results shall demonstrate that the submitted luminaire meets the lighting metrics specified in the project Luminaire Performance Table(s). Values shall be rounded to the number of significant digits indicated in the luminaire performance table(s).

All photometry must be **photopic**. Scotopic or mesopic factors will not be allowed. The AGi32 file shall be submitted at the request of the Engineer.

IDOT DISTRICT 1 LUMINAIRE PERFORMANCE TABLE
ROADWAY LIGHTING

GIVEN CONDITIONS

Roadway Data	Pavement Width		Ft
	Number of Lanes Left of Median		
	Number of Lanes Right of Median		
	Lane Width		Ft
	Median Width		Ft
	IES Surface Classification	R3	
	Q-Zero Value	0.07	
Mounting Data	Mounting Height		Ft
	Mast Arm Length		Ft
	Pole Set-Back from Edge of Pavement		Ft
Luminaire Data	Source	LED	
	Color Temperature	4000	°K
	Lumens		Min
	Pay Item Lumen Designation	Choose an item.	
	BUG Rating		
	IES Vertical Distribution		
	IES Control of Distribution		
	IES Lateral Distribution		
	Total Light Loss Factor	0.75	
Pole Layout Data	Spacing		Ft
	Configuration	Choose an item.	
	Luminaire Overhang over E.O.P.		Ft

NOTE: Variations from the above specified I.E.S. distribution pattern may be requested, and acceptance of variations will be subject to review by the Engineer based on how well the performance requirements are met.

PERFORMANCE REQUIREMENTS

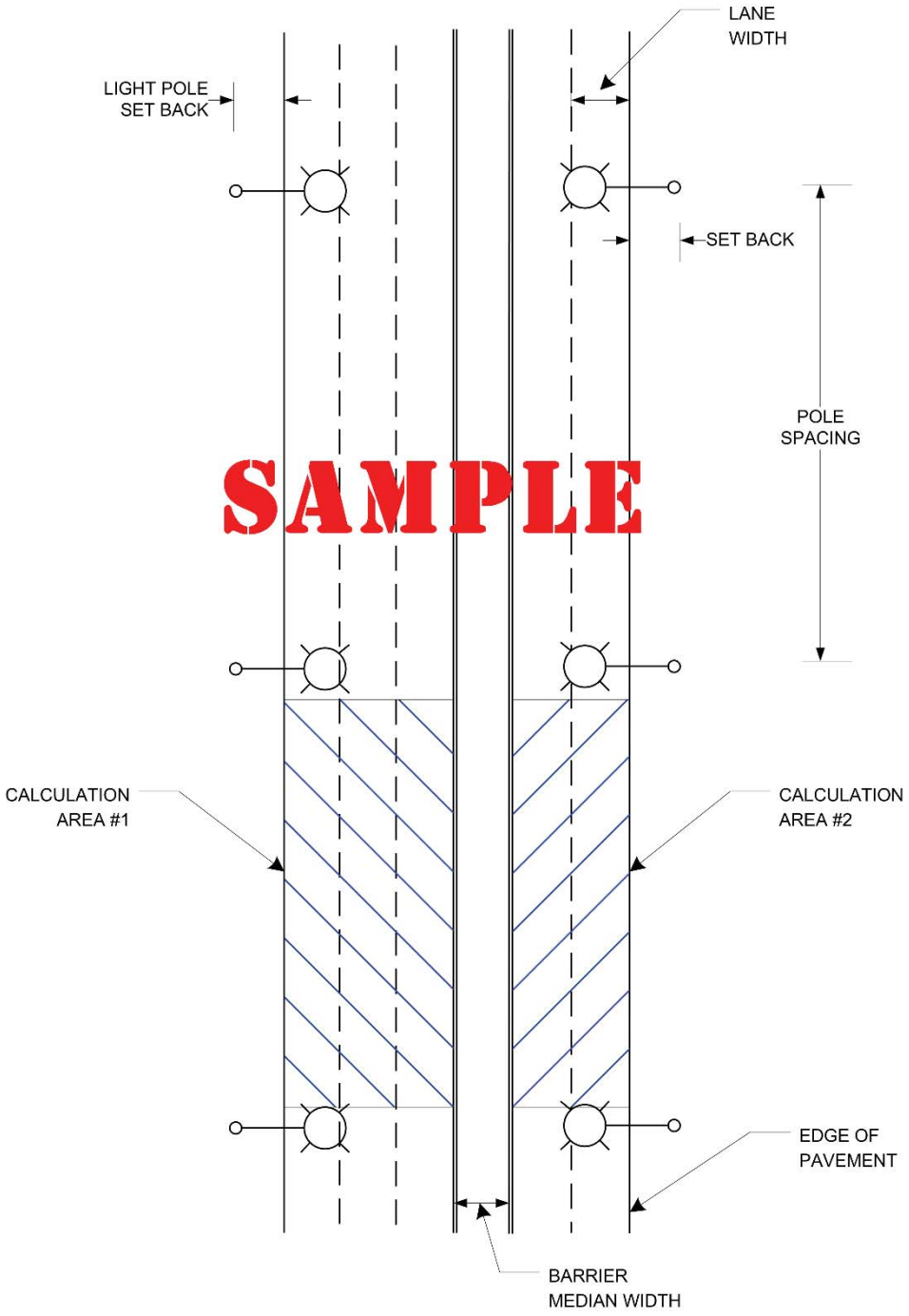
NOTE: These performance requirements shall be the minimum acceptable standards of photometric performance for the luminaire, based on the given conditions listed above.

Roadway Luminance	Average Luminance, L_{AVE} (Max)		Cd/m^2
	Average Luminance, L_{AVE} (Min)		Cd/m^2
	Uniformity Ratio, L_{AVE}/L_{MIN}		Max
	Uniformity Ratio, L_{MAX}/L_{MIN}		Max
	Veiling Luminance Ratio, L_V/L_{AVE}		Max

INSERT DRAWING OF POLE LAYOUT. THIS IS A SAMPLE DIAGRAM.

ALL DIAGRAMS MUST BE PROJECT SPECIFIC COORDINATED WITH THE LUMINAIRE PERFORMANCE TABLES.

INTERSECTIONS OR CURVES CANNOT BE USED.



Independent Testing.

When a contract has 50 or more luminaires of the same type (distribution type and lumen output/wattage), that luminaire type shall be independently tested, unless otherwise noted. The quantity of luminaires to be tested shall be as specified in the following table.

Contract Quantity	**Luminaires to be Tested**
1-49	0 (unless otherwise noted)
50-100	2
101-150	3
151-200	4
201-250	5
251-300	6
301-350	7

The Contractor shall coordinate the testing with the contract schedule considering submittal, manufacturing, testing, and installation lead-times and deadlines.

The Electrical Engineer shall select from all the project luminaires at the Contractor's or distributor's storage facility, within District 1, the luminaires for testing. In all cases, the selection of luminaires shall be a random selection from the entire completed lot of luminaires required for the contract. Selections from partial lots will not be allowed. An additional luminaire shall also be selected for physical inspection by the Engineer at the District Headquarters. This luminaire will be available for the Contractor to pick up at a later date to be installed under this contract. This luminaire is in addition to the luminaire required as a part of the submittal process specified elsewhere.

Alternative selection process. With the Engineer's prior approval, the Contractor shall provide a list of luminaire serial numbers for all the luminaires. The Engineer shall make a random selection of the required number of luminaires for testing from the serial numbers. That luminaire must then be photographed clearly showing the serial number prior to shipment to the selected and approved testing laboratory. The testing laboratory shall include a photograph of the luminaire along with the test results directly to the Engineer.

Luminaires shall be tested at a National Voluntary Laboratory Accreditation Program (NVLAP) accredited laboratory approved for each of the required tests. The testing facility shall not be associated in any way, subsidiary or otherwise, with the luminaire manufacturer. All costs associated with luminaire testing shall be included in the bid price of the luminaire.

The selection of the proposed independent laboratory shall be presented with the information submitted for review and approval.

The testing performed shall include photometric and electrical testing.

All tests shall be conducted at the luminaire system operating voltage of 240 volts unless specified differently in the contract plans.

Photometric testing shall be according to IES recommendations, performed with a goniophotometer and as a minimum, shall yield an isofootcandle chart, with max candela point and half candela trace indicated, an isocandela diagram, maximum planned and maximum cone plots of candela, a candlepower table (House and street side), a coefficient of utilization chart, a luminous flux distribution table, BUG rating report, and complete calculations based on specified requirements and test results.

Electrical testing shall conform to NEMA and ANSI standards and, as a minimum shall include a complete check of wiring connections and a table of characteristics showing input amperes, watts, power factor, total harmonic distortion and LED drive current.

The summary report and the test results including IES photometric files shall be sent directly to the Resident Engineer, the Electrical Engineer, and the Contractor via email or other mutually agreeable means.

Photometric performance shall meet or exceed that of the specified values. If the luminaire does not meet the specified photometric values, the luminaire has failed regardless of whether the test results meet the submitted factory data.

Should any of the tested luminaires of a given type, and distribution fail to satisfy the specifications and perform according to approved submittal information, the luminaire type of that distribution type and wattage shall be unacceptable and be replaced by alternate equipment meeting the specifications with the submittal and testing process repeated in their entirety; or corrections made to achieve required performance.

In the case of corrections, the Contractor shall advise the Engineer of the proposed corrections and shall request a repeat of the specified testing and, if the corrections are deemed reasonable by the Engineer, the testing process shall be repeated in its entirety.

The number of luminaires to be tested shall be the same quantity as originally tested as required in the above table.

Retesting, should it become necessary, shall not be grounds for additional compensation or extension of time.

Submittal information shall include a statement of intent to provide the testing as well as a request for approval of the chosen laboratory.

Installation.

Each luminaire shall be installed according to the luminaire manufacturer’s recommendations.

Luminaires which are pole mounted shall be mounted on site such that poles and arms are not left unloaded. Pole mounted luminaires shall be leveled/adjusted after poles are set and vertically aligned before being energized. When mounted on a tenon, care shall be exercised to assure maximum insertion of the mounting tenon. Each luminaire shall be checked to assure compatibility with the project power system. When the night-time check of the lighting system by the Engineer indicates that any luminaires are mis-aligned, the mis-aligned luminaires shall be corrected at no additional cost.

No luminaire shall be installed prior to approval. Where independent testing is required, full approval will not be given until complete test results, demonstrating compliance with the specifications, have been reviewed and accepted by the Engineer.

Pole wiring shall be provided with the luminaire. Pole wire shall run from handhole to luminaire. Pole wire shall be sized No. 10, rated 600 V, RHW/USE-2, and have copper conductors, stranded in conformance with ASTM B 8. Pole wire shall be insulated with cross-linked polyethylene (XLP) insulation. Pole wire shall include a phase, neutral, and green ground wire. Wire shall be trained within the pole or sign structure so as to avoid abrasion or damage to the insulation.

Pole wire shall be extended through the pole, pole grommet, luminaire ring, and any associated arm and tenon. The pole wire shall be terminated in a manner that avoids sharp kinks, pinching, pressure on the insulation, or any other arrangement prone to damaging insulation value and producing poor megger test results. Wires shall be trained away from heat sources within the luminaire. Wires shall be terminated so all strands are extended to the full depth of the terminal lug with the insulation removed far enough so it abuts against the shoulder of the lug, but is not compressed as the lug is tightened.

Included with the pole wiring shall be fusing located in the handhole. Fusing shall be according to Article 1065.01 with the exception that fuses shall be 6 amperes.

Each luminaire and optical assembly shall be free of all dirt, smudges, etc. Should the optical assembly require cleaning, a luminaire manufacturer approved cleaning procedure shall be used.

Horizontal mount luminaires shall be installed in a level, horizontal plane, with adjustments as needed to insure the optics are set perpendicular to the traveled roadway.

When the pole is bridge mounted, a minimum size stainless steel 1/4-20NC set screw shall be provided to secure the luminaire to the mast arm tenon. A hole shall be drilled and tapped through the tenon and luminaire mounting bracket and then fitted with the screw.

Warranty.

The entire luminaire and all of its component parts shall be covered by a 10-year warranty. Failure is when one or more of the following occur:

1) Negligible light output from more than 10 percent of the discrete LEDs.
2) Significant moisture that deteriorates performance of the luminaire.
3) Driver that continues to operate at a reduced output due to overheating.

The warranty period shall begin on the date of luminaire delivery. The Contractor shall verify that the Resident Engineer has noted the delivery date in the daily diary. Copy of the shipment and delivery documentation shall be submitted with the final documentation.

The replacement luminaire shall be of the same manufacturer, model, and photometric distribution as the original.

Method of Measurement. The rated initial minimum luminous flux (lumen output) of the light source, as installed in the luminaire, shall be according to the following table for each specified output designation.

Designation Type	Minimum Initial Luminous Flux	Designation Type	Minimum Initial Luminous Flux
A	2,200	F	12,500
B	3,150	G	15,500
C	4,400	H	25,200
D	6,300	I	33,000
E	9,450		

Where delivered lumens is defined as the minimum initial delivered lumens at the specified color temperature. Luminaires with an initial luminous flux less than the values listed in the above table will not be acceptable even if they meet the requirements given in the Luminaire Performance table shown in the contract.

Basis of Payment. This work will be paid for at the contract unit price per each for LUMINAIRE, LED, ROADWAY, of the output designation specified.

BREAKAWAY DEVICE

Effective: January 1, 2023

Revise the first sentence of Article 1070.04(b)(2) to read:

"The device shall be approximately 9 in. (230 mm) high and shall have a large fiberglass or polyethylene access door of a color to match the base finish which shall be held in place with a button-type tamper resistant stainless-steel screw or other means approved by the Engineer."

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 will 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."

TRAFFIC SIGNAL POST

Effective: May 22, 2002
Revised: July 14, 2021
875.01TS

Revise Article 1077.01 (c) of the Standard Specifications to read:

(c) Anchor Rods. The anchor rods shall be a minimum of 5/8 in. in diameter and 16 in. long and shall be according to Article 1006.09. The anchor rods shall be threaded approximately 6 in. at one end and have a bend at the other end. The first 12 in. at the threaded end shall be galvanized. One each galvanized nut and trapezoidal washer shall be furnished with each anchor rod. The washer shall be properly sized to fully engage and sit flush on all sides of the slot of the base plate.

Revise the first sentence of Article 1077.01 (d) of the Standard Specifications to read:

All posts shall be steel and bases shall be cast iron. All posts and bases shall be hot dipped galvanized according to AASHTO M 111. If the Department approves painting, powder coating by the manufacturer will be required over the galvanization in accordance with 851.01TS TRAFFIC SIGNAL PAINTING Special Provisions.

MAST ARM ASSEMBLY AND POLE

Effective: May 22, 2002
Revised: July 01, 2015
877.01TS

Revise the second sentence of Article 1077.03 (a)(3) of the Standard Specifications to read:

Traffic signal mast arms shall be one piece construction, unless otherwise approved by the Engineer.

Add the following to Article 1077.03 (a)(3) of the Standard Specifications:

If the Department approves painting, powder coating by the manufacturer will be required over the galvanization in accordance with 851.01TS TRAFFIC SIGNAL PAINTING Special Provisions.

CONCRETE FOUNDATIONS

Effective: May 22, 2002
Revised: March 1, 2024
878.01TS

Add the following to Article 878.03 of the Standard Specifications:

"All anchor bolts shall be according to Article 1006.09, with all anchor bolts hot dipped galvanized a minimum of 12 in. at the threaded end.

Depending on the foundation type, the top of foundation shall be between 1 in. and 6 in. above finished grade or as directed by the Engineer.

No foundation is to be poured until the Resident Engineer gives their approval as to the depth of the foundation."

Add the following to the first paragraph of Article 878.05 of the Standard Specifications:

"The concrete apron in front of the cabinet and UPS shall be included in this pay item."

Revise the first paragraph of Article 878.05 of the Standard Specifications to read:

"Basis of Payment. This work will be paid for at the contract unit price per foot (meter) of depth of CONCRETE FOUNDATION of the type specified, or CONCRETE FOUNDATION, TYPE A 12-INCH DIAMETER for pedestrian post concrete foundations."

LIGHT EMITTING DIODE (LED) SIGNAL HEAD AND OPTICALLY PROGRAMMED LED SIGNAL HEAD

Effective: May 22, 2002
Revised: March 1, 2024
880.01TS

Materials. Add the following to Section 1078 of the Standard Specifications:

"LED modules proposed for use and not previously approved by IDOT District One will require independent testing for compliance to current VTCSH-ITE standards for the product and be Intertek ETL Verified. This would include modules from new Vendors and new models from IDOT District One approved Vendors.

The proposed independent testing facility shall be approved by IDOT District One. Independent testing must include a minimum of two (2) randomly selected modules of each type of module (i.e. ball, arrow, pedestrian, etc.) used in the District and include as a minimum Luminous Intensity and Chromaticity tests. However, complete module performance verification testing may be required by the Engineer to assure the accuracy of the Vendor's published data and previous test results. An IDOT representative will select sample modules from the local warehouse and mark the modules for testing. Independent

test results shall meet current ITE standards and vendor's published data. Any module failures shall require retesting of the module type. All costs associated with the selection of sample modules, testing, reporting, and retesting, if applicable, shall be the responsibility of the LED module Vendor and not be a cost to this Contract.

All signal heads shall provide 12 in. (300 mm) displays with glossy yellow or black polycarbonate housings. All head housings shall be the same color (yellow or black) at the intersection. For new signalized intersections and existing signalized intersections where all signals heads are being replaced, the proposed head housings shall be black. Where only selected heads are being replaced, the proposed head housing color (yellow or black) shall match existing head housings. Connecting hardware and mounting brackets shall be polycarbonate (black). A corrosion resistant anti-seize lubricant shall be applied to all metallic mounting bracket joints and shall be visible to the inspector at the signal turn-on. Post top mounting collars are required on all posts and shall be constructed of the same material as the brackets.

The LED signal modules shall be replaced or repaired if an LED signal module fails to function as intended due to workmanship or material defects. LED signal modules which exhibit luminous intensities less than the minimum values specified in Table 1 of the ITE Vehicle Traffic Control Signal Heads: Light Emitting Diode (LED) Circular Signal Supplement (June 27, 2005) [VTCSH], or applicable successor ITE specifications, or show signs of entrance of moisture or contaminants, shall be replaced or repaired. The Vendor's written warranty for the LED signal modules shall be dated, signed by a Vendor's representative, and included in the product submittal to the State. See Article 801.14 of the Standard Specifications for warranty information.

(a) Physical and Mechanical Requirements

(1) Modules can be manufactured under this specification for the following faces:

a. 12 in. (300 mm) circular, multi-section
b. 12 in. (300 mm) arrow, multi-section

(2) The maximum weight of a module shall be 4 lb (1.8 kg).

(3) Each module shall be a sealed unit to include all parts necessary for operation (a printed circuit board, power supply, a lens and gasket, etc.) and shall be weatherproof after installation and connection.

(4) The lens of the module shall be tinted with a wavelength-matched color to reduce sun phantom effect and enhance on/off contrast. The tinting shall be uniform across the lens face. Polymeric lens shall provide a surface coating or chemical surface treatment applied to provide abrasion resistance. The lens of the module shall be integral to the unit, convex with a smooth outer surface and made of plastic. The lens shall have a textured surface to reduce glare.

(5) The use of tinting or other materials to enhance ON/OFF contrasts shall not affect chromaticity and shall be uniform across the face of the lens.

(6) Each module shall have a symbol of the type of module (i.e. circle, arrow, etc.) in the color of the module. The symbol shall be 1 in. (25.4 mm) in diameter. Additionally, the color shall be written out in 1/2 in. (12.7mm) letters next to the symbol.

(b) Photometric Requirements

(1) The LEDs utilized in the modules shall be AlInGaP technology for red and InGaN for green and amber indications and shall be the ultra bright type rated for 100,000 hours of continuous operation from -40 °C to 74 °C.

(c) Electrical

(1) Maximum power consumption for LED modules as per the tables in Article 1078.01.

(2) Operating voltage of the modules shall be 120 VAC. All parameters shall be measured at this voltage.

(3) The modules shall be operationally compatible with currently used controller assemblies (solid state load switches, flashers, and conflict monitors).

(4) When a current of 20 mA AC or less is applied to the unit, the voltage read across the two leads shall be 15 VAC or less.

(5) The LED modules shall provide constant light output under power. Modules with dimming capabilities shall have the option disabled or set on a non-dimming operation.

(6) LED arrows shall be wired such that a loss or the failure of one or more LEDs

(d) Retrofit Traffic Signal Module

The following specification requirements apply to the Retrofit module only. All general specifications apply unless specifically superseded in this section.

(1) Retrofit modules can be manufactured under this specification for the following faces:

a. 12 in. (300 mm) circular, multi-section
b. 12 in. (300 mm) arrow, multi-section

(2) Each Retrofit module shall be designed to be installed in the doorframe of a standard traffic signal housing. The Retrofit module shall be sealed in the doorframe with a one-piece EPDM (ethylene propylene rubber) gasket.

(3) The maximum weight of a Retrofit module shall be 4 lb (1.8 kg).

(4) Each Retrofit module shall be a sealed unit to include all parts necessary for operation (a printed circuit board, power supply, a lens and gasket, etc.) and shall be weatherproof after installation and connection.

(5) Electrical conductors for modules, including Retrofit modules, shall be 39-2/5 in. (1 m) in length, with quick disconnect terminals attached.

(6) The lens of the Retrofit module shall be integral to the unit, shall be convex with a smooth outer surface and made of plastic or of glass.

(e) The following specification requirements apply to the 12 in. (300 mm) arrow module only. All general specifications apply unless specifically superseded in this section.

(1) The arrow module shall meet specifications stated in Section 9.01 of the Equipment and Material Standards of the Institute of Transportation Engineers (November 1998) [ITE Standards], Chapter 2 (Vehicle Traffic Control Signal Heads) or applicable successor ITE specifications for arrow indications.

(2) The LEDs arrow indication shall be a solid display with a minimum of three (3) outlining rows of LEDs and at least one (1) fill row of LEDs.

(f) The following specification requirement applies to the 12 in. (300 mm) programmed visibility (PV) module only. All general specifications apply unless specifically superseded in this section.

(1) The LED module shall be a module designed and constructed to be installed in a programmed visibility (PV) signal housing without modification to the housing.

Delete the fourth paragraph of Article 880.03 of the Standard Specifications. Refer to the "Bagging Signal Heads" section of the District 1 Traffic Signal Special Provision 800.01TS TRAFFIC SIGNAL GENERAL REQUIREMENTS."

Basis of Payment. Add the following to the first paragraph of Article 880.04 of the Standard Specifications:

"The price shall include furnishing the equipment described above, all mounting hardware and installing them in satisfactory operating condition."

Revise the second paragraph of Article 880.04 of the Standard Specifications to read:

If the work consists of retrofitting an existing polycarbonate traffic signal head with light emitting diodes (LEDs), it will be paid for as a SIGNAL HEAD, LED, RETROFIT, of the type specified, and of the particular kind of material, when specified. Price shall be payment in full for removal of the existing module, furnishing the equipment described above including LED modules, all mounting hardware, and installing them in satisfactory operating condition. The type specified will indicate the number of signal faces, the number of signal sections in each signal face and the method of mounting.

LIGHT EMITTING DIODE (LED) PEDESTRIAN SIGNAL HEAD

Effective: May 22, 2002
Revised: March 1, 2024
881.01TS

Add the following to the third paragraph of Article 881.03 of the Standard Specifications:

"No mixing of different types of pedestrian traffic signals or displays shall be permitted."

Delete the fourth paragraph of Article 881.03 of the Standard Specifications. Refer to the "Bagging Signal Heads" section of the District 1 Traffic Signal Special Provision 800.01TS TRAFFIC SIGNAL GENERAL REQUIREMENTS.

Add the following to Article 881.03 of the Standard Specifications:

"Pedestrian Countdown Signal Heads shall be 16 in. (406mm) x 18 in. (457mm) single units with glossy yellow or black polycarbonate housings. All pedestrian head housings shall be the same color (yellow or black) at the intersection. For new signalized intersections and existing signalized intersections where all pedestrian heads are being replaced, the proposed head housings shall be black. Where only selected heads are being replaced, the proposed head housing color (yellow or black) shall match existing head housings. Connecting hardware and mounting brackets shall be polycarbonate (black). A corrosion resistant anti-seize lubricant shall be applied to all metallic mounting bracket joints, and shall be visible to the inspector at the signal turn-on.

Each pedestrian signal LED module shall be fully MUTCD compliant and shall consist of double overlay message combining full LED symbols of an Upraised Hand and a Walking Person. "Egg Crate" type sun shields are not permitted. Numerals shall measure 9 in. (229mm) in height and easily identified from a distance of 120 ft (36.6m)."

Materials.
Add the following to Article 1078.02 of the Standard Specifications:

"The module shall operate in one mode: Clearance Cycle Countdown Mode Only. The countdown module shall display actual controller programmed clearance cycle and shall start counting when the flashing clearance signal turns on and shall countdown to "0" and turn off when the steady Upraised Hand (symbolizing Don't Walk) signal turns on. The module shall not have user accessible switches or controls for modification of cycle.

At power on, the module shall enter a single automatic learning cycle. During the automatic learning cycle, the countdown display shall remain dark.

The module shall re-program itself if it detects any increase or decrease of Pedestrian Timing. The counting unit will go blank once a change is detected and then take one complete pedestrian cycle (with no counter during this cycle) to adjust its buffer timer.

If the controller preempts during the Walking Person (symbolizing Walk), the countdown will follow the controller's directions and will adjust from Walking Person to flashing Upraised Hand. It will start to count down during the flashing Upraised Hand.

If the controller preempts during the flashing Upraised Hand, the countdown will continue to count down without interruption.

The next cycle following the preemption event shall use the correct, initially programmed values.

If the controller output displays Upraised Hand steady condition and the unit has not arrived to zero or if both the Upraised Hand and Walking Person are dark for some reason, the unit suspends any timing and the digits will go dark.

The digits will go dark for one pedestrian cycle after loss of power of more than 1.5 seconds.

The countdown numerals shall be two (2) “7 segment” digits forming the time display utilizing two rows of LEDs.

The LED module shall meet the requirements of the Institute of Transportation Engineers (ITE) LED purchase specification, “Pedestrian Traffic Control Signal Indications - Part 2: LED Pedestrian Traffic Signal Modules,” or applicable successor ITE specifications, except as modified herein.

The LED modules shall provide constant light output under power. Modules with dimming capabilities shall have the option disabled or set on a non-dimming operation.

In the event of a power outage, light output from the LED modules shall cease instantaneously.

The LEDs utilized in the modules shall be AlInGaP technology for Portland Orange (Countdown Numerals and Upraised Hand) and GaN technology for Lunar White (Walking Person) indications.

The individual LEDs shall be wired such that a loss or the failure of one or more LED will not result in the loss of the entire module.

See Article 801.14 of the Standard Specifications for warranty information.”

Basis of Payment.
Add the following to the first paragraph of Article 881.04 of the Standard Specifications:

“The price shall include furnishing the equipment described above, all mounting hardware, and installing them in satisfactory operating condition.”

Add the following to Article 881.04 of the Standard Specifications:

“If the work consists of retrofitting an existing polycarbonate pedestrian signal head and pedestrian countdown signal head with light emitting diodes (LEDs), it will be paid for as a PEDESTRIAN SIGNAL HEAD, LED, RETROFIT, of the type specified, and of the particular kind of material, when specified. Price shall be payment in full for furnishing the equipment described above including LED modules, all mounting hardware, and installing them in satisfactory operating condition.”

TRAFFIC SIGNAL BACKPLATE

Effective: May 22, 2002
Revised: March 1, 2024
882.01TS

Revise the first sentence of Article 1078.03 of the Standard Specifications to read:

"All backplates shall be louvered and made of formed ABS plastic or composite aluminum."

Revise the first sentence of the second paragraph of Article 1078.03 of the Standard Specifications to read:

"The backplate shall be composed of one or two pieces."

Delete the second sentence of the fourth paragraph of Article 1078.03 of the Standard Specifications.

Add the following to the fourth paragraph of Article 1078.03 of the Standard Specifications:

"When retro reflective sheeting is specified, it shall be Type ZZ sheeting according to Article 1091.03 and applied in preferred orientation for the maximum angularity according to the vendor's recommendations. The retroreflective sheeting shall be installed under a controlled environment by the Manufacturer/Vendor before shipment to the Contractor. The formed plastic backplate shall be prepared and cleaned, following recommendations of the retroreflective sheeting Manufacturer."

Revise the first sentence of the third paragraph of Article 1078.03 of the Standard Specifications to read:

"The backplate shall have a 1 in. (25mm) wide fluorescent yellow retroreflective strip applied to the outside perimeter of the face."

EMERGENCY VEHICLE PRIORITY SYSTEM

This work shall consist of furnishing and installing a new light detector and light detector amplifier, consisting of a multimode phase selector, for an intersection's emergency vehicle priority (EVP) system.

All new installations shall be equipped with Confirmation Beacons as shown on the "District One Standard Traffic Signal Design Details." The Confirmation Beacon shall consist of a 6 watt Par 38 LED flood lamp with a 30 degree light spread, or a 7 watt Par 30 LED flood lamp with a 15 degree or greater spread, maximum 7 watt energy consumption at 120V, and a 2,000 hour warranty for each direction of pre-emption. The lamp shall have an adjustable mount with a weatherproof enclosure for cable splicing. All hardware shall be cast aluminum or stainless steel. Holes drilled into signal poles, mast arms, or posts shall require rubber grommets. In order to maintain uniformity between communities, the confirmation beacons shall indicate when the control equipment receives the pre-emption signal. The pre-emption movement shall be signalized by a flashing indication at the rate specified by Section 4L.01 of the "Manual on Uniform Traffic Control Devices," and other applicable sections of future editions. The stopped pre-empted movements

shall be signalized by a continuous indication.

The multimode phase selectors for this project shall be Opticom and shall be compatible with the City's Centralized EVP Management System in accordance with the requirements set forth below. The EVP system at each intersection shall be fully operational to the satisfaction of the Engineer.

Multimode Priority Control System

A multimode priority control system shall operate in a manner that allows infrared, and GPS/Radio priority control technologies to interoperate and activate one another in a consistent manner. The priority control system shall consist of a matched system of vehicle equipment and intersection equipment capable of employing both data-encoded radio communications to identify the presence of designated priority vehicles, as well as data-encoded infrared signaling communications. In preemption mode, the data-encoded communication shall request the traffic signal controller to advance to and/or hold a desired traffic signal display selected from phases normally available. A record of system usage by agency identification number, vehicle classification and vehicle identification number shall be created. The system software shall support call history analysis and reporting across any subset of intersections and/or vehicles independent of activation method. System software shall also support both onsite and remote programming and monitoring of the priority control system.

The vehicle equipment may include a GPS radio unit and vehicle control unit or a data encoded infrared emitter employing either a strobe or LED based light source. The GPS receiver on the vehicle shall obtain vehicle location, heading and speed from the U.S. Department of Defense (DoD) operated satellites. The GPS radio vehicle equipment shall also monitor the vehicle's turn signal status. A 2.4 GHz spread spectrum/frequency hopping radio in the vehicle equipment shall transmit this data to nearby intersections, only when it is within radio communication range of an intersection, which is received by a similar radio located at the intersection. The vehicle radio shall communicate to intersection radios at distances up to at least 2,500 feet (762 m) with no obstructions. If an infrared data-encoded emitter is employed on the vehicle, it shall send an encoded infrared signal to the detector, with a range capability of 2,000 feet minimum.

Intersection detection equipment will consist of either a GPS receiver and radio transceiver or an infrared detector or both connected to a multimode phase selector located in the intersection controller cabinet. The GPS radio unit receives the data-encoded radio signal from the GPS radio equipped vehicle and transmits the decoded information through detector cable to the multimode phase selector for processing. The intersection radios also communicates to vehicles and other intersection radios at distances of up to at least 2,500 feet (762m) with no obstructions. The infrared detector receives the data-encoded infrared signal from the infrared equipped vehicle and transmits information through detector cable designed to convert infrared light energy at the proper wavelength into analog voltage signals that can be evaluated and decoded by the multimode phase selector.

The multimode phase selector shall be capable of receiving data encoded signals from either or both infrared and GPS radio detection equipment and combine the detection signals into a single set of tracked vehicles requesting priority activation. The multimode phase selector will process the vehicle information to ensure that the vehicle is (1) in a predefined approach corridor, (2) heading toward the intersection, (3) requesting priority, and (4) within user-settable range. The multimode phase selector shall treat the combined, single set of tracked calls with first come first served priority methodology within a given priority level. Arbitration between infrared signal intensity and

GPS radio distance/ETA shall be first come first served methodology based on time of detection as each equipped vehicle reaches its programmed threshold.

When these conditions are met, the phase selector shall generate a priority control request to the traffic controller for the approaching priority vehicle. If the approaching GPS radio preemption equipped vehicle has an active turn signal, the approach intersection shall relay the priority request to the next nearest in-range intersection in the direction of the approaching vehicle's turn signal. The output of the phase selector may also be varied depending on the state of the approaching vehicle's turn signal.

To ensure priority control system integrity, operation and compatibility, all components shall be from the same manufacturer. The system shall offer compatibility with the most signal controllers, e.g. the latest NEMA (National Electrical Manufacturers Association) controllers. The system can be interfaced with most globally available controllers using the controller's preemption inputs. The necessary interfaces shall be provided to allow management by on-site interface software and central software.

The central software shall manage the region's priority control system as a single, integrated system, independent of the particular activation method or methods (infrared or GPS/radio) used within the region. The central software shall allow each intersection within the region to be configured with one or more phase selectors with varying methods of activation; e.g., one infrared phase selector and one GPS/radio phase selector or a multimode phase selector. The central software shall allow each vehicle within the region to be configured with priority control equipment with varying methods of activation; e.g., an infrared emitter and a GPS/radio vehicle control unit.

The central software shall support analysis of priority control activity at an intersection and/or for a vehicle as it is migrated between activation methods (e.g., migrated from infrared to GPS/radio). This analysis shall allow the user to readily determine whether the priority control system has retained its effectiveness across the migration. When a phase selector is removed or replaced at an intersection (e.g., replacing an infrared phase selector with a GPS/radio phase selector or multimode phase selector), call history and configuration history from that phase selector shall still be available for use in analysis and reporting in the central software.

The central software shall provide a means to filter the display such that only the information relevant to the activation method in use is shown to the user.

Matched System Components
As stated above, the signal preemption/priority system is comprised of matched system components. These components are further described as follows:

1. GPS Radio System Components

    a. *Vehicle/Intersection radio/GPS module, Radio/GPS Antenna with factory terminated SMA connectors, and vehicle control unit.* The radio/GPS module shall obtain the vehicle position, speed and heading information and transmit this information only when within range of a GPS radio preemption equipped intersection. The vehicle control unit shall communicate with the radio/GPS module and provide the interface to the vehicle in order to monitor the vehicle's turn signal status, provide activation and disable inputs as well as regulate the

vehicle power provided to the radio/GPS module.

b. *Intersection Radio/GPS Module.* The intersection radio/GPS module shall transmit a beacon every second and receive the data transmitted by the vehicle equipment and relay this information to the phase selector as well as other system-equipped intersections. It shall also obtain position information from the GPS satellites.
c. *Radio/GPS Cable*. The radio/GPS cable shall carry the data received from the intersection radio/GPS unit to the phase selector. It shall also carry the power for the radio and GPS components provided by the phase selector. The same cable shall be used to carry the data between the vehicle radio/GPS unit and the vehicle control unit. The cable used to connect the radio/GPS unit to the phase selector shall be a shielded 10 conductor data cable; the use of coax cable is not permitted.

2. Infrared System Components

a. *Data-Encoded LED Infrared Emitter*. The data-encoded emitter shall trigger the system. It shall send the encoded infrared signal to the detector. It shall be located on the priority or probe vehicle.
b. *Remote Coding Unit.* The remote coding unit shall be capable of remotely programming the data-encoded LED infrared emitter without the use of a computer. The remote coding unit will not be available for use with the OEM version of the data-encoded LED emitter.
c. *Infrared Detector.* The detector shall change the infrared signal to an electrical signal. It shall be located at or near the intersection. It shall send the electrical signal via the detector cable to the phase selector.
d. *Detector Cable.* The detector cable shall carry the electrical signal from the detector to the phase selector.

3. Multimode System Components

a. *Multimode Phase Selector*. The multimode phase selector shall recognize inputs from both infrared and GPS/radio activation methods at the intersection and supply coordinated inputs to the controller. The multimode phase selector shall process the data in order to validate that all parameters required for granting a priority request are met. It shall be located within the controller cabinet at the intersection. It shall request the controller to provide priority to a valid priority vehicle by connecting its outputs to the traffic controller's preemption inputs.
b. *Card Rack*. The card rack shall provide simplified installation of a phase selector into controller cabinets that do not already have a suitable card rack.
c. *Auxiliary Interface Panel*. The auxiliary panel shall provide additional preemption outputs if needed. It shall also provide a connection point for the phase selector to monitor the status of the intersection's green lights (green sense). Additional RS-232 communication ports may also be accessed via this panel. If additional outputs are not required, an auxiliary harness shall be used

to monitor the status of the intersection's green lights.

d. *Base Station.* The base station module is used at fire stations that are located very close to intersections. When the base station is activated, all nearby equipped intersection/s or only those intersections in the planned direction of travel shall immediately begin requesting preemption from the traffic controller. The base station shall wirelessly communicate to intersections near the station that can be activated from the base station controller and/or passing vehicles that are equipped with GPS radio vehicle equipment.

Multimode Phase Selector

1. The multimode phase selector recognizes inputs from both infrared and GPS/radio activation methods at the intersection and supplies coordinated inputs to the controller.

2. The multimode phase selector is designed to be installed in the traffic controller cabinet and is intended for use directly with numerous controllers. These include controllers with compatible software, NEMA controllers, or other controllers along with the system card rack and suitable interface equipment and controller software.

3. The multimode phase selector will be a plug-in, four channel, multiple-priority, multi-modal device intended to be installed directly into a card rack located within the controller cabinet. The multi-mode phase selector shall be capable of using existing infrared or GPS/radio system card racks.

4. The multimode phase selector may be powered from either +24 VDC or 120VAC.

5. The multimode phase selector shall support front-panel RS-232, USB and Ethernet interfaces to allow management by on-site interface software and central software. An RS-232 port shall be provided on the rear card edge of the unit. Additional RS-232 communication ports shall be available using the Auxiliary Interface Panel.

6. The multimode phase selector shall include the ability to directly sense the green traffic controller signal indications through the use of dedicated sensing circuits and wires connected directly to field wire termination points in the traffic controller cabinet. This connection shall be made using the auxiliary interface panel.

7. The multimode phase selector shall have the capability of storing a minimum of 10,000 priority control calls. When the log is full, the phase selector shall drop the oldest entry to accommodate the new entry. The phase selector shall store each call record in non-volatile memory and shall retain the record if power terminates. Each preemption record entry shall include the following points of information about the priority call:

    a. Agency: Indicates the operating agency of the vehicle.

    b. Classification: Indicates the class type of vehicle.

    c. Identification number: Indicates the unique ID number of the vehicle.

d. Priority level: Indicates the vehicle's priority level (High, Low or Probe).

e. Direction: Channel A, B, C, or D; indicates the vehicle's direction of travel.

f. Call duration: Indicates the total time in seconds the priority status is active.

g. Final greens at end of call: Indicates which phases are green at the end of the call.

h. Duration of the final greens: Indicates the total time final greens were active at the end of call.

i. Time and date call started and ended: Indicates the time a priority call started and ended, provided in seconds, minutes, hours, day, month, and year.

j. Turn signal status: Indicates the status of the turn signal during the call.

k. Priority output active: Indicates if the phase selector requested priority from the controller for the call.

l. Historical no preempt cause: Indicates a history of conditions, which may have prevented a call or caused a call to terminate.

m. Speed of vehicle: entry speed, exit speed, average speed through call.

n. Relative priority: relative priority of vehicle class logged at time of call.

o. Directional priority: directional priority logged at time of call.

p. Preempt output used.

q. Signal intensity: maximum and minimum infrared signal intensity during call.

8. The multimode phase selector shall support a minimum of 5000 code pairs (agency ID, vehicle ID) providing unique vehicle identification and system security implementation at the vehicle level.

9. The multimode phase selector shall include several programmable control timers that will limit or modify the duration of a priority control condition, by channel. The control timers will be as follows:

   a. MAX CALL TIME: Sets the maximum time that a channel is allowed to be held active by a specific vehicle. It shall be settable from 60 to 65,535 seconds in one-second increments. The factory default shall be 360 seconds.

   b. OFF APPROACH CALL HOLD TIME: Sets the amount of time a call is held on a channel after the vehicle has left the approach. It shall be settable from 4 to 255 seconds in one-second increments. The factory default shall be 6 seconds.

   c. LOST SIGNAL CALL HOLD TIME: Sets the amount of time that a call is held on a channel after the intersection has lost contact with the vehicle. It shall be settable from one to 255 seconds in one-second increments. The factory default shall be six seconds.

10. The multimode phase selector shall have the ability to enable or disable all calls of both priority levels. This shall be independently settable by channel.

11. A unique intersection name, which shall be broadcasted, shall be settable for each multimode phase selector.

12. Up to 25 different radio channels shall be available to be assigned to the multimode phase selector.

13. The multimode phase selector shall operate in a mode that shall vary the output based on the status of the approaching vehicles turn signal. Additional outputs available on an Auxiliary Interface Panel may be needed. Settings shall be available for this mode as follows:

    a. Output mappings for each channel.

    b. Separate setting for each of the four channels.

    c. Separate settings for each left turn, right turn or straight signal status for each of the above four channels.

14. The multimode phase selector's default values shall be programmable by the operator on-site or at a remote location.

15. The multimode phase selector shall be capable of three levels of signal discrimination, as follows:

    a. Verification of the presence of the signal of either High priority or Low priority.

    b. Verification that the vehicle is approaching the intersection within a prescribed Estimate Time of Arrival (ETA).

    c. Determination of when the vehicle is within the prescribed range, either by intensity level or distance from the intersection.

16. The multimode phase selector shall include one opto-isolated NPN output per channel that provides the following electrical signal to the appropriate pin on the card edge connector:

    a. .25Hz ± 0.1Hz 50% on/duty square wave in response to a Low priority call.

    b. A steady ON in response to a High priority call.

    c. The phase selector will also have the option of providing separate outputs for High and Low priority calls for controllers that do not recognize a 6.25 Hz pulsed Low priority request.

    d. Additional outputs or output modes shall also be available on the auxiliary interface panel.

17. The multimode phase selector shall accommodate three methods for setting range thresholds for High and Low priority signals:

a. Based on the approaching vehicle's Estimated Time of Arrival (ETA). This shall be settable between 0 and 255 seconds in one second increments. The factory default shall be 30 seconds. The ETA threshold shall be independently settable by each of the following parameters: vehicle class, approach channel and priority level.

b. Based on the approaching vehicle's distance from the intersection. This shall be settable between 0 and 5,000 feet in one foot increments. The factory default shall be 1000 feet. The Distance threshold shall be independently settable by each of the following parameters: vehicle class, channel and priority level.

c. Based on infrared emitter intensity the system shall accommodate setting a separate range from 200 feet (61m) to 2,500 feet (762m) with 1,200 range set points for both High and Low priority signals.

18. The multimode phase selector shall support three types of green sense logging.

    a. Preemption impact logging which measures and records the impact of an individual signal preemption upon a measured green cycle time.

    b. TSP impact logging which measures and records whether a TSP advantage was gained during a request and the amount of early or extended green applied.

    c. Green cycle logging records changes in the average green cycle time. When the average time is measured to have changed, a new log entry is made.

19. The multimode phase selector will have the following indicators:

    a. A STATUS indicator that illuminates steadily to indicate proper operation.

    b. A link indicator on the multimode phase selector illuminates green if other radios are within range.

    c. A radio indicator that indicates the status of the communication between the vehicle control unit and the radio/GPS unit. The indicator illuminates amber to indicate that there is communication between the vehicle control unit and the radio/GPS unit. The indicator illuminates green to indicate that a GPS signal has been acquired and the 2.4 GHz radio is on the air.

    d. LED indicators (one for High priority, one for Low priority) for each channel display active calls as steady ON and pulse to indicate pending preemption requests.

20. The phase selector shall have a test switch for each channel to test proper operation of High or Low priority.

21. The multimode phase selector shall utilize the time obtained from the GPS satellites to time stamp the activity logs. The user will set the local time zone (offset from GPS time) via the interface software

22. The interface software shall have the capability to set the multimode phase selector to automatically adjust the GPS time offset for changes in daylight savings time.

23. An auxiliary interface panel shall be available to facilitate interconnections between the multimode phase selector and traffic cabinet wiring as well as provide additional outputs.

24. A multimode phase selector port may be configured to output GPS data at a user selectable baud rate in the NMEA 0183format. It will output the following messages (depending on the baud rate):

    a. GGA - Global Positioning System Fix Data (2400 baud and higher);

    b. GSA- GPS DOP and active satellites (2400 baud and higher);

    c. GSV - Satellites in view (4800 baud and higher); and

    d. RMC - Recommended Minimum Navigation Information (1200 baud and higher).

    For traffic controllers that are capable of interpreting GPS data in the NMEA 0183 serial format, this GPS data may be used to synchronize the controller's clock using the GPS date and time.

    Additionally, a discrete output from the phase selector may be used to reset the traffic controller using the clock reset function/input of the controller. This output shall be available on the Auxilliary Interface Panel. This output shall be referenced to the GPS date and time.

    This output may be configured as follows:

    a. Enabled or Disabled;

    b. Time of day reset is activated (12:00 A.M. to 6:00 A.M. in 30 minute increments);

    c. Duration of reset pulse (100-2,000 milliseconds); or

    d. Repeat every 1 to 30 days.

25. The multimode phase selector shall provide the user with call play-back logs for the last 100 priority activation requests. Each log shall contain up to the last 250 seconds of a call. The call play-back logs shall include:

    a. GPS/radio based calls shall record vehicle speed, heading, signal quality, GPS location, coded ID, green sense state, call status (active, pending, disabled), approach channel and turn signal status and priority information.

    b. Infrared based calls shall record intensity, coded ID, green sense state, call status (active, pending, disabled), approach channel and priority information.

    c. Data shall be recorded once per second. Recording terminates at call end.

26. The following diagnostic tests are incorporated in the multimode phase selector:

    a. Power up built in test;

b. Communications port tests;

c. Preemption output test call; and

d. Detector response test.

27. The multimode phase selector shall be capable of call bridging. Call bridging enables the treatment of two vehicles requesting priority activation to have their calls linked together to hold a call to the controller so that they may traverse the approach together.

28. The multimode phase selector shall be capable of directional priority. Priority for calls may be assigned to individual approach channels such that calls in a particular direction will be given priority over calls in competing directions within the same priority level.

29. When used with a GPS Radio Unit, the multimode phase selector shall relay a priority request to the next adjacent intersection based on the direction indicated by the vehicle's turn signals.

30. The multimode phase selector shall be capable of utilizing time plans to allow users to vary priority activation by time of day, or for a specific time period such as special events. Time plans shall be configured via system software.

31. The multimode phase selector shall support evacuation mode for low priority calls. Upon activation of this mode from the central management software, low priority vehicle calls shall be recognized by the multimode phase selector as if they were high priority vehicle calls for a temporary period of time as defined by the user. This mode shall be supported for both infrared and GPS radio emitters. Vehicles transmitting high priority signals shall continue to maintain priority over the evacuation mode priority vehicles.

32. The multimode phase selector shall allow relative priority. Relative priority allows emitter classes to be used as an additional level of prioritization within priority levels (i.e. high and low priority levels have different sets of relative priorities). Relative priority shall support up to 15 unique classes in each priority level (High and Low). Relative priority class level 15 will have the highest weight and 1 the lowest weight in each. If relative priority is enabled, a priority call will be granted to the caller with the higher class level within high and low priority levels. A vehicle with a call granted, shall be able to have its call taken away by a higher level class vehicle. The system shall provide a lockout threshold that once met, shall disallow higher relative priority calls from taking away a call. Separate thresholds for infrared and GPS/radio calls shall be provided. Infrared call thresholds shall be specified as an intensity with a default value of 1,000. GPS/radio call thresholds shall be specified as an ETA in seconds. The default is ETA shall be 12 seconds. Threshold values for both types of calls shall be settable via system software. High priority calls will always be served over low priority calls regardless of either's relative class. Preemption for vehicles with the same base priority (high, low) and the same relative priority is done using the default first come, first served mechanism. Relative priority is capable of being

enabled or disabled using system software. Relative priority for high and low can be separately enabled or disabled using system software. The default settings for all relative priority (high and low) values will be 15. Relative priority shall be disabled by default for both high and low priority.

Basis of Payment. This work will be paid for at the contract unit price each for furnishing and installing LIGHT DETECTOR and LIGHT DETECTOR AMPLIFIER. Furnishing and installing the confirmation beacon shall be included in the cost of the light detector. Any required modifications to the traffic signal controller shall be considered as included in the contract unit bid price for LIGHT DETECTOR AMPLIFIER. The preemption detector amplifier shall be paid for on a basis of (1) one each per intersection controller and shall provide operation for all movements required in the pre-emption phase sequence.

TEMPORARY TRAFFIC SIGNAL INSTALLATION

Effective: May 22, 2002
Revised: March 1, 2024
890.01TS

Revise Section 890 of the Standard Specifications to read:

Description.
This work shall consist of furnishing, installing, maintaining, and removing a temporary traffic signal installation as shown on the plans, including but not limited to temporary signal heads, emergency vehicle priority systems, interconnect, vehicle detectors, uninterruptable power supply, and signing. When temporary traffic signals will be operating within a traffic signal system, the equipment shall be compatible with the current operating requirements of the system. 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.

General.
Only an approved controller Vendor will be allowed to assemble a temporary traffic signal and railroad traffic signal cabinet. Traffic signal inspection and TURN-ON shall be according to 800.01TS TRAFFIC SIGNAL GENERAL REQUIREMENTS special provision.

Construction Requirements.
(a) Controllers. Only controllers supplied by one of the District approved Vendors will be approved for use at temporary signal locations. All controllers used for temporary traffic signals shall be fully actuated NEMA microprocessor based with RS232 data entry ports compatible with existing monitoring software approved by IDOT District 1, installed in NEMA TS2 cabinets with 8 phase back panels, capable of supplying 255 seconds of cycle length and individual phase length settings up to 99 seconds. On projects with one lane open and two-way traffic flow, such as bridge deck repairs, the temporary signal controller shall be capable of providing an adjustable all red clearance setting of up to 250 seconds in length. All controllers used for temporary traffic signals shall meet or exceed the requirements of Section 857 of the Standard Specifications with regards to internal time base coordination and preemption. All railroad interconnected temporary controllers and cabinets shall be new and shall satisfy the requirements of Article 857.02 of the Standard Specifications and as modified herein.

On projects with multiple temporary traffic signal installations, all controllers shall be the same Manufacturer brand and model number with the latest version software installed at the time of the signal TURN-ON, or as specified in the Contract.

(b) Cabinets. Only control equipment, including controller cabinet and peripheral equipment, supplied by one of the District approved Vendors will be approved for use at temporary traffic signal locations. All control equipment for the temporary traffic signal(s) shall be furnished by the Contractor unless otherwise stated in the Contract. All temporary traffic signal cabinets shall have a closed bottom. The bottom shall be sealed along the entire perimeter of the cabinet base to ensure a water, dust, animal, and insect-proof seal. The bottom shall provide a minimum of two (2) 4 in. (100 mm) diameter holes to run the electric cables through. The 4 in. (100 mm) diameter holes shall have a bushing installed to protect the electric cables and shall be sealed after the electric cables are installed.

(c) Grounding. Grounding shall be provided for the temporary traffic signal cabinet meeting or exceeding the applicable portions of the National Electrical Code, Section 806 of the Standard Specifications and shall meet the requirements of the “Grounding of Traffic Signal Systems” section of 800.01TS TRAFFIC SIGNAL GENERAL REQUIREMENTS special provision.

(d) Traffic Signal Heads. All traffic signal sections shall be 12 in. (300 mm). Pedestrian signal sections shall be 16 in. (406mm) x 18 in. (457mm). All signal heads shall be furnished with tunnel visors unless otherwise specified in the contract. Traffic signal sections shall be Light Emitting Diode (LED) with expandable view, unless otherwise approved by the Engineer. Pedestrian signal heads shall be LED Pedestrian Countdown Signal Heads. The temporary traffic signal heads shall be placed as indicated on the temporary traffic signal plan or as directed by the Engineer. If no traffic staging is in place or will not be staged on the day of the turn on, the temporary traffic signal shall have the signal head displays, signal head placements and controller phasing match the existing traffic signal or shall be as directed by the Engineer. The Contractor shall furnish enough extra cable length to relocate heads to any position on the span wire or at locations illustrated on the plans for construction staging. The temporary traffic signal shall remain in operation during all signal head relocations. Each temporary traffic signal head shall have its own cable from the controller cabinet to the signal head.

(e) Interconnect.

(1) Temporary traffic signal interconnect shall be provided using fiber optic cable or wireless interconnect technology as specified in the Contract. If the Contract specifies fiber optic cable to be used for temporary interconnect, the Contractor may request, in writing, to substitute the fiber optic temporary interconnect with a wireless interconnect. The Contractor must provide assurances that the radio device will operate properly at all times and during all construction staging. If approved for use by the Engineer, the Contractor shall submit marked-up traffic signal plans indicating locations of radios and antennas and installation details. If wireless interconnect is used, and in the opinion of the Engineer it is not viable, or if it fails during testing or operations, the Contractor shall be responsible for installing

all necessary poles, fiber optic cable, and other infrastructure for providing temporary fiber optic interconnect at no cost to the Contract.

(2) The existing system interconnect and phone lines are to be maintained as part of the Temporary Traffic Signal Installation specified for on the plan. If the existing traffic signal has a cellular modem, the modem shall be temporarily relocated to the temporary signal. The temporary signal cabinet shall have an antenna supplied by the Contractor. Any existing network switches shall be temporarily relocated to the temporary signal. Any existing pan-tilt-zoom (PTZ) cameras shall be temporarily relocated to the temporary signal. The interconnect, including any required fiber splices and terminations, shall be installed into the temporary controller cabinet as per the notes or details on the plans. All labor and equipment required to install and maintain the existing interconnect as part of the Temporary Traffic Signal Installation shall be included in the cost of TEMPORARY TRAFFIC SIGNAL INSTALLATION. The temporary traffic signal interconnect shall maintain interconnect communications throughout the entire signal system for the duration of the project.

(3) Temporary wireless interconnect for closed-loop systems. The radio interconnect system shall be compatible with Eagle/Yunex or Econolite controller closed loop systems. This work shall include all temporary wireless interconnect components at the adjacent existing traffic signal(s) to provide a completely operational closed loop system. This work shall include all materials, labor and testing to provide the completely operational closed loop system as shown on the plans. The radio interconnect system shall include the following components:

a. Rack or Shelf Mounted RS-232 Frequency Hopping Spread Spectrum (FHSS) Radio

b. Software for Radio Configuration (Configure Frequency and Hopping Patterns)

c. Antennas (Omni Directional or Yagi Directional)

d. Antenna Cables, LMR400, Low Loss. Maximum 100 ft from controller cabinet to antenna

e. Brackets, Mounting Hardware, and Accessories Required for Installation

f. RS232 Data Cable for Connection from the radio to the local or master controller

g. All other components required for a fully functional radio interconnect system

All controller cabinet modifications and other modifications to existing equipment that are required for the installation of the radio interconnect system components shall be included in the cost of TEMPORARY TRAFFIC SIGNAL INSTALLATION.

The radio interconnect system may operate at 900Mhz (902-928) or 2.4 Ghz depending on the results of a site survey. The telemetry shall have an acceptable rate of transmission errors, time outs, etc. comparable to that of a hardwire system.

The proposed or existing master controller and telemetry module shall be configured for use with the radio interconnect at a minimum rate of 9600 baud.

The radio interconnect system shall include all other components required for a complete and fully functional telemetry system and shall be installed in accordance with the Vendor's recommendations.

Temporary wireless interconnect for Advanced Traffic Management Systems. The radio interconnect system shall be compatible with an ATMS.

(f) Emergency Vehicle Preemption. All emergency vehicle preemption equipment (light detectors, light detector amplifiers, confirmation beacons, etc.) as shown on the temporary traffic signal plans shall be provided by the Contractor. It shall be the Contractor's responsibility to contact the municipality or fire district to verify the brand of emergency vehicle preemption equipment to be installed prior to the Contract bidding. The equipment must be completely compatible with all components of the equipment currently in use by the Agency. All light operated systems shall operate at a uniform rate of 14.035 hz ±0.002, or as otherwise required by the Engineer, and provide compatible operation with other light systems currently being operated in the District. All labor and material required to install and maintain the Emergency Vehicle Preemption installation shall be included in the item TEMPORARY TRAFFIC SIGNAL INSTALLATION.

(g) Vehicle Detection. All temporary traffic signal installations shall have vehicular detection installed at all approaches of the intersection and as directed by the Engineer. Video vehicle detection systems shall be approved by IDOT prior to the Contractor furnishing and installing. The Contractor shall install, wire, and adjust the alignment of the video vehicle detection system in accordance to the Manufacturer's recommendations and requirements. The Contractor shall be responsible for adjusting the alignment of the video vehicle detection system for all construction staging changes and for maintaining proper alignment throughout the project. The Vendor shall be present and assist the contractor in setting up the video vehicle detection system. An in-cabinet video monitor shall be provided with all video vehicle detection systems and shall be included in the item TEMPORARY TRAFFIC SIGNAL INSTALLATION.

(h) Pedestrian push-buttons. Pedestrian push-buttons shall be provided for all pedestrian signal heads/phases or as directed by the Engineer. Accessible Pedestrian Signal (APS) buttons shall be installed at any location where they currently exist. All push-buttons shall be latching and have MUTCD R10-3e signs with proper arrows.

(i) Uninterruptable Power Supply. All temporary traffic signal installations shall have an Uninterruptable Power Supply (UPS). The UPS cabinet shall be mounted to the temporary traffic signal cabinet and shall be according to the applicable portions of Section 862 of the Standard Specifications and as modified in the current District One Traffic Signal Special Provision 862.01TS UNITERRUPTABLE POWER SUPPLY, SPECIAL.

(j) Signs. All existing signs shall be removed from existing poles and relocated to the temporary signal. If new mast arm assembly and pole(s) and posts are specified for the permanent signals, the signs shall be relocated to the new equipment at no extra cost.

Any signs that are required for the temporary traffic signal shall be provided as shown on the plans or as directed by the Engineer. Relocation, removing, bagging and installing signs for the various construction stages shall be provided as shown on the plans or as directed by the Engineer. If Illuminated Street Name Signs exist, they shall be taken down and stored by the Contractor, and the Contractor shall furnish reflectorized street name signs on the temporary traffic signal installation.

(k) Energy Charges. The electrical utility energy charges for the operation of the temporary traffic signal installation shall be paid for by others if the installation replaces an existing signal. Otherwise, charges shall be paid for under 109.05 of the Standard Specifications.

(l) Maintenance.

(1) Maintenance shall meet the requirements of the Standard Specifications and the "Maintenance and Responsibility of Traffic Signal and Flashing Beacon Installations" section of the current District One Traffic Signal Special Provision 800.01TS TRAFFIC SIGNAL GENERAL REQUIREMENTS.

(2) Maintenance of temporary signals and of the existing signals shall be included in the cost of the TEMPORARY TRAFFIC SIGNAL INSTALLATION pay item. When temporary traffic signals are to be installed at locations where existing signals are presently operating, the Contractor shall be fully responsible for the maintenance of the existing signal installation as soon as they begin any physical work on the Contract or any portion thereof.

(3) The temporary signal responsibility shall begin at the start of temporary signal construction and shall end with the removal of the signal as directed by the Engineer.

(m) Temporary Traffic Signals for Bridge Projects. Temporary Traffic Signals for bridge projects shall follow the State Standards, Standard Specifications, Special Provisions and any plans for Bridge Temporary Traffic Signals included in the Contract. The installation shall meet the Standard Specifications and all other requirements in this TEMPORARY TRAFFIC SIGNAL INSTALLATION specification. In addition, all electric cable shall be aerially suspended at a minimum height of 18 ft (5.5m) on temporary wood poles (Class 5 or better) of 45 ft (13.7 m) minimum height. The signal heads shall be span wire mounted or bracket mounted to the wood pole or as directed by the Engineer. The Controller cabinet shall be mounted to the wood pole as shown in the plans, or as directed by the Engineer. A video vehicle detection system may be used in place of detector loops as approved by the Engineer or as shown in the Contract.

(n) Temporary Portable Traffic Signal for Bridge Projects.

(1) The controller and cabinet shall be NEMA type designed for NEMA TS2 Type 1 operation. Controller and LED signal displays shall meet the applicable Standard Specifications and all other requirements in this TEMPORARY TRAFFIC SIGNAL INSTALLATION special provision.

(2) Work shall be according to Article 701.18(b) of the Standard Specifications except as noted herein.

(3) General.

a. The temporary portable bridge traffic signals shall be trailer-mounted units. The trailer-mounted units shall be set up securely and level. Each unit shall be self-contained and consist of two signal heads. The left signal head shall be mounted on a mast arm capable of extending over the travel lane. Each unit shall contain a solar cell system to facilitate battery charging. There shall be a minimum of twelve (12) days backup reserve battery supply and the units shall be capable of operating with a 120 V power supply from a generator or electrical service.

b. All signal heads located over the travel lane shall be mounted at a minimum height of 17 ft (5 m) from the bottom of the signal back plate to the top of the road surface. All far right signal heads located outside the travel lane shall be mounted at a minimum height of 8 ft (2.5 m) from the bottom of the signal back plate to the top of the adjacent travel lane surface.

c. The long all red intervals for the traffic signal controller shall be adjustable up to 250 seconds in one-second increments.

d. As an alternative to detector loops, temporary portable bridge traffic signals may be equipped with other approved methods of vehicle detection and traffic actuation.

e. All portable traffic signal units shall be interconnected using hardwire communication cable. Radio communication equipment may be used only with the approval of the Engineer. If radio communication is used, a site analysis shall be completed to ensure that there is no interference present that would affect the traffic signal operation. The radio equipment shall meet all applicable FCC requirements.

f. The temporary portable bridge traffic signal system shall meet the physical display and operational requirements of conventional traffic signals as specified in Part IV and other applicable portions of the currently adopted version of the Manual on Uniform Traffic Control Devices (MUTCD) and the Illinois MUTCD. The signal system shall be designed to continuously operate over an ambient temperature range between -30ºF (-34ºC) and 120ºF (48ºC). When not being utilized to inform and direct traffic, portable signals shall be treated as non-operating equipment according to Article 701.11.

Basis of Payment.

This work will be paid for at the contract unit price per each for TEMPORARY TRAFFIC SIGNAL INSTALLATION, TEMPORARY BRIDGE TRAFFIC SIGNAL INSTALLATION, or TEMPORARY PORTABLE BRIDGE TRAFFIC SIGNAL INSTALLATION, the price of which shall include all costs for the modifications required for traffic staging, changes in signal phasing as required in the contract plans, video vehicle detection systems, any maintenance or adjustment to the video vehicle detection system, the temporary wireless interconnect system, temporary fiber optic

interconnect system, all material required, the installation and complete removal of the temporary traffic signal, and any changes required by the Engineer. Each location will be paid for separately.

MODIFY EXISTING CONTROLLER CABINET

Description. The work shall consist of modifying the existing controller cabinets at adjacent intersections identified in the plans for the addition and/or removal of equipment to provide a fully operational interconnect system to the satisfaction of the Engineer.

The installation of new fiber optic cable, a fiber optic transceiver, and/or ethernet switch to an existing controller cabinet could require the relocation of the existing controller cabinet items to allow for the installation of the new components inside the existing controller cabinet. Any reorganization of the traffic signal components inside the cabinet shall be done in a neat and workmanlike fashion, to the satisfaction of the Engineer.

The Contractor shall become responsible for the maintenance of the existing signalized intersection at a date and for a duration mutually agreed upon between the Contractor and the signal maintaining agency representative.

Basis of Payment.
Modifying an existing controller cabinet will be paid for at the contract unit price per each for MODIFY EXISTING CONTROLLER CABINET, which price shall include the removal and disposal of all items removed from the controller cabinet, as directed by the Engineer.

Maintenance of the existing signalized intersection will be paid for at the contract unit price per each for MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION.

REMOVE EXISTING TRAFFIC SIGNAL EQUIPMENT

Effective: May 22, 2002
Revised: March 1, 2024
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 shall be disposed of outside the right-of-way at the contractor's expense.
>
> All equipment to be returned to the City of Aurora shall be delivered by the contractor to the City's maintenance facility at 339 Middle Avenue. The contractor shall contact Mr. Scott Miller at (630) 256-3821 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 five (5) hard copies and one (1) electronic file of a list of equipment that is to remain the property of the City, 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 the equipment is not returned according to these requirements, it will be rejected by City personnel. 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 City. A delivery receipt will be signed by the City personnel indicating the items have been returned.

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

EMERGENCY VEHICLE PRIORITY SYSTEM LINE SENSOR CABLE, NO. 20 3/C

Effective: January 1, 2013
Revised: July 1, 2015
873.03TS

This work shall consist of furnishing and installing lead-in cable for light detectors installed at existing and/or proposed traffic signal installations as part of an emergency vehicle priority system. The work includes installation of the lead-in cables in existing and/or new conduit. The electric cable shall be shielded and have (3) stranded conductors, colored blue, orange, and yellow with a stranded tinned copper drain wire. The cable shall meet the requirements of the vendor of the Emergency Vehicle Priority System Equipment.

Basis of Payment.
This work will be paid for at the contract unit price per foot for EMERGENCY VEHICLE PRIORITY SYSTEM LINE SENSOR CABLE, NO. 20 3/C, which price shall be payment in full for furnishing, installing and making all electrical connections necessary for proper operations.

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 will be paid for at the contract unit price per 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.

BIKE PATH REMOVAL

Description. This work shall consist of the complete removal of existing hot-mix asphalt path, at the locations indicated in the plans or as directed by the Engineer. This work shall be in accordance with the applicable portions of Section 440 of the Standard Specifications and this special provision.

Method of Measurement. Bike path removal will be measured for payment in place and the area computed in square yards.

Basis of Payment. The removal of existing hot-mix asphalt path will be paid for at the contract unit price per square yard for BIKE PATH REMOVAL.

The removal of existing concrete path will be paid for at the contract unit price per square yard for SIDEWALK REMOVAL.

TERMINAL SERVER

Description. This work shall consist of furnishing and installing a terminal server used to transmit signal controller data from one or more traffic signal controllers to the City of Aurora Centralized Transportation Management System (CTMS). The contractor shall furnish and install the required hardware at the location shown on the plans or as directed by the Engineer.
If it is determined that a terminal server is not needed to establish communications between the traffic signal controller(s) and the CTMS, due to the existing CTMS infrastructure, then this item shall be deleted from the contract and no compensation will be allowed.

System Requirements. The terminal server must be compatible with the City's CTMS infrastructure. The terminal server shall be one of the following, or an alternative selected by the City:

- Digi PortServer TS Hcc 4 four-port serial-to-Ethernet device with 120V power supply and Digi RJ45/DB25-male-DCE-48" cable

- Comtrol DeviceMaster DM-2304 four-port serial-to-Ethernet device with 120V power supply and a 9-pin to 25-pin serial cable

The contractor shall provide a null modem if required by the manufacturer for communication.

The terminal server 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 device menus.

The terminal server shall be properly configured for its location within the City's CTMS ethernet network, and for proper communication with the signal equipment being connected to it.
Except where indicated otherwise in the special provisions or plans, the City of Aurora will provide the IP address and serial drop addresses upon request.

The required programming shall be included in the cost of this pay item.

Basis of Payment. This work will be paid for at the contract unit price per each for TERMINAL SERVER, which price shall include all equipment; materials; licenses, programming; testing and documentation; and labor required to add a traffic signal controller(s) to the centralized system.

BRICK PAVERS

This work shall consist of installing brick pavers at the locations indicated in the plans or as directed by the Engineer. The brick pavers and their installation shall be in accordance with the applicable portions of Section 606 of the Standard Specifications, the details included in the plans, and this special provision.

The brick pavers for this project shall be "Unilock Series 3000, color Mocha Brown". The Contractor shall provide the Engineer with a brick paver sample for approval by the City of Aurora prior to installation.

The bricks shall be placed on a 2" layer of bedding sand. The sand shall be compacted to the satisfaction of the Engineer, to prevent settlement and/or shifting of the bricks. The bricks shall also be placed on a variable depth layer of concrete, which will serve as a leveling pad between the sand and the existing pavement below. Weep holes with a minimum diameter of 1" shall be drilled all the way through the new concrete and existing pavement in order to drain the sand layer. The weep holes shall be spaced at 25' centers and shall be located on each side of the median in normal crown areas or on the low side of the median in superelevated areas. Filter fabric shall be provided between the sand and concrete to prevent the sand from entering the weep holes.

Method of Measurement
Brick pavers will be measured for payment in place and the area computed in square feet.

Basis of Payment
This work will be paid for at the contract unit price per square foot for BRICK PAVERS, which price shall include the furnishing and installation of the brick pavers, sand, filter fabric and concrete, as well as the drilling of the weep holes.

PEDESTRIAN SIGNAL POST

Effective: January 1, 2020
Revised:
875.02TS

Description.
This work shall consist of furnishing and installing a metal pedestrian signal post. All installations shall meet the requirements of the "District One Standard Traffic Signal Design Details".

Materials.

(a) General. The pedestrian signal post shall be designed to support the traffic signal loading shown on the plans. The design and fabrication shall be according to the Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, as published by AASHTO.

(b) Post. The post shall be made of steel or aluminum and have an outside diameter of 4 1/2 in. The post shall be threaded for assembly to the base. Aluminum posts shall be according to the specifications for Schedule 80 aluminum pipe. Steel posts shall be according to the specifications for Schedule 40 steel pipe.

(c) Base. The base of a steel post shall be cast iron. The base of an aluminum post shall be aluminum. The base shall be threaded for the attachment to the threaded post. The base shall be approximately 10 in. high and 6 3/4 in. square at the bottom. The bottom of the base shall be designed to accept four 5/8 in. diameter anchor rods evenly spaced in a 6 in. diameter circle. The base shall be true to pattern, with sharp clean cutting ornamentation, and equipped with access doors for cable handling. The door shall be fastened to the base with stainless steel screws. A grounding lug shall be provided inside the base.

(d) Anchor Rods. The anchor rods shall be 5/8 in. in diameter and 16 in. long and shall be according to Article 1006.09. The anchor rods shall be threaded approximately 6 in. at one end and have a bend at the other end. The first 12 in. at the threaded end shall be galvanized. One each galvanized nut and trapezoidal washer shall be furnished with each anchor rod. The washer shall be properly sized to fully engage and sit flush on all sides of the slot of the base plate.

The aluminum post and base shall be drilled at the third points around the diameter and 1/4 in. by 2 in. stainless steel bolts shall be inserted to prevent the post from turning and wobbling.

(e) Finish. The steel post, steel post cap and the cast iron base shall be hot-dipped galvanized according to AASHTO M 111. If the Department approves painting, powder coating by the manufacturer will be required over the galvanization in accordance with

851.01TS TRAFFIC SIGNAL PAINTING Special Provisions. If the post and the base are threaded after the galvanization, the bare exposed metal shall be immediately cleaned to remove all cutting solvents and oils, and then spray painted with two coats of an approved galvanized paint.

The aluminum post shall have a natural finish, 100 grit or finer.

Installation.
The pedestrian signal post shall be erected plumb, securely bolted to a concrete foundation, and grounded to a ground rod according to the details shown on the plans. No more than 3/4 in. of the post threads shall protrude above the base.

A post cap shall be furnished and installed on the top of the post. The post cap shall match the material of the post. The Contractor shall apply an anti-seize paste compound on all nuts and bolts prior to assembly.

Prior to the assembly, the Contractor shall apply two additional coats of galvanized paint on the threads of the post and the base. The Contractor shall use a fabric post tightener to screw the post to the base.

Basis of Payment.
This work will be paid for at the contract unit price per each for PEDESTRIAN SIGNAL POST, of the length specified.

EXPLORATION TRENCH (SPECIAL)

Description. This work shall be in accordance with the applicable portions of Section 213 of the Standard Specifications and as modified herein.

General. Revise Article 213.01 to read:

"This work shall consist of excavating a trench at locations as directed by the Engineer for the purpose of locating existing sewer lines, water mains, sanitary sewers and other utilities within or adjacent to the proposed project limits."

Revise the second paragraph of Article 213.02 to read:

"The trench shall be deep enough to expose the sewer lines, water mains, sanitary sewers or other utilities. The width of the trench shall be sufficient to allow proper investigation to determine if the existing facility needs to be adjusted.

The Contractor shall familiarize himself with the locations of all underground utility facilities as outlined in the applicable articles of Section 105 of the Standard Specifications and shall protect such facilities from damage."

Revise the fourth paragraph of Article 213.02 to read:

"The exploration trench shall be backfilled with trench backfill meeting the requirements of the Standard Specifications, the cost of which shall be included in the item EXPLORATION TRENCH, SPECIAL."

Method of Measurement. The exploration trench will be measured for payment in feet of actual trench constructed.

Basis of Payment. This work will be paid for at the contract unit price per foot for EXPLORATION TRENCH (SPECIAL). An estimated length of EXPLORATION TRENCH (SPECIAL) has been shown in the Summary of Quantities to establish a unit price, though payment will be based on the actual length of trench constructed. No change in unit price due to an adjustment in plan quantities will be allowed.

AGGREGATE SURFACE COURSE FOR TEMPORARY ACCESS

Effective: April 1, 2001
Revised: January 2, 2007

Revise Article 402.10 of the Standard Specifications to read:

"**402.10 For Temporary Access.** The contractor shall construct and maintain aggregate surface course for temporary access to private entrances, commercial entrances and roads according to Article 402.07 and as directed by the Engineer.

The aggregate surface course shall be constructed to the dimensions and grades specified below, except as modified by the plans or as directed by the Engineer.

(a) Private Entrance. The minimum width shall be 12 ft (3.6 m). The minimum compacted thickness shall be 6 in. (150 mm). The maximum grade shall be eight percent, except as required to match the existing grade.

(b) Commercial Entrance. The minimum width shall be 24 ft (7.2 m). The minimum compacted thickness shall be 9 in. (230 mm). The maximum grade shall be six percent, except as required to match the existing grade.

(c) Road. The minimum width shall be 24 ft (7.2 m). The minimum compacted thickness shall be 9 in. (230 mm). The grade and elevation shall be the same as the removed pavement, except as required to meet the grade of any new pavement constructed.

Maintaining the temporary access shall include relocating and/or regrading the aggregate surface coarse for any operation that may disturb or remove the temporary access. The same type and gradation of material used to construct the temporary access shall be used to maintain it.

When use of the temporary access is discontinued, the aggregate shall be removed and utilized in the permanent construction or disposed of according to Article 202.03."

Add the following to Article 402.12 of the Standard Specifications:

“Aggregate surface course for temporary access will be measured for payment as each for every private entrance, commercial entrance or road constructed for the purpose of temporary access. If a residential drive, commercial entrance, or road is to be constructed under multiple stages, the aggregate needed to construct the second or subsequent stages will not be measured for payment but shall be included in the cost per each of the type specified.”

Revise the second paragraph of Article 402.13 of the Standard Specifications to read:

“Aggregate surface course for temporary access will be paid for at the contract unit price per each for TEMPORARY ACCESS (PRIVATE ENTRANCE), TEMPORARY ACCESS (COMMERCIAL ENTRANCE) or TEMPORARY ACCESS (ROAD).

Partial payment of the each amount bid for temporary access, of the type specified, will be paid according to the following schedule:

(a) Upon construction of the temporary access, sixty percent of the contract unit price per each, of the type constructed, will be paid.

(b) Subject to the approval of the Engineer for the adequate maintenance and removal of the temporary access, the remaining forty percent of the pay item will be paid upon the permanent removal of the temporary access.”

PORTLAND CEMENT CONCRETE SHOULDERS 11 1/2” (SPECIAL)

Description. This work shall consist of constructing integrally colored, portland cement concrete shoulders on a prepared subgrade to serve as a truck apron at the locations indicated in the plans. The portland cement concrete shoulders shall contain an imprinted pattern, surface hardener and cure/sealer. In addition to this special provision, all work shall be in accordance with the details included in the plans, Section 483 of the Standard Specifications and Standard 483001.

Materials. The integral color, imprinted pattern and surface hardener shall be Sienna, Canyon Stone and Caramel, respectively, and are subject to approval by the Engineer.

The integral coloring admixture shall be a non-fading synthetic oxide pigment meeting ASTM C979 at a 6% minimum loading and a maximum 8% loading by weight of the cementitious materials in the mix. The integral color shall be added according to manufacturer's instructions.

The color hardener shall be applied to the surface of the concrete according to the manufacturer's instructions and recommended application techniques.

The form release agent shall be provided in clear liquid form and shall be applied to the surface of the concrete according to the manufacturer's instructions and recommended application techniques.

The curing agent shall be a liquid membrane-forming clear curing compound conforming to AASHTO M148, Type 1. The curing compound for integrally colored concrete shall be applied according to the manufacturer's instructions and recommended application techniques. The curing compound shall be applied at a uniform interval after each pour to maintain consistency in finished coloration.

Only admixtures designed for use and compatibility with colored concrete pigments shall be used. Calcium chloride or admixtures containing chlorides shall not be used. The same admixture shall be used for all colored concrete on the project.

Joint fillers shall be selected to match the integral colors selected for the project.

Equipment. All imprinting tools to be used for texturing freshly placed concrete in a pattern/texture shall be approved by Engineer. Imprinting tools shall be used according to the manufacturer's instructions.

General. Colored concrete mixes for the entire project shall be consistent. If the Contractor chooses to utilize a mix with High Early Strength for a portion of the colored concrete, then the same mix shall be utilized for all colored concrete.

If water is added to the colored concrete once a truck is on site, the colored concrete will be rejected.

With prior approval of the Engineer, minimal amounts of water may be applied to the surface of the colored concrete to complete the final surface finishing operations. However, if too much water is added to the surface of the colored concrete, such that the color is not uniform or no longer conforms to the approved color, then those sections shall be removed and replaced to the satisfaction of the Engineer, at no additional cost.

The Contractor shall cover and protect adjacent construction and concrete from spillage and discoloration during placement and curing of the colored concrete. Sections of the finished product which become discolored as a result of regular work activities shall be removed and replaced to the satisfaction of the Engineer, at no additional cost.

The liquid release agent shall be applied uniformly onto the colored, still plastic state concrete to provide a clean release of the imprinting tools from the concrete surface without lifting the imprint or rearing the concrete.

The Contractor shall closely monitor the setting up of the concrete. Once the concrete is ready for imprinting, the Contractor shall accurately align and place the imprinting stamps. The imprint tools shall be pressed or pounded uniformly to produce the required pattern and depth of imprint on the concrete surface. The imprint tools shall be removed immediately. Surfaces and/or edges unable to be imprinted with the stamping mats shall be hand textured. Imperfections such as broken corners, double imprints and surface cracks shall be corrected to the satisfaction of the Engineer.

Plastic sheeting shall not be used to cure colored concrete unless necessary due to weather conditions. If plastic sheeting is necessary, it shall be suspended above the concrete and not laid directly on top of the concrete, as discoloration will occur.

The Engineer will conduct a visual appraisal of concrete work acceptability during dry daylight conditions. The Engineer will evaluate the completed work for lack of uniformity in color, mottled or discolored appearance, visible streaks and other visual defects as determined by the Engineer. Work that exhibits these visual flaws will be considered defective and shall be removed and replaced at the Contractor’s expense. The Engineer’s assessment of these flaws will be final and binding.

Submittals. Manufacturers' data sheets shall be submitted on each product to be used, including preparation instructions, storage and handling requirements and installation methods.

Prior to beginning work, the Contractor shall provide three (3) samples of the integrally colored portland cement concrete with imprinted pattern, surface hardener and cure/sealer. Each sample shall be a different shade and measure 4 feet wide by 4 feet long (depth shall be the minimum required to depict the required components). The first sample will be mixed to the target color, the second sample will be darker than the target color and the third sample will be lighter than the target color. The Engineer may request additional samples as necessary to determine final composition. Any additional samples shall be provided at no additional cost.

Once the final sample has been selected by the Engineer, the Contractor shall not change the material sources or admixtures, concrete mix designs, water/cement ratio or other factors which may alter the structural or appearance characteristics of the work, without prior written approval of the Engineer. The Contractor shall preserve the approved sample for use as a reference.

Quality Assurance. The Contractor shall provide a qualified foreman or supervisor who has a minimum of three (3) years' experience with imprinted and textured concrete, and who has successfully completed at least five (5) imprinted concrete installations of high quality and similar scope. The concrete shall be cast-in-place on the job site by trained and experienced workers. All materials utilized in the construction of the integrally colored, Portland cement concrete shoulders shall be obtained from the same source.

Method of Measurement. This work will be measured for payment in place and the area computed in square yards.

Basis of Payment. This work will be paid for at the contract unit price per square yard for PORTLAND CEMENT CONCRETE SHOULDERS 11 1/2" (SPECIAL). Payment shall include all labor, materials, equipment, tools, transportation, and appurtenances necessary to complete this work as detailed in the plans and specified herein.

COFFERDAM (TYPE 1) (IN-STREAM/WETLAND WORK)

Description. This work shall be performed in accordance with Section 502.06 of the Standard Specifications for Road and Bridge Construction, except as herein modified. The work shall consist of the preparation of an in-stream/wetland work plan and the installation, maintenance, removal and disposal of the temporary cofferdam(s) to isolate the work area from water within regulated wetlands and Waters of the U.S. (WOUS) in accordance with the authorized U.S. Army Corps of Engineers (USACE) General Conditions of the current Nationwide Permit Program.

Materials. Materials shall be in accordance with the USACE General Conditions of the current Nationwide Permit Program.

Construction Requirements. Installation of storm sewers, culverts and other construction items shall occur in dry conditions. The Cofferdam (Type 1) pay item shall only be utilized as a last resort, with the approval of the Engineer, due to prolonged high-water conditions that prevent construction in dry conditions. The Contractor will be required to submit an In-Stream/Wetland Work Plan to the Engineer for approval, prior to constructing a cofferdam.

Cofferdam construction shall be in accordance with Article 502.06(a) of the Standard Specifications and the General Conditions of the current Nationwide Permit Program. The Contractor shall be responsible for diverting the water flow from the construction area using a method meeting the approval of the Engineer and in accordance with the authorized USACE General Conditions of the current Nationwide Permit Program. In addition, the Contractor shall adhere to the following supplemental conditions:

(a) Water shall be isolated from the in-stream/wetland work area using a barrier constructed of non-erodible materials (steel sheets, aqua barriers, rip rap and geotextile liner, etc.). Earthen cofferdams are not permissible.

(b) The barrier must be constructed from the upland area and no equipment may enter flowing water at any time. Once the barrier is in place and the isolated area is dewatered, equipment may enter the coffered area to perform the required work.

(c) If bypass pumping is necessary, the intake hose shall be placed on a stable surface or floated to prevent sediment from entering the hose. The bypass discharge shall be placed on a non-erodible, energy dissipating surface prior to rejoining the stream flow and shall not cause erosion. Filtering of bypass water is not necessary unless the bypass water becomes sediment-laden as a result of the current construction activities.

(d) The portion of the side slope that is above the observed water elevation shall be stabilized prior to accepting flows. The substrate and toe of slope that has been disturbed due to construction activities shall be restored to proposed or pre-construction conditions and fully stabilized prior to accepting flows.

Method of Measurement. This work will be measured for payment in units of each, where each is defined as an area of storm sewer, culvert or other construction for which a temporary in-stream/wetland cofferdam(s) is required.

Basis of Payment. This work will be paid for at the contract unit price per each for COFFERDAM (TYPE 1) (IN-STREAM/WETLAND WORK). An estimated number of cofferdams has been shown in the Summary of Quantities to establish a unit price, though payment will be based on the actual number of cofferdams constructed. No change in unit price due to an adjustment in plan quantities will be allowed.

PIPE HANDRAIL (SPECIAL)

Description. This work shall consist of installing metal railings at the locations shown in the plans or as directed by the Engineer. This work shall be in accordance with the applicable portions of Section 509 of the Standard Specifications, the details included in the plans, and this special provision.

Materials. The railings as well as the material type and finish shall match the existing railings on either side of the bridge carrying Mongomery Road over Waubonsie Creek, located in southeast Aurora (approximately 1,100 feet northwest of the Montgomery Road at US 34 intersection). Any deviation from the material requirements indicated in the details or herein must be approved by the Engineer.

Method of Measurement. This work will be measured for payment in place in feet. The length measured will be the overall length along the top longitudinal railing member through all posts and gaps.

Basis of Payment. This work will be paid for at the contract unit price per foot for PIPE HANDRAIL (SPECIAL). This price shall include all labor, materials and equipment necessary to furnish and install the railings, posts and pickets along with all required foundations, splices, fasteners, anchoring devices, and other elements necessary to provide a complete and secure railing to the satisfaction of the Engineer.

PLUG WATER MAIN

Description. This work shall consist of capping the water main at the locations indicated in the plans or as directed by the Engineer. This work shall be in accordance with the applicable portions of Sections 551 and 605 of the Standard Specifications, Division IV of the Standard Specifications for Water and Sewer Main Construction, latest edition, and this special provision.

General. Excavation and backfill for water main removal shall conform to the typical sections shown in the plans and shall conform to the provisions of Sections 20, 21, and 22 of the Standard Specifications for Water and Sewer Main Construction, latest edition.

Construction Requirements. Caps shall be mechanical joint plug designed to fit the water main and to prevent the infiltration of water or sediment. Installation of caps or plugs must be witnessed by the Engineer and the City of Aurora Water Superintendent or his/her designee prior to backfilling. A minimum of 24 hours advance notice is required.

The capping of the new installed water main shall be completed prior to testing and placing the water main back in service.

Blocking to prevent movement of lines under pressure shall be a minimum 12” thick Precast Portland Cement Concrete Block, placed between undisturbed soil and the fittings, and shall be anchored in such a manner that pipe and fitting joints will be accessible for repairs.

The thrust blocking will not be paid for separately, but shall be considered as included in the contract unit bid price of the item being installed.

Basis of Payment. This work will be paid for at the contract unit price per each for PLUG WATER MAIN, of the size specified.

ABANDON EXISTING WATER MAIN, FILL WITH CLSM

Description. This work shall consist of the abandonment of existing water main by filling the pipes, valve vaults and valve boxes, at the locations indicated in the plans or as directed by the Engineer. This work shall be performed in accordance with Section 593 of the Standard Specifications and Division IV of the Standard Specifications for Water and Sewer Main Construction in Illinois, latest edition, except as revised herein.

Materials. The material to fill the pipes, vaults and boxes shall be controlled low-strength material (CLSM) meeting the requirements of Section 1019 of the Standard Specifications.

General. Existing water mains shall be abandoned only after all new services have been transferred over to the new main and the new main is in operation. The existing pipes and appurtenances to be abandoned shall be completely filled. The method used for placing the CLSM shall be at the Contractor's option.

Existing water main pipes shall be mechanically capped on each end of the abandoned section. The cap will not be paid for separately, but shall be considered as included in the contract unit bid price for the water main abandonment.

The inside of existing valve vaults to be abandoned shall be cleaned of all unsuitable material and debris before placing the CLSM. The existing valve located within the valve vault shall be abandoned in place and need not be removed prior to filling the valve vault.

Method of Measurement. The filling of existing water main pipes will be measured for payment in place in feet. The length measured will include stops, fittings, and valves.

The filling of existing valve vaults and valve boxes will be measured for payment as individual items and the unit of measurement will be each.

The required cleaning of the valve vaults will not be measured for payment.

Basis of Payment. The filling of existing water main pipes will be paid for at the contract unit price per foot for ABANDON EXISTING WATER MAIN, FILL WITH CLSM.

The filling of existing valve vaults and valve boxes will be paid for at the contract unit price per each for FILLING EXISTING VAULT or FILLING VALVE BOXES.

WATER MAIN REMOVAL

Description. This work shall consist of the removal and disposal of existing water main at the locations indicated in the plans or as directed by the Engineer. The work shall be performed in accordance with the applicable portions of Sections 551 and 605 of the Standard Specifications, Division IV of the Standard Specifications for Water and Sewer Main Construction, latest edition, and this special provision.

General. This work includes locating the existing water main, excavation and removal and disposal of excavated material, sheeting as required, temporary fencing of the work site as required, and backfilling of the excavation to the existing sub grade.

Excavation and backfill for water main removal shall conform to the typical sections shown in the plans and shall conform to the provisions of Sections 20, 21, and 22 of the Standard Specifications for Water and Sewer Main Construction, latest edition.

Construction Requirements. The Contractor shall sawcut the existing water main and install a mechanical joint end cap on the end of the existing water main that is to remain in service. Caps shall be mechanical joint plug designed to fit the water main and to prevent the infiltration of water

or sediment. Installation of caps or plugs must be witnessed by the Engineer and the City of Aurora Water Superintendent or his/her designee prior to backfilling. A minimum of 24 hours advance notice is required.

No pipe removed shall be considered as salvage. All material shall be disposed of in accordance with Article 202.03 of the Standard Specifications.

Excavation of trenches shall be performed according to the applicable requirements of Article 550.04 of the Standard Specifications. Backfill of trenches shall be performed according to the applicable requirements of Article 550.07 of the Standard Specifications.

The cutting and capping of the existing water main shall be completed prior to placing the water main back in service and shall be done in accordance with the construction requirements of the special provision “Connection to Existing Water Main” contained herein.

Blocking to prevent movement of lines under pressure at bends, tees, caps, valves, plugs and hydrants shall be a minimum 12” thick Precast Portland Cement Concrete Block, placed between undisturbed soil and the fittings, and shall be anchored in such a manner that pipe and fitting joints will be accessible for repairs.

The thrust blocking will not be paid for separately, but shall be considered as included in the contract unit bid price of the item being installed.

Method of Measurement. Water main removal will be measured for payment in place in feet, along the pipe to be removed. The length measured will include stops, fittings and valves.

Basis of Payment. Water main removal will be paid for at the contract unit price per foot for WATER MAIN REMOVAL, of the diameter specified.

Cutting and capping the existing water main will be paid for at the contract unit price per each for CUT AND CAP EXISTING WATER MAIN, of the size specified.

WATER SERVICE CONNECTION

Description. This work shall consist of installing water service connections in accordance with 41-2.11 of the Standard Specifications for Water and Sewer Main Construction, latest edition, except as modified herein. This item shall also consist of transferring and reconnecting all existing water services once the new main has met all testing requirements.

Materials. Service connection materials and installation shall conform to ANSI/AWWA C800, latest revision.

Each service installed shall be fabricated of seamless copper tubing conforming to ASTM B-88M, Type K, soft-temper, designated for underground service. The tubing shall be marked with the manufacturer’s name or trademark, and a mark indicating the type and grade of material. The outside diameter and minimum weight per foot of the pipe shall conform to that listed in ASTM B-251, Table II. The service tubing is to be installed in continuous lengths between the corporation tap and the water service box.

The curb stop shall be Mueller H-15154, Ford B22-444M, AY McDonald 6104, or approved equal. The old curb stop is to be removed and each new service shall have a new curb stop. Unless otherwise directed by the Engineer, splices between curb stop and existing service will not be allowed.

The Contractor may need to provide a 2" to ¾" adapter for some of the service connections. In the event that the water service box is in the sidewalk or driveway, the water service is to be adjusted. This may require relaying some of the existing water service before the curb stop. Any pipe or fittings necessary to relocate the water service box shall be considered as included in the cost of proposed water service connection.

The Contractor shall be responsible for identifying the size of the existing service and providing the appropriate fittings for the transition from the proposed curb stop to the existing service line, regardless of the sizes indicated in the plans or Summary of Quantities. The Contractor shall also be fully responsible for locating and identifying the depth of each service, and providing the necessary service box length to ensure the cap is set at finished grade.

The water service box shall be a Minneapolis pattern curb box by Mueller H-10300 series, Ford EM-55-56, AY McDonald 5614, or approved equal. The water service box shall be installed in a true vertical position and the top shall be adjusted flush with the finished grade. Removal of the existing water service box shall be considered as included in the cost of the proposed water service connection.

The water service tap shall include a full circle stainless steel tapping sleeve.

Construction Requirements. Service connections must maintain 3 feet of separation from any other service connection, pipe bell or fitting, valve vault, and/or fire hydrant. The Contractor shall remove the existing curb stop and box.

Service connections to the new water main shall be made individually and in as short a time period as possible after testing and disinfection. No water customer shall be without water in excess of 2 hours and shall be notified prior to disconnecting service.

The City of Aurora Water Superintendent or the Engineer must witness the tap/connection to the water main. For taps on PVC water main, a coupon from the tap must be provided to the inspector. A minimum of 24 hours advance notice is required.

In the event an unexpected lead water service is encountered, the Contractor shall notify the City and the Engineer immediately.

Water Service Types. A long service connection shall be defined as a service that is on the opposite side of the street from the new water main. Long service connections must be augered and pushed unless otherwise approved by the Engineer.

A short service connection shall be defined as a service that is on the same side of the street as the new water main.

Basis of Payment. This work will be paid for at the contract unit price per each for WATER SERVICE CONNECTION of the type specified. This price shall include all labor, tools, equipment and material necessary to complete the service connection including, but not limited to, excavation,

disconnection of the existing service, backfill, disposal of waste excavated material, copper line, curb stop, corporation stop, water service box at the required elevation, any necessary adapters and all other work necessary to complete the water service connections as specified herein or as directed by the Engineer.

CONNECTION TO EXISTING WATER MAIN

Description. This work shall consist of performing connections to the existing water main at the locations indicated in the plans or as directed by the Engineer.

General. Depressurizing portions of the City of Aurora's water distribution system must follow the procedure listed on Exhibit III-C-14. The Contractor shall perform cut-in connections to the existing water main at locations shown in the plans and in the manner detailed.

Construction Requirements. Connecting to the existing water main will require interruption of services. The City of Aurora Water Superintendent (or his/her designee), the Engineer, and the Contractor shall mutually agree upon a date and time which will allow ample time to assemble labor and materials and to notify all customers affected. Customers shall be notified at least 24 hours but not more than 48 hours prior to being taken out of service.

Couplings shall be installed to connect to existing water mains where indicated in the plans. Couplings shall be ductile iron with stainless steel bolts and nuts. Couplings shall meet requirements to accommodate a working pressure of 150 psi.

The Contractor shall not operate valves on existing mains. Valves will be closed and opened only by the employees of the City's Public Works Department. The Contractor shall expose the water main to be connected to and shall confirm the size and type of piping present.

The Contractor shall obtain the necessary materials required to make a proper connection. The Contractor shall not proceed until he has all the required materials on site. The Contractor shall limit the time for connections on the specified diameter lines to a maximum of 4 hours. In no case shall a customer(s) be out of service overnight.

Once the new water mains have been tested and approved for service, then the Contractor shall, under the supervision of the Engineer and the City of Aurora Water Superintendent (or his/her designee), place the new water main in service.

The entire length of water main of the specified diameter placed out of service for the purpose of making the connections of the proposed water main to the existing water main shall be disinfected before the existing water main is returned to service.

The Contractor shall reimburse the City of Aurora for the cost of overtime inspection beyond the normal 8-hour workday, 7:00 a.m. – 3:30 p.m. (with ½ hour lunch allotment), including weekends and holidays.

Dewatering, if required, will not be paid for separately, but shall be considered as included in the unit bid prices of the contract.

Basis of Payment. This work will be paid for at the contract unit price per each for CONNECTION TO EXISTING WATER MAIN, of the diameter specified. This price shall include all equipment, labor, disposal of abandoned pipe, rounded stone bedding, brick and mortar, the abandoned water main, backfilling the void left, and other materials (not listed for payment separately) required to properly connect to existing water mains.

Fittings and trench backfill required for connecting to existing water main will not be paid for separately, but shall be considered as included in the contract unit bid price for CONNECTION TO EXISTING WATER MAIN, of the diameter specified.

CONCRETE MEDIAN, TYPE SB-6.24 (SPECIAL)

This work shall consist of constructing solid concrete median in accordance with Section 606 of the Standard Specifications and Highway Standard 606301 with the following modifications:

This item includes the solid concrete median to be constructed along the left-turn lane storage bays and tapers, and other areas where the overall median width (from edge to edge of pavement) is 12 feet or less (see plans for exact locations). The gutter width shall be 12 inches wide on the side adjacent to the left-turn lane storage bays and 24 inches wide on the departure side of the median as shown on the plans. The plans identify other areas where the gutter width is 12 inches within the limits of the solid concrete median.

Basis of Payment. This work will be paid for at the contract unit price square yard for CONCRETE MEDIAN, TYPE SB6.24 (SPECIAL).

WOODEN FENCE REMOVAL

Description. This work shall consist of removing and disposing of the existing fencing at the locations indicated in the plans and as directed by the Engineer.

General. The existing fence and accessories (including foundations) shall be removed and disposed of in accordance with Article 202.03 of the Standard Specifications.

Method of Measurement. Fence removal will be measured for payment in feet, along the top of the fence from center to center of end posts, inclusive of gates.

Basis of Payment. This work will be paid for at the contract unit price per foot for WOODEN FENCE REMOVAL. Payment shall include all labor, materials, equipment, tools, transportation, disposal fees, and appurtenances necessary to complete this work as detailed in the plans and specified herein.

TRAFFIC CONTROL AND PROTECTION, (SPECIAL)

This work shall consist of providing traffic control and protection in accordance with Section 701 of the Standard Specifications and the specific plan details, notes, and special provisions that have been prepared for this contract.

Method of Measurement. All traffic control (except work zone pavement marking) required by Section 701 of the Standard Specifications and the specific traffic control plan details, notes, and special provisions will be measured for payment on a lump sum basis.

Short term pavement markings and temporary pavement markings of the various line widths will be measured for payment in feet. Double yellow lines will be measured as two separate lines.

Letters and symbols used in conjunction with the temporary pavement marking, conforming to the sizes and dimensions specified in the plan details, will be measured for payment in square feet.

Short term and temporary pavement marking removal will be measured for payment in square feet.

Basis of Payment. All traffic control and protection will be paid for at the contract lump sum price for TRAFFIC CONTROL AND PROTECTION, (SPECIAL). This price shall be payment in full for all labor, materials, transportation, handling, and incidental work necessary to furnish, install, maintain, and remove all traffic control devices required by Section 701 of the Standard Specifications and the specific traffic control plan details, notes, and special provisions, and as approved by the Engineer.

SHORT TERM PAVEMENT MARKING and TEMPORARY PAVEMENT MARKING (of the type specified) will be paid for separately in accordance with Section 703 of the Standard Specifications. Removal will be paid for at the contract unit price per square foot for SHORT TERM PAVEMENT MARKING REMOVAL.

CHANGEABLE MESSAGE SIGN (SPECIAL)

This work shall consist of the furnishing, installation, maintenance, relocation, and removal of portable changeable message signs in accordance with Section 701 of the Standard Specifications and this special provision.

In addition to any changeable message signs shown in the traffic control standards, the Contractor shall furnish five (5) Changeable Message Signs for this project. The signs shall be operational four weeks prior to the Contractor beginning any work, and shall be located and programmed (with an appropriate message) as directed by the Engineer.

Basis of Payment. This work will be paid for at the contract unit price per calendar month for each sign as CHANGEABLE MESSAGE SIGN (SPECIAL). Any relocation of the signs and messaging modifications directed by the Engineer during construction will not be paid for separately but shall be considered as included in the contract unit bid price for CHANGEABLE MESSAGE SIGN (SPECIAL).

LIGHT POLE FOUNDATION, 24" DIAMETER, OFFSET

Description: This work shall consist of excavating, constructing and backfilling offset light pole foundations in accordance with Section 836 of the Standard Specifications except as specified herein this special provision, and the details shown in the plans. Offset foundations shall be installed at locations where the utility conflict can be resolved by laterally offsetting the drilled shaft of the foundation.

The determination of foundation type shall be made in the field by the Engineer, based upon the actual location of utilities. Payment will be made according to the quantity of each foundation type installed, and no additional compensation will be allowed for subtractions or additions to contract quantities for the various foundation types.

Excavation, including shoring, material disposal, and pumping, bailing or otherwise draining the excavated area shall not be paid for separately, but shall be included in the contract unit price for offset foundations.

Backfilling and thoroughly compacting material conforming to Article 1004 and shall not be paid for separately, but shall be considered as included in the contract unit price for offset foundations. Concrete shall cure in accordance with Article 1020.13 before being backfilled.

Basis of Payment: Offset foundations will be measured for payment in accordance with Article 836.04 of the Standard Specifications, and paid at the contract unit price per foot for LIGHT POLE FOUNDATION, 24" DIAMETER, OFFSET.

TEMPORARY LIGHTING SYSTEM

Description. This work shall consist of providing a temporary lighting system at the project locations specified in the plans. The Contractor shall provide all labor, material, and equipment necessary to furnish, install, maintain, and remove the temporary lighting system, and pay all utility charges associated with it. This work shall also include the relocation of temporary lighting facilities as necessary to accommodate the various stages of construction and removal of all temporary lighting facilities at the completion of the project. All work shall be performed in accordance with the plans, Standard Specifications, as directed by the Engineer, and as described herein.

The work shall include, but not limited to, temporary lighting units, (wood pole, mast arm and luminaire), aerial cables, lighting controllers, wood poles, service power feeds, cable splicing, and all appurtenances required for a complete temporary lighting system. Coordination with the local electric utility company for temporary power services (if required) is included in this item at no additional cost.

The Contractor shall submit for the City's approval, any modifications to the lighting design plan showing the proposed locations of all temporary poles for each stage of construction associated with each phase of the project. Any modifications by the Contractor to the lighting design shall meet the requirements of Department's BDE Design Manual Chapter 56 and no poles shall be installed until the Contractor's revised detailed lighting design plan is approved by the Engineer.

No temporary lighting facilities shall be purchased until the Contractor has submitted shop drawings and received the Engineer's approval to proceed. All temporary lighting facilities shall become property of the Contractor and shall be removed from the site at no additional cost. Any temporary lighting materials used by the Contractor which come from stock rather than being purchased new for this project shall require written approval by the Engineer.

The Contractor shall be responsible to maintain the temporary lighting system throughout the project and no additional compensation will be allowed for this work, no matter how many times temporary and/or permanent lighting facilities are relocated. The Contractor shall provide the Engineer the names and phone numbers of two persons available for call-out work on the lighting system 24 hours per day, seven days per week.

Cable splicing, luminaire fusing, and lightning protection shall be submitted for the City's approval. All work required to keep the temporary and/or permanent lighting systems operational

shall be at the Contractor's expense. No lighting circuit or portion thereof shall be removed from nighttime operation without the approval of the Engineer.

An inspection and approval by the Engineer shall take place before the temporary lighting system or modified system is approved for operation. Any damage to the existing lighting units and their circuitry as a result of the Contractor's workmanship shall be repaired or replaced to the satisfaction of the Engineer at no cost to the Department. All burnouts shall be replaced on a next day basis and temporary wiring shall be installed as necessary to keep all lights functioning every night.

The Contractor shall be responsible for all costs associated with providing service to the lighting system as the project progresses through the various stages of construction and circuit orientation changes. This shall include all costs of coordinating with the local utility for new and/or relocated electric service and metering.

The Contractor shall pay all energy charges associated with the lighting. Any energy charges which the Contractor would like to present to the Department for reimbursement shall be properly metered, billed, and prorated by the Contractor at no cost to the Department. The only energy charges which will be considered for reimbursement by the Department are those associated with existing or permanent lighting facilities that are identified and agreed to by the Engineer in writing at the time the Contractor's detailed lighting design plan is approved.

Basis of Payment: This work shall be paid for at the lump sum contract unit price for TEMPORARY LIGHTING SYSTEM.

FULL-ACTUATED CONTROLLER AND CABINET

Effective: January 1, 2002
Revised: March 1, 2024
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) "Econolite" 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:

(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) 200 W, thermostatically-controlled, electric heater.
(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.

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

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.

FIBER OPTIC CABLE

Effective: May 22, 2002
Revised: July 1, 2015
871.01TS

Add the following to Article 871.01 of the Standard Specifications:

The Fiber Optic cable shall be installed in conduit or as specified on the plans.

Add the following to Article 871.02 of the Standard Specifications:

The control cabinet distribution enclosure shall be 24 Port Fiber Wall Enclosure, unless otherwise indicated on plans. The fiber optic cable shall provide twelve fibers per tube for the amount of fibers called for in the Fiber Optic Cable pay item in the Contract. Fiber Optic cable may be gel filled or have an approved water blocking tape.

Add the following to Article 871.04 of the Standard Specifications:

A minimum of six multimode fibers from each cable shall be terminated with approved mechanical connectors at the distribution enclosure. Fibers not being used shall be labeled “spare." Fibers not attached to the distribution enclosure shall be capped.. A minimum of 13.0 feet (4m) of extra cable length shall be provided for controller cabinets. The controller cabinet extra cable length shall be stored as directed by the Engineer.

Add the following to Article 871.06 of the Standard Specifications:

The distribution enclosure and all connectors will be included in the cost of the fiber optic cable.

Testing shall be in accordance with Article 801.13(d). Electronic files of OTDR signature traces shall be provided in the Final project documentation with certification from the Contractor that attenuation of each fiber does not exceed 3.5 dB/km nominal at 850nm for multimode fiber and 0.4 bd/km nominal at 1300nm for single mode fiber.

ETHERNET SWITCH

Description. This work shall consist of furnishing and installing an ethernet switch in order to provide communications between traffic signal interconnect equipment in the field and the City’s Centralized Transportation Management System (CTMS).

Materials. The Ethernet Switch shall include SFP module as specified by the Engineer and shall be a RuggedSwitch RS900, as manufactured by RuggedCom.

General. The ethernet switch shall be installed within the traffic signal controller cabinet location(s) designated in the plans, or as directed by the Engineer.

Basis of Payment. This work will be paid for at the contract unit price per each for ETHERNET SWITCH.

Any work associated with modifying the interior of the controller cabinet for the installation of the ethernet switch will not be paid for separately, but shall be considered as included in the cost of the associated pay items.

FIBER OPTIC CABLE SPLICE

This work shall consist of splicing a new fiber optic cable to the existing City of Aurora fiber network at the location(s) indicated in the plans to the satisfaction of the Engineer. This work is necessary in order to provide a communications connection between the local controllers and/or terminal server and the City of Aurora Centralized Transportation Management System (CTMS).

A representative from the City of Aurora MIS Division must be present during splicing operations. The Contractor shall contact the MIS Division at (630) 844-3610 a minimum of 72 hours prior to accessing the City's existing fiber optic network cable to schedule the connection and obtain the requirements for splicing. Splicing will only be permitted within an existing handhole enclosure. Any damage to the City's existing fiber optic network cable as a result of the Contractor's actions shall be repaired to the satisfaction of the MIS Division at the Contractor's expense.

Basis of Payment
This work will be paid for at the contract unit price per each for FIBER OPTIC CABLE SPLICE, which price shall include all labor, materials, and equipment necessary to provide the splice connection in accordance with these specifications.

The required fiber optic cable, tracer cable and conduit between the splice enclosure and the terminal server will be measured and paid for separately.

ACCESSIBLE PEDESTRIAN SIGNALS

Effective: April 1, 2003
Revised: November 1, 2023
888.02TS

Description. This work shall consist of furnishing and installing accessible pedestrian signals (APS). Each APS shall consist of an interactive vibrotactile pedestrian pushbutton with speaker, an informational sign, a light emitting diode (LED) indicator light, a solid-state electronic control board, a power supply, wiring, and mounting hardware. The APS shall meet the requirements of the MUTCD and Sections 801 and 888 of the Standard Specifications, except as modified herein.

Add the following to Article 888.03 of the Standard Specifications:

A mounting bracket and/or extension shall be used to assure proper orientation and accessibility where needed. The price of the bracket and/or extension shall be included in the cost of the pedestrian push button. The contractor is not allowed to install a push-button assembly with the sign below the push-button to meet mounting requirements.

Add the following to Article 1074.02(e) of the Standard Specifications:

Stations shall be designed to be mounted to a post, mast arm pole or wood pole. The station shall be aluminum and shall accept a 3 inch round push-button assembly and a regulatory pedestrian instruction sign according to MUTCD, sign series R10-3e 9" x 15" sign with arrow(s) for a count-down pedestrian signal. Stations shall be powder coated yellow with a black pushbutton and stainless steel arrow on pushbutton.

Electrical Requirements. The APS shall operate with systems providing 95 to 130 VAC, 60 Hz and throughout an ambient air temperature range of -29 to +160 °F (-34 to +70 °C).

The APS shall contain a power protection circuit consisting of both fuse and transient protection.

Audible Indications. A pushbutton locator tone shall sound at each pushbutton and shall be deactivated during the associated walk indication and when associated traffic signals are in flashing mode. Pushbutton locator tones shall have a duration of 0.15 seconds or less and shall repeat at 1-second intervals. Each actuation of the pushbutton shall be accompanied by the speech message "Wait". Locator tones shall be audible 6 to 12 ft from pushbutton.

If two accessible pedestrian pushbuttons are placed less than 10 ft apart or placed on the same pole, the audible walk and don't walk indication shall be a speech message. This speech message shall sound throughout the WALK interval only. Common street name shall be used and not the route number of the street unless there is no common street name. The street name used in programming shall reflect the street name mast arm mounted sign panel. Locations without street name (ex. private benefit driveways, shopping plaza entrance, etc.) shall use a general term "Commercial Driveway" as a street name for that leg. The speech message shall be modeled after: "'Street Name.' Walk Sign is on to cross "Street Name'." For signalized intersections utilizing exclusive pedestrian phasing, the verbal message shall be "Walk sign is on for all crossings". In addition, a speech pushbutton information message shall be provided by actuating the APS pushbutton during DON'T WALK interval. This verbal message shall be modeled after: "Wait". The extended press option verbal massage shall be: "Wait to cross 'Street Name' at 'Street Name'".

Railroad Preemption.
At locations with railroad interconnection APS pushbutton shall be capable of receiving a railroad preemption similar to a traffic signal controller and shall be hard wired to the railroad preemption relay inside the traffic signal cabinet. A shelf mount control unit shall be provided and installed inside the cabinet capable of receiving and transmitting the railroad preemption to all the push buttons.

At railroad intersections all APS pushbuttons shall use the speech message and shall follow the below speech models.

During Don't Walk: "Wait to cross 'Street Name' at 'Street Name', Caution, Walk time shortened when train approaches'" – this does not repeat, plays only once with every push button press.

During Walk: “Walk sign is on to cross ‘Street Name’, – this repeats as many times as possible during Walk interval only.
During Railroad preemption: All push buttons at same time “Train Approaching” – this message shall be repeated two times.

At locations with emergency vehicle preemption, NO additional speech message shall be provided.

At locations with Equestrian Pushbuttons style installation the APS push buttons shall use speech message only and shall emit the audible message from the bottom mounted push button only.

Locations with Corner Islands or Center Medians
At locations with corner islands pushbuttons shall follow the requirement of the 10 ft as specified herein regarding the percussive tone vs a speech message. When push buttons are closer than 10 ft apart the speech message shall follow the format specified herein for the main street crossing. The speech message shall follow the below speech models for the unusual configurations.

Crossing of the right turn lane from or to Corner Island: “Wait to cross right turn lane for ‘Street Name’ at ‘Street Name’ crosswalks” and “Walk sign is on to cross right turn lane for ‘Street Name’ at ‘Street Name’ crosswalks”
Crossing from Corner Island to Corner Island where second pushbutton actuation is required: “Wait to cross ‘Street Name’ at ‘Street Name’ to median with second pushbutton” and “Walk sign is on to cross ‘Street Name’ to median with second pushbutton”

Center Medians on a divided highways with push buttons will require pushbutton to have a dual arrow on the pushbutton.

Where two accessible pedestrian pushbuttons are separated by 10 ft or more, the walk indication shall be an audible percussive tone. It shall repeat at 8 to 10 ticks per second with a dominant frequency of 880 Hz. Percussive tone shall be uniform at all stations at the intersection and shall not change for different directions.

Automatic volume adjustments in response to ambient traffic sound level shall be provided up to a maximum volume of 100 dBA. Locator tone and verbal messages shall be no more than 5 dB louder than ambient sound. Locator tone and speech message shall be programmed at same volume one shall not be significantly louder than the other and shall be adjusted as directed by the Engineer.

Pedestrian Pushbutton. Pedestrian pushbuttons shall be at least 2 in. (50 mm) in diameter or width. The force required to activate the pushbutton shall be no greater than 3.5 lb (15.5 N).

A red LED shall be located on or near the pushbutton which, when activated, acknowledges the pedestrians request to cross the street.

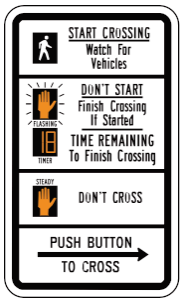
APS pushbutton systems that utilize any wireless technology including Bluetooth technology to place calls or communicate with controller will not be allow. A central master control unit shall be provided and installed in the traffic signal cabinet. Push button shall be connected directly to the master control unit in the traffic signal cabinet using only 2 wires. All pushbuttons shall be capable of placing a pedestrian call request into the controller and shall be hard wired. APS pushbuttons shall be a direct replacement of existing standard push buttons and shall be weather resistant with a minimum warranty of 5 years.

APS push buttons shall be compatible with one another and easily replaceable on future replacements or maintenance repairs no multiple model variations will be allowed.

All APS pushbuttons shall come with the messages pre-programmed for each particular intersection regardless of the location or the 10 ft separation. Final field adjustments including percussive tone vs speech message use shall be completed once push buttons are installed in the final location. All push buttons shall be programmed with the appropriate parameters and settings as directed by the Engineer. These settings shall be standard for all pushbuttons and will vary based on the manufacturer. Access to pushbutton settings shall be provided through an app either through wired, wireless, or Bluetooth connection. Pushbutton information, settings, and access instructions shall all be provided in a weatherproof pouch and safely stored inside each traffic signal cabinet.

Contractor shall remove any existing pedestrian isolation boards, field wire terminals, and any wires to the board when easily accessible. If the pedestrian isolation board has been installed from the factory on the back panel of the cabinet, contractor is to disconnect the power to the isolation board and any wires while leaving the board mounted. This work shall be included in the cost of Accessible Pedestrian Signals and will not be paid for separately.

Signage. A sign shall be located immediately above the pedestrian pushbutton and parallel to the crosswalk controlled by the pushbutton. The sign shall conform to the following standard MUTCD design: R10-3e.



R10-3E

Tactile Arrow. A tactile arrow, pointing in the direction of travel controlled by a pushbutton, shall be provided on the pushbutton.

Vibrotactile Feature. The pushbutton shall pulse when depressed and shall vibrate continuously throughout the WALK interval.

Basis of Payment. This work will be paid for at the contract unit price per each for ACCESSIBLE PEDESTRIAN SIGNALS and shall include furnishing, installation, mounting hardware including extension brackets if required, and programming of the push button.

VIDEO VEHICLE DETECTION SYSTEM COMPLETE

Description. This work shall consist of furnishing and installing a video vehicle detection system at the intersections indicated in the plans. This pay item shall include all necessary work and

equipment required to have a fully operational system including, but not limited to, the detector unit(s), the interface unit and all the necessary hardware, cables, and accessories required to complete the installation in accordance with the manufacturer's specifications.

Materials. The video detection equipment for this project shall be an Iteris VantageNext or Econolite Autoscope Vision, or an equivalent approved by the Engineer as coordinated with the City of Aurora. The video detection equipment shall be compatible with the City's Centralized EVP Management System.

General. The video detection cameras for this project shall be mounted on top of the arm of the combination mast arm assemblies in accordance with the manufacturer's specifications, unless otherwise noted in the plans or directed by the Engineer. If an extension mounting assembly is needed, it shall be included in this item. All holes drilled into signal poles, mast arms, or posts shall require rubber grommets to prevent chafing of wires.

A representative from the supplier of the video vehicle detection system shall supervise the installation and testing of the video vehicle detection system and shall be present at the traffic signal turn-on inspection. Once the video vehicle detection system is configured, it shall not need reconfiguration to maintain performance, unless the roadway configuration or the application requirements change.

System Requirements. This specification sets forth the minimum requirements for a system that monitors vehicles on a roadway via processing of video images. The detection of vehicles passing through the field-of-view of an image sensor shall be made available to a large variety of end user applications as simple contact closure outputs that reflect the current real-time detector or alarm states (on/off) or as summary traffic statistics that are reported locally or remotely. The contact closure outputs shall be provided to a traffic signal controller and comply with the National Electrical Manufacturers Association (NEMA) type C or D detector rack or 170 input file rack standards.

The system architecture shall fully support Ethernet networking of system components through a variety of industry standard and commercially available infrastructures that are used in the traffic industry. The data communications shall support direct connect, [modem,] and multi-drop interconnects. Simple, standard Ethernet wiring shall be supported to minimize overall system cost and improve reliability, utilizing existing infrastructure and ease of system installation and maintenance. Both streaming video and data communications shall optionally be interconnected over long distances through fiber optic, microwave, or other commonly used digital communications transport configurations.

On the software application side of the network, the system shall be integrated through a client-server relationship. A communications server application shall provide the data communications interface between as few as one to as many as hundreds of Machine Vision Processor (MVP) sensors and a number of client applications. The client applications shall either be hosted on the same PC as the communications server or may be distributed over a local area network of PC's using the industry standard TCP/IP network protocol. Multiple client applications shall execute simultaneously on the same host or multiple hosts, depending on the network configuration. Additionally, a web-browser interface shall allow use of industry standard Internet web browsers to connect to MVP sensors for setup, maintenance, and playing digital streaming video.

System Hardware. The machine vision system hardware shall consist of three components: 1) a color, 22x zoom, MVP sensor 2) a modular cabinet interface unit 3) a communication interface panel. Additionally, an optional personal computer (PC) shall host the server and client applications that are used to program and monitor the system components. The real-time performance shall be observed by viewing the video output from the sensor with overlaid flashing detectors to indicate the current detection state (on/off). The MVP sensor shall optionally store cumulative traffic statistics internally in non-volatile memory for later retrieval and analysis.

The MVP shall communicate to the modular cabinet interface unit via the communications interface panel and the software applications using the industry standard TCP/IP network protocol. The MVP shall have a built-in, Ethernet-ready, Internet Protocol (IP) address and shall be addressable with no plug in devices or converters required. The MVP shall provide standard MPEG-4 streaming digital video. Achievable frame rates shall vary from 5 to 30 frames/sec as a function of video quality and available bandwidth.

The modular cabinet interface unit shall communicate directly with up to eight (8) MVP sensors and shall comply with the form factor and electrical characteristics to plug directly into a NEMA type C or D detector rack providing up to thirty-two (32) inputs and sixty-four (64) outputs or a 170 input file rack providing up to sixteen (16) contact closure inputs and twenty-four (24) contact closure outputs to a traffic signal controller.

The communication interface panel shall provide four (4) sets of three (3) electrical terminations for threewire power cables for up to eight (8) MVP sensors that may be mounted on a pole or mast arm with a traffic signal cabinet or junction box. The communication interface panel shall provide high-energy transient protection to electrically protect the modular cabinet interface unit and connected MVP sensors. The communications interface panel shall provide single-point Ethernet connectivity via RJ45 connector for communication to and between the modular cabinet interface module and the MVP sensors.

System Sofware. The MVP sensor embedded software shall incorporate multiple applications that perform a variety of diagnostic, installation, fault tolerant operations, data communications, digital video streaming, and vehicle detection processing. The detection shall be reliable, consistent, and perform under all weather, lighting, and traffic congestion levels. An embedded web server shall permit standard internet browsers to connect and perform basic configuration, maintenance, and video streaming services.

There shall be a suite of client applications that reside on the host client / server PC. The applications shall execute under Microsoft Windows XP or Vista. Available client applications shall include:

- Master network browser: Learn a network of connected modular cabinet interface units and MVP sensors, display basic information, and launch applications software to perform operations within that system of sensors.
- Configuration setup: Create and modify detector configurations to be executed on the MVP sensor and the modular cabinet interface unit.
- Operation log: Retrieve, display, and display field hardware run-time operation logs of special events that have occurred.

- Software install: Reconfigure one or more MVP sensors with a newer release of embedded system software.
- Streaming video player: Play and record streaming video with flashing detector overlay.
- Data retrieval: Fetch one or poll for traffic data and alarms and store on PC storage media.
- Communications server: Provide fault-tolerant, real-time TCP/IP communications to/from all devices and client applications with full logging capability for systems integration.

Functional Capabilities – MVP Sensor

The MVP sensor shall be an integrated imaging color CCD array with zoom lens optics, high-speed, dualcore image processing hardware bundled into a sealed enclosure. The CCD array shall be directly controlled by the dual-core processor, thus providing high-quality video for detection that has virtually no noise to degrade detection performance. It shall be possible to zoom the lens as required for setup and operation. It shall provide JPEG video compression as well as standard MPEG-4 digital streaming video with flashing detector overlay. The MVP shall provide direct real-time iris and shutter speed control. The MVP image sensor shall be equipped with an integrated 22x zoom lens that can be changed using either configuration computer software. The digital streaming video output and all data communications shall be transmitted over the three-wire power cable.

Power. The MVP sensor shall operate on 110/220 VAC, 50/60Hz at a maximum of 25 watts. The camera and processor electronics shall consume a maximum of 10 watts and the remaining 15 watts shall support an enclosure heater.

Detection Zone Programming. Placement of detection zones shall be by means of a PC with a Windows XP or Vista operating system, a keyboard, and a mouse. The PC monitor shall be able to show the detection zones superimposed on images of traffic scenes.

The detection zones shall be created by using a mouse to draw detection zones on the PC monitor. Using the mouse and keyboard it shall be possible to place, size, and orient detection zones to provide optimal road coverage for vehicle detection. It shall be possible to download detector configurations from the PC to the MVP sensor and cabinet interface module, to retrieve the detector configuration that is currently running in the MVP sensor, and to back up detector configurations by saving them to the PC fixed disks or other removable storage media.

The supervisor computer's mouse and keyboard shall be used to edit previously defined detector configurations to permit adjustment of the detection zone size and placement, to add detectors for additional traffic applications, or to reprogram the MVP sensor for different traffic applications or changes in installation site geometry or traffic rerouting.

Optimal Detection. The video detection system shall optimally detect vehicle passage and presence when the MVP sensor is mounted 30 feet (10 m) or higher above the roadway, when the image sensor is adjacent to the desired coverage area, and when the distance to the farthest detection zone locations are not greater than ten (10) times the mounting height of the MVP. The recommended deployment geometry for optimal detection also requires that there be an unobstructed view of each traveled lane where detection is required. Although optimal detection may be obtained when the MVP is mounted directly

above the traveled lanes, the MVP shall not be required to be directly over the roadway. The MVP shall be able to view either approaching or receding traffic or both in the same field of view. The preferred MVP sensor orientation shall be to view approaching traffic since there are more high contrast features on vehicles as viewed from the front rather than the rear. The MVP sensor placed at a mounting height that minimizes vehicle image occlusion shall be able to simultaneously monitor a maximum of six (6) traffic lanes when mounted at the road-side or up to eight (8) traffic lanes when mounted in the center with four lanes on each side.

Functional Capabilities – Modular Cabinet Interface Unit
The modular cabinet interface unit shall provide the hardware and software means for up to eight (8) MVP sensors to communicate real-time detection states and alarms to a local traffic signal controller. It shall comply with the electrical and protocol specifications of the detector rack standards. The card shall have 1500 Vrms isolation between rack logic ground and street wiring.

The modular cabinet interface unit shall be a simple interface card that plugs directly into a 170 input file rack or a NEMA type C or D detector rack. The modular cabinet interface unit shall occupy only 2 slots of the detector rack. The modular cabinet interface unit shall accept up to sixteen (16) phase inputs and shall provide up to twenty-four (24) detector outputs.

Functional Capabilities – Communications Interface Panel
The communications interface panel shall support up to eight MVPs. The communications interface panel shall accept 110/220 VAC, 50/60 Hz power and provide predefined wire termination blocks for MVP power connections, a Broadband-over-Power-Line (BPL) transceiver to support up to 10MB/s interdevice communications, electrical surge protectors to isolate the modular cabinet interface unit and MVP sensors, and an interface connector to cable directly to the modular cabinet interface unit.

The interface panel shall provide power for up to eight (8) MVP sensors, taking local line voltage 110/220 VAC, 50/60 Hz and producing 110/220 VAC, 50/60 Hz, at about 30 watts to each MVP sensor. Two ½-amp SLO-BLO fuses, or an equal approved by the Engineer as coordinated with the City of Aurora, shall protect the communications interface panel.

System Installation and Training. The supplier of the video detection system shall supervise the installation and testing of the video detection system and computer equipment as required by the contracting agency.

Training shall be available to personnel of the contracting agency in the operation, set up, and maintenance of the video detection system. The MVP sensor and its support hardware / software is a sophisticated leading-edge technology system. Proper instruction from certified instructors is recommended to ensure that the end user has complete competency in system operation. The User's Guide is not an adequate substitute for practical classroom training and formal certification by an approved agency.

Warranty, Service, and Support. For a minimum of two (2) years, the supplier shall warrant the video detection system. Ongoing software support by the supplier shall include software updates of the MVP sensor, modular cabinet interface unit, and supervisor computer applications. These updates shall be provided free of charge during the warranty period. The supplier shall maintain a program for technical support and software updates following expiration of the warranty period.

This program shall be available to the contracting agency in the form of a separate agreement for continuing support.

Basis of Payment. This work will be paid for at the contract unit price per each for VIDEO VEHICLE DETECTION SYSTEM COMPLETE, which price shall include all labor, materials, and equipment necessary to provide a fully operational system as described herein, including the mounting of the video detection cameras, installation oversight, training, warranty, service and support. Each intersection will be paid for separately.

INTERSECTION VIDEO TRAFFIC MONITORING SYSTEM WITH PTZ CAMERA

Description. This work shall consist of furnishing and installing a fully operational video traffic monitoring system utilizing a pan/tilt/zoom (PTZ) camera at the locations indicated in the plans or as directed by the Engineer.

Materials. The PTZ cameras shall be Axis Q6055-E Dome Network System as manufactured by Axis. The PTZ system must be compatible with the City's CTMS infrastructure.

The video and PTZ control cable shall consist of an RJ45 with CAT6 cabling. The power cable shall be a No. 14 3C.

General. The PTZ cameras shall be mounted via bracket assembly to the combination mast arm pole unless otherwise noted in the plans or directed by the Engineer. If the camera is to be mounted to a mast arm that does not have a combination pole, the camera shall be mounted to a bracket that extends higher than the mast arm.

Basis of Payment. This work will be paid for at the contract unit price per each for INTERSECTION VIDEO TRAFFIC MONITORING SYSTEM WITH PTZ CAMERA, which price shall include all labor, materials, and equipment necessary to furnish and install a fully operational video traffic monitoring system, including the mounting of the PTZ cameras. The labor, materials, and equipment necessary to mount the PTZ cameras will not be paid for separately, but shall be considered as included in the cost of the intersection video traffic monitoring system.

The video and PTZ control cable will be paid for at the contract unit price per foot for CAT. 6 ETHERNET CABLE.

The power cable will be paid for at the contract unit price per foot for ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 3C.

CENTRALIZED SYSTEM FIELD INTEGRATION / SETUP

This work shall consist of the connection of all communication equipment in the field, as well as all integration/setup within the City of Aurora's Centralized Transportation Management System (CTMS) to the satisfaction of the Engineer. This work shall include, but shall not be limited to, the following:

- Fiber optic cable connection to each local controller;
- Fiber optic cable connection to the Terminal Server / Ethernet Switch;
- Set addresses at each local controller;

- Establish communications between the Terminal Server/Ethernet Switch and the CTMS;
- Integrate the operation of the proposed interconnect system into the CTMS;
- Integrate the operation of the EVP equipment at each intersection into the Centralized EVP Management System within the CTMS; and
- Ensure transmission of all video data to the CTMS and integration of that video into the City's Smart Traffic Monitoring System.

Basis of Payment
This work will be paid for at the lump sum price for CENTRALIZED SYSTEM FIELD INTEGRATION / SETUP. This price shall be payment in full for all labor, materials, and equipment necessary to provide fully operational equipment in the field and within the CTMS to the satisfaction of the Engineer.

TEMPORARY INFORMATION SIGNING

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. An estimated quantity has been provided in the plans for temporary information signing.

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

	Item	Article/Section
a.)	Sign Base (Notes 1 & 2)	1090
b.)	Sign Face (Note 3)	1091
c.)	Sign Legends	1092
d.)	Sign Supports	1093
e.)	Overlay Panels (Note 4)	1090.02

Note 1. The Contractor may use 5/8 inch instead of 3/4 inch thick plywood.
Note 2. Type AA sheeting black on fluorescent orange can be used on the plywood base.
Note 3. All sign faces shall be Type AA except all orange signs shall meet the requirements of Article 1106.01.
Note 4. The overlay panels shall be 0.08 inch thick.

CONSTRUCTION REQUIRMENTS

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 above the near edge of the pavement and shall be a minimum of 2 ft beyond the edge of the paved shoulder. A minimum of two (2) posts shall be used.

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

Signs which are placed on overhead bridge structures shall be fastened to the handrail with stainless steel bands. These signs shall rest on the concrete parapet where possible. The Contractor shall furnish mounting details for approval by the Engineer.

Method of Measurement. This work shall be measured for payment in square feet 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 shall be considered as included as part of this pay item.

Basis of Payment. This work will be paid for at the contract unit price per square foot for TEMPORARY INFORMATION SIGNING.

LUMINAIRE SAFETY CABLE ASSEMBLY

Effective: January 1, 2012

Description: This item shall consist of providing a luminaire safety cable assembly as specified herein and as indicated in the plans.

Materials. Materials shall be according to the following:

Wire Rope. Cables (wire rope) shall be manufactured from Type 304 or Type 316 stainless steel having a maximum carbon content of 0.08 % and shall be a stranded assembly. Cables shall be 3.18 mm (0.125”) diameter, 7x19 Class strand core and shall have no strand joints or strand splices.

Cables shall be manufactured and listed for compliance with Federal Specification RR-W-410 and Mil-DTL-83420.

Cable terminals shall be stainless steel compatible with the cable and as recommended by the cable manufacturer. Terminations and clips shall be the same stainless-steel grade as the wire rope they are connected to.

U-Bolts. U-Bolts and associated nuts, lock washers, and mounting plates shall be manufactured from Type 304 or Type 316 stainless steel.

CONSTRUCTION REQUIREMENTS

General. The safety cable assembly shall be installed as indicated in the plan details. One end of the cable assembly shall have a loop fabricated from a stainless steel compression sleeve. The other end of the cable assembly shall be connected with stainless steel wire rope clips as indicated. Slack shall be kept to a minimum to prevent the luminaire from creeping off the end of the mast arm. Unless otherwise indicated in the plans, the luminaire safety cable shall only be used in conjunction with luminaires which are directly above the traveled pavement.

Basis of Payment. This work will be paid for at the contract price per each for LUMINAIRE SAFETY CABLE ASSEMBLY, which shall be payment for the work as described herein and as indicated in the plans.

MAINTENANCE OF LIGHTING SYSTEM

Effective: March 1, 2017

Replace Article 801.11 and 801.12 of the Standard Specifications with the following:

Effective the date the Contractor's activities (electrical or otherwise) at the job site begin, the Contractor shall be responsible for the proper operation and maintenance of all existing and proposed lighting systems which are part of, or which may be affected by the work until final acceptance or as otherwise determined by the Engineer.

Before performing any excavation, removal, or installation work (electrical or otherwise) at the site, the Contractor shall initiate a request for a maintenance transfer and preconstruction inspection, as specified elsewhere herein, to be held in the presence of the Engineer and a representative of the party or parties responsible for maintenance of any lighting systems which may be affected by the work. During the maintenance preconstruction inspection, the party responsible for existing maintenance shall perform testing of the existing system in accordance with Article 801.13a. The Contractor shall request a date for the preconstruction inspection no less than fourteen (14) days prior to the desired date of the inspection.

The Engineer will document all test results and note deficiencies. All substandard equipment will be repaired or replaced by the existing maintenance contractor, or the Engineer can direct the Contractor to make the necessary repairs under Section109.04.

Existing lighting systems, when depicted on the plans, are intended only to indicate the general equipment installation of the systems involved and shall not be construed as an exact representation of the field conditions. It remains the Contractor's responsibility to visit the site to confirm and ascertain the exact condition of the electrical equipment and systems to be maintained. Contract documents shall indicate the circuit limits.

Maintenance of Existing Lighting Systems

Existing lighting systems. Existing lighting systems shall be defined as any lighting system or part of a lighting system in service at the time of contract Letting. The contract drawings indicate the general extent of any existing lighting, but whether indicated or not, it remains the Contractor's responsibility to ascertain the extent of effort required for compliance with these specifications and failure to do so will not be justification for extra payment or reduced responsibilities.

Extent of Maintenance:

> **Partial Maintenance.** Unless otherwise ‘indicated, if the number of circuits affected by the contract is equal to or less than 40% of the total number of circuits in a given controller and the controller is not part of the contract work, the Contractor needs only to maintain the affected circuits within the project limits. The project limits are defined as those limits indicated in the contract plans. Equipment outside of the project limits, on the affected

circuits shall be maintained and paid for under Article 109.04. The affected circuits shall be isolated by means of in-line waterproof fuse holders as specified elsewhere and as approved by the Engineer. The unaffected circuits and the controller will remain under the maintenance of the State.

Full Maintenance. If the number of circuits affected by the contract is greater than 40% of the total number of circuits in a given controller, or if the controller is modified in any way under the contract work, the Contractor shall maintain the entire controller and all associated circuits within the project limits. Equipment outside of the project limits shall be maintained and paid for under Article 109.04.

If the existing equipment is damaged by normal vehicular traffic, not contractor operations, is beyond repair and cannot be re-set, the contractor shall replace the equipment in kind with payment made for such equipment under Article 109.04. If the equipment damaged by any construction operations, not normal vehicular traffic, is beyond repair and cannot be re-set, the contractor shall replace the equipment in kind and the cost of the equipment shall be included in the cost of this pay item and shall not be paid for separately.

Maintenance of Proposed Lighting Systems

Proposed Lighting Systems. Proposed lighting systems shall be defined as any lighting system or part of a lighting system, temporary or permanent, which is to be constructed under this contract regardless of the project limits indicated in the plans.

The Contractor shall be fully responsible for maintenance of all items installed under this contract. Maintenance shall include, but not be limited to, any equipment failures or malfunctions as well as equipment damage either by the motoring public, Contractor operations, vandalism, or other means. The potential cost of replacing or repairing any malfunctioning, damaged, or vandalized equipment shall be included in the bid price of this item and will not be paid for separately.

Lighting System Maintenance Operations

The Contractor's responsibility shall include all applicable responsibilities of the Electrical Maintenance Contract, State of Illinois, Department of Transportation, Division of Highways, District One. These responsibilities shall include the maintenance of lighting units (including sign lighting), cable runs and lighting controls. In the case of a pole knockdown or sign light damage, the Contractor shall promptly clear the lighting unit and circuit discontinuity and restore the system to service. The equipment shall then be re-set by the contractor within the time limits specified herein.

If the existing equipment is damaged by normal vehicular traffic, not contractor operations, is beyond repair and cannot be re-set, the contractor shall replace the equipment in kind with payment made for such equipment under Article 109.04. If the equipment damaged by any construction operations, not normal vehicular traffic, is beyond repair and cannot be re-set, the contractor shall replace the equipment in kind and the cost of the equipment shall be included in the cost of this pay item and shall not be paid for separately.

Responsibilities shall also include weekly night-time patrol of the lighting system, with patrol reports filed immediately with the Engineer and with deficiencies corrected within 24 hours of the patrol. Patrol reports shall be presented on standard forms as designated by the Engineer.

Uncorrected deficiencies may be designated by the Engineer as necessitating emergency repairs as described elsewhere herein.

The following chart lists the maximum response, service restoration, and permanent repair time the Contractor will be allowed to perform corrective action on specific lighting system equipment.

INCIDENT OR PROBLEM	SERVICE RESPONSE TIME	SERVICE RESTORATION TIME	PERMANENT REPAIR TIME
Control cabinet out	1 hour	4 hours	7 Calendar days
Hanging mast arm	1 hour to clear	na	7 Calendar days
Radio problem	1 hour	4 hours	7 Calendar days
Motorist caused damage or leaning light pole 10 degrees or more	1 hour to clear	4 hours	7 Calendar days
Circuit out – Needs to reset breaker	1 hour	4 hours	na
Circuit out – Cable trouble	1 hour	24 hours	21 Calendar days
Outage of 3 or more successive lights	1 hour	4 hours	na
Outage of 75% of lights on one tower	1 hour	4 hours	na
Outage of light nearest RR crossing approach, Islands and gores	1 hour	4 hours	na
Outage (single or multiple) found on night outage survey or reported to EMC	na	na	7 Calendar days
Navigation light outage	na	na	24 hours

- **Service Response Time** -- amount of time from the initial notification to the Contractor until a patrolman physically arrives at the location.

- **Service Restoration Time** – amount of time from the initial notification to the Contractor until the time the system is fully operational again (In cases of motorist caused damage the undamaged portions of the system are operational.)

- **Permanent Repair Time** – amount of time from initial notification to the Contractor until the time permanent repairs are made if the Contractor was required to make temporary repairs to meet the service restoration requirement.

Failure to provide this service will result in liquidated damages of $500 per day per occurrence. In addition, the Department reserves the right to assign any work not completed within this timeframe to the Electrical Maintenance Contractor. All costs associated to repair this uncompleted work shall be the responsibility of the Contractor. Failure to pay these costs to the Electrical Maintenance Contractor within one month after the incident will result in additional liquidated damages of $500 per month per occurrence. Unpaid bills will be deducted from any monies owed to the Contractor. Repeated failures and/or a gross failure of maintenance shall result in the State's Electrical Maintenance Contractor being directed to correct all deficiencies and the resulting costs deducted from any monies owed the contractor.

Damage caused by the Contractor's operations shall be repaired at no additional cost to the Contract.

Operation of Lighting

The lighting shall be operational every night, dusk to dawn. Duplicate lighting systems (such as temporary lighting and proposed new lighting) shall not be operated simultaneously. Lighting systems shall not be kept in operation during long daytime periods.

Method of Measurement

The contractor shall demonstrate to the satisfaction of the Engineer that the lighting system is fully operational prior to submitting a pay request. Failure to do so will be grounds for denying the pay request. Months in which the lighting systems are not maintained and not operational will not be paid. Payment shall not be made retroactively for months in which lighting systems were not operational.

Basis of Payment. Maintenance of lighting systems will be paid for at the contract unit price per calendar month for MAINTENANCE OF LIGHTING SYSTEM.

RE-OPTIMIZE TRAFFIC SIGNAL SYSTEM

Effective: May 22, 2002
Revised: November 1, 2023
800.03TS

Description.
This work shall consist of re-optimizing a traffic signal system according to the following Levels of work.

LEVEL I applies when improvements are made to an existing signalized intersection within an existing traffic signal system. The purpose of this work is to integrate the improvements to the subject intersection into the signal system while minimizing the impacts to the existing system operation. This type of work would be commonly associated with the addition of signal phases, pedestrian phases, or improvements that do not affect the capacity at an intersection.

LEVEL II applies when improvements are made to an existing signalized intersection within an existing traffic signal system and detailed analysis of the intersection operation is desired by the engineer, or when a new signalized or existing signalized intersection is being added to an existing

system, but optimization of the entire system is not required. The purpose of this work is to optimize the subject intersection, while integrating it into the existing signal system with limited impact to the system operations. This item also includes an evaluation of the overall system operation, including the Traffic Responsive Program (TRP).

For the purposes of re-optimization work, an intersection shall include all traffic movements operated by the subject controller and cabinet.

After the signal improvements are completed, the signal shall be re-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 note 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) LEVEL I Re-Optimization

1. The following tasks are associated with LEVEL I Re-Optimization.

    a. Appropriate signal timings shall be developed for the subject intersection and existing timings shall be utilized for the rest of the intersections in the system.

    b. Proposed signal timing plan for the modified intersection(s) shall be forwarded to IDOT for review prior to implementation.

    c. Consultant shall conduct on-site implementation of the timings at the turn-on and make fine-tuning adjustments to the timings of the subject intersection 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.

2. The following deliverable shall be provided for LEVEL I Re-Optimization.

    a. Consultant shall furnish to IDOT a cover letter describing the extent of the re-optimization work performed.

(b) LEVEL II Re-Optimization

1. In addition to the requirements described in the LEVEL I Re-Optimization above, the following tasks are associated with LEVEL II Re-Optimization.

    a. Traffic counts shall be taken at the subject intersection(s) after the 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 and/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, multi-unit heavy vehicles, and transit buses.

b. 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.

c. TRP operation shall be evaluated to verify proper pattern selection and lack of oscillation and a report of the operation shall be provided to IDOT.

2. The following deliverables shall be provided for LEVEL II Re-Optimization.

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

(1) Electronic copy of the technical memorandum in PDF format

(2) Revised Synchro (or other appropriate, approved optimization software) files including the new signal and the rest of the signals in the system

(3) Traffic counts conducted at the subject intersection(s)

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.

b. The technical memorandum shall include the following elements:

(1) Brief description of the project

(2) Analysis output from Synchro (or other appropriate, approved optimization software file)

(3) Traffic counts conducted at the subject intersection(s)

Basis of Payment.
This work will be paid for at the contract unit price each for RE-OPTIMIZE TRAFFIC SIGNAL SYSTEM LEVEL 1 or RE-OPTIMIZE TRAFFIC SIGNAL SYSTEM LEVEL 2, which price shall be payment in full for performing all work described herein per intersection. Following completion of the timings and submittal of the specified deliverables, 100 percent of the bid price will be paid. Each intersection will be paid for separately.

PRESSURE CONNECTION TO EXISTING WATER MAIN

Description. This work shall consist of providing pressure connections to the existing water main, without taking the existing water main out of service, at the locations shown on the plans or as directed by the Engineer. This work shall be performed in accordance with the details in the plans and in accordance with Section 46 of the Standard Specifications for Water and Sewer Main Construction, latest edition, except as modified herein.

Materials and Construction Requirements. Tapping sleeves shall be Cascade CST-EX, Ford FTSS, JCM 422, or Powerseal 3490 heavy duty all stainless steel style conforming to MSS-SP112. Stainless steel sleeves shall be constructed entirely of T-304 stainless steel including flange, fasteners, and test plugs. Size-on-size tapping sleeves shall be ductile iron mechanical joint style conforming to ANSI/AWWA C110/A21.10.82. All sleeves shall be equipped with 3/4" test plugs to allow seal testing prior to tapping.

The Contractor shall install and seal test sleeves. Seal test shall be at 100 psi air pressure or 150 psi hydrostatic pressure for duration of 3 minutes with no leaks. Taps shall not be made until the seal test is passed. The Contractor will be responsible for any leaks on or at the tapping sleeve. Ductile Iron Sleeve Brands: Waterous/AFC, Clow, Mueller, or approved equal. Test plug shall be capped with a copper or brass cap.

Tapping valves shall conform to ANSI/AWWA C-515 and shall have 1 flange connection with raised seat ring conforming to MSS-SP60 and one mechanical joint connection. Tapping Valve Brands: Clow, Waterous, Mueller, Kennedy, U.S. Pipe & Foundry, or approved equal.

The Contractor shall obtain the necessary materials required to make a proper connection. The Contractor shall not proceed until he has all the required materials on site.

Once the new water mains have been tested, chlorinated and approved for service then the Contractor shall, under the supervision of the Engineer and the City of Aurora's Engineering Division or its designated representative, place the new water main in service.

Dewatering, if required, will not be paid for separately, but shall be considered as included in the contract unit bid price of the pressure connection.

See the plan details for manhole and concrete blocking requirements.

Basis of Payment.
This work will be paid for at the contract unit price per each for PRESSURE CONNECTION TO EXISTING WATER MAIN, regardless of size, which price shall include all equipment, labor, disposal of abandoned pipe, rounded stone bedding, abandon the existing water main, backfilling the void left, manhole adjustments, and other materials (not listed for payment separately) required to properly connect to existing water mains. One pressure connection to existing water main will be paid for each location where a tapping sleeve and valve is used to connect new water main to the existing water main. The ductile iron fittings and trench backfill required for these connections will not be paid for separately, but shall be considered as included in the contract unit bid price for PRESSURE CONNECTION TO EXISTING WATER MAIN.

STORM SEWER (WATER MAIN REQUIREMENTS)

Description. This work shall consist of constructing storm sewers meeting water main requirements where lateral separation between the sewer and water main or water service line is less than 10 feet and the water main invert is less than 18 inches above the storm sewer crown, or where the sewer crosses above the water main or water service line with 18 inches minimum vertical separation.

General. This work, including the material and installation requirements, shall be in accordance with the latest edition of the "Standard Specifications for Water and Sewer Main Construction in Illinois", and the applicable portions of Sections 550 and 561 of the Standard Specifications, except as modified herein.

The storm sewer shall be constructed of Ductile Iron pipe, Class 52 with bell and rubber gasket joint (see Ductile Iron Water Main special provision) or concrete pressure pipe conforming to the latest AWWA Standard C300, C301, C303, of the Standard Specifications for Water and Sewer Main Construction in Illinois and Section 550 of the Standard Specifications. The pipe joints shall be "O" ring joints conforming to ASTM C-361.

Method of Measurement. This work will be measured for payment according to Article 550.09 of the Standard Specifications.

Basis of Payment. This work will be paid for at the contract unit price per foot (meter) for STORM SEWER (WATER MAIN REQUIREMENTS), of the diameter specified.

TEMPORARY TRAFFIC SIGNAL TIMING

Effective: May 22, 2002
Revised: March 1, 2024
890.02TS

Description.
This work shall consist of developing and maintaining appropriate traffic signal timings for the specified intersection for the duration of the temporary signalized condition, as well as impact to existing traffic signal timings caused by detours or other temporary conditions.

All timings and adjustments necessary for this work shall be performed 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 for a listing of approved Consultants.

The following tasks are associated with TEMPORARY TRAFFIC SIGNAL TIMING:

(a) Consultant shall attend temporary traffic signal inspection (turn-on) and/or detour meeting and conduct on-site implementation of the traffic signal timings.

(b) Consultant shall be responsible for making fine-tuning adjustments to the timings in the field to alleviate observed adverse operating conditions and to enhance operations.

(c) Consultant shall provide monthly observation of traffic signal operations in the field.

(d) Consultant shall provide on-site consultation and adjust timings as necessary for construction stage changes, temporary traffic signal phase changes, and any other conditions affecting timing and phasing, including lane closures, detours, and other construction activities.

(e) Consultant shall make timing adjustments and prepare comment responses as directed by the Area Traffic Signal Maintenance and Operations Engineer.

(f) Return original timing plan once construction is complete.

Basis of Payment.
The work will be paid for at the contract unit price per each for TEMPORARY TRAFFIC SIGNAL TIMING, which price shall be payment in full for performing all work described herein per intersection. When the temporary traffic signal installation is turned on and/or detour implemented, 50 percent of the bid price will be paid. The remaining 50 percent of the bid price will be paid following the removal of the temporary traffic signal installation and/or detour.

STEEL CASING PIPE, AUGERED AND JACKED

Description. This work shall consist of installing a casing pipe for the water main, at the locations indicated in the plans or as directed by the Engineer.

Materials. The casing pipe for the water main shall be steel, bituminous coated, and shall be of leak proof construction, capable of withstanding the anticipated loadings. The steel shall comply with ASTM A139 and have minimum yield strength of 35,000 psi. The minimum wall thickness shall be 0.406”.

Construction Requirements. The installation of the steel casing shall be completed using the jacking and boring method.

The initial section of casing shall be aligned on a poured concrete slab, guide rails or other approved method that will produce the desired alignment and grade. Casing shall be held with braces, guideways, and other devices.

Jacks and struts shall be arranged against the backslope or deadman to apply thrust parallel with the centerline of the casing. Thrust shall be distributed equally between jacks and the pressure exerted uniformly over the end of the casing. Application of pressure with the metal of the jack in direct contact with the material of the casing will not be permitted. Suitable cushioning material shall be inserted between the jack and casing.

After the excavation is opened, the placing and jacking of the casing shall follow immediately and be prosecuted diligently to avoid unnecessary danger of disturbing the stability of the embankment, roadway, and/or structures above.

If the casing is of metal with a coating of corrosion resisting material, care shall be taken to protect this coating from damage during jacking and excavating processes.

Steel rails or timbers that support the casing as it enters the bore must be accurately placed on line and grade. Both line and grade should be checked at least once per shift as work progresses. Use of a steering head and a water board or other means to check the accuracy of the end of casing as it progresses through the bores is strongly recommended.

Deviation from the prescribed line that reverses the fall of the grade line through the casing shall be cause for rejection.

Damaged casing which will result in an unsatisfactory joint when the succeeding section of casing is placed is cause for rejection and shall be replaced.

The number and capacity of jacks used shall be adequate to exert sufficient force to overcome the greatest resistance to be encountered, considering both the weight of the casing and the friction on its exterior surface.

In soft or unstable soil, the casing shall be allowed to cut its way through the soil to avoid danger of caving and subsidence of the overlying embankment.

Provisions shall be made for keeping the excavation free from surface and seepage water during the jacking operation.

Backfilling that may be necessary shall be in accordance with the Standard Specifications for Water and Sewer Main Construction, latest edition. Surplus excavated material shall be removed and disposed of in accordance with Article 202.03 of the Standard Specifications, at no additional cost to the contract.

Casing spacers for carrier pipes shall be provided as shown on the plans. See standard casing/carrier pipe details.

The boring method allowed consists of the casing being pushed into the fill as the boring auger drills out the earthen material.

Obstacles met during the process of installation shall be reported to the Engineer immediately. Obstructions to the progress of the casing, such as roots, boulders, or parts of former structures, shall be removed. Potential solutions and alternatives for removal of obstruction shall be presented to the Engineer for concurrence of alternative. Deviations from line or grade to pass obstructions shall be avoided if such deviation will result in unsatisfactory fitting joints. The use of explosives for removing obstructions is prohibited.

The use of water under pressure jetting or puddling will not be permitted to facilitate boring, pushing or jacking operations. Some boring may require water to lubricate cutter and casing, and under such conditions, is considered dry boring.

If too large a bored hole is produced during casing installation or it is necessary to abandon a bored hole, immediate remedial action shall be taken by the Contractor. All voids or abandoned holes shall be filled by pressure grouting. The grout material should be sand cement slurry with a minimum of 2 sacks of cement per cubic yard and a minimum of water to assure satisfactory placement.

The hole diameter resulting from bored installation shall not exceed the outside diameter of the casing (including coating) by more than 2".

Pits for boring or jacking will not be permitted within 30 feet of the centerline of the road; or closer to the road than the toe of fill slopes in fill sections, or toe of shoulder slopes in ditch sections.

Method of Measurement. This work will be measured for payment in place in feet, of steel casing installed.

Basis of Payment. This work will be paid for at the contract unit price per foot for STEEL CASING PIPE, AUGERED AND JACKED, of the diameter specified. This price shall include the jack-and-bore, steel casing and other necessary accessories to complete the water main installation as specified herein.

MODIFY EXISTING RESTRICTOR STRUCTURE

Description. This work shall consist of modifying the existing restrictor structures within the existing restrictor manholes at the locations noted in the plans.

The method and materials used to modify the restrictor structures shall be at the Contractor's option, but the work shall be secure and watertight to the satisfaction of the Engineer.

Basis of Payment. This work will be paid for at the contract unit price per each for MODIFY EXISTING RESTRICTOR STRUCTURE. This price shall include all labor, materials and equipment necessary to modify the restrictors structures in accordance with the details included in the plans, to the satisfaction of the engineer.

WATER SERVICE CONNECTION (PRIVATE)

Description of Work. This work shall consist of the installation of a new water service line from the new b-box into the private home. The existing home is located at 1681 Bilter Road, at the southeast corner of Bilter Road and Parkview Drive, and currently utilizes an existing well. Upon completion of the new water service line installation, the existing well shall be capped and abandoned.

All water service connection work shall be performed by an Illinois Licensed Plumber and according to the rules and regulations of the Illinois Plumbing Code and Illinois Plumbing License Law (225 ILCS 320).

Contractor and Resident Coordination. The Contractor is responsible for all coordination and scheduling with the property owners to obtain access to their private property. The Contractor shall schedule an initial site assessment to be attended by the City, Engineer, Contractor, and the property owner.

The Contractor shall coordinate and schedule work so that the water service replacement can be completed in one day. The City and the Engineer shall be informed of the schedule by 3:00 pm on the day prior to the day of scheduled work.

The Contractor shall provide a written notice to an impacted residence or business regarding a

planned water loss, not associated with the service line replacement, no less than 24 hours prior to the loss of water.

Existing access to residences and businesses shall be accessible at all times. If the Contractor anticipates temporarily blocking an access, written notification shall be provided to the resident or owner a minimum of 48 hours prior to access loss. Additionally, the Contractor shall knock on the door of all impacted residences and businesses the morning of the restriction with the intent of verbally informing the resident or owner of the access restriction.

Private Utility Locate. The Contractor is responsible for locating all existing utilities on private property including but not limited to dry utilities, water services, sewer services, irrigation, and any type of storm drains, where locates have not been provided.

If excavation is required, heavy construction equipment or machinery shall not be used on private property. All excavation on private property shall be completed by hydro excavation or by method of hand digging. Should any damages occur to private property or buildings due to the Contractor's negligence, repairs shall be made by the Contractor at their expense in a manner acceptable to the Engineer.

Construction. Proposed private water service installations shall be completed by a trenchless method (lead extraction or horizontal directional drilling). The Contractor may request to use an open cut method of installation if the trenchless options have been exhausted and deemed unsuccessful. An open cut method shall not be used without approval from the City or the Engineer. No pavement shall be disturbed as part of the water service installation unless at an emergency repair location and approved by the City or the Engineer.

The Contractor shall core drill the existing foundation wall or slab on the interior of the home to allow for the penetration of the water service pipe. The Contractor shall completely seal the cored hole with hydraulic cement to prevent water infiltration. The hydraulic cement shall be Quickcrete Quick Setting Cement or an approved equal. The Contractor shall completely seal the cored hole in the foundation floor with high strength concrete mix as approved by the City or the Engineer. The Contractor shall exercise caution to prevent damaging the existing foundation and shall be responsible for needed repairs caused by the construction.

The Contractor shall be responsible for disconnecting the well pump, installing a new water meter provided by the City, and connecting the new water lines to the house. A ball valve matching the size of the incoming water service shall be installed on the street side of the meter, and a ball valve matching the existing pipe size shall be installed on the house side of the meter. The Contractor shall provide all fittings necessary to connect the water service line into the existing house plumbing, which shall be installed by the Contractor's licensed plumber. This pay item will include up to 10 feet of type L copper pipe of the sizes necessary to match the existing house plumbing. Only compression couplings shall be used (no flared).

The Contractor shall be responsible for coordinating the mounting of the meter with the City. The City will provide, install, and program the meter reader once the Contractor has completed the service installation.

The Contractor shall be responsible for removing any debris generated by the work on the interior and exterior of the home and restoring the area around the water service. If it is necessary to move appliances to complete the work, they shall be placed in their original location after the

completion of the work.

Any grounds that were attached to the existing water service line shall be preserved and re-attached to the new water service line. If the water service was re-located to a different area, a new ground shall be run to the new location, which shall be considered as included in the cost of this pay item. The Contractor shall install a 6-gauge insulated jumper across the meter per 2017 NEC requirements.

Well Abandonment. Upon successful connection of the new water service line into the house plumbing system, the existing well shall be capped and abandoned in accordance with the County Department of Health regulations. The Contractor shall complete the permitting/recording of the well abandonment with the County and provide the Engineer with a copy of the submittal for the City's records.

Basis of Payment. This work will be paid for at the contract unit price per each completed WATER SERVICE CONNECTION (PRIVATE). This price shall include all labor, tools, equipment, and material necessary to complete the new service connection including, but not limited to, excavation, trench backfill, disposal of waste excavated material, copper pipe of the type/size as specified, well abandonment, any necessary adapters/fittings, and all other work necessary to complete the water service connection as specified herein or as directed by the Engineer.

Water service connections between the water main and b-box will be paid for separately as WATER SERVICE CONNECTION, of the type specified.

Illinois Department of Transportation

Storm Water Pollution Prevention Plan

Route	Marked Route	Section Number
FAP 360, FAU 0159, FAU 2513	Farnsworth Ave., Bilter & Church Rd	NA
Project Number	**County**	**Contract Number**
NA	Kane	NA

This plan has been prepared to comply with the provisions of the National Pollutant Discharge Elimination System (NPDES) Permit No. ILR10 (Permit ILR10), issued by the Illinois Environmental Protection Agency (IEPA) for storm water discharges from construction site activities.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature	Date

Print Name	Title	Agency
Brian Witkowski, P.E.	Project Engineer	The City of Aurora

Note: Guidance on preparing each section of BDE 2342 can be found in Chapter 41 of the IDOT Bureau of Design and Environment (BDE) Manual. Chapter 41 and this form also reference the IDOT Drainage Manual which should be readily available.

I. Site Description:

A. Provide a description of the project location; include latitude and longitude, section, town, and range:

The project is located along Farnsworth Avenue for I-88 to just south of IL 56, Bilter Road from Church Road to Premium Outlet Boulevard and church Road south of Bilter Road in the City of Aurora, Kane County, Illinois. The net length on Farnsworth Avenue is 3,958 feet (0.75 miles), Bilter Road is 4,195 feet (0.79 miles) and Chrurch Road is 1,000 feet (0.19 miles). The gross length of the project is 9,145 feet (1.73 miles).
Latitude 41.806575 N, Longitude -88.281760W.
T38N, R8E, Sections 1&2.

B. Provide a description of the construction activity which is the subject of this plan. Include the number of construction stages, drainage improvements, in-stream work, installation, maintenance, removal of erosion measures, and permanent stabilization:

The work consists of widening and resurfacing on Farnsworth Avenue and Bilter Road, intersection improvements to Bilter Road and Church Road with associated improvements on Church Road. This project also includes traffic signals, lighting, storm sewers, combination concrete curb and gutter, traffic staging, watermain relocation, and all incidental and collateral work necessary to complete the project.

C. Provide the estimated duration of this project:

Estimated start fall 2024. Estimated completion spring 2026.

D. The total area of the construction site is estimated to be 28.5 acres.

The total area of the site estimated to be disturbed by excavation, grading or other activities is 25.5 acres.

E. The following are weighted averages of the runoff coefficient for this project before and after construction activities are completed; see Section 4-102 of the IDOT Drainage Manual:

The calculated weighted average of the runoff coefficient for this project prior to construction activities is 0.48

and after construction activities is 0.55.

F. List all soils found within project boundaries; include map unit name, slope information, and erosivity:

232A Ash Silt Clay, 0-2% Slopes, K = 0.20
298A Beecher Silt Loam, 2-4% Slopes, K = 0.37
530B Ozaukee Silt Loam, 4-6% Slopes, K = 0.43

G. If wetlands were delineated for this project, provide an extent of wetland acreage at the site; see Phase I report:

H. Provide a description of potentially erosive areas associated with this project:

Storm sewer outfalls, slopes in excess of 1V:3H on Farnsworth Avenue, and roadside ditches.

I. The following is a description of soil disturbing activities by stages, their locations, and their erosive factors (e.g., steepness of slopes, length of slopes, etc.):

All permanent storm water control measures and runoff control measures required to keep offsite runoff from flowing over the construction area shall be installed before clearing and stripping of the site proceeds. Prior to proceeding with the general earthwork on this project, the Contractor shall obtain approval of their proposed earthwork and stabilization schedule.

J. See the erosion control plans and/or drainage plans for this contract for information regarding drainage patterns, approximate slopes anticipated before and after major grading activities, locations where vehicles enter or exit the site and controls to prevent offsite sediment tracking (to be added after contractor identifies locations), areas of soil disturbance, the location of major structural and non-structural controls identified in the plan, the location of areas where stabilization practices are expected to occur, surface waters (including wetlands) , and locations where storm water is discharged to surface water including wetlands.

K. Identify who owns the drainage system (municipality or agency) this project will drain into:

The City of Aurora

L. The following is a list of General NPDES ILR40 permittees within whose reporting jurisdiction this project is located:

Kane County and The City of Aurora.

M. The following is a list of receiving water(s) and the ultimate receiving water(s) for this site. In addition, include receiving waters that are listed as Biologically Significant Streams by the Illinois Department of Natural Resources (IDNR). The location of the receiving waters can be found on the erosion and sediment control plans:

The receiving waters for the project site is Indian Creek. The ultimate receiving waters is the Fox River. Indian Creek is not listed as a Biologically Significant Stream by the Illinois Department of Natural Resources.

N. Describe areas of the site that are to be protected or remain undisturbed. These areas may include steep slopes (i.e., 1:3 or steeper), highly erodible soils, streams, stream buffers, specimen trees, natural vegetation, nature preserves, etc. Include any commitments or requirements to protect adjacent wetlands.

For any storm water discharges from construction activities within 50-feet of Waters of the U.S. (except for activities for water-dependent structures authorized by a Section 404 permit, describe: a) How a 50-foot undisturbed natural buffer will be provided between the construction activity and the Waters of the U.S. or b) How additional erosion and sediment controls will be provided within that area.

Any areas within the defined project location but outside the construction limits shall remain undisturbed. This includes steep slope, wetlands, and all natural vegetation.

O. Per the Phase I document, the following sensitive environmental resources are associated with this project and may have the potential to be impacted by the proposed development. Further guidance on these resources is available in Section 41-4 of the BDE Manual.

☐ 303(d) Listed receiving waters for suspended solids, turbidity, or siltation.
The name(s) of the listed water body, and identification of all pollutants causing impairment:

Provide a description of how erosion and sediment control practices will prevent a discharge of sediment resulting from a storm event equal to or greater than a twenty-five (25) year, twenty-four (24) hour rainfall event:

Erosion control seeding and blanket prevent the accumulation of sediment from the site, while temporary perimeter erosion barrier prevents the migration of any sediment from the site.

Provide a description of the location(s) of direct discharge from the project site to the 303(d) water body:

Provide a description of the location(s) of any dewatering discharges to the MS4 and/or water body:

☐ Applicable Federal, Tribal, State, or Local Programs

☐ Floodplain

☐ Historic Preservation

☐ Receiving waters with Total Maximum Daily Load (TMDL) for sediment, total suspended solids, turbidity or siltation

TMDL (fill out this section if checked above)

The name(s) of the listed water body:

Provide a description of the erosion and sediment control strategy that will be incorporated into the site design that is consistent with the assumptions and requirements of the TMDL:

If a specific numeric waste load allocation has been established that would apply to the project's discharges, provide a description of the necessary steps to meet that allocation:

☐ Threatened and Endangered Species/Illinois Natural Areas (INAI)/Nature Preserves

☐ Other

☐ Wetland

P. The following pollutants of concern will be associated with this construction project:

☒ Antifreeze / Coolants

☒ Solid Waste Debris

- [x] Concrete
- [x] Concrete Curing Compounds
- [x] Concrete Truck Waste
- [x] Fertilizers / Pesticides
- [ ] Paints
- [x] Petroleum (gas, diesel, oil, kerosene, hydraulic oil / fluids)
- [x] Soil Sediment
- [ ] Solvents
- [x] Waste water from cleaning construction equipments
- [ ] Other (Specify) _____
- [ ] Other (Specify) _____
- [ ] Other (Specify) _____
- [ ] Other (Specify) _____
- [ ] Other (Specify) _____

II. Controls:

This section of the plan addresses the controls that will be implemented for each of the major construction activities described in Section I.C above and for all use areas, borrow sites, and waste sites. For each measure discussed, the Contractor will be responsible for its implementation as indicated. The Contractor shall provide to the Resident Engineer a plan for the implementation of the measures indicated. The Contractor, and subcontractors, will notify the Resident Engineer of any proposed changes, maintenance, or modifications to keep construction activities compliant with the Permit ILR10. Each such Contractor has signed the required certification on forms which are attached to, and are a part of, this plan:

A. **Erosion and Sediment Controls:** At a minimum, controls must be coordinated, installed and maintained to:

1. Minimize the amount of soil exposed during construction activity;
2. Minimize the disturbance of steep slopes;
3. Maintain natural buffers around surface waters, direct storm water to vegetated areas to increase sediment removal and maximize storm water infiltration, unless infeasible;
4. Minimize soil compaction and, unless infeasible, preserve topsoil.

B. **Stabilization Practices:** Provided below is a description of interim and permanent stabilization practices, including site- specific scheduling of the implementation of the practices. Site plans will ensure that existing vegetation is preserved where attainable and disturbed portions of the site will be stabilized. Stabilization practices may include but are not limited to: temporary seeding, permanent seeding, mulching, geotextiles, sodding, vegetative buffer strips, protection of trees, preservation of mature vegetation, and other appropriate measures. Except as provided below in II.B.1 and II.B.2, stabilization measures shall be initiated **immediately** where construction activities have temporarily or permanently ceased, but in no case more than **one (1) day** after the construction activity in that portion of the site has temporarily or permanently ceases on all disturbed portions of the site where construction will not occur for a period of fourteen (14) or more calendar days.

1. Where the initiation of stabilization measures is precluded by snow cover, stabilization measures shall be initiated as soon as practicable.

2. On areas where construction activity has temporarily ceased and will resume after fourteen (14) days, a temporary stabilization method can be used.

The following stabilization practices will be used for this project:

- [x] Erosion Control Blanket / Mulching
- [ ] Geotextiles
- [x] Permanent Seeding
- [ ] Preservation of Mature Seeding
- [ ] Protection of Trees
- [x] Sodding
- [x] Temporary Erosion Control Seeding
- [ ] Temporary Turf (Seeding, Class 7)
- [ ] Temporary Mulching
- [x] Vegetated Buffer Strips
- [ ] Other (Specify) _____
- [x] Other (Specify) Dust Control Watering
- [ ] Other (Specify) _____
- [ ] Other (Specify) _____

Describe how the stabilization practices listed above will be utilized during construction:

Erosion Control Blanket will be placed as soon as the topsoil is placed on the final grade in the location indicated in the Erosion Control Plans.

Permanent Seedings, of the class shown in the plans, will be applied as soon as feasible per IDOT Standard Specifications.

Temporary Erosion Control Seeding shall be applied in accordance with the current version of the NPDES ILRID permit to exposed soil surfaces.

Vegetated Buffer Strip, areas outside the grading limits of the proposed improvements and all areas of the existing and proposed right-of-way shall be protected and remain undisturbed.

Dust Control Watering, contractor shall control dust by means such as application of water to exposed surfaces per IDOT Standard Specifications.

Describe how the stabilization practices listed above will be utilized after construction activities have been completed:

1. Erosion Control Blanket / Mulching: Erosion control blanket will aid in vegetation germination and establishment. Implementation of erosion control blanket will not be used after vegetation is established.

2. Permanent Seeding: At the conclusion of construction activities, permanent seed will grow into permanent vegetation and aid in soil stabilization long term for the site.

C. **Structural Practices:** Provided below is a description of structural practices that will be implemented, to the degree attainable, to divert flows from exposed soils, store flows or otherwise limit runoff and the discharge of pollutants from exposed areas of the site. Such practices may include but are not limited to: perimeter erosion barrier, earth dikes, drainage swales, sediment traps, ditch checks, subsurface drains, pipe slope drains, level spreaders, storm drain inlet protection, rock outlet protection, reinforced soil retaining systems, gabions, and temporary or permanent sediment basins. The installation of these devices may be subject to Section 404 of the Clean Water Act.

- ☐ Aggregate Ditch
- ☐ Concrete Revetment Mats
- ☐ Dust Suppression
- ☐ Dewatering Filtering
- ☐ Gabions
- ☐ In-Stream or Wetland Work
- ☐ Level Spreaders
- ☐ Paved Ditch
- ☐ Permanent Check Dams
- ☒ Perimeter Erosion Barrier
- ☐ Permanent Sediment Basin
- ☐ Retaining Walls
- ☐ Riprap
- ☒ Rock Outlet Protection
- ☐ Sediment Trap
- ☒ Storm Drain Inlet Protection
- ☒ Stabilized Construction Exits
- ☐ Stabilized Trench Flow
- ☐ Slope Mattress
- ☐ Slope Walls
- ☒ Temporary Ditch Check
- ☐ Temporary Pipe Slope Drain
- ☐ Temporary Sediment Basin
- ☐ Temporary Stream Crossing
- ☐ Turf Reinforcement Mats
- ☐ Other (Specify) _____
- ☐ Other (Specify) _____
- ☐ Other (Specify) _____
- ☐ Other (Specify) _____
- ☐ Other (Specify) _____
- ☐ Other (Specify) _____
- ☐ Other (Specify) _____

Describe how the structural practices listed above will be utilized during construction:

1. Perimeter Erosion Barrier: Perimeter erosion barrier / silt fence will be placed to prevent sediment loss from the site by sheet flow. Silt fence will be placed at the perimeter of soil disturbances where there is potential for runoff exiting the site, adjacent to waterways, wetlands, and around soil stockpiles. Silt fence shall be maintained until final stabilization has occurred. Temporary fence will be used in conjunction with the silt fence to delineate the construction limits of the project.

2. Rock Outlet Protection: Riprap will placed at storm sewer outfalls to reduce water velocity and scour during and post construction. Riprap for storm sewer been sized for greater of the pipe velocity or stream velocity.

3. Storm Drain Inlet Protection. Protection will be provided by a combination of drop-in inlet filters for structures in pavement and surrounding with silt fence for structures in the turf.

4. Stabilized Construction Exists: The contractor will utilized stabilized construction entrances as shown in the plans or as directed by the Engineer. Additionally, in accordance with Article 107.15 of the Standard Specifications, the Contractor shall clean the pavement of all dirt and debris at the conclusion of each day.

5. Temporary Ditch Checks: Temporary ditch checks will be placed along the drainage swales and ditches as shown in the plans or as directed by the Engineer for erosion protection and sediment.

Describe how the structural practices listed above will be utilized after construction activities have been completed:

Temporary features will be removed following stabilization of disturbed areas. Riprap will remain in place.

D. **Treatment Chemicals**

Will polymer flocculants or treatment chemicals be utilized on this project: ☐ Yes ☒ No

If *yes* above, identify where and how polymer flocculants or treatment chemicals will be utilized on this project.

E. **Permanent (i.e., Post-Construction) Storm Water Management Controls:** Provided below is a description of measures that will be installed during the construction process to control volume and pollutants in storm water discharges that will occur after construction operations have been completed.The installation of these devices may be subject to Section 404 of the Clean Water Act.

1. Such practices may include but are not limited to: storm water detention structures (including wet ponds), storm water retention structures, flow attenuation by use of open vegetated swales and natural depressions, infiltration of runoff on site, and sequential systems (which combine several practices).

   The practices selected for implementation were determined based on the technical guidance in Chapter 41 (Construction Site Storm Water Pollution Control) of the IDOT BDE Manual. If practices other than those discussed in Chapter 41 are selected for implementation or if practices are applied to situations different from those covered in Chapter 41, the technical basis for such decisions will be explained below.

2. Velocity dissipation devices will be placed at discharge locations and along the length of any outfall channel as necessary to provide a non-erosive velocity flow from the structure to a water course so that the natural physical and biological characteristics and functions are maintained and protected (e.g., maintenance of hydrologic conditions such as the hydroperiod and hydrodynamics present prior to the initiation of construction activities).

Description of permanent storm water management controls:

Outlet protection in the form of riprap is proposed at all storm sewer outfalls.

F. **Approved State or Local Laws:** The management practices, controls and provisions contained in this plan will be in accordance with IDOT specifications, which are at least as protective as the requirements contained in the IEPA's Illinois Urban Manual. Procedures and requirements specified in applicable sediment and erosion site plans or storm water management plans approved by local officials shall be described or incorporated by reference in the space provided below. Requirements specified in sediment and erosion site plans, site permits, storm water management site plans or site permits approved by local officials that are applicable to protecting surface water resources are, upon submittal of an NOI, to be authorized to discharge under the Permit ILR10 incorporated by reference and are enforceable under this permit even if they are not specifically included in the plan.

Description of procedures and requirements specified in applicable sediment and erosion site plans or storm water management plans approved by local officials:

Kane County soil and Water Conservation District, Kane County, The City of Aurora, Forest Preserve District of Kane County, and Illinois Department of Transportation.

G. **Contractor Required Submittals:** Prior to conducting any professional services at the site covered by this plan, the Contractor and each subcontractor responsible for compliance with the permit shall submit to the Resident Engineer a Contractor Certification Statement, BDE 2342A.

1. The Contractor shall provide a construction schedule containing an adequate level of detail to show major activities with implementation of pollution prevention BMPs, including the following items:
   - Approximate duration of the project, including each stage of the project
   - Rainy season, dry season, and winter shutdown dates
   - Temporary stabilization measures to be employed by contract phases
   - Mobilization time-frame
   - Mass clearing and grubbing/roadside clearing dates

- Deployment of Erosion Control Practices
- Deployment of Sediment Control Practices (including stabilized cons

- Deployment of Construction Site Management Practices (including concrete washout facilities, chemical storage, refueling locations, etc.)
- Paving, saw-cutting, and any other pavement related operations
- Major planned stockpiling operation
- Time frame for other significant long-term operations or activities that may plan non-storm water discharges as dewatering, grinding, etc
- Permanent stabilization activities for each area of the project

2. During the pre-construction meeting, the Contractor and each subcontractor shall provide, as an attachment to their signed Contractor Certification Statement, a discussion of how they will comply with the requirements of the permit in regard to the following items and provide a graphical representation showing location and type of BMPs to be used when applicable:
   - Temporary Ditch Checks - Identify what type and the source of Temporary Ditch Checks that will be installed as part of the project. The installation details will then be included with the SWPPP.
   - Vehicle Entrances and Exits - Identify type and location of stabilized construction entrances and exits to be used and how they will be maintained.
   - Material Delivery, Storage and Use - Discuss where and how materials including chemicals, concrete curing compounds, petroleum products, etc. will be stored for this project.
   - Stockpile Management - Identify the location of both on-site and off-site stockpiles. Discuss what BMPs will be used to prevent pollution of storm water from stockpiles.
   - Waste Disposal - Discuss methods of waste disposal that will be used for this project.
   - Spill Prevention and Control - Discuss steps that will be taken in the event of a material spill (chemicals, concrete curing compounds, petroleum, etc.)
   - Concrete Residuals and Washout Wastes - Discuss the location and type of concrete washout facilities to be used on this project and how they will be signed and maintained.
   - Litter Management - Discuss how litter will be maintained for this project (education of employees, number of dumpsters, frequency of dumpster pick-up, etc.).
   - Vehicle and Equipment Fueling - Identify equipment fueling locations for this project and what BMPs will be used to ensure containment and spill prevention.
   - Vehicle and Equipment Cleaning and Maintenance - Identify where equipment cleaning and maintenance locations for this project and what BMPs will be used to ensure containment and spill prevention.
   - Dewatering Activities - Identify the controls which will be used during dewatering operations to ensure sediments will not leave the construction site.
   - Polymer Flocculants and Treatment Chemicals - Identify the use and dosage of treatment chemicals and provide the Resident Engineer with Material Safety Data Sheets. Describe procedures on how the chemicals will be used and identify who will be responsible for the use and application of these chemicals. The selected individual must be trained on the established procedures.
   - Additional measures indicated in the plan.

III. Maintenance:

When requested by the Contractor, the Resident Engineer will provide general maintenance guides (e.g., IDOT Erosion and Sediment Control Field Guide) to the Contractor for the practices associated with this project. Describe how all items will be checked for structural integrity, sediment accumulation and functionality. Any damage or undermining shall be repaired immediately. Provide specifics on how repairs will be made. The following additional procedures will be used to maintain, in good and effective operating conditions, the vegetation, erosion and sediment control measures and other protective measures identified in this plan. It will be the Contractor's responsibility to attain maintenance guidelines for any manufactured BMPs which are to be installed and maintained per manufacture's specifications.

1. Perimeter Erosion Barrier: Maintain and repair tears, gaps, and undermining. Replace all broken or misplaces stakes. Accumulation of sediment shall be removed when it has reached 1/3 of the height of the fence or when the integrity is jeopardized. Material knocked down shall be repaired immediately.

2. Ditch Checks: Sediment accumulation shall be removed when it has reached 50% of the height of the structure or as recommended by the manufacturer, whichever is less.

3. Erosion Control Blanket: Maintain and repair damage due to water, soil displacement, and improper installation.

4. Silt Baskets (drop in inlet Protection) Sediment accumulation shall be removed when it has reached 50% of the capacity or as recommended by the manufacture, whichever is less.

IV. Inspections:

Qualified personnel shall inspect disturbed areas of the construction site including Borrow, Waste, and Use Areas, which have not yet been finally stabilized, structural control measures, and locations where vehicles and equipment enter and exit the site using IDOT Storm Water Pollution Prevention Plan Erosion Control Inspection Report, BC 2259. Such inspections shall be conducted at least once every seven (7) calendar days and within twenty-four (24) hours of the end of a storm or by the end of the following business or work day that is 0.5 inch or greater or equivalent snowfall.

Inspections may be reduced to once per month when construction activities have ceased due to frozen conditions. Weekly inspections will recommence when construction activities are conducted, or if there is 0.5" or greater rain event, or a discharge due to snowmelt occurs.

If any violation of the provisions of this plan is identified during the conduct of the construction work covered by this plan, the Resident Engineer shall notify the appropriate IEPA Field Operations Section office by email at: epa.swnoncomp@illinois.gov, telephone or fax within twenty-four (24) hours of the incident. The Resident Engineer shall then complete and submit an "Incidence of Non-Compliance" (ION) report for the identified violation within five (5) days of the incident. The Resident Engineer shall use forms provided by IEPA and shall include specific information on the cause of noncompliance, actions which were taken to prevent any further causes of noncompliance, and a statement detailing any environmental impact which may have resulted from the noncompliance. All reports of non-compliance shall be signed by a responsible authority in accordance with Part VI. G of the Permit ILR10.

The Incidence of Non-Compliance shall be mailed to the following address:
Illinois Environmental Protection Agency
Division of Water Pollution Control
Attn: Compliance Assurance Section
1021 North Grand East
Post Office Box 19276
Springfield, Illinois 62794-9276

V. Failure to Comply:

Failure to comply with any provisions of this Storm Water Pollution Prevention Plan will result in the implementation of a National Pollutant Discharge Elimination System/Erosion and Sediment Control Deficiency Deduction against the Contractor and/or penalties under the Permit ILR10 which could be passed on to the Contractor.

Illinois Department of Transportation

Contractor Certification Statement

Prior to conducting any professional services at the site covered by this contract, the Contractor and every subcontractor must complete and return to the Resident Engineer the following certification. A separate certification must be submitted by each firm. Attach to this certification all items required by Section II.G of the Storm Water Pollution Prevention Plan (SWPPP) which will be handled by the Contractor/subcontractor completing this form.

Route	Marked Route	Section Number
FAP Route 360	Farnsworth Avenue	NA

Project Number	County	Contract Number
NA	Kane	NA

This certification statement is a part of SWPPP for the project described above, in accordance with the General NPDES Permit No. ILR10 issued by the Illinois Environmental Protection Agency.

I certify under penalty of law that I understand the terms of the Permit No. ILR 10 that authorizes the storm water discharges associated with industrial activity from the construction site identified as part of this certification.

Additionally, I have read and understand all of the information and requirements stated in SWPPP for the above mentioned project; I have received copies of all appropriate maintenance procedures; and, I have provided all documentation required to be in compliance with the Permit ILR10 and SWPPP and will provide timely updates to these documents as necessary.

☐ Contractor
☐ Sub-Contractor

Signature	Date

Print Name	Title

Name of Firm	Phone

Street Address	City	State	Zip Code

Items which this Contractor/subcontractor will be responsible for as required in Section II.G. of SWPPP

Illinois Environmental Protection Agency

1021 North Grand Avenue East • P.O. Box 19276 • Springfield • Illinois • 62794-9276 • (217) 782-3397

Division of Water Pollution Control
Notice of Intent (NOI) for General Permit
to Discharge Storm Water Associated with Construction Site Activities

This fillable form may be completed online, a copy saved locally, printed and signed before it is submitted to the Permit Section at the above address.

For Office Use Only

Permit No. ILR10 _____

OWNER INFORMATION

Company/Owner Name: The City of Aurora

Mailing Address: 77 S. Broadway Phone: 630-256-3226

City: Aurora State: IL Zip: 60505 Fax: _____

Contact Person: Mr. Brian Witkowski, P.E., CFM, CSI. - Project En E-mail: WitkowskiB@aurora.il.us

Owner Type (select one) City

MS4 Community: ☑ Yes ○ No

CONTRACTOR INFORMATION

Contractor Name: _____

Mailing Address: _____ Phone: _____

City: _____ State: ___ Zip: _____ Fax: _____

CONSTRUCTION SITE INFORMATION

Select One: ○ New ◉ Change of information for: ILR10 _____

Project Name: Farnsworth Avenue widening and resurfacing County: Kane

Street Address: Farnsworth Avenue City: Aurora IL Zip: 60505

Latitude:	41	80	65N	Longitude:	88	28	18W	1&2	38N	8E
	(Deg)	(Min)	(Sec)		(Deg)	(Min)	(Sec)	Section	Township	Range

Approximate Construction Start Date Jan 1, 2025 Approximate Construction End Date Oct 31, 2026

Total size of construction site in acres: 28.5

If less than 1 acre, is the site part of a larger common plan of development?
○ Yes ○ No

Fee Schedule for Construction Sites:
Less than 5 acres - $250
5 or more acres - $750

STORM WATER POLLUTION PREVENTION PLAN (SWPPP)

Has the SWPPP been submitted to the Agency? ☑ Yes ○ No

(Submit SWPPP electronically to: epa.constilr10swppp@illinois.gov)

Location of SWPPP for viewing: Address: 77 S. Broadway City: Aurora

SWPPP contact information: Inspector qualifications:

Contact Name: Mr. Brian Witkowski, P.E., CFM, CSI. - Project Engineer P.E.

Phone: 630-256-3226 Fax: _____ E-mail: WitkowskiB@aurora.il.us

Project inspector, if different from above Inspector qualifications:

Inspector's Name: _____ _____

Phone: _____ Fax: _____ E-mail: _____

TYPE OF CONSTRUCTION (select one)

Construction Type Transportation

SIC Code: _____

Type a detailed description of the project:

The work consists of widening and resurfacing on Farnsworth Avenue and Bilter Road, intersection improvements to Bilter Road and Church Road with associated improvements on Church Road. This project also includes traffic signals, lighting, storm sewers, combination concrete curb and gutter, traffic staging, watermain relocation, and all incidental and collateral work necessary to complete the project.

HISTORIC PRESERVATION AND ENDANGERED SPECIES COMPLIANCE

Has the project been submitted to the following state agencies to satisfy applicable requirements for compliance with Illinois law on:

Historic Preservation Agency ○ Yes ⊘ No

Endangered Species ○ Yes ⊘ No

RECEIVING WATER INFORMATION

Does your storm water discharge directly to: ☑ Waters of the State or ☐ Storm Sewer

Owner of storm sewer system: N/A

Name of closest receiving water body to which you discharge: Indian Creek

Mail completed form to: Illinois Environmental Protection Agency
Division of Water Pollution Control
Attn: Permit Section
Post Office Box 19276
Springfield, Illinois 62794-9276
or call (217) 782-0610
FAX: (217) 782-9891

Or submit electronically to: epa.constilr10swppp@illinois.gov

I certify under penalty of law that this document and all attachments were prepared under my direction and supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage this system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. In addition, I certify that the provisions of the permit, including the development and implementation of a storm water pollution prevention plan and a monitoring program plan, will be complied with.

Any person who knowingly makes a false, fictitious, or fraudulent material statement, orally or in writing, to the Illinois EPA commits a Class 4 felony. A second or subsequent offense after conviction is a Class 3 felony. (415 ILCS 5/44(h))

_____ _____

Owner Signature: Date:

Brian Witkowski, P.E., CFM, CSI Project Engineer

Printed Name: Title:

INSTRUCTIONS FOR COMPLETION OF CONSTRUCTION ACTIVITY NOTICE OF INTENT (NOI) FORM

Submit original, electronic or facsimile copies. Facsimile and/or electronic copies should be followed-up with submission of an original signature copy as soon as possible. Please write "copy" under the "For Office Use Only" box in the upper right hand corner of the first page.

This fillable form may be completed online, a copy saved locally, printed and signed before it is submitted to the Permit Section at:

Illinois Environmental Protection Agency
Division of Water Pollution Control
Permit Section
Post Office Box 19276
Springfield, Illinois 62794-9276
or call (217) 782-0610

FAX: (217) 782-9891

Or submit electronically to: epa.constilr10swppp@illinois.gov

Reports must be typed or printed legibly and signed.

Any facility that is not presently covered by the General NPDES Permit for Storm Water Discharges From Construction Site Activities is considered a new facility.

If this is a change in your facility information, renewal, etc., please fill in your permit number on the appropriate line, changes of information or permit renewal notifications do not require a fee.

NOTE: FACILITY LOCATION IS NOT NECESSARILY THE FACILITY MAILING ADDRESS, BUT SHOULD DESCRIBE WHERE THE FACILITY IS LOCATED.

Use the formats given in the following examples for correct form completion.

	Example	Format
Section	12	1 or 2 numerical digits
Township	12N	1 or 2 numerical digits followed by "N" or "S"
Range	12W	1 or 2 numerical digits followed by "E" or "W"

For the Name of Closest Receiving Waters, do not use terms such as ditch or channel. For unnamed tributaries, use terms which include at least a named main tributary such as "Unnamed Tributary to Sugar Creek to Sangamon River."

Submission of initial fee and an electronic submission of Storm Water Pollution Prevention Plan (SWPPP) for Initial Permit prior to the Notice of Intent being considered complete for coverage by the ILR10 General Permits. Please make checks payable to: Illinois EPA at the above address.

Construction sites with less than 5 acres of land disturbance - fee is $250.

Construction sites with 5 or more acres of land disturbance - fee is $750.

SWPPP should be submitted electronically to: epa.constilr10swppp@illinois.gov. When submitting electronically, use Project Name and City as indicated on NOI form.

State of Illinois
Department of Transportation
Bureau of Local Roads and Streets

SPECIAL PROVISION
FOR
INSURANCE

Effective: February 1, 2007
Revised: August 1, 2007

All references to Sections or Articles in this specification shall be construed to mean specific Section or Article of the Standard Specifications for Road and Bridge Construction, adopted by the Department of Transportation.

The Contractor shall name the following entities as additional insured under the Contractor's general liability insurance policy in accordance with Article 107.27:

The City of Aurora

The entities listed above and their officers, employees, and agents shall be indemnified and held harmless in accordance with Article 107.26.

State of Illinois
DEPARTMENT OF TRANSPORTATION
Bureau of Local Roads & Streets
SPECIAL PROVISION
FOR
LOCAL QUALITY ASSURANCE/ QUALITY MANAGEMENT QC/QA
Effective: January 1, 2022

Replace the first five paragraphs of Article 1030.06 of the Standard Specifications with the following:

"**1030.06 Quality Management Program.** The Quality Management Program (QMP) will be Quality Control / Quality Assurance (QC/QA) according to the following."

Delete Article 1030.06(d)(1) of the Standard Specifications.

Revise Article 1030.09(g)(3) of the Standard Specifications to read:

"(3) If core testing is the density verification method, the Contractor shall provide personnel and equipment to collect density verification cores for the Engineer. Core locations will be determined by the Engineer following the document "Hot-Mix Asphalt QC/QA Procedure for Determining Random Density Locations" at density verification intervals defined in Article 1030.09(b). After the Engineer identifies a density verification location and prior to opening to traffic, the Contractor shall cut a 4 in. (100 mm) diameter core. With the approval of the Engineer, the cores may be cut at a later time."

Revise Article 1030.09(h)(2) of the Standard Specifications to read:

"(2) After final rolling and prior to paving subsequent lifts, the Engineer will identify the random density verification test locations. Cores or nuclear density gauge testing will be used for density verification. The method used for density verification will be as selected below.

Density Verification Method	
☐	Cores
☐	Nuclear Density Gauge (Correlated when paving ≥ 3,000 tons per mixture)

Density verification test locations will be determined according to the document "Hot-Mix Asphalt QC/QA Procedure for Determining Random Density Locations". The density testing interval for paving wider than or equal to 3 ft (1 m) will be 0.5 miles (800 m) for lift thicknesses of 3 in. (75 mm) or less and 0.2 miles (320 m) for lift thicknesses greater than 3 in. (75 mm). The density testing interval for paving less than 3 ft (1 m) wide will be 1 mile (1,600 m). If a day's paving will be less than the prescribed density testing interval, the length of the day's paving will be the interval for that day. The density testing interval for mixtures used for patching will be 50 patches with a minimum of one test per mixture per project.

If core testing is the density verification method, the Engineer will witness the Contractor coring, and secure and take possession of all density samples at the

density verification locations. The Engineer will test the cores collected by the Contractor for density according to Illinois Modified AASHTO T 166 or AASHTO T 275.

If nuclear density gauge testing is the density verification method, the Engineer will conduct nuclear density gauge tests. The Engineer will follow the density testing procedure detailed in the document "Illinois Modified ASTM D 2950, Standard Test Method for Density of Bituminous Concrete In-Place by Nuclear Method".

A density verification test will be the result of a single core or the average of the nuclear density tests at one location. The results of each density test must be within acceptable limits. The Engineer will promptly notify the Contractor of observed deficiencies."

Revise the seventh paragraph and all subsequent paragraphs in Section D. of the document "Hot-Mix Asphalt QC/QA Initial Daily Plant and Random Samples" to read:

"Mixtures shall be sampled from the truck at the plant by the Contractor following the same procedure used to collect QC mixture samples (Section A). This process will be witnessed by the Engineer who will take custody of the verification sample. Each sample bag with a verification mixture sample will be secured by the Engineer using a locking ID tag. Sample boxes containing the verification mixture sample will be sealed/taped by the Engineer using a security ID label."

BDE SPECIAL PROVISIONS
For the August 2 and September 20, 2024 Lettings

The following special provisions indicated by a “check mark” are applicable to this contract and will be included by the Project Coordination and Implementation Section of the Bureau of Design & Environment (BDE).

	File Name	#		Special Provision Title	Effective	Revised
	80099	1	☒	Accessible Pedestrian Signals (APS)	April 1, 2003	Jan. 1, 2022
	80274	2	☒	Aggregate Subgrade Improvement	April 1, 2012	April 1, 2022
	80192	3	☒	Automated Flagger Assistance Devices	Jan. 1, 2008	April 1, 2023
	80173	4	☒	Bituminous Materials Cost Adjustments	Nov. 2, 2006	Aug. 1, 2017
	80426	5	☐	Bituminous Surface Treatment with Fog Seal	Jan. 1, 2020	Jan. 1, 2022
*	80241	6	☐	Bridge Demolition Debris	July 1, 2009	
*	5053I	7	☐	Building Removal	Sept. 1, 1990	Aug. 1, 2022
*	5026I	8	☐	Building Removal with Asbestos Abatement	Sept. 1, 1990	Aug. 1, 2022
	80449	9	☒	Cement, Type IL	Aug. 1, 2023	
	80384	10	☐	Compensable Delay Costs	June 2, 2017	April 1, 2019
*	80198	11	☐	Completion Date (via calendar days)	April 1, 2008	
*	80199	12	☐	Completion Date (via calendar days) Plus Working Days	April 1, 2008	
	80453	13	☐	Concrete Sealer	Nov. 1, 2023	
	80261	14	☒	Construction Air Quality – Diesel Retrofit	June 1, 2010	Nov. 1, 2014
	80434	15	☐	Corrugated Plastic Pipe (Culvert and Storm Sewer)	Jan. 1, 2021	
*	80029	16	☐	Disadvantaged Business Enterprise Participation	Sept. 1, 2000	Mar. 2, 2019
	80229	17	☒	Fuel Cost Adjustment	April 1, 2009	Aug. 1, 2017
	80452	18	☐	Full Lane Sealant Waterproofing System	Nov. 1, 2023	
	80447	19	☐	Grading and Shaping Ditches	Jan. 1, 2023	
	80433	20	☐	Green Preformed Thermoplastic Pavement Markings	Jan. 1, 2021	Jan. 1, 2022
	80443	21	☐	High Tension Cable Median Barrier Removal	April 1, 2022	
	80456	22	☒	Hot-Mix Asphalt	Jan. 1, 2024	
	80446	23	☒	Hot-Mix Asphalt - Longitudinal Joint Sealant	Nov. 1, 2022	Aug. 1, 2023
	80438	24	☐	Illinois Works Apprenticeship Initiative – State Funded Contracts	June 2, 2021	April 2, 2024
	80045	25	☐	Material Transfer Device	June 15, 1999	Jan. 1, 2022
	80450	26	☐	Mechanically Stabilized Earth Retaining Walls	Aug. 1, 2023	
	80441	27	☒	Performance Graded Asphalt Binder	Jan. 1, 2023	
	80451	28	☒	Portland Cement Concrete	Aug. 1, 2023	
	80459	29	☐	Preformed Plastic Pavement Marking	June 2, 2024	
*	3426I	30	☐	Railroad Protective Liability Insurance	Dec. 1, 1986	Jan. 1, 2022
	80455	31	☒	Removal and Disposal of Regulated Substances	Jan. 1, 2024	April 1, 2024
	80445	32	☒	Seeding	Nov. 1, 2022	
	80457	33	☒	Short Term and Temporary Pavement Markings	April 1, 2024	April 2, 2024
	80448	34	☐	Source of Supply and Quality Requirements	Jan. 2, 2023	
	80340	35	☐	Speed Display Trailer	April 2, 2014	Jan. 1, 2022
	80127	36	☐	Steel Cost Adjustment	April 2, 2004	Jan. 1, 2022
	80397	37	☐	Subcontractor and DBE Payment Reporting	April 2, 2018	
	80391	38	☒	Subcontractor Mobilization Payments	Nov. 2, 2017	April 1, 2019
	80437	39	☐	Submission of Payroll Records	April 1, 2021	Nov. 2, 2023
	80435	40	☒	Surface Testing of Pavements – IRI	Jan. 1, 2021	Jan. 1, 2023
	80410	41	☐	Traffic Spotters	Jan. 1, 2019	
*	20338	42	☐	Training Special Provisions	Oct. 15, 1975	Sept. 2, 2021
	80429	43	☐	Ultra-Thin Bonded Wearing Course	April 1, 2020	Jan. 1, 2022
	80439	44	☒	Vehicle and Equipment Warning Lights	Nov. 1, 2021	Nov. 1, 2022
	80458	45	☐	Waterproofing Membrane System	Aug. 1, 2024	
	80302	46	☐	Weekly DBE Trucking Reports	June 2, 2012	Nov. 1, 2021
	80454	47	☐	Wood Sign Support	Nov. 1, 2023	
	80427	48	☒	Work Zone Traffic Control Devices	Mar. 2, 2020	
*	80071	49	☒	Working Days	Jan. 1, 2002	

Highlighted items indicate a new or revised special provision for the letting.

An * indicates the special provision requires additional information from the designer, which needs to be submitted separately. The Project Coordination and Implementation Section will then include the information in the applicable special provision.

The following special provisions are in the 2024 Supplemental Specifications and Recurring Special Provisions.

File Name	Special Provision Title	New Location(s)	Effective	Revised
80436	Blended Finely Divided Minerals	Articles 1010.01 & 1010.06	April 1, 2021	
80440	Waterproofing Membrane System	Article 1061.05	Nov. 1, 2021	

ACCESSIBLE PEDESTRIAN SIGNALS (APS) (BDE)

Effective: April 1, 2003
Revised: January 1, 2022

Description. This work shall consist of furnishing and installing accessible pedestrian signals (APS). Each APS shall consist of an interactive vibrotactile pedestrian pushbutton with speaker, an informational sign, a light emitting diode (LED) indicator light, a solid-state electronic control board, a power supply, wiring, and mounting hardware. The APS shall meet the requirements of the MUTCD and Sections 801 and 888 of the Standard Specifications, except as modified herein.

Electrical Requirements. The APS shall operate with systems providing 95 to 130 VAC, 60 Hz and throughout an ambient air temperature range of -29 to +160 °F (-34 to +70 °C).

The APS shall contain a power protection circuit consisting of both fuse and transient protection.

Audible Indications. A pushbutton locator tone shall sound at each pushbutton and shall be deactivated during the associated walk indication and when associated traffic signals are in flashing mode. Pushbutton locator tones shall have a duration of 0.15 seconds or less and shall repeat at 1-second intervals. Each actuation of the pushbutton shall be accompanied by the speech message "Wait".

If two accessible pedestrian pushbuttons are placed less than 10 ft (3 m) apart or placed on the same pole, the audible walk indication shall be a speech walk message. This message shall sound throughout the WALK interval only. The verbal message shall be modeled after: "'Street Name.' Walk Sign is on to cross "Street Name'." For signalized intersections utilizing exclusive pedestrian phasing, the verbal message shall be "Walk sign is on for all crossings". In addition, a speech pushbutton information message shall be provided by actuating the APS pushbutton when the WALK interval is not timing. This verbal message shall be modeled after: "Wait. Wait to cross 'Street Name' at 'Street Name'".

Where two accessible pedestrian pushbuttons are separated by at least 10 ft (3 m), the walk indication shall be an audible percussive tone. It shall repeat at 8 to 10 ticks per second with a dominant frequency of 880 Hz.

Automatic volume adjustments in response to ambient traffic sound level shall be provided up to a maximum volume of 100 dBA. Locator tone and verbal messages shall be no more than 5 dB louder than ambient sound.

At locations with railroad interconnection, an additional speech message stating "Walk time shortened when train approaches" shall be used after the speech walk message. At locations with emergency vehicle preemption, an additional speech message "Walk time shortened when emergency vehicle approaches" shall be used after the speech walk message.

Pedestrian Pushbutton. Pedestrian pushbuttons shall be at least 2 in. (50 mm) in diameter or width. The force required to activate the pushbutton shall be no greater than 3.5 lb (15.5 N).

A red LED shall be located on or near the pushbutton which, when activated, acknowledges the pedestrians request to cross the street.

Signage. A sign shall be located immediately above the pedestrian pushbutton and parallel to the crosswalk controlled by the pushbutton. The sign shall conform to one of the following standard MUTCD designs: R10-3, R10-3a, R10-3e, R10-3i, R10-4, and R10-4a.

Tactile Arrow. A tactile arrow, pointing in the direction of travel controlled by a pushbutton, shall be provided on the pushbutton.

Vibrotactile Feature. The pushbutton shall pulse when depressed and shall vibrate continuously throughout the WALK interval.

Method of Measurement. This work will be measured for payment as each, per pushbutton.

Basis of Payment. This work will be paid for at the contract unit price per each for ACCESSIBLE PEDESTRIAN SIGNALS.

80099

AGGREGATE SUBGRADE IMPROVEMENT (BDE)

Effective: April 1, 2012
Revised: April 1, 2022

Add the following Section to the Standard Specifications:

"**SECTION 303. AGGREGATE SUBGRADE IMPROVEMENT**

303.01 Description. This work shall consist of constructing an aggregate subgrade improvement (ASI).

303.02 Materials. Materials shall be according to the following.

Item	Article/Section
(a) Coarse Aggregate	1004.07
(b) Reclaimed Asphalt Pavement (RAP)	1031.09

303.03 Equipment. The vibratory roller shall be according to Article 1101.01, or as approved by the Engineer. Vibratory machines, such as tampers, shall be used in areas where rollers do not fit.

303.04 Soil Preparation. The minimum immediate bearing value (IBV) of the soil below the improved subgrade shall be according to the Department's "Subgrade Stability Manual" for the aggregate thickness specified.

303.05 Placing and Compacting. The maximum nominal lift thickness of aggregate gradations CA 2, CA 6, and CA 10 when compacted shall be 9 in. (225 mm). The maximum nominal lift thickness of aggregate gradations CS 1, CS 2, and RR 1 when compacted shall be 24 in. (600 mm).

The top surface of the aggregate subgrade improvement shall consist of a layer of capping aggregate gradations CA 6 or CA 10 that is 3 in. (75 mm) thick after compaction. Capping aggregate will not be required when aggregate subgrade improvement is used as a cubic yard pay item for undercut applications.

Each lift of aggregate shall be compacted to the satisfaction of the Engineer. If the moisture content of the material is such that compaction cannot be obtained, sufficient water shall be added so that satisfactory compaction can be obtained.

303.06 Finishing and Maintenance. The aggregate subgrade improvement shall be finished to the lines, grades, and cross sections shown on the plans, or as directed by the Engineer. The aggregate subgrade improvement shall be maintained in a smooth and compacted condition.

303.07 Method of Measurement. This work will be measured for payment according to Article 311.08.

303.08 Basis of Payment. This work will be paid for at the contract unit price per cubic yard (cubic meter) or ton (metric ton) for AGGREGATE SUBGRADE IMPROVEMENT or at the contract unit price per square yard (square meter) for AGGREGATE SUBGRADE IMPROVEMENT, of the thickness specified."

Add the following to Section 1004 of the Standard Specifications:

"**1004.07 Coarse Aggregate for Aggregate Subgrade Improvement (ASI).** The aggregate shall be according to Article 1004.01 and the following.

(a) Description. The coarse aggregate shall be crushed gravel, crushed stone, or crushed concrete. In applications where greater than 24 in. (600 mm) of ASI material is required, gravel may be used below the top 12 in (300 mm) of ASI.

(b) Quality. The coarse aggregate shall consist of sound durable particles reasonably free of deleterious materials.

(c) Gradation.

(1) The coarse aggregate gradation for total ASI thickness less than or equal to 12 in. (300 mm) shall be CA 2, CA 6, CA 10, or CS 1.

The coarse aggregate gradation for total ASI thickness greater than 12 in. (300 mm) shall be CS 1 or CS 2 as shown below or RR 1 according to Article 1005.01(c).

	COARSE AGGREGATE SUBGRADE GRADATIONS				
Grad No.	Sieve Size and Percent Passing				
	8"	6"	4"	2"	#4
CS 1	100	97 ± 3	90 ± 10	45 ± 25	20 ± 20
CS 2		100	80 ± 10	25 ± 15	

	COARSE AGGREGATE SUBGRADE GRADATIONS (Metric)				
Grad No.	Sieve Size and Percent Passing				
	200 mm	150 mm	100 mm	50 mm	4.75 mm
CS 1	100	97 ± 3	90 ± 10	45 ± 25	20 ± 20
CS 2		100	80 ± 10	25 ± 15	

(2) Capping aggregate shall be gradation CA 6 or CA 10."

Add the following to Article 1031.09 of the Standard Specifications:

"(b) RAP in Aggregate Subgrade Improvement (ASI). RAP in ASI shall be according to Articles 1031.01(a), 1031.02(a), 1031.06(a)(1), and 1031.06(a)(2), and the following.

(1) The testing requirements of Article 1031.03 shall not apply.

(2) Crushed RAP used for the lower lift may be mechanically blended with aggregate gradations CS 1, CS 2, and RR 1 but it shall be no greater than 40 percent of the total product volume. RAP agglomerations shall be no greater than 4 in. (100 mm).

(3) For capping aggregate, well graded RAP having 100 percent passing the 1 1/2 in. (38 mm) sieve may be used when aggregate gradations CS 1, CS 2, CA 2, or RR 1 are used in the lower lift. FRAP will not be permitted as capping material.

Blending shall be through calibrated interlocked feeders or a calibrated blending plant such that the prescribed blending percentage is maintained throughout the blending process. The calibration shall have an accuracy of ± 2.0 percent of the actual quantity of material delivered."

80274

AUTOMATED FLAGGER ASSISTANCE DEVICES (BDE)

Effective: January 1, 2008
Revised: April 1, 2023

Description. This work shall consist of furnishing and operating automated flagger assistance devices (AFADs) as part of the work zone traffic control and protection for two-lane highways where two-way traffic is maintained over one lane of pavement in segments where no sideroads or entrances require deployment of additional flaggers. Use of these devices shall be at the option of the Contractor.

Equipment. AFADs shall be the STOP/SLOW or Red/Yellow Lens type mounted on a trailer or moveable cart meeting the requirements of the MUTCD and NCHRP 350 or MASH 2016, Category 4.

General. AFADs shall be placed at each end of the traffic control, where a flagger is shown on the plans. The AFAD shall be setup within five degrees of vertical.

Flagger symbol signs as shown on the plans shall be replaced with “BE PREPARED TO STOP” signs when the AFAD is in operation.

Personal communication devices shall not be used to operate the AFAD.

Flagging Requirements. Flaggers and flagging requirements shall be according to Article 701.13 of the Standard Specifications and the following.

Each AFAD shall be operated by a flagger trained to operate the specific AFAD to be deployed. A minimum of two flaggers shall be on site at all times during operation. Each flagger shall be positioned outside the lane of traffic and near each AFAD’s location.

Flagging equipment required for traditional flagging shall be available near each AFAD location in the event of AFAD equipment malfunction/failure.

For nighttime flagging, the AFAD and flagger shall be illuminated according to Article 701.13 of the Standard Specifications.

When not in use, AFADs will be considered non-operating equipment and shall be stored according to Article 701.11 of the Standard Specifications.

Basis of Payment. This work will not be paid for separately but shall be considered as included in the cost of the various traffic control items included in the contract.

BITUMINOUS MATERIALS COST ADJUSTMENTS (BDE)

Effective: November 2, 2006
Revised: August 1, 2017

Description. Bituminous material cost adjustments will be made to provide additional compensation to the Contractor, or credit to the Department, for fluctuations in the cost of bituminous materials when optioned by the Contractor. The bidder shall indicate with their bid whether or not this special provision will be part of the contract.

The adjustments shall apply to permanent and temporary hot-mix asphalt (HMA) mixtures, bituminous surface treatments (cover and seal coats), and preventative maintenance type surface treatments that are part of the original proposed construction, or added as extra work and paid for by agreed unit prices. The adjustments shall not apply to bituminous prime coats, tack coats, crack filling/sealing, joint filling/sealing, or extra work paid for at a lump sum price or by force account.

Method of Adjustment. Bituminous materials cost adjustments will be computed as follows.

$CA = (BPI_P - BPI_L) \times (\%AC_V / 100) \times Q$

Where: CA = Cost Adjustment, $.
BPI_P = Bituminous Price Index, as published by the Department for the month the work is performed, $/ton ($/metric ton).
BPI_L = Bituminous Price Index, as published by the Department for the month prior to the letting for work paid for at the contract price; or for the month the agreed unit price letter is submitted by the Contractor for extra work paid for by agreed unit price, $/ton ($/metric ton).
$\%AC_V$ = Percent of virgin Asphalt Cement in the Quantity being adjusted. For HMA mixtures, the % AC_V will be determined from the adjusted job mix formula. For bituminous materials applied, a performance graded or cutback asphalt will be considered to be 100% AC_V and undiluted emulsified asphalt will be considered to be 65% AC_V.
Q = Authorized construction Quantity, tons (metric tons) (see below).

For HMA mixtures measured in square yards: Q, tons = $A \times D \times (G_{mb} \times 46.8) / 2000$. For HMA mixtures measured in square meters: Q, metric tons = $A \times D \times (G_{mb} \times 1) / 1000$. When computing adjustments for full-depth HMA pavement, separate calculations will be made for the binder and surface courses to account for their different G_{mb} and % AC_V.

For bituminous materials measured in gallons: Q, tons = V x 8.33 lb/gal x SG / 2000
For bituminous materials measured in liters: Q, metric tons = V x 1.0 kg/L x SG / 1000

Where: A = Area of the HMA mixture, sq yd (sq m).
D = Depth of the HMA mixture, in. (mm).
G_{mb} = Average bulk specific gravity of the mixture, from the approved mix design.

V = Volume of the bituminous material, gal (L).
SG = Specific Gravity of bituminous material as shown on the bill of lading.

Basis of Payment. Bituminous materials cost adjustments may be positive or negative but will only be made when there is a difference between the BPI_L and BPI_P in excess of five percent, as calculated by:

Percent Difference = $\{(BPI_L - BPI_P) \div BPI_L\} \times 100$

Bituminous materials cost adjustments will be calculated for each calendar month in which applicable bituminous material is placed; and will be paid or deducted when all other contract requirements for the work placed during the month are satisfied. The adjustments shall not apply during contract time subject to liquidated damages for completion of the entire contract.

80173

CONSTRUCTION AIR QUALITY – DIESEL RETROFIT (BDE)

Effective: June 1, 2010
Revised: November 1, 2014

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 using the phased in approach shown below. Equipment that is of a model year older than the year given for that equipment's respective horsepower range shall be retrofitted:

Effective Dates	Horsepower Range	Model Year
June 1, 2010 [1/]	600-749	2002
	750 and up	2006
June 1, 2011 [2/]	100-299	2003
	300-599	2001
	600-749	2002
	750 and up	2006
June 1, 2012 [2/]	50-99	2004
	100-299	2003
	300-599	2001
	600-749	2002
	750 and up	2006

1/ Effective dates apply to Contractor diesel powered off-road equipment assigned to the contract.

2/ Effective dates apply to Contractor and subcontractor diesel powered off-road equipment assigned to the contract.

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* (http://www.epa.gov/cleandiesel/verification/verif-list.htm), 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.

80261

FUEL COST ADJUSTMENT (BDE)

Effective: April 1, 2009
Revised: August 1, 2017

Description. Fuel cost adjustments will be made to provide additional compensation to the Contractor, or a credit to the Department, for fluctuations in fuel prices when optioned by the Contractor. The bidder shall indicate with their bid whether or not this special provision will be part of the contract. Failure to indicate "Yes" for any category of work will make that category of work exempt from fuel cost adjustment.

General. The fuel cost adjustment shall apply to contract pay items as grouped by category. The adjustment shall only apply to those categories of work checked "Yes", and only when the cumulative plan quantities for a category exceed the required threshold. Adjustments to work items in a category, either up or down, and extra work paid for by agreed unit price will be subject to fuel cost adjustment only when the category representing the added work was subject to the fuel cost adjustment. Extra work paid for at a lump sum price or by force account will not be subject to fuel cost adjustment. Category descriptions and thresholds for application and the fuel usage factors which are applicable to each are as follows:

(a) Categories of Work.

(1) Category A: Earthwork. Contract pay items performed under Sections 202, 204, and 206 including any modified standard or nonstandard items where the character of the work to be performed is considered earthwork. The cumulative total of all applicable item plan quantities shall exceed 25,000 cu yd (20,000 cu m). Included in the fuel usage factor is a weighted average 0.10 gal/cu yd (0.50 liters/cu m) factor for trucking.

(2) Category B: Subbases and Aggregate Base Courses. Contract pay items constructed under Sections 311, 312 and 351 including any modified standard or nonstandard items where the character of the work to be performed is considered construction of a subbase or aggregate, stabilized or modified base course. The cumulative total of all applicable item plan quantities shall exceed 5000 tons (4500 metric tons). Included in the fuel usage factor is a 0.60 gal/ton (2.50 liters/metric ton) factor for trucking.

(3) Category C: Hot-Mix Asphalt (HMA) Bases, Pavements and Shoulders. Contract pay items constructed under Sections 355, 406, 407 and 482 including any modified standard or nonstandard items where the character of the work to be performed is considered HMA bases, pavements and shoulders. The cumulative total of all applicable item plan quantities shall exceed 5000 tons (4500 metric tons). Included in the fuel usage factor is 0.60 gal/ton (2.50 liters/metric ton) factor for trucking.

(4) Category D: Portland Cement Concrete (PCC) Bases, Pavements and Shoulders. Contract pay items constructed under Sections 353, 420, 421 and 483 including any

modified standard or nonstandard items where the character of the work to be performed is considered PCC base, pavement or shoulder. The cumulative total of all applicable item plan quantities shall exceed 7500 sq yd (6000 sq m). Included in the fuel usage factor is 1.20 gal/cu yd (5.94 liters/cu m) factor for trucking.

(5) Category E: Structures. Structure items having a cumulative bid price that exceeds $250,000 for pay items constructed under Sections 502, 503, 504, 505, 512, 516 and 540 including any modified standard or nonstandard items where the character of the work to be performed is considered structure work when similar to that performed under these sections and not included in categories A through D.

(b) Fuel Usage Factors.

English Units

Category	Factor	Units
A - Earthwork	0.34	gal / cu yd
B – Subbase and Aggregate Base courses	0.62	gal / ton
C – HMA Bases, Pavements and Shoulders	1.05	gal / ton
D – PCC Bases, Pavements and Shoulders	2.53	gal / cu yd
E – Structures	8.00	gal / $1000

Metric Units

Category	Factor	Units
A - Earthwork	1.68	liters / cu m
B – Subbase and Aggregate Base courses	2.58	liters / metric ton
C – HMA Bases, Pavements and Shoulders	4.37	liters / metric ton
D – PCC Bases, Pavements and Shoulders	12.52	liters / cu m
E – Structures	30.28	liters / $1000

(c) Quantity Conversion Factors.

Category	Conversion	Factor
B	sq yd to ton	0.057 ton / sq yd / in depth
	sq m to metric ton	0.00243 metric ton / sq m / mm depth
C	sq yd to ton	0.056 ton / sq yd / in depth
	sq m to metric ton	0.00239 m ton / sq m / mm depth
D	sq yd to cu yd	0.028 cu yd / sq yd / in depth
	sq m to cu m	0.001 cu m / sq m / mm depth

Method of Adjustment. Fuel cost adjustments will be computed as follows.

$CA = (FPI_P - FPI_L) \times FUF \times Q$

Where: CA = Cost Adjustment, $
FPI_P = Fuel Price Index, as published by the Department for the month the work is performed, $/gal ($/liter)
FPI_L = Fuel Price Index, as published by the Department for the month prior to the letting for work paid for at the contract price; or for the month the agreed unit price letter is submitted by the Contractor for extra work paid for by agreed unit price, $/gal ($/liter)
FUF = Fuel Usage Factor in the pay item(s) being adjusted
Q = Authorized construction Quantity, tons (metric tons) or cu yd (cu m)

The entire FUF indicated in paragraph (b) will be used regardless of use of trucking to perform the work.

Basis of Payment. Fuel cost adjustments may be positive or negative but will only be made when there is a difference between the FPI_L and FPI_P in excess of five percent, as calculated by:

$$\text{Percent Difference} = \{(FPI_L - FPI_P) \div FPI_L\} \times 100$$

Fuel cost adjustments will be calculated for each calendar month in which applicable work is performed; and will be paid or deducted when all other contract requirements for the items of work are satisfied. The adjustments shall not apply during contract time subject to liquidated damages for completion of the entire contract.

80229

HOT-MIX ASPHALT (BDE)

Effective: January 1, 2024

Revise the second paragraph of Articles 1030.07(a)(11) and 1030.08(a)(9) of the Standard Specifications to read:

"When establishing the target density, the HMA maximum theoretical specific gravity (G_{mm}) will be based on the running average of four available Department test results for that project. If less than four G_{mm} test results are available, an average of all available Department test results for that project will be used. The initial G_{mm} will be the last available Department test result from a QMP project. If there is no available Department test result from a QMP project, the Department mix design verification test result will be used as the initial G_{mm}."

In the Supplemental Specifications, replace the revision for the end of the third paragraph of Article 1030.09(h)(2) with the following:

"When establishing the target density, the HMA maximum theoretical specific gravity (G_{mm}) will be the Department mix design verification test result."

Revise the tenth paragraph of Article 1030.10 of the Standard Specifications to read:

"Production is not required to stop after a test strip has been constructed."

80456

HOT-MIX ASPHALT – LONGITUDINAL JOINT SEALANT (BDE)

Effective: November 1, 2022
Revised: August 1, 2023

Add the following after the second sentence in the eighth paragraph of Article 406.06(h)(2) of the Standard Specifications:

"If rain is forecasted and traffic is to be on the LJS or if pickup/tracking of the LJS material is likely, the LJS shall be covered immediately following its application with FA 20 fine aggregate mechanically spread uniformly at a rate of 1.5 ± 0.5 lb/sq yd (0.75 ± 0.25 kg/sq m). Fine aggregate landing outside of the LJS shall be removed prior to application of tack coat."

Add the following after the first sentence in the ninth paragraph of Article 406.06(h)(2) of the Standard Specifications:

"LJS half-width shall be applied at a width of 9 ± 1 in. (225 ± 25 mm) in the immediate lane to be placed with the outside edge flush with the joint of the next HMA lift. The vertical face of any longitudinal joint remaining in place shall also be coated."

Add the following after the eleventh paragraph of Article 406.06(h)(2) of the Standard Specifications:

"LJS Half-Width Application Rate, lb/ft (kg/m) [1/]			
Lift Thickness, in. (mm)	Coarse Graded Mixture (IL-19.0, IL-19.0L, IL-9.5, IL-9.5L, IL-4.75)	Fine Graded Mixture (IL-9.5FG)	SMA Mixture (SMA-9.5, SMA-12.5)
¾ (19)	0.44 (0.66)		
1 (25)	0.58 (0.86)		
1 ¼ (32)	0.66 (0.98)	0.44 (0.66)	
1 ½ (38)	0.74 (1.10)	0.48 (0.71)	0.63 (0.94)
1 ¾ (44)	0.82 (1.22)	0.52 (0.77)	0.69 (1.03)
2 (50)	0.90 (1.34)	0.56 (0.83)	0.76 (1.13)
≥ 2 ¼ (60)	0.98 (1.46)		

1/ The application rate includes a surface demand for liquid. The thickness of the LJS may taper from the center of the application to a lesser thickness on the edge of the application, provided the correct width and application rate are maintained."

Revise the second paragraph of Article 406.13(b) of the Standard Specifications to read:

"Aggregate for covering tack, LJS, or FLS will not be measured for payment."

Add the following to the end of the second paragraph of Article 406.14 of the Standard Specifications:

“Longitudinal joint sealant (LJS) half-width will be paid for at the contract unit price per foot (meter) for LONGITUDINAL JOINT SEALANT, HALF-WIDTH.”

80446

MATERIAL TRANSFER DEVICE (BDE)

Effective: June 15, 1999
Revised: January 1, 2022

Add the following to Article 406.03 of the Standard Specifications:

"(n) Material Transfer Device .....1102.02"

Add the following to the end of Article 406.06(f) of the Standard Specifications:

"When required, a material transfer device (MTD) shall be used to transfer the HMA from the haul trucks to the spreading and finishing machine. The particular HMA mixtures for which an MTD is required will be specified in the plans. When not required, an MTD may still be used at the Contractor's option, subject to the requirements and restrictions herein. Use of MTDs shall be according to the following.

MTD Category	Usage
Category I	Any resurfacing application Full-Depth HMA where the in-place binder thickness is ≥ 10 in. (250 mm)
Category II	Full-Depth HMA where the in-place binder thickness is < 10 in. (250 mm)

Category I MTD's will only be allowed to travel over structures under the following conditions:

(1) Approval will be given by the Engineer.

(2) The MTD shall be emptied of HMA material prior to crossing the structure and shall travel at crawl speed across the structure.

(3) The tires of the MTD shall travel on or in close proximity and parallel to the beam and/or girder lines of the structure."

Add the following to the end of Article 406.13(b) of the Standard Specifications:

"The required use of an MTD will be measured for payment in tons (metric tons) of the HMA mixtures placed with the MTD. The use of an MTD at the Contractor's option will not be measured for payment."

Add the following between the second and third paragraphs of Article 406.14 of the Standard Specifications:

"The required use of an MTD will be paid for at the contract unit price per ton (metric ton) for MATERIAL TRANSFER DEVICE. The HMA mixtures placed with the MTD will be paid for separately according to their respective specifications."

Revise Article 1102.02 of the Standard Specifications to read:

"**1102.02 Material Transfer Device (MTD).** The MTD shall be according to the following.

(a) Requirements. The MTD shall have a minimum surge capacity of 15 tons (13.5 metric tons), shall be self-propelled and capable of moving independent of the paver, and shall be equipped with the following.

(1) Front-Dump Hopper and Conveyor. The conveyor shall provide a positive restraint along the sides of the conveyor to prevent material spillage. MTDs having paver style hoppers shall have a horizontal bar restraint placed across the foldable wings which prevents the wings from being folded.

(2) Paver Hopper Insert. The paver hopper insert shall have a minimum capacity of 14 tons (12.7 metric tons).

(3) Mixer/Agitator Mechanism. This re-mixing mechanism shall consist of a segmented, anti-segregation, re-mixing auger.

(b) Qualification and Designation. The MTD shall be on the Department's qualified product list with one of the following designations.

(1) Category I. The MTD has a documented maximum HMA carrying capacity contact pressure greater than 25 psi and has a central surge hopper of sufficient capacity to mix upstream HMA with downstream HMA.

(2) Category II. The MTD has a documented maximum HMA carrying capacity contact pressure less than or equal to 25 psi."

REMOVAL AND DISPOSAL OF REGULATED SUBSTANCES (BDE)

Effective: January 1, 2024
Revised: April 1, 2024

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 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."

80455

SEEDING (BDE)

Effective: November 1, 2022

Revise Article 250.07 of the Standard Specifications to read:

"**250.07 Seeding Mixtures.** The classes of seeding mixtures and combinations of mixtures will be designated in the plans.

When an area is to be seeded with two or more seeding classes, those mixtures shall be applied separately on the designated area within a seven day period. Seeding shall occur prior to placement of mulch cover. A Class 7 mixture can be applied at any time prior to applying any seeding class or added to them and applied at the same time.

TABLE 1 - SEEDING MIXTURES			
Class - Type		Seeds	lb/acre (kg/hectare)
1	Lawn Mixture 1/	Kentucky Bluegrass	100 (110)
		Perennial Ryegrass	60 (70)
		Festuca rubra ssp. r*ubra* (Creeping Red Fescue)	40 (50)
1A	Salt Tolerant Lawn Mixture 1/	Kentucky Bluegrass	60 (70)
		Perennial Ryegrass	20 (20)
		Festuca rubra ssp. *rubra* (Creeping Red Fescue)	20 (20)
		Festuca brevipilla (Hard Fescue)	20 (20)
		Puccinellia distans (Fults Saltgrass or Salty Alkaligrass)	60 (70)
1B	Low Maintenance Lawn Mixture 1/	Turf-Type Fine Fescue 3/	150 (170)
		Perennial Ryegrass	20 (20)
		Red Top	10 (10)
		Festuca rubra ssp. *rubra* (Creeping Red Fescue)	20 (20)
2	Roadside Mixture 1/	*Lolium arundinaceum* (Tall Fescue)	100 (110)
		Perennial Ryegrass	50 (55)
		Festuca rubra ssp. r*ubra* (Creeping Red Fescue)	40 (50)
		Red Top	10 (10)
2A	Salt Tolerant Roadside Mixture 1/	*Lolium arundinaceum* (Tall Fescue)	60 (70)
		Perennial Ryegrass	20 (20)
		Festuca rubra ssp. *rubra* (Creeping Red Fescue)	30 (20)
		Festuca brevipila (Hard Fescue)	30 (20)
		Puccinellia distans (Fults Saltgrass or Salty Alkaligrass)	60 (70)
3	Northern Illinois Slope Mixture 1/	*Elymus canadensis* (Canada Wild Rye) 5/	5 (5)
		Perennial Ryegrass	20 (20)
		Alsike Clover 4/	5 (5)
		Desmanthus illinoensis (Illinois Bundleflower) 4/ 5/	2 (2)
		Schizachyrium scoparium (Little Bluestem) 5/	12 (12)
		Bouteloua curtipendula (Side-Oats Grama) 5/	10 (10)
		Puccinellia distans (Fults Saltgrass or Salty Alkaligrass)	30 (35)
		Oats, Spring	50 (55)
		Slender Wheat Grass 5/	15 (15)
		Buffalo Grass 5/ 7/	5 (5)
3A	Southern Illinois Slope Mixture 1/	Perennial Ryegrass	20 (20)
		Elymus canadensis (Canada Wild Rye) 5/	20 (20)
		Panicum virgatum (Switchgrass) 5/	10 (10)
		Schizachyrium scoparium (Little Blue Stem) 5/	12 (12)
		Bouteloua curtipendula (Side-Oats Grama) 5/	10 (10)
		Dalea candida (White Prairie Clover) 4/ 5/	5 (5)
		Rudbeckia hirta (Black-Eyed Susan) 5/	5 (5)
		Oats, Spring	50 (55)

Class – Type		Seeds	lb/acre (kg/hectare)
4	Native Grass 2/ 6/	*Andropogon gerardi* (Big Blue Stem) 5/	4 (4)
		Schizachyrium scoparium (Little Blue Stem) 5/	5 (5)
		Bouteloua curtipendula (Side-Oats Grama) 5/	5 (5)
		Elymus canadensis (Canada Wild Rye) 5/	1 (1)
		Panicum virgatum (Switch Grass) 5/	1 (1)
		Sorghastrum nutans (Indian Grass) 5/	2 (2)
		Annual Ryegrass	25 (25)
		Oats, Spring	25 (25)
		Perennial Ryegrass	15 (15)
4A	Low Profile Native Grass 2/ 6/	*Schizachyrium scoparium* (Little Blue Stem) 5/	5 (5)
		Bouteloua curtipendula (Side-Oats Grama) 5/	5 (5)
		Elymus canadensis (Canada Wild Rye) 5/	1 (1)
		Sporobolus heterolepis (Prairie Dropseed) 5/	0.5 (0.5)
		Annual Ryegrass	25 (25)
		Oats, Spring	25 (25)
		Perennial Ryegrass	15 (15)
4B	Wetland Grass and Sedge Mixture 2/ 6/	Annual Ryegrass	25 (25)
		Oats, Spring	25 (25)
		Wetland Grasses (species below) 5/	6 (6)

Species:	% By Weight
Calamagrostis canadensis (Blue Joint Grass)	12
Carex lacustris (Lake-Bank Sedge)	6
Carex slipata (Awl-Fruited Sedge)	6
Carex stricta (Tussock Sedge)	6
Carex vulpinoidea (Fox Sedge)	6
Eleocharis acicularis (Needle Spike Rush)	3
Eleocharis obtusa (Blunt Spike Rush)	3
Glyceria striata (Fowl Manna Grass)	14
Juncus effusus (Common Rush)	6
Juncus tenuis (Slender Rush)	6
Juncus torreyi (Torrey's Rush)	6
Leersia oryzoides (Rice Cut Grass)	10
Scirpus acutus (Hard-Stemmed Bulrush)	3
Scirpus atrovirens (Dark Green Rush)	3
Bolboschoenus fluviatilis (River Bulrush)	3
Schoenoplectus tabernaemontani (Softstem Bulrush)	3
Spartina pectinata (Cord Grass)	4

Class – Type		Seeds	lb/acre (kg/hectare)
5	Forb with Annuals Mixture 2/ 5/ 6/	Annuals Mixture (Below) Forb Mixture (Below)	1 (1) 10 (10)

Annuals Mixture - Mixture not exceeding 25 % by weight of any one species, of the following:

Coreopsis lanceolata (Sand Coreopsis)
Leucanthemum maximum (Shasta Daisy)
Gaillardia pulchella (Blanket Flower)
Ratibida columnifera (Prairie Coneflower)
Rudbeckia hirta (Black-Eyed Susan)

Forb Mixture - Mixture not exceeding 5 % by weight PLS of any one species, of the following:

Amorpha canescens (Lead Plant) 4/
Anemone cylindrica (Thimble Weed)
Asclepias tuberosa (Butterfly Weed)
Aster azureus (Sky Blue Aster)
Symphyotrichum leave (Smooth Aster)
Aster novae-angliae (New England Aster)
Baptisia leucantha (White Wild Indigo) 4/
Coreopsis palmata (Prairie Coreopsis)
Echinacea pallida (Pale Purple Coneflower)
Eryngium yuccifolium (Rattlesnake Master)
Helianthus mollis (Downy Sunflower)
Heliopsis helianthoides (Ox-Eye)
Liatris aspera (Rough Blazing Star)
Liatris pycnostachya (Prairie Blazing Star)
Monarda fistulosa (Prairie Bergamot)
Parthenium integrifolium (Wild Quinine)
Dalea candida (White Prairie Clover) 4/
Dalea purpurea (Purple Prairie Clover) 4/
Physostegia virginiana (False Dragonhead)
Potentilla arguta (Prairie Cinquefoil)
Ratibida pinnata (Yellow Coneflower)
Rudbeckia subtomentosa (Fragrant Coneflower)
Silphium laciniatum (Compass Plant)
Silphium terebinthinaceum (Prairie Dock)
Oligoneuron rigidum (Rigid Goldenrod)
Tradescantia ohiensis (Spiderwort)
Veronicastrum virginicum (Culver's Root)

Class	– Type	Seeds	lb/acre (kg/hectare)
5A	Large Flower Native Forb Mixture 2/ 5/ 6/	Forb Mixture (see below)	5 (5)
	Species:		% By Weight
	Aster novae-angliae (New England Aster)		5
	Echinacea pallida (Pale Purple Coneflower)		10
	Helianthus mollis (Downy Sunflower)		10
	Heliopsis helianthoides (Ox-Eye)		10
	Liatris pycnostachya (Prairie Blazing Star)		10
	Ratibida pinnata (Yellow Coneflower)		5
	Rudbeckia hirta (Black-Eyed Susan)		10
	Silphium laciniatum (Compass Plant)		10
	Silphium terebinthinaceum (Prairie Dock)		20
	Oligoneuron rigidum (Rigid Goldenrod)		10
5B	Wetland Forb 2/ 5/ 6/	Forb Mixture (see below)	2 (2)
	Species:		% By Weight
	Acorus calamus (Sweet Flag)		3
	Angelica atropurpurea (Angelica)		6
	Asclepias incarnata (Swamp Milkweed)		2
	Aster puniceus (Purple Stemmed Aster)		10
	Bidens cernua (Beggarticks)		7
	Eutrochium maculatum (Spotted Joe Pye Weed)		7
	Eupatorium perfoliatum (Boneset)		7
	Helenium autumnale (Autumn Sneeze Weed)		2
	Iris virginica shrevei (Blue Flag Iris)		2
	Lobelia cardinalis (Cardinal Flower)		5
	Lobelia siphilitica (Great Blue Lobelia)		5
	Lythrum alatum (Winged Loosestrife)		2
	Physostegia virginiana (False Dragonhead)		5
	Persicaria pensylvanica (Pennsylvania Smartweed)		10
	Persicaria lapathifolia (Curlytop Knotweed)		10
	Pychanthemum virginianum (Mountain Mint)		5
	Rudbeckia laciniata (Cut-leaf Coneflower)		5
	Oligoneuron riddellii (Riddell Goldenrod)		2
	Sparganium eurycarpum (Giant Burreed)		5
6	Conservation Mixture 2/ 6/	*Schizachyrium scoparium* (Little Blue Stem) 5/	5 (5)
		Elymus canadensis (Canada Wild Rye) 5/	2 (2)
		Buffalo Grass 5/ 7/	5 (5)
		Vernal Alfalfa 4/	15 (15)
		Oats, Spring	48 (55)
6A	Salt Tolerant Conservation Mixture 2/ 6/	*Schizachyrium scoparium* (Little Blue Stem) 5/	5 (5)
		Elymus canadensis (Canada Wild Rye) 5/	2 (2)
		Buffalo Grass 5/ 7/	5 (5)
		Vernal Alfalfa 4/	15 (15)
		Oats, Spring	48 (55)
		Puccinellia distans (Fults Saltgrass or Salty Alkaligrass)	20 (20)
7	Temporary Turf Cover Mixture	Perennial Ryegrass	50 (55)
		Oats, Spring	64 (70)

Notes:

1/ Seeding shall be performed when the ambient temperature has been between 45 ºF (7 ºC) and 80 ºF (27 ºC) for a minimum of seven (7) consecutive days and is forecasted to be the same for the next five (5) days according to the National Weather Service.
2/ Seeding shall be performed in late fall through spring beginning when the ambient temperature has been below 45 ºF (7 ºC) for a minimum of seven (7) consecutive days and ending when the ambient temperature exceeds 80 ºF (27 ºC) according to the National Weather Service.
3/ Specific variety as shown in the plans or approved by the Engineer.
4/ Inoculation required.
5/ Pure Live Seed (PLS) shall be used.
6/ Fertilizer shall not be used.
7/ Seed shall be primed with KNO_3 to break dormancy and dyed to indicate such.

Seeding will be inspected after a period of establishment. The period of establishment shall be six (6) months minimum, but not to exceed nine (9) months. After the period of establishment, areas not exhibiting 75 percent uniform growth shall be interseeded or reseeded, as determined by the Engineer, at no additional cost to the Department."

80445

SHORT TERM AND TEMPORARY PAVEMENT MARKINGS (BDE)

Effective: April 1, 2024
Revised: April 2, 2024

Revise Article 701.02(d) of the Standard Specifications to read:

"(d) Pavement Marking Tapes (Note 3) .....1095.06"

Add the following Note to the end of Article 701.02 of the Standard Specifications:

"Note 3. White or yellow pavement marking tape that is to remain in place longer than 14 days shall be Type IV tape."

Revise Article 703.02(c) of the Standard Specifications to read:

"(c) Pavement Marking Tapes (Note 1) .....1095.06"

Add the following Note to the end of Article 703.02 of the Standard Specifications:

"Note 1. White or yellow pavement marking tape that is to remain in place longer than 14 days shall be Type IV tape."

Revise Article 1095.06 of the Standard Specifications to read:

"**1095.06 Pavement Marking Tapes.** Type I white or yellow marking tape shall consist of glass spheres embedded into a binder on a foil backing that is precoated with a pressure sensitive adhesive. The spheres shall be of uniform gradation and distributed evenly over the surface of the tape.

Type IV tape shall consist of white or yellow tape with wet reflective media incorporated to provide immediate and continuing retroreflection in wet and dry conditions. The wet retroreflective media shall be bonded to a durable polyurethane surface. The patterned surface shall have approximately 40 ± 10 percent of the surface area raised and presenting a near vertical face to traffic from any direction. The channels between the raised areas shall be substantially free of exposed reflective elements or particles.

Blackout tape shall consist of a matte black, non-reflective, patterned surface that is precoated with a pressure sensitive adhesive.

(a) Color. The white and yellow markings shall meet the following requirements for daylight reflectance and color, when tested, using a color spectrophotometer with 45 degrees circumferential/zero degree geometry, illuminant D65, and two degree observer angle. The color instrument shall measure the visible spectrum from 380 to 720 nm with a wavelength measurement interval and spectral bandpass of 10 nm.

Color	Daylight Reflectance %Y
White	65 min.
Yellow *	36 - 59

*Shall match Aerospace Material Specification Standard 595 33538 (Orange Yellow) and the chromaticity limits as follows.

x	0.490	0.475	0.485	0.530
y	0.470	0.438	0.425	0.456

(b) Retroreflectivity. The white and yellow markings shall be retroreflective. Reflective values measured in accordance with the photometric testing procedure of ASTM D 4061 shall not be less than those listed in the table below. The coefficient of retroreflected luminance, R_L, shall be expressed as average millicandelas/footcandle/sq ft (millicandelas/lux/sq m), measured on a 3.0 x 0.5 ft (900 mm x 150 mm) panel at 86 degree entrance angle.

Coefficient of Retroreflected Luminance, R_L, Dry					
Type I			Type IV		
Observation Angle	White	Yellow	Observation Angle	White	Yellow
0.2°	2700	2400	0.2°	1300	1200
0.5°	2250	2000	0.5°	1100	1000

Wet retroreflectance shall be measured for Type IV under wet conditions according to ASTM E 2177 and meet the following.

Wet Retroreflectance, Initial R_L	
Color	R_L 1.05/88.76
White	300
Yellow	200

(c) Skid Resistance. The surface of Type IV and blackout markings shall provide a minimum skid resistance of 45 BPN when tested according to ASTM E 303.

(d) Application. The pavement marking tape shall have a precoated pressure sensitive adhesive and shall require no activation procedures. Test pieces of the tape shall be applied according to the manufacturer's instructions and tested according to ASTM D 1000, Method A, except that a stiff, short bristle roller brush and heavy hand pressure will be substituted for the weighted rubber roller in applying the test pieces to the metal test panel. Material tested as directed above shall show a minimum adhesion value of 750 g/in. (30 g/mm) width at the temperatures specified in ASTM D 1000. The adhesive shall be resistant to oils, acids, solvents, and water, and shall not leave objectionable stains or residue after removal. The material shall be flexible and conformable to the texture of the pavement.

(e) Durability. Type IV and blackout tape shall be capable of performing for the duration of a normal construction season and shall then be capable of being removed intact or in large sections at pavement temperatures above 40 °F (4 °C) either manually or with a roll-up device without the use of sandblasting, solvents, or grinding. The Contractor shall provide a manufacturer's certification that the material meets the requirements for being removed after the following minimum traffic exposure based on transverse test decks with rolling traffic.

(1) Time in place - 400 days
(2) ADT per lane - 9,000 (28 percent trucks)
(3) Axle hits - 10,000,000 minimum

Samples of the material applied to standard specimen plates will be measured for thickness and tested for durability in accordance with ASTM D 4060, using a CS-17 wheel and 1000-gram load, and shall meet the following criteria showing no significant change in color after being tested for the number of cycles indicated.

Test	Type I	Type IV	Blackout
Minimum Initial Thickness, mils (mm)	20 (0.51)	65 (1.65) 1/ 20 (0.51) 2/	65 (1.65) 1/ 20 (0.51) 2/
Durability (cycles)	5,000	1,500	1,500

1/ Measured at the thickest point of the patterned surface.

2/ Measured at the thinnest point of the patterned surface.

The pavement marking tape, when applied according to the manufacturer's recommended procedures, shall be weather resistant and shall show no appreciable fading, lifting, or shrinkage during the useful life of the marking. The tape, as applied, shall be of good appearance, free of cracks, and edges shall be true, straight, and unbroken.

(f) Sampling and Inspection.

(1) Sample. Prior to approval and use of Type IV pavement marking tape, the manufacturer shall submit a notarized certification from an independent laboratory, together with the results of all tests, stating that the material meets the requirements as set forth herein. The independent laboratory test report shall state the lot tested, the manufacturer's name, and the date of manufacture.

After initial approval by the Department, samples and certification by the manufacturer shall be submitted for each subsequent batch of Type IV tape used. The manufacturer shall submit a certification stating that the material meets the requirements as set forth herein and is essentially identical to the material sent for qualification. The certification shall state the lot tested, the manufacturer's name, and the date of manufacture.

(2) Inspection. The Contractor shall provide a manufacturer's certification to the Engineer stating the material meets all requirements of this specification. All material samples for acceptance tests shall be taken or witnessed by a representative of the Bureau of Materials and shall be submitted to the Engineer of Materials, 126 East Ash Street, Springfield, Illinois 62704-4766 at least 30 days in advance of the pavement marking operations."

80457

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%"

80391

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."

80439

WORK ZONE TRAFFIC CONTROL DEVICES (BDE)

Effective: March 2, 2020

Add the following to Article 701.03 of the Standard Specifications:

"(q) Temporary Sign Supports .....1106.02"

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 manufactured after December 31, 2019 shall be MASH-16 compliant. Category 1 devices manufactured on or before December 31, 2019, and compliant with NCHRP 350 or MASH 2009, may be used on contracts let before December 31, 2024.

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 manufactured after December 31, 2019 shall be MASH-16 compliant. Category 2 devices manufactured on or before December 31, 2019, and compliant with NCHRP 350 or MASH 2009, may be used on contracts let before December 31, 2024.

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-16 compliant. Category 3 devices manufactured on or before December 31, 2019, and compliant with NCHRP 350 or MASH 2009, 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 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-16 compliant is available, an NCHRP 350 or MASH-2009 compliant device may be used, even if manufactured after December 31, 2019."

Revise Articles 1106.02(g), 1106.02(k), and 1106.02(l) 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."

80427

WORKING DAYS (BDE)

Effective: January 1, 2002

The Contractor shall complete the work within 153 working days.

80071

State of Illinois
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
EMPLOYMENT PRACTICES

In addition to all other labor requirements set forth in this proposal and in the Standard Specifications for Road and Bridge Construction, adopted by the Department of Transportation, during the performance of this contract, the Contractor for itself, its assignees, and successors in interest (hereinafter referred to as the "Contractor") agrees as follows:

I. SELECTION OF LABOR

The Contractor shall comply with all Illinois statutes pertaining to the selection of labor.

II. EQUAL EMPLOYMENT OPPORTUNITY

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

(1) That it will not discriminate against any employee or applicant for employment because of race, color, religion, sex, national origin, ancestry, age, marital status, physical or mental handicap or unfavorable discharge from military service, and further that it will examine all job, classifications to determine if minority persons or women are underutilized and will take appropriate affirmative action to rectify any such under-utilization.

(2) That, if it hires additional employees in order to perform this contract or any portion hereof, it will determine the availability of minorities and women in the area(s) from which it may reasonably recruit and it will hire for each job classification for which employees are hired in such a way that minorities and women are not underutilized.

(3) That, in all solicitations or advertisements for employees placed by it or on its behalf, it will state that all applicants will be afforded equal opportunity without discrimination because of race, color, religion, sex, national origin, ancestry, age, marital status, physical or mental handicap or unfavorable discharge from military service.

(4) That it will send to each labor organization or representative of other workers with which it has or is bound by a collective bargaining or other agreement or understanding, a notice advising such labor organization or representative of the Contractor's obligations under the Illinois Human Rights Act and the Department's Rules and Regulations. If any such labor organization or representative fails or refuses to cooperate with the Contractor in its efforts to comply with such Act and Rules and Regulations, the Contractor will promptly so notify the Illinois Department of Human Rights and the City of Aurora and will recruit employees from other sources when necessary to fulfill its obligations thereunder.

(5) That it will submit reports as required by the Department of Human Rights Rules and Regulations, furnish all relevant information as may from time to time be requested by the

Department or the City of Aurora, and in all respects comply with the Illinois Human Rights Act and the Department's Rules and Regulations.

(6) That it will permit access to all relevant books, records, accounts and work sites by personnel of the City of Aurora and the Illinois Department of Human Rights for purposes of investigation to ascertain compliance with the Illinois Human Rights Act and the Department's Rules and Regulations.

(7) That it will include verbatim or by reference the provisions of this clause in every subcontract so that such provisions will be binding upon every such Subcontractor. In the same manner as with other provisions of this contract, the Contractor will be liable for compliance with applicable provisions of this clause by all its Subcontractors; and further it will promptly notify the City of Aurora and the Illinois Department of Human Rights in the event any Subcontractor fails or refuses to comply therewith. In addition, the Contractor will not utilize any Subcontractor declared by the Illinois Human Rights Commission to be ineligible for contracts or subcontracts with the State of Illinois or any of its political subdivisions or municipal corporations.

State of Illinois
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
WAGES OF EMPLOYEES ON PUBLIC WORKS

Effective: January 1, 1999
Revised: January 1, 2015

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 Illinois Department of Labor publishes the prevailing wage rates on its website. If the Illinois Department of Labor revises the prevailing wage rates, the revised prevailing wage rates on the Illinois Department of Labor's website shall apply to this contract and the Contractor will not be allowed additional compensation on account of said revisions. The Contractor shall review the wage rates applicable to the work of the contract at regular intervals in order to ensure the timely payment of current wage rates. The Contractor agrees that no additional notice is required. The Contractor shall be responsible to notify each subcontractor of the wage rates set forth in this contract and any revisions thereto.

2. Payroll Records. The Contractor and each subcontractor shall make and keep, for a period of not less than five years from the date of the last payment on a contract or subcontract, records of all laborers, mechanics, and other workers employed by them on the project; the records shall include information required by 820 ILCS 130/5 for each worker. Upon seven business days' notice, the Contractor and each subcontractor shall make available for inspection and copying at a location within this State during reasonable hours, the payroll records to the public body in charge of the project, its officers and agents, the Director of Labor and his deputies and agents, and to federal, State, or local law enforcement agencies and prosecutors.

3. Submission of Payroll Records. The Contractor and each subcontractor shall, no later than the 15th day of each calendar month, file a certified payroll for the immediately preceding month with the public body in charge of the project, except that the full social security number and home address shall not be included on weekly transmittals. Instead the payrolls shall include an identification number for each employee (e.g., the last four digits of the employee's social security number). The certified payroll shall consist of a complete copy of the payroll records, except starting and ending times of work each day may be omitted.

   The certified payroll shall be accompanied by a statement signed by the Contractor or subcontractor or an officer, employee, or agent of the Contractor or subcontractor which avers that: (i) he or she has examined the certified payroll records required to be submitted by the Act and such records are true and accurate; (ii) the hourly rate paid to each worker is not less than the general prevailing rate of hourly wages required; and (iii) the Contractor or subcontractor is aware that filing a certified payroll that he or she knows to be false is a Class A misdemeanor.
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.

CITY OF AURORA GENERAL SPECIFICATIONS
SECTION 1 - DEFINITION OF TERMS

1.1 ADVERTISEMENT

The word Advertisement shall mean and refer to the official notice as published in the Aurora Beacon News, a daily newspaper published in the City of Aurora, Illinois, inviting bids for the construction of this improvement.

1.2 A.S.T.M.

Wherever the letters A.S.T.M. are herein used, they shall be understood to mean the American Society of Testing Materials.

1.3 ATTORNEY

Wherever the word Attorney is used in these specifications or in the contract, it shall be understood to mean the Corporation Counsel of the City or designee.

1.4 BIDDER

Wherever the word Bidder is used, it shall be understood to mean the individual, firm, or corporation formally submitting a proposal for the work contemplated, or any portion thereof, acting directly or through an authorized representative.

1.5 BOARD

Wherever the word Board or a pronoun in the place of it occurs in these specifications, it shall be interpreted to mean the Board of Local Improvements of the City of Aurora, Illinois, and any of its authorized representatives provided, however, that such persons shall be understood to represent said Board to the extent of the special duties delegated to such representatives.

1.6 CITY CLERK

Wherever the term City Clerk is used herein, it shall be understood to mean the City Clerk of the City of Aurora, Illinois.

1.7 CITY COUNCIL OR COUNCIL

Wherever the term City Council, or Council, appears in these specifications it shall be taken to mean the City Council of the City of Aurora, Illinois.

1.8 CONTRACT

The term Contract shall be understood to mean the agreement covering the performance of the work covered by these general specifications, including the advertisement for bids, instructions to bidders, bid proposal, performance bond, these general specifications, supplemental specifications, special provisions, general and detailed plans for the work, standard specifications referred to in the special provisions, all supplemental agreements entered into and all general provisions pertaining to the work or materials thereof, all of which are collectively referred to as the “Contract Documents”.

1.9 CONTRACTOR

Wherever the word Contractor occurs in these specifications, it shall be interpreted to mean the person or persons, firm, or corporation who submits a proposal and thereafter enters into the contract governed by these specifications as party or parties of the second part, and the agents, employees, workmen, heirs, executors, administrators, successors, or assignees thereof.

1.10 ENGINEER

Wherever the word Engineer is used in these specifications, it shall be interpreted to mean the City Engineer or his designee charged with directing and having charge of a portion of the project limited by the particular duties entrusted to him.

1.11 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES

The MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, latest edition, as adopted by the Illinois Department of Transportation.

1.12 PAYMENT BOND

The term Payment Bond shall be understood to mean the bond executed by the Contractor and his surety guaranteeing the payment of all sums of money due for any labor, materials, apparatus, fixtures, or machinery furnished to such principal for the purpose of performing the contract work.

1.13 PERFORMANCE BOND

The term Performance Bond shall be understood to mean the bond, executed by the Contractor and his surety, guaranteeing complete execution of the contract.

1.14 PLANS

Wherever the word plans is used in these specifications, it shall be understood to mean all drawings, sketches, and detailed plans or reproductions thereof pertaining to the construction involved.

1.15 PROPOSAL

Wherever the word Proposal is used, it shall be taken to mean the written proposal of the bidder on the form furnished for the work contemplated.

1.16 PROPOSAL GUARANTY

The term Proposal Guaranty shall be understood to mean the security designated in the Advertisement for Bids or Notice to Contractors to be furnished by the bidder as a guaranty of good faith to enter into a contract for the work contemplated

1.17 SPECIFICATIONS

Wherever the word Specifications is used it shall be understood to include all directions and requirements contained herein or referred to hereby, together with all special provisions and written agreements made or to be made pertaining to the work involved. All articles referred to in these general specifications when not qualified otherwise than by numbers, shall be understood to be articles from these general specifications.

1.18 STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION

The STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, latest edition, prepared by the Illinois Department of Transportation and adopted by said Department.

1.19 STANDARD SPECIFICATIONS FOR SEWER AND WATER MAIN CONSTRUCTION

The STANDARD SPECIFICATIONS FOR SEWER AND WATER MAIN CONSTRUCTION, latest edition, as adopted by the Illinois Society of Professional Engineers.

1.20 STANDARD SPECIFICATIONS FOR TRAFFIC CONTROL ITEMS

The STANDARD TRAFFIC SIGNAL SPECIFICATIONS, latest edition, as adopted by the Illinois Department of Transportation.

1.21 STATE

Wherever the word State is used herein, it shall mean the State of Illinois.

1.22 SURETY

The word Surety shall be understood to mean the individuals who are, or the corporate body which is bound with and for the Contractor for the acceptable performance of the contract, and for his payment of all debts pertaining to the work.

1.23 WORK

Wherever the word “Work” is used, it shall mean the work including all materials, labor, tools, appliances, equipment, and appurtenance necessary and incidental thereto to perform and complete everything specified or implied in the plans, specifications, and in the contract documents, in full compliance with all the terms and conditions thereof and in a good and workmanlike manner.

SECTION 2
AWARD AND EXECUTION OF CONTRACT

2.1 PUBLIC OPENING OF PROPOSALS

Proposals will be opened and read publicly at the time and place specified in the advertisement, or as soon thereafter as the business of the City Clerk permits. Bidders, their authorized agents, and other interested parties are invited to be present.

2.2 AWARD OF CONTRACT

The decision of the award of the contract will be made as may be decided upon by the Council after bids have been opened and tabulated. The Contract shall be governed by the laws of the State of Illinois. No contract shall provide for arbitration of the parties.

2.3 BONDS AND INSURANCE

The bidder to whom the award of contract is made will be required under this contract to furnish a Performance Bond acceptable to the Engineer in the amount of one hundred percent (100%) of the full contract price, a Payment Bond, Public Liability Insurance, and Workers Compensation Insurance; all of which shall be acceptable to the City of Aurora.

2.4 SUBLETTING OR ASSIGNMENT OF CONTRACT

The Contractor shall not sublet, sell, or assign all, or any portion of the contract, or of the work provided for therein, without the written consent and authorization of the City, and in no case shall such consent relieve said Contractor from either, any, or all of the obligations herein entered into, or change the terms of the obligations hereof.

2.5 FAILURE TO EXECUTE CONTRACT

In the event that said bidder fails or refuses to execute said contract and furnish said bonds within the period of ten (10) days after mailing notice of such award or within such additional number of days as the City may determine, then the sum deposited as a proposal guaranty by said bidder on the work so awarded may be retained by the City as liquidated damages and not a forfeiture. It is hereby agreed that said sum is a fair estimate of the amount of damages that the City will sustain in case said bidder fails to enter into the contract and furnish bonds as herein provided, said actual damages being uncertain in amount and difficult to determine in the event of such failure or refusal by the bidder.

2.6 VENUE FOR LEGAL ACTION

The venue for any legal action that may arise from this agreement shall be in Kane County, Illinois.

2.7 WAIVER OF TRAIL BY JURY

The Contractor agrees to waive trail by jury for itself and all of its contracts with sub-Contractors shall contain a provision waiving trial by jury in the event of any legal action which may arise from this agreement with the City of Aurora as a party litigant.

SECTION 3
SCOPE OF THE WORK

3.1 INTENT OF PLANS AND SPECIFICATIONS

The true intent of the plans and these specifications is to provide for the erection and completion in every detail of the work described herein, and it is understood that the Contractor will furnish all labor, materials, equipment, tools, transportation, and necessary supplies, such as may reasonably be required to execute the contract in a satisfactory and workmanlike manner and in accordance with the plans, specifications, and terms of the contract. Both parties must stipulate any deviation from these requirements in writing.

3.2 SPECIAL WORK

Should any construction conditions which are not covered by the plans and these specifications be anticipated or encountered during construction, Supplemental Specifications for such work will be prepared by the Engineer and shall be considered a part of these specifications, the same as though contained fully herein.

3.3 INCREASED OR DECREASED QUANTITIES

The right is reserved, without impairing the contract, to make such increase or decrease in the quantities of the work as may be considered necessary to complete fully and satisfactorily the work included in the contract. The compensation to the Contractor for such changes shall be adjusted as provided herein.

3.4 ALTERATIONS IN PLANS AND SPECIFICATIONS

The City reserves the right to make such changes in the plans and in the character of the work as may be necessary or desirable to ensure completion in the most satisfactory manner, provided such changes do not materially alter the original plans and specifications. Such changes shall not be considered as waiving or invalidating any conditions or provisions of the contract.

3.5 EXTRA WORK

The City reserves the right, without impairing the contract, to order the performance of such work, of a class not contemplated in the proposal as may be considered necessary to complete fully and satisfactorily the work included in the contract. The Contractor shall do such extra work when ordered and authorized in writing by the Engineer, and the Contractor shall be compensated for such extra work on the basis and in the amount as provided herein.

3.6 EASEMENTS, PERMITS, AND REGULATIONS

The Contractor shall keep himself fully informed of all Federal, State, Municipal and local regulations, private contracts, grants, easements, and permits, in any manner affecting the work herein specified and provided for. He shall at all times observe and comply with and cause all his Subcontractors, agents, and employees to observe and comply with each and all of the same. The Contractor does hereby assume any and all liability under the same and shall protect and indemnify the City and its officers and employees against any and all claims or liabilities arising from or based on the violation of, or failure to comply with either or all of the same.

3.7 FINAL CLEANING UP

Upon completion and before final acceptance of the work, the Contractor shall, in addition to the detailed work of grading, restoring ground surfaces, repairing roadways and pavements, and all other work specifically provided for in these specifications, remove all falsework, excess or useless excavated materials, rejected materials, rubbish, temporary buildings, temporary foundations, replace or renew any fences damaged, and restore in an acceptable manner all property, both public and private, which may have been damaged during the prosecution of the work, and shall leave the site of the work in a neat and presentable condition satisfactory to the Engineer.

SECTION 4
CONTROL OF THE WORK

4.1 AUTHORITY OF THE ENGINEER

The Engineer shall decide any and all questions which may arise as to the quality and acceptability of materials furnished and work performed, and as to the manner of performance and rate of progress of the work, and shall decide all questions which may arise as to the interpretation of the plans and specifications, and all questions as to the acceptable fulfillment of the terms of the contract.

4.2 PLANS AND WORKING DRAWINGS

General drawings, showing such details as are necessary to give a comprehensive idea of the construction contemplated, will be shown in the general plans, but the Contractor shall submit to the Engineer for approval such additional detailed shop drawings or working drawings, together with a detailed structural analysis of all component parts, as may be required for the construction of any part of the work and prior to the approval of such plans, any work done or material ordered shall be at the Contractor's risk.

The contract price shall include the cost of furnishing all working drawings and the Contractor will be allowed no extra compensation for such drawings.

4.3 DEVIATIONS FROM THE PLANS

No deviation from the general plans or the approved working drawings will be permitted without the written order of the Engineer. No allowance shall be made for work done other than is shown on the plans, profiles and drawings, and provided for in the specifications.

4.4 COORDINATION OF SPECIFICATIONS AND PLANS

In the event of any discrepancy between the plans and figures written thereon, the figures are to be considered as correct. In the case of any discrepancy between the plans and the specifications, the Engineer shall determine which are to govern. If there is a discrepancy between the general specifications and the supplemental specifications, the supplemental specifications are to govern.

The Contractor shall take no advantage of any apparent error or omission in the plans or specifications, but the Engineer shall be permitted to make such corrections and interpretations as may be deemed necessary for the fulfillment of the intent of the plans and specifications.

4.5 ORDER OF WORK

The order of sequence of the execution and/or conduct of the work shall be subject to the approval and/or direction of the Engineer, which approval and/or direction shall not in any way relieve the Contractor of any responsibility in connection with the prosecution to completion of the work under contract.

4.6 COOPERATION BY CONTRACTOR

The Contractor shall conduct his operation so as to interfere as little as possible with those of other Contractors, Subcontractors, the public, or adjoining property owners on or near the work site. The Contractor shall at all times during his absence from the work site have a competent superintendent or foreman capable of reading and thoroughly understanding the plans and specifications, as his agent on the work, who shall receive instructions from the Engineer or his authorized representative. The superintendent or foreman shall have full authority to execute the order and/or directions of the Engineer without delay and to promptly supply such materials, tools, plant equipment, and labor as may be required. The superintendent or foreman shall have a copy of the plans and specifications on the job at all time.

4.7 CONSTRUCTION STAKES

Reference lines and grade points for the location, alignment, and elevation of each structure will be determined and established by the Engineer, but the Contractor shall assume full responsibility for the alignment, elevations, and dimensions of each and all parts of the work with reference to the lines, points, and grades as established by the Engineer. For all structures, the Engineer shall furnish the Contractor with centerline and/or center points and such benchmarks or other points as are necessary to lay out the work correctly. The Contractor shall check all lines, points, and grades which may be given by the Engineer supplementary to the centerline, points, and control bench marks aforesaid, and shall be responsible for the accuracy of all measurements for grades and alignment of the work with reference to the centerline and/or points and bench marks established by the Engineer.

The Contractor shall exercise proper care in the preservation of alignment, grade, and reference stakes set for his use, or that of the Engineer. If such stakes are injured, lost, or removed by the Contractor's operations, they shall be reset at his expense.

4.8 INSPECTION

The Engineer or his representative shall be allowed access to all parts of the work at all times and shall be furnished such information and assistance by the Contractor as may be required to make a complete and detailed inspection thereof. Such inspection may include mill, plant, or shop inspection and any material furnished under these specifications is subject to such inspection.

SECTION 5
CONTROL OF MATERIALS

5.1 SPECIFICATIONS FOR MATERIALS

All materials used in this work shall conform in all respects to the specifications therefore as herein set forth. Where a specification for material to be used in this work is not specifically set forth in these specifications, such material shall conform in all respects to the specifications as set forth in the A.S.T.M. Standards and/or Tentative Standards adopted and in effect on the date of receiving bids.

5.2 SUBSTITUTION OF MATERIALS AND EQUIPMENT

Wherever in these specifications or on the plans for this work, materials or equipment are specified by trade names or catalog numbers of certain manufacturers, it is done for the purpose of establishing a standard of quality, durability, and/or efficiency, and not for any purpose of limiting competition. Wherever such definite reference is made in these specifications to any such material or equipment, is understood that any equivalent material or equipment may be provided, however, that the written approval and acceptance of the Engineer of such equivalent material or equipment must be obtained prior to its purchase and/or incorporation in any part of the work.

5.3 THE METHODS OF TESTING

All tests of materials or equipment used in the work shall be made in accordance with the methods described in these specifications or the method of test prescribed in any specification for material or equipment herein specifically referred to and designated to govern the quality of any material or equipment.

Where a method of test for any material or equipment is not specifically provided for, such material or equipment shall be tested in accordance with the methods prescribed and set forth in the A.S.T.M. Standards and Tentative Standards adopted and in effect on the date of receiving bids.

5.4 DEFECTIVE MATERIALS

All materials not conforming to the requirements of these specifications shall be considered as defective and all such materials, whether in place or not, shall be rejected and shall be removed immediately from the work by the Contractor at his expense unless otherwise permitted by the Engineer. No rejected materials, the defects of which have been subsequently corrected, shall be used until approval has been given. Upon failure on the part of the Contractor to immediately comply with any order of the Engineer relative to the provisions of this section, the Engineer shall have the authority to remove and replace such defective material and to deduct the cost of removal and replacement from any moneys due or which may become due to the Contractor.

SECTION 6
LEGAL RELATIONS AND RESPONSIBILITY TO THE PUBLIC

6.1 COMPLIANCE WITH LAWS AND REGULATIONS

The Contractor shall at all times observe and comply with all Federal, State, Municipal and other local laws, ordinances, regulations, and requirements which in any manner affect the conduct of the work, and with all Federal, State and local laws and policies of non-discrimination, sexual harassment, prevailing wages and others applicable hereto; and all such orders or decrees as exist at the present and which may be enacted later, of bodies or tribunals having jurisdiction or authority over the work, and no plea of misunderstanding or ignorance thereof will be considered. He shall indemnify and save harmless the City and all its officers, agents, employees, and servants against any claim or liability arising from or based on the violation of any such law, ordinance, regulation, requirement, order or decree, whether by himself or his employees.

6.2 PERMITS AND LICENSES

The Contractor shall take out and procure at his own expense all permits and licenses required by Federal, State or local public authorities, and he shall, without extra compensation from the City, pay all fees and charges and give notices required incident to the due and lawful prosecution of the work in relation thereto.

6.3 PATENTED DEVICES, MATERIALS, AND PROCESSES

It is mutually understood and agreed that without exception contract prices are to include all royalties and costs arising in the work. It is the intent that whenever the Contractor is required or desires to use any design, device, material, or process covered by letters of patent or copyright, the right of such use shall be provided for by suitable legal agreement with the patent owner. The Contractor and Surety in all cases shall indemnify and save harmless the City from any and all claims for infringement by reason of the use of any such patent design, device, materials, or process, to be performed or used under the contract, and shall indemnify and save harmless the said City for any costs, expenses, attorney's fees, and damages which it may be obligated to pay, by reason of any such infringement at any time during the prosecution or after the completion of the work.

6.4 BARRICADES, LIGHTS, AND SIGNS

The Contractor shall at his own expense and without further or other order provide, erect, and maintain at all times during the progress or suspension of the work, suitable barricades, fences, signs, or other adequate protection, and shall provide, keep, and maintain such lights, danger signals, and watchmen as may be necessary or as may be ordered by the Engineer to ensure the safety of the public, as well as those engaged in connection with the work. All barricades and obstructions shall be protected at night by signal lights, which shall be suitably placed, and which shall be kept burning from sunset to sunrise. Barricades shall be of substantial construction and shall be painted in such a way as to increase their visibility at night.

The Contractor shall be held responsible for all damage to the work due to failure of barricades, signs, lights, and watchmen to protect it, and whenever evidence of such damage is found prior to acceptance, the Engineer may order such damaged portion immediately removed and replaced by the Contractor without cost to the City if, in his opinion, such action is justified. The Contractor's responsibility for the maintenance of barricades, signs, and lights shall not cease until the project shall have been accepted.

6.5 USE OF EXPLOSIVES

The use of explosives shall be prohibited.

6.6 PROTECTION AND RESTORATION OF PROPERTY

It is understood that in the execution of the work herein provided for there may be interference with and/or damage to trees, shrubbery, crops, fences, railroad tracks, overhead structures such as poles, wires, cables, underground structures such as sewers, gas mains, telephone conduits and cables, water mains, drains, service connections, wires, pipes, conduits, located along, adjacent to, and/or crossing the locations of the work, and that it may be necessary to relocate or reconstruct certain of such structures, improvements, and installations and/or to make repairs to the same by reasons of doing the work herein provided for, and it is therefore particularly and specifically agreed that the Contractor, except as otherwise herein provided, shall do the work necessary for such relocation, reconstruction, and repair and shall bear and pay all of the cost and expense of such relocation, reconstruction, and/or repair of, and all damage done to any and all such pipe line and other structures, improvements, and installations, including service connections, if any, to adjacent property, existing at the date of the execution of the contract and/or existing, during the period of the work to be done under the contract, which may be interfered with, damaged, and/or necessarily relocated, reconstructed, or repaired in the performance of the work herein provided for, including the restoration and resurfacing of unpaved portions of public streets and alleys, rights-of-way, easements, and private property damaged or disturbed by the work, the same to be restored to as good condition as the same existed at the time of the commencement of any such work or relocation.

It is further agreed that the owners of any structures, improvements, installations, referred to in the preceding paragraph shall have the right to do the work or any part thereof necessary for the relocation, reconstruction, replacement, repair, and other work required by reason of any interference with and/or damage to such structures, improvements, installations, due to the prosecution of the work and upon completion of such work by them done, said owners may render bills to the Contractor for the cost and expense thereof, which bills shall be paid by the Contractor, without extra compensation therefore from the City, upon demand by said owners, or upon demand made by the City upon the Contractor for the payment thereof.

6.7 RESPONSIBILITY FOR DAMAGE CLAIMS

The Contractor agrees to indemnify and save harmless the City of Aurora, their agents, and employees from and against all loss and expenses (including costs and attorneys' fees) by reason of liability imposed by law or claims made upon the City of Aurora for damages because of bodily injury, including death at any time resulting therefrom sustained by any person or persons or on account of damage to property, including loss of use thereof, arising out of or in consequence of the performance of this work, whether such claims or injuries to persons or damage to property be due to the negligence of the Contractor, his Subcontractors or the City of Aurora.

The Contractor shall assume total risk and shall be responsible for any and all damages or losses caused by or in any way resulting from the work and provide all insurance necessary to protect and save harmless the City of Aurora and its employees. Said insurance shall include contractual liability equal to the limits hereinafter set forth.

The Contractor agrees to purchase a policy of insurance, which shall include the City of Aurora as an additional insured or provide separate coverage for the City with an owner's protective policy. All Insurance provided by Contractor, extending to owner as additional insurance, shall be primary and insurance maintained by owner shall be excess and not contributing with Contractor’s insurance. The minimum amounts of insurance shall be as follows, except that no restrictions on occurrence limits will be permitted:

Bodily Injury Liability		*Property Damage Liability*	
Each Occurrence		Each Occurrence	Aggregate
$3,500,000		$500,000	$7,000,000

The coverage and amounts above are minimum requirements and do not establish limits to the Contractor's liability. Other coverage and higher limits may be provided at the Contractor's option and expense.

Owner does not waive its subrogation rights against Contractor and/or any Subcontractor for damages due to losses to owner due to the fault or negligence of the Contractor and/or any Subcontractors during or as a result of the performance of the work.

All such insurance must include an endorsement whereby the insurer agrees to notify the City of Aurora at least thirty (30) days prior to non-renewal, reduction or cancellation. The Contractor shall cease operations on the project if the insurance is canceled or reduced below the required amount of coverage. All costs for insurance as specified herein will not be paid for separately, but shall be considered as incidental to the contract.

6.8 WORKERS COMPENSATION ACT

The Contractor further agrees to insure his employees and their beneficiaries and to provide the employees and the beneficiaries of any Subcontractor employed from time to time by him on said work, the necessary first-aid, medical, surgical, and hospital services and any compensation provided for in the Workers Compensation Act of the State of Illinois that is or may be in force in the State.

Such insurance shall be placed by said Contractor in a company or association (to be approved by the City and to be accepted by the Council thereof) authorized under the laws of the State of Illinois to insure the liability above specified.

Said Contractor hereby further agrees to indemnify, keep and save harmless said City from all action, proceedings, claims, judgments, awards, and costs, losses, damages, expenses, and attorney's fees which may in any way be brought against said City by reason of any accidental injuries or death suffered by any of his employees or the employees of any Subcontractor employed by him in and about the performance of the work provided for in the contract, and any and all liability resulting thereupon; and said Contractor, in case of any suit, action, or proceeding on account of any or all of the foregoing shall defend the same for and on behalf of said City and indemnify the City therefore and pay the amount of any and all awards and final judgments and/orders rendered and entered therein, together with all loss, costs, damages, attorney's fees, and expenses incurred therein. Said Contractor shall be the sole employer of its employees and workers, and in no way so shall the City be considered a joint employer of same under any circumstance.

6.9 LOCAL BIDDER PREFERENCE

O18-070, amended by O20-029 approved April 28, 2020 defines "Local business" to mean a vendor or contractor who has a valid, verifiable physical business address located within the corporate boundaries of the City of Aurora at least twelve months prior to a bid or proposal opening date, from which the vendor, contractor or consultant operates or performs business on a daily basis, including manufacturing production or distribution. The business must disclose the percentage of workforce in the City of Aurora; be registered with the City of Aurora, if applicable; be subject to City of Aurora taxes (inclusive of sales taxes); be current with property tax payments and sales tax payments; not have any outside cited code violations; not have any outstanding debts to the City of Aurora; have adequately qualified and trained staff to service the bid of interest.

SECTION 7
PROSECUTION AND PROGRESS OF WORK

7.1 SUBLETTING OR ASSIGNMENT OF WORK

If the Contractor sublets the whole or any part of the work to be done under the contract, with or without the written consent of the City, he shall not, under any circumstances, be relieved of his liabilities and obligations. All transactions of the Engineer shall be with the Contractor; Subcontractors shall be recognized only in the capacity of employees or workmen and shall be subject to the same requirements as to character and competence. In case any party or parties, to whom any work under the contract shall have been sublet, shall disregard the directions of the Engineer or his duly authorized representatives, or shall furnish any unsatisfactory work or shall fail or refuse in any way to conform to any of the provisions or conditions of the contract, then in that case, upon the written order of the Engineer, the Contractor shall require said party or parties in default to discontinue work under the contract. Said work shall be corrected or made good and shall be continued and completed by the said Contractor or by such other party or parties as are approved by the Engineer, in the manner and subject to all of the requirements specified in the contract.

7.2 PROSECUTION OF WORK

The Contractor shall begin the work to be performed under the contract no later than ten (10) days after the execution and acceptance of the contract, unless otherwise provided. The work shall be conducted in such a manner and with sufficient materials, equipment and labor as is considered necessary to ensure its completion within the time specified in the contract. The Contractor shall solely be fully responsible for complying with state and local prevailing wage requirements in accordance with its Bidders Certification, and for all wage rate and hour regulations and applications

7.3 GUARANTEE AND MAINTENANCE OF WORK

The Contractor shall guarantee the work to be free from defects of any nature for a period of one year from and after the final acceptance and payment for the work by the City, and the Contractor shall maintain said work and shall make all needed repairs and/or replacements during this one year period which in the judgment of the Council, may be necessary to ensure the delivery of the work to the City in first-class condition and in full conformity with the plans and specifications therefore, at the expiration of the guarantee period.

7.4 PAYMENT

Basis of Payment

Payment of the CONTRACTOR for performance of the CONTRACT shall be made by the OWNER and shall be based on the value of the installation resulting from the CONTRACTOR's operations.

The cost of all WORK incidental to the completion of the project in accordance with the Plans and Specifications, excepting authorized extra WORK, shall be included in the unit and lump sum prices stated in the CONTRACTOR's accepted Proposal. The amount obtained by the summation of the products of the quantities of WORK performed or the respective unit or lump sum prices for several items listed in the proposal shall be payment in full, except for payment for authorized extra WORK, for delivering the completed project to the OWNER in accordance with the Plans and Specifications.

Submission of Bid Breakdown

Within 15 days after the execution of this CONTRACT, the CONTRACTOR must submit to the ENGINEER in duplicate an acceptable breakdown of the lump sums and unit prices bid for items of the CONTRACT, showing the various operations to be performed under the CONTRACT, and the value of each of such operations, the total of such items to equal the total price bid. The CONTRACTOR shall also submit such other information relating to the bid prices as may be required and shall revise the bid breakdown as directed. Thereafter, the breakdown may be used for checking the CONTRACTOR's applications for partial payments hereunder but shall not be binding upon the OWNER or the ENGINEER for any purpose whatsoever.

Partial Payments

When not otherwise provided for under the Specifications for an item of WORK or a complete project, and if the rate of progress is satisfactory to the ENGINEER, partial payments will be made the CONTRACTOR by the OWNER during progress of construction. The amount of each partial payment shall be limited to ninety (90) percent (unless otherwise provided in the Instructions to Bidders) of the value of the WORK shown in the Engineer's periodic estimate to have been done and installed in place by the CONTRACTOR subsequent to the time of commencing WORK or of making the last preceding partial payment on account of WORK done. An amount greater than ninety (90) percent of the value of a largely completed project may be paid the CONTRACTOR at the option of the OWNER.

The CONTRACTOR's request for payment shall be in the form of an invoice, submitted to the OWNER through the ENGINEER, setting forth amounts due for WORK completed on payment items set forth in the CONTRACTOR's Proposal, and shall be accompanied by:

(1) CONTRACTOR's Sworn Statement setting forth the Subcontractors and material suppliers, the amount requested for each of the Subcontractors or material suppliers, and the amount of the subcontract or material to be completed.

(2) Subcontractor or material suppliers waivers of lien for amounts requested on previous payment requests.

(3) CONTRACTOR's waivers of lien.

The CONTRACTOR's request will be reviewed by the ENGINEER and if the ENGINEER is in agreement with the value of WORK completed, as requested by the CONTRACTOR, and if the request is accompanied by the CONTRACTOR's Sworn Statement, Subcontractor and material suppliers waiver of lien as stated above, and by the CONTRACTOR's waiver of lien, the ENGINEER will recommend payment to the OWNER.

Partial payment made to the CONTRACTOR by the OWNER for WORK performed shall in no way constitute an acknowledgement of the acceptance of the WORK nor in any way prejudice or affect the obligation of the CONTRACTOR, at his expense, to repair, correct, renew or replace any defects or imperfections in the construction of the WORK under CONTRACT and its appurtenances, nor any damage due or attributable to such defect, damage and the CONTRACTOR shall be liable to the OWNER for failure to correct the same as provided herein.

Payment in full or in part may be withheld for reasons which include but are not limited to: (1) the existence of defective work which is not remedied; (2) the existence of third party claims filed or reasonable evidence indicating probable filing of such claims; (3) the failure of the CONTRACTOR to

make payments properly to Subcontractors or for labor, materials or equipment; (4) the existence of reasonable evidence that the WORK cannot be completed for the unpaid balance of the contract sum; (5) damage to the OWNER; (6) the existence of reasonable evidence that the WORK will not be completed within the CONTRACT time, and that the unpaid balance will not be adequate to cover actual or liquidated damages for the anticipated delay; or, (7) persistent failure to carry out the work in accordance with the contract documents. If within a reasonable time not to exceed 45 days CONTRACTOR has not remedied any condition for which payment in full has been withheld, then OWNER may make such payments as OWNER deems necessary to remedy such situation from said funds withheld and pay the balance to CONTRACTOR, or if, sums are still due to remedy the situation, CONTRACTOR will remit any balances due to OWNER within 10 days of notice of same.

ACCEPTANCE AND FINAL PAYMENT

Whenever the CONTRACT shall have been completely performed on the part of the CONTRACTOR, and all parts of the WORK have been approved by the ENGINEER and accepted by the OWNER, including the resolution of all matters of dispute, a final estimate showing the value of the WORK will be prepared by the ENGINEER as soon as the necessary measurements and computations can be made, all prior estimates upon which payments have been made being approximate only and subject to corrections in the final payments.

The CONTRACTOR shall submit a final payment request showing the total quantities completed for the entire project and all previous payouts. This payment request shall be accompanied by a sworn affidavit listing all Subcontractors and material suppliers and the total payments to each. Final Waivers of Lien from the Subcontractors and material suppliers as well as the CONTRACTOR shall also be furnished at this time.

A final payment including all amounts of money shown by the final estimate to be due the CONTRACTOR shall be made by the OWNER as soon as practicable after the final acceptance of the WORK, provided the CONTRACTOR has furnished the OWNER satisfactory evidence that all sums of money due for labor, materials, apparatus, fixtures or machinery furnished for the purpose of performing the Contract have been paid or that the person or persons to whom the same may respectively be due have consented to such final payment.

Illinois Department of Transportation

Local Agency Proposal Bid Bond

Route FAP 360,FAU 159,& FAU 2513
County Kane
Local Agency City of Aurora
Section _____

RETURN WITH BID

PAPER BID BOND

WE _____ as PRINCIPAL,

and _____ as SURETY,

are held jointly, severally and firmly bound unto the above Local Agency (hereafter referred to as "LA") in the penal sum of 5% of the total bid price, or for the amount specified in the proposal documents in effect on the date of invitation for bids whichever is the lesser sum. We bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly pay to the LA this sum under the conditions of this instrument.

WHEREAS THE CONDITION OF THE FOREGOING OBLIGATION IS SUCH that, the said PRINCIPAL is submitting a written proposal to the LA acting through its awarding authority for the construction of the work designated as the above section.

THEREFORE if the proposal is accepted and a contract awarded to the PRINCIPAL by the LA for the above designated section and the PRINCIPAL shall within fifteen (15) days after award enter into a formal contract, furnish surety guaranteeing the faithful performance of the work, and furnish evidence of the required insurance coverage, all as provided in the "Standard Specifications for Road and Bridge Construction" and applicable Supplemental Specifications, then this obligation shall become void; otherwise it shall remain in full force and effect.

IN THE EVENT the LA determines the PRINCIPAL has failed to enter into a formal contract in compliance with any requirements set forth in the preceding paragraph, then the LA acting through its awarding authority shall immediately be entitled to recover the full penal sum set out above, together with all court costs, all attorney fees, and any other expense of recovery.

IN TESTIMONY WHEREOF, the said PRINCIPAL and the said SURETY have caused this instrument to be signed by their respective officers this _____ day of _____

Principal

_____ (Company Name)

By: _____ (Signature and Title)

_____ (Company Name)

By: _____ (Signature and Title)

(If PRINCIPLE is a joint venture of two or more contractors, the company names, and authorized signatures of each contractor must be affixed.)

Surety

_____ (Name of Surety)

By: _____ (Signature of Attorney-in-Fact)

STATE OF ILLINOIS,
COUNTY OF _____
I. _____ , a Notary Public in and for said county,
do hereby certify that _____
(Insert names of individuals signing on behalf of PRINCIPAL & SURETY)

who are each personally known to me to be the same persons whose names are subscribed to the foregoing instrument on behalf of PRINCIPAL and SURETY, appeared before me this day in person and acknowledged respectively, that they signed and delivered said instruments as their free and voluntary act for the uses and purposes therein set forth.

Given under my hand and notarial seal this _____ day of _____

My commission expires _____

_____ (Notary Public)

ELECTRONIC BID BOND

☐ **Electronic bid bond is allowed (box must be checked by LA if electronic bid bond is allowed)**

The Principal may submit an electronic bid bond, in lieu of completing the above section of the Proposal Bid Bond Form. By providing an electronic bid bond ID code and signing below, the Principal is ensuring the identified electronic bid bond has been executed and the Principal and Surety are firmly bound unto the LA under the conditions of the bid bond as shown above. (If PRINCIPAL is a joint venture of two or more contractors, an electronic bid bond ID code, company/Bidder name title and date must be affixed for each contractor in the venture.)

Electronic Bid Bond ID Code

_____ (Company/Bidder Name)

Bid Number 24-101

_____ (Signature and Title)

_____ Date

PROPOSAL

TO: THE HONORABLE MAYOR AND CITY COUNCIL
CITY OF AURORA
44 EAST DOWNER PLACE
AURORA, ILLINOIS 60507

1. Proposal of _____
for the improvement known as the **Farnsworth, Bilter, & Church Improvements (Bid 24-101)**

2. The plans and specifications for the proposed improvements are those prepared by the City of Aurora Engineering Division and approved by the City Council of Aurora, Illinois.

3. In submitting this proposal, the undersigned declares that the only persons or parties interested in the proposal as principals are those named herein, and that the proposal is made without collusion with any person, firm, or corporation.

4. The undersigned further declares that he has carefully examined the proposals, plans, specifications, form of contract and contract bond, and special provisions, if any, and that he has inspected in detail the site of the proposed work and that he has familiarized himself with all of the local conditions affecting the contract and detailed requirements of construction, and understands that in making this proposal he waives all right to plead any misunderstanding regarding the same.

5. The undersigned further understands and agrees that if the proposal is accepted, he is to furnish and provide all necessary machinery, tools, apparatus and other means of construction and to do all of the work and to furnish all of the materials and labor required.

6. The undersigned declares that he understands that the quantities mentioned are approximate only, and that they are subject to increase or decrease; that he will take in full payment therefore the amount of the summation of the actual quantities, as finally determined, and multiplied by the unit prices shown in the schedule of prices contained herein.

7. The undersigned agrees that the unit prices submitted herewith are for the purpose of obtaining a gross sum and for use in computing the value of extras and deductions; that if there is a discrepancy between the gross sum bid and that resulting from the summation of the quantities multiplied by their respective unit prices, the latter shall apply.

8. The undersigned agrees that if the City decides to extend or shorten the improvement, or otherwise alter it by extras or deductions, including the elimination of any one or more of the items, as provided in the specifications, he will perform the work as altered, increased or decreased, at the contract unit prices without claim for profits lost as a result of any work or items eliminated by the City of Aurora.

9. The undersigned agrees that the Engineer may, at any time during the progress of the work covered by this contract, order other work or materials incidental thereto, and that all such work and materials as do not appear in the proposal or contract as a specific item accompanied by a unit price, and which are not included under the bid price for other items in this contract, shall be performed as extra work, and that he will accept as full compensation therefore the actual cost plus ten percent (10%), the actual cost to be determined as provided for in the specifications.

10. The undersigned further agrees to execute a contract, a contract bond satisfactory to and in the form prescribed by the City in the penal sum of the full amount of the contract, guaranteeing the

faithful performance of the work in accordance with the terms of the contract within **fifteen (15)** days after receiving the notice of award of the contract.

11. The undersigned further agrees to begin work not later than **ten (10)** calendar days after the execution or by the date stated within the contract documents and approval of the contract and contract bond, unless otherwise provided, and to prosecute the work in such a manner and with sufficient materials, equipment, and labor as will insure its completion within the time limit specified herein, it being understood and agreed that the completion within the time limit is an essential part of the contract.

12. The undersigned agrees to complete the work within the time stipulated in the Special Provisions.

13. All work shall be completed to the satisfaction of the Engineer by the above dates unless the Engineer in accordance with the specifications grants additional time. In case of failure to complete the work within the time named herein, or within such extra time as may have been allowed by extensions, the undersigned agrees that the City shall withhold from such sums as may be due him under the terms of the contract the liquidated damages as set forth in the Standard Specifications, which costs shall be considered and treated not as a penalty, but as damages due the Municipality from the undersigned by reason of inconvenience to the public, added cost of engineering and supervision, and other items which have caused an expenditure of public funds resulting from the failure of the undersigned to complete the work within the time specified in the contract.

14. If this proposal is accepted and the undersigned shall fail to execute a contract and contract bond as required herein, it is hereby agreed that the amount of the check or draft or bidder's bond substituted in lieu thereof shall become the property of the City and shall be considered not as a penalty but as payment of liquidated damages due to delay and other causes suffered by the City because of the failure to execute said contract and contract bond, otherwise said check or draft or bidder's bond substituted in lieu thereof shall be returned to the undersigned.

15. Accompanying this proposal is either a **5% Bid Bond** or a proposal guaranty check, complying with the specifications, made payable to the City Treasurer of the City of Aurora. The amount of the check is $ _____

16. The undersigned submits herewith his schedule of prices covering the work to be performed under this contract, he understands that he must show in the schedule the unit prices for which he proposes to perform each item of work, that the extensions must be made by him, and that if not so done, his proposal may be rejected as irregular or non-responsive.

17. The undersigned agrees to conform to Section 100 of the Standard Specifications and to Article 107.27 of that section indemnifying and saving harmless the City of Aurora and its officers, agents, and employees. The Contractor shall provide insurance with limits as stated in the Article 6.7 of the *City of Aurora - General Specifications.*

18. The City of Aurora reserves the right to reject any or all of the bids and to waive any and all irregularities and technicalities. The City of Aurora shall either award the project or reject the bids within sixty (60) calendar days after the bid opening. This time frame may be extended upon mutual agreement of the City and the Bidder.

19. The undersigned of this proposal agrees that he or she has examined all sections of this Proposal, Specifications, and Bidding Documents and hereby understands and accepts the provisions for access, or the lack of access, to the construction site and shall claim no compensation other than the prices as bid for this condition of accessibility.

20. The undersigned further agrees that the unit prices submitted herewith are for the complete item constructed, including all labor, equipment, material and other necessary incidental work.

21. The undersigned agrees to indemnifying and saving harmless the City of Aurora, its officers, agents, employees, and servants by filing with the City, prior to the execution of the contract, copies of completed Certificates of Insurance satisfactory to the City, with the City of Aurora named as co-insured; automobile liability insurance covering owned, non-owned, and hired vehicles with limits of liability as stated in the City of Aurora - General Specifications Article 6.7.

22. No bid shall be considered unless the party offering it shall furnish evidence satisfactory to the City of Aurora that he has been previously engaged in the quality construction of improvements of the same character as the one herein specified, and that he has the necessary facilities, equipment, experience, and ability and pecuniary resources to fulfill the conditions of the contract

23. No contract will be awarded to any bidder where that bidder or any principal or supervisory personnel of the bidder has been personally involved with another business that has been delinquent or unfaithful in any former contract with the City or where that bidder or any supervisory personnel of the bidder has been personally involved with another business that is a defaulter as surety or otherwise upon obligation to the City.

24. The Illinois Freedom of Information Act (FOIA) has been amended and effective January 1, 2010, adds a new provision to Section 7 of the Act which applies to public records in the possession of a party with whom the City of Aurora has contracted. The City of Aurora will have only a very short period of time from receipt of a FOIA request to comply with the request, and there is a significant amount of work required to process a request including collating and reviewing the information. The undersigned acknowledges the requirements of FOIA and agrees to comply with all requests made by the City of Aurora for public records (as that term is defined by Section 2(c) of FOIA) in the undersigned's possession and to provide the requested public records to the City of Aurora within two (2) business days of the request being made by the City of Aurora. The undersigned agrees to indemnify and hold harmless the City of Aurora from all claims, costs, penalty, losses and injuries (including but not limited to, attorney's fees, other professional fees, court costs and/or arbitration or other dispute resolution costs) arising out of or relating to its failure to provide the public records to the City of Aurora under this agreement.

25. **In submitting this Offer, the Bidder acknowledges:**

    All bid documents have been examined: Instructions to Bidders, Specifications and the following addenda:

    No. _____, No. _____, No. ____, No. ____ (Bidder to acknowledge addenda here).

26. The undersigned submits herewith this **Schedule of Prices** covering the work to be performed under this contract:

SCHEDULE OF PRICES

RFB 24-101 Farnsworth, Bilter, and Church Improvements

#	Items	Unit	Quantity	Unit Price	Total
20100110	TREE REMOVAL (6 TO 15 UNITS DIAMETER)	UNIT	593		
20100210	TREE REMOVAL (OVER 15 UNITS DIAMETER)	UNIT	208		
20101700	SUPPLEMENTAL WATERING	UNIT	53		
20200100	EARTH EXCAVATION	CU YD	20,603		
20201200	REMOVAL AND DISPOSAL OF UNSUITABLE MATERIAL	CU YD	667		
20400800	FURNISHED EXCAVATION	CU YD	2,000		
20700220	POROUS GRANULAR EMBANKMENT	CU YD	10.9		
20800150	TRENCH BACKFILL	CU YD	15,013		
21001000	GEOTECHNICAL FABRIC FOR GROUND STABILIZATION	SQ YD	1,999		
21101615	TOPSOIL FURNISH AND PLACE, 4"	SQ YD	28,928		
25000110	SEEDING, CLASS 1A	ACRE	0.1		
25000210	SEEDING, CLASS 2A	ACRE	4.3		
25000300	SEEDING, CLASS 3	ACRE	1.7		
25000312	SEEDING, CLASS 4A	ACRE	0.1		
25000400	NITROGEN FERTILIZER NUTRIENT	POUND	538		
25000500	PHOSPHORUS FERTILIZER NUTRIENT	POUND	538		
25000600	POTASSIUM FERTILIZER NUTRIENT	POUND	538		
25100630	EROSION CONTROL BLANKET	SQ YD	28,928		
28000250	TEMPORARY EROSION CONTROL SEEDING	POUND	1,600		
28000305	TEMPORARY DITCH CHECKS	FOOT	200		
28000400	PERIMETER EROSION BARRIER	FOOT	8,811		
28000500	INLET AND PIPE PROTECTION	EACH	9		
28000510	INLET FILTERS	EACH	129		
28100107	STONE RIPRAP, CLASS A4	SQ YD	60		
28100111	STONE RIPRAP, CLASS A6	SQ YD	208		
28200200	FILTER FABRIC	SQ YD	267		
30300001	AGGREGATE SUBGRADE IMPROVEMENT	CU YD	667		
30300112	AGGREGATE SUBGRADE IMPROVEMENT 12"	SQ YD	31,826		
31101200	SUBBASE GRANULAR MATERIAL, TYPE B 4"	SQ YD	4,820		
31101400	SUBBASE GRANULAR MATERIAL, TYPE B 6"	SQ YD	9,550		
31101600	SUBBASE GRANULAR MATERIAL, TYPE B 8"	SQ YD	56		
35501308	HOT-MIX ASPHALT BASE COURSE, 6"	SQ YD	61		
35501314	HOT-MIX ASPHALT BASE COURSE, 7 1/2"	SQ YD	11,099		

35501316	HOT-MIX ASPHALT BASE COURSE, 8"	SQ YD	619		
35501323	HOT-MIX ASPHALT BASE COURSE, 9 3/4"	SQ YD	11,054		
40600275	BITUMINOUS MATERIALS (PRIME COAT)	POUND	62,886		
40600290	BITUMINOUS MATERIALS (TACK COAT)	POUND	2,619		
40600370	LONGITUDINAL JOINT SEALANT	FOOT	56,045		
40600982	HOT-MIX ASPHALT SURFACE REMOVAL - BUTT JOINT	SQ YD	215		
40603080	HOT-MIX ASPHALT BINDER COURSE, IL-19.0, N50	TON	1,046		
40603085	HOT-MIX ASPHALT BINDER COURSE, IL-19.0, N70	TON	7,831		
40603090	HOT-MIX ASPHALT BINDER COURSE, IL-19.0, N90	TON	9,407		
40604060	HOT-MIX ASPHALT SURFACE COURSE, IL-9.5, MIX "D", N50	TON	1,320		
40604062	HOT-MIX ASPHALT SURFACE COURSE, IL-9.5, MIX "D", N70	TON	2,492		
40605026	POLYMERIZED HOT-MIX ASPHALT SURFACE COURSE, STONE MATRIX ASPHALT, 9.5, MIX "F", N80	TON	3,915		
42000060	WELDED WIRE REINFORCEMENT	SQ YD	29.7		
42001300	PROTECTIVE COAT	SQ YD	18,091		
42300200	PORTLAND CEMENT CONCRETE DRIVEWAY PAVEMENT, 6 INCH	SQ YD	76		
42300400	PORTLAND CEMENT CONCRETE DRIVEWAY PAVEMENT, 8 INCH	SQ YD	2,925		
42400200	PORTLAND CEMENT CONCRETE SIDEWALK 5 INCH	SQ FT	43,202		
42400800	DETECTABLE WARNINGS	SQ FT	1,193		
44000100	PAVEMENT REMOVAL	SQ YD	5,179		
44000152	HOT-MIX ASPHALT SURFACE REMOVAL, 3/4"	SQ YD	56,559		
44000200	DRIVEWAY PAVEMENT REMOVAL	SQ YD	4,881		
44000500	COMBINATION CURB AND GUTTER REMOVAL	FOOT	20,217		
44000600	SIDEWALK REMOVAL	SQ FT	20,967		
44003100	MEDIAN REMOVAL	SQ FT	270		
44201789	CLASS D PATCHES, TYPE II, 12 INCH	SQ YD	13		
44201815	CLASS D PATCHES, TYPE II, 14 INCH	SQ YD	53		
44201819	CLASS D PATCHES, TYPE III, 14 INCH	SQ YD	256		
44201821	CLASS D PATCHES, TYPE IV, 14 INCH	SQ YD	296		
50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1		
50105220	PIPE CULVERT REMOVAL	FOOT	47		
50200100	STRUCTURE EXCAVATION	CU YD	78		
50300225	CONCRETE STRUCTURES	CU YD	10.1		
50800105	REINFORCEMENT BARS	POUND	490		
52200800	SEGMENTAL CONCRETE BLOCK WALL	SQ FT	2,064		
54002020	EXPANSION BOLTS 3/4 INCH	EACH	36		

54213657	PRECAST REINFORCED CONCRETE FLARED END SECTIONS 12"	EACH	1		
54213669	PRECAST REINFORCED CONCRETE FLARED END SECTIONS 24"	EACH	2		
54213675	PRECAST REINFORCED CONCRETE FLARED END SECTIONS 30"	EACH	1		
54213687	PRECAST REINFORCED CONCRETE FLARED END SECTIONS 42"	EACH	1		
54213693	PRECAST REINFORCED CONCRETE FLARED END SECTIONS 48"	EACH	1		
542A0253	PIPE CULVERTS, CLASS A, TYPE 1 48"	FOOT	60		
550A0050	STORM SEWERS, CLASS A, TYPE 1 12"	FOOT	1,176		
550A0070	STORM SEWERS, CLASS A, TYPE 1 15"	FOOT	119		
550A0090	STORM SEWERS, CLASS A, TYPE 1 18"	FOOT	217		
550A0120	STORM SEWERS, CLASS A, TYPE 1 24"	FOOT	60		
550A0140	STORM SEWERS, CLASS A, TYPE 1 30"	FOOT	67		
550A0160	STORM SEWERS, CLASS A, TYPE 1 36"	FOOT	60		
550A0180	STORM SEWERS, CLASS A, TYPE 1 42"	FOOT	251		
550A0190	STORM SEWERS, CLASS A, TYPE 1 48"	FOOT	106		
550A0340	STORM SEWERS, CLASS A, TYPE 2 12"	FOOT	1,697		
550A0360	STORM SEWERS, CLASS A, TYPE 2 15"	FOOT	847		
550A0380	STORM SEWERS, CLASS A, TYPE 2 18"	FOOT	31		
550A0410	STORM SEWERS, CLASS A, TYPE 2 24"	FOOT	1,059		
550A0430	STORM SEWERS, CLASS A, TYPE 2 30"	FOOT	327		
550A0450	STORM SEWERS, CLASS A, TYPE 2 36"	FOOT	484		
550A0470	STORM SEWERS, CLASS A, TYPE 2 42"	FOOT	371		
550A0480	STORM SEWERS, CLASS A, TYPE 2 48"	FOOT	454		
55100300	STORM SEWER REMOVAL 8"	FOOT	6		
55100400	STORM SEWER REMOVAL 10"	FOOT	6		
55100500	STORM SEWER REMOVAL 12"	FOOT	2,778		
55100700	STORM SEWER REMOVAL 15"	FOOT	1,080		
55100900	STORM SEWER REMOVAL 18"	FOOT	1,013		
55101200	STORM SEWER REMOVAL 24"	FOOT	1,066		
55101400	STORM SEWER REMOVAL 30"	FOOT	113		
55101600	STORM SEWER REMOVAL 36"	FOOT	931		
55101800	STORM SEWER REMOVAL 42"	FOOT	791		
55101900	STORM SEWER REMOVAL 48"	FOOT	16		
56100050	DUCTILE IRON WATER MAIN TEE, 12" X 6"	EACH	23		
56100055	DUCTILE IRON WATER MAIN TEE, 12" X 8"	EACH	10		
56100065	DUCTILE IRON WATER MAIN TEE, 12" X 12"	EACH	7		
56101160	DUCTILE IRON WATER MAIN REDUCER, 12" X 8"	EACH	1		
56103000	DUCTILE IRON WATER MAIN 6"	FOOT	242		

56103100	DUCTILE IRON WATER MAIN 8"	FOOT	851		
56103300	DUCTILE IRON WATER MAIN 12"	FOOT	7,594		
56105000	WATER VALVES 8"	EACH	9		
56105200	WATER VALVES 12"	EACH	17		
56109404	DUCTILE IRON WATER MAIN FITTINGS 12" 11.25 DEGREE BEND	EACH	18		
56109412	DUCTILE IRON WATER MAIN FITTINGS 12" 22.50 DEGREE BEND	EACH	12		
56109420	DUCTILE IRON WATER MAIN FITTINGS 8" 45.00 DEGREE BEND	EACH	30		
56109424	DUCTILE IRON WATER MAIN FITTINGS 12" 45.00 DEGREE BEND	EACH	34		
56400500	FIRE HYDRANTS TO BE REMOVED	EACH	23		
56400820	FIRE HYDRANT WITH AUXILIARY VALVE AND VALVE BOX	EACH	24		
59300100	CONTROLLED LOW-STRENGTH MATERIAL	CU YD	236		
60146304	PIPE UNDERDRAINS FOR STRUCTURES 4"	FOOT	439		
60201110	CATCH BASINS, TYPE A, 4'-DIAMETER, TYPE 11V FRAME AND GRATE	EACH	3		
60201340	CATCH BASINS, TYPE A, 4'-DIAMETER, TYPE 24 FRAME AND GRATE	EACH	30		
60208240	CATCH BASINS, TYPE C, TYPE 24 FRAME AND GRATE	EACH	29		
60218400	MANHOLES, TYPE A, 4'-DIAMETER, TYPE 1 FRAME, CLOSED LID	EACH	26		
60219000	MANHOLES, TYPE A, 4'-DIAMETER, TYPE 8 GRATE	EACH	3		
60219540	MANHOLES, TYPE A, 4'-DIAMETER, TYPE 24 FRAME AND GRATE	EACH	12		
60221100	MANHOLES, TYPE A, 5'-DIAMETER, TYPE 1 FRAME, CLOSED LID	EACH	14		
60222240	MANHOLES, TYPE A, 5'-DIAMETER, TYPE 24 FRAME AND GRATE	EACH	2		
60223800	MANHOLES, TYPE A, 6'-DIAMETER, TYPE 1 FRAME, CLOSED LID	EACH	5		
60224039	MANHOLES, TYPE A, 6'-DIAMETER, TYPE 24 FRAME AND GRATE	EACH	5		
60224446	MANHOLES, TYPE A, 7'-DIAMETER, TYPE 1 FRAME, CLOSED LID	EACH	3		
60224459	MANHOLES, TYPE A, 8'-DIAMETER, TYPE 1 FRAME, CLOSED LID	EACH	3		
60224469	MANHOLES, TYPE A, 9'-DIAMETER, TYPE 1 FRAME, CLOSED LID	EACH	1		
60236200	INLETS, TYPE A, TYPE 8 GRATE	EACH	4		
60236825	INLETS, TYPE A, TYPE 11V FRAME AND GRATE	EACH	7		
60237470	INLETS, TYPE A, TYPE 24 FRAME AND GRATE	EACH	27		
60240312	INLETS, TYPE B, TYPE 11V FRAME AND GRATE	EACH	4		
60240328	INLETS, TYPE B, TYPE 24 FRAME AND GRATE	EACH	5		

60248900	VALVE VAULTS, TYPE A, 5'-DIAMETER, TYPE 1 FRAME, CLOSED LID	EACH	26		
60250200	CATCH BASINS TO BE ADJUSTED	EACH	3		
60255500	MANHOLES TO BE ADJUSTED	EACH	33		
60256940	MANHOLES TO BE ADJUSTED WITH NEW TYPE 24 FRAME AND GRATE	EACH	3		
60257900	MANHOLES TO BE RECONSTRUCTED	EACH	2		
60260100	INLETS TO BE ADJUSTED	EACH	2		
60261540	INLETS TO BE ADJUSTED WITH NEW TYPE 24 FRAME AND GRATE	EACH	2		
60265900	VALVE VAULTS TO BE ADJUSTED WITH NEW TYPE 1 FRAME, CLOSED LID	EACH	10		
60266600	VALVE BOXES TO BE ADJUSTED	EACH	1		
60500040	REMOVING MANHOLES	EACH	53		
60500050	REMOVING CATCH BASINS	EACH	21		
60500060	REMOVING INLETS	EACH	45		
60500105	FILLING MANHOLES	EACH	5		
60603800	COMBINATION CONCRETE CURB AND GUTTER, TYPE B-6.12	FOOT	2,770		
60605000	COMBINATION CONCRETE CURB AND GUTTER, TYPE B-6.24	FOOT	20,337		
60611811	COMBINATION CONCRETE CURB AND GUTTER, TYPE M (MODIFIED)	FOOT	69		
60618300	CONCRETE MEDIAN SURFACE, 4 INCH	SQ FT	500		
63100045	TRAFFIC BARRIER TERMINAL, TYPE 2	EACH	1		
63200310	GUARDRAIL REMOVAL	FOOT	42		
66600105	FURNISHING AND ERECTING RIGHT OF WAY MARKERS	EACH	48		
67000400	ENGINEER'S FIELD OFFICE, TYPE A	CAL MO	24		
70300100	SHORT TERM PAVEMENT MARKING	FOOT	50,098		
70300150	SHORT TERM PAVEMENT MARKING REMOVAL	SQ FT	4,180		
70306100	TEMPORARY PAVEMENT MARKING LETTERS AND SYMBOLS - TYPE III TAPE	SQ FT	515		
70306120	TEMPORARY PAVEMENT MARKING - LINE 4" - TYPE III TAPE	FOOT	2,978		
70306130	TEMPORARY PAVEMENT MARKING - LINE 6" - TYPE III TAPE	FOOT	3,507		
70306210	TEMPORARY PAVEMENT MARKING - LINE 24"- TYPE III TAPE	FOOT	396		
72000100	SIGN PANEL - TYPE 1	SQ FT	1,010.75		
72000200	SIGN PANEL - TYPE 2	SQ FT	76		
72400500	RELOCATE SIGN PANEL ASSEMBLY - TYPE A	EACH	7		
72400600	RELOCATE SIGN PANEL ASSEMBLY - TYPE B	EACH	1		
72400710	RELOCATE SIGN PANEL - TYPE 1	SQ FT	34		
72800100	TELESCOPING STEEL SIGN SUPPORT	FOOT	1,326		
73100100	BASE FOR TELESCOPING STEEL SIGN SUPPORT	EACH	25		

78000100	THERMOPLASTIC PAVEMENT MARKING - LETTERS AND SYMBOLS	SQ FT	2,352		
78000200	THERMOPLASTIC PAVEMENT MARKING - LINE 4"	FOOT	16,197		
78000400	THERMOPLASTIC PAVEMENT MARKING - LINE 6"	FOOT	10,827		
78000500	THERMOPLASTIC PAVEMENT MARKING - LINE 8"	FOOT	3,500		
78000600	THERMOPLASTIC PAVEMENT MARKING - LINE 12"	FOOT	2,914		
78000650	THERMOPLASTIC PAVEMENT MARKING - LINE 24"	FOOT	1,060		
78011000	GROOVING FOR RECESSED PAVEMENT MARKING, LETTERS AND SYMBOLS	SQ FT	2,352		
78011025	GROOVING FOR RECESSED PAVEMENT MARKING 5"	FOOT	16,197		
78011035	GROOVING FOR RECESSED PAVEMENT MARKING 7"	FOOT	10,827		
78011045	GROOVING FOR RECESSED PAVEMENT MARKING 9"	FOOT	3,500		
78011065	GROOVING FOR RECESSED PAVEMENT MARKING 13"	FOOT	2,914		
78011125	GROOVING FOR RECESSED PAVEMENT MARKING 25"	FOOT	1,060		
78300201	PAVEMENT MARKING REMOVAL - GRINDING	SQ FT	9,553		
80400100	ELECTRIC SERVICE INSTALLATION	EACH	2		
80400200	ELECTRIC UTILITY SERVICE CONNECTION	L SUM	1		
80500020	SERVICE INSTALLATION - POLE MOUNTED	EACH	3		
81028200	UNDERGROUND CONDUIT, GALVANIZED STEEL, 2" DIA.	FOOT	4,965		
81028220	UNDERGROUND CONDUIT, GALVANIZED STEEL, 3" DIA.	FOOT	270		
81028240	UNDERGROUND CONDUIT, GALVANIZED STEEL, 4" DIA.	FOOT	5,482		
81400100	HANDHOLE	EACH	14		
81400300	DOUBLE HANDHOLE	EACH	10		
81603000	UNITDUCT, 600V, 2-1C NO.8, 1/C NO.8 GROUND, (XLP-TYPE USE), 3/4" DIA. POLYETHYLENE	FOOT	2,846		
81603054	UNITDUCT, 600V, 3-1C NO.8, 1/C NO.8 GROUND, (XLP-TYPE USE), 3/4" DIA. POLYETHYLENE	FOOT	15,975		
81702110	ELECTRIC CABLE IN CONDUIT, 600V (XLP-TYPE USE) 1/C NO. 10	FOOT	3,594		
81702160	ELECTRIC CABLE IN CONDUIT, 600V (XLP-TYPE USE) 1/C NO. 1/0	FOOT	3,000		
82110007	LUMINAIRE, LED, ROADWAY, OUTPUT DESIGNATION G	EACH	108		
82500360	LIGHTING CONTROLLER, BASE MOUNTED, 480VOLT, 100AMP	EACH	2		
83008300	LIGHT POLE, ALUMINUM, 40 FT. M.H., 8 FT. MAST ARM	EACH	81		
83008500	LIGHT POLE, ALUMINUM, 40 FT. M.H., 12 FT. MAST ARM	EACH	6		

83008600	LIGHT POLE, ALUMINUM, 40 FT. M.H., 15 FT. MAST ARM	EACH	1		
83600200	LIGHT POLE FOUNDATION, 24" DIAMETER	FOOT	602		
83800205	BREAKAWAY DEVICE, TRANSFORMER BASE, 15 INCH BOLT CIRCLE	EACH	88		
84200500	REMOVAL OF LIGHTING UNIT, SALVAGE	EACH	30		
84200804	REMOVAL OF POLE FOUNDATION	EACH	31		
84500110	REMOVAL OF LIGHTING CONTROLLER	EACH	2		
84500120	REMOVAL OF ELECTRIC SERVICE INSTALLATION	EACH	2		
84500130	REMOVAL OF LIGHTING CONTROLLER FOUNDATION	EACH	2		
85000200	MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION	EACH	2		
86400100	TRANSCEIVER - FIBER OPTIC	EACH	5		
87300925	ELECTRIC CABLE IN CONDUIT, TRACER, NO. 14 1C	FOOT	6,737		
87301215	ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 2C	FOOT	5,415		
87301225	ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 3C	FOOT	8,998		
87301245	ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 5C	FOOT	7,348		
87301255	ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 7C	FOOT	7,569		
87301805	ELECTRIC CABLE IN CONDUIT, SERVICE, NO. 6 2 C	FOOT	235		
87301900	ELECTRIC CABLE IN CONDUIT, EQUIPMENT GROUNDING CONDUCTOR, NO. 6 1C	FOOT	2,659		
87502500	TRAFFIC SIGNAL POST, GALVANIZED STEEL 16 FT.	EACH	9		
87702890	STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 32 FT.	EACH	1		
87702910	STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 36 FT.	EACH	1		
87702920	STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 38 FT.	EACH	1		
87702960	STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 46 FT.	EACH	1		
87702970	STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 48 FT.	EACH	1		
87702990	STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 54 FT.	EACH	1		
87703030	STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 60 FT.	EACH	1		
87703090	STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 70 FT.	EACH	2		
87703110	STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 74 FT.	EACH	1		
87800100	CONCRETE FOUNDATION, TYPE A	FOOT	36		
87800150	CONCRETE FOUNDATION, TYPE C	FOOT	12		
87800415	CONCRETE FOUNDATION, TYPE E 36-INCH DIAMETER	FOOT	116		

87800420	CONCRETE FOUNDATION, TYPE E 42-INCH DIAMETER	FOOT	92		
87900200	DRILL EXISTING HANDHOLE	EACH	2		
88030020	SIGNAL HEAD, LED, 1-FACE, 3-SECTION, MAST-ARM MOUNTED	EACH	25		
88030080	SIGNAL HEAD, LED, 1-FACE, 4-SECTION, MAST ARM MOUNTED	EACH	6		
88030100	SIGNAL HEAD, LED, 1-FACE, 5-SECTION, BRACKET MOUNTED	EACH	3		
88030110	SIGNAL HEAD, LED, 1-FACE, 5-SECTION, MAST-ARM MOUNTED	EACH	13		
88030230	SIGNAL HEAD, LED, 2-FACE, 1-3 SECTION, 1-4 SECTION, BRACKET MOUNTED	EACH	3		
88030240	SIGNAL HEAD, LED, 2-FACE, 1-3 SECTION, 1-5 SECTION, BRACKET MOUNTED	EACH	2		
88030250	SIGNAL HEAD, LED, 2-FACE, 1-4 SECTION, 1-5 SECTION, BRACKET MOUNTED	EACH	3		
88102717	PEDESTRIAN SIGNAL HEAD, LED, 1-FACE, BRACKET MOUNTED WITH COUNTDOWN TIMER	EACH	12		
88102747	PEDESTRIAN SIGNAL HEAD, LED, 2-FACE, BRACKET MOUNTED WITH COUNTDOWN TIMER	EACH	4		
88102757	PEDESTRIAN SIGNAL HEAD, LED, 3-FACE, BRACKET MOUNTED WITH COUNTDOWN TIMER	EACH	2		
88200510	TRAFFIC SIGNAL BACKPLATE, RETROREFLECTIVE	EACH	44		
88700200	LIGHT DETECTOR	EACH	12		
88700300	LIGHT DETECTOR AMPLIFIER	EACH	3		
89000100	TEMPORARY TRAFFIC SIGNAL INSTALLATION	EACH	3		
89502210	MODIFY EXISTING CONTROLLER CABINET	EACH	2		
89502300	REMOVE ELECTRIC CABLE FROM CONDUIT	FOOT	26,970		
89502375	REMOVE EXISTING TRAFFIC SIGNAL EQUIPMENT	EACH	3		
89502380	REMOVE EXISTING HANDHOLE	EACH	29		
89502385	REMOVE EXISTING CONCRETE FOUNDATION	EACH	27		
A2000192	TREE, ACER X FREEMANII AUTUMN FANTASY (AUTUMN FANTASY FREEMAN MAPLE), 2-1/2" CALIPER, BALLED AND BURLAPPED	EACH	13		
A2002879	TREE, CELTIS OCCIDENTALIS CHICAGOLAND, (CHICAGOLAND COMMON HACKBERRY), 2" CALIPER, BALLED AND BURLAPPED	EACH	4		
A2006516	TREE, QUERCUS BICOLOR (SWAMP WHITE OAK), 2" CALIPER, BALLED AND BURLAPPED	EACH	6		
A2006716	TREE, QUERCUS MACROCARPA (BUR OAK), 2" CALIPER, BALLED AND BURLAPPED	EACH	8		

B2006116	TREE, SYRINGA PEKINENSIS MORTON(CHINA SNOW PEKING LILAC), 2" CALIPER, TREE FORM, BALLED AND BURLAPPED	EACH	12		
LR443200	STRIP REFLECTIVE CRACK CONTROL TREATMENT	FOOT	18,266		
X0324085	EMERGENCY VEHICLE PRIORITY SYSTEM LINE SENSOR CABLE, NO. 20 3/C	FOOT	3,086		
X0324599	ROD AND CLEAN EXISTING CONDUIT	FOOT	723		
X0327036	BIKE PATH REMOVAL	SQ YD	2,883		
X0328033	TERMINAL SERVER	EACH	1		
X0540000	BRICK PAVERS	SQ FT	13,952		
X1400127	CAT. 6 ETHERNET CABLE	FOOT	270		
X1400367	PEDESTRIAN SIGNAL POST, 10 FT.	EACH	3		
X1400378	PEDESTRIAN SIGNAL POST, 5 FT.	EACH	9		
X2130010	EXPLORATION TRENCH (SPECIAL)	FOOT	1,000		
X4021000	TEMPORARY ACCESS (PRIVATE ENTRANCE)	EACH	3		
X4022000	TEMPORARY ACCESS (COMMERCIAL ENTRANCE)	EACH	15		
X4832455	PORTLAND CEMENT CONCRETE SHOULDERS 11 1/2" (SPECIAL)	SQ YD	37		
X5021512	COFFERDAM (TYPE 1) (IN-STREAM/WETLAND WORK)	EACH	5		
X5091765	PIPE HANDRAIL (SPECIAL)	FOOT	140		
X5610647	PLUG WATER MAIN 8"	EACH	2		
X5610649	PLUG WATER MAIN 12"	EACH	1		
X5610651	ABANDON EXISTING WATER MAIN, FILL WITH CLSM	FOOT	7,986		
X5610706	WATER MAIN REMOVAL, 6"	FOOT	254		
X5610712	WATER MAIN REMOVAL, 12"	FOOT	391		
X5620116	WATER SERVICE CONNECTION (SHORT)	EACH	3		
X5620118	WATER SERVICE CONNECTION (LONG)	EACH	1		
X5630006	CUT AND CAP EXISTING 6" WATER MAIN	EACH	6		
X5630008	CUT AND CAP EXISTING 8" WATER MAIN	EACH	3		
X5630012	CUT AND CAP EXISTING 12" WATER MAIN	EACH	29		
X5630708	CONNECTION TO EXISTING WATER MAIN 8"	EACH	1		
X5630712	CONNECTION TO EXISTING WATER MAIN 12"	EACH	3		
X6050403	FILLING EXISTING VAULT	EACH	22		
X6050404	FILLING VALVE BOXES	EACH	6		
X6060300	CONCRETE MEDIAN, TYPE SB-6.24 (SPECIAL)	SQ FT	25,637		
X6640636	WOODEN FENCE REMOVAL	FOOT	153		
X7010216	TRAFFIC CONTROL AND PROTECTION, (SPECIAL)	L SUM	1		
X7010238	CHANGEABLE MESSAGE SIGN (SPECIAL)	CAL MO	90		

X8360215	LIGHT POLE FOUNDATION, 24" DIAMETER, OFFSET	FOOT	30		
X8410102	TEMPORARY LIGHTING SYSTEM	L SUM	1		
X8570233	FULL-ACTUATED CONTROLLER AND TYPE SUPER P CABINET (SPECIAL)	EACH	3		
X8620200	UNINTERRUPTABLE POWER SUPPLY (SPECIAL)	EACH	3		
X8710030	FIBER OPTIC CABLE 48 FIBERS, SINGLE MODE	FOOT	6,737		
X8710103	ETHERNET SWITCH	EACH	5		
X8710302	FIBER OPTIC CABLE SPLICE	EACH	1		
X8760200	ACCESSIBLE PEDESTRIAN SIGNALS	EACH	26		
X8780012	CONCRETE FOUNDATION, TYPE A 12-INCH DIAMETER	FOOT	48		
X8891007	VIDEO VEHICLE DETECTION SYSTEM COMPLETE	EACH	3		
XX007251	INTERSECTION VIDEO TRAFFIC MONITORING SYSTEM WITH PTZ CAMERA	EACH	3		
XX007993	CENTRALIZED SYSTEM FIELD INTEGRATION/SETUP	EACH	1		
Z0013798	CONSTRUCTION LAYOUT	L SUM	1		
Z0030850	TEMPORARY INFORMATION SIGNING	SQ FT	500		
Z0033020	LUMINAIRE SAFETY CABLE ASSEMBLY	EACH	108		
Z0033028	MAINTENANCE OF LIGHTING SYSTEM	CAL MO	6		
Z0033046	RE-OPTIMIZE TRAFFIC SIGNAL SYSTEM LEVEL 2	EACH	3		
Z0044298	PRESSURE CONNECTION TO EXISTING WATER MAIN	EACH	14		
Z0056608	STORM SEWER (WATER MAIN REQUIREMENTS) 12 INCH	FOOT	1,073		
Z0056610	STORM SEWER (WATER MAIN REQUIREMENTS) 15 INCH	FOOT	715		
Z0056612	STORM SEWER (WATER MAIN REQUIREMENTS) 18 INCH	FOOT	662		
Z0056616	STORM SEWER (WATER MAIN REQUIREMENTS) 24 INCH	FOOT	430		
Z0056620	STORM SEWER (WATER MAIN REQUIREMENTS) 30 INCH	FOOT	137		
Z0056622	STORM SEWER (WATER MAIN REQUIREMENTS) 36 INCH	FOOT	568		
Z0056624	STORM SEWER (WATER MAIN REQUIREMENTS) 42 INCH	FOOT	248		
Z0073510	TEMPORARY TRAFFIC SIGNAL TIMING	EACH	3		
ZNO CODE1	STEEL CASING PIPE AUGERED AND JACKED 20"	FOOT	68		
ZNO CODE2	STEEL COMBINATION MAST ARM ASSEMBLY AND POLE WITH DUAL MAST ARMS, 42 FT. AND 48 FT.	EACH	1		
ZNO CODE3	STEEL COMBINATION MAST ARM ASSEMBLY AND POLE WITH DUAL MAST ARMS, 46 FT. AND 48 FT.	EACH	1		

ZNO CODE4	STEEL COMBINATION MAST ARM ASSEMBLY AND POLE WITH DUAL MAST ARMS, 48 FT. AND 48 FT.	EACH	1		
ZNO CODE5	MODIFY EXISTING RESTRICTOR STRUCTURE	EACH	2		
ZNO CODE6	WATER SERVICE CONNECTION (PRIVATE)	EACH	1		
				TOTAL	

Signatures

(If an individual)

Signature of Bidder _____

Business Address _____

_____

(If a partnership)

Firm Name _____

Signed by _____

Business Address _____

_____

Insert Names and Addresses of All Partners _____

_____

_____

_____

(If a corporation)

Corporate Name _____

Signed By _____
President

Business Address _____

_____

President _____

Secretary _____

Treasurer _____

Attest: _____
Secretary

BIDDER'S CERTIFICATION

I/We hereby certify that:

A complete set of bid papers, as intended, has been received, and that I/We will abide by the contents and/or information received and/or contained herein.

B. I/We have not entered into any collusion or other unethical practices with any person, firm, or employee of the City which would in any way be construed as unethical business practice.

C. I/We have adopted a written sexual harassment policy which is in accordance with the requirements of Federal, State and local laws, regulations and policies and further certify that I/We are also in compliance with all other equal employment requirements contained in Public Act 87-1257 (effective July 1, 1993) 775 ILCS 5/2-105 (A).

D. I/We are in compliance with the most current "Prevailing Rate" of wages for laborers, mechanics and other workers as required by the State of Illinois Department of Labor.

E. I/We operate a drug free environment and drugs are not allowed in the workplace or satellite locations as well as City of Aurora sites in accordance with the Drug Free Workplace Act of January, 1992.

F. The Bidder is not barred from bidding on the Project, or entering into this contract as a result of a violation of either Section 33E-3 or 33E-4 of the Illinois Criminal Code, or any similar offense of "bid rigging" or "bid rotating" of any state or the United States.

G. I/We will submit with our bid, for all contracts in excess of $25,000.00, a certificate indicating participation in apprenticeship and training programs approved and registered with the United Sates Department of Labor.

☐ Contractor shall check the box indicating that a copy of applicable program certification is attached.

H. I/We have obtained IDOT prequalification as described in Check Sheet LRS6 in the "Supplemental Specifications and Recurring Special Provisions" in the categories appropriate for the type of work proposed for this project.

☐ Contractor shall check the box indicating that a copy of the IDOT prequalification certification for the appropriate categories is attached.

I. I/We will abide by all other Federal, State and local codes, rules, regulations, ordinances and statutes.

J. I/We will abide by the "Illinois Preference Act" which requires contractors to use at least 90% Illinois laborers on all public works projects that receive State funds or funds administered by the State during a period of "excessive unemployment" (Employment of Illinois Workers on Public Works Act, 30 ILCS 570/).

COMPANY NAME _____

ADDRESS _____

CITY/STATE/ZIP CODE _____

NAME OF CORPORATE/COMPANY OFFICIAL _____
PLEASE TYPE OR PRINT CLEARLY

TITLE _____

AUTHORIZED OFFICIAL SIGNATURE _____

DATE _____

TELEPHONE (_____)_____

FAX No. (_____)_____

E-MAIL ADDRESS _____

Subscribed and Sworn to

Before me this _____ day

of _____, 20___

_____
Notary Public

Apprenticeship or Training Program Certification

Return with Bid

All contractors are required to complete the following certification:

☐ For this contract proposal or for all groups in this deliver and install proposal.

☐ For the following deliver and install groups in this material proposal:

_____

_____

_____

_____

The City of Aurora policy, adopted in accordance with the provisions of the Illinois Highway Code, requires this contract to be awarded to the lowest responsive and responsible bidder. In addition to all other responsibility factors, this contract or deliver and install proposal requires all bidders to disclose participation in apprenticeship or training programs that are approved by and registered with the United States Department of Labor's Bureau of Apprenticeship and Training, and applicable to the work of the above indicated proposals or groups. Therefore, all bidders are required to complete the following certification:

I. Except as provided in paragraph IV below, the undersigned bidder certifies that it is a participant, either as an individual or as part of a group program, in an approved apprenticeship or training program applicable to each type of work or craft that the bidder will perform with its own employees.

II. The undersigned bidder, by inclusion in the list in the space below, certifies the official name of each program sponsor holding the Certificate of Registration for all of the types of work or crafts in which the bidder is a participant and that will be performed with the bidder's employees. The list shall also indicate any type of work or craft job category for which there is no applicable apprenticeship or training program available.

_____

_____

_____

_____

III. Except for any work identified above, any bidder that shall perform all or part of the work of the contract or deliver and install proposal solely by individual owners, partners or members and not by employees to whom the payment of prevailing rates of wages would be required, check the following box, and identify the owner/operator workforce and positions of ownership. ☐

_____

_____

_____

_____

The requirements of this certification and disclosure are a material part of the contract. The bidder is responsible for making a complete report and shall make certain that each type of work or craft job category that will be utilized on the project is accounted for and listed. **The City of Aurora requires a copy of each applicable Certificate of Registration issued by the United States Department of Labor evidencing such participation by the contractor and any or all of its subcontractors be included with the bid in order to qualify to bid on the project.**

Bidder: _____ By: _____
(Signature)

Address: _____ Title: _____

STATE OF ILLINOIS)
) ss.
County of Kane)

BIDDER'S TAX CERTIFICATION

(BIDDER'S EXECUTING OFFICER), being first duly sworn on oath, deposes and states that all statements made herein are made on behalf of the Bidder, that this despondent is authorized to make them and that the statements contained herein are true and correct.

Bidder deposes, states and certifies that Bidder is not barred from contracting with any unit of local government in the State of Illinois as result of a delinquency in payment of any tax administered by the Illinois Department of Revenue unless Bidder is contesting, in accordance with the procedures established by the appropriate statute, its liability for the tax or the amount of the tax, all as provided for in accordance with 65 ILCS 5/11-42.1-1.

DATED this _____ day of _____, 20___.

By _____
(Signature of Bidder's Executing Officer)

_____
(Print name of Bidder's Executing Officer)

_____
(Title)

ATTEST/WITNESS:

By _____

Title _____

Subscribed and sworn to before me this
_____ day of _____, 20__.

_____
Notary Public

(SEAL)

City of Aurora, IL - Local Vendor Preference Application

The business identified below is requesting to be placed on the City of Aurora, Illinois Local Vendor Preference list, in accordance with ordinance O18-070, amended with ordinance O20-029 approved April 28, 2020.

1) Date Submitted: _____
2) Name of Business: _____
3) Address of Local Office: _____
4) City, State, Zip: _____
5) Company's Web Address: _____
6) Phone: _____ Fax: _____
7) County your Local Business is Located In: _____

Submitted By (Signature): _____

Print Name and Title: _____

Email Address: _____

Sec. 2-410.-Prequalification; local bidder.

(a) If an interested business would like to prequalify as a "local business", such a business shall complete and submit the prequalification application along with supporting documentation, as listed below, and the applicable fee as set by the City Council, to the Finance Department:

a. Evidence that the business has established and maintained a physical presence in the City of Aurora, by virtue of the ownership or lease of all or a portion of a building for a period of not less than twelve (12) consecutive months prior to the submission of the prequalification application; and

b. Evidence demonstrating that the business is legally authorized to conduct business within the State of Illinois and the City of Aurora, and has a business registered to operate in the City if required; and

c. Evidence that the business is not a debtor to the City of Aurora. For purposes of this subparagraph, a debtor is defined as having outstanding fees, water bills, sales tax or_restaurant/bar tax payments that are thirty (30) days or more past due, or has outstanding weed or nuisance abatements or liens, has failure to comply tickets or parking tickets that are not in dispute as to their validity and are not being challenged in court or other administrative processes.

Back up documentation for (a) a. and (a) b. must accompany this submittal or application will be rejected.
Please note for (a) c. above the City of Aurora will verify internally that your company does not have any outstanding fees. Your company should make sure that to the best of its knowledge all bills are current.

Return completed application, with all required backup documentation to:
City of Aurora, Attn: Purchasing Division, 44 E. Downer Place, Aurora, IL 60507
Or email to: PurchasingDL@Aurora-il.org

Do not write below this line: For City of Aurora use ONLY

(a) a.
(a) b.
(a) c.

Date: _____

Approved: _____ Denied: _____
Letter Sent: _____ Initials: _____