

13

September 20, 2024 Letting

Notice to Bidders, Specifications and Proposal



**Illinois Department
of Transportation**

**Contract No. 62W79
Various Counties
Section 2024-961-ELE
Various Routes
District 1 Construction Funds**

Prepared by

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Checked by

(Printed by authority of the State of Illinois)



- 1. TIME AND PLACE OF OPENING BIDS.** Electronic bids are to be submitted to the electronic bidding system (iCX-Integrated Contractors Exchange). All bids must be submitted to the iCX system prior to 12:00 p.m. September 20, 2024 prevailing time at which time the bids will be publicly opened from the iCX SecureVault.
- 2. DESCRIPTION OF WORK.** The proposed improvement is identified and advertised for bids in the Invitation for Bids as:

**Contract No. 62W79
Various Counties
Section 2024-961-ELE
Various Routes
District 1 Construction Funds**

Annual maintenance of electrical systems including traffic signals; lighting; pump stations; surveillance; other pertinent electrical systems; subsystems and components; mechanical systems; and buildings, structures, and grounds located within District 1.

- 3. INSTRUCTIONS TO BIDDERS.** (a) This Notice, the invitation for bids, proposal and letter of award shall, together with all other documents in accordance with Article 101.09 of the Standard Specifications for Road and Bridge Construction, become part of the contract. Bidders are cautioned to read and examine carefully all documents, to make all required inspections, and to inquire or seek explanation of the same prior to submission of a bid.

(b) State law, and, if the work is to be paid wholly or in part with Federal-aid funds, Federal law requires the bidder to make various certifications as a part of the proposal and contract. By execution and submission of the proposal, the bidder makes the certification contained therein. A false or fraudulent certification shall, in addition to all other remedies provided by law, be a breach of contract and may result in termination of the contract.
- 4. AWARD CRITERIA AND REJECTION OF BIDS.** This contract will be awarded to the lowest responsive and responsible bidder considering conformity with the terms and conditions established by the Department in the rules, Invitation for Bids and contract documents. The issuance of plans and proposal forms for bidding based upon a prequalification rating shall not be the sole determinant of responsibility. The Department reserves the right to determine responsibility at the time of award, to reject any or all proposals, to readvertise the proposed improvement, and to waive technicalities.

By Order of the
Illinois Department of Transportation

Omer Osman,
Secretary

INDEX
FOR
SUPPLEMENTAL SPECIFICATIONS
AND RECURRING SPECIAL PROVISIONS

Adopted January 1, 2024

This index contains a listing of SUPPLEMENTAL SPECIFICATIONS and frequently used RECURRING SPECIAL PROVISIONS.

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

SUPPLEMENTAL SPECIFICATIONS

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STATE OF ILLINOIS

SPECIAL PROVISIONS

The following Special Provisions supplement the "Standard Specifications for Road and Bridge Construction," adopted January 1, 2022, the latest edition of the "Manual on Uniform Traffic Control Devices for Streets and Highways," and the "Manual of Test Procedures for Materials" in effect on the date of invitation for bids, and the Supplemental Specifications and Recurring Special Provisions indicated on the Check Sheet included herein which apply to and govern the construction of Various Routes, Section 2024-916-ELE, Various Counties, Contract No. 62W79 and in case of conflict with any part or parts of said Specifications, the said Special Provisions shall take precedence and shall govern.

Various Routes

Section 2024-916-ELE

Various Counties

Contract No. 62W79

ARTICLE 1.1 DESCRIPTION OF WORK

Annual maintenance and operations of approximately 3181 Traffic Signal locations, 1569 Surveillance locations, 47 Pump Stations, 689 Lighting locations, 122 Various locations, 1,600 Light Towers, 20,000 Light Poles, 81 Dynamic Message Signs, 257 Traffic Monitoring Cameras, 256 Reversible Lane Access Control items, 40 Ramp Gates, 16 Communication Huts and other Planned Maintenance locations in District One. Other items listed below located within District 1 or maintained by District 1 in the surrounding counties, such as Kendall, Grundy, and LaSalle, as specified herein. The items include, but not limited to,

- Electrical systems, mechanical systems, communication systems, and buildings and structures
- Equipment such as, I-NET & EMCMS
- Underpass fixtures & illuminated signs
- Fiber network, layer 2 and 3 network equipment, and alarm monitoring systems
- Galvanized steel conduit, electrical cable assembly, electric cable, and fiber cable
- Handholes, vaults, inspections of standby generators, non-metallic raceway, breakaway devices
- Lighting controllers, light pole foundation, metal light pole foundations, light pole kits, light towers, light tower clean and paint, and fluorescent luminaires
- Washing of walls at Hubbard's Cave
- Pump rebuilds, pump vibration testing and analysis, and wet pit cleaning.
- Detector loop, steel mast arm assemblies and poles, LED signal heads, video detection systems, wireless interconnect system, single-lane and two-lane traffic control.

ARTICLE 1.2 SCHEDULE OF PRICES – BIDDING SHEETS

Bidders must submit the Schedule of Prices (Routine and Non-Routine Maintenance Items) fully completed with monthly and yearly costs/extensions by scanning to the Illinois Department of Transportation bid site for Contract 62W79 as “miscellaneous documents” for valid bid.

ROUTINE MAINTENANCE ITEMS

| *Pay Code | Number of Equipment Locations to Maintain | Unit | Bid Price per Location | Monthly Cost | Yearly Cost |
|------------------|--|-------------|-------------------------------|---------------------|--------------------|
| T-1A | 2838 | EA | \$ | \$ | \$ |
| T-1B | 28 | EA | \$ | \$ | \$ |
| T-2A | 23 | EA | \$ | \$ | \$ |
| T-2B | 364 | EA | \$ | \$ | \$ |
| S-1 | 117 | EA | \$ | \$ | \$ |
| S-2 | 795 | EA | \$ | \$ | \$ |
| S-3 | 81 | EA | \$ | \$ | \$ |
| S-4 | 257 | EA | \$ | \$ | \$ |
| S-5 | 329 | EA | \$ | \$ | \$ |
| S-6 | 17 | EA | \$ | \$ | \$ |
| S-7 | 42 | EA | \$ | \$ | \$ |
| L-1 | 243 | EA | \$ | \$ | \$ |
| L-2 | 235 | EA | \$ | \$ | \$ |

| *Pay Code | Number of Equipment Locations to Maintain | Unit | Bid Price per Location | Monthly Cost | Yearly Cost |
|------------------|--|-------------|-------------------------------|---------------------|--------------------|
| L-3 | 160 | EA | \$ | \$ | \$ |
| L-4 | 20 | EA | \$ | \$ | \$ |
| P-1 | 46 | EA | \$ | \$ | \$ |
| V-1 | 111 | EA | \$ | \$ | \$ |
| Total: | 5,706 | -- | -- | \$ | \$ |

*Refer to System Articles herein for definition of Pay Item Codes

PLANNED LOCATIONS: 500 Refer to Article 6.0 Payment of Master Auth. & Invoices

Planned Locations are locations which at the time of Contract development were not ON-Maintenance or are future new locations to be maintained by the Contractor. Those locations with known addresses are shown in Section 3.

If the number of Contractor monthly maintained locations exceeds 6206 locations (total bidding number of locations (5706) plus the number of Planned Locations (500) the Contractor must receive the bid price each, for an Additional Location through Non-Routine pay item GRM1.

NON-ROUTINE MAINTENANCE PAY ITEMS

| Item | Item Description | Unit | Quantity | Unit Cost | Extension |
|------|--|------|----------|-----------|-----------|
| GA01 | Aerial Cable, with Messenger Wire, 4-1/C up to No. 2 | FT | 500 | \$ | \$ |
| GC01 | Conduit, Galvanized Steel, 1/2" to 2 1/2" | FT | 500 | \$ | \$ |
| GC02 | Conduit, Galvanized Steel, 3" to 5" | FT | 200 | \$ | \$ |
| GC03 | Conduit, Galvanized Steel, Attached to Structure, PVC Coated, 1/2" to 2 1/2" | FT | 1,500 | \$ | \$ |
| GC04 | Conduit, Galvanized Steel, Attached to Structure, PVC Coated, 3" to 5" | FT | 200 | \$ | \$ |
| GC05 | Conduit, Non-Metallic, Coillable, in Ground, Up to 1 1/2" | FT | 2,000 | \$ | \$ |
| GC06 | Conduit, Removal | FT | 1,000 | \$ | \$ |
| GE01 | Electric Cable Assembly, XLP, 3/C No. 2, 1/C No. 6 Green | FT | 800 | \$ | \$ |
| GE02 | Electric Cable Assembly, XLP, 3/C No. 4, 1/C No. 6 Green | FT | 800 | \$ | \$ |
| GE03 | Electric Cable, XLP, 1/C up to No. 4 | FT | 5,000 | \$ | \$ |
| GE04 | Electric Cable, XLP, 1/C No. 2 to No. 2/0 | FT | 2,500 | \$ | \$ |
| GE05 | Electric Cable, XLP, 1/C No. 2 3/0 to No. 500 MCM | FT | 1,000 | \$ | \$ |
| GE06 | Electric Cable, Pull or Remove | FT | 7,000 | \$ | \$ |

| Item | Item Description | Unit | Quantity | Unit Cost | Extension |
|------|--|------|----------|-----------|-----------|
| GE07 | Electric Cable, THWN, 1/C from No. 14 to No. 8 | FT | 5,000 | \$ | \$ |
| GEC1 | Ethernet Cable, Outside Plant CAT 6 | FT | 1,500 | \$ | \$ |
| GF01 | Fiber Optic Trunk/Distribution Cable, 6 up to 144 SM | FT | 4,000 | \$ | \$ |
| GF02 | Fiber Optic Cable, Hybrid, 12 MM & 24 SM | FT | 2,500 | \$ | \$ |
| GF03 | Fiber Optic Termination Panel 6 or 24 | EA | 5 | \$ | \$ |
| GF04 | Fiber Optic Patch Panel, 96 or 144 SM | EA | 5 | \$ | \$ |
| GF05 | Fiber Optic Splice Enclosure | EA | 5 | \$ | \$ |
| GF06 | Fiber Optic Innerduct, up to 1 ½" | FT | 5,500 | \$ | \$ |
| GF07 | Fiber Optic Cable, Install Only | FT | 5,500 | \$ | \$ |
| GFR1 | Foundation Removal | EA | 25 | \$ | \$ |
| GGR1 | Ground Rod | EA | 20 | \$ | \$ |
| GH01 | Handhole | EA | 10 | \$ | \$ |
| GH02 | Handhole, Fiber Optic | EA | 5 | \$ | \$ |
| GH03 | Handhole, Heavy-Duty | EA | 5 | \$ | \$ |
| GH04 | Handhole, Heavy-Duty, Double | EA | 5 | \$ | \$ |

| Item | Item Description | Unit | Quantity | Unit Cost | Extension |
|------|---|------|----------|-----------|-----------|
| GH05 | Handhole, Heavy-Duty, Special | EA | 2 | \$ | \$ |
| GH06 | Handhole, Remove | EA | 8 | \$ | \$ |
| GH07 | Handhole, Re-build or Modify to Heavy-Duty Type | EA | 15 | \$ | \$ |
| GJ01 | Junction Box, and all appurtenances, Remove | EA | 10 | \$ | \$ |
| GJ02 | Junction Box, Stainless Steel, up to 6" Depth | EA | 10 | \$ | \$ |
| GJ03 | Junction Box, Stainless Steel, 10" Depth | EA | 5 | \$ | \$ |
| GLH1 | Certified Electrician/Journeyman | HR | 750 | \$ | \$ |
| GLH2 | Maintenance Helper | HR | 250 | \$ | \$ |
| GLH3 | Foreman | HR | 250 | \$ | \$ |
| GRM1 | Routine Maintenance Additional Location | EA | 100 | \$ | \$ |
| GTC1 | Single Lane, Traffic Control | EA | 10 | \$ | \$ |
| GTC2 | Two Lane, Traffic Control | EA | 10 | \$ | \$ |
| GU01 | Electric Cable Assembly, XLP, 3/C No. 6 & 1/C No. 8 Green, 1" | FT | 2,000 | \$ | \$ |
| GU02 | Electric Cable Assembly, XLP, 3/C No. 4 & 1/C No. 6 Green, 1 ¼" | FT | 2,000 | \$ | \$ |
| GU03 | Electric Cable Assembly, XLP, 3/C No. 2 & 1/C No. 6 Green, 1 ½" | FT | 1,000 | \$ | \$ |

| Item | Item Description | Unit | Quantity | Unit Cost | Extension |
|------|---|------|----------|-----------------|-----------------|
| GVB1 | Budgetary Allowance for Electrical Maintenance System | LS | 1 | \$700,000 ** | \$700,000 ** |
| LA01 | Arm or Twin Arm with Luminaire, Install Only | EA | 10 | \$ | \$ |
| LA02 | Mast Arm or Twin Mast Arm | EA | 10 | \$ | \$ |
| LB01 | Breakaway Device, T-Base | EA | 100 | \$ | \$ |
| LBB1 | Breaker, Branch, 20A to 70A | EA | 10 | \$ | \$ |
| LBB2 | Breaker, Main, 80A to 250A | EA | 5 | \$ | \$ |
| LBT1 | Buck Boost Transformer | EA | 5 | \$ | \$ |
| LC01 | Controller, Duplex Console, With Radio | EA | 4 | \$ | \$ |
| LC02 | Controller, Duplex Console, Without Radio | EA | 3 | \$ | \$ |
| LC03 | Controller, Lighting, Install only | EA | 8 | \$ | \$ |
| LC04 | Controller, Lighting, Remove & Salvage | EA | 6 | \$ | \$ |
| LC05 | Controller, Single Door Console, Without Radio | EA | 4 | \$ | \$ |
| LC06 | Controller, Combination Lighting | EA | 2 | \$ | \$ |
| LCL1 | Clock, Digital Astronomical | EA | 8 | \$ | \$ |
| LCN1 | Contactor, 125A to 250A | EA | 3 | \$ | \$ |

| Item | Item Description | Unit | Quantity | Unit Cost | Extension |
|------|--|-----------|----------|-----------|-----------|
| LCN2 | Contactora, 30A to 100A | EA | 3 | \$ | \$ |
| LD01 | Decal Set, Lighting Unit, Pole | EA | 120 | \$ | \$ |
| LD02 | Decal Set, Lighting Unit, Tower | EA | 50 | \$ | \$ |
| LD03 | Decal Set, Lighting Unit, Tunnel or Underpass with Bracket | EA | 150 | \$ | \$ |
| LD04 | Decal Set, Lighting Unit, Tower with Camera | EA | 50 | \$ | \$ |
| LDS1 | Disconnect Switch | EA | 3 | \$ | \$ |
| LDS2 | ON/OFF Switch | EA | 12 | \$ | \$ |
| LDS3 | Motion Sensor | EA | 10 | \$ | \$ |
| LF01 | Foundation, Light Pole, Concrete | L. FT. | 100 | \$ | \$ |
| LF02 | Foundation, Light Pole, Metal | EA | 25 | \$ | \$ |
| LF03 | Foundation, Light Tower, up to 54" Diameter | L. FT. | 60 | \$ | \$ |
| LF04 | Foundation, Lighting Controller | EA | 8 | \$ | \$ |
| LP01 | Light Pole, Kit | EA | 25 | \$ | \$ |
| LP02 | Light Pole Unit, Install Only | EA | 25 | \$ | \$ |
| LP03 | Light Pole Unit, Removal & Salvage | EA | 25 | \$ | \$ |

| Item | Item Description | Unit | Quantity | Unit Cost | Extension |
|------|--|------|----------|-----------|-----------|
| LP04 | Wood Pole Unit, Install Only | EA | 15 | \$ | \$ |
| LP05 | Wood Pole, Removal & Salvage | EA | 15 | \$ | \$ |
| LPN1 | Panel, Distribution | EA | 2 | \$ | \$ |
| LT01 | Light Tower, 110' or less | EA | 1 | \$ | \$ |
| LT02 | Light Tower, 111' or more | EA | 1 | \$ | \$ |
| LT03 | Light Tower, in Place, Clean and Paint | FT | 4000 | \$ | \$ |
| LT04 | Light Tower, Remove and Re-erect | EA | 2 | \$ | \$ |
| LT05 | Light Tower, Install Only | EA | 2 | \$ | \$ |
| LU01 | Luminaire, LED – 14K, Pole | EA | 100 | \$ | \$ |
| LU02 | Luminaire, LED – 28K, Pole | EA | 200 | \$ | \$ |
| LU03 | Luminaire, Pole, Install Only | EA | 20 | \$ | \$ |
| LU04 | Luminaire Shield, Pole | EA | 20 | \$ | \$ |
| LU05 | Luminaire, Keeper | EA | 100 | \$ | \$ |
| LU06 | Luminaire, Removal & Salvage | EA | 300 | \$ | \$ |
| LU07 | Luminaire, LED – 28K, Tower | EA | 50 | \$ | \$ |
| LU08 | Luminaire, LED – 50K, Tower | EA | 50 | \$ | \$ |

| Item | Item Description | Unit | Quantity | Unit Cost | Extension |
|------|--|------|----------|-----------------|-----------------|
| LU09 | Luminaire, LED – 65K, Tower | EA | 25 | \$ | \$ |
| LU10 | Luminaire, Tower, Install only | EA | 12 | \$ | \$ |
| LU11 | Luminaire Shield, Tower | EA | 12 | \$ | \$ |
| LU12 | Luminaire, Navigation, LED | EA | 10 | \$ | \$ |
| LU13 | Luminaire, LED, for Building Roof | EA | 6 | \$ | \$ |
| LU14 | Luminaire, LED, for Wall | EA | 10 | \$ | \$ |
| LU15 | Emergency Exit Light Fixture | EA | 10 | \$ | \$ |
| LU16 | Luminaire, LED, Underpass or Tunnel | EA | 30 | \$ | \$ |
| LW01 | Wash Hubbard’s Cave, Tiled Tunnel Walls | EA | 2 | \$ | \$ |
| PS01 | Pump, Vibration Testing and Analysis | EA | 100 | \$ | \$ |
| PVB1 | Budgetary Allowance for Pump Repair Services/Replacement | LS | 1 | \$500,000 ** | \$500,000 ** |
| PW01 | Wet Pit, Cleaning and Power Wash | SY | 500 | \$ | \$ |
| SDMS | DMS Sign Walk In Expressway | EA | 3 | \$ | \$ |
| SIAS | Inspection, Automatic Suppression System | EA | 2 | \$ | \$ |

| Item | Item Description | Unit | Quantity | Unit Cost | Extension |
|-------|---|------|----------|-----------------|-----------------|
| SUPS | UPS System, Inspection | EA | 1 | \$ | \$ |
| SVB1 | Budgetary Allowance For Homeland Security Gates | LS | 1 | \$150,000 ** | \$150,000 ** |
| SWP1 | Surveillance Watch & Protect | HR | 300 | \$ | \$ |
| TC01A | Full Actuated Controller in Type IV Cabinet | EA | 30 | \$ | \$ |
| TC01B | Full Actuated Controller in Type V Cabinet | EA | 1 | \$ | \$ |
| TC01C | Full Actuated Controller in Type IV Stretched Cabinet | EA | 2 | \$ | \$ |
| TC02A | Advanced Transportation Controller and Type IV Cabinet | EA | 1 | \$ | \$ |
| TC02B | Advanced Transportation Controller and Type IV Stretched Cabinet | EA | 1 | \$ | \$ |
| TC03 | Full Actuated Controller in Type IV or Type V Cabinet With RR Equipment and UPS | EA | 3 | \$ | \$ |
| TC04 | Full Actuated Controller | EA | 15 | \$ | \$ |
| TC05 | Install Existing Traffic Signal Controller | EA | 5 | \$ | \$ |
| TC06 | Install Existing Traffic Signal Controller and Cabinet | EA | 3 | \$ | \$ |
| TC07 | Controller and Cabinet Modification | EA | 5 | \$ | \$ |
| TC08 | Traffic Signal Master Controller | EA | 3 | \$ | \$ |

| Item | Item Description | Unit | Quantity | Unit Cost | Extension |
|------|---|------|----------|-----------|-----------|
| TC09 | Install Telephone Line and Modem | EA | 1 | \$ | \$ |
| TC10 | Install Updated Software or PROM Set at Existing Local or Master Controller | EA | 1 | \$ | \$ |
| TC11 | UPS System | EA | 10 | \$ | \$ |
| TC12 | Relocate or Install Existing UPS System | EA | 1 | \$ | \$ |
| TC13 | Cellular Communications System | EA | 10 | \$ | \$ |
| TD01 | Drill Existing Handhole | EA | 15 | \$ | \$ |
| TE01 | Electric Cable No. 14 2/C | FT | 3,000 | \$ | \$ |
| TE02 | Electric Cable No. 14 3/C | FT | 2,000 | \$ | \$ |
| TE03 | Electric Cable No. 14 5/C | FT | 5,000 | \$ | \$ |
| TE04 | Electric Cable No. 14 7/C | FT | 2,000 | \$ | \$ |
| TE05 | Electric Cable No. 14 7/C, Twisted Shielded | FT | 1,500 | \$ | \$ |
| TEC1 | Electric Cable in Conduit, Tracer No. 14, 1/C | FT | 2,000 | \$ | \$ |
| TEC2 | Electric Cable No. 14, 3/C, Railroad | FT | 500 | \$ | \$ |
| TF01 | Concrete Foundation, Type A | FT | 60 | \$ | \$ |
| TF02 | Concrete Foundation, Type D | FT | 4 | \$ | \$ |
| TF03 | Concrete Foundation, Type C | FT | 4 | \$ | \$ |

| Item | Item Description | Unit | Quantity | Unit Cost | Extension |
|------|---|------|----------|-----------|-----------|
| TF04 | Concrete Foundation, Type E 30-inch Diameter | FT | 60 | \$ | \$ |
| TF05 | Concrete Foundation, Type E 36-inch Diameter | FT | 60 | \$ | \$ |
| TF06 | Concrete Foundation, Type E 42-inch Diameter | FT | 60 | \$ | \$ |
| TF07 | Concrete Foundation, Rebuild/Modify, Type D | EA | 1 | \$ | \$ |
| TFB1 | Flashing Beacon, Post Mount, 1 Face | EA | 2 | \$ | \$ |
| TFB2 | Flashing Beacon, Solar, Post Mount, 1 Face | EA | 8 | \$ | \$ |
| TGS1 | Traffic Signal Additional Grounding and Electric Service Upgrade | EA | 3 | \$ | \$ |
| TGS2 | Electric Service Relocation | EA | 8 | \$ | \$ |
| TGS3 | Electric Service Installation, Ground Mounted | EA | 5 | \$ | \$ |
| TL01 | Inductive Loop Detector | EA | 250 | \$ | \$ |
| TL02 | Detector Loop | FT | 1,500 | \$ | \$ |
| TMA1 | Steel Mast Arm Assembly and Pole 40 ft or less | EA | 2 | \$ | \$ |
| TMA2 | Steel Mast Arm Assembly and Pole 40 ft or less | EA | 2 | \$ | \$ |
| TMA3 | Relocate or Install Existing Mast Arm Assembly and Pole from Contract Spare Parts | EA | 1 | \$ | \$ |

| Item | Item Description | Unit | Quantity | Unit Cost | Extension |
|------|---|------|----------|-----------|-----------|
| TPP1 | Pedestrian Push-Button Post, Galvanized Steel | EA | 3 | \$ | \$ |
| TPP2 | Pedestrian Push-Button Latching and Non-Latching | EA | 2 | \$ | \$ |
| TPP3 | Relocate Existing Pedestrian Push-Button | EA | 5 | \$ | \$ |
| TPP4 | Pedestrian Push-Button Accessible Pedestrian Signals (APS) Type | EA | 20 | \$ | \$ |
| TSB1 | Traffic Signal Backplate, Reflective | EA | 16 | \$ | \$ |
| TSD1 | LED Signal Display | EA | 15 | \$ | \$ |
| TSL1 | LED Signal Head, 3 Section | EA | 15 | \$ | \$ |
| TSL2 | LED Signal Head, 4 Section | EA | 5 | \$ | \$ |
| TSL3 | LED Signal Head, 5 Section | EA | 5 | \$ | \$ |
| TSL4 | LED Signal Head, Optically Programmed, 3 Section | EA | 2 | \$ | \$ |
| TSL5 | LED Signal Head, Optically Programmed, 5 Section | EA | 2 | \$ | \$ |
| TSL6 | LED Signal Face, Lens Cover | EA | 12 | \$ | \$ |
| TSL7 | LED Signal Face Visor Heater | EA | 12 | \$ | \$ |
| TSL8 | LED Pedestrian Signal Head, Countdown | EA | 16 | \$ | \$ |

| Item | Item Description | Unit | Quantity | Unit Cost | Extension |
|------|---|------|----------|-----------------|-----------------|
| TSL9 | LED Signal Face, Elongated Visor | EA | 10 | \$ | \$ |
| TSR1 | Remove Signal Section or Head | EA | 5 | \$ | \$ |
| TSR2 | Relocate or Install Existing Signal Section or Head | EA | 10 | \$ | \$ |
| TT01 | Span Wire Traffic Signal Installation with Electric Service and UPS | EA | 1 | \$ | \$ |
| TTP1 | Traffic Signal Post, 10 ft to 18 ft | EA | 10 | \$ | \$ |
| TTP2 | Remove Traffic Signal Post | EA | 5 | \$ | \$ |
| TTP3 | Remove Mast Arm Assembly and Pole | EA | 2 | \$ | \$ |
| TTP4 | Relocate Existing Traffic Signal Post, 10 ft to 18 ft | EA | 1 | \$ | \$ |
| TVB1 | Budgetary Allowance for Maintaining TS System Management & Communications | LS | 1 | \$250,000 ** | \$250,000 ** |
| TVD1 | Video Detection System, Complete Intersection | EA | 1 | \$ | \$ |
| TVD2 | Video Detection System, One Approach | EA | 6 | \$ | \$ |
| TVD3 | Video Detection System, Two Approach | EA | 2 | \$ | \$ |
| TWD1 | Radar Detection System, Complete Intersection | EA | 1 | \$ | \$ |

| Item | Item Description | Unit | Quantity | Unit Cost | Extension |
|------|--|------|----------|-----------|-----------|
| TWD2 | Radar Detection System, One Approach | EA | 1 | \$ | \$ |
| TWD3 | Radar Detection System, Two Approach | EA | 1 | \$ | \$ |
| TWI1 | Wireless Interconnect System | EA | 1 | \$ | \$ |
| TWI2 | Layer II (Datalink) Switch | EA | 75 | \$ | \$ |
| TWI3 | Layer III (Network) Switch | EA | 2 | \$ | \$ |
| TWI4 | Intersection Graphics Setup | EA | 75 | \$ | \$ |
| TWI5 | Relocate or Install Existing Cell Modem, Switch, PTZ Radar or Video Detection | EA | 10 | \$ | \$ |
| TWI6 | Relocate or Install Existing Visor Heater, Lens Cover, Backplate, Elongated Visor, or LED Signal Display | EA | 10 | \$ | \$ |
| TWI7 | PTZ Camera System Complete | EA | 2 | \$ | \$ |

**Budgetary Allowance, a fixed bid amount due to unknown work quantities or material items at the time of Contract development.

Routine Total: \$

Non-Routine Total: \$

Total Bid Contract 62W79: \$

ARTICLE 1.3 BIDDING INFORMATION

1. The undersigned bidder submits herewith, in accordance with the rules and instructions, a schedule of prices for the items of work for which bids are sought.
2. The Contractor, for specified unit prices listed under the Schedule of Prices, must conform to all requirements as specified herein these articles.
3. Each Pay Item must have a unit price and a total price (extension).
4. The unit prices bids are in U.S. dollars and cents.
5. The unit price must govern if no total price is shown or if there is a discrepancy between the product of the unit price multiplied by the quantity.
6. If a unit price is omitted, the total price will be divided by the quantity in order to establish a unit price.
7. A bid will be declared unacceptable if neither unit price nor a total price is shown.
8. The Department is under no obligation to authorize Non-Routine pay item work. Non-Routine work will be authorized based on preventive maintenance (PM) assessments, ongoing operational needs, and system inspections.
9. The quantities appearing in the bid schedule are approximate and are provided for obtaining a gross sum for the comparison of bids.
10. Payment to the Contractor awarded the Contract will be made only for actual quantities of work performed and accepted or materials furnished according to the Contract. The scheduled quantities of work to be done and materials to be furnished may be increased, decreased, or omitted.
11. The contractor's unit prices are expected to be realistic, and no additional compensation will be allowed due to a variance in quantities; however, the Engineer retains the right to seek a revised unit price when quantities exceed Department expected usage.
12. The Engineer also retains the right to use force account procedures or use other procurement means available to the Department where unit prices reflect pricing significantly higher than Department projected norms. The Contractor is cautioned against unbalanced bidding and is directed to Article 104.01 of the Standard Specifications.

**1.3.1 EXAMINATION OF PLANS, SPECIFICATIONS, SPECIAL PROVISIONS,
AND SITE OF WORK**

The prospective bidder must, before submitting his/her bid, carefully examine the proposal form, plans, specifications, special provisions and form of contract and bond. All locations to be maintained under this Contract may be inspected for the prospective bidder to become familiar with the equipment maintenance locations, all the local conditions affecting the Contract, and the detailed requirements of maintenance.

1.3.2 PROPOSAL GUARANTY

Each proposal must be accompanied by either a bid bond on the Department form, executed by a corporate surety company, satisfactory to the Department, or a bank cashier's check or a properly certified check for Seven Hundred Thousand Dollars (\$750,000) made payable to the Treasurer, State of Illinois. The proposal guaranty checks will be returned as prescribed in Section 10.3.03 of the Standard Specifications. Bid bonds will not be returned.

1.3.3 REQUIREMENT OF CONTRACT BOND

The successful bidder, at the time of execution of the Contract, must deposit with the Department a surety bond in the amount of twenty million dollars (\$20,000,000). The form of the bond must be acceptable to the Department.

1.3.4 INSURANCE

The Contractor must comply with the provisions of Section 107 of the Standard Specifications for Road and Bridge Construction, legal relations, and responsibility to the public. Insurance must be in compliance with the requirements of Article 107.27 except for liability minimum amounts as modified herein.

The Contractor's insurance must be written for not less than limits of liability as follows:

Employers Liability

| | |
|---------------|--------------|
| Each Accident | \$12,500,000 |
|---------------|--------------|

Commercial General Liability

| | |
|-------------------------|--------------|
| General Aggregate Limit | \$12,500,000 |
|-------------------------|--------------|

Products-Completed Operations

| | |
|-----------------------|--------------|
| Aggregate Limit | \$12,500,000 |
| Each Occurrence Limit | \$12,500,000 |

Commercial Automobile Liability Bodily Injury & Property Damage

| | |
|---------------------------------|--------------|
| Liability Limit Each Occurrence | \$12,500,000 |
|---------------------------------|--------------|

Umbrella Liability Refer to Art. 107.27

The Chicago Transit Authority and the Illinois Department of Transportation must be named as additional insured's and furnished with certificates of insurance and a full copy the insurance policy.

The customary exclusion that negates coverage when working within 50 feet of a railroad track must be eliminated from the Liability policy and the certificates submitted must plainly state that coverage extends to work being done on or over track right-of-way. The Contractor must carry a railroad protective insurance policy for the purpose of maintaining traffic signal facilities and appurtenances of railroad right-of-way (R.O.W.).

The policy must cover the Contractor's crews performing normal Routine Maintenance on traffic signal heads and other traffic signal related items attached directly to the railroad's truss or structure containing the railroad's warning devices. (This coverage is required for all existing locations with traffic signal heads attached directly to railroad structures, or with existing railroad interconnects.)

The Contractor must obtain railroad protective liability insurance coverage, to perform Non-Routine work relating to the installation of new traffic signal facilities on railroad R.O>W. where the Department has no existing appurtenances, e.g., railroad interconnect, railroad structure mounted traffic devices, etc.

The Contractor must provide insurance coverage for all EMC Spare Parts Inventory in the possession of the Contractor or in the EMC Spare Parts Warehouse or other specified areas, for losses due to fire, theft, or vandalism. Estimated value of current stock on hand is approximately \$500,000.

The Contractor must provide full insurance coverage as described in the above items until all Routine and authorized Non-Routine work has been completed in accordance with the terms of this Contract.

The Contractor must submit original and duplicate copies of all insurance policies when requested by the Engineer. The complete policies, with all riders, etc., must be submitted.

1.3.5 INDEMNIFICATION

The Contractor must abide to the requirements of 107.26 Indemnification, per the Standard Specifications for Road and Bridge Construction.

1.3.6 QUALIFICATIONS TO BID

It is the intent of this Contract that it be performed only by a contractor having the size, special expertise, and organizational capabilities necessary to accomplish its wide-ranging scope of work. The prospective bidder should familiarize himself with all aspects of the Contract prior to bidding.

All bidders must be pre-approved, by the IDOT Central Bureau of Operations, prior to bidding upon the District 1 Electrical Maintenance Contract. In addition, a Special Qualification submittal is required of all bidders at the mandatory Pre-Bid Meeting.

ARTICLE 1.4 MANDATORY PRE-BID MEETING

A mandatory Pre-Bid Meeting will be conducted for bidders to receive a packet of additional charts, data, and specifications as part of the Contract to assist in the bidding process, and to submit the Bidder's Special Qualifications requirements. Only those bidders who submit the Bidder's Special Qualifications submittal will receive this additional Contract information.

The Pre-Bid Meeting will be held at 10:30AM, Thursday, August 29, 2024, at:

Illinois Department of Transportation

Lower-Level Classroom

201 West Center Court

Schaumburg, IL 60196-1096

The Pre-Bid Meeting attendance is mandatory for all prospective bidders.

Copies of Contract 62W79 will not be available at the mandatory Pre-Bid Meeting. The Contract may be printed from the Illinois Department of Transportation website.

Although Department personnel will not answer questions at the Pre-Bid Meeting, each prospective bidder may submit a list of questions. The Department will allow each prospective bidder one representative who may read the questions out loud for the other prospective bidders in attendance. The department may or may not answer the questions in an Addendum. Questions may also be submitted on the Illinois Department of Transportation website for Contract 62W79, and these will be answered on the website.

The Department also welcomes the prospective bidders to submit a list of possible missing information or possible errors in the Contract. These items would be addressed, as necessary, in an Addendum.

1.4.1 BIDDERS' SPECIAL QUALIFICATIONS SUBMITTAL

The required submittal information is listed in points 1 through 10, as applicable to Contract article specifications herein.

The Special Bidder's Qualifications Submittal must be presented to the Bureau Chief of Traffic Operations or his/her representative at the conclusion of the mandatory Pre0Bid Meeting.

The Special Qualifications submittal must include:

1. Name of the bidding company and its owners and/or officers.
2. An organizational chart that illustrates the structure of the organization, and meets personnel requirements as stated herein Article 3.3.
3. Resumes of the EMC Project Manager, each System Manager, and the designated Railroad Specialist (RR expertise) must be provided to support their position qualifications.
4. Location address, square footage, and photos of:
 - Bidder's Current Headquarters
 - Proposed EMC Office
 - Proposed EMC Dispatch Center
 - Proposed Shop Facilities
5. The name of the proposed Fleet Management software for this Contract and details of its operations to meet the Contract requirements herein.
6. A report which provides the number and types of maintenance/construction equipment currently owned or leased by the bidder and quantity and name of additional equipment to be purchased or leased for work on this Contract.

7. A report which summarizes the number and types of maintenance/construction equipment currently owned or leased by the bidder and quantity and name of additional equipment to be purchased or leased for work on this Contract.
8. A report which details the bidder's familiarity and capability in installing and maintaining CCTV and video distribution systems.
9. A report which describes the bidder's familiarity with Allen-Bradley PLC equipment and troubleshooting of ladder logic used in REVLAC system.
10. A report which describes the bidder's work on fiber optic systems.
11. A copy of the Contractor's confined space entry policy which must be in full compliance with all OSHA requirements for the duration of the Contract.

1.4.2 COVERSHEET

The coversheet of the Bidders' Special Qualifications Submittal must be signed by an official of the Company with signature authority, and the proposed EMC Project Manager and must contain a statement that each has read the Contract and understands the method of payment for work as described herein and that the Special Qualification information submitted is accurate and truthful.

1.4.3 RECEIPT AND ANALYSIS OF SUBMITTAL

All bidders who submit a Bidders' Special Qualifications Submittal, in person, at the time of the Pre-Bid Meeting official conclusion (the time as such to be recorded on the meeting sign-in sheet) will be furnished with a receipt which states that the Special Bidder Qualifications submittal was received within the required time deadline.

The submitted information will be analyzed and, if requested by the Department, the prospective bidder must facilitate an inspection of its facilities and/or equipment. The Department must determine the aggregate suitability and acceptability of the qualification information submitted.

If it is determined that a prospective bidder is qualified to perform the work, the Department will notify the bidder through the Illinois Department of Transportation website stating they are approved to bid on the Electrical Maintenance Contract 62W79.

1.4.4 SITE INSPECTIONS

After the conclusion of the Pre-Bid Meeting, a Department representative will meet with all representatives of each prospective bidder / Contractor who submitted a Special Bidder's Qualifications Submittal, to determine the bidder's desired site inspections, and a preferred date of inspection. Bidders are expected to be familiar with the type and extent of the systems covered under the Contract.

Once a preferred date and time have been scheduled, the inspection will proceed as determined. No exception or deviation will be allowed.

ARTICLE 2.0 BASIC CONTRACT REQUIREMENTS AND ADMINISTRATION

2.1 BIDDING

Unless labor, equipment, or material purchase, is specifically noted herein as paid through Non-Routine Maintenance, Article 2.0 Basic Contract Requirements and Administration work must be paid through, is part of, and is included in Routine Maintenance bid items.

The list of locations and description of equipment/items provided herein each System and Section 3 are for bidding purposes only. Actual quantities of locations with equipment to be maintained is the responsibility of the Contractor as of January 1, 2025. The Contractor will be provided with a hard copy list of current locations to be maintained as of January 1, 2025.

2.2 TERM

The Contract must be valid for operations from 12:00 AM on January 1, 2025, through 11:59 PM (midnight) on December 31, 2025.

The Contractor must assure the Department that at 12:00 AM on January 1, 2025, the maintenance transfer is complete and transparent to the public, that the District's electrical systems remain continuously monitored, maintained, and fully operational.

All authorized Routine and Non-Routine contract work must be completed within each calendar year including but not limited to:

- Completion of work submitted documentation, Department approval of work, and invoicing of all Routine and Non-Routine work.
- Approval of all EMCMS entry data and reports
- Confirmation of maintenance status of all IDOT owned locations.
- Completion, submittal, and Department approval of all Preventive Maintenance Reports
- Submittal and Department approval of all certified payroll and EMCMS systems work reports.
- Submittal and Department approval of all DBE/EEO reports

2.3 START-UP

Once the Contract is executed and the pre-construction submittals have been approved, the Contractor must begin preparations to assume Routine and Non-Routine Maintenance responsibilities as specified herein. Preparatory work, including development of traffic signal patrol routes, transfer of contract spare parts inventory, purchase of materials for Routine Maintenance repairs, transfer of SCADA equipment, transfer of alarm receivers, and EMCMS equipment installation in the Contractor Dispatch, EMC Office, and other areas is required.

The Contractor must inspect all locations to assure continued maintenance and operation of all systems specified in this Contract as of January 1, 2025. The contractor must be given access to all locations for inspection after the Pre-Construction Meeting, as arranged with the Engineer. The Contractor must provide the Engineer a punch item list of items needing repair or replacement, and/or outstanding maintenance issues, per the view of the incoming Contractor, prior to January 1, 2025, however, the Contractor is obligated to maintain all equipment, including the punch list items, as of January 1, 2025. The Department must review all items on the punch list and respond in an equitable manner, authorizing repair or replacement work viewed as necessary.

The Contractor must prepare their required secure and locked facility storage areas for delivery during the last half of December 2024 for Department owned contract spare parts not stored in the EMC Contract Spare Parts Storage Facility. The incoming Contractor must arrange the transfer with the outgoing Contractor, which must be supervised by Department personnel. Refer to Article 2.6.5 EMC Spare Parts Special Storage Facility/Area.

Refer to System Articles Herein for:

- Lock and Key Purchase and Replacement Requirements
- Contractor Owned Spare Parts Procurement Prior to Start of Contract

2.4 CONTINUATION OF CONTRACT

The Department of Transportation may elect to lengthen the completion of this contract for up to two additional terms, at one year interval, under the same terms, conditions, and unit prices, upon written agreement of both the Department and the Contractor.

If the Department elects to exercise this provision, the Department will notify the Contractor in writing. The Contractor must provide the Department with written notice of their concurrence within 30 calendar days following receipt of the Department's request.

The original Contract term and the continuation term must be considered independent with respect to completion of work, payment, and withholding of payment as well as all associated work documentation.

The first continuation would extend the Contract for one additional term from 12:00 AM January 1, 2026, through 11:59 PM (midnight) December 31, 2026, per all revisions or amendments as defined. The second continuation would extend the Contract for one additional term from 12:00 AM January 1, 2027, through 11:59 PM (midnight) December 31, 2027, per all revisions or amendments as defined. The Contract must be terminated and closed December 31, 2027.

Upon notification of the contract continuation date by the Department, the Contractor must complete and submit IDOT's contract continuation form within fifteen (15) days of notification, together with documentation of the contract bond extension and copies of the required insurance policies for the continuation year as well as any other documentation required by the Department. Submittals required will be found on the Illinois Department of Transportation website.

If the Contract is continued, the Department must make the effort, if circumstances allow, to re-authorize in the continuation year, any work items cancelled from the prior contract year.

2.5 END / TRANSITION

It is the obligation of the Contractor to cooperate fully to facilitate the transition from this Contract to any subsequent contract, and other transfers as noted herein. The Department will withhold the last Routine Maintenance monthly payment, or portion thereof, until the Engineer is satisfied that all work and documentation due the Department is completed, submitted, and approved.

2.5.1 LOCK AND KEY TRANSFER

On the last day of the Contract termination year the outgoing Contractor must make arrangements to submit to the Engineer all keys to IDOT System equipment, including alarm keys and keys to traffic signal cabinets, railroad cabinets, lighting cabinets, high mast towers, pump station gates, doors and hatches, base station fences and doors, navigational lighting equipment (including I-55 & Harlem Avenue bridge) and IDOT ramp gate keys, REVLAC, communication towers, special anti-theft locking devices coded key nut drivers and huts keys. All existing, replacement and/or new locks added to the electrical systems during the Contract become the property of the Department. The Contractor must relinquish to the Department any key boxes with all keys labeled with corresponding index book.

2.5.2 SPARE PARTS TRANSFER

During the last half of December 2025, (or other date if this Contract is not Continued or cancelled) the Department owned contract spare parts not stored in the EMC Contract spare Parts Storage Facility (warehouse) or any other spare parts owned by the Department in the possession of the outgoing Contractor must be delivered to the incoming Contractor upon an agreed date, to locked and secure storage areas as approved by the Engineer, and as supervised by Department personnel.

The Contractor owned spare parts must be used for contract work for the remaining days of the term of the Contract. The Contractor must replace missing Department owned contract spare parts in kind due to damage or loss caused by any reason.

2.5.3 DOCUMENTATION TRANSFER

During the last weeks of December 2025, (or other date if this contract is not continued or cancelled) the Contractor must meet with the Engineer and decide which EMC Documentation from years 2025 through 2026 must be made available to the upcoming Contractor. Items which must be transferred include Monthly Pay Meeting Agendas with Ticket reporting, MCHD Collection reports, and other spreadsheets, forms, and logs developed during the Contract which are not on the EMCMS.

2.6 CONTRACTOR FACILITIES

Required Contractor facilities within District 1, for the duration of this Contract, must include facilities available for access or operations 24/7:

- EMC Office
(may be in Contractor Headquarters or another Contractor Facility)
- EMC Dispatch Center (a 24/7 operation)
(may be in Contractor Headquarters or another Contractor Facility)
- EMC Equipment Service Shop (or area)
- EMC Spare Parts Storage Facility (leased warehouse space)
- EMC Spare Parts Special Storage Facility/Areas
(Area of EMC Office or in another Contractor Facility)

Each facility must be approved by the Engineer prior to the Pre-Construction Meeting. The required facilities may be in separate locations but must be permanent structures. All facilities must meet OSHA requirements and State of Illinois safety and building codes. Refer to specific requirements for each required facility/area within this Article.

The Contractor may have other facilities for Contract work, if approved by the Engineer, geographically located as to support timely maintenance operations, and meet one-hour arrival times for incident response.

The Contractor must provide insurance coverage for losses due to fire, theft, or vandalism for all Department owned contract spare parts inventory in the possession of the Contractor at all times, including the approved/designated EMC Spare Parts Storage Facility, the EMC Spare Parts Storage Facility/Area for Items Needing Special Handling, or other storage location. Estimated value of current EMC spare parts on hand is approximately \$500,000.

All Contractor owned or leased facilities must be available for a demonstration/inspection by the Department no later than December 15, 2024, with equipment ready for the January 1, 2025 start of operations.

The Contractor must comply with the instructions given by the Engineer relating to the care, storage, and labeling of EMC Spare Parts inventory for identification purposes. The Engineer must be allowed access to inspect the spare parts inventory at all storage and facility locations at any time.

2.6.1 EMC OFFICE

This EMC Office may be a satellite office remote from the Contractor's headquarters, or it may be a singular and clearly defined section within the Contractor's in-District headquarters. To facilitate communication and shared interest in contract matters, the contract management and technical/administrative functions as defined herein and represented in the Contractor's organization chart must not be dispersed throughout various areas of the Contractor's operations but must be established here as an identifiable group with dedicated physical space. This office should be located within the confines of IDOT district one jurisdiction.

The EMC Office must be equipped by the Contractor with adequate lighting, voice, and data communications lines, latest Microsoft computer operating system, adequate printers, internet access, EMCMS access, and ability to establish private network (VPN) to the Department's private network.

2.6.2 EMC DISPATCH CENTER

The EMC Dispatch Center, a 24/7 facility operation must be used for all EMC dispatching functions. Multiple dispatching locations are not allowed in this Contract. It must be adequately equipped and staffed to service the EMC on a first-priority basis. (The dispatching function cannot be sub-contracted, use voicemail or answering services.)

The Dispatch Center must have desks and chairs for dispatch personnel, must be equipped with adequate lighting, voice and data communications lines. Other items include windows 11 computers, printers, internet access, and ability to establish a virtual connection (VPN) to a secured network.

The equipment listed below must be in the Dispatch Center unless another location is approved by the Engineer. The Dispatch Center personnel must have ability to monitor/use/clear and provide accurate data entry for:

- System Alarms, including REVLAC alarm screens.
- CLMS for traffic signals
- EMCMS
- SCADA systems (Pump Stations and Lighting)
- RACS
- SolarWinds
- 360VDS monitoring.
- CCTV operations
- Other equipment monitoring

The space must be suitably equipped to protect system electronic equipment. The designated space must have a HVAC system, air cleaner, emergency lighting, fire detection and smoke detection systems. An on-line (true) UPS system is required to provide clean power and back-up electrical power for all dispatch electronic equipment for a minimum of eight (8) hours.

Proper rack(s) for all computer equipment must be furnished, which must be a minimum of eighteen (18) inches above floor level. The space must be kept at a temperature optimum for proper performance of the required electronic equipment, and free of dust and/or other contaminants.

2.6.3 EQUIPMENT SERVICE SHOP

The Contractor must have a facility for the testing and repair of traffic signal controllers under this Contract, which must be adequately equipped with instruments, test rigs and tools necessary for the work which includes a minimum of, but not limited to, 100 controllers, 1230 MMU and auxiliary failures a year, on electrical-mechanical, solid-state analog, solid state digital, and microprocessor equipment.

2.6.4 EMC SPARE PARTS STORAGE FACILITY

To facilitate security and inventory control of Department owned large equipment and spare parts for use on this contract, the Contractor must contract with a commercial bonded warehouse for storage and services, for a minimum of 7,000 square feet.

Currently Combined Warehouse Co., 5000 South Central, Chicago, Illinois, 60638 (hereafter referred to as the EMC Spare Parts Storage Facility) is in use.

The Contractor must have the option of retaining storage at Combined Warehouse Co. or providing an alternate commercial bonded warehouse which is suitable for storage of materials of the type used for the District's electrical maintenance and meets the space and facility requirements of the in-use EMC Spare Parts Storage Facility.

The EMC Spare Parts Storage Facility must be centrally located to the District's major concentration of systems and located within the boundaries of Devon Avenue on the north, 63rd Street on the south, Cicero Avenue on the east, and I-355 on the west.

The storage contract/arrangements must include service for 24/7 security, 24/7 access to on-site equipment and warehouse labor to access any stored item, all warehouse material handling fees, and a mechanism for formal check-in and checkout of materials. The inventory management must include computerized record keeping of all inventories and all transactions, including regular monthly reports and occasional reports, on demand by the Engineer.

The Engineer must approve of the designated EMC Contract Spare Parts Storage Facility prior to its contract/leasing arrangements. If the Contractor chooses to move the Department's spare parts from their current storage at Combined Warehouse Co., the contractor is responsible for all moving costs, including all labor, transport vehicles, new racks/storage equipment, security during the move, and incidental expenses.

Once accepted by the Engineer, any change in the facility or its storage requirements for the duration of the Contract must require approval of the Engineer and the Contractor will be responsible moving costs as noted in above paragraph.

The Contractor is responsible for the purchase and installation of all necessary equipment for the proper storage (per manufacturer's specifications) of the EMC spare parts, including but not limited to fencing, racks, cages, crates, locks and keys, identification labels, etc.

If the Engineer requests additional warehouse storage space, the Contractor must be reimbursed through Non-Routine Maintenance at the same rate per square foot as the approved EMC Spare Parts Storage Facility.

2.6.5 EMC SPARE PARTS SPECIAL STORAGE FACILITY/AREA

In addition to the designated EMC Spare Parts Storage Facility, the Contractor must have an EMC Spare Parts Special Storage Facility/Area, both indoor and outdoor, for Department owned items needing special handling.

The Contractor must obtain Engineer approval for these designated facilities/areas, some of which may be located at the Contractor's EMC office or Dispatch Center or at Department owned facilities. Once approved, the Engineer may direct the Contractor as to a specific location for storage of certain EMC Spare Parts needing special handling.

The Contractor is responsible for the purchase and installation of all necessary equipment for the proper storage (per manufacturer's specifications) of the EMC special spare parts, including but not limited to fencing, racks, cages, locks and keys, identification labels, etc.

Engineer approved outdoor storage locations of EMC Spare Parts needing special handling must be kept screened or fenced, with locked access, and must be clearly identified as Department owned and be physically separated from the storage of any Contractor-owned materials and equipment.

Although there is not 24/7 access, there are currently EMC Spare Parts needing special handling (example: wood poles) stored at Department Maintenance Yards. The Department will furnish, at the Pre-Bid Meeting, a list of current Department owned maintenance areas currently used as EMC Spare Parts outdoor storage areas.

Engineer approved indoor storage locations of EMC Spare Parts needing special handling such as controllers and traffic signal heads, REVLAC and Homeland Security gates, cameras and their appurtenances, expensive components, and anything which comes boxed or which could deteriorate or be damaged by exposure to the weather must be stored indoors in a secure patrolled area, in a locked cage with sturdy racks and/or proper shelving, environmentally controlled; a clean environment suitable for storage of network switches, CCTV, and other electronic equipment items needing special regulated temperatures. The Department will furnish, at the Pre-Bid Meeting, a list of the square footage of the current indoor EMC Spare Parts Special Storage Facility/Areas.

2.7 CONTRACTOR PERFORMANCE OF WORK

For the Contractor's forces employed on this Contract, the work on this Contract must take precedence over work performed for others, including other government agencies, except as expressly permitted by the Engineer or specified herein. This requirement applies to work activities daily. The Engineer reserves the authority to re-direct the Contractor's work priorities in response to emergency situations, potential hazards, contract coordination and incomplete or deficient work and the Contractor will be allowed no additional compensation for priorities so redirected.

2.7.1 SUSPENSION OF WORK

If the Department determines that work being performed on this Contract may seriously jeopardize the welfare of the traveling public, the Engineer has the authority to order the immediate suspension of the work task. Depending on the offense, the engineer may assess liquidated damages.

2.7.2 UNSATISFACTORY WORK

Failure to perform all work and its documentation, Routine, or Non-Routine work, in the manner specified herein or in the Standard Specifications, and within the time limit specified will result in the issuance of an Unsatisfactory Service notification. The Engineer will advise the Contractor via e-mail or written transmittal regarding the nature of the Unsatisfactory Service. The Contractor must take necessary action to correct the items listed and must respond back to the Engineer within five (5) working days from the time of receipt of the notification, explaining the reasons for the improper service and the expected date of the resolution of the listed problems.

If there is no resolution of the listed problems within ten (10) days, the Engineer may withhold all or a portion of the next monthly Routine Maintenance payment due to the Contractor until on-going work meets Contract specifications or work completed by the Contractor meets Contract specifications and is approved by the Engineer.

If there is no resolution of the listed problems within thirty (30) days, the Engineer may authorize a new (3rd Party) vendor or contractor to correctly perform and/or complete the work to Contract specifications. The Engineer must deduct from the Contractor monthly Routine Maintenance payment as liquidated damages a 3rd Party contractor/vendor invoice.

2.7.3 LIQUIDATED DAMAGES

Depending on the severity of the Unsatisfactory Work, the Engineer may charge liquidated damages in addition to withholding the monthly Routine Maintenance payment. The Engineer may assess liquidated damages, to be deducted from the Contractor's monthly Routine Maintenance payment, for any items not in compliance of the Contract, unless the Contractor can demonstrate to the satisfaction of the Engineer, that his/her efforts were deterred by the Department, or by other contractors employed by the Department or by unforeseeable causes beyond his control and without the fault or negligence of the Contractor.

Liquidated Damage Assessment:

| PER INCIDENT | PER CONTRACT SPECIFICATIONS |
|---------------------|--|
| \$ 10,000.00 | IMPROPER/DEFICIENT TRAFFIC CONTROL |
| \$ 5,000.00 | FAILURE TO RESPOND, PER TICKET OR PER ENGINEER DIRECTION |
| \$ 5,000.00 | FAILURE TO RESPOND PER TIME SPECIFICATIONS (refer to System Articles herein) |
| \$ 5,500.00 | FAILURE TO PROVIDE TIMELY ROUTINE REPAIRS AND/OR MEET NON-ROUTINE WORK DUE DATES |
| \$ 5,500.00 | FAILURE TO PROVIDE DOCUMENTATION (QUOTES, BREAKDOWN OF WORK PERFORMED, VENDOR PAID INVOICE, TICKET INFORMATION, REPORTS, SUBMITTALS FOR ROUTINE OR NON-ROUTINE WORK) |
| \$ 5,500.00 | FAILURE TO ACCURATELY DOCUMENT MAINTENANCE STATUS OF IDOT OWNED LOCATIONS |
| \$ 3,000.00 | FAILURE TO PATROL ASSIGNED LOCATIONS |
| \$ 3,000.00 | FAILURE TO SUPPLY REPLACEMENT PARTS |
| \$ 3,000.00 | FAILURE TO FOLLOW SPECIFIED PROCEDURES |
| \$ 5,000.00 | FAILURE TO PROVIDE PROPER STAFFING OR EQUIPMENT |
| \$ 3,500.00 | IMPROPER USE OF MATERIALS |
| \$ 10,000.00 | FAILURE TO RETURN CONTRACT SPARE PARTS AT END OF CONTRACT |
| | |

2.8 CANCELLATION

Only the Department may cancel the Contract. The Department may take possession of the incomplete work and all materials purchased under this Contract, for any reason which the Engineer deems to be in the public interest and this decision must be final. Depending on the severity of the incident or Unsatisfactory Work and Department actions taken, the Contractor will be given 30 to 90 days advance notice of cancellation of this Contract.

In the event of cancellation, the Contractor must be entitled to receive payment for services and work performed and materials or equipment furnished under the terms of the Contract prior to the effective date of cancellation but must not be entitled to receive any damages on account of such cancellation or any further payment whatsoever. There must be no payment for incomplete work. Articles 2.5, 2.5.1, 2.5.2, and 2.5.3 must also apply to the cancellation of the Contract.

Upon the receipt of a notice of cancellation, the Contractor must immediately provide the Engineer a transfer date for the return of all EMC Spare Parts inventory in the Contractor's possession.

2.9 CONTRACTOR ADVISORY REPORT

The Contractor must identify system elements which have become prone to recurring or imminent failure, which pose a significant liability or a safety risk, and recommend replacement or repair by submitting an advisory inspection report.

The Engineer must review and respond to the Contractor regarding the advisory report and reserves the right to determine a course of action to rectify any identified condition. If the Engineer concurs with the Contractor's basic recommendations, a Non-Routine authorization will be issued for the material portion of the repair, and this will reduce the Contractor's Routine Maintenance obligation to the labor necessary to replace the deteriorated system element. Should the Engineer determine, however, that a deteriorated condition is due to neglectful maintenance on the part of this Contractor; all remedial work, including necessary materials, must be performed as Routine Maintenance.

Also repair of damage from weather-related failures of electric utility systems, broken aerial electrical lines, or damage from deteriorated electric utility systems which have been observed and reported by the Contractor to the utility and the Engineer, prior to the occurrence of damage, may also be eligible for payment subject to approval of the Engineer. Engineer approval of the work will be based on adequate contractor repair response, proper advisory inspection report documentation, and the substantiated link to a weather-related failure.

In the absence of an advisory inspection report received and acknowledged by the Engineer, if system elements fail or are observed by the Engineer to be causing recurring failures or imminent safety hazards, then the Contractor is obligated for the full cost of replacement or repair under Routine Maintenance. Such obligation is not limited only to individual components but may extend to the multiples of components at a location(s).

The Contractor must list these items on the Monthly System Agenda until a solution and date resolved is obtained, or the Engineer reports to the Contractor that the item will be maintained as found/as exists.

The Department acknowledges that in this Contract there is equipment which, due to age, may be difficult to properly maintain and/or parts and materials may be difficult to obtain. The Department will actively pursue remedies for replacement of this equipment.

2.10 SUBCONTRACTING OF WORK

2.10.1 GENERAL REQUIREMENTS

The Contractor must obtain approval from the Engineer for employment of all subcontractors performing work on this Contract, prior to the commencement of work. Except as modified herein, subcontracting of the contract work must be in conformance with the requirements of the Standard Specifications and Supplements and Recurring Special Provisions.

Submittals required for Subcontractor approvals may be found on the Illinois Department of Transportation website. At the time of Contract development, a form BC260A for each subcontractor is required, plus DBE requirements of a Disadvantage Business Utilization Plan on form SBE 2026 and a DBE participation Commitment Statement of Department form SBE 2025.

The Engineer must receive paper copies of all submittals, made to Illinois Department of Transportation personnel in Springfield or District 1 Headquarters.

2.10.2 SUBCONTRACTING LIMITATIONS

In addition to the limitations imposed by the Standard Specifications, there must not be wholesale subcontracting of the herein defined electrical systems except for Article 11.0 Various Equipment at Various Locations. The Contractor must perform not less than 51% of the maintenance of each electrical system (Lighting System, Pump Station System, Surveillance System, and Traffic Signal System) with his/her own forces. Work that depends on a dispersed workforce and timely response activities must not be subcontracted.

There must not be geographically based subcontracting of the work, e.g., by north Cook County or by south Cook County, etc. Furthermore, the Contractor's daily management and supervision for each system and all administrative functions and dispatching, must be done with his own forces.

Work which is subcontracted must not include work which is in turn subcontracted to an additional party. Subcontracted work must be limited to work performed by the subcontractors' own forces.

The IDOT System Engineer must be notified any time a subcontractor or worker from any company other than the Contractor Parent Company performs work covered under the EMC Contract. This includes work performed by workers who are employed by a direct subsidiary of the parent company.

2.10.3 SUBCONTRACTOR BILLING

For Non-Routine Agreed Price Work (not pay items) performed by an approved subcontractor as named on the authorization for work, the Contractor must be allowed administrative costs of an amount equal to five (5) percent of the total approved costs of an individual work authorization.

Specialty service/vendor work as authorized and originated by the Department must be considered as work by the Contractor, and not subcontracted work for purposes of billing.

2.11 CONTRACTOR AND DEPARTMENT INTERACTION

The District 1 Electrical Maintenance Contract is a Formal Contract with the Illinois Department of Transportation. The personnel working on the EMC, both Contractor and Department, must oversee hundreds of unique, one of a kind, maintenance issues each year. There must be an environment of mutual trust, a commitment to shared goals and open communication among all personnel. There are times where open, non-critical discussions are needed regarding Contract requirements herein. Every person working on this Contract must respect each other's views without raising anger.

Assumptions of Contract language should not be made. Clear understanding of every task is required. If the Contractor is dissatisfied with a decision and wants further review, it must follow the correct chain of command. A Department's System Manager decision may be reviewed by the Engineer, then reviewed by the Bureau Chief of Traffic Operations, and then, and only then elevated to the District 1 Engineer.

Starting with the Pre-Construction Meeting, open discussions will be held as necessary. It is a goal to solve issues to everyone's mutual satisfaction.

2.12 CONTRACTOR AND DEPARTMENT CORRESPONDENCE

2.12.1 CONTRACT ADMINISTRATION

The EMC will be administered by the IDOT District 1 Bureau of Traffic Operations. The appointed Resident Engineer herein specified as “the Engineer” will be responsible for the control of the work. The Contractor Project Supervisors/Foreman and Administrative personnel must normally communicate with the IDOT System Engineers and Technicians. All email and text correspondence from IDOT EMC personnel must be promptly answered by EMC personnel.

The Contractor must address all matters of Contract interpretation or dispute at the lowest possible level. Issues which are not addressed to the Contractor’s satisfaction at the Engineer/Technician level may be raised first to the IDOT Resident Engineer level and if not resolved may be raised to the level of Bureau Chief of Traffic Operations.

It is of utmost importance that the Contract Project Manager conveys to the IDOT Resident Engineer any concerns regarding work authorizations received from the Department. Whether it is Routine or Non-Routine maintenance work, if the Contractor has questions about the location of the work, the work completion dates, quantities of estimated materials, etc., these concerns must be voiced immediately upon the receipt of the project, so the work may start as soon as possible.

The names of the Department personnel will be given at the Pre-Bid Meeting and Pre-Construction Meeting.

2.12.2 FORMAL CORRESPONDENCE

All formal correspondence to IDOT regarding contractual matters must only be submitted by the Principal or Project Manager.

2.12.3 INFORMAL CORRESPONDENCE

Informal correspondence related to day-to-day maintenance matters must be made by means of email or text and may be made directly to the parties involved. Contractor personnel must reply to Department personnel email requests for answers, regardless as to their status within the Department. The names of the Department personnel who will normally be corresponding with Contractor employees will be presented at the Pre-Construction Meeting.

2.12.4 FILE TRANSFER PROTOCOL

The Contractor must furnish and install an FTP server to transmit and receive files to IDOT Engineers and Technicians through a secure access, and it must be available 24/7. All documentation must be converted to electronic files in a format approved by the Engineer. The files must be accessible and in a format that allows modification on Excel, Word or as approved by the Engineer.

The FTP site must have an Engineer approved filing system. The format of the Contract's filing system will be provided prior to the start of any work. The Contractor must store and maintain on the FTP all EMC reports, spreadsheets, pictures, authorizations, quotes, DBE and sub-contractor reports, Contractor, and vendor invoices with backup documentation such as GB sheets and GPS reports, submittals, and documentation. A copy of the drive with all documentation must be provided to the IDOT Engineer at the end of each Contract year. The Engineer will provide a list of all personnel who will need passwords for the FTP site.

2.13 CONTRACT MEETINGS

Meetings to discuss Contract work are held as necessary, however, once per month the Contractor and Department personnel will meet to discuss System issues (Monthly System Meeting) and overall Contract issues (Monthly Pay Meeting).

Each Monthly System Meeting will be held in person, if possible, with the EMC System Manager attending. The Contractor must furnish an Agenda for each Monthly System Meeting at a minimum of one (1) day before the Meeting. The Engineer may email issues to be included on the Monthly System Meeting(s).

The Monthly Pay Meeting will be held in person, if possible, with the EMC Project Manager in attendance. The Contractor will furnish an Agenda for the Monthly Pay Meeting; however, the Engineer may email issues to be included on the Agenda. The format for the Agenda will be available at the Pre-Bid Meeting. The contractor will deliver the Monthly Master Authorizations and Invoices by the date of the scheduled Monthly Pay Meeting. Currently meetings are held on the third Thursday of the month, but the schedule for the year will be agreed upon at the Pre-Construction Meeting.

Contractor Administrative personnel must take minutes of all System and Pay Meetings, in the form of subject bullets with a date due if applicable, and name of person responsible for completion. All minutes will be sent to the Engineer for approval within three (3) days of the conclusion of the meetings. Only when the meeting minutes are approved, with Engineer digital signature, will the Contractor load the meeting minutes on the FTP site.

2.14 DAILY WORK AGENDA

The scheduling of daily work must be a responsibility of the Contractor but governed by established schedules and/or authorized work completion dates. The Engineer must provide the contractor a list of the personnel who must receive an email copy of the Daily Agenda.

The contractor must create the Daily Agenda which must account for all scheduled work to be performed on system equipment in the next twenty-four hours; the Patrol information, Ticket or Cable Locate number or PM Program/Contract Article number as applicable, the name of the Contractor or Sub-Contractor personnel assigned the work, and for EEO reporting, the identification of the Contractor's female employees.

The Daily Agenda must be received by IDOT personnel through email by 8:30 AM on weekdays or by 2:30 PM on Fridays when weekend work is scheduled. If work assignments change during the day, the EMCMS must be revised, and emails re-sent.

When work is not completed which was listed on a day's Daily Agenda, it must be noted as such on the next day's Daily Agenda.

2.15 ADMINISTRATION RESPONSIBILITIES OF REQUIRED MONTHLY REPORTS

This Contract requires substantial documentation of work, both general items and specific system work. The Contractor must create most documents through the EMCMS or an Excel Spreadsheet. No use of Word Documents is allowed for monthly report submittals. The EMC Administration Manager is responsible for all monthly reporting. Below is the list of required general monthly reports, in alphabetical order, which are normally created by the Contractor's Administrative staff. Refer to System Articles herein for other required monthly reports.

2.15.1 ASSET INVENTORY REPORTS

The Contractor is required to keep Asset reports of Department owned equipment at locations maintained through the EMC. Each System has a separate and unique Asset Inventory. All Asset Reports will be kept on Excel Spreadsheets. Each month the Contractor must list parts and equipment removed, (scrapped or sent to inventory) or parts and equipment installed (new or from EMC Spare Parts) or from parts or equipment required to be supplied through Routine maintenance from Contractor supplied equipment. The EMC System Managers and appointed IDOT System Engineers/Technicians must sign and approve the monthly reports.

2.15.2 AUTHORIZATIONS AND INVOICING

The work process and printing of the EMCMS Monthly Routine Authorization and invoice and the two (2) EMCMS Monthly Master Authorizations and Invoices for Non-Routine work (TS and TSC) is discussed in Article 6.0 herein.

2.15.3 CERTIFIED PAYROLL

All Certified Monthly Payrolls, including Subcontractor Payroll will be submitted via the IDOT SharePoint site and hard copies will no longer be permissible. The EMC Administration Manager must setup a Trusted Account with the IDOT Contract Compliance section. Instructions for payroll submittal may be obtained through the IDOT Contract Compliance SharePoint Contractor User Guide, a pdf document.

In addition, the Federal Department of Labor is also requiring monthly web submittals of payroll information. Instructions will be available at the Pre-Construction Meeting.

Paper copies of all payroll reports should be kept by the Contractor for a minimum of seven (7) years from the date of the contract.

2.15.4 CONTRACTOR ADVISORY

The Contractor must follow the instructions herein Article 2.9. Administratively the submittal must be on an Excel Spreadsheet, printable to a standard letter size paper. The 1st line must have column headers for the CA #, date reported/found, System, Location Number, Main Route, Cross Street, Cabinet, or unit number if applicable, and on 2nd line the named item, description of problem or malfunction, Contractor proposed solution, and date resolved. These items must be listed on the Monthly System Meeting Agendas until a solution and date resolved is obtained, or the Engineer reports to the Contractor that the item should be noted as “reviewed – no action to be taken” on the spreadsheet report.

2.15.5 CUMULATIVE WORK AGENDAS

At the end of each month the Daily Work Agendas must be compiled by System, and date, and loaded on the FTP Site. A sample of the monthly cumulative agenda report will be available at the Pre-Construction meeting.

2.15.6 MCHD ADMINISTRATION PROCESS AND STATEMENT RECORDS

The EMC Administration Manager is responsible to respond to IDOT Claims or other Department requests for Ticket information, ownership, or maintainer information, and to provide all MCHD (Motorist Caused Highway Damage) statements/invoices to the IDOT Claims office. The IDOT Claims office bills the motorist's insurance company, or motorist for repair costs of equipment maintained on the EMC by the Contractor.

Up to sixty (60) MCHD statements/invoices may be requested of the Contractor each month, with a turn-around time requirement of two weeks. Once provided an IDOT Claim number for a Ticket, the EMCMS entry screen, MCHD Tracking, must be used to enter the MCHD information required for printing the statements/invoices. The individual MCHD statement/invoice will account for labor, equipment, and materials used for repair on its MC Ticket. Once the statement/invoice is printed it must be approved/signed by the EMC Administration Manager. One original and one copy are required for delivery to IDOT Claims electronically. Within the following week the Contractor must provide the damage photos for each claim to the IDOT Claims office, noting the claim number on the email.

EMC Administration Manager responsibilities include:

- At the beginning of the year providing the Engineer with averaged material costs, by system, for use on the MCHD statements/invoices (List of items is currently loaded in EMCMS.)
- Entry of all Contractor LEM (labor, equipment, materials) costs for MC Tickets (repair information, required to create MCHD statement/invoices)
- Entry of all information regarding an IDOT Claim into the EMCMS screen for MCHD Tracking
- Proper loading of all MC Ticket photos of damage on the FTP site and labeling them with the IDOT Claim number when provided.
- Emailing the IDOT Claims representative the damage photos of each Ticket, with the subject line the MCHD Claim number for each statement/invoice created (email must be separate for each Ticket/Claim number and not batched).

- Providing a monthly report, an Excel spreadsheet of all MCHD statements/invoices provided, with date of request, Ticket number, Claim number, statement/invoice repair amount, and date delivered to the IDOT Claims office. The report will also be submitted to TSC at the end of each month.

When funding allows, as an accounting procedure, the Department may submit a monthly MCHD statement / invoice to IDOT Springfield Claims for special payment. In these cases, the Contractor will be paid this amount directly and a similar amount will be deducted from the monthly Routine Maintenance payment to the Contractor.

2.15.6.1 MCHD PAYMENT TO THE ILLINOIS STATE TREASURER

The IDOT Claims Department processes the MCHD invoices as delivered to them from the Contractor per Article 2.15.9. The invoices (on Contractor letterhead) as mailed to the insurance companies by the IDOT Claims Department have a cover letter stating that the payment is to be made to the Illinois State Treasurer. Some insurance companies do not read the cover letter and accidentally pay the MCHD Invoice directly to the Contractor. In these cases, the Contractor is not to accept payment but will return the check to the insurance company. If the Contractor accidentally cashes a check which should have been sent to the IDOT Claims Department, the Contractor must issue a check for the due amount to the Illinois State Treasurer, which must be delivered to the IDOT Claims Department. The Contractor's check must state the Ticket number and IDOT Claims number. The new payment information must also be noted on the monthly MCHD report as provided by the Contractor (cumulative yearly spreadsheet) per Article 2.15.9.

The Contractor is not to discuss with insurance companies, or claimants any motorist caused damage Ticket or Contractor repairs, payment due the Department or any other matter relating to this Contract's language regarding motorist caused damage. All letters, emails, or phone calls must immediately be forwarded to the IDOT Claims Department, 201 W. Center Ct., Schaumburg, Illinois 60196. The Department must provide the names and emails and phone numbers of Claims personnel at the Pre-Construction Meeting.

2.15.7 PERSONNEL CHANGES

At the end of each month the Administrative Manager must create a spreadsheet report which lists all the new employees and removed employees from the Contract work. This personnel information must be kept current in the EMCMS.

2.15.8 SCRAP DISPOSAL REPORTING

As noted in Article 4.24 the Contractor may not dispose (scrap) any materials without receiving prior approval from the Engineer. The Department's acceptance/approval signatures on the Monthly System Spare Parts Reports, conveys ownership of the scrap materials to the Contractor. When requested by the Engineer the EMC Administration Manager must provide documentation of monthly vendor scrap tickets/loads and vendor recycling activity.

2.15.9 SPARE PARTS RECORDS

The Contractor is required to keep records of Department owned equipment, i.e., EMC Spare Parts at all Engineer approved locations. Each System has a separate and unique Asset Inventory. EMC Spare Parts Reports will be kept on Excel Spreadsheets. Each month the Contractor must list parts and equipment removed, (scrapped or sent to inventory) or parts and equipment installed (new or from EMC Spare Parts) or from parts or equipment required to be supplied through Routine Maintenance from Contractor supplied equipment. The EMC System Managers and appointed IDOT System Engineers/Technicians must sign and approve the monthly reports.

2.15.10 THIRD PARTY DAMAGE BILLING

Per Article 4.8 when equipment is damaged by 3rd Parties such as construction contractors, general repair crews hired by cities or agencies, utility companies, and like, the Contractor must make necessary temporary repairs under Routine Maintenance per specifications herein but may bill the offending party for Contractor work performed.

The EMC Administration Manager must be the sole point of contact for all 3rd Party billing documentation.

Once the GB (General Billing) Ticket has been created and the Contractor has performed temporary repairs the offending party may be billed:

Process: Send 2nd day UPS/FED EX letter to the offending party explaining:

- The Contract with the Illinois Department of Transportation to maintain the electrical equipment.
- Article 4.8 herein (written so article may be copied and attached to correspondence).
- Which equipment was found damaged and on which date.
- Photos of damage
- Billing for clearing the site and temporary repairs.
- Quote for permanent repairs.
- The option for the offending party to provide an electrical contractor to perform permanent repairs.
- Need for a decision on a contractor within 15 days, (email accepted).
- Permanent repairs need to start within 30 days from the time of notification.
- or they will be billed per the quote.

30 Day Final Notice:

Send offending party notice through 2nd day UPS/FED EX delivery that 30 days has past and permanent repairs will begin (give date) and they will be billed for permanent repairs.

Monthly 3rd Party Damage Report:

The monthly 3rd Party Damage report submittal, an Excel Spreadsheet, must be sorted by system, and list by damage date, only those cases where the offending party has not replied to the Contractor regarding permanent repairs and/or permanent repairs have been completed by the Contractor, but the offending party is not paying the invoice. The Contractor must keep records of all 3rd Party Damage, by Ticket number, for Engineer review at any time throughout the year.

2.16 EMCMS – ELECTRICAL MAINTENANCE CONTRACT MANAGEMENT SYSTEM

2.16.1 GENERAL REQUIREMENTS

The Electrical Maintenance Contract Management System (EMCMS), as presented herein consists of hardware, software, and an information database.

Successful performance of the Electrical Maintenance Contract is highly dependent upon an emergency call-out database, and a timely, accurate flow of information regarding contract work, documentation, and billing, which is kept and accessed on the Electrical Maintenance Management System (EMCMS). The

Contractor must maintain the Department EMCMS, which must continue into this Contract to assure operational continuity, and no disruption is allowed of the EMCMS functions; emergency call-out database or access to the data and reports contained within.

All costs for the EMCMS system operation, vendor maintenance agreements, programming fixes or corrections, equipment warranties, except for the existing IDOT telephone lines, network connection and power provided by the Department, must be borne by the Contractor, and paid through Routine Maintenance.

It is the responsibility of the Contractor to keep the EMCMS current and correct, with the maintenance status of IDOT maintained locations, and other private locations for the benefit of the public who relies on the IDOT ComCenter to take their emergency calls. The Contractor is encouraged to review the EMCMS after the Pre-Bid Meeting to view all the EMCMS screens and reports which must be maintained on this Contract. Further information regarding maintenance of the EMCMS programs can be obtained from the EMCMS vendor.

2.16.2 SELECTION OF VENDOR

The Contractor is responsible to maintain the hardware and software in place on the EMCMS as of January 1, 2025. The Contractor and the Department access the various entry screens and reports of the EMCMS by password privilege. Due to the confidential data on the EMCMS accessed only by Department personnel, such as future work plans, cost estimates, etc., the Contractor is not allowed to maintain the EMCMS hardware and software. The Contractor must obtain a support maintenance agreement required for the EMCMS from a 3rd party vendor. This vendor must be paid by the Contractor as a Specialty Vendor or Sub-Contractor; however, the vendor management and programmers must report only to the Engineer or Department EMCMS Supervisor.

The Contractor is encouraged to use the current maintainer of the EMCMS, Xsys Inc., 653 Steele Drive, Valparaiso, IN. 46385, for the duration of the Contract. Bidders will need to contact Xsys, Inc. (telephone 219-477-4816) to obtain a sample contract and cost estimates. If the Contractor wishes to change the current vendor, a full maintenance plan will need to be submitted to the Engineer as soon as possible after the execution of this Contract, at least thirty (30) days prior to January 1, 2025, or the vendor at the time of the bidding must continue. Review EMCMS vendor requirements herein.

2.16.3 VENDOR HARDWARE AND SOFTWARE MAINTENANCE

The Vendor must provide maintenance and operational support for all hardware (IDOT and Contractor owned or leased), for the servers/operating system for the database servers and its OS, including communications/network hardware between the servers and all remote workstations, all software, the back-up server, and information as carried in the database. The vendor must run monthly tests on the data validation to the SQL database.

Daily maintenance requirements by the vendor include preventive maintenance, the monitoring of software and hardware to assure continued operations, online monitoring of system and equipment status, and data back-ups by qualified personnel. The data back-ups must provide the data to be synchronized on an hourly basis at most and a five-minute interval at best across redundant sites.

2.16.4 VENDOR DISASTER RECOVERY

The contractor must have the EMCMS vendor maintain a disaster recovery that is stored remotely. The maintenance must include monitoring and configuration access to the IDOT EMCMS and restoration of operation within four (4) hours for a complete system recovery. The data loss should be no more than 10 minutes. A testing procedure must be performed quarterly to test a roll over with full operation and access including data testing at point of roll over.

2.16.5 VENDOR INSTALLATION DEADLINE

The Contractor is required to have the complete EMCMS, including full data access through screens/reports, communication links between the Contractor's facilities and central computer at District 1 TSC, and all required equipment as specified elsewhere herein, in place at the EMC Office and EMC Dispatch Center for approval by the Engineer by December 15, 2024. All items necessary to assure a functional operating EMCMS system, are the responsibility of the Contractor and paid through Routine Maintenance. Refer to Article 2.6.1 for EMC Office requirements and Article 2.6.2 for Dispatch Center requirements.

2.16.6 VENDOR COMMUNICATIONS

- The EMCMS Vendor must respond to Engineer or EMCMS Coordinator requests for programming fixes or corrections within one hour, providing the estimated time to complete the work. Programming fixes, where the database is not performing in currently accepted practice should be completed in 24 hours.
- The EMCMS Vendor must respond to Engineer or EMCMS Coordinator requests for new programming work, i.e., modifications or new screens/reports within 24 hours, providing the number of hours needed to complete the work.
- When the Vendor is notified that they are approved to provide the new work, the Department will issue a Non-Routine Maintenance authorization for the new work. This is not applicable to Article 2.16.8 planned Vendor work for a mobile Ticket.
- All modifications or new work by the Vendor will be implemented and validated in a fully operational test environment. The ability to test any fixes or change requests will be provided to Department appointed personnel.
- Upon Department acceptance of the new work on the test site the Vendor must coordinate with the Engineer or EMCMS Coordinator for a time to move the new work to the production system, inclusive of a roll back plan in such case the introduction of the new work creates disruptions in the production system.
- Service restoration following complete interruptions to the EMCMS must be within four (4) hours, except as otherwise permitted by the Engineer.
- The Engineer must be immediately notified, if in the judgement of the vendor, that a component replacement is required to forestall preventable system failures. The materials costs for this EMCMS equipment replacement would be paid through Non-Routine Maintenance, however, the Contractor must be responsible for any labor or service installation charges.
- User documentation as developed during this Contract must be provided by the vendor and given to the Engineer at the end of this Contract.

2.16.7 VENDOR SUPPORT AND TRAINING

The EMCMS is a Windows based system and entry field requirements are extensive and require training for Contractor and Department personnel use. By January 1st, 2025 (2026, if this Contract is continued) the Contractor must provide the Engineer a list of all personnel who must be accessing or entering data on the EMCMS. In past contract approximately 40 to 60 Contractor personnel use the EMCMS. It is a requirement that all Contractor assigned Patrolmen must use the EMCMS on a tablet as specified and required herein.

All Contractor Administrative and Dispatch personnel must have eight (8) hours of special in person training from the EMCMS vendor for the EMCMS screens and reports which they access, as soon as possible after the Contract is awarded (prior to January 1st) or the first week of January 2025.

All Patrolmen, other Contractor personnel, and Department personnel using the EMCMS must be scheduled for a minimum of eight (8) hours of in-house training through the EMCMS vendor in January or February each year. For the remainder of the year the Vendor may continue in-house training or establish web/Zoom “call-in” question/answer sessions, for an additional sixteen (16) hours spread-out during the year, for specified screen or report training for all personnel (Contractor or approximately 30 Department users). The Contractor Patrolmen must be trained on the EMCMS as soon as possible on the Mobile Ticket system.

2.16.8 VENDOR PLANNED WORK

The completion or modification of all planned work or modifications of existing EMCMS screens and reports such as the Spare Parts Inventory, Asset Inventory, and Preventive Maintenance entry screens have been estimated to take as many as 350 hours of programming time from the EMCMS vendor which will be paid through Routine Maintenance. The Contractor must furnish the assigned System Managers, Patrolmen and Repair personnel (Foremen), Night Survey Patrolman and Dispatch Supervisors each a computer tablet (one of the following as listed below) as required for the new EMCMS Ticket and Patrol information entries:

Android Base Tablets

Tablet must have internet connection. Display 9.7 inches or greater. OS – Android 9.0 or greater. 4 GB Ram or Greater. Must be able to use Google Chrome as internet browser.

Apple iPad

Tablet must have internet connection. Display 10 inches or greater. Must be able to use Google Chrome as internet browser.

Windows Based Tablets

Tablet must have internet connection. Display 10 inches or greater. Must be able to use Google Chrome as internet browser.

2.16.9 EMCMS EQUIPMENT AND SOFTWARE WARRANTIES

The Contractor must obtain and continue the EMCMS equipment and software warranties for the duration of the Contract starting January 1, 2025, and ending December 31, 2025. If this Contract is Continued the warranties must be extended to cover the renewal year(s). Items for coverage include software, the server / operating system for the database servers and its OS, communications hardware between the servers and all remote workstations, and the back-up server. The Contractor must provide copies of all warranty agreements to the Engineer at the January 2025 Pay Meeting (and again in January of the renewal year(s)).

2.17 FLEET MANAGEMENT GPS SYSTEM

2.17.1 GENERAL REQUIREMENTS

The Contractor must have or acquire the services of a fleet management system vendor with a Web-based application to store, view, and analyze data for all Electrical Maintenance Contractor and Sub-Contractor vehicles when personnel are performing work on this Contract. It is the desire of the Department to utilize the latest technology available to monitor the response to locations of work on the Electrical Maintenance Contract. Many of the work assignments herein are based on patrols of a particular area or have preventive maintenance programs which require work at a particular set of locations. Thus, a web-based application will aid the Department in the monitoring of Contract work response and provide the Contractor efficiency in dispatching personnel.

All vehicles used on Electrical Maintenance Contract work must be equipped with an in-vehicle GPS device that sends information via wireless or satellite communication to a remote data center over a secure network for the purpose of receiving and transmitting the driver call number and vehicle information. The Contractor must provide each driver/employee working on the EMC (including subcontractors) and identification code and a key fob or equal.

The web-based application must be accessible simultaneously to the Contractor and the Department personnel via desktop PC, handheld smartphone, or tablet.

The Contractor must provide and maintain service for IDOT access to archived/stored data using the same or an updated browser for a period of seven years.

2.17.2 CONTRACTOR PROGRAMMING

All routes and work groups must be named and programmed into the system for each of the patrolmen and crew(s) that perform assigned inspection and maintenance. Each patrolman and crew must have a grouping for routine maintained ON-maintenance locations separate from OFF-maintenance locations, and other locations that are non-EMC. New locations must be entered into the GPS system within 5 working days of a maintenance transfer.

The fleet management program must provide a seamless overlaying of multiple mapping and fleet data for a view of all Contractor work every day. The fleet management system must update every 90 seconds at a maximum; for reporting of GPS location, direction of travel, odometer readings, a stop detail report and duration; a timeline of the vehicle activity by date and time, with driver call #, name, vehicle identification, and mapping (displays vehicles in real time performing Contract work).

The programming must allow unlimited grouping hierarchy, unlimited geofences and landmarks, and have structured firewalls so all information is kept confidential and used by designated users. GPS tracking information must be retained when the vehicle is out of cell coverage areas. The system must be one which is capable to integrate to an Esri ArcGIS, GeoEvent Processor, which allows overlaying of multiple mapping.

An interface must be accessible to all Contractor assigned personnel, Contractor Dispatch personnel and all Department Engineers and Technicians working on the Electrical Maintenance Contract. Historical data for the year and renewal year, including all categories of obtained information and reporting must be available to Department personnel.

All information must be provided in real time 24/7, with download capabilities of scheduled work or patrols. The Contractor must update the information daily as changes occur for personnel and equipment and the addition of landmarks through EMC and maintenance transfers. The Fleet Management GPS System must show Contract personnel working daily on the EMC 62W79.

The EMC Administration Manager must be the point of contact for all questions regarding the Fleet Management GPS Reporting System. The Engineer will meet with the EMC Administration Manager in early January 2025 to discuss GPS reporting. Minor changes or modifications may be necessary at that time, to meet Contract requirements.

2.18 SAFETY PROGRAMS AND TRAINING

2.18.1 BASIC ELECTRICAL SAFETY PROGRAM TRAINING

The Contractor must establish a formal safety program to assure overall safety of EMC personnel, operations and the electrical systems maintained as they affect the safety of the traveling public and the public at large. The Contractor must furnish an overall description of this program with the Pre-Qualifications Submittal.

The Contractor must assure that all personnel be trained in, and have knowledge of, approved equipment grounding methods for all work under this Contract. The Contractor must be fully responsible for compliance with all NEC requirements. Should locations be identified for which system or equipment grounding is missing or otherwise not in compliance with NEC requirements, the Contractor is obligated to report such locations to the Engineer.

The Contractor must be fully responsible for compliance with all OSHA requirements. Particular attention is directed to the lock-out/tag-out requirements to assure that systems undergoing maintenance work cannot be inadvertently energized, causing harm to the maintenance person.

As part of the safety program, the Contractor must initiate a procedure that states: "When a circuit is de-energized, the Contractor must meter the downstream circuits with an instrument to assure that they are de-energized and safe for working conditions."

The Contractor must establish, at a minimum a one-day training session per year for Contractor and Department EMC Engineers and Technicians; all personnel applicable OSHA requirements and other safety related topics, to include but not be limited to; lock-out/tag-out, confined space, safety, hazmat training, respirator training (as applicable), use of a safety harness for work on signs and other structures, electrical code/grounding/lighting protection and basic first aid. The program must be taught by a professional trainer of the Contractor's choice, an individual regularly engaged in these topics. The training must specifically address applications to typical IDOT systems such as electrical installation and maintenance, traffic signals, highway lighting, surveillance, and pump stations. This training must be provided for all appropriate technical personnel, including all personnel engaged in electrical wiring work.

2.18.2 CONFINED SPACE ENTRY POLICY AND TRAINING

The Contractor must establish a confined space entry/safety policy and training program to assure overall safety of EMC personnel and operations. An overall description of the Contractor's confined space entry policy must be submitted with the Pre-Qualifications Submittal.

Contractor's confined space entry policy must be in full compliance with all OSHA requirements for the duration of this Contract. Employees must be required to:

- Follow all general safety rules and regulations.
- Abide by confined space regulations.
- Always wear proper safety equipment
- Report unsafe conditions to Contractor supervisory personnel and IDOT Engineer
- Report any injuries sustained within a confined space.

The Contractor must own or rent enough safety equipment for use by Contractor personnel that are involved with work within a space as defined as confined within OSHA guidelines. Department Engineers and Technicians must also be furnished this required safety equipment when accompanying the Contractor on work inspections in confined spaces. A list of this OSHA required equipment owned or to be rented by the Contractor must be submitted with the Pre-Bid qualifications submittal.

The Contractor must provide a confined space safety training program in January each year, by an individual trainer from a company who is involved with confined entry regulations, at a Department approved location, for Contractor employees and Department Engineers and Technicians who work/inspect in confined spaces. A second training session may be required in July each year if there are new Contractor or Department personnel who need this confined entry training. A listing of Contractor personnel who are trained or who will be trained for entry into confined spaces must be included in the Pre-Construction Meeting submittal.

2.18.3 TRAFFIC SIGNAL TRAINING

The Contractor must provide training within the first quarter of each year. The training must be on traffic signal controller operations, from the controller manufacturers, for all patrolmen, traffic signal/surveillance specialists, and IDOT personnel, for each of the types of controllers in use by the Traffic Signal System in District 1, or as approved by the Engineer, including but not limited to:

- ATC cabinets
- NEMA TS-2 cabinets
- Econolite System controllers
- Eagle System controllers
- Q-Free System controllers
- Video Detection – Iteris, Autoscope, FLIR
- Conflict Monitors – EDI
- MMU – EDI, Reno, Econolite
- BIU – Eagle, Econolite
- Traffic Signal troubleshooting
- Traffic Signal System timings
- Fiber Optic troubleshooting and testing
- Radio interconnect troubleshooting
- System and intersection controller software uploading and downloading.
- Detector amplifiers
- Grounding troubleshooting
- UPS systems
- Wireless Magnetic and Radar Vehicle Detection
- Network Switches troubleshooting
- APS push buttons troubleshooting
- Centralized systems

2.18.4 TRAINING AS SELECTED BY THE ENGINEER

The Contractor will provide a professional trainer who will provide the Contractor and Department EMC Personnel instruction once per year on safety and current electrical standards and/or work practices for all systems under the contract. The subject will be determined by the Engineer and the yearly training will be completed by end of the year.

ARTICLE 3.0 LABOR, EQUIPMENT, AND MATERIAL REQUIREMENTS

3.1 BIDDING

Unless labor, equipment, or material purchase is specifically noted herein as paid through Non-Routine Maintenance, Article 3.0 Labor, Equipment, and Materials must be paid through, is part of, and is included in Routine Maintenance bid items.

3.2 BASIC REQUIREMENTS

The Contractor must follow Article 108.06 Labor, Methods, and Equipment, as stated in the Standard Specifications of Road and Bridge Construction 2022 version, unless herein amended. The Contractor must provide 24 hours per day, 7 days a week, a force of qualified personnel, approved by the Engineer, sufficient in number to simultaneously perform the Routine maintenance work, and separately paid Non-Routine work. The Contractor must meet all response and repair requirements herein, including work schedules and work due dates.

All personnel working on IDOT systems and equipment must have the proper training associated with their working environment and must use safety practices in accordance with OSHA rules and regulations such as those associated with confined space, fall protection, and lock-out/tag-out.

Except as otherwise restricted, the Contractor may utilize the workforce employed on this contract to serve the maintenance needs of other agencies or parties, however, this Contract requires that the Department of Transportation's work must take precedence over other work. The Engineer may grant the Contractor authorization to postpone EMC work to address emergency situations of others, but the shortage of workforce must be insufficient grounds for the Contractor's failure to perform Routine or other Non-Routine work within the prescribed time constraints.

The Engineer also reserves the authority to re-direct the Contractor's work priorities in response to Contract emergency situations, potential hazards, Contract coordination and incomplete or deficient work which may require additional labor response, and the Contractor will be allowed no additional compensation for priorities so redirected.

The Contractor must be responsible for all union agreements applicable to the workforce on the Contract. Union jurisdictions and other union contract requirements must not become grounds for failure to perform the Contract work.

3.3 ORGANIZATION CHART

The Contractor must produce an organization chart to document the chain of command and demonstrate compliance with the work requirements defined by the Contract, including reporting relationships of all personnel. The chart must provide the name of individuals assigned to all positions with roles and responsibilities named. This document must be submitted with the Pre-Bid qualifications, re-submitted at the Pre-Construction Meeting with any proposed revisions, and submitted to the Engineer at any time there is a change in personnel or the chain of command.

The Engineer may reject the personnel assigned titles/assignments if the Contractor fails to demonstrate that the assigned personnel have the proper qualifications for their defined work responsibilities.

3.4 ORGANIZATION FOR WORK PERFORMANCE

The Contractor can structure the EMC workforce to best fulfill the requirements herein, however, the workforce must have the education, skills, and experience to accomplish quality work, at timely rates of progress.

In past contracts, approximately 70 to 80 non-management employees and 35 to 40 Patrolmen need to be employed on the EMC to perform the required and authorized work on time. These employees would not be entirely dedicated to EMC work, but this Contract is their priority work. All personnel must be factored into the Contractor's routine maintenance bid.

Contractor personnel must meet all qualifications and work expertise as specified herein. They will be available for special or emergency work when requested by the Engineer. All names and resumes of these employees must be submitted to the Engineer at the Pre-Construction Meeting.

The engineer retains the right to reject the Contractor's structure for management of the Contract if the specific requirements defined herein are not addressed or if the proposed structure or staffing is such that the effective execution of contract performance is compromised. If work performance is not acceptable to the Engineer, the Contractor has thirty days, after written notification is received from the Department, to comply with a personnel position change, which must be approved by the Engineer.

3.5 EMC PROJECT MANAGER

Experience has shown that personal involvement of a Principal or officer of the company with signature authority, is necessary in all major or overall contract matters under this Contract. Therefore, the Principal or officers of the company must appoint one individual to be the EMC Project Manager to be responsible for performance of the Contract, have the authority to fully represent the Principal in all matters on this Contract, and have supervisory authority over all personnel working on this Contract. The individual appointed to this position must be approved by the Engineer prior to the start of the Contract.

To assure 24-hour continuity of a person in responsible charge of the Contract, the Principal or officers of the company must establish a prioritized list of staff who are to act, with full authority to speak definitively for the EMC Project Manager in the event of illness, vacation, or other similar lack of availability of the EMC Project Manager. The engineer must be notified as far in advance as possible whenever a substitute EMC Project Manager will be necessary.

3.6 EMC SYSTEM MANAGERS

The EMC Project Manager must appoint four or five EMC System Managers for the Traffic Signal System, the Surveillance System, the Pump Station System, the Lighting System, and the Various System. The Various System may be managed by the Lighting or Surveillance Manager or appointed Sub-Contractor manager. All System Managers will report to the EMC Project Manager daily.

These individuals must:

- Have authority to commit workforce and other resources 24/7 and/or as directed by the Engineer.
- Coordinate emergency operations.
- Prioritize the emergency response.
- Make assignments for Cable Locates
- Review Tickets daily and correct as necessary.
- Oversee maintenance transfers and new installation inspections.
- Submit lane closure requests and implement approved traffic control plans.
- Supervise all Routine and Non-routine work and required documentation.
- Supervise all Contract required monthly submittals.
- Have ability to manage staff of twenty (20) or more.
- Communicate effectively.
- Be proficient in the use of PC and MS Office Suite
- Possess knowledge of electrical codes such as NEC 2016
- Possess valid Electrician's card.
- Familiarity with OSHA Safety Standards
- Familiarity with IDOT Traffic Control Standards
- Maintain valid driver's license.

Work expertise requirements apply (applicable per System) for these assigned EMC System Managers unless written exception is received from the Engineer. The Engineer reserves the right to have the EMC Project Manager replace any EMC System Manager who does not have applicable credentials and/or perform to Contract requirements.

3.7 TRAFFIC SIGNALS SYSTEM MANAGER

Work performance requirements herein dictate that the assigned Traffic Signal System Manager must have:

- A BS or BA degree from an U.S. Department of Education accredited technical institute, engineering college or business college.
- IPSI/IMSA level III certification
- Advance training in NEC and MUTCD guidelines and methods in the last 3 years
- Trained in the operation of Aries, Tactics, Centracs, and TransSuite traffic signal management software.
- Trained in the operation and programming of Econolite and Yunex controllers, including those interconnected to railroad warning devices.
- Trained in the operation and management of District 1 closed loop traffic signal and traffic management systems.
- Trained in the District 1's Traffic Control and Protection measures and procedures.
- Managed a government maintenance contract in the past five years with a technical staff of twenty-five (25) or more.
- Have a minimum of ten (10) years' experience in construction, maintenance, and operation of all traffic signals and traffic signals systems currently being used in District 1
- Hands-on experience in solving trouble calls for any traffic signal cabinet or communications failure.
- Work Zone safety certification
- Completed a recent OSHA Safety Standards training course that related to work assignments.
- Completed a recent IDOT Traffic Control Standards training course.
- Ability to communicate effectively.
- Maintain valid driver's license.

3.8 TRAFFIC SIGNALS SYSTEM PATROLMEN / FOREMEN / WORK CREW

Work performance requirements herein dictate that assigned employees must have:

- IPSI/IMSA level II certification by July 1, 2025
- Attended advance IPSI/IMSA seminars in the last 3 years.
- Trained in the operation of Aries, Tactics, Centracs, and TransSuite traffic signal management software.
- Trained in the operation and programming of Econolite and Yunex controllers, including those interconnected to railroad warning devices.
- Advance training in NEC and MUTCDS guidelines and methods in the last 3 years
- Ability to respond to callout tickets, trouble calls and emergencies 24/7 and must meet the one (1) hour in-district response requirements.
- Ability to maintain the integrity of all traffic signal timing, parameter programming information, traffic responsible and time of day signal systems.
- Substantial experience with NEMA traffic signal closed loop systems operating in the traffic responsive mode.

- Extensive experience in troubleshooting equipment malfunctions including all closed loop signal system malfunctions.
- Ability to troubleshoot low voltage equipment malfunctions.
- Ability to perform communication equipment repairs.
- Knowledge and familiarity with single mode fiber optic cable installations
- Knowledge and familiarity with troubleshooting electronic equipment
- Valid electrician's card
- Completed a recent OSHA Safety Standards training course that related to work assignments.
- Completed a recent IDOT Traffic Control Standards training course.
- Ability to communicate effectively.
- Maintain valid driver's license.

3.9 TRAFFIC SIGNALS SYSTEM – SYSTEM AND RAILROAD EXPERTISE

Two employees will be required for this system work to help with the railroad signal inspections and with monitoring the centralized systems operations. Both employees must be knowledgeable in both systems and be able to provide coverage as needed.

Work performance requirements dictate that assigned employees must have:

- A degree from an U.S. Department of Education accredited technical institute, engineering college or Business College
- IPSI/IMSA level III certification by July 1, 2025
- Attended advance IPSI/IMSA seminars in the last 3 years.
- Advance training in NEC and MUTCD guidelines and methods in the last 3 years
- Experienced in the operation, testing, and troubleshooting of District 1's traffic signals that are interconnected to railroad warning devices. Has working knowledge of ICC procedures and practices for traffic signals interconnected to railroad warning devices.
- Trained in the operation of Aries, Tactics, Centracs, and TransSuite traffic signal and traffic management software.
- Trained in the operation and programming of Econolite and Yunex controllers, including those interconnected to railroad warning devices.
- Trained in the operation and management of District 1 closed loop traffic signal and traffic management systems.
- Trained in the District 1's Traffic Control and Protection measures and procedures.
- One employee in this position must have a minimum of ten (10) years' experience in construction, maintenance, and operation of traffic signals and traffic signals systems currently being used in District 1
- Experienced in solving trouble calls for any traffic signal cabinet or communications failure.
- Maintain a current driver's license.
- Maintain an electrician's card.
- Maintain equipment and Work Zone Safety certification.
- Be able to communicate effectively.

3.10 SURVEILLANCE SYSTEM MANAGER

Work performance requirements herein dictate that the assigned Surveillance System Manager must have:

- Knowledge equivalent to BS in Electrical Engineering or Technical School
- IPSI/IMSA level II and IPSI/IMSA Work Zone Temporary Traffic Control certification by July 1, 2022
- Attended in advance IPSI/IMSA seminars in the last 3 years.
- Proficiency in technological networks
- Advance training in NEC and MUTCD guidelines and methods in the last 3 years
- Ability to troubleshoot Allen Bradley programmable logic controllers, PLC 5, and RS Logics 5000 controllers.
- Knowledge of RSView 32 Project Development, Control Logix 5000, and Liq. V programming
- Knowledge of advanced computer skills
- Knowledge of NTCIP protocols in particular 1203, 1207, and 1209
- Suitable work experience in electrical construction and maintenance with a minimum of ten (10) years' experience
- Ability to operate and calibrate a variety of electrical test equipment.
- Ability to troubleshoot technological equipment.
- Ability to troubleshoot CCTV systems, fiber optic systems, and basic Ethernet network communications.
- Familiarity with fiber optic and LED DMS
- Ability to oversee the maintenance and operation of REVLAC and RACS system, VDS, CCTV, camera system, and switched Ethernet network, Ramp metering, Detector cabinets, and Dynamic Message signs.
- Familiarity with ladder logic GUI programming and/or traffic signal programming
- Familiarity with telephone data line troubleshooting
- Familiarity with various Traffic detector technologies: induction loop, radar, magnetometers, ultrasonic, and video
- Familiarity with dynamic data exchange communications
- Familiarity with open database architecture
- Familiarity with basic electronics and electronic components
- Familiarity with large scale FSK tone telemetry systems
- Familiarity with various types of telecommunication systems
- Familiarity with SM fiber optic installations and equipment
- Familiarity with OSHA Safety Standards
- Familiarity with IDOT Traffic Control Standards
- Ability to communicate effectively.
- Maintain valid driver's license.

3.11 SURVEILLANCE PATROLMEN / FOREMEN / TELEMETRY SPECIALIST

Work performance requirements herein dictate that employees assigned duties must have:

- Knowledge equivalent to electrical engineering or technical school certification
- IPSI/IMSA level I and IPSI/IMSA Work Zone Temporary Traffic Control
- Suitable work experience in electrical construction and maintenance with a minimum of eight (8) years' experience
- Advance training in NEC and MUTCD guidelines and methods in the last 3 years
- Ability to troubleshoot Allen Bradley programmable logic controllers, PLC 5, and RS Logics 5000 controllers.
- Knowledge of advanced computer skills
- Knowledge of NTCIP protocols in particular 1203, 1207, and 1209
- Proficiency in technological networks
- Ability to operate and calibrate a variety of electrical test equipment.
- Ability to troubleshoot CCTV systems, fiber optic systems, and basic Ethernet network communications.
- Familiarity with Daktronics, Skyline and Adaptive Microsystems LED DMS
- Ability to oversee the maintenance and operation of REVLAC System, VDS, CCTV camera system, and switch Ethernet network, Ramp metering, Detector cabinets, and Dynamic Message signs.
- Familiarity with ladder logic GUI programming and/or traffic signal programming
- Familiarity with telephone data line troubleshooting
- Familiarity with various traffic detector technologies, induction loops, radar, magnetometers, ultrasonic, and video
- Familiarity with dynamic data exchange communications
- Familiarity with basic electronics and electronic components
- Familiarity with large scale FSK tone telemetry systems
- Familiarity with various types of telecommunication systems
- Familiarity with SM fiber optic installations and equipment
- Experience in splicing, termination, and testing of fiber optic cable.
- Familiar with Open Systems Interconnection, OSI, seven layers
- Familiar with TCP/IP Stack, five layers
- Valid electrician's card
- Familiarity with OSHA Safety Standards
- Familiarity with IDOT Traffic Control Standards
- Ability to communicate effectively.
- Maintain valid driver's license.

3.12 SURVEILLANCE WORK CREW

Work performance requirements herein dictate that employees assigned duties must have:

- IPSI/IMSA level I and IPSI/IMSA Work Zone Temporary Traffic Control
- Ability to perform repairs of surveillance equipment, cameras, dynamic message signs, ramp metering equipment/cabinets, loops, cable, and other equipment as listed herein.
- Advance training in NEC and MUTCD guidelines and methods in the last 3 years
- Experience in splicing, termination, and testing of fiber optic cable.
- Extensive experience in the repair of REVLAC and RACS Equipment
- Extensive experience in the operation and maintenance of the REVLAC and RACS system
- Extensive experience in the IDOT VDS network digital and analog
- Experience with FSK tone telemetry system
- Experience with telephone data line troubleshooting
- Experience in fiber enhanced and LED DMS maintenance.
- Familiarity with basic electronics and electronic components
- Familiarity with large scale FSK tone telemetry systems
- Familiarity with various types of telecommunication systems
- Familiarity with single mode fiber optic cable installations
- Familiarity with OSHA Safety Standards
- Familiarity with IDOT Traffic Control Standards
- Ability to communicate effectively.
- Maintain valid driver's license.

3.13 TELEMETRY SPECIALIST AVAILABLE EQUIPMENT

The following equipment (as owned or leased by the Contractor) must be available when requested by the Department.

- Tempo Data Scout DSO Timms Test set or better
- OTDR Fiber Optic Tester w/launch kit ST/LC/SC Connectors – (MAX-720C-Q1-QUAD-Oi-EI-EUI-91-iADV-VFL-FOA-32-00-UPC-FIPT-400-SC-UPC-00-FR2)
- Cable Labeler – Brother Model as specified herein.
- Power Meter Light Source (EXFO – FLS-600-EI-EUI-UPC/SC) with connectors adapters - FOAS-32, FOAS-54, and FOAS-98)
- Visual Fault Locator (EXFO – FLS-240 POCKET PAL)
- Ethernet Cable Tester – (DataScout – DS-COMBO-10G)
- Fluke TS22 Test Set w/Piercing Pin Clips (FLK-22800001)
- Greenlee Nylon Fish Net Tape – 3/16” x 100 ft. (GRE-FTN536-100)

3.14 PUMP STATION SYSTEM MANAGER

Work performance requirements herein dictate that the assigned Pump Station Manager must have:

- Technical Institute certificate or Electrical Engineering diploma
- Extensive construction experience in mechanical and electrical of pump station or commercial and industrial work with a minimum of eight (8) years' experience
- Basic fundamental skills, knowledge and understanding of power distribution 4160 volt.
- Electrical and mechanical maintenance experience, working on all types of storm water pumping station equipment a minimum of 48 pump stations with pumps that are rated at 4160/480/240 volt and capacity that range from 300 GPM to 30,000 GPM
- Knowledge of implementation and preventive maintenance of vertical and submersible pumps
- Experience, training, and skills to troubleshoot and repair pumps and other mechanical equipment.
- Experience with low voltage motor-control centers for 3-phase (240/480) systems
- Experience with relay logic controls, SCADA systems, PLC program controls and responsible for its design, installation, testing and acceptance.
- Experience in the maintenance and operation of switchgear and, MCC, circuit protection equipment, motor controls, fire, and gas alarm system
- Experience in inspection and testing of pumping stations.
- Familiarity with engine power generators and related transfer switch equipment
- Familiarity with hazardous materials operations
- Familiarity with OSHA Safety Standards
- Familiarity with IDOT Traffic Control Standards
- Ability to communicate effectively.
- Maintain valid driver's license.

3.15 PUMP STATION SYSTEM FORMAN AND WORK CREW

Work performance requirements dictate that individuals working on Department Pump Station equipment have:

- Minimum of five (5) years hands-on experience working with 240/480V 3 phase motors and pumps controls
- Knowledge and ability to work on (4160 volt) electrical equipment.
- Extensive experience with troubleshooting and repair of pumps, motor controls, sensors, piping, fittings, valves, monitoring systems, alarm systems, MCC, switchgear, HVAC and other electrical and mechanical equipment as specified herein.
- Knowledge of pump station maintenance and operation procedures
- Extensive experience in SCADA systems, such as Alan Bradley ControlLogix 5000 and Liq V TESCO, RSView 32 HMI and Workbench
- Extensive experience with pump removal, installation, breakdown and re-builds, valves, actuators, trash racks and other mechanical equipment as specified herein.
- Experience with the removal and installation of submersible/column pumps
- Valid electrician's card
- Familiarity with OSHA Safety Standards
- Familiarity with IDOT Traffic Control Standards
- Ability to communicate effectively.
- Maintain valid driver's license.

3.16 LIGHTING SYSTEM MANAGER

Work performance requirements herein dictate that the assigned Lighting System Manager must have:

- Minimum of ten (10) years' experience in construction and electrical maintenance as an electrical trades person working on various types of highway lighting
- Experience in the operation of IDOT electrical control circuits
- Ability to interpret contract drawing and wiring diagrams.
- Extensive experience in supervising multiple crews skilled to oversee troubleshooting and repair of electrical equipment and systems.
- Familiarity with electrical system, weigh stations, maintenance yards, rest areas, moveable bridges, high mast light towers, light poles, sign lighting, underpass lighting, navigation signals, lighting cabinets and its controls, 120/240-volt and 240/480-volt service and equipment, breakaways, fuses, bonding, and grounding.
- Familiarity with cable underground work
- Familiarity with all wiring, conduits, luminaires, lamps, LED, above ground wiring, splices, underground cable splices, handholes, and different methods of installation
- Ability to manage and coordinate lighting outages, motorist caused damage repairs and cable trouble repairs.
- Knowledge of computers and their operation, including MS Office suite software
- Familiarity with OSHA Safety Standards
- Familiarity with IDOT Traffic Control Standards
- Ability to communicate effectively.
- Maintain valid driver's license.

3.17 LIGHTING SYSTEM NIGHT OUTAGE TECHNICIAN

Work performance requirements dictate that the individual has:

- Three years electrical work experience in highway lighting
- Excellent verbal and written communication skills
- Excellent data entry and proof-reading skills
- Excellent organizational skills
- Advance level skills with Excel spreadsheets
- Ability to work in stressful situations with time deadlines.
- Familiarity with OSHA Safety Standards
- Familiarity with IDOT Traffic Control Standards
- Maintain valid driver's license.

3.18 LIGHTING SYSTEM FOREMAN AND CREW

Work performance requirements herein dictate that the assigned Lighting System Crew must have:

- Skills in all typical highway system general work, construction, and repair
- Ability to perform repairs of navigation lighting, interior lighting, power distribution, and other equipment as listed herein.
- Experience in troubleshooting, special maintenance problems repair, cable repairs, lighting outage repairs, underground cable repair, lighting cabinet replacement, temporary repairs, tower inspections, HMLT and light pole knockdown replacement, underpass inspections and other maintenance work as specified herein.
- Extensive understanding of Highway lighting maintenance, lamp and luminaire components, electrical services, poles and high mast components, lighting applications, testing, investigation in the roadway lighting field

3.19 EMC ADMINISTRATION MANAGER

The Contractor EMC Administration Manager oversees a minimum of three (3) administrative staff. He/she is responsible for the accuracy of the EMCMS, reviews daily the EMCMS entries, and is the liaison to the EMCMS programmers for corrections or new projects. This individual also coordinates the monthly submittals and monthly invoicing for all Systems. All Department personnel will communicate with this individual regarding the EMCMS and Contract administrative issues.

Work performance requirements dictate that individuals have:

- An Associates 2-Year degree from an U.S. Department of Education accredited technical institute or college.
- Experience with contractor work administration
- Experience with contract purchasing.
- Experience with construction billing and collection
- Excellent verbal and written communication skills
- Excellent data entry and proof-reading skills
- Excellent organizational skills
- Advance level skills with Windows and Excel spreadsheets
- Ability to work in stressful situations with tight deadlines.
- Willingness to become familiar with all Contract Articles
- Ability to learn EMCMS processes and requirements.

3.20 EMC DISPATCH SUPERVISORS

The Contractor must employ an EMC Dispatch Supervisor and backup EMC Dispatch Supervisor so there is a Supervisor in charge of the EMC Dispatch Center 24/7.

Work performance requirements dictate that individuals have:

- An Associates 2-Year degree from an U.S. Department of Education accredited technical institute or college or five or more years of contractor work dispatching experience.
- Ability to manage staff of 4 to 6 dispatchers.
- Ability to learn EMCMS data entry processes and requirements.
- Excellent verbal and written communication skills
- Excellent data entry and proof-reading skills
- Excellent organizational skills
- Advance level skills with Windows and Excel spreadsheets
- Ability to work in stressful situations with tight deadlines.
- Ability to recognize situations which will require additional dispatch help to meet workload.
- Willingness to become familiar with all Contract Articles which affect Ticket and Cable Locate EMCMS data entry.

3.21 EMC DISPATCHERS

The EMC Dispatch Center takes approximately 9,000 to 10,000 incident calls per year and enters EMCMS Tickets for each call. Normally four (4) or five (5) dispatchers are required in a 24/7 rotation (but up to six (6) dispatchers will be needed at the facility for severe weather or emergency situations). The EMC Project Manager can structure the dispatch workforce to best fulfill the workload, however, the EMC Dispatch Supervisor must have the ability to call-in additional dispatchers if the workload warrants. The dispatch workforce must have the ability to quickly learn the EMCMS entry process and reporting, and equipment/alarm monitoring as required. One or two years of college education would be preferred.

Work performance requirements dictate that individuals have:

- Substantial dispatching experience, contractor dispatching is desirable.
- Experience with alarm monitoring
- Advance level skills with Windows
- Familiarity with construction terms, preferable to be electrical based.
- Excellent written communication skills; good spelling
- Clear and distinct voice for telephone communications
- Excellent data entry skills
- Ability to work in stressful situations with time deadlines.
- Ability to respond to the facility within one (1) hour during severe weather situations.

3.22 NETWORK SYSTEM SUPPORT

The Contractor must provide employees or obtain the services of a company who will be a Routine Maintenance Special Vendor on the EMC, who will provide the services of a Network System Administrator and Network System Integrator / Architect. The Contractor must submit details of the proposed contract / agreement at the Pre-Construction meeting.

3.22.1 NETWORK SYSTEM ADMINISTRATOR

The Contractor will need the approval from the Engineer prior to this individual is assigned to the full time Network Administrator function. The individual must be versed and able to perform the following:

- Monitor the Contract's programs / softwares of VDS, ATMS, Solar Winds, and EMCMS. Other programs / software may include Centracs and Tactics.
- Ensure network availability, network security, perform necessary maintenance.
- Be on call 24/7 to provide answers in emergency situations and to support the Department and Contractor staff.

- Assist with the integration of newly installed equipment to the existing infrastructure.
- Document all proposed connections as directed by the Engineer.

The system administrator must be assigned to the TSC building, or other Engineer assigned location in District 1 on a full-time basis to complete work assignments as provided by the Engineer. The contractor must provide a replacement system administrator within a 2-week period if the incumbent moves on from the company.

The Contractor must supply an assigned vehicle, proper PPE, and provide safety training as necessary to follow Contractor and Department safety rules and regulations.

EMC Work requires the education, knowledge, and skill of a Network Administrator. The Contract requires this individual possess the following:

Formal Education and Certification

- College diploma or University degree in the field of computer science/engineering or information systems and ten (10) years related work experience, or associate degree and twelve (12) years related experience.
- Cisco Certified Network Professional (CCNP) Switching and Routing certification.
- Cisco Certified Network Professional (CCNP) Security certification.
- CISSP – Certified Information Systems Security Professional.

Network Administrator Requirements and Qualifications

- Two years' experience working on Palo Alto Firewall
- Two years' experience working and programming on Windows Servers
- Two years' experience working on DHCP and DNS
- Proficient with Open Systems Interconnection, OSI, Seven layers
- Proficient in layer 1 (Physical layer), layer 2 (MAC address), layer 3 (Network Protocols), layer 4 (Transport layer), layer 5 (Session layer), layer 6 (Presentation layer), and layer 7 (User Interface).
- Proficient with TCP/IP Stack, Network Access, Internet, Transport, Application layers.
- Proficient in Calculating Network address, subnet mask, broadcast address, and host IP address range. IPv4 and IPv6.
- Extensive experience in system and network creation and development
- Solid understanding of information processing fundamentals and best practices
- Exceptional analytical, conceptual, and troubleshooting abilities
- Excellent written and verbal communication skills.
- Experience conducting technology, trends, standards, and product research.

- Solid track record in prioritizing and executing tasks when under pressure.
- Experience providing guidance and leadership to systems engineers.
- Proven experience identifying, analyzing, and resolving system problems.
- Proven project planning and management experience
- Good knowledge of applicable data privacy practices and laws
- Excellent architecture and technical support skills
- Excellent documentation skills
- Strong interpersonal and consultative skills
- Ability to present ideas in a user-friendly language.
- Experience working in a team-oriented, collaborative environment.
- Must be able to navigate uneven and/or extreme terrains in the field.

3.22.2 NETWORK SYSTEM INTEGRATOR / ARCHITECT

The Contractor will need the approval from the Engineer prior to this individual is assigned to the full-time integrator / architect function. The individual must be versed and able to perform the following:

- Monitor the Contract's programs / software of VDS, ATMS, Solar Winds, and EMCMS. Other programs / software may include Centracs and Tactics.
- Ensure network availability, network security, perform necessary maintenance.
- Be on call 24/7 to provide answers in emergency situations and to support the Department and Contractor staff.
- Integrate newly installed equipment to the existing infrastructure
- Document all proposed connections as directed by the Engineer.
- Design new network infrastructure to be incorporated in the electrical maintenance network. All sections of the electrical maintenance network include surveillance, lighting, traffic signals, pump stations, and locations described under Various (Article 11.0).

The position must be assigned to the TSC building, or other Engineer assigned location in District 1 on a full-time basis to complete work assignments as provided by the Engineer.

The contractor must provide a replacement position within a 2-week period if the incumbent moves on from the company.

The Contractor must supply an assigned vehicle, proper PPE, and provide safety training as necessary to follow Contractor and Department safety rules and regulations.

EMC Work requires the education, knowledge, and skill of a Network Administrator. The Contract requires this individual possess the following:

Formal Education and Certification

- College diploma or University degree in the field of computer science / engineering or information systems and twelve (12) years related work experience, or associate degree and fifteen (15) years related experience.
- Cisco Certified Network Professional (CCNP) Switching and Routing certification.
- Cisco Certified Network Professional (CCNP) Security certification
- CISSP – Certified Information Systems Security Professional

Network Integrator / Architect Requirements and Qualifications

- Four years' experience working on Palo Alto Firewall
- Four years' experience working and programming on Windows Servers
- Four years' experience working on DHCP and DNS
- Proficient with Open Systems Interconnection, OSI, Seven layers
- Proficient in layer 1 (Physical layer), layer 2 (MAC address), layer 3 (Network Protocols), layer 4 (Transport layer), layer 5 (Session layer), layer 6 (Presentation layer), and layer 7 (User Interface).
- Proficient with TCP/IP Stack, Network Access, Internet, Transport, Application layers
- Proficient in Calculating Network address, subnet mask, broadcast address, and host IP address range. IPv4 and IPv6
- Extensive experience in system and network creation and development
- Solid understanding of information processing fundamentals and best practices
- Exceptional analytical, conceptual, and troubleshooting abilities
- Excellent written and verbal communication skills.
- Experience conducting technology, trends, standards, and product research.
- Solid track record in prioritizing and executing tasks when under pressure.
- Experience providing guidance and leadership to systems engineers.
- Proven experience identifying, analyzing, and resolving system problems.
- Proven project planning and management experience
- Good knowledge of applicable data privacy practices and laws
- Excellent architecture and technical support skills
- Excellent documentation skills
- Strong interpersonal and consultative skills
- Ability to present ideas in a user-friendly language.
- Experience working in a team-oriented, collaborative environment.
- Must be able to navigate uneven and/or extreme terrains in the field.

3.23 VEHICLES FOR EMC WORK

In past contracts approximately over 150 vehicles per year have been needed for Contract employees and Contract work. From the first day of Contract work, the field employees must be assigned vehicles, normally within 3 years of manufacture, which are equipped with safety warning devices such as light bars/strobes, on-board construction equipment, and all tools, computers, and equipment to perform the Routine and Non-Routine work on Department owned equipment.

All Contractor vehicles and equipment must be clearly identified by a decal with the Contractor's name, location, and telephone number. The decal must be readily visible on the exterior sides and rear of each vehicle. Removeable magnetic signs or similar nonpermanent identification is not permitted at any time. Sub-Contractor vehicles must be held to similar requirements.

All vehicles used by the Contractor must conform to all applicable laws and the Department safety and traffic control requirements. Each Contractor vehicle must carry a copy of the Contract, or applicable System Article.

At the Pre-Construction Meeting dates will be set for the Contractor to have vehicles with required on-board equipment staged at TSC (in groups) and available for inspection by the Engineer.

Types of Vehicles Used on past contracts:

- Service Patrol Truck
- Pick-up Truck
- Truck for Loop Work
- Truck for PS Work
- Truck, Dump
- Truck with Attenuator
- Truck with 30' Bucket
- Truck with 50' Bucket
- Truck with 70' Bucket

3.24 EQUIPMENT FOR EMC WORK

The Contractor is expected to be familiar with the extent of systems to be maintained under this Contract and the equipment necessary to provide the specific work response. Failure to have adequate equipment to perform the work must not be sufficient grounds for the delay of routine or other authorized work. The equipment must be owned or under long-term lease to the Contractor, and available always for the Contractor's use. If there are continuous delays in temporary or permanent repairs, the Engineer may order specific equipment items to be furnished on Contract use vehicles.

During 2022, programming became available for Patrolmen to create and enter follow-up data on EMCMS Tickets, as well as enter Traffic Signal Patrol completions. The Contractor must have a tablet for each of the Patrolmen and for other field personnel as necessary to receive and transmit through wi-fi for the EMC work.

The Contractor's personnel must be assigned cell phones with an appropriate MB size for daily communications, text capability and taking/storing MCHD photos. Also required will be the installation of an app, Timestamp Camera Enterprise, which will allow the personnel to obtain photos with a date, time, location and GPS watermark on the photo or video, which is required for all preventive maintenance programs.

The Contractor is responsible for all communication units, the monthly billing, email service provider, access and photo transmission fees, and other provider assistance as necessary for MCHD repair photo transmissions, data transfers and proper operation of the communication units.

The following is a list of equipment used by contractors on prior EMC contracts which can be used as a guide for equipment as necessary on this Contract. The following equipment, but not limited to, are:

- Air hammer
- Attenuators (minimum of 6 recommended)
- Arrow board
- Augur
- Boat, (for accessing navigational light outages)
- Cable Plow
- Compactor, Tamper
- Crane (Under 20 Ton)
- Crane (20 Ton)
- Drill, Boring 37.5 HP
- Drill, Boring 50 HP
- Drill, Boring 125 HP
- Generator 6.5 HP (small)
- Generator 13 HP (large)
- Joint Sealer, Loop
- Pavement Breaker
- Pump, Water (gas) 2"
- Pump, Water (gas) 3"
- Pump, Water (diesel) 6"
- Saw, Concrete
- Tractor, Backhoe
- Tractor, Skid Loader
- Trailer, Cable Rack
- Trailer, Flat Bed
- Trencher 40 HP Wheel mounted.
- Trencher 57 HP

3.25 EQUIPMENT FOR VEHICLES ASSIGNED TO TRAFFIC SIGNALS WORK

- Digital camera or camera phone with a minimum 10 MP and flash capabilities
- Lap-Top PC with wireless internet connection, power cords to run in vehicle, and capable of operating all applications/software as required for the Traffic Signal systems.
- EDI Malfunction Management Unit (MMU 16E or better)
- EDI Conflict Monitor
- Quantity of 3 – TS2 Bus Interface Unit
- Cell-Phone Interface for PC (Systems Trucks)
- 3-Point Ground Tester
- Amp-Volt Meter
- Loop Analyzer Model ILA-550
- Conduit-Cable Locator
- Light Source for Fiber Cable
- Audible tester for Fiber Cable
- Emergency Pre-emption Emitter
- Fish Tape – 100 ft.
- 10-foot Ladder
- Measuring Wheel
- ASC/2 Controller
- ASC/3 Controller
- Cobalt Controller
- EPAC TS2 M40 Series Controller
- EPAC TS1 M40 Series Controller
- Siemens / Yunex M50 Series Controller
- Siemens / Yunex M60 Series Controller
- Pedestrian Push Buttons (APS)
- Load Switches and High Density Switches
- Electric Drill – ½ chuck
- Shovel
- Quantity of 8 Stop Signs
- Quantity of 8 Traffic Cones
- Quantity of 2 Lane Closure Signing
- Strobe warning lights, spotlights, and directional bar that meets or exceeds current standard.

3.26 EQUIPMENT FOR VEHICLES ASSIGNED TO SURVEILLANCE SYSTEM WORK

- AC generators capable of 40-amp output to power DMS sign
- Quantity of 8 Traffic Cones
- Quantity of 2 Lane Closure Signing
- Loop Analyzer Model ILA-550 or equal
- Lineman's test set, Harris Dracon TS-21x89 or equal
- Digital multimeter, true RMS multimeter, with case & test leads Fluke model 87V or equal
- Digital AC clamp on meter with case equal to or Exceeding Fluke Model 334 with test leads or latest
- Greenlee Gt-104 Comprehensive Signaling TIMS 2 & 4 wire Freq/level noise measure. Li-Ion Battery, AC/DC adaptor charger, Cable kit Bantam-Bantam and Bantam-Alligator, soft carry case, rugged bumpers
- Cable and Pipe locator equal to or exceed RD8100 cable and pipe locator by Radio detection with Bluetooth and optional GPS integrated or approved equal for personnel performing cable locate.
- Clamp on ground resistance meter equal to or exceeding Fluke 1630 Earth Ground Insulation Tester equal to or exceeding Megger MIT 230 Digital/Analog Insulation and Continuity Tester
- Tone and Probe Kit equal to or exceeding Greenlee standard (701 K-G)
- AC/DC digital clamp current meter equal to or exceeding TECPEL model DCM039
- Fiber optic cleaning kit with solvent dispenser, solvent dispenser pen, wipes, and LC/St/SC port cleaning swabs
- Network Cable Tester equal to or exceeding Fluke Microscanner2 with BNC and Ethernet Adaptors
- Angle locator, digital protractor, min. 5 in length (used to re-set the angle of the REVLAC gate)
- Handheld video monitor, battery powered, BNC analog video input, RJ-45 ethernet jack for HD IP video viewing. ONVIF and other custom video protocols used in the IDOT VDS system.
- Laptop computer (specifications will be provided at the Pre-Bid meeting)

3.27 EQUIPMENT FOR VEHICLES ASSIGNED TO PUMP STATION SYSTEM WORK

- Gas Detector Equipment as Required per OSHA
- Air Pressure Calibrator Meri-Cal EE33 with kit or equivalent
- Tesco Workbench Firmware, and power cords to run in vehicle.
- Phase Rotation Indicator
- RPM Strobe
- Megger
- Multimeter
- Adjustable height gantry crane with 4000 lb. capacity trolley

3.28 EQUIPMENT FOR VEHICLES ASSIGNED TO LIGHTING SYSTEM WORK

- Amp Volt Meter
- Conduit Cable Locator
- Directional Bar
- Fish Tape 100 Ft
- Ladder – 14 Ft
- Measuring Wheel
- Shovel(s)
- Spotlights
- Strobe warning lights
- Tools; power and hand, including pipe wrenches, pry bar, sledgehammer.

3.29 MAINTENANCE TEST EQUIPMENT

The Contractor must own and maintain test equipment, available for specialized maintenance testing at all times by Contractor’s work crews, and given two (2) hour notice, for the Engineer’s use in inspecting the Contractor’s work. All equipment must be owned or under long-term lease to the Contractor.

The Contractor is expected to maintain all test equipment in accordance with the manufacturer’s specifications at all times, including certified calibration by a responsible test lab. The equipment must have the test lab’s most recent calibration ticket attached. The minimum quantities and types of required test equipment, as listed below, must be ready for inspection by the Engineer by January 1, 2025.

At the Pre-Construction Meeting, the Contractor must submit to the Engineer for approval an itemized list of all test equipment, a manufacturer’s product data sheet for each item, and copies of each instrument certification calibration.

The following equipment must be purchased or leased by the Contractor for use on the EMC:

| Suggested Quantity | Equipment Description |
|---------------------------|--|
| 10 | RD8100 or better, Cable Locator |
| 7 | Tempo Data Scout DSO Timms Test set or better |
| 7 | Hilt 9000 or better, Digital Loop Analyzer/Megger |
| 7 | Ideal Network Securi-Test IP Digital CCTV Tester or better |
| 1 | MMU/Conflict Monitor Testing Station |
| 2 | Fluke Oscilloscope Handheld Meter for Testing & Calibrating Piezos |

The following is a list of equipment used by contractors on prior EMC contracts, which can be used as a guide for equipment as necessary on this Contract:

- Amprobes
- Breakout Box with case
- Clamp-on Ground Resistance Meters
- Coaxial Cable Tester
- Digital Low Resistance Ohmmeters
- Digital Multimeters
- Digital Tachometer
- Fall-Off Potential Ground Resistance Tester
- Gas Detectors, 4 Channel
- Hotspot Locator
- Infrared Thermometer
- Insulation Resistance Test Equipment
- Lineman's Test Set
- Multimeters with Current Probe and Thermal Probe
- OTDR Fiber Optic Tester w/launch kit
- Pipe and Cable Locator
- Pushrod Video Inspection System (equal or better than Radiodetection Pearpoint P342 Flex Probe 1" or 2" camera with a 400-foot reel)
- Survey Rods
- Triaxial Gauss Meter
- Windows Computer to run Harris Mega star software.

3.30 CONTRACTOR USE OF APPROVED MATERIALS

The Contractor must not install any equipment or material prior to approval by the Engineer. Approved installed equipment or material is subject to removal solely at the Contractor's expense.

If the Contractor changes the supplier of any approved materials for the Contract, a new submittal for that item must be made for review and approval by the Engineer. The Contractor must provide free access to the Bureau of Materials personnel for inspection to ensure that the approved materials are used.

The Contractor (including all supervising personnel) is expected to familiarize themselves with all requirements with respect to proper materials, methods and procedures and failure to do so will not be justifiable grounds for lack of compliance with the contract requirements.

The Contractor must be responsible, under Routine Maintenance for providing spare equipment for emergency and routine service and for overhauling equipment, to meet the response and maintenance requirements as stated herein. The materials furnished by the Contractor must be approved by the Engineer, in equal quantities, which must be identical to the original elements except as otherwise specified herein or permitted by the Engineer.

The Contractor and the Engineer must meet by December 1, 2024, to agree on the minimum quantity of materials which the Contractor must have in his/her possession at the start of this Contract. Refer to lists of minimum quantities of equipment in System Articles herein.

Following an inventory related failure to meet the routine maintenance requirements of the Contract, the Engineer may direct the Contractor to maintain a minimum quantity of specific materials.

This shortage of materials, parts, or equipment must be sufficient cause to assess liquidated damages. The Contractor must submit anticipated schedule(s) for ordered replacement items when requested by the Engineer. The Engineer may inspect the Contractor owned spare parts inventory at any time as deemed necessary.

A shortage of any material, parts, or equipment causing delays in the implementation of replacements of materials or repairs must be sufficient cause to assess liquidated damages.

3.31 CATALOG CUT SUBMITTALS FOR APPROVAL

Within 60 days after contract execution, the Contractor must submit on the Department's TOCS (Traffic Operations Construction Submittal) computer entry system the product data (for standard products and components) and detailed shop drawings (for fabricated equipment) of materials and project equipment (products) proposed for use on this Contract for both routine and non-routine maintenance. The Engineer may grant permission to delay certain submittals until the applicable work is authorized, but the 60-day requirement must apply to all commonly used and general items.

The Contractor will receive an automatic email of the receipt of each submittal to be reviewed. The receipt of the TOCS submittal receipt email will be construed as the Contractor's assurance to the Department that the submittal information is accurate and conforms to the requirements of the contract documents. Unless otherwise indicated, manufacturer's guarantees must be included with the submittal information.

Once the submittal has been reviewed by Department personnel the TOCS system will automatically email the Contractor as to the status of the submittal item. First there is a "Action Taken" which denotes that the submittal is either "Completed" or "Rejected Without Review. The sub-section will specify as to whether the item has been "Approved as Noted" or "Disapproved."

Due to the highly specialized nature of Surveillance System equipment items must be manufactured by the original equipment manufacturer, unless written approval is given by the Engineer. The Engineer may waive the requirements for shop drawings for certain original-manufactured fabricated equipment if original shop drawings on file remain valid for the equipment. It is the Contractor's responsibility to coordinate accordingly.

Submittals need not include all project equipment and materials in one submittal; however, the submittals for the equipment and materials for each individual pay item must be complete in every respect. The Contractor may request, in writing, permission to make a partial submittal. The Engineer will evaluate the circumstances of the request and may agree to review such a partial submittal.

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 the submittal and to make any requests for deviations in writing to the Engineer. In general, substitution is superior to the material or equipment required by the Contract Documents.

3.32 CERTIFICATION REQUIREMENTS

Where certifications are specified, the information submitted for approval must incorporate certification information. When a certification is available prior to equipment manufacture, the certification must be included with the submittal information. When a certification is available only after equipment manufacture, the submittal must include a statement of intent to furnish the certification after equipment approval and manufacture. Certifications involving inspections and/or tests of equipment must be complete with all test data, dates, and times.

3.33 SAMPLES OF MATERIALS

The Engineer may request from the Contractor a sample of a specific item of a submittal for review and evaluation. The sample must remain property of the Contractor and must be returned after the review and evaluation with comments as applicable.

3.34 NEW MATERIALS INSPECTION REQUIREMENTS

The Contractor must comply with the applicable requirements of Section 106 and 1000 of the Standard Specifications for Road and Bridge Construction. No uninspected equipment/material is to be delivered to the job site. When underground materials are furnished, the Contractor must notify the State of Illinois, Department of Transportation, Bureau of Materials personnel to provide proper inspection for the approval of the materials, prior to delivery to the job site.

3.35 MATERIAL STARTING QUANTITIES

The Contractor and the Engineer must meet by December 1, 2024, to agree on the minimum quantity of materials which the Contractor must have in his possession at the start of this Contract. Refer to System Articles herein for preliminary list of Contractor starting quantities.

Following an inventory related failure to meet the Routine Maintenance performance requirements of the Contract, the Engineer may direct the Contractor to maintain a minimum quantity of specific materials. The additional cost of purchasing and storing the required parts inventory must be borne solely by the Contractor.

A shortage of any materials, parts, or equipment causing delays in the implementation of replacements of materials or repairs must be sufficient cause to assess liquidated damages. The Contractor must submit anticipated schedule(s) for ordered replacement items when requested by the Engineer. The Engineer may inspect the Contractor's spare parts inventory at any time as deemed necessary.

ARTICLE 4.0 EMC ROUTINE MAINTENANCE WORK

4.1 BIDDING

Routine Maintenance Work includes all pertinent Traffic Control and is included in Routine Maintenance bid items. No additional compensation for Traffic Control is allowed.

4.2 GENERAL MAINTENANCE WORK

Specific items of Routine Maintenance work are described under the description of work for each respective system. General requirements of Routine Maintenance are included in, but not limited to this Article.

The Contractor is authorized and required to perform Routine Maintenance work on all Department owned and maintained electrical equipment, devices, systems, and appurtenances, at locations maintained by the Department. The work includes, but not limited to, response, scheduled or emergency work, and preventative maintenance actions, including providing all necessary traffic control.

The Contractor must:

- A. Perform Routine Maintenance which includes, but not limited to,
 - Preventing operational problems.
 - Minimizes trouble calls.
 - Safeguard electrical safety and promote operational safety to prolong the operation life of the installed systems.
 - Maintenance activities directed by the Engineer and/or jointly developed by the Engineer and Contractor.
- B. Install parts / equipment / materials.
 - In accordance with the best practice of the trade, industry standards, and in manufacturer's recommendations.
 - At new locations where the Department takes maintenance jurisdiction during the contract year.
- C. Perform all necessary delivery, installation, removals, and re-installations as stated on work authorizations when parts / equipment / materials are used from the EMC spare parts inventory.
- D. Not use Department owned contract spare parts for Routine Maintenance work unless specified herein.
- E. Contact the engineer in writing to
 - Request the use of the Department owned contract spare parts.
 - Create a ticket to document the transaction.
 - Replace the parts, in kind, as soon as possible. The ticket will remain open until the parts are returned.
- F. Allow the engineer to
 - Make frequent review of the work performed by the contractor.
 - Make periodic inspections of the respective systems to evaluate if all maintenance operations are being performed satisfactorily.
 - Perform inspection utilizing safe access.
- G. Provide proof of the daily work performed, which includes:
 - Digital photos of the exterior and interior of structural buildings, huts, pump stations, etc.
 - Digital photos of the interior of all cabinets, including its, lighting, and traffic signal.
 - Documentation and closing out tickets in the EMCMS.

The Contractor must furnish:

- A. New parts / equipment / materials for all
- B. EMC maintained system equipment found damaged (regardless of type) or malfunctioning.
- C. Damage caused by others, including, but not limited to vehicular, third party, vandalism, natural causes, or utility companies.
- D. New parts / equipment / materials
- E. In equal quantities and identical to the original elements as approved by the engineer when replacing in-kind.
- F. Comparable or better components to the original when replacing in-kind is not possible.
- G. Catalog cuts and description of replacement materials that are different from the original installation.
- H. Documentation that all materials, repair methods and/or equipment replacements are in accordance with specifications and standards.
- I. Red-lined record drawing(s) to reflect all revisions from the work completed. This documentation must be transmitted monthly in the routine work submittal on the FTP site.

By signing the monthly Routine Maintenance work invoice the contractor is documenting to the Engineer that the various items of equipment at all locations perform properly, that maintenance completion dates as agreed upon are met, and that repair work as performed on system equipment meets all applicable codes, manufacturer's recommendations, and requirements herein.

The contractor's engineer appointed for this Contract will be responsible for the Routine work in conformance with Section 105 of the Standard Specifications for Road and Bridge Construction, and Contract Special Provisions.

All expressway, shoulder, or lane closures required for clearing and installing temporary or permanent repairs must be in conformance with existing Departmental standards governing lane closures. Refer to section 4.23, Traffic Control, for further MOT requirements.

Preliminary Work

At the Engineer's request the Contractor must inspect, investigate, and provide a preliminary sketch and layout with measurements, dimensions and connections of equipment, components, and material quantities for work to be performed under Routine (or Non-Routine) Maintenance. The sketch must be provided within three (3) days of the Engineer's request.

Temporary Repairs

Temporary repair/service restoration is normally required within twenty-four (24) hours of Contractor personnel arrival; however, weather situations may allow extensions and/or other specific instructions are found herein the System Articles.

Permanent Repairs

Permanent repairs must be started promptly following temporary repairs, and must be continued insofar as possible without interruption, until completion. If a permanent repair delay is due to parts on order, the Contractor must note this information in the Ticket and furnish the Engineer, via email the corresponding material requisition and purchase order for those parts or components. Specific instructions for permanent repairs and time requirements are found herein the System Articles.

Salvage of Damaged Equipment

All damaged equipment, determined by the Contractor not to be re-usable, must be removed from the state highway right-of-way within twenty-four (24) hours from the time of the notification of the incident, exclusive of Saturdays, Sundays, and Holidays, and taken to the Contractor's shop area. For procedures and documentation of state-owned scrapped materials and parts refer to Article 2.15.12.

Restoration

Following repair work, the associated area restoration must be equal to or better than the original area condition. For example, if the soil / sod has been disturbed during his work, the Contractor must re-grade the surface work area with black dirt, placing seed or sod.

4.2.1 ROUTINE MAINTENANCE SPECIAL TRANSITION SITUATIONS

The incoming Contractor must be paid per Article 109.05 of the Specification of Road and Bridge Construction for materials ordered.

The Department must meet with the incoming Contractor in the first two weeks of January 2025 to review the sites of incomplete Routine work, to create new work tickets for year 2025.

The Department will furnish materials for the new work tickets through EMC spare parts inventory where/when available or through non-routine pay items as applicable. Where pay items are not applicable the Department will meet with the Contractor to find a compromise/agreed price solution.

4.3 EQUIPMENT UNDER WARRANTY

The Contractor must keep current a list of equipment which is under warranty to the Department, in an Excel spreadsheet, by EMCMS location number, main route and cross street and unit or cabinet number if applicable. If malfunctions occur on this warranted equipment, it is the responsibility of the Contractor to contact the applicable construction contractor, vendor and/or manufacturer to resolve the problem(s) and make the necessary repair or replacement. In some cases, failed equipment under warranty will be needed to be shipped back to the manufacturer. The Contractor must keep documentation of all Warranty related problems(s) and must enter the information on a Ticket.

4.4 MANUFACTURER SPECIFICATIONS

All equipment must be maintained in accordance with manufacturer specification and recommendations. Routine Maintenance equipment service schedules and work must be executed in accordance with equipment operations and maintenance (O&M) manuals. The Engineer must be immediately notified if any procedure or testing process required herein contradicts any manufacturer maintenance specifications.

4.5 PROCEDURES FOR INTRUSION OR VANDALISM EVENTS

If Contractor personnel see an unauthorized individual at a maintained site, they must notify the EMC Dispatch Center to call for police assistance, before confronting an individual.

If the Contractor arrives on the scene of major vandalism to IDOT property, the Engineer must be notified, and the incident must be reported to the police. A copy of the police report must be emailed to the Engineer and a copy scanned and stored on the FTP site with all documentation. Photos of major damage must be taken by the Contractor and forwarded to the Engineer within 24 hours. Following incidents of tempering, vandalism, or theft, the Contractor must notify the local police agency so they may more frequently monitor the area.

If any entry alarm is received, the EMC Dispatch Center must dispatch a Patrolman to the scene. If a break-in is confirmed, the Patrolman must notify the IDOT communication center who must dispatch Police to the area and notify the Engineer. The Patrolman must wait for the IDOT representative to arrive on the scene and make thorough inspection of the facility to ascertain if anything is missing or damaged, before the Patrolman files an official police theft report.

The Patrolman must take photos of the damage and relay all information to the EMC Dispatch Center so a ticket may be created. The EMC Dispatch Center must obtain a copy of the official police report. Copies of the patrolman's photos and the police report must be submitted to the Engineer as soon as possible.

When damage or loss of system equipment is the result of repeated and extensive theft activity which affects continuity of service, the Engineer may authorize Non-Routine maintenance payment of all or a portion of the permanent repair work, using contract pay items wherever applicable. The potential for the permanent work authorization, however, must in no way relieve the Contractor from the responsibility to promptly respond.

4.6 EMERGENCY CALL-OUT PLAN

The Contractor is required to have an Emergency Call Out Plan that formalizes the 24/7 emergency response necessary to provide continuous maintenance for systems covered under this contract. The Contractor must appoint managerial level personnel to be on-call (on a rotating basis) after normal workday hours and on weekends, to serve as an Emergency Response Coordinator, who if severe storm or snow predictions are announced by the media, or emergency situations arise, will activate the Contractor's Emergency Call-Out Plan.

In this capacity the Emergency Response Coordinator must coordinate work with the EMC System Managers and EMC Dispatch Center Supervisor so there is a callout of additional personnel to address the type of situation predicted or at hand. The weekly scheduled Emergency Response Coordinator and applicable phone numbers must be furnished to the Engineer must be immediately notified by text if the Contractor's Emergency Call-Out Plan has been activated.

Under storm conditions, emergency situations or other special circumstances requiring the setting of priorities from among system needs, all requiring immediate corrective action, the assigned Emergency Coordinator must set response priorities in such a manner as to minimize hazard and inconvenience to the public and otherwise optimize the effectiveness of the contractor's forces. The Contractor must communicate and coordinate with the Engineer in such situations.

4.7 CONTRACTOR IMMEDIATE RESPONSE

Time is of the essence for Contractor personnel to arrive at the scene, shutdown or safely isolate any potentially hazardous electrical situation, clear the pavement of any equipment debris resulting from damage to system equipment, and take corrective measures to restore normal traffic operations and assure the safety of the traveling public. Normal response time must be one (1) hour.

Certain equipment is critical to the EMC and requires immediate response and immediate corrective action, including failures of fiber optic equipment, servers, distribution equipment, or intrusion alarms, all non-scheduled power outages, and other equipment items as specified in Systems Articles herein. This Routine work may need to be provided as overtime or double-time work.

It is an objective of this Contract to have Contractor personnel respond to trouble calls as quickly as possible after obtaining an acceptable amount of information. A Ticket must be created, and personnel dispatched to a reported incident, after being provided, at a minimum, the main route and a cross street.

The Contractor's workforce must continuously watch for system elements that are malfunctioning or in need of replacement. When items are found the Patrolman creates a Found-On Patrol (FOP) Ticket or the EMC Dispatch Center must be immediately notified to create a FOP Ticket. The malfunctioning equipment must be repaired or replaced as part of routine maintenance unless specifically noted in System Articles herein.

4.8 REPAIRS OF MOTORISTS CAUSED HIGHWAY DAMAGE (MCHD)

The Contractor must abide by routine maintenance damage response and repair requirements stated herein and in Systems Articles herein, for temporary and permanent repairs. Most materials, equipment and labor for repairs are furnished by the Contractor and paid through routine maintenance.

Upon arrival at the location of the motorist caused equipment damage, the dispatched Patrolman or other Contractor personnel must take a minimum of 3 digital photos of the overall damage: one for the damage with the street area showing, and two of the damaged equipment. Close-up photos of decals are not desired. Until notified by the Engineer if situations warrant, follow-up photos of the repaired equipment are not required.

The Contractor may not use Department owned, contract spare parts for motorist caused damage repairs for the Traffic Signal or Lighting Systems. However, for the Surveillance System, from January 1, 2025, until the supply is diminished, the Contractor, may use named parts and materials as specified in Article 9.0 Surveillance System, for REVLAC, Ramp Gates, and RACS motorist caused damage repairs.

The Contractor is not allowed to collect repair costs from motorists or insurance companies.

Refer to Article v2.15.9 for administrative requirements to furnish parts costs, create motorist caused damage statements of repair cost, and furnish damage photos, all to be approved by the Engineer and forwarded to the IDOT Claims Department.

When a MCHD statement of repair cost for DMS, Fiber, REVLAC Barrier, Traffic Signal cabinet or Lighting cabinet exceeds \$50,000.00 and the Contractor furnishes full documentation of labor, equipment, and materials, with applicable photos of damage, and the IDOT Claims Department successfully processes the claim with the motorist's insurance company or motorist, the Contractor must be reimbursed for the repair amount over \$50,000.00 through the monthly routine maintenance payment. The Contractor may only collect payment from the Department for repair work necessary per incident in either Article 4.8 or 4.10.

Expressway Sand Barrels

When Contractor personnel find motorist caused damage to expressway ramp gate sand barrels the EMC Dispatch Center must be immediately notified to create a Ticket and notify the IDOT Communication Center, who in turn will notify IDOT District One Bureau of Maintenance personnel who will replace the barrels and sand.

4.9 3RD PARTY DAMAGE REPAIRS

When equipment is damaged by 3rd Parties such as Contractors, general repair crews hired by cities or agencies, utility companies, and the like, the Contractor must clear the site for safety of the motorists and make necessary temporary repairs under routine maintenance, per specifications herein, including Articles 4.2 and 4.7, but may bill the offending party for Contractor work performed. It must be the 3rd Party offender who decides if they must use the EMC Contractor or another Illinois Department of Transportation/District 1 approved electrical contractor to complete the permanent repair. Time is also critical to perform permanent repairs, which must be completed per specifications herein.

Upon finding 3rd Party damage to state property (not caused by Department personnel), the first Contractor Patrolman responding to the scene must obtain information for the GB (General Billing) Ticket:

- Date stamped, digital photos of the damage.
- The name of the contractor at the scene, address, contract, or permit number and contract name and phone numbers (It is the Contractor's responsibility to locate the offending party.)

4.9.1 3RD PARTY REPAIRS – POSSIBLE REIMBURSEMENT

If the Contractor has followed all 3rd Party billing procedures as listed herein Article 2.15.15 and after four (4) months of correspondence, notifies the Engineer those funds cannot be recovered for 3rd Party Damage repairs, the Department may furnish Contract spare parts to reimburse the Contractor or may issue a non-routine pay item authorization (PIWA) where unit price items are applicable. The Contractor must remain responsible for labor costs. Each incident will require review by the Engineer before authorization for payment is issued. The Contractor may only collect payment from the Department for repairs for one incident as applicable to either Article 4.9.1 or 4.10.

4.10 SPECIAL DAMAGE REPAIR SITUATIONS

In special damage or repair situations where routine parts replacement costs (not labor) exceed \$150,000.00, for a single incident at a single location, or a single piece of equipment at a single location or a hazmat clean up at a single location, at an EMC maintained ON-Maintenance location, the Department may make a special material only routine maintenance payment to the Contractor, not to exceed \$150,000.00.

The Contractor must provide proof that there was no Contractor misuse of equipment, that all preventive maintenance was performed to schedules provided herein, and that the item was maintained to the manufacturer's specifications, so as to conclude that the damage or malfunction was caused by an act of god (force majeure) such as earthquake, lightening, explosion, or that the item was mis-designed for its use or capacity when installed in system equipment, as approved by the Department. (In situations where mis-design is alleged, the Contractor must provide an inspection report from a 3rd Party design consultant as selected by the Engineer.) The fact that a part is old or no longer manufactured will not be cause for this special payment. Refer to Contractor Advisories in Article 2.9 to report aging equipment in need of replacement.

For this special payment to be applicable the Contractor must:

- Provide material quotes (3) from vendors.
- Provide list of Contractor owned parts to be used and their purchase cost (provide vendor invoice).
- Provide minimum of five (5) photos of the damage or malfunctioning equipment part.

It is the Engineer's option to furnish parts from the EMC Spare Parts Inventory or to use unit prices where applicable, in the determination of the amount of the special payment to the Contractor.

4.11 GRAFFITI AND/OR DEFILEMENT REMOVAL

All graffiti, including advertising decals, found on system equipment and or structures and buildings must be removed within three (3) working days. Painting over the graffiti is not allowed.

When Patrolmen find, or are informed of locations where paint, corrosion, grime, and remnants of rodent/insect infestations are not easily removed by hand or with common cleaners, a Ticket must be created.

The Contractor must clean this equipment with a dry ice blasting machine equal to or better than the Cold Jet SDI Select 60 with cold jet accessories (hoses, applicators, nozzles, and cables). For most situations an after cooler will be needed if a diesel air compressor is used. The after cooler must be equal to or exceed Cold Jet aftercooler 2M0023-G1 equipped with all the necessary accessories to operate in conjunction with a Cold Jet SDI Select 60 machine or equivalent.

Applications include Pump Stations, communication shelters, control cabinets, light towers, transmission cabinets, switch gears, printed circuit boards, display modules, etc. It is expected that approximately 5,000 sq feet of cleaning will be required throughout the Contract year.

4.12 GPS DOCUMENTATION

The Contractor must provide or maintain all GPS readings for all Contract locations in the EMCMS as of the beginning of the year and for any new locations or fiber which are transferred to this Contract during the year. If inaccurate information is found, the Contractor will be required to provide the correct GPS locations in the EMCMS.

Latitude and Longitude must be in decimal degrees with a minimum of 6 decimal places.

4.13 PROVIDING SYSTEM SERVICES

Upon request of the Engineer, the Contractor is required to provide trained personnel for the following miscellaneous routine maintenance work:

- Provide system access to utility workers or inspectors approved by the Department.
- Provide system access for other contractors and consultants who have IDOT approved contracts or permits to work on IDOT equipment.
- Conduct an immediate System or component inspection upon notice of the Engineer.
- Provide additional special patrols, inspections, and tests to confirm proper system equipment operation.
- Collect information to analyze the nature of repetitious or intermittent system malfunctions.
- Travel to a designated location/installation to determine ownership, take photos of the requested area, and email photos and information back to the Department (response required within two (2) hours of request, unless directed otherwise).
- Provide Patrolman for monitoring (stand-by time) of hazardous or emergency situations.

The Contractor must enter and complete Service Request Tickets (SR) in the EMCMS for each request.

4.14 COORDINATION WITH ELECTRICAL UTILITY COMPANIES, CONTRACTORS, AND OTHERS

The Contractor must always keep incoming power service in proper condition. The Engineer must be promptly notified by email for cases such as the planned disruption of service power to System equipment.

The Contractor must monitor the condition of electric service wiring and equipment, telephone service wiring and equipment, natural gas service lines and accessories and water service piping and appurtenances for all systems and facilities maintained under this contract. The Contractor must maintain contacts with the respective utilities or providers for these services and must coordinate with the utility and the Department to assure that services are installed in a timely manner, in compliance with requirements established for the service.

The Contractor must fully coordinate access as required for utility company or contractor inspection, modification work as applicable, repair work as necessary and other matters as necessary to assure continuity of services and proper revisions when needed.

The Engineer may require the Contractor to inspect related non-system equipment, such as Com Ed power lines, that may interfere with the functioning an/or maintenance of systems as covered in the Contract.

The Contractor must assist the Engineer with the inspection of work completed by others such as the construction and/or replacement of intermittent median walls by a construction contractor and the necessary inspection of the required EMC electrical ducts.

4.15 TICKETS

Work Tickets are required to be created on the EMCMS to:

- Record malfunctions and problems found (FOP Found on Patrol)
- Document Contractor response to incident calls to the EMC Dispatch Center
- Documentation of all repair work on system equipment

Contractor System Managers and the EMC Dispatch Supervisor must review the Ticket entries and coding daily to assure all required fields are entered, correct information is entered, and any duplicate Tickets are voided. IDOT inspectors also monitor the ticket coding and ticket information input and must require the Contractor to make corrections as necessary.

The Contractor must enter all required data for Tickets in the proper fields in the EMCMS screens and must have all fields completed accurately and timely. The Contractor may view the EMCMS Ticket and entry requirements following the Pre-Bid Meeting.

Although the immediate response of Contractor personnel is the priority of any Declared Disaster (or potential Declared Disaster), properly documented Ticket information is necessary for the Damage Repair Submittal form and Detailed Damage Inspection Report, which are requirements for possible additional payment to the Contractor when there is a Declared Disaster.

Refer to Article 13.0, Ticket Types and Example Charts, for examples of types of tickets and quantities. The Ticket Entry Screen may be viewed by bidders following the Pre-Bid Meeting.

4.16 LOCATING CABLE OR OTHER COMPONENTS OF IDOT SYSTEMS

To prevent damage and facilities work by others, the Contractor must promptly respond to Department of 3rd party calls requesting a locate of state-owned electrical systems, cables, or components at all work locations and/or facilities. A significant number of Contractor personnel with applicable training are required to perform cable locates.

The Contractor is required to perform a locate of state-owned underground cables or any other components, one time for each system locations(s), per project or contract, as requested by the general contractor of a construction project, or other contractor hired for work on IDOT owned equipment, before or after the transfer of maintenance responsibilities. Each request may involve multiple locations where separated electrical systems are involved. Markings must be given with a horizontal tolerance of one foot to either side.

If the EMCMS Cable Locate entry screen was completed, and the requesting contractor notified by the EMC Contractor that the 1st cable locate would be performed on a designated date, the EMC Contractor may charge 3rd parties for requested 2nd or more cable locates.

The Contractor must also perform all cable locates as necessary for projects/authorized work for the electrical systems herein. All fiber optic cable locates within Department ROW will be performed by the Contractor. Future permits for work in the Department ROW must require the permit holder to coordinate the fiber optic utility locates with the Department.

For each request for a cable locate, the Contractor must give out a Cable Locate Ticket Number to Construction contractor(s), IDOT permit contractor and IDOT approved agencies, municipalities, utilities, etc. The Contractor must obtain the requestor's email address and must notify them if there are questions about the Locate and email the requestor if a change in the scheduled Locate Date is necessary.

The Contractor must enter all required data for cable locates in the proper fields in the EMCMS screens and must have all fields completed accurately and timely. Entry fields include a CN, Permit # or LR section # before the locate can be scheduled. The Contractor may view the EMCMS Cable Locate and entry requirements following the Pre-Bid Meeting.

4.17 MAINTENANCE TRANSFERS

The Contractor must cooperate with the Engineer and Construction Contractor(s) with respect to transfers of maintenance on system elements and inspection of completed construction work for Department acceptance. The Contractor must provide the technical expertise to assist the Engineer and Department Inspectors to make equipment inspections of installations to be added or removed from routine maintenance to ascertain that the equipment is in proper working order and to verify Department assets for the inventory.

If the Contractor Patrolman or Contractor System Manager is setting up the transfer a minimum of 24-hours advance notification to the area IDOT Engineer/Tech is required as well as the names of the Contract personnel who must be attending the transfer meeting.

If the area IDOT Engineer/Tech is setting up the transfer a minimum of 24-hours advance notification to the Contractor Patrolman and Contractor System Manager is required.

If a location is going Off-Maintenance to a construction contractor, the EMC Contractor is required to inspect the location and fix any found malfunctions or problems prior to the date of the scheduled maintenance transfer.

If a location is coming On-Maintenance, the Contractor is required to inspect the equipment to assure the Department all is in working order. The Contractor must confirm to the Engineer that the work and test results meet or exceed the Standard Specification for Road and Bridge Construction and manufacturer's specifications.

The official transfer inspection must normally be attended by the Contractor Patrolman and Department representative. In some unique situations the Engineer may allow the Department's area Engineer or Tech to give verbal permission for a transfer of maintenance to the Contractor Patrolman and/or Contractor System Manager. A Contractor Patrolman for the specified transfer location or Contractor System Manager must attend the transfer meeting.

Upon the completion of the maintenance transfer, the Contractor must complete required maintenance transfer forms or equipment inventory forms as specified herein the System Articles. All transfer information required must be entered into the EMCMS.

The Contractor must:

- Confirm to the Engineer that the work and test results are within the range identified in the Standard Specifications for Road and Bridge Construction and manufacturer's specifications.
- Provide new locks for system equipment if requested by the Engineer.
- Notify the Engineer with respect to the completeness, workmanship, safety, and maintainability of the installation so the Engineer can make the final determination regarding acceptance.
- Take maintenance responsibility for a location and all its equipment, if directed by the Engineer.
- Take GPS recordings per Article 4.12 herein. This work must be applicable to all systems.
- Provide the list of equipment (Department owned assets) to the Engineer and to the EMC Dispatch Center or Contractor assigned Inventory Manager for entry in the EMCMS within 48 hours.
- Enter all information from maintenance transfers including, but not limited to dates, times, punch lists, tests, agreements, on the FTP site.

Refer to Electrical System Articles herein for specific transfer procedure requirements.

4.18 GENERAL EMC SPARE PARTS REQUIREMENTS

The Contractor must use Department owned EMC Spare Parts only when directed and approved by the Engineer. The Department is not obligated to furnish specific materials, parts, or equipment for Contractor use. For inventory storage requirements refer to Article 2.6.4 and 2.6.5.

The Contractor must deliver any part, equipment, or material from the EMC Spare Part Storage facility/warehouse/area or Contract facility location to Contract work sites within District 1, other EMC Spare Part storage facilities, shops, or sites, or to State facilities as directed by the Engineer. The Contractor is responsible for timely, safe transportation and handling.

Contractor must provide experienced personnel to inspect all items coming into EMC spare part storage facility/warehouse/area or Contract facility location. Non-working or damaged parts/equipment/materials must be scrapped and not moved into any EMC Spare Part Storage facility/warehouse/areas, and items are appropriately boxed/wrapped, categorized, stored on proper shelving, and stored in the proper environment.

The Contractor must assure that only parts/equipment/materials in good working order and/or good condition must be placed in the EMC Spare Parts Storage facility/warehouse/areas, and items are appropriately boxed/wrapped, categorized, stored on proper shelving, and stored in the proper environment.

The Contractor must also reconcile the EMC Spare Parts inventory (Excel Spreadsheet) to the one issued by the leased warehouse. Any discrepancies must be reported to the Engineer.

The Contractor is required to retain all inventory records for a period of seven (7) years following the completion of the Contract.

The EMC System Managers and appointed IDOT System Engineers/Technicians must sign and approve the monthly reports. Refer to Article 2.15.13 for EMCMS Spare Parts Entry and monthly reporting requirements.

4.19 EMC SPARE PARTS USE BY THE CONTRACTOR

If the Contractor receives Engineer approval via email to use Department owned EMC Spare Parts, a SP (Spare Parts) Ticket must be created with the applicable System as the Ticket Sort (TS, S, PS, or L) and the EMCMS entry of "Item Reported" to be "SPARE PART(s) TO BE RETURNED" and give brief description of the part/equipment/materials. The Ticket must remain open until the EMCMS Spare Parts Entry Log is received by the Engineer.

4.20 EMC SPARE PARTS AUDIT

The Contractor must conduct an audit of all EMC Spare Parts inventory in January 2025 (also in January 2026 and 2027 if this contract is continued). Contractor personnel will note and modify all changes on Excel spreadsheets. The audit should be completed by the end of February each Contract year.

The Contractor is responsible for all record keeping for the EMC Spare Parts inventory for the duration of the Contract, including all EMCMS entries, Transaction Reports, and Inventory documentation for each system.

4.21 LAMP RECYCLING

All lamps removed as part of re-lamping operation, outage repairs or other authorized work must be disposed of in full compliance with Environmental Protection Agency (EPA) regulations. The EPA Rule 40 CFR, part 273, finalized in May 1995 established a guideline for the recycling of lamps and the mercury from scrapped lamps. Fluorescent, high-intensity, low pressure sodium, and other lamps bearing mercury may be classified as potentially hazardous waste.

The Contractor must recycle removed lamps to the maximum extent possible, over the course of the Contract, the Contractor must provide documentation of all lamp recycling activity to the satisfaction of the Engineer.

4.22 DISPOSAL OF SCRAP

The Engineer must have the sole determination as to whether material and equipment are reusable as system equipment. All removed items remain property of the Department. The Contractor may not dispose (scrap) any materials and equipment without receiving prior approval from the Engineer in writing.

The Contractor must be responsible for the proper, legal disposal of all scrap items, materials, parts, equipment, obsolete items and/or components, etc. The estimated salvage value of scrap materials should be reflected in the routine maintenance bid price.

Refer to Article 2.15.13 for EMCMS Spare Parts Entry, Scrap documentation, and monthly reporting requirements.

4.23 TRAFFIC CONTROL

4.23.1 TRAFFIC CONTROL AND SAFETY

When a project is near a railroad grade crossing, regardless of whether it is interconnected to the crossing, the Contractor should be aware of the construction-related conditions that may cause traffic to back up onto the railroad tracks. When such queuing is likely, the Contractor should consider additional maintenance of traffic measures or other procedures to satisfy the requirements of the current edition of the MUTCD for the work zone conditions, railroad-highway grade crossing and IDOT Traffic Control Standards and Details.

When a grade crossing exists either within or in the vicinity of a temporary traffic control zone, lane restrictions, flagging (see chapter 6E), or other operations must not be performed in a manner that would cause highway vehicles to stop on the railroad or LRT tracks, unless a flagger or uniformed law enforcement officer is provided at the grade crossing to minimize the possibility of highway vehicles stopping on the tracks, even if automatic warning devices are in place.

4.23.2 TRAFFIC CONTROL PLAN

The Contractor must provide bound copies of their Traffic Control Plan for the Electrical Maintenance Contract operations, for all patrol vehicles, work crew vehicles, and supervisory vehicles.

The Contractor must provide two copies of their Traffic Control Plan, one must be submitted to the IDOT Expressway/Traffic Operations Engineer for review, and one provided to the Engineer prior to or at the Pre-Construction Meeting. The Contractor must submit the names of the subcontractors for traffic control installation and maintenance at the Pre-Construction Meeting.

4.23.3 KEEPING THE EXPRESSWAY OPEN TO TRAFFIC

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

The governing factor in the execution and staging of work is to provide the traveling public with the safest possible travel conditions on the expressway through the work zone. The Contractor must arrange operations to keep the closing of lanes and/or ramps to a minimum.

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

Bidders will be provided a chart with times of allowed closures at the Pre-Bid Meeting.

The approval for emergency closures or emergency moving operations must be requested from the Communication Center, (847-705-4612) as soon as the need is determined, prior to the Contractor's arrival on the expressway.

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

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

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

Lane closure hours will be determined by the Expressway Traffic Operations Engineer and will be made a part of the Traffic Control Plan. The Contractor must perform work specified herein within the Allowable Expressway Lane Closures Hours.

4.23.4 TRAFFIC CONTROL DEFICIENCIES

Upon notification from the Engineer of Department Expressway/Traffic Operations personnel, the Contractor must dispatch qualified personnel immediately to make needed corrections of deficiencies that constitute an immediate safety hazard and/or the blocking of traffic lanes or ramps. If the Contractor fails to correct the deficiency within the specified time, a daily monetary deduction will be imposed, in accordance with Article 105.03 (b) of the Standard Specifications. This time period will begin with the time of notification to the Contractor and end with the Resident Engineer's acceptance of the corrections.

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

Department for the amount of:

One lane or ramp blocked = \$3,000.00/15 min

Two lanes blocked = \$7,000.00/15 min

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

4.23.5 TRAFFIC CONTROL COMMUNICATION REQUEST

The contractor will need to provide a main point of contact for all lane closure requests. The main point of contact must coordinate with the EMC and Expressway Traffic operations engineer for approval prior to all implementation of MOT operations. **No exceptions.** Any changes to the main point of contact from the contractor will need to notify all parties involved.

A minimum of one week notice must be provided for any location classified as a no means of escape. Examples of such classification include but not limited to bridge structures, tight / no shoulders, and any work that demonstrate no escape route.

4.23.6 EMERGENCY LANE CLOSURE REQUESTS

Any emergency lane closure request that does not fit the definition of an emergency lane closure must be treated as a standard lane closure request. Emergency lane closure must adhere to the following definition and/or rationale:

Emergency Lane Closure consists of events that are posing immediate danger to the traveling public, where injuries and possible further bodily harm will occur. When requesting an emergency lane closure, the reasons / rationale must include the following:

- Large objects are in the roadway. Examples of such large objects include, but not limited to, sign truss members, pieces of signs, pieces of dynamic message signs, etc.
- Conduits from bridges, signs (static & dynamic)
- The situation warrants an imperative and immediate action.

Emergency Lane Closures, during peak hours, must only be used to make the roadway safe. Any additional work to restore the location to operational or permanent setup must be done later.

4.24 PREVENTATIVE MAINTENANCE (PM) PROGRAMS

The Contractor must perform certain Preventive Maintenance (PM) work within certain regular intervals. There may be Preventive Maintenance required by the manufacturer which must be performed in addition to these inspections. All scheduled Contractor PM work must follow manufacturers' specifications.

All PM program work must be scheduled on the Daily Agenda.

The following general requirements are applicable to all systems:

- Tickets must be created for all items found broken, damaged, malfunctioning, or which do not conform to Department Standards.
- All items mentioned above must be repaired on site unless the items require follow-up repair or replacement.
- Ticket reports do not need to be submitted on the FTP site.
- The Department personnel must be able to verify the inspection through the Daily Agenda and the Contractor's GPS readings.
- GPS photos, pump station logbooks, and all other applicable documents pertaining to each system requirements must be submitted to the FTP site.
- For the FTP site, the Contractor must submit all documentations within five (5) working days of the following month. The following type of documentation should be included:

1. Photo Report – A linked camera phone photo, with GPS reading, and time stamp. The photo must be taken before and after.
2. Excel Spreadsheets or Word Table – Information to include GPS arrival date, duration, truck number, name of Contractor assigned worker, EMCMS location number and address, and the requested information in the individual PM Program.

This section is applicable to all systems. If additional specific preventative maintenance requirements are needed, they will be specified under each system article.

The Contractor must submit the report format to the Engineer and IDOT System Manager for approval at the Pre-Construction meeting to avoid any misunderstanding of the information to be submitted throughout the year. All reports must be in a legible, Excel or Word format.

The Engineer reserves the right to request a particular format for any reports. The FTP Site records for PM work must be sorted by Contract Year, Month, System, Then PM Program in Article number order.

If the Contractor disagrees with the PM Program scheduled completion dates listed herein, or the dates must be moved due to safety or other concerns, the Department will meet with the Contractor and may modify the schedule. All work must be completed in the Contract Year for On-Maintenance locations.

4.25 SITE BUILDING AND CABINET MAINTENANCE (MONTHLY)

All work must be scheduled on the Daily Agenda.

Winter Site Maintenance – December through March

The Contractor must perform snow removal operations when the snowfall total reaches 2” inches and/or sleet/ice formation. The Contractor must provide reasonable access to each building via sidewalk, staircase, walkway, driveway, and parking areas by shoveling and salting, to commence within 24 hours, and must be complete within 72 hours.

Outdoor Site Maintenance – Spring/Summer/Fall – April through November

The Contractor must perform the following:

- Grass cutting, branch removal, trash removal, apply insect/tick and weed killer spraying. for one-half of building locations every month.
- All of the above is applicable to on-half of building locations every month.
- All of the above is applicable to the approach, path, and driveway to the cabinets, building structures and within the fenced area.
- All of the above is applicable within ten (10) feet of all cabinets.
- All of the above is applicable to a radius of fifty (50) feet surrounding the building.
- Tree trimming must be performed within five (5) feet of all building structures and cabinets when applicable.

The Contractor must take two (2) GPS Photos; one before work begins and the second after work has been completed, which must be submitted monthly on the FTP Site.

Indoor Site Maintenance – Monthly All Year

The Contractor must clean all floors once per month with Simple Green cleaner, which is approved for use in areas with electrical equipment, with plain water and an industrial specified mop and bucket. This work may be combined with other monthly site maintenance requirements.

The Contractor must take two (2) GPS Photos (by phone) one before work begins and the second after work has been completed. The photos must be submitted monthly on the FTP Site.

This section is applicable to all systems. If additional specific preventative maintenance requirements are needed, they will be specified under each system article.

4.26 GENERATOR INSPECTION (MONTHLY)

For generators pertaining to the individual system, the routine inspection requirements are specified below. See specific system for generator locations.

The Contractor must inspect monthly:

- Check control panel and transfer switch operation.
- Check engine oil and coolant levels.
- Check that block heater is working.
- Check battery charging system.
- Check for holes or leaks and loose connections in the air cleaner.
- Check fuel level and fuel transfer pump operation.
- Check for exhaust system leaks or restrictions.
- Drain the condensation trap.
- Check all meters, gauges, and indicator lamps, battery tender.
- Check oil reservoir and battery acid level and maintain proper operating levels.
- Check the air filter monthly and change at specified intervals.
- Exercise generator at full load for one (1) hour.
- Note any rusting on the generator and its enclosure (for future non-routine work)
- Check for fluid/fuel leaks.
- Check generator fuel and notate level.
- Check re-circulating pump.

Diesel fuel must always be filled to the proper level. If fuel level is less than $\frac{3}{4}$ (75%) of full level, a Ticket must be created to schedule the refill of the tank.

Specific Month – Yearly Generator Maintenance:

The Contractor must perform inspection and maintenance required for the generators once per year. The Contractor may provide a schedule for this yearly work at the beginning of the first contract year. Each station must have this yearly generator work performed in the same month of the Contract year (if continuation is executed).

- Change oil and oil filters.
- Perform load testing.
- Drain, flush, and replace coolant.
- Replace cooling system hoses.
- Replace thermostats.
- Replace fan belts.
- Check and adjust valves as necessary.
- Conduct operational inspection to insure proper valve rotation.
- Check fan hub.
- Check pulley.
- Check water pump.
- Change the day tank breather.
- Clean or replace the crankcase breather.
- Change fuel filter.
- Drain sediment from the fuel tank.
- Clean accumulation of grease, oil, and dirt on set.
- Lubricate generator bearing.
- Check vibration isolators for proper adjustment and conditions.
- Check circuit breaker and transfer switch, and test equipment by simulating a power outage.
- Check turbo pressure, adjust, if necessary, to manufacturer specifications.
- Provide fuel system service to perform fuel polishing only in 2025.

Check and note any rusting on the generator and its enclosure.

4.27 CONTRACTOR IMMEDIATE RESPONSE & REPAIR

The Contractor is required to use as many personnel as necessary to respond to trouble calls within one business day of notification, troubleshoot as necessary, provide temporary service restoration within the table below or less, and permanent repairs within the time indicated in the table below. The Contractor must notify the Engineer of any repair work delays.

The following chart lists Routine Maintenance maximum response time, service restoration, and permanent repair times specifically allowed.

- **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 permanent repairs are made if the Contractor was required to make temporary repairs to meet the service restoration requirement.

| Incident or Problem | Response Time | Service Restoration Time | Permanent Repair Time |
|---|---------------|--------------------------|-----------------------|
| <i>SURVEILLANCE SYSTEM:</i> | | | |
| Continuous Count Station Site Malfunction or Damage | 1 hours | 5 days | 21 days |
| Bluetooth Vehicle Detector | 1 hour | 72 hours | 14 days |
| Cabinet Damage | 1 hour | 48 hours | ASAP |
| Cable Repairs | 1 hour | 24 hours | 21 days |
| Camera | 1 hour | 4 hours | 48 hours |
| Conduit | 1 hour | 24 hours | 21 days |
| DMS Malfunction of Damage | 1 hour | 4 hours | 10 days |
| DMS Controller | 1 hour | 4 hours | 24 hours |
| Induction Loop Lead-in Cable | 1 hour | 24 hours | 14 days |
| Loop Detector Units | 1 hour | 24 hours | 24 hours |
| Micro Loop | 1 hour | 24 hours | 14 days |
| Microwave Vehicle Detector | 1 hour | 24 hours | 14 days |
| Ramp Gate | 1 hour | 4 hours | 21 days |
| Ramp Metering Equipment / Controller | 1 hour | 4 hours | 7 days |
| Sensys Device | 1 hour | 4 hours | 7 days |
| Swing Gate | 1 hour | 4 hours | 4 hours |

| | | | |
|---|----------|----------|----------|
| Telemetry Malfunction | 1 hour | 24 hours | 24 hours |
| LIGHTING SYSTEM: | | | |
| Outage of Light Nearest RR Approach | 1 hour | 8 hours | 8 hours |
| Outage of 3 or More Successive Lights | 1 hour | 8 hours | 24 hours |
| Navigational Light Outage or Problem | 1 hour | 8 hours | 24 hours |
| Tower Outage – 51% Out | 1 hour | 8 hours | 48 hours |
| Control Cabinet Problem | 1 hour | 4 hours | 7 days |
| Circuit Out- Breaker | 1 hour | 4 hours | 7 days |
| Hanging Arm, Head, or Luminaire | 1 hour | 4 hours | 7 days |
| Motorist Caused Damage or Leaning Pole | 1 hour | 4 hours | 7 days |
| Circuit Out – Cable Trouble | 1 hour | 24 hours | 21 days |
| VARIOUS SYSTEM: | | | |
| IDOT HQ Reported Problems | 1 hour | 4 hours | 7 days |
| IDOT Equipment at TSC | 1 hour | 4 hours | 7 days |
| Maintenance Yards, Weigh Stations, Facilities Equipment | 1 hour | 4 hours | 7 days |
| District 1 Speed Stations | 1 hour | ASAP | 21 days |
| Illinois Tollway Authority Central Office / Plazas | 24 hours | ASAP | 7 days |
| University of Illinois Circle Campus | 24 hours | ASAP | 7 days |
| Illinois State Police District Chicago-Des Plaines | 24 hours | ASAP | 7 days |
| Michael A. Bilandic Bldg – 160 N. LaSalle St. | 24 hours | ASAP | 7 days |
| Weigh Stations or Rest Area Outages | 4 hours | 8 hours | 7 days |
| Maintenance Yard Outages (Exterior or Interior) | 4 hours | 8 hours | 7 days |
| Facility Outages (Exterior or Interior) | 4 hours | 8 hours | 7 days |
| TRAFFIC SIGNALS: | | | |
| Cabinet | 1 hour | 24 hours | 21 days |
| Controllers & 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 & Lenses | 1 hour | 4 hours | 7 days |
| Aviation Red Beacon | 1 hour | 4 hours | 7 days |
| Mast Arm Assembly & Pole | 1 hour | 4 hours | 7 days* |
| Traffic Signal Post | 1 hour | 4 hours | 7 days |
| Cable & 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 | 7 days |
| Closed Loop Monitoring System | 1 hour | 24 hours | 14 days |
| Post & 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 |

*Mast Arm Assembly and Pole must be set within 7 days after foundation repairs are completed or after a replacement pole and/or arm assemble become available. In the case of a new pole and/or arm assembly the Contractor must furnish a copy of the signed and dated delivery receipt from the shipping company. Temporary head placement must meet the requirements of the current Manual on Uniform Control Devices (MUTCD) for driver visibility and temporary replacement of damaged or knockdown of a mast arm pole assembly must require construction of a full or partial span wire signal installation or other approved method 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.

ARTICLE 5.0 EMC NON-ROUTINE WORK

5.1 GENERAL REQUIREMENTS

Non-Routine work under this Contract is specifically authorized work, not covered under the requirements of Routine Maintenance, for materials and work on the systems that tends to be irregular, event driven, or otherwise based on the selective direction of the Engineer in response to system needs. Non-Routine bid items are located in Article 1.0.

The Department may furnish any or all the materials or parts for non-routine work, in which case no charge for items so furnished, must be made by the Contractor. Materials or parts furnished by the Department may be from the contract spare parts inventory or from other vendor sources available to the Department.

The Department is under no obligation to authorize any Non-Routine work. The Department must authorize unit price work wherever possible or unit price work in addition to agreed work, or agreed work only, if in the best interest of the Department.

The Department is under no obligation to pay for unauthorized work or work which is not in compliance with this Contract. Non-Routine payment to the Contractor will be made only for actual quantities of work performed and accepted, materials furnished as specified, vendor invoices and requested documentation received and approved. Documentation of work and furnishing red-line drawings is paid through Routine Maintenance.

Article 109.04 of the Standard Specifications for Road and Bridge Construction will apply for Non-Routine work requirements, except that material mark-up, administrative costs, and required EMCMS processes, entries, documentation, billing, and invoicing requirements are modified as stated herein.

At the Engineer's request the Contractor must inspect, investigate, and provide preliminary sketch and layout with measurements, dimensions and connections of equipment, components, and material for work to be performed under a Non-Routine Maintenance authorization. The sketch must be provided within three (3) days of the Engineers request. Refer to Article 4.2 General Maintenance – Preliminary Work (paid through Routine Maintenance).

The Contractor will be required, through Routine Maintenance, to assist with final field inspections of work when requested by the Engineer. The Engineer may waive the physical field inspection of any work if the completion is reasonable demonstrated by performance of the system, electronic monitoring, or other means. In such cases, the Engineer reserves the right to follow-up and/or perform selective spot inspections. If evidence of incomplete or incorrect work is found, the Contractor must remain responsible for corrective action.

5.1.1 NON-ROUTINE WORK SPECIAL CIRCUMSTANCES

At the request of the Engineer, or a special circumstance event develops, the Contractor must be required to perform Non-Routine agreed work at locations under construction, locations off maintenance, at State of Illinois facilities, on equipment not maintained through this Contract in District 1, or equipment maintained by District 1 in other of Illinois counties. Travel time to locations out of District 1 will be paid to the Contractor per the current, per mile reimbursement for Department employee travel.

5.2 EQUIPMENT RATE SUBMITTALS (OWNED, LEASED OR RENTED)

By January 1, 2025, and prior to the start of any non-routine agreed work, the Contractor must provide the Engineer an Excel spreadsheet listing all field use vehicles and construction equipment to be utilized on the Contract for Non-Routine work. The Department must provide a format for this submittal, noting equipment name, model number, size, operating volume, purchase, or lease year, etc. The Contractor submittal must include all the applicable information of the equipment which will be entered into the EMCMS for Non-Routine agreed work for the year. A separate standby time hourly rate for equipment will not be paid.

If this Contract is continued, the Contractor must re-submit the applicable equipment pages from the most recent Equipment Watch Rental Rate Book for the next Contract year.

Although it is not encouraged, it is permissible for the Contractor to rent equipment for specific non-routine Contract work, however, the payment by the Department will be on the basis of the Rental Rate Book, not the vendor rental invoice.

5.3 LABOR RATE SUBMITTALS

By January 1, 2025, and prior to the start of any Non-Routine agreed work, the Contractor must provide the Engineer an Excel spreadsheet listing all employees doing work on this Contract and if applicable, their union affiliation and title, and hourly wage for straight time, overtime, and double-time work. This information must be entered in the EMCMS for use on agreed work authorizations. The EMC Project Manager must sign and approve all labor rate submittals to the Engineer.

Changes to labor rates on this Contract are applicable only from July 1st, 2025 (and in 2026 if this Contract is continued) through June 30th of each year. The Contractor must re-submit the applicable employees labor rates in June for EMCMS entry by July 1st. Agreed work authorizations must use labor rates for the time the work was accepted by the Contractor. Labor rates will not be changed in the Final Authorization, after the work is complete.

5.4 WORK AUTHORIZATIONS

A Department authorization of work, written in the EMCMS, must be received, and accepted by the Contractor, in the EMCMS, prior to the start of all Non-Routine work. Any Non-Routine maintenance work undertaken by the Contractor prior to receiving an Engineer approved authorization is done at the Contractor's own risk. It is the Contractor's responsibility to review daily, on the EMCMS, the list of authorizations which have been transmitted to the Contractor.

If the completion date will not be met or it is found that there is extenuating circumstances after the work has started such as Contractor inability to access the location, or safety reasons, both parties must agree on a new completion date and entered in the EMCMS.

Should the Engineer determine, however, that the Contractor did not make a good-faith effort to meet and agree on a new completion date, the Contractor may be assessed liquidated damages for not completing the work by the due date.

Agreed work must be performed using first shift labor rates for straight time unless Engineer approval is provided to use first shift overtime or double-time rates. Normally Contractor scheduled work for second or third shift hours will be paid through first shift labor rates.

The Contractor must keep time records of all labor on Non-Routine authorizations. When requested by the Engineer the Contractor must forward these records of Contractor or Sub-Contractor or Vendor work.

5.5 TYPES OF EMC NON-ROUTINE WORK AUTHORIZATIONS

5.5.1 PAY ITEM WORK AUTHORIZATIONS (PIWA)

Pay Item, Non-Routine work, must consist of work which has been authorized based upon the unit prices (Pay Items herein) as bid on this Contract for the various Non-Routine work items. The Department may use any pay item interchangeably from one system on another system. As examples, a Traffic Signal System pay item may be used for a Surveillance System authorization or a Lighting System pay item may be used for a Various System authorization.

In the Standard Specifications for Road and Bridge Construction, per Article 104.01, Intent of the Contract, it states "Payment to the Contractor will be made for the actual measured quantities performed and accepted or material furnished and accepted according to the contract, and the scheduled quantities may be increased, decreased, or omitted as herein provided."

The Engineer will approve and transmit an Estimated Authorization to the Contractor on the EMCMS. Pay item quantities will be based upon the initial scope of work. The Engineer will attach special instructions and/or plans to the authorization which the Contractor should review before acceptance of the work. The Contractor must accept the authorization in the EMCMS within three (3) business days of transmittal from the Department or notify the author that a review of the authorization is necessary before acceptance.

The Department must authorize pay item work per the needs of the Department and the Contractor cannot refuse to provide the work or materials unless conditions are met for an increased agreed payment per Article 104.02 "Any adjustments for increased quantities for major items of work increased more than 125 percent must only apply to that portion in excess of 125 percent of the original contract quantities."

For a savings to the Department, the Engineer may allow the use of EMC Spare Parts in a Non-Routine agreed work authorization, which will be clearly stated to the Contractor in the authorization instructions or attachments when the authorization is transmitted by the Engineer.

When the work is complete the Contractor enters in the EMCMS, the completion date, corrects any items of work or quantities as necessary, attaches all requested documentation, and notifies the author of the authorization via the EMCMS auto email, to perform a Final Inspection of the completed work.

If, following the Department inspection of the work, the work items and quantities or requested documentation are not correct the Contractor must be notified by email and via the EMCMS. The Contractor must correct the errors in the EMCMS and re-notify the author by the EMCMS auto-email notification.

Correct items and quantities and requested documentation must be entered/attached in the EMCMS Final Authorization for Department review, or the Engineer will not approve/transmit the authorization for Contractor invoicing.

5.5.2 AGREED WORK AUTHORIZATIONS (AWA)

Non-Routine quote work must consist of work for which bid unit prices are not applicable. In this Contract the term “Agreed Work Authorization” (AWA) is used in the EMCMS for entry and payment of EMC Quote Work, Agreed Price Work, Force Account Work, Specialty Vendor Work, Expenses Incurred by the Department, Material Purchases for Central Spare Parts, and Approved Sub-Contractor Work.

The Contractor must not quote a General Foreman’s time in an authorization without prior approval of the Engineer.

In some cases, two (2) Non-Routine Maintenance work authorizations may be necessary for the same project, as when the situation requires both Contractor Agreed-Price work and Specialty Vendor work.

Types of AWA

Agreed Price Work – EMCMS Quote Type #1:

- Quote Work, necessary for this Contract because bid unit prices are not applicable, which has an agreed cost established between the Engineer and the Contractor.
- Material Mark-Up allowed: 15% plus shipping costs allowed.

Force Account Work – EMCMS Quote Type #2

- Work, necessary for this Contract because bid unit prices are not applicable, where an agreed price cannot be established between the Engineer and the Contractor.
- The Engineer can direct the Contractor to perform any Non-Routine work as force account work which must be measured as described in Article 109.04 (b) of the Standard Specifications.
- Material Mark-Up allowed: 15% plus shipping costs allowed.
- A daily time/work accounting, with the name of each individual, must be kept on the daily general billing log, which must be signed by the Contractor’s field supervisor and submitted to the Engineer at the completion of each workday for the authorized work.
- A summary of all daily general billing logs, as well as full documentation of materials furnished with accompanying purchase invoices from the vendor, must be entered in the EMCMS within seven (7) working days following the completion of work. The General Billing Log form must be provided to the Contractor.
- Overtime or Double-time work billing for any Contractor personnel will not be allowed on an agreed work authorization unless prior, written approval is received from the Engineer.

- A General Foreman's time will not be billable unless there are more than five (5) Foreman working on the authorization, at the same date and time, and then only with the prior approval of the Engineer.
- A Foreman's time will not be billable unless there are more than four (4) Linemen/Journeymen working on the authorization, at the same date and time, and then only with the prior approval of the Engineer.

Specialty Vendor Work – EMCMS Quote Type #3

- Quote Work, by a vendor, as requested or approved by the Engineer, who is not an approved Sub-Contractor for this Contract.
- Material mark-up of 15% is not allowed.
- The Contractor must pay the vendor invoice within seven (7) days from Department notification of the payment scheduled date. If requested by the Engineer, the Contractor must attach a copy of the check written to the vendor in the authorization.
- Mark-Up allowed: 5% of the first \$10,000.00 (lump sum billing-shipping costs allowed).

Expenses Incurred by the Department – EMCMS Quote Type #4

- Upon request of the Engineer, the Contractor must pay the bills for expenses incurred by the Department on this Contract.
- Material mark-up of 15% is not allowed.
- The Contractor must pay the vendor invoice within seven (7) days from Department notification of the payment scheduled date. If requested by the Engineer, the Contractor must attach a copy of the check written to the vendor in the authorization.
- Mark-up allowed: 5% of the first \$10,000, plus 1% over \$10,000 (lump sum billing-shipping costs allowed).

Approved Sub-Contractor Work – EMCMS Quote Type #5

- Work, which is subcontracted, if allowed by the Engineer, which must not include work which is in turn subcontracted to an additional party.
- Subcontracted work must be limited to work performed by the subcontractors' own forces.
- Material mark-up of 15% is not allowed.
- Mark-up allowed: 5% of the total amount (lump sum billing – no shipping costs allowed).

EMCMS – AWA Work Process

Upon receiving an email or phone call requesting a Non-Routine quote work request from the Engineer, the Contractor must create an EMCMS (Estimated) quote authorization for the work and transmit to the Engineer within five (5) working days from the initial request. Attachments to the Estimated Authorization in the EMCMS must include vendors catalog cuts and any additional paperwork to explain details or provide justification of the labor or material costs.

If the first quote is not acceptable to the Engineer, the Contractor may be requested to provide additional EMCMS quote authorizations and/or from different vendors.

With the Engineer's approval and transmittal of the EMCMS AWA Estimated Authorization the Engineer will attach special instructions and/or plans to the authorization which the Contractor should review before acceptance of the work. The Contractor must accept the authorization in the EMCMS within three (3) business days of transmittal from the Department or notify the author that a review of the authorization is necessary before acceptance.

If the Contractor determines, in the course of the work, that the Department accepted quote work cost will exceed the estimate, the Engineer must be immediately notified so the original quote acceptance may be reviewed and/or re-accepted, normally through an email. In some cases, a field inspection may be required by the Engineer to verify the situation.

When the work is complete and the Contractor has corrected any items of work and quantities as necessary and attached all requested documentation, the Department's Engineer, or Tech, responsible for the authorization must be notified via the EMCMS automatic email to do the final inspection of the authorization work.

If, following the inspection of the work, the work items and quantities or requested documentation are not correct the Contractor must be notified by email and via the EMCMS. The Contractor must correct the errors in the authorization in the EMCMS and re-notify the author by the EMCMS automatic email notification.

Correct items and quantities and requested documentation must be entered/attached in the EMCMS Final authorization for Department review, or the authorization will not be approved for Contractor invoicing.

The Contractor must keep time records of all labor on Non-Routine authorizations. When requested by the Engineer the Contractor must forward these records of Contractor or Sub-Contractor or Vendor work.

5.6 PAYMENT FOR DAMAGE CAUSED BY DEPARTMENT PERSONNEL

Per Article 4.2 the Contractor must replace, where necessary, new parts or equipment for all state-maintained system equipment found damaged or malfunctioning for any reason, regardless of the type of damage or who caused the damage, in the timeframes noted herein, unless otherwise directed by the Engineer.

However, when damage to system equipment has been caused by Department personnel in the performance of their assigned duties, the Contractor must receive payment for temporary and permanent repair work necessary, through a Non-Routine Maintenance authorization. The Department reserves the right to furnish any or all the materials or parts for any Non-Routine work necessary. Materials or parts furnished by the Department may be from the Department's contract spare parts inventory or from other sources available to the Department.

The Contractor must transmit to the Engineer as soon as possible a list of applicable pay items and quantities, or other parts with quantities used, so an authorization letter can be issued.

5.7 PAYMENT FOR DAMAGE DUE TO FEDERAL DECLARED DISASTERS

If the Governor of the State of Illinois declares an official disaster and the Federal Government has issued a statement that the State of Illinois will be reimbursed through funds provided for disaster damage repairs, the Contractor may be reimbursed for Routine repairs through Non-Routine Maintenance authorization(s).

The Contractor must adhere to the rules and guidelines set forth by IEMA and FEMA for reimbursement. The Contractor must accurately document all work performed through Tickets and clear photos of damaged equipment caused by the disaster. The documentation must include all information required under the guidelines.

The Contractor must be able to collect labor, equipment, and repair material costs for eligible repair work during the declared disaster time-period (usually no more than 48 hours) if proper documentation is provided to the Department.

The intent of the federal program is to provide aid for repairs to damaged equipment caused by a natural disaster or catastrophic failure, not repairs to equipment damaged because of preexisting and non-disaster related, i.e., inherent deficient conditions. In addition, the funding must not relieve the Contractor of its maintenance responsibility simply because a storm of unusual character and extent causes serious damage.

The EMC Damage Repair submittal form and FHWA summary submittal; the DDIR (Detailed Damage Inspection Report) must be completed within ten (10) working days from the end of the termination date of the disaster declaration and submitted to the Engineer for approval before reimbursement is made to the Contractor.

The Contractor may be required to group sites for reimbursement. In IEMA and FEMA terms, a site is an individual location where damage has occurred or a site could include several adjoining locations where similar damage, related to the same cause, has occurred. As an example, flooding water that runs along or crossed under a highway has caused damage at several locations within a reasonable distance of each other. Also, if damage to traffic signals has occurred at several locations in a defined area it would be acceptable to group these locations by route or jurisdiction, to be considered a single site. Grouping damages to form a large site based solely on county or city or subdivision boundaries will not be accepted.

Eligible Items

Emergency Repairs, which are those repairs during and immediately following a disaster to restore essential traffic, to minimize the extent of damage, or to protect the remaining facilities. (Examples would be repair of damaged equipment from disaster weather events, not motorist caused damage, nor the removal of snow or ice on operating equipment).

Permanent Repairs, which are those repairs undertaken (after emergency repairs are complete) to restore the highway to its pre-disaster condition (but completed within the declared disaster timeframe).

Repair or replacement of traffic signal system, and railroad-highway crossing warning devices, if the damage and associated repair or replacement costs can be shown to exceed "heavy maintenance."

(Heavy Maintenance is defined by the FHWA as work to repair damage normally expected from seasonal and occasionally to unusual natural conditions or occurrences. It includes work at a site required as a direct result of a disaster that can reasonably be accommodated by a State or local road authority's maintenance, emergency, or contingency programs).

In addition:

- Work must be in the right-of-way limits of Federal or State highways unless local roads are included in the declaration by the Governor.
- Only restoration work in kind is allowed, no new construction, correction of deficiencies, or improvements are acceptable.
- Materials are allowed; however, a vendor's invoice must be supplied, and no tax or mark-up is allowed. A Contractor employee having knowledge that the supplies or materials have actually been incorporated into the repairs must sign the supplier's invoice.
- Labor and Equipment rates are acceptable as allowed herein the EMC.
- Debris removal.
- Work necessary to minimize the extent of damage and/or to protect facilities from damage.

Ineligible Items

- Heavy Maintenance (see above)
- Snow or Ice Removal (snow and/or ice removal is viewed as a relatively short-term event not causing physical damage to a highway).
- High wind damage, except in cases of declared storm disasters such as tornados.

ARTICLE 6.0 PAYMENT OF MASTER INVOICES

6.1 ROUTINE MAINTENANCE (RM) PAYMENT

1. The Contractor must receive the Routine Maintenance bid price for each equipment pay code times the number of ON-maintenance and PARTIAL-maintenance locations of equipment maintained by the Contractor on the last day of the calendar month, up to the total of 6206 locations which is the Schedule of Prices total bidding number of locations (5706) plus the number of planned Locations (500).
2. If the number of the Contractor monthly maintained locations (per point #1 above) exceeds the 5706 locations which is the Schedule of Prices total bidding number of locations (5706) plus the number of Planned Locations (500) the Contractor must receive the bid price each, for an Additional Location through Non-Routine pay item GRM1.
3. If the number of the Contractor monthly maintained locations (per point #1 above) falls below the Schedule of Prices total bidding number of locations (5706) the Contractor will receive the Schedule of Prices total bidding number for the 5706 locations of equipment.

6.2 PREPARING THE MONTHLY TRANSFER RM QUANTITY REPORT

For Each Electrical System (TS, S, PS, L, and V):

1. Print EMCMS Ticket Summary Report for Ticket Type "MT" (Maintenance Transfer) with the Sort codes of "OFF", "ON" and "PAR".
2. Go to EMCMS, access the Monthly Reconcile Report.
3. Select month to be reconciled (as an example for the month of May enter June 1 in as the "As of Date" field).
4. Select type of maintenance transfer (ON, or OFF, or PARTIAL) (all choices will need to be printed as applicable to each system).
5. Select System (TS, S, PS, L, or V).
6. Select Equipment Pay Code (as an example for TS, select T-1A) (but all Pay Codes will need to be printed).

7. For Column headers, select:
 - Location #
 - Cabinet #
 - Location Main Route and Cross St.
 - Equipment Pay Code
 - ON Maintenance Date, or OFF Maintenance Date or PARTIAL Maintenance Date
8. Sort by the desired type of maintenance transfer date (ON Maintenance Date or OFF Maintenance Date or PARTIAL Maintenance Date (if applicable) and SUBMIT.
9. When report appears, go to the last page of the report where you will see the last transfer recorded for the month. Transfer to an Excel Spreadsheet Report, the list of location transfers for the month you are reconciling. Repeat process so all ON, OFF and PARTIAL maintenance transfers are accounted for in each System.
10. Compare the Excel spreadsheet information to the Ticket Summary. Is the count the same? Are all the Locations listed in both reports? Correct all errors.

6.3 RM MONTHLY QUANTITY REPORT

Once the Contractor certifies that each system's RM Monthly Quantity Report is correct which lists all the maintenance transfers by category (ON and OFF and PARTIAL (if applicable) they must be sent via email as an Adobe, Pdf report to the IDOT Engineer or Technician responsible for Monthly Routine Location Quantity Reconciliation to confirm and approve the payment quantities this month. If the list is correct, it will be digitally signed and returned to the Administrative Manager. If the list is incorrect, it will be corrected on the Pdf and returned by email so it may be corrected and resubmitted.

There may be locations listed where the EMCMS information is incorrect. In these cases, the Contractor Administration Manager must notify the Contractor Dispatch Center (accompanying IDOT approval email) to correct the EMCMS and/or Ticket information. The EMCMS change, however, will not be effective on the Monthly Reconcile Report until the next month, as this report "locks" the transfers which were entered in the EMCMS only through the last day of each month.

6.4 RM MONTHLY AUTHORIZATION AND INVOICE REPORT

Once the Monthly Quantity Reports have been approved, (digitally signed) by the IDOT Engineers/Technicians, the Contractor must prepare the EMCMS RM Monthly Authorization and Invoice for the IDOT Engineer which lists the total payment due the Contractor (refer to Article 6.1) or credits or debits, or a deduction for Motorist Caused Damage repair statements, which would be paid separately from a separate obligated fund. The authorization and invoice will be created on the EMCMS, and the format allows for company letterhead paper with a header for the invoice.

6.5 NON-ROUTINE MAINTENANCE AUTHORIZATION AND INVOICE

The Contractor is paid for Non-Routine work once per month through two (2) Non-Routine authorization and invoice sets. One (TS) is for the Traffic Signals work and the other TSC is for the Traffic Systems Center work, Surveillance, Pump Stations, Lighting, and Various Locations. There is no individual invoicing of authorizations allowed. All invoicing will be completed on the EMCMS, which allows for company letterhead paper with a header for the invoice.

Refer to Article 5.5.1 Unit Price Authorization (PIWA) and Article 5.5.2 Agreed-Price Work (AGWA) which discusses the creation of authorizations, transmittal to Contractor, work completion notices, document attachment in EMCMS, inspecting work, approving the final authorization, and transmitting back to the Contractor. This Article discussed the monthly payment process.

To begin payment process:

1. On first working day of month the Contractor determines, from an EMCMS report, all authorized work which has been Finaled and is ready to invoice. (The Contractor may need to remind the authorization authors, through email, that they have work to inspect, so a timely invoice can be created.)
2. The Contractor prints all individual Finaled Authorizations and sends to the appropriate Foreman for signature. There are two print options. Authorizations over \$50,000.00 will have IDOT Supervisor and TS Bureau Chief signature blocks. Authorizations under \$50,000.00 will not have IDOT Bureau Chief signature block.
3. No later than the 5th workday of the month the Contractor creates the Monthly Master Authorizations (TS and TSC) on the EMCMS and sends to the assigned IDOT Supervisor for approval.
4. Each IDOT Supervisor, for TS and TSC systems, reviews their Monthly Master Authorization (list of authorizations to be invoiced). If the list is correct, they attach a digital signature and return to the Contractor. If the list is not correct the IDOT Supervisor will send an email to the Contractor explaining the problem so the Monthly Master Authorization can be corrected and re-sent.
5. When the three (3) Monthly Master Invoices have all been pre-approved by the appointed Department personnel, the Contractor will print the hard copies on the EMCMS.

6.6 DELIVERY OF MONTHLY MASTER AUTHORIZATIONS, INDIVIDUAL AUTHORIZATIONS, AND MASTER INVOICES TO THE ENGINEER

When the Monthly Routine Maintenance Authorization and Invoice, and the TS and TSC Monthly Non-Routine Authorizations and Invoices have been printed on the EMCMS, the EMC Project Manager must sign and acknowledge to the fact that the work has been completed in accordance with provisions of the Contract and applicable specifications.

The Contractor must package the Monthly Master Authorizations (TS and TSC) with the appropriate individual work authorizations as signed by the Contractor's Foreman.

The Contractor must sign and date and deliver the three (3) Monthly Master Invoices via email to the Engineer prior to, or no later than the monthly pay meeting.

The Resident Engineer or the assigned Engineer will sign the Monthly Masters and deliver to the IDOT Bureau Chief of Traffic operations to sign, and then submit to the IDOT Financial Services for payment.

Payment to the Contractor normally takes six (6) to eight (8) weeks.

ARTICLE 7.0 LIGHTING SYSTEM

7.1 BIDDING

Unless labor, equipment, work, or required procedure is specifically noted herein as paid through Non-Routine Maintenance, Article 7.0 Lighting System work must be paid through, is part of, and included in Routine Maintenance bid items.

7.2 DESCRIPTION OF WORK

The Lighting System consists of locations to maintain as specified in Section 3 with equipment including, but not limited to, highway/arterial lighting, illuminated signs, underpass/tunnel lighting, navigational lighting, and other specific electrical items. The lighting installations include various types of lighting fixtures and lamps, lenses, reflectors, shields, poles, mast arms, high mast towers with associated equipment and cameras with associated power and communication equipment and devices including all associated hardware and software, mounting devices, supporting Unistrut (U-channels), step-down or buck-boost transformers, electrical service equipment, devices, ballasts, T-bases, decals, mile markers, cables, cable brackets, foundations, conduit, control devices, radios, lighting cabinets, fenced enclosures, access gates including locks, above ground cable splice boxes, exposed conduit, non-metallic raceway, fixtures mounted on fixed bridges, piers and abutment walls, lighting SCADA equipment, and other lighting appurtenances.

7.2.1 ROUTINE MAINTENANCE BID ITEMS (PAY CODES)

L-1 Expressway Lighting

Lighting System locations on Interstate Highways/Expressways and their extensions leading into State and/or US Routes; can include light poles, high mast light towers, underpass lighting or tube lighting, and illuminated signs.

L-2 Arterial Lighting

Lighting System locations off-expressways; can include light poles, light towers, underpass lighting, and illuminated signs.

L-3 Combo Lighting

Lighting System locations where luminaires are mounted on the top of Traffic Signal Poles.

L-4 Navigational Lighting

Lighting System locations where navigational fixtures are necessary.

7.3 CONTROLLER CABINET (L-1 THROUGH L-4)

The Contractor must maintain all lighting controllers/cabinets.

When there is more than one service call due to the same component failure within a month, the Contractor must replace that component with a new one instead of making temporary repairs.

The Contractor must repair all components within the lighting cabinets, including the cabinet, as necessary, to keep the cabinet functioning effectively and must seal all conduits and openings as found with duct seal and steel wool. The cabinet must be routinely cleaned of ants and rodent nests and add bait pellet poison before closing.

If the cabinet pad is found to be missing, damaged or have shifted due to the ground condition, the Contractor must repair or replace to the original condition.

The ground well/rod if defective must be repaired or replaced.

If the old-style cabinet "High Voltage" warning decal or the State of Illinois decal, are found to be missing or damaged, the Contractor must immediately replace with an Engineer approved replacement.

7.3.1 SCADA SYSTEM

The intention of this Contract is to upgrade the Lighting System SCADA hardware and software. The replacement equipment, four (4) new servers will be purchased by the Department through Non-Routine Maintenance.

The lighting SCADA system enables the remote control of lighting at the cabinets equipped with radios along the expressway system on certain arterial highways within District 1. The lighting at such locations is automatically turned on after sunset and turned off before sunrise by the photocell control at the D-1 ComCenter.

When the Contractor removes a lighting cabinet radio for repair, it must be immediately replaced with a spare radio from the Contractor's owned, spare parts stock. The Contractor is required to have two (2) working, SCADA radios available at all times. The Contractor must repair the defective radio within seven (7) calendar days or must replace with a new radio similar in kind or current version.

Manual remote-control features are available at the IDOT ComCenter, the Traffic Systems Center, and the EMC Dispatch Center. The Contractor must assume responsibility for all manually initiated commands of the system, such as that required for daytime inspection of selected lighting system installations. (In no case, must the Contractor substitute this partial control of the system for the required lock-out/tag-out procedures necessary for safe work practices.) The Contractor must note, however, that unless there are specific arrangements with the Engineer to the contrary, all normal automatic features must always remain operational.

The Department retains the right to suspend or terminate the Contractor's privilege to use the system for misuse of the system. Only trained and qualified Contractor personnel must be allowed to operate the lighting SCADA system.

7.3.2 CABINET LOG SHEETS

The Contractor must maintain service log sheets in each lighting cabinet. New log sheets for the current year must be placed in the cabinet (in protective plastic) in January. The logs from any prior years must be removed and submitted to the Engineer.

After responding to a lighting controller/cabinet trouble call the patrolman must record the problem found and action taken for service restoration on the cabinet log sheet in addition to calling in the information for the Ticket.

7.3.3 BATTERY REPLACEMENT

As the system currently exists, the Contractor must replace the back-up battery for clocks once per year in September through November and adjust as necessary.

7.3.4 SIGNS

The Contractor must maintain the illuminated signs and provide outage repairs. When a sign structure is being repaired or replaced, the Contractor must disconnect and/or reconnect the sign structure as requested by Department personnel. The Contractor must replace the disconnect switch if it is rusted and/or inoperable to isolate sign lighting fixtures.

7.4 LIGHT POLE UNIT (L-1 & L-2)

All new light pole installations: standard, davit, combination, or decorative/painted may be from a different manufacturer than the originally installed light pole but must conform with approved submittal requirements meeting Department standards and UL requirements.

Standard or davit light pole mast arms must be replaced in kind with the same color, length, rise diameter, and shape as the original installation. The davit arm must be horizontal to the X-axis and 90 degrees to the shaft.

All resets of conventional light poles must use a transformer base (T-base). The Contractor must not use a breakaway coupling, without the approval of the Engineer.

If the existing ground tap/lug is damaged or not functional, the pole must be drilled, and the ground wire must be lugged on and not wrapped. The ground rod, if defective, must be repaired and replaced.

Non-metallic raceway must be visible inside the pole. Below the foundation grade or flush is not acceptable.

All resets/installations of light poles must have the proper decal installed. Light poles that are damaged and replaced due to motorist caused damage must have new decals, including expressway accident reference numbers (mile markers), replaced by the Contractor at the time of the repair, if weather is suitable. If the weather is not suitable for decal replacement, the pole must be listed on the monthly submittal of the Monthly Damaged Decal Report Article 7.16.

The Contractor must repair or replace as necessary, pole handhole doors, T-base handhole doors, nut covers, and pole caps. All rodent nests as found must be removed and bait pellet poison added before closing.

Decorative Light Poles:

The Department has agreements with cities and villages to allow decorative light poles. Some of these poles are maintained by the EMC. If there is a motorist caused damage to a decorative pole the Contractor is only responsible to replace the decorative pole in-kind. As a courtesy to cities and villages, the Contractor must notify them prior to the standard replacement, in case they have city/village stock of additional poles and heads.

Light Pole Foundation:

It is the Contractor's responsibility to be knowledgeable of requirements for light pole foundation construction and current approved height limitations for base extensions above the adjacent grade.

Minor repairs to concrete foundations must be completed within seven (7) calendar days from the date of discovery/issuance of the Ticket, or within twenty-one (21) days for a complete replacement of a concrete foundation.

7.5 LIGHT TOWER (L-1 & L-2)

The Contractor must maintain all Light Towers {also known as High Mast Light Towers (HMLT)} which can reach up to 160 feet in height. The towers have a lowering ring for mounting luminaires and for service at ground level. The lowering ring can be raised or lowered using a portable drive unit or built-in drive with a remote control for safety. When performing tower work and/or inspection that require lowering the ring, the Contractor must relamp and clean the inside and outside of all luminaires and any traffic monitoring camera if installed.

If unable to lower the tower ring the Contractor must provide boom lift equipment necessary to perform the work or outage repair, keeping repair time schedules herein.

Certain Light Towers have traffic monitoring cameras installed which are maintained through the Surveillance System.

The Contractor must maintain the Light Tower service pad and repair if damaged.

For rust inspection requirements refer to Article 7.22.

The ground well/rod if defective must be repaired and replaced.

Light Tower Foundation:

It is the Contractor's responsibility to be knowledgeable of requirements for light tower foundation construction and current approved specifications.

Minor repairs to concrete foundations must be completed within seven (7) calendar days from the date of discovery / issuance of a Ticket.

7.6 SPECIAL LIGHT TOWER SITUATIONS – NON-ROUTINE MAINTENANCE

If the Contractor discovers or is informed of structural damage to a light tower for any reason (motorist caused damage, PM inspection or Department inspection) the Engineer must be immediately notified to approve the immediate removal of the Light Tower which will be paid through Non-Routine Maintenance Pay Items where applicable and Agreed Price for location specific crane expenses. Applicable Non-Routine Pay items include:

- Light Tower (remove and re-erect)
- Temporary Lighting (installation and removal)
- Traffic Control, in this situation
- Furnish Replacement Light Tower
- New Foundation (if required, removal and replacement)

The Department reserves the right to use EMC Spare Parts for all material replacements as necessary.

Temporary Lighting in Place of Tower:

The Contractor must install temporary light poles within three (3) days and must order the material and complete the reinstallation of the light tower within a five (5) month period.

7.6.1 TOWER STRUCTURAL RESPONSIBILITY

The Department relies on the Contractor to inform the Department when structural problems are thought to be present on light towers (or communication towers herein discussed in Articles 9.0 and 11.0), however, structural problems or deficiencies in tower design are not the responsibility of the Contractor.

7.7 TUBE LIGHTS (L-1 & L-2)

The Contractor must maintain the Tube Lighting at:

- L 0867 I 90 94 KENN @ Grand Ave
- L 0903 I 94 RYAN @ 99th St Tunnel
- L 0950 I 90 94 RYAN @ Normal Ave
- L 1713 US 34 OGDEN AVE @ 26th St

7.8 UNDERPASS LIGHTING (L-1 & L-2)

The Contractor must maintain the underpass lighting; fixtures and lamps, all mounting hardware, junction boxes and conduit, placards and all appurtenances related to the underpass fixtures.

7.9 COMBO LIGHTING (L-3)

The Contractor must maintain the combo lighting (arm and head attached to traffic standard). Note, there are situations throughout District 1 where the Combo Lighting is not maintained by the EMC.

7.9.1 SPECIAL COMBO LIGHTING LOCATION SURVEY

The Traffic Signal Patrolman must report, during the month of January 2025, each Combo Lighting Location on their patrol route, its EMCMS Traffic Signal location number, and the owner/maintainer/contractor. This information must be submitted, via Excel spreadsheets, and January FTP reports.

7.10 NAVIGATIONAL FIXTURES (L-4)

The Contractor must maintain the navigational lighting; fixtures and lamps, all mounting hardware, control boxes, junction boxes and conduit, cables, photocells, and all appurtenances related to the navigational fixtures. The Contractor must also maintain the electrical service feed, back to ComEd service.

7.11 LUMINAIRES

7.11.1 HIGH PRESSURE SODIUM, LOW PRESSURE SODIUM, METAL HALIDE & INCANDESCENT HARDWARE

The luminaire must match the system voltage and be of the same type and characteristic as the original design and installation being replaced, unless otherwise authorized by the Engineer.

Ballasts in luminaires, with an incoming voltage other than the District 1 standard voltage of 240 volts single phase, may be of a multi-tap type, as approved by the Engineer.

HPS fixtures with drop-lens (reflector-type), if found, must be replaced with flat-glass Cobra units.

7.11.2 LED LUMINAIRES

The replacement LED luminaire and/or any components must be of the same kind as originally installed and approved by the Engineer to match the photometric/luminous for every different type. There are LED luminaires on light poles, lighting towers, signs, airport obstruction poles, navigational, and underpass/tunnels. Refer to Section 2 Special Provisions for LED Fixture information.

7.11.3 FIXTURE KEEPER

The Contractor must replace and install the fixture keeper if found to be torn, broken, ineffective, missing or uninstalled. Replacement is also required at the time of any damage to a fixture.

7.11.4 LAMP

When a replacement fixture is installed, the Contractor must equip it with a new lamp, additionally, when there is a lamp outage the Contractor must replace it with a new lamp.

- The HPS lamps will be of 70, 100, 150, 200, 400 or 1000 Watts, the lamps must be a Sylvania LUMALUX PLUS XL ECO “LU(wattage)/PLUS/XL/ECO” bulb, the 750 Watt lamp must be a Sylvania LUMALUX “LU(750)” bulb, or the equivalent must be approved by the Engineer.
- The LPS lamp must be a Phillips “SOX 55W BY 22d” bulb or equivalent must be approved by the Engineer.
- The FL lamps on the sign structures must be a GE “F72T12/SP41/HO” bulb or equivalent must be approved by the Engineer. The MH lamps for decorative side lights must be a Sylvania “M70/U/MED” bulb or equivalent must be approved by the Engineer. The MH lamp for 175W must be a GE “MVR175/U/MED” bulb or equivalent must be approved by the Engineer.
- The INC lamps must be of heavy-duty type, of the wattage as specified and must be approved by the Engineer.
- The LED obstruction lights must be a Point Lighting Corporation FAA L-810, “POL-20000”. The LED lights for the navigational lights must be LEDTRONICS brand “BBL504-01-02” bulb for the Red light and “BBL504-03-02” bulb for the Green light.

7.11.5 FUSE AND FUSE KIT

The Contractor must use quick dis-connect fuse holders on all light poles. Crimping must be performed in accordance with the fuse holder manufacturer’s recommendations. The fuse holder must be installed such that the fuse side is connected to the pole wire (load side) and the receptacle side of the holder is connected to the line side.

7.11.6 SHIELDS (FOR LIGHT TOWERS OR LIGHT POLES)

The luminaire shield, if found to be broken, or missing, the Contractor must replace with the same kind or better.

7.11.7 LAMP OUTAGE REPLACEMENTS

The Contractor must provide the labor, equipment, and material to meet the response requirements for all outages and repairs, including those found on the night patrol and those found by the repair crew when the cabinet is energized. Normally the Contractor has one week, seven (7) calendar days, to repair normal outages found on the nightly outage survey (EMC maintained). Refer to Article 7.13 for exceptions.

Special Obstruction Light Outage Replacement

Replacement of the lamp Location 1335 obstruction light pole HH26 on I 290 IB @ Western Ave., Cabinet "H", must be conducted within twenty-four (24) hours of notification or discovery.

7.11.8 POWER OUTAGES – LONG TERM

In cases of long-term power outages of more than one night, the Contractor must provide a generator to power the lights as requested by the Engineer.

7.11.9 CABLE

The Contractor must repair or replace all cable and conduit including direct buried, which becomes damaged, displaced, defective or missing from any cause whatsoever.

Cable used to repair or replace faulty cable runs under Routine Maintenance must be new and must be new copper conductor XLP-insulated cable. All new cable runs must include a separate ground wire even if it did not exist before the malfunction.

When temporary cable is installed, all splices must be as good as splices for permanent repairs and proper grounding must be observed. Permanent repairs must follow as soon as possible. Temporary ground laid cable or attachment to the metal structures is not allowed.

Where a new cable run must be provided, a ground conductor sized in accordance with the National Electrical Code and as specified in the Standard Specification for Road and Bridge Construction in Illinois, must be included.

Aerial Cable

The Department only allows aerial cable to be used for temporary repairs and the Engineer must give prior approval of all Contractor installations of aerial cable. If aerial cable is approved, it must be installed so that its lowest point is at least twenty-five (25) feet above ground level.

From December 1st to April 1st, when permanent cable repairs may not be possible due to frozen ground, the Contractor can keep the Tickets open and wait until April to complete the permanent work. In all cases where temporary repairs are made during the winter months, or the Contractor is transferred aerial cable from a prior contract due to special issues, all permanent repairs must be completed by May 31st.

7.12 NIGHT OUTAGE PATROL

The Contractor must perform a night-time patrol of the Lighting System; to assure safe, operational conditions of equipment and materials, and to assure that all installations are performing at the level of service for which they are designed. The patrol survey must include installations for which maintenance responsibility has been temporarily transferred.

Night outage patrols must be arranged to inspect an approximate equal number of locations, during the first three full weeks of the month, (four or five nights per week). The proposed patrol outage survey must be presented to the Engineer, for his approval, at the Pre-Construction meeting. The Contractor must not deviate from the schedule, unless approved in advance by the Engineer.

At the request of the Engineer, the Contractor must provide the transportation for a joint inspection of the Lighting system during a nighttime patrol.

The patrolman must be provided a hands-free voice activated recorder to record each outage found, by noting the unit number (or cabinet designation and the pole or sign's proximity to a cross-street or road.) Each night the patrolman must record his name, call number, route week, day and date and odometer reading at the beginning and end of the patrol outage survey. The patrolman must notify the EMC Dispatch Center to create a ticket when multiple outages or tower outages, off maintenance outages, or other malfunctions or damage are noted.

Outage Report #1 – NOP Outage Found

Following the daily completion of the Night Outage Patrol, the Contractor Night Outage Patrolman must create an Excel spreadsheet report of categories as follows:

- Highway and arterial lighting outages
- Navigation lighting outages
- Beacon lights on radio towers and base stations
- Other outages
- Off-Maintenance location outages

If the Contractor Night Outage Patrol is conducting the outage patrol for the Surveillance System, that would be an additional category.

The Excel spreadsheet report must be loaded on the FTP site by 12 noon and must include a column for:

1. Date of NP (Night Patrol) Outage Found
2. Outage Replacement Date (open)
3. Contractor Repair Crew Outages Found & Replaced (open)
4. County
5. EMCMS location number and name
6. Cabinet unit numbers
7. Ticket number
8. List problem reported on Ticket.
9. Use column to note Tickets where work is not completed (open)
10. The spreadsheet must be formatted with above columns so the user can sort for all monthly outages by each of the categories and columns shown above.

Outage Report #2 – All Outage Replacements

On the first Monday workday of the next month the Contractor Night Outage Patrolman must complete the monthly Excel spreadsheet Outage Report #1 with all the Replacement information available (columns 2, 3, and 9) and load on the FTP Site.

Outage Report #3 – Repeat Outage and Replacements

At the end of each two months the Contractor must provide a Repeat Outage Report, an Excel spreadsheet which shows by Categories; the County, EMCMS location number and name, and cabinet unit number, of outages and replacement dates (or non-replacement dates) which have appeared in each of the last two months. This report must be emailed to the IDOT Lighting System Manager for review.

7.13 PREVENTIVE MAINTENANCE PROGRAMS (PM)

For Reporting requirements please reference Routine Maintenance Article 4.24.

7.14 AERIAL CABLE REPORT (MONTHLY)

Each month the Contractor must submit an Aerial Cable Report; an Excel spreadsheet list of all GPS information and EMCMS location numbers and street names and the cabinet designations where the underground cable has been temped out overhead and aerial cable has been installed. The spreadsheet must show the measurement of length of cable, and the date of permanent repairs when they are completed. (Then the record of the permanent repair may be deleted for the next month's report.

The Contractor must continually document on Tickets of new cases where temporary aerial cable was found installed and take GPS Photos of the new spreadsheet entries for the FTP site.

Any situations where the aerial cable is a permanent temp situation do not need to be reported after the first monthly submittal in January 2025.

7.15 DAMAGED DECAL REPORT (MONTHLY)

The contractor, through routine maintenance, furnishes and installs cabinet location number and mile marker decals for poles damaged by motorists and any new installations.

The Contractor must keep an Excel spreadsheet of reported or observed locations where, light pole, underpass, sign, camera, and light tower identification decals, or accident reference (mile marker) decals are worn-out, missing, damaged, covered up or placed so they are illegible to police and emergency personnel. It is extremely important to the Department that the missing mile marker decals be reported monthly under this Contract.

For the monthly FTP submittal, the Contractor must submit monthly the report which lists EMCMS Location #, street name, cabinet #, decal type, and severity of decal damage:

Damage Status:

#1 – Need full cabinet for light pole/light tower/underpass decals replaced immediately.

#2 – Individual IDOT equipment needs decals immediately.

#3 – Decals which were not replaced during the winter due to MCHD incident (This information must be reported on the "MC" Ticket at the time of the repair work.)

All damaged must be reported via ticket and as directed by the Engineer. See article 4.15 for ticket requirements.

7.16 DAYTIME TUNNEL INSPECTION (MONTHLY)

The Contractor must provide Lighting System personnel, to inspect monthly the operational condition of daytime tunnel lighting equipment, ten (10) locations, to assure that systems are performing at the level of service for which they are designed. The equipment required for both day and night circuit operation must be inspected.

Locations for Tunnel Inspections:

| | |
|------|--|
| 0115 | I 55 @ Stewart's Cave |
| 0137 | I 55 @ Pulaski Rd Tunnel |
| 0873 | I 90 94 KENN @ Erie St Tunnel |
| 0883 | I 90 94 KENN @ Hubbard's Cave |
| 0904 | I 94 RYAN @ 95 th St CTA Tunnel |
| 0905 | I 94 RYAN @ 97 th St |
| 1315 | I 290 IKE @ Lower Wacker Dr Exit Ramp |
| 1320 | I 290 IKE @ Lower Wacker Dr Ent Ramp |
| 1325 | I 290 IKE @ Canal St (under Post Office) |
| 1713 | US 34 Ogden Ave @ 26 th St |

7.17 OUTDOOR CABINET SITE MAINTENANCE (MONTHLY)

See Article 4.25 for detailed requirements.

Site maintenance is required for L-1, L-2, lighting cabinet locations.

7.18 CLOCK INSPECTION (BI-ANNUALLY)

The Contractor must verify and adjust the time clocks twice per year at the start and end of daylight savings time to assure proper operation.

7.19 CONTROL CABINET INSPECTION (MONTHLY)

The Contractor must inspect the Lighting System cabinets. The Lighting system Engineer will furnish the Contractor a schedule to be followed.

The Contractor must verify all luminaires are properly operating before making test measurements.

Approximately fifteen (15) lighting system locations must be inspected monthly, and all work must be completed by the end of November each year.

This work must be recorded on an excel spreadsheet and placed on the FTP site.

Inspection Process:

- Identify any objectionable current flow from one ground connection to another (which occurs from multiple grounds on the same system equipment)
- Identify highly unbalanced loads.
- Measure ground resistance (If greater than 10 ohms and create a ticket and make necessary repairs as directed by lighting engineer)
- Perform continuity test for all circuits.
- Visually check SCADA CPU for proper equipment
- Check SCADA radio communications to and from cabinet.
- Confirm calibration of analog input values
- Measure the current and voltage inputs by having the EMC Dispatch Center interrogate the power center. The interrogated values must be equivalent to measured values. If the voltage is different by +/- 3 volts or if the amperage is different by +/- 2 amps, a Ticket must be generated.

7.20 LIGHTPOLE AND UNDERPASS SAFETY INSPECTION (ANNUALLY)

The Contractor must inspect the Lighting System poles and underpasses. The Lighting System Engineer will furnish the Contractor a schedule to be followed.

Approximately fifty (50) Lighting system locations must be inspected monthly, and all work must be completed by the end of November.

The Contractor must conduct a safety inspection of the light poles and underpass lighting by physically walking the entire power center. The Contractor must ensure that all lighting components are maintained in a safe and effective operating condition as originally designed or as subsequently modified by the Department.

This work must be recorded on an excel spreadsheet and placed on the FTP site.

Inspection Process:

Check for damage to the following:

- Poles (check for cracks, loose nuts, and bolts)
- Mast Arms (check for cracks, loose nuts, and bolts)
- Underpass fixtures
- T-base
- Luminaires
- Shields
- Shroud or Skirts (lift and check for loose and/or worn nuts and washers)
- Break away couplings.
- Handhole doors
- Junction boxes
- Wiring conduit hangers
- Decals, missing, damaged, or illegible.
- Decal mounting brackets.
- Mile markers

7.21 LIGHT TOWER SAFETY INSPECTION (ANNUALLY)

The Engineer will provide the Contractor a list of towers to be inspected. If this Contract is continued, the same amount will be provided in subsequent years.

The goal of the Department for this inspection is for the Contractor to ensure that all light tower components are maintained in a safe and effective operating condition as originally designed or as subsequently modified by the Department.

This work must be recorded on an excel spreadsheet and placed on the FTP site.

Spreadsheet report is required:

- The Rust Report lists EMCMS location number and address, cabinet number, and details the area needed for rust removal work (This rust removal work must be completed in approximately 30 days following the inspection and painting within 30 days following the rust removal work). Submit GPS photos & report for the FTP site.

Approximately fifty (50) Lighting System locations must be inspected monthly, and all work must be completed by the end of November.

Inspection Process:

Check for damage to the following:

- Metal parts (for corrosion and/or rust)
- Foundation
- Mounting bolts (tightened as necessary)
- Shaft
- Handhole doors and gasket
- Lowering device including motor support cables, & transition plate assembly
- Ring assembly electrical cable (check for faulty splices)
- Fuse kits and splices
- ESCO stainless steel swage sockets for cracks
- Retaining wall
- Decals and decal mounting brackets.
- Cracks found must be clearly identified with photos of locations(s), and measurements, noted on the spreadsheet and Ticket.

Clean:

- The glass lens must be washed (inside/outside) of each luminaire.
- The outside of the camera dome as necessary and report any deterioration for lens replacement.

Rust Inspection:

The Contractor must inspect rust on the outside of the shaft and at all slip joints. The location and magnitude of the rust spots must be described in detail on the inspection/spreadsheet report.

If any rust is found from the tower base to twenty (20) feet up, it is the responsibility of the Contractor to scrape, prime, and schedule for routine work re-painting.

When substantial rust is found higher than twenty (20) feet up from the base of the tower it is the responsibility of the Contractor to note this on a Ticket in addition to the spreadsheet. This painting work, if the budget allows, will be paid through non-routine maintenance. All painting must be performed in accordance with manufacturer recommendations and specifications. GPS Photo required.

Structural Examination:

The Department hires a structural engineering company to perform structural inspections of Light Towers. The Contractor must be provided the yearly schedule of the structural inspection company when known, but which may be on short notice as IDOT District 1 does not dictate the schedule.

The Contractor must provide Lighting System personnel to accompany the structural engineer and provide lowering of the tower ring for inspection if required. The Contractor must assign one experienced lighting system work crew member to keep detailed notes on the findings by location, of the structural engineer comments of the Contractor observations, which must be transferred to an Excel spreadsheet and submitted at the end of each month to the Engineer personally, not as an FTP submittal.

- The Structural Notes Report: a spreadsheet report which provides notes made by Contractor personnel during the Structural Engineer Inspection (see below) and confirms inventory information for each EMCMS location, address, and tower number:
 1. Number of towers and number of lamps per tower
 2. Confirms EMCMS GPS readings of the location and of each light tower.
 3. List Towers with cameras

Special Situation:

There is a barrier wall adjacent to the light tower foundations on I-290 (Eisenhower Expressway) near Wolf Road, I-90/94 (Ryan Expressway) at Maxwell St, I-80/90 (Kingery Expressway) and I-394. In order to perform required inspections and outage repairs on these towers the Contractor must obtain a lane closure. This lane closure is paid through Routine Maintenance, as are attenuators and a bucket truck to meet traffic control requirements as specified herein.

7.21.1 FOLLOW-UP WORK FOLLOWING INSPECTIONS

- Rust Removal – Scrape, Prime (per list), and complete the work within 30 days from inspection if weather permits.
- Paint – Touch Up Work (Per list needing rust removal work) and complete the painting work within 30 days from rust removal completion, if weather permits

7.22 NAVIGATIONAL LIGHTING INSPECTION AND RE-LAMP (ANNUALLY)

The Contractor must conduct an inspection of all 178 navigational lighting fixtures. Any fixture outages and/or damage must be recoded on Tickets.

The location of I-80 over the Des Plaines River will require a boat for access.

7.23 PHOTO-CELL CALIBRATION (ANNUALLY)

Each year, on the day of the summer solstice, normally June 21st, the Contractor must clean and test and adjust if necessary:

- 0115 I 55 @ Stewart's Cave
- 0873 I 90 94 KENN @ Erie St. Tunnel
- 0883 I 90 94 KENN @ Hubbard's Cave
- 0904 I 94 RYAN @ 95th St. CTA Tunnel
- 1315 I 290 IKE @ Lower Wacker Dr. Exit Ramp
- 1320 I 290 IKE @ Lower Wacker Dr. Ent. Ramp

Per manufacturer's operation manual. The Engineer must attend this inspection and provide the luminance level specifications.

7.24 WOOD POLE INSPECTION

All wood poles which are in the EMC Special Storage Facility/Area must be stored outside in fenced, locked areas. With the approval of the Engineer designated Department yard facilities are allowed for storage. All poles must be laid flat on top of a platform/bed made from the most deteriorated wood poles. They must be off ground and organized into groups by length, with each pole labeled with its measurement.

Each pole must be tagged with two (2) stainless steel asset tags, 1.5 diameter circle with one hole attached to the pole with a 2" ring shank nail. One tag must be nailed to the bottom and one tag at twelve (12) feet from the bottom. The tags must read as follows:

Top line: Year placed in Spare Parts Inventory
Middle line: Inventory Number
Bottom line: Length

The Contractor and Department personnel must inspect the wood poles in July 2026. If errors are found in the count, they must be reported on the EMC Spare Parts Inventory. Tickets must be created for any follow-up work to sort/move the wood poles. The Contractor is responsible for the disposal of any poles that, in the view of the Engineer, do not pass inspection.

7.25 CONTRACTOR FURNISHED SPARE PARTS, MATERIAL, AND EQUIPMENT

Refer to Section 2 for item specifications.

LIGHTING SYSTEM STARTING QUANTITIES

| | |
|----|---|
| 20 | 14K LED Luminaires, Pole |
| 20 | 28K LED Luminaires, Pole |
| 10 | 28K LED Luminaires, Tower |
| 5 | 50K LED Luminaires, Tower |
| 2 | 65K, LED Luminaires, Tower |
| 10 | 100W Bulb HPS |
| 10 | 150W Bulb HPS |
| 10 | 200W Bulb HPS |
| 10 | 250W Bulb HPS |
| 20 | 400W Bulb HPS |
| 15 | 1000W Bulb HPS |
| 50 | 55W Bulb LPS |
| 15 | 70W Bulb HPS |
| 5 | Aluminum Light Pole, 11.5" BC, 32 Ft, x 4.5" |
| 10 | Aluminum Light Pole, 15.0" BC, 39 Ft, x 6" |
| 20 | Aluminum Light Pole, 15.0" BC, 45 Ft, x 6" |
| 20 | Aluminum Skirt, 11.5" BC |
| 20 | Aluminum Skirt 15.0" BC |
| 2 | Cabinet, 240 Volt, 200 Amp, with ACE 3600 Radio |
| 3 | Davit Arm, 6 Ft |

| | |
|---------|---------------------------------------|
| 3 | Davit Arm, 8 Ft |
| 2 | Davit Arm 15 Ft |
| 3 | Davit Arm, Twin, 8 Ft |
| 3 | Davit Arm, Twin, 15 Ft |
| 3 | Davit Pole, 11.5" BC, 28 Ft |
| 2 | Davit Pole, 15.0" BC, 39 Ft |
| 10 | Fiberglass Shroud, 11.5" BC |
| 10 | Fiberglass Shroud, 15.0" BC |
| 5 | Fixture, LPS, 230 Volt 55 W |
| 5 | Fixture, HPS, 230 Volt 250 W, Pole |
| 20 | Fixture, HPS, 230 Volt 400 W, Pole |
| 10 | Fixture, HPS, 240 Volt, 400 W, Tower |
| 10 | Fixture, HPS, 240 Volt, 750 W, Tower |
| 5 | Fixture, HPS, 240 Volt, 1000 W, Tower |
| 10 | T-Base, 11.5" Top, 11.5" Bottom |
| 5 | T-Base, 11.5" Top, 15" Bottom |
| 10 | T-Base, 15" Top, 17" Bottom |
| 20 | T-Base, 15" Top, 15" Bottom |
| 3 | Truss Arm, 10 Ft, 4" Dia, 34" Rise |
| 3 | Truss Arm, 10 Ft, 6" Dia, 34" Rise |
| 5 | Truss Arm, 12 Ft, 4" Dia, 34" Rise |
| 10 | Truss Arm, 12 Ft, 6" Dia, 34" Rise |
| 5 | Truss Arm, 15 Ft, 4" Dia, 34" Rise |
| 20 | Truss Arm, 15 Ft, 6" Dia, 34" Rise |
| 5 | Truss Arm, 15 Ft, 6" Dia, 72" Rise |
| 3 | Truss Arm, 8 Ft, 4" Dia, 34" Rise |
| 5 | Truss Arm, 8 Ft, 6" Dia, 34" Rise |
| 3500 Ft | Wire, Quadraplex |

ARTICLE 8.0 PUMP STATION SYSTEM

8.1 BIDDING

Unless labor, equipment, work or required procedure is specifically noted herein as paid through Non-Routine Maintenance, Article 8.0 Pump Station System work must be paid through the Routine Maintenance bid items. All Pump Stations' maintenance is bid and paid through Routine Maintenance Pay Item P-1.

8.2 DESCRIPTION OF WORK

There are 48 state owned Pump Stations in District 1, used for pumping water collected from expressways and viaducts into sewers and area waterways. It is essential that these Pump Stations must always be available and ready to operate at their designed capacity to keep the traffic moving and to ensure motorist safety. The type of equipment used varies from station to station.

The equipment at the stations includes several types of electric motor driven pumps; multiple sources of utility power (up to 4160V service); emergency generators; electrical switchgear; motor control centers; transformers; transfer switches; control systems; electrical and flow instrumentation; alarm systems; gas detection systems; lighting systems; power wiring; SCADA RTUs; central satellite and remote engineering processors of the PS SCADA system; SCADA repeater; radio transceivers, including antenna cables, antennas and antenna towers/poles; fuel and fuel tanks; purged air water level indicating systems; compressed air systems; lubrication systems; automatic trash racks and bar screens; water systems; heating and ventilation systems; steel fencing and gates, wrought iron fencing and gates, windows, doors, locks, highway advisory radio in certain stations, and all associated equipment including building and structures, mechanical systems, hydraulic systems, electrical systems, communication systems and appurtenances owned by the State of Illinois and under to jurisdiction of the Department.

The Contractor must provide labor, equipment, and materials to maintain the operation and performance of all equipment and networks at Contract maintained Pump Stations. Equipment found during response or inspections (Routine or Non-Routine) which needs repair or replacement, or items found to be defective, malfunctioning, or non-operational are covered under this Article.

The equipment specified herein gives a good overview of the items to be maintained, however, there may be other electrical items which require maintenance. The Contractor is urged to visit the locations following the Pre-Bid Meeting to view all the electrical equipment to be maintained.

8.3 BASIC RULES OF PUMP STATION OPERATION

Pump Stations must remain in continuous operation during normal and emergency maintenance activities. It is imperative that the Contractor immediately address alarms, reports of water on pavement, reports of clogged inlets, hazmat spills, or other serious malfunctions or damage by dispatching trained personnel to check the pump station.

Although the availability / location of trained personnel dictates the call-out, during normal workday hours, the order of call-out response must be:

1. Contractor personnel specialized in SCADA work.
2. Contractor personnel specialized in PS maintenance and operation.
3. Other Contractor personnel trained in PS operations.

OSHA safety regulations must be followed at all pump stations. Any Contractor personnel entering a pump station must be properly trained and equipped for confined space entry.

In the event of a hazmat spill or hazardous materials which affect a pump station wet pit, it is the Contractor's responsibility to provide an immediate response by an approved hazmat disposal company to remove the hazardous material, dispose properly off of state property, and ensure compliance in accordance with terms of Article 8.7.

8.4 PUMP STATION PROCEDURES

EMC personnel must not manually operate the pumps with insufficient wet pit water elevation, for general maintenance operations, including pump inspection, wet pit cleaning, and all other wet pit work. Pump equipment owned by the Contractor must be used to de-water the wet pit.

Two logbooks are maintained in each pump station to document entry/inspection. The Contractor must maintain the logbooks so that one book contains the current year information, and the second logbook contains information recorded in the previous years. In January of each year, the Contractor must transfer the sheets from the current year logbook to the previous year logbook and place blank sheets in the current year logbook. The Contractor must furnish a new logbook for newly rehabbed pump stations. The logbook must not be altered or removed from the station.

There are specific procedures, which are required for the safety of all personnel when entering or leaving any pump station. It is necessary to adhere to the following steps:

1. Notify the EMC Dispatch Center of arrival.
2. Deactivate door alarm.
3. Complete logbook chart I with date, time, person's name, and reason for entry.
4. Notify the EMC Dispatch Center to issue a Ticket for any deficiencies observed during the inspection. Record the Ticket number and the deficiency in the logbook.

5. Upon completion of inspection, record the observations in the required charts in the logbook.
6. Confirm and clear all alarms on the SCADA panel prior to departure.
7. Check all pumps that are not tagged "Out of Service" and set in the auto position (H-O-A switch) immediately before departing the pump station.
8. Secure all station doors and hatches with locks.
9. Reactivate door alarm.
10. Notify the EMC Dispatch Center of departure.

8.5 ALARM AND IMMEDIATE RESPONSE SITUATIONS

8.5.1 PUMP STATION ALARM RESPONSE

Upon entry of the Pump Station the Patrolman must:

1. Notify the EMC Dispatch Center of the arrival information, including a notation of all alarms flashing on the annunciator and SCADA panel.
2. Record all information related to the incident in the logbook.
3. Perform all necessary repairs required to restore the Pump Station to its normal operating condition, if possible. If follow-up repairs are needed in an emergency situation, notify the Pump Station System Manager and EMC Managers immediately to commence repairs.
4. Notify the EMC Dispatch Center, as to the status of the problem, whether it was cleared or if follow-up work will be required before departing the Pump Station. All response information must be recorded on the ticket.
5. In the event of a power failure alarm (Zone 3), monitor the power outage status at regular intervals and notify the Pump Station System Manager or Emergency Coordinator and the IDOT ComCenter if a high-water level is imminent.

8.5.2 PUMP STATION PRE-STORM CONDITION CHECK

Upon receiving a storm warning, code Red or Black, from the IDOT ComCenter or IDOT Engineer, the Contractor must immediately dispatch sufficient trained personnel to initiate these procedures at the earliest opportunity prior to storm arrival.

1. Check wet pit condition.
2. Check the condition of the trash on bar screen(s), clean if necessary.
3. Check trash rack operation status.
4. Check the status of the low point inlet and catch basins for the pump station, if found clogged notify IDOT ComCenter immediately to have IDOT Maintenance respond.
5. Verify alarm panel status. (i.e., No alarms holding).
6. Check transfer switch and generator (if applicable).

8.5.3 WATER ON PAVEMENT (WOP) SITUATIONS

The responding Patrolman must be equipped with the necessary measuring devices to trouble shoot and mark the water level with a reference point within the Pump Station.

Upon observing Water on the Pavement (WOP) or extremely high-water levels at the station, the Patrolman must immediately notify the EMC Dispatch Center, who must in turn notify the IDOT ComCenter of the following information:

- Pumps Running – Yes or No
- Water Depth in Wet Well
- Depth of Water on Pavement
- Street Inlet Clogged – Yes or No

The Patrolman must obtain a Ticket number from the EMC Dispatch Center and complete the station logbook, Chart W. All ticket information and WOP report information must be relayed to the EMC Dispatch Center within one (1) hour of receipt of information from the field.

The WOP Ticket must be marked for follow-up until the Pump Station system is back to normal operation and there is no water on the pavement. During storm events the Engineer must be immediately notified by telephone/text of all WOP incidents.

When there is water on the pavement the Contractor must retrieve the archived data from the Pump Station SCADA system and email to IDOT Engineer within 24 hours.

During high water level or WOP conditions, the Patrolman must remain at the station unless approved otherwise by the Engineer and/or EMC Project Manager or Emergency Coordinator.

During high water level, if needed, the Contractor must provide and install temporary portable standby pumps to maintain adequate total station outflow capacity.

8.5.4 PUMP STATION POST-STORM CONDITION CHECK

After each major rainstorm, the Pump Station crew must:

1. Clean the trash rack bin, bar screen, and the area between the automatic trash rack/bar screen and the inlet sewer to the bare concrete floor.
2. Check WOP float and probe sensor for proper operation and remove debris.
3. Check the inlet pipe. If clogged, notify IDOT ComCenter to send Bureau of Maintenance to clear. (Patrolman must follow-up within one week to be sure work was completed. If work was not completed notify the Engineer by telephone).
4. In the event of high-water levels, the Contractor must inspect, clean, and dry all equipment submerged under water once the water level recedes to normal elevations.
5. The Contractor must check all equipment for proper operation.

8.6 VENDORS / SPECIALTY SERVICE WORK COMPANIES

8.6.1 VENDOR SUBMITTALS

The Contractor must submit the following, for Engineer approval, at the Pre-Construction meeting:

- Names, addresses, and qualifications of at least six potential vertical/submersible service repair companies within the tri-state area of Illinois/Indiana/Wisconsin.
- Name(s) of lab facilities that are certified and equipped to test oil and other lubricant fluids.

8.6.2 PUMP REPAIR WORK BY SPECIALTY VENDORS

When the Contractor is unable to complete repairs to pump station equipment, the Contractor must provide an Engineer approved Specialty Service company to supplement Contractor forces to meet contract requirements.

The Contractor must provide all labor, equipment, and general services necessary to schedule and assist a Specialty Service company in conducting various comprehensive testing and inspections, including Routine and Non-Routine work.

The Contractor must coordinate the work with the service companies and provide qualified personnel to:

- Allow free and clear access to and from the Pump Station and all equipment.
- Open and close all enclosures to provide access to the electrical equipment being inspected, replaced and/or repaired.
- Notify the power utility company to schedule all power outages required for the project.
- Perform all switching, de-energizing, and re-energizing of electrical equipment.
- Provide safe working conditions in accordance with OSHA requirements.
- Assist in data collection when requested by the Engineer.

8.7 SERVICE COMPANY FOR HAZARDOUS MATERIALS OPERATIONS

All activity with contaminated waste must conform to the Department's Standard Specifications for Road and Bridge Construction Article 669. The Contractor must employ for emergency hazmat response the services of, or have a full-service Subcontractor designated as the EMC hazardous waste contractor, familiar with and capable of complying with all federal, state, or local regulatory requirements/regulations pertaining to RCBA hazardous and special non-RCRA waste management and must be responsible for ensuring the implementation of these requirements.

The hazardous waste contractor must have a 24-hour emergency call number and must be capable of responding to a pump station within one (1) hour of notification.

The Pump Station System Manager must direct the hazardous waste contractor and other Contractor personnel as necessary to remove and properly dispose of oil, gasoline or other pollutants from the pump station wet pit, or other area as directed. Removal must be by means other than pumping pollutants into the normal station discharge sewer or receiving open water channel. (The Contractor may store suitable absorbent battens in a drum at each pump station.)

The Contractor must provide a list of proposed full-service hazardous waste contractors, for Engineer approval, at the Pre-Construction Meeting.

The EMC hazardous waste contractor must:

- Coordinate with all pertinent regulatory agencies to secure all necessary permits and approvals and must be responsible for coordinating all permits with the IEPA.
- Submit to the Engineer, for approval, a copy of all federal, state, or local required licensing documents to perform this work.
- Select a hazardous/special waste landfill/disposal facility, verifying that selected landfill/disposal facility is following applicable standards for Illinois hazardous and special waste cleanup and disposal, and the disposal facility is not presently, or has never been, on a US EPA's list of violators or on the RCRA list of violating facilities.
- Obtain written approval of the selected landfill/disposal facility from the Engineer, who, reserves the right to review and to accept or reject the selection.
- Perform all tests required and make all necessary arrangements for waste disposal approval with the selected landfill/disposal facility.
- Be responsible for transporting and disposing all material classified as a "nonspecial waste", "special waste", or "hazardous waste" from the job site to the approved landfill/disposal facility, assuring that the transporter and vehicles comply with all federal, state, and local regulations governing the transportation of non-special, special, or hazardous wastes.
- Must prepare a technical report within 30 days of the conclusion of the project, describing the activities conducted during the life of the project and submit two (2) copies to the Engineer.

After a HAZMAT incident if it is found that the incident is not due to insufficient or faulty maintenance at a pump station, the Contractor must be paid the amount of the invoice provided by the hazmat service company for applicable pump station work, normally in the wet pit, minus any materials or pay items as furnished by the Department. This Non-Routine payment is not applicable to cleanup and disposal of hazardous waste on the roadway as that is handled/billed by the IDOT Bureau of Maintenance.

8.8 MAINTENANCE REQUIREMENTS

8.8.1 SCADA MAINTENANCE

The contractor must be responsible for proper operation and maintenance of all SCADA System equipment described herein. The contractor must add any pump station that will come under maintenance during any contract year to the SCADA system, to make a complete operational system and must develop new screens at all processors. The contractor must be able to assist in providing any documentation for station integration.

The Contractor personnel with the assigned specialized SCADA duties must:

- Review the daily operations of the SCADA System; including periodic maintenance check and system backups.
- Maintain all hardware and software associated with the SCADA system.
- Perform Windows operating system debugging, Tescode and RSView programming, and Liquitronic 5 firmware update.
- Keep back-ups of all system software/firmware.
- Troubleshoot any problems related to network configuration of the system, troubleshoot any Window OS and/or RSView processing errors, and telecommunication line testing.
- Perform upload and download of RTU software configuration and application files, backup hard drive data, review the status of the SCADA system and alarm, complete all Tescode programming setpoint changes and remote configuration and store and update RTU programming for each pump station SCADA panel.
- Perform updates to OS and GUI software when applicable.

8.8.2 SCADA INSPECTION – ALL STATIONS (ANNUALLY)

This SCADA system work must be coordinated with the Engineer and completed by SCADA trained Contractor personnel.

Each Pump Station must be inspected monthly between January and March.

The Contractor must:

- Physically inspect all equipment and wiring.
- Record the digital inputs/outputs.
- Record the analog inputs.
- Inspect the primary.
- Inspect the secondary water level monitoring system, where applicable.
- Inspect the trash rack.
- Inspect creek levels reactive air systems (create Tickets for any deviations over ½ foot).

The Contractor must physically measure the water level in the wet pit and compare that value:

- With the primary and secondary reactive air system of the SCADA unit.
- With the bubbler system implemented into the MCC.
- With the TLC water level monitoring system.

The Contractor must use the Meri-Cal air pressure calibration device with an associated hand pump, fittings, and valves required to calibrate the primary, and secondary reactive air system and other bubbler systems.

The Contractor must use the calibration device any time calibration of the above equipment is required during the Contract year.

After the inspection the Contractor must download the system control information (pull in a new image) and download the archive of the main pump starts and stops. This information must be delivered to the Engineer.

8.8.3 AEGIS MAINTENANCE

The Contractor must be responsible for proper operation and maintenance of desktop receivers, transmitters and all appurtenances necessary to receive, display and route data. There will be transmitter units at each pump station, including any new stations added during the contract year(s) and receiver units at the EMC Dispatch Center and TSC offices.

The system must be configured to execute a 24-hour communication check. This daily check must be monitored and documented by dispatchers at the EMC Dispatch Center; and Tickets must be created for any problems. The weekly report of the communication checks must be reviewed by the Contractor Pump Station Manager to identify situations and/or problems to be addressed.

8.8.4 AEGIS ALARM SYSTEM INSPECTION – ALL STATIONS (ANNUALLY)

The Contractor must perform the following and record on Chart E in the logbook:

During January of each year, the Contractor must test the AEGIS alarm system by transmitting all the possible alarm codes for each station. Any errors must be re-programmed as soon as possible.

8.9 PUMP OPERATION INSPECTION – ALL STATIONS (MONTHLY)

The Contractor must perform the following work and record on Chart A in the logbook:

- Operate each pump and check alternator or selector switch for proper sequence in accordance with recommended manufacturer's procedures. Caution: Do not draw down the wet well level past the designated stop elevation under any circumstances.
- For stations without a manual selector switch, operational data can be obtained via SCADA operations panel.
- Set the selector switch on the pump with the least number of hours as the lead pump.
- Operate each unit noting the current draw and compare with the motor plate and note any deviation, and/or any abnormal operating sounds.
- Take flow meter reading.
- Record number of starts and hours of run time of each pump.

8.10 MAINTENANCE OF VERTICAL PUMPS (MONTHLY)
PS # 2, 3, 25, 29, 32, 33, 35, 46, 50

The Contractor must perform the following work and record on Chart F in the logbook:

- Inspect the oil lube system and greaser for proper lubrication.
- Inspect both oil and grease lines for leakage or clogging.
- Inspect the automatic greaser and manual cap for proper operation and maintain the proper oil/grease level.
- Grease all fittings such as flap valves, check valves, gate valves, flow meters, and pumps.

Twice per year in May and November, the Contractor, in addition to all the above monthly maintenance items, must:

- Check motor heaters.
- Clean the motor inside by using dry compressed air.
- Clean the motor exterior by wiping off dirt, dust, oil, and water from external surfaces of the motor.
- Remove any dust or debris from the ventilating air inlets.

Twice per year (for stations 32 and 50) in May and November, the Contractor, in addition to all the above monthly maintenance items, must:

- Lubricate the pump bearings with oil/grease when required.
- Inspect packing glands for leakage.
- Lubricate motor.
- Clean the motor.
- Inspect/clean the air release valves/pipes (replace when required).

8.11 BAR SCREEN MAINTENANCE (MONTHLY)
PS # 2, 3, 4, 5, 7, 8, 9, 10, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 35, 36, 39, 40, 46, 47, 50, 51, 52

The Contractor must perform the following work:

- Inspect the bar screen.
- Rake, and manually clean the bar screen (keep free from debris).
- Remove all debris and silt in the area between the sewer and the trash rack/bar screen.

8.12 AIR COMPRESSOR INSPECTION (MONTHLY)
PS # 24, 25, 27, 29, 33, 40, 50

The Contractor must perform the following work and record on Chart S in the logbook:

- Check the compressor and air tank for proper operating pressure in the pump stations and drain water from tanks.

8.13 TRANSFER SWITCH OPERATION INSPECTION (MONTHLY)
All stations except PS # 1, 6, 14, 45, and 49

The Contractor must perform the following work and record on Chart C in the logbook:

- Exercise the transfer switch monthly, to inspect for proper transfer and time delay to secondary power source and time delay from secondary to primary.

8.14 AIR INDUCTION INSPECTION (MONTHLY)
PS # 2, 7, 9, 10, 17, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 34, 35, 36, 40, 50, 51, 52

The Contractor must perform the following monthly work and record on Chart U in the logbook:

- Change the air induction filter.
- Clean the bird screens.
- Clean heating element insulators to maintain proper ventilation within the Pump Station.

8.15 GENERATOR INSPECTION (MONTHLY)
PS # 4, 8, 9, 11, 15, 18, 19, 24, 28, 34, 36, 39, 41, 42, 48, Two in EMC Spare Parts

Reference section 4.26 of Routine Maintenance for procedures of performing inspection pertaining to the above listed stations.

8.16 AUTOMATIC TRASH RACK MAINTENANCE (MONTHLY)
PS # 4, 5, 8, 21, 22, 23, 24, 26, 28, 35, 46

The Contractor must perform monthly inspections and maintenance as follows:

- Inspect and ensure the fingers, on the trash rake assemble, are fully engaged through the entire length of the bar screen.
- Make the necessary adjustments for proper operation of the trash rack.
- Grease the rake assembly and head shaft bearings with EP #2 waterproof grease.
- Grease drum bores on rope drum.
- Grease teeth on bull gear and pinion.
- Lubricate chains where applicable.
- Grease slide block channels.
- Check limit switches.

Twice per year in February to March and August to September the Contractor, in addition to all the above items, must:

- Grease guides with Bison #88 molybdenum disulfide.
- Grease, lubricate, and perform an oil change on the worm reducer and coupling.
- Band brake assembly must be inspected and tightened evenly as required.

The Contractor must use Bison #88 molybdenum disulfide and grease or may substitute environmentally safe grease approved by the Engineer.

The Contractor must provide the schedule for the twice per year work in the January FTP submittal. Each station must be inspected in the same months of the Contract year.

8.17 DRY PIT / WET PIT SUBMERSIBLE PUMP MAINTENANCE (TWICE PER YEAR)
PS # 4, 5, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 26, 27, 28, 29, 31, 31, 34, 36, 37, 39, 40, 41, 42, 43, 44, 46, 47, 48, 51, 52

The Contractor must perform the following work in January through June and July through December:

- Visually inspect pump impeller for clogging.
- Inspect oil reservoir for contaminants.
- Check and clean air release pipes/valves.
- Flush the cooling system from debris.
- Wash the wet pit submersible pumps with an appropriately sized pressure hose.

Each station must be inspected in the same months of the Contract year.

8.18 SUBMITTALS OF PS TABLES (TWICE PER YEAR)

The Contractor must maintain and update all PS Tables to be true and accurate. The Contractor must submit tables twice per year in May and November with changes highlighted. Current tables will be available at the Pre-Bid Meeting.

8.19 ACTUATORS, VALVES, & SLUICE GATE OPERATION TESTING - ALL STATIONS (TWICE PER YEAR)

The Contractor must perform the following work and record on Chart B in the logbook.

The Contractor during the time period of January through June, and July through December, must:

- Operate the flap valves.
- Check valves and gate valves.
- Test sluice gates.
- Lubricate all valves and gates with safe grease.
- Check the actuator's lubrication consistency and level (if necessary, it must be filled or replaced).
- All electrical connections must be inspected and tightened.
- Check for mechanical damage.

8.20 WET PIT INSPECTION – ALL STATIONS (ANNUALLY)

The Contractor must inspect the wet pits annually, in January through March.

The Contractor must:

- Use his own portable pump to draw down the wet pit to a low level and maintain the existing inflow water in the wet pit.
- Inspect all grease lines to ascertain if any are broken, clogged, or not secured.
- Inspect the integrity of all equipment attached to the structure, airline, floats, etc.
- Inspect the floats for operational efficiency and clear them of any debris.
- Inspect the probes for operational efficiency and clear them of any debris.
- Take a photograph of any bowl assemblies that show any wear in the impeller and/or if the suction is clogged with debris. The photos must be appropriately labeled and placed in a sheet album with the report in the logbook.
- Inspect the silt accumulation and document levels.
- Visually inspect the inlet sewer from inside of the pump station.
- Maintain exiting wet pit lighting, clean lens, and reflectors.

PS 4 Grit chamber inspection

PS 4 has a separate chamber prior to the wet pit. The Contractor must inspect the chamber annually, in January through March.

The Contractor must:

- Inspect the silt accumulation and document levels.
- Visually inspect the inlet sewer from inside of the chamber.

8.21 PUMP CONTROL SYSTEM INSPECTION – ALL STATIONS (ANNUALLY)

The Contractor must inspect all pump control systems within all pump stations in the January through March period.

The Contractor must:

- Inspect the bubbler, electrode, and float systems, whichever secondary control system is utilized.
- Check all starts, stops and alarm control elevations. (Any control elevations which are different than the required elevations must be noted and corrected.)
- Record silt level in the wet pit.
- Log all deficiency and excessive silt build up tickets and enter the numbers on the inspection report, Log P-6.

8.22 PUMP CAPACITY, MOTOR CURRENT, VOLTAGE, VOLTAGE MOISTURE, AND MEGGER TEST – ALL STATIONS (ANNUALLY)

The Contractor must conduct a pump capacity, motor running current, voltage measurement, megger, and Yeoman submersible pump moisture tests. The Contractor must utilize the services of the specialty services vendor for this test.

The Contractor must be responsible for providing or storing water for testing, not to exceed high level elevations.

The stations must be tested in the January through May period.

The Contractor must provide all necessary equipment, tools, material, and labor to set up the pump stations for capacity testing using either the recirculation method, wet pit draw-down method or the discharge chamber method with discharge sewer and recirculation gates closed, as applicable to the station.

Prior to testing, the Contractor must record all necessary name plate information for pump and motor. Pump testing will require the presence of at least two Contractor personnel equipped with communications and measuring tape and block.

The Vendor must:

- Complete a draw-down test in all the pump stations.
- Record flow meter reading.
- Measure accumulated pumped water in the discharge chamber where sluice gates are present to store water in the discharge chamber.
- Test pumps for at least 1-minute duration.
- Record all readings, including full load current, RPM on vertical pumps, flow reading and water.

The following data must be recorded on an Excel Spreadsheet and Log P-5 and placed in the Logbook:

- Test Date
- Impeller Setting
- Wet Pit Water Level
- Capacity
- Hours
- Current
- Voltage (Volts)
- Starts
- Insulation resistance to ground (Megger)
- Inspected By

In addition, the Vendor must:

- Megger all motor windings and feeder cables.

Any reading below 1 M ohm will require the Contractor to determine the source or cause of the low reading and make prompt repairs as required.

The Contractor must submit to the Engineer:

- A copy of the results of the capacity and megger test
- A copy of all archived data from the PLC upon completion of the pump capacity test

Pumps testing below 80% must be immediately re-tested and confirmed for low capacity.

**8.23 IMPELLER ADJUSTMENT OF VERTICAL AXIAL FLOW PUMP MOTORS
(ANNUALLY)
PS # 2, 3, 25, 29, 33, 35**

The vertical axial flow pump motors must be checked for proper impeller settings in accordance with manufacturer's specifications. This work must include dropping the suction bell to inspect the wear ring and impeller for wear.

This work must be completed in January through May period.

If pumps do not perform according to their design, record:

- The "as found" measurements.
- The adjustment setting.

8.24 MOTOR CONTROL CENTER INSPECTIONS – ALL STATIONS (ANNUALLY)

The pump stations must be inspected in the January through November period.

The Contractor must perform the following inspection:

General Maintenance:

- Clean enclosure and control equipment by blowing out with low air pressure or vacuuming.
- Check and clean contacts, relays, and timers.
- Visually inspect for damage or out of adjustment parts.
- Remove all dust off from electrical devices and equipment.
- Check motor control center indicating lamps and all switches and push buttons.

Circuit Breaker Maintenance:

- Check connections.
- Exercise breaker
- Check trip setting.

Motor Starter Contact Maintenance:

- Check contacts and burnish or replace, if necessary.
- Check coil and clean.
- Inspect arc chute for cracks or burns.
- Check contact pressure and measure contact resistance on all 3 phases.

Oil Dash Pots:

- Check oil levels.
- Inspect settings.

Motor Controls:

- Inspect wiring/conductors for overheating and discoloration.
- Check sizing of motor overload heaters.
- Check tightness of wire terminations and connections.
- Check for proper labeling, provide, and install missing labels.
- Check wire tags/labels, provide, and install missing tags or labels.
- Check fans for proper operation and clean filters.
- Check fuse disconnects for proper operations, keep fuse clips clean and tight.
- Check fuses for proper size and overheating.
- Test equipment ground system of the station.

**8.25 PUMP STATIONS INSPECTION AND MAINTENANCE – ALL STATIONS
(ANNUALLY)**

The Contractor must conduct a yearly comprehensive inspection of the electrical and mechanical equipment at each pump station.

The Contractor must inspect the pump stations yearly, between January and November.

The Contractor Must:

- For stations with flat roofs, drain any large, recessed areas of standing water.
- Collect and dispose of all debris on the pump station roofs.
- Remove any debris build up in the gutters, drains or down spouts.
- Patch or repair cracks found in concrete.
- Clean all cabinets, walls, motors, and equipment by wiping with a damp cloth.
- Wash floors with a mop and Simple Green cleaner.
- Lubricate exposed trolley drive pinion and wheel teeth.
- Repair all failed caulk around windows, lintels doors, and ventilation components.
- Seal all gaps or openings between structures and concrete or blacktop with material in accordance with manufacturer specifications.
- Check and note any rusting on the generator and its enclosure.
- Check the air induction heating elements.
- Replace the defective heating elements.
- Check and lubricate, if necessary, fan motors and damper mechanisms.
- Check the thermostat and settings.
- Clean the finned heating element and fan inlets with compressed air.
- Schedule replacement of any glass blocks or broken windows.
- Repair or schedule repairs of roof holes or cracks, loose or dry laps, loose fasteners, buckles, wrinkles, ridges, etc.

The Contractor must create follow-up Tickets for required roof and window repairs, which may be completed by a specialty vendor company. If the roof needs complete replacement, the Project Manager must meet the Engineer at the site to discuss maintenance issues. If the Engineer concurs, Non-Routine Maintenance funds will be used to perform the work.

Roof Repair Procedures:

Small Holes and Cracks:

Clean surface, apply mastic (roof cement) 1/8" to 1/4" thick into the hole or crack using a roofer's trowel or gloved hand, working the mastic into the opening and 2 to 4 inches beyond.

Large Holes and Cracks:

For damaged areas larger than 1/4" repair, clean surface, use self-adhering SBS Modified Asphalt Membrane by peeling off the backing and pressing it onto the area to remove any entrapped air. A coating of mastic (roof cement) must be applied over all repaired areas.

Loose or Dry Laps, Fishmouths, Buckles, Wrinkles, Ridges:

Cut defective material back to an adhered area. Repair area as needed with mastic and/or membrane and mastic as stated above.

Loose Mechanical Attachment, Termination Bar:

Remove loose fasteners. Re-secure base flashings (or new flashing material) through tin discs of a larger diameter or fastened to an adjacent location (new hole).

8.26 GAS DETECTOR INSPECTION (ANNUALLY)

The Contractor must employ the services of a vendor who is OSHA certified and approved by the pump manufacturer or scheduled work as approved by the Engineer to test and calibrate a gas detector system as specified herein for a pump station. Proper safety equipment must be utilized.

Complete the following:

- Clean all detectors and hydrophobic filters.
- Check calibration of all detectors and adjust each, if required.
- Replace sensing element if calibration can no longer be properly performed. This work must be completed at the time of testing but will be paid under separate contract unit price specified elsewhere herein.
- Actual alarms of the detectors and sensors to ensure reliability.
- Check gas detector internal and power supply wiring for grounds and shorts.
- Check the AEGIS and SCADA system for alarm acknowledgment.
- Check all fans and dampers for start-up and/or shut down.

If a replacement gas sensor is needed, it must be replaced and be equivalent or superior in quality to the existing gas sensor and be rated and approved for its intended use by the national FM and CSA standards. The furnished gas sensor must have the same sensing element as the existing SCOTT, MSA or Rexnord gas sensors being replaced.

The following is a list of Pump Stations with their corresponding gas detector system manufacturer and number of sensors.

| PS Loc. # | GAS DETECTOR SYSTEM | Sensor Model |
|----------------------|-----------------------------------|---------------------|
| 01 | | |
| 02 | MSA 5100 with 2 sensors | 1S |
| 03 | MSA 5100 with 2 sensors | 1S |
| 04 | | |
| 05 | MSA 5300 with 6 sensors | X |
| 06 | | |
| 07 | MSA 9020 with 5 sensors | X |
| 08 | | |
| 09 | MSA XE with 2 sensors | X + XIR |
| 10 | MSA 5300 with 2 sensors | 1S |
| 11 | MSA XE with 2 sensors | X + XIR |
| 12 | MSA XE with 2 sensors | X + XIR |
| 13 | MSA XE with 2 sensors | X + XIR |
| 14 | | |
| 15 | MSA XE with 2 sensors | X + XIR |
| 16 | MSA XE with 2 sensors | X + XIR |
| 17 | MSA 5300 with 2 sensors | 1S |
| 18 | MSA XE with 2 sensors | X + XIR |
| 19 | MSA XE with 2 sensors | X + XIR |
| 20 | Rexnord 820 System with 2 sensors | |
| 21 | Scott Bacharach with 6 sensors | Gold Bell |
| 22 | Detronics 2000 with 6 sensors | |
| 23 | Detronics 2000 with 6 sensors | |
| 24 | MSA 9020 with 6 sensors | X |
| 25 | MSA XE with 2 sensors | X + XIR |
| 26 | MSA 9020 with 8 sensors | XIR |
| 27 | Honeywell XNX with 6 sensors | |
| 28 | MSA 9010 with 5 sensors | X5K |
| 29 | | |
| 30 | MSA 9010 with 5 sensors | X5K |
| 31 | MSA 5000 with 1 sensor | 1S |
| 32 | | |
| 33 | | |
| 34 | MSA X5K with 2 sensors | X5K+X5KIR |
| 35 | | |
| 36 | | |

| | | |
|----|---|-----------|
| 37 | | |
| 38 | | |
| 39 | Scott Quadraplex with 2 sensors | |
| 40 | | |
| 41 | MSA 9020 with 2 sensors | X |
| 42 | Scott Quadraplex with 2 sensors | |
| 43 | MSA 9020 with 2 sensors | X |
| 44 | MSA X5K with 2 sensors | X5K+X5KIR |
| 45 | | |
| 46 | MSA 5100 with 2 sensors | 1S |
| 47 | MSA 9010 with 3 sensors | XIR |
| 48 | Honeywell XNX with 3 sensors | |
| 49 | | |
| 50 | | |
| 51 | MSA 5100 with 2 sensors Detronics R8471 with 2 sensors | 1S H2S |
| 52 | MSA 9020 with 2 sensors | X |

Tickets and a written report must be submitted to the Engineer, which must contain any pertinent recommendations for each pump station system.

- 8.27 VENDOR MAIN CIRCUIT BREAKER TESTING (ANNUALLY)**
PS # 25, 28, 29, 32 and 41 to be inspected during Aug-Oct period of 2025.
PS # 9, 50, 52, 31 and 44 to be inspected during Aug-Oct period of 2026.
PS # 13, 16, 12, 7 and 36 to be inspected during Aug-Oct period of 2027.

The Contractor must obtain an approved engineering services company for testing the main circuit breakers, branch circuit breakers and motor starters.

Contractor must:

- Coordinate with the electrical utility to turn power off and on where required.
- Furnish the test set and operator along with all necessary fittings, cables, and connectors to connect the test set to the circuit breakers.
- Cleanup the buses and cabinets as required.
- Follow visual and electrical tests as shown on Log P-7.
- Inspect overcurrent relays and dash pots where present and are to be set as directed by the engineer.
- Test the trip unit, contact resistance and insulation.

8.28 SUBMERSIBLE PUMP INSPECTION (ANNUALLY)

Ps # 2, 3, 4, 5, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 34, 36, 37, 39, 40, 41, 42, 43, 44, 47, 48, 51, 52

The Contractor must remove, inspect, and service all submersible pumps each year.

The Pump Stations must be inspected in July through November.

Service work must include:

- An oil-change
- Checking and recording the clearance between impeller and wear ring
- An inspection of cooling jacket passageways to assure no blockage would cause low water flow and high temperature.

This work must be done in accordance with manufacturers' specifications and instructions.

8.29 OIL ANALYSIS – ALL STATIONS (ANNUALLY)

The Contractor must conduct an oil analysis at all Pump Stations between July and November of each year.

Samples must be taken after running the motor, pump, or engine or within fifteen minutes after the equipment is turned off.

The Contractor must:

- Obtain suitable test containers from an approval lab facility.
- Collect oil samples from the motor upper and lower bearing compartments, dry pit/wet pit submersible pumps and all generators.
- Draw oil from the equipment reservoir (The oil should drain for a few seconds before collecting the sample.)
- Collect a minimum of two (2) ounces of oil.
- Not use the same container for different equipment or for different compartments of the same equipment.

The Contractor must provide the laboratory with:

- The brand and type of oil
- Type of equipment from which the sample was taken.
- Number of days since the last oil change
- Any suspected abnormalities in the equipment

Each sample of oil must be identified with the equipment and compartment from which the sample was taken. The Contractor must ship the oil samples to the lab facility within one month of collection.

The lab facility must conduct a wear particle analysis to determine:

- Wear metals
- Contaminants
- Additives elements
- Viscosity
- Solid percent volume
- Water percent volume
- Fuel where required.
- Particle counting and direct reading ferrography.

The oil must be changed if the lab results indicate that the oil is contaminated.

The Contractor must create Tickets for any deficiencies found from the lab testing and submit the lab reports to the Engineer, with operating software that can utilize existing data for trending.

Based upon the lab report, the Engineer may request additional analytical ferrography testing.

All charges for lab work, shipping, and changing of oil etc., must be covered under Routine Maintenance.

8.30 FIRE EXTINGUISHER MAINTENANCE (ANNUALLY)

The Contractor must have all fire extinguishers checked yearly in November for proper pressure through a fire inspection service. The Contractor must travel with the fire inspection service personnel to unlock facilities.

In some locations the dry chemical fire extinguisher must be submitted to the fire inspection service for hydrostatic maintenance procedures which require the extinguisher to be tested by being emptied and re-filled (every 6 years) per the NFP specifications. The Contractor must be provided a spreadsheet with the pump station numbers and dates due for the hydrostatic maintenance.

**8.31 BACKFLOW PREVENTER INSPECTION (ANNUALLY)
PS # 10, 17, 23, 31, 39, 44, 46, 52**

The contractor must schedule and meet with local municipality inspector to inspect annually in the spring to determine the operation of the preventer is properly functional and within the requirements of the municipality.

**8.32 YEOMAN – KJI - GRUNFOS PUMP MAINTENANCE (ANNUALLY)
PS # 5, 7, 21, 24, 27, 29, 30, 42, 48**

The Contractor must:

- Drain, flush, and refill the seal chamber with new oil.
- Inspect oil for water intrusion in the motor seal chamber.
- Inspect the cable for any signs of abrasion or damage.
- Inspect the impeller and casing wear ring.

8.33 PUMP REBUILD PROGRAM – ROUTINE WORK

The rebuild program locations are based upon site inspection and operational data including historical data of the pump capacity and vibration analysis. The pump rebuild program is primarily developed using operational data received by testing and inspecting pumps via various Routine Maintenance programs and periodic inspection.

The Engineer and Pump Station Manager must analyze the condition of each selected pump and agree to the type of rebuild necessary. The Electrical Maintenance Contractor must provide an agreed-price quote for the services required for the pump rebuild work.

The Contractor may submit the recommendations for pump repair or replacement any time during each calendar year.

General Procedures:

Case A:

- Pump is selected for the rebuild program.
- A Service company must be selected by the Engineer to remove, transport the pump (if necessary) to their repair site (if necessary), provide transportation to return the pump and/or parts and re-install the pump.
- The PS Foreman must be present for removal and reinstallation of the pump (certain pump stations have pumps/equipment for which the removal and re-installation will be paid through Non-Routine Maintenance).
- The Contractor must obtain a quote(s) for pump repair(s).

- The quote(s) are analyzed by the IDOT Engineer to determine which company must perform the repair work.
- Following the repair(s) the pump/part(s) must be inspected and approved by the PS Foreman.
- The Engineer must review the repair report and final re-assembly, and if found satisfactory must approve the subsequent return of the repaired pump and/or parts to the designated Pump Station.

Case B:

- Pump is selected for the rebuild program, to be repaired with parts from EMC Spare Parts inventory.
- The Contractor, or a Service Company, must provide the removal, transportation to repair site (if necessary), provide transportation to return the pump or parts, and re-install the pump.
- If the pump and/or EMC Spare Parts are determined (or suspected) to need reconditioning, they must be sent to a service company as approved by the Engineer.
- Following the repair(s) the pump/part(s) must be inspected and approved by the PS Foreman.
- The Engineer must review the repair report and final re-assembly, and if found satisfactory must approve the subsequent return of the repaired pump and/or parts to the designated Pump Station.

Case C:

- Pump is selected for the rebuild program to be repaired but no EMC Spare Parts are available in inventory.
- The PS Foreman must submit a report to the Engineer indicating the type, make, model and material specifications for the pump replacement parts.
- The PS Foreman and the Engineer must review the manufacturer's pump/pump part(s) literature and test data.
- The Contractor must provide the Engineer an Agreed-Price quote to obtain the necessary repair materials/pump.
- Following delivery of the new equipment, the PS Foreman must inspect it and submit a report to the Engineer for approval.

Mixed Flow Pump Assembly – PS 25 Only

The Contractor must use an approved service company to provide the transportation within the Tri-State area for the removal of a complete mixed flow pump assembly as a single unit not including the motor, (for service and repair), and its later reinstallation.

The work must include but not be limited to the following items:

- De-coupling and removing the motor drive from the pump assembly.
- Complete removal of the pump assembly including the discharge column, drive shafting, enclosing tube, and bowl as a complete unit
- Loading and unloading of the complete unit on a flatbed truck
- Transportation of the complete pump assembly to the approved service company shop for repairs and delivery of the pump back to the station upon completion of work.
- Re-installation of the complete pump assembly including the motor
- Provide all services for start-up and testing prior to put the pump back in service.
- Respective warranties must be loaded on the FTP site.
- If test results are unsatisfactory the Contractor must be responsible to analyze the operational problems(s) and resolve to the satisfaction of the Engineer

Pump capacity, vibration tests, motor current, and voltage readings must be taken upon the reinstallation of a pump. The readings and tests must conform to the pump and motor specifications or be approved by the Engineer.

Mixed Flow Pump Work – PS 2, 3, 29, 33, 35

The Contractor must use an approved service company to provide the transportation within the Tri-State area for the removal of a complete mixed flow pump assembly in stages and disassembly of the complete unit at the pump station site (for service and repair), and its later reinstallation.

This work must include but not be limited to the following items:

- De-coupling and removing the motor drive from the pump assembly.
- Complete removal of the pump assembly including the discharge column, drive shafting, enclosing tube, and bowl as a complete unit
- Loading and unloading of the complete unit of a flatbed truck
- Transportation of the complete pump assembly to the approved service company shop for repairs and delivery of the pump back to the station upon completion of work.
- Re-installation of the complete pump assembly including the motor
- Provide all services for start-up and testing prior to put the pump back in service.
- Respective warranties must be loaded on the FTP site.
- If test results are unsatisfactory the Contractor must be responsible to analyze the operational problem(s) and resolve to the satisfaction of the Engineer

Pump capacity, vibration tests, motor current, and voltage readings must be taken upon the re-installation of a pump. The readings and tests must conform to the pump and motor specifications or be approved by the Engineer.

Wet Pit/Dry Pit Submersible and Side Volute Discharge Pumps 2, 3, 5, 7, 8 through 24, 25, 26, 27, 28, 29, 30, 31, 32, 34, 36, 37, 39 through 44, 46, 47, 48, 50, 51

The Contractor must use an approved service company to provide the transportation within the Tri-State area for the removal of wet pit/dry pit submersible and side volute discharge pumps and their rotating assembly (for service and repair), and their later reinstallation. This work must include but not be limited to the following items:

- Sitting up for removal, disconnect electric connections.
- Disconnecting the drive shaft from the rotating assembly
- Close gate valve and provide a blind flange, if necessary, to stop water leaks
- Loosening the bolt of the rotating assembly from the volute
- Remove rotating assembly out from pump station.
- Loading and unloading of equipment that requires inspection and repair.
- Removing and installing the open shaft and rotating assembly and setting up inspection
- Transportation to the approved service company shop for repairs and delivery of the pump back to the station upon completion of work.
- Re-installation of the complete pump assembly
- Provide all services for start-up and testing prior to putting the pump back in service.
- Respective warranties must be loaded on the FTP site.
- If test results are unsatisfactory the Contractor must be responsible to analyze the operational problem(s) and resolve to the satisfaction of the Engineer

Pump capacity, vibration tests, motor current, and voltage readings must be taken upon the re-installation of a pump. The readings and tests must conform to the pump and motor specifications or be approved by the Engineer.

8.34 INTELLIGENT KEY SYSTEM

The Contractor must research the Intelligent Key system, Medeco XT Basic product (which includes schedules, audits, groups, dashboards, and visual audit) for pump station entrance doors and stations with doors to the trash rack area. The Department must purchase through Non-Routine Maintenance.

8.35 SITE MAINTENANCE (MONTHLY)

In addition to requirements referenced in Article 4.25, indoor site maintenance will only be applicable to electrical equipment areas. All Trash Rack locations must be swept. Within the station all mounted equipment must be wiped down.

ARTICLE 9.0 SURVEILLANCE SYSTEM

9.1 BIDDING

Unless labor, equipment, work, or required procedure is specifically noted herein as paid through Non-Routine Maintenance, Article 9.0 Surveillance System work must be paid through the Routine Maintenance bid items.

9.2 DESCRIPTION OF WORK

The Surveillance system consists of locations and equipment, includes the following:

- Buildings and huts
- Cabinets (cameras / control / detector / ramp meter)
- Ramp meters and gates
- Electrical and mechanical equipment
- Cameras
- Interconnecting cables
- Hardware (converters / modems / network switches / processing workstation)
- Software (360 Cameleon / Solar Winds / Palo Alto / Vanguard / Cisco / INET & ATMS)
- Switched Ethernet network
- Dynamic Message Sign System (DMS)
- Continuous count site (CCS)
- Communication towers
- Electrical services
- ITS equipment including handholes, conduits, wire, junction boxes, splice boxes, patch panels, vaults, and connectors with all associated devices for a complete operational system.

The Contractor must provide labor, equipment, and materials to maintain the operation and performance of all equipment and networks at Contract maintained Surveillance locations. Equipment found during response or inspections (Routine or Non-Routine) which need repair or replacement, or items found to be defective, malfunctioning, or non-operational are covered under this Article.

The equipment specified herein gives a good overview of the items to be maintained, however, there may be other electrical items which require maintenance. The Contractor is urged to visit the locations following the Pre-Bid Meeting to view all the electrical equipment to be maintained.

9.2.1 ROUTINE MAINTENANCE ITEMS

- S-1 Ramp Metering Controls
- S-2 Cabinets and Detection
- S-3 DMS (Dynamic Message Signs)
- S-4 REVLAC (Reversible Lane Control System)
- S-5 Cameras (for Traffic Monitoring)
- S-6 Buildings/Huts, Tower/Monopole, Fiber Optic Connections, Network Equipment
- S-7 Ramp Gates (Homeland Security Installations)

9.3 RAMP METERING CONTROLS (S-1)

The Contractor must maintain all ramp meter equipment located at a District 1 expressway ramp metering system location. A ramp metering location must consist of all equipment centrally controlled and monitored by the District 1 INET/ATMS FSK telemetry, locally controlled by a 2070 Lite or equivalent Linux field ramp metering controller and monitored by District 1 INET/ATMS including but not limited to following equipment: (EMCMS equipment type codes shown).

S-1A: FSK Ramp metering control cabinet Type III or IV, Type D foundation, load relay, telemetry mounting frame, FSK Transmitters, FSK Receivers, telemetry power supply, and all other appurtenances.

S-1B: Type IV or Type 334 Ramp metering control cabinet mounted on Type 1 or Type D foundation, 2070 Lite or equivalent Linux field controller running TCIP (1207 & 1209) Ramp Metering Software, Ethernet manage switch, PDA, NEMA Flasher, load switches, detector input file, and all other appurtenances.

Miscellaneous:

Eight-inch LED traffic signal head, a traffic signal post of various lengths and Type A foundation. The traffic control LED signal head must consist of single face and two signal sections.

Low mounted 8-inch LED flashing warning beacon flasher module, and all appurtenances, mounted on a wood pole, traffic signal post and foundation, or mast arm assembly and foundation.

Induction loop either embedded in a sawed slot in the roadway pavement or embedded in the concrete pavement (pre-formed loops), magnetic detector, Bluetooth or radar, a loop detector sensor unit, vehicle loop detector amplifier or active channel encased in a durable housing, card rack or detector input file.

Electrical service, communication equipment, inverter, batteries, and all associated devices for a complete operational system.

The Contractor must assign the Surveillance Telemetry Specialist to the TSC/Traffic Systems Center equipment room(s) each workday from 7:00 AM until 3:00 PM to:

- Inspect, troubleshoot, repair and/or replace the FSK tone telemetry equipment.
- Interrogate 2070 or Linux based module.
- Take and return all calls from line providers with notification of problems.
- Create Telemetry Tickets
- View daily the 360 equipment for camera outages and DMS.
- Create Camera Tickets

9.4 CABINETS & DETECTION (S-2)

The Contractor must maintain all control cabinet equipment located at a District 1 Surveillance on or off expressway location. A control cabinet location must consist of all equipment used to transmit the raw data pulse, or monitor and collect volumes, occupancy, speed, length-based classifications and FHWA classifications collected by the INET/ATMS or CCS systems. Surveillance control cabinets must include but are not limited to the following equipment: (EMCMS equipment type codes shown).

S-2A: FSK Control Cabinet, pedestal or pad mounted, foundation, telemetry mounting frame, telemetry transmitters and telemetry power supply.

S-2B: 334 Cabinet, type 1 foundation, 2070 Lite, ATC, or equivalent Linux controller running NTCIP (1207 & 1209) software, PDA, detector input file, and all other appurtenances.

S-2C: Digital Loop Detector, Linux Controller, detector input file, Analog to digital device integrator, network switch, and all other appurtenances.

S-2D: Bluetooth Detector location, solar powered, pole (30") with helix foundation, with cellular modem/junction box

S-2E: Wireless Radio Detector location, battery powered puck sensor, pole (30") with helix foundation, Linux controller, Radio, detector input file, wireless repeaters, and all other appurtenances.

S-2F: Radar Vehicle Detector location, 30' pole with foundation, control cabinet, power cables, serial communications, and contact closure, Ethernet managed switch, and loop amplifier.

S-2G: Radar Vehicle Detector location, standalone, 30' aluminum streetlight pole with foundation, solar panels, battery cabinet, and cabling

S-2H: Induction Loop location, solar powered, solar panels, 30' pole with foundation, control cabinet, media converter, contact closure, Ethernet managed switch, and loop amplifier.

S-2I: LED display, red/green, mast arm, pole, cabinet, and wiring interconnect at 2 locations; S3015 and S3020 (I-90 @ Mannheim Rd)

S-2J: Continuous Count Site (CCS) Network, Control cabinet, solar or AC powered, with IRD/PAT Traffic TRS data recorder, 20W and 40W solar panel, solar regulator, 12-volt batteries, foundation, cabling, one 6 x 6-ft loop per lane at volume sites, and two 6 x 8-foot loops per lane with a class II Piezo detector per lane at classification sites. The Department must supply the controllers, solar panels, batteries, solar regulators, cellular modem, and piezo materials.

S-2K: Control Cabinet, expressway cross-connect, including cabinet shell, foundation, telemetry card racks, mounting frame, telemetry power supply dual line amps, S-666B8-50 terminal blocks, and A.C. duplex outlets.

Miscellaneous:

Induction loop, magnetometers, radar vehicle detectors, Bluetooth detectors along with their related amplifiers, microprocessors, access points, antennas, pole, foundation, relays, card racks, and detector input files, electrical service, communication equipment, inverters, batteries, and all associated devices for a complete operational system.

9.5 DYNAMIC MESSAGE SIGNS – DMS (S-3)

The Contractor must maintain all Dynamic Message Signs at locations on or off expressways, the devices and appurtenances, color LED and amber LED, controlled by INET and a 360 Cameleon/FLIR/Teledyne system with associated communication equipment hardware and cellular/wireless.

The Arterial DMS structures do not have catwalks and handrails to utilize as a work platform. All work in the DMS sign enclosure will be done from a bucket truck with a lane closure. The Sign enclosures are front access which may require two men to open the front access door safely.

The Contractor must provide the manpower and equipment to transport portable DMS signs to a location directed by the Engineer.

A DMS location must consist of all equipment which is utilized to display traveler information on an electronic display attached to a sign support structure and communication equipment and must include, but is not limited to the following equipment:

Expressways DMS

- 170 controllers, 2070 Lite controllers with Skyline NTCIP 1203 V.I firmware, Daktronics Vanguard 3000 and VFC Series controllers with Daktronics NTCIP 1203 V.2 firmware
- Type IV control cabinets and Type D foundation, fans, heaters controllers, and all other appurtenances associated with 334 cabinets.
- Sign enclosures (walk-in and front access), load centers, display drivers, display modules, power supplies, heaters, photocells, fans, filters, temperature sensors, humidity sensors, fans, interior lighting cabling (power and communications) TVSS devices.
- UPS Battery backup, 332 control cabinet, inverter, alarm status feedback, cabling, and all other appurtenances associated with UPS battery backup cabinets.
- Electrical service, cellular modem, communication equipment, inverter, batteries, and all associated devices for a complete operational system
- Contractor will provide Daktronics Vanguard software licenses for 4 patrol technicians computers for troubleshooting purposes.

The following are Expressways DMS signs:

S-3A: Two Portable DMS signs with cameras and communication equipment

S-3B: Fourteen (14) Skyline, 18-inch, 2070 w/o UPS backup, walk-in amber LED displays

S-3C: Three (3) Skyline, 2070 w/o UPS backup, walk-in amber LED displays

S-3D: Four (4) Daktronics, 18-inch, full matrix, front access, 20 mm color LED displays

S-3E: Two (2) Skyline, 18-inch, 170 controller's w/o UPS backup, walk-in amber LED displays

S-3F: Twelve (12) Daktronics, 18 inches, full matrix, front access, 34 mm color LED display

S-3G: One (1) Skyline, 18 inches, full matrix, front access, 24 mm color LED display

S-3H: One (1) Skyline, 18-inch, full matrix, front access 20 mm color LED display

S-3I: Eight (8) Daktronics, 18-inch, full matrix, walk-in, 20 mm color LED displays

Arterial DMS

- Front access sign enclosures with IDI 1300 series controllers, firmware, display drivers, display modules, fans, filters, heaters, power supplies, temperature sensors, humidity sensors, photocells, TVSS devices, interior lighting cabling (power and communications), cellular modem, and all other appurtenances associated with the sign enclosure.
- Type III cabinets, Type D foundation, fans, filters, heaters, door switches, and circuit breaker sub-assemblies
- DMS queue detector system solar panels, 45' pole, foundation, control cabinet, wireless contact closure radio, and yagi antenna to provide contact closure for traffic queue to activate a warning message on the DMS located at 78th Place and Grand Ave. S22050 in Elmwood Park.

The following are Arterial DMS signs:

S-3J: Five (5) Adaptive Micro Systems (AMS), 8-inch, full matrix, front access, amber LED displays

S-3K: Two (2) AMS, 10-inch, full matrix, front access amber LED displays

S-3L: Seven (7) AMS, 12-inch, full matrix, front access, amber LED displays

Traffic Control Special Requirement Locations

Required traffic control, as paid through routine maintenance, includes listed requirements below:

S5377 – DMS-08, NB Ryan @ Chicago River

Ramps from I-55 to Dan Ryan need to be partially closed for access to sign enclosure.

S5052 – DMS-30, SB Ryan @ 83rd St.

Need partial ramp closure from SB 79th/83rd St. collector distributor for access to sign enclosure.

S3482 – DMS-13 – SEB JFK @ Augusta

Use reversible lanes or SEB Division entrance for access to sign enclosure.

S5196 – DMS-31L and S5197 – DMS-31E, SB Ryan locals and express @ 55th St.

Use right shoulder and/or right lane to access UPS cabinets and access to sign enclosure.

S5292 – DMS-32L – SB Ryan locals at 39th St.

Requires SB 37th St. entrance and right shoulder local lanes to be closed for servicing.

S5140 – Cab. – 48 – NB Ryan @ 65th (Skyway Ent.)

Requires partial NB Skyway entrance ramp closure.

S5165 – Cab. -43 – SB Ryan @ 59th St.

Requires SB 59th St. entrance closure.

9.6 REVERSIBLE LANE ACCESS CONTROL – REVLAC (S-4)

The Contractor must maintain the REVLAC System which consists of operational control access at six reversible entry/exit ramps to the Kennedy or Edens Expressways. The REVLAC system extends from approximately the Ohio Street interchange on the south to the Edens/Kennedy junction on the north, (approximately 7.5 miles).

The REVLAC System includes, but is not limited to; buildings, swing gates and their transmissions, barriers and barriers signs, changeable message signs, chevron signs, gore signs, auxiliary signs, Cattrons, supervisory controls, operations cameras, and all interconnecting cable, Ethernet fiber, and redundant fiber. The primary communications are conducted on the fiber system, along two major highways, I-290 and I-90.

The REVLAC System is to be kept operational 24/7 in automatic mode or in manual mode when repairs are required. This may entail having personnel manually crank swing gates and have sufficient personnel to both operate controls from a building if bypassing the PLC control or monitoring transition events. Placing barrels or barricades for failed closure devices, staging Contractor owned vehicles in place of the barrier net and all such similar work as needed to produce essentially normal functionality of the REVLAC System.

S-4A Auxiliary Signs

There are thirteen (13) LED Auxiliary signs, and they are operated remotely and automatically controlled by the PLC.

S-4B Restraining Barriers

The system incorporates six (6) restraining barriers. Each reversible entrance ramp has a barrier to prevent the entrance of vehicles when in the lowered (closed) position. Each barrier can be operated remotely or locally.

S-4C Operations Cameras

There are approximately sixty-eight (68) cameras in operation, which provide an overview of the REVLAC operations and changeable message signs to the dispatch operators at the IDOT Headquarters.

S-4D Buildings

There are four (4) REVLAC Buildings: A, C, D, and E. Equipment in the REVLAC Buildings includes four sets of Allen Bradley RS Logics 5000, programmable logic controllers. Each remote building (and the ComCenter location (Various System Article 11.0) utilize a redundant processor in their PLC system (one set). Each system coordinates the communication and control of that specific location. Normally all five units work as an interconnected system (network) through the communications links; however, each system may operate as a stand-alone unit or operate the entire system in the event of the loss of communication to/from Schaumburg. The primary communications are conducted on the fiber system, along two major highways, I-90 and I-290. Refer also to Outdoor and Indoor Site Maintenance Requirements in Article 9.11.

S-4E Swing Gates

The REVLAC system incorporates one hundred seventeen (117) swing gate systems that have mechanical and electrical equipment. These swing gates direct the traffic away from closed ramps. Swing gates can be operated remotely with Cattron units, locally, and with a manual hand crank.

S-4F Changeable Message Signs

Currently there are fifteen (15) changeable message (dynamic full matrix) signs. Each changeable message sign can be operated remotely and locally.

S-4G Gore Sign

There are six (6) LED gore signs and are operated remotely and automatically controlled by the PLC.

S-4H Chevron

There are twenty-one (21) LED chevron signs and are operated remotely and automatically controlled by the PLC.

S-4I X-Sign

There are six (6) LED "X" signs and are operated remotely and automatically controlled by the PLC.

Miscellaneous:

Current equipment to maintain includes, but is not limited to, equipment as listed in S-6 General Maintenance herein. There is also a Non-Routine budgetary allowance for roof repairs.

9.7 CAMERAS (FOR TRAFFIC MONITORING) (S-5)

The Contractor must maintain cameras for traffic monitoring. They include the following:

- Cameras with pan-tilt zoom (PTZ)
- Fixed cameras
- HD and analog cameras
- Interconnecting fiber, power, control and coax and copper cable
- Outdoor rated Ethernet cable, switching equipment, surge suppression, over-current devices.
- Monitors
- Interfaces to communications network equipment including layer 2 and layer 3 switches, and cellular modems.
- Media converter, video transceivers, codecs, video transmission and distribution equipment
- Video servers, video workstations, wireless links
- Fiber optic patch panels and fiber jumpers
- Connections, poles, brackets, and all associated hardware and appurtenances.

Responsibilities include all repairs and modifications as required, removals, troubleshooting, and re-installations.

9.8 TELEMETRY SPECIALIST

The Contractor must assign the Surveillance Telemetry Specialist to the Traffic Systems Center each workday from 7:00AM until 3:00PM to perform tasks related S-1, S-2, S-3, and S-5. The tasks consist of the following:

- Inspect, troubleshoot, repair and/or replace the FSK tone telemetry equipment.
- Interrogate 2070 or Linux based module.
- Take and return all calls from line providers with notification of problems.
- Create Telemetry Tickets.
- View daily the 360 equipment for camera outages and DMS.
- Update firmware / software associated with each camera.
- Generate an overall monthly report.
- Create Camera Tickets.

9.9 TOWERS / MONOPOLE EQUIPMENT, HUTS, AND BUILDINGS WITH EQUIPMENT, NETWORK EQUIPMENT AND FIBER OPTIC CONNECTIONS (S-6)

9.9.1 GENERAL MAINTENANCE

Currently there is equipment at six (6) towers, ten (10) huts, and TSC. For the IDOT Schaumburg Headquarters equipment, refer to Article 11.0 Various Equipment at Various Locations.

Monitoring cameras at building and hut locations will be paid separately through the S-5 pay item. A network drawing will be provided at the Pre-construction meeting. Bidders are encouraged to visit the buildings and huts after the Pre-Bid Meeting to view the equipment to be maintained, which includes but is not limited to:

- Alarm Systems and Panels
- Antenna, Antenna line, Antenna Mounts, Dehydrator Lines, and Wave Guides
- Batteries – 12 Volt and Other
- Battery Chargers and Inverters
- Cable management and ladder racks
- Cameras and Associated Equipment
- Circuit Breakers
- Computers
- Connections, Conduit, Cable, Wire, and Associated Items
- Doors, Hinges and Locks
- Electrical Distribution System
- Electrical Service Feeder Cable
- Exhaust Fans in Location FRB
- Exit Signs and Emergency Lighting
- Exterior Outlets and Outside Generator Hook-Ups
- Fencing, Gates, Locks, and Barbed Wire
- Fiber Optic Cable
- Fiber Optic Terminations & Jumpers
- Fire Extinguishers
- First Aid Kits and Eye Wash Stations
- Generators, Transfer Switches and Annunciator Panels
- GFI Outlets and Regular Outlets
- Hatches
- Heat, Ventilation, and Air-Conditioning (HVAC) Systems and Equipment
- Liebert Equipment at TSC
- Lighting Systems for Outdoor or Indoor, Fixtures, Controls, and Equipment
- Monopoles

- Network Communications Equipment
- PLC Equipment
- Power for Highway Advisory Radio (HAR)
- Power Strips and Surge Protectors
- Power Supply systems
- Rectifiers
- Roof
- Smoke and Heat Detectors
- Surge Arrestors
- Transfer Switches
- Transformers
- UPS with Batteries and By-pass Switch

9.9.2 WORK ASSIGNED TO THE CONTRACTOR NETWORK SUPPORT

Employees assigned under article 3.22 must do the following:

- Manage day to day network administration of IDOT VDS, ATMS, EMCMS, REVLAC, Lighting, Pump Station, and Traffic Signal Systems.
- Utilize NPM (network performance management) software to monitor network interfaces and equipment.
- Manage critical outage and network issues via text and e-mail notifications to System Administrator, IDOT Engineers, and EMC Contractor staff.
- Update NPM when new equipment is installed and connected to the IDOT Network. Program NPM to scan and identify equipment that may have been installed without IDOT or EMC knowledge.
- Identify, disable, and remove rogue network connections, equipment, or software operating within the IDOT network.
- Evaluate connectivity and network issues.
- Troubleshoot network problems/errors.
- Update and maintain network documentation, physical inventories, drawings, configurations, firmware, software, etc.
- Modify configurations, utilities, software, etc.
- Review and comment on new network equipment design/implementation into existing IDOT Networks
- Assign IP addresses for new equipment to be installed on IDOT Construction or Maintenance contracts/projects.
- Configure equipment network settings for equipment supplied on IDOT Maintenance and/or Construction Contracts that will utilize communications over the IDOT VDS network.

- Maintain fiber optic network documentation, GPS records of physical infrastructure, fiber assignments, record drawings, review catalog cuts, and label fiber optic patch cords.
- Input new/updated data into fiber optic documentation software.
- Install and update network system configurations and software/firmware upgrades as necessary.
- Maintain and implement latest network security measures across all IDOT Networks.
- Manage, implement, and modify firewall settings as necessary to provide access for Center-to-Center communications through an ISP, WAN, or LAN between other State or local agencies.
- Manage firewall settings and configurations for IDOT devices such as DMS, CCTV, Traffic Signal System and Pump Station devices that report status and provide control through cellular communications.
- Setup and configure cellular gateways to be installed in the field for reporting status and control to servers that reside on the IDOT VDS, ATMS, CENTRACS, TACTICS, and EMCMS networks.
- Maintain and document all new equipment information and any changes to termination/ports of fiber and Ethernet connection at all locations.
- Continuously update all locations during this contract in a baseline folder on EMCMS servers. All diagrams must be on a Visio format.

The Contractor Network Support must assure continued operation of the network systems including whenever equipment is added to keep existing networks running smoothly. The Contractor Network support must troubleshoot and resolve problems until they are remedied and must advise and provide recommendations in a timely manner to the Engineer of potential conflicts with IP addresses and equipment connections.

With the assistance of the Network Support, the Contractor must maintain all network hardware, telecommunication equipment and documentation under this Contract including but not limited to switches, routers, GigE, GBIC's, SFP's chassis, power supplies, enclosures, and all associated hardware. The Contractor must backup equipment software, configuration and maintain all licenses at all locations.

Network equipment may require software upgrades and in the event of failure, replacement. For equipment, which is no longer supported and network modification, the Contractor Network Administrator must assure equipment added to the networks does not potentially impact the system to avoid disruption in service and assure continued operations.

9.9.3 COMMUNICATIONS NETWORK

The Contractor must maintain the communication networks and its infrastructure including the INET/ATMS system, the SolarWinds Network Performance Management Network (NPM), the switched Ethernet Network, all fiber optics and wired and wireless devices.

Included in maintenance is the cable distribution equipment & accessories at all remote facilities, buildings, IDOT Headquarters, TSC, and on highways, for the transmission of video, data, and control signals and to provide interconnection points to other government agencies, through nodal buildings and nodal cabinets.

The Contractor must maintain the physical infrastructure between locations and equipment and/or nodal buildings including the fiber optic network and equipment including but not limited to:

- Cameras
- Copper Cabling
- Encoders
- Ethernet repeaters
- Ethernet switches
- Fiber distribution cables
- Fiber optic cables
- Fiber optic jumpers/patch cords
- Fiber patch panels
- Fiber trunk cables
- Fusion splices
- Handholes
- Laterals
- Media Converters
- Modems
- Pulling Pedestal
- Raceways
- Splice enclosures
- Stainless steel enclosures
- Tracer cables
- Terminations
- Transceivers
- Vaults

For proper network communications, the contractor must furnish and install (Contractor owned) a maximum of eleven (11) Surface Pro 9. The Surface Pros must have the following specifications (equivalent or higher):

- Intel Core i7 – Generation 14
- 16GB RAM Memory
- 1TB SSD Hard Drive
- Equipped with Microsoft 365 Office
- 13” Touchscreen
- USB-C Travel Hub – Docking Station
- Protective Case
- Surface Pro Compatible Backlit Snap-on Keyboard
- Microsoft Surface Slim Pen 2 – Active Stylus – Bluetooth 5.0

The contractor must furnish and install a maximum of five (5) field processors and accessories. The field processors and accessories will not be Contractor owned. The field processors must have the following specifications (equivalent or higher):

- Lenovo ThinkPad P16s – Generation 2 – 16”
- Model 1360P
- Intel Core i7 – Generation 14
- 1TB of SSD Hard Drive
- 32GB RAM Memory
- Equipped With Microsoft 365 Office
- USB-C Travel Hub – Docking Station
- Lenovo ThinkPad Essential Topload Notebook Carrying Case
- Tripp Lite 200W Car Inverter Cup Holder 12V 120V 2PT USB Charging 2 Outlet

9.9.4 NETWORK PERFORMANCE MANAGEMENT SOFTWARE (NPM)

The SolarWinds NPM software detects and diagnoses network performance issues to provide network health. It provides automated capacity forecasting, alerting, and reporting with dynamic network maps, deep packet inspection and analysis.

The contractor dispatch center must also have an NPM terminal to access the IDOT VDS network. When new equipment is installed, the Contractor must update on the NPM servers to reflect most recent changes.

The contractor must troubleshoot loss of connectivity, damaged or degraded fibers from any cause whatsoever. Upon notification of a fiber problem, the Contractor must perform testing with power meter and OTDR to determine the source of the problem and make repairs. Damaged cable must be replaced splice to splice or to termination location.

The Contractor Network Administrator must assure the continued operation of NPM including the following:

- Setup and define device dependencies to ensure no unnecessary alerts are sent.
- Configure network alerts for correlated events and sustained conditions.
- Create performance and availability reports using out-of-the box and community-generated templates.
- Create, import, or export a custom MIB poller to monitor any SNMP-enabled device.
- Collect detailed information stored in device MIB table.
- Monitor virtually any statistic available on networked devices.

The Contractor Network Administrator must update all electronic NPM maps record drawings when new equipment is added to reflect existing network operations, setup SNMP and any changes of terminations/ports of fiber and Ethernet connection at all locations. Existing network diagrams for nodes, huts, cabinets or other locations, and existing networks, will be provided.

The Contractor must maintain the existing NPM Solar Winds servers located at Traffic System Center and ComCenter:

| Server Type | Virtual |
|----------------------|--|
| OS | Windows Server 2019 |
| SQL Database Version | Microsoft SQL Server 2017 (RTM) – 14.0.100.169 |
| CPU | Intel Xeon 2.20GHz |
| RAM | 32GB |
| Disk Space | 100GB |
| SolarWinds Version | Orion Platform, NCM, NPM: 202.2.5 10.1.200.20 |

9.9.5 FIBER LOGGING & LABELING

The Contractor must be responsible for record keeping of all equipment and labeling at each node, handhole, pull point, building, hut, cabinet, and equipment.

The Contractor must ensure that all fiber strands and connectors are properly tagged and labeled at each end and must tag that they conform to the Department’s labeling scheme. The Contractor Network Administrator must perform the data entry of all changes to the existing fiber optic cable system in accordance with the D1 Standard Cable Designation Scheme which is available for review upon request.

In addition to fiber labeling the Contractor is responsible for labeling power wiring, Ethernet, RS232, RS422, RS485, cables, blue hose cables, and coax, as designated by the Engineer which require permanent labeling from a PTE 500 unit with USB connectivity, download and print laminated labels for cables, patch panels and faceplates. The labeling tape to be furnished through the year is Brother 24mm, black on white with extra strength adhesive 8m (26.2 ft). Two Contractor owned units are needed with one to remain at the Traffic Systems Center.

9.9.6 INET / ATMS MAINTENANCE

9.9.6.1 GENERAL INFORMATION

The INET/ATMS is used to control ramp metering, provide travel/congestion times, manage incidents/events, and manage DMS messaging. The system details and network diagrams will be furnished upon request. The vendor will have full remote access to the INET/ATMS for support services for the year, however the Contractor Network Administrator must be fully aware and active in any service support needed to the Department.

9.9.6.2 EQUIPMENT TO MAINTAIN

Servers

Dan Ryan (still on rack basement TSC) Dell 2950 JCQDQH1*

iNET** DB (still on rack basement TSC) Dell R720 HZWN51*

iNET** App (still on rack basement TSC) Dell R720 HPWG6X1*

New Equipment

Amber New (on rack basement TSC) Dell 330 G48FGK2*

Dan Ryan 2 (on rack basement TSC) Dell R640 8DW8H63

iNET** Server B (on network switch rack in basement TSC) Dell R740 H4927X2

2 – USB Backup disks

1 – ethernet backup disk

iNET** Server A (in Schaumburg IDOT office) Dell R740 H4927X2

Other servers on the EMCMS Base Network:

Snap Servers (2) Lenovo SN: MJO4M6SB, Lenovo SN: J11Y4NR

Bluetooth Dell power Edge R730 (2)DYJK0M2

360 Dell backup server at TSC

360 Dell Primary Servers at D1DQ Schaumburg

360 Dell R340

Tactics Dell Power Edge R730 SN:H600FB2

9.9.6.3 TECHNICAL SUPPORT

Software changes of 3rd party software will be handled on a case-by-case basis. Once an issue has been identified as an interaction issue with 3rd party software the Vendor must try to restore the system to a point earlier in time to mitigate the software issues. The Vendor must notify the Engineer and Contractor Network Administrator of the issue, what the resolution is, and with an estimate of resources needed to correct the problem.

Support requests are broken down into 5 different levels of priority:

1. Critical
2. Severe
3. Moderate
4. Minor
5. Inconvenience

The Contractor Network Administrator must become familiar with the support request format for the five levels of security.

9.10 RAMP GATES (HOMELAND SECURITY INSTALLATIONS) (S-7)

Forty-two (42) expressway ramp gates have been installed for access control on the Kennedy and Eisenhower expressways (Homeland Security). The ramp gates, the gate arm assembly, the actuator operating mechanism at Addison and the Kennedy, the bollards, cabinets, locks, traffic control cones, signs, and all appurtenances must be maintained.

9.11 CO-HABITATED DUCT & FIBER

When the Contractor finds or is notified of damage to fiber or fiber ducts and repairs are needed, the Engineer must be immediately notified, and the Contractor will immediately respond to the location. EMC Surveillance System fiber repairs need to begin immediately. An intergovernmental agency allows the sharing of fiber ducts and right of way for fiber installations. The Contractor must co-operate when the location of fiber breaks must be determined.

If an offending party/vehicle is found to have damaged Surveillance System fiber, the Contractor may bill the offending party for the repairs. The Engineer must approve of any invoice before it is sent to the offending party.

Illinois Department of Transportation Central Management Services (CMS Fiber)

- I-57 from Parnell to Dan Ryan (IDOT ROW)
- I-90-94 Dan Ryan from 103rd to 31st St om IDOT Conduit (IDOT ROW)

CMS will maintain their own fiber cable in accordance with CMS standards.

E-mail or telephone notification must be made to the following CMS personnel:

- Frank Walters 217-725-0208
- John Leonard 217-299-6127
- Robin Woodsome 312-497-7472

Surveillance System Conduit/Handholes Allowed for Use by:

Illinois Department of Innovation and Technology (DoIT)

- I-55 between IB I-55 Weigh Station in Bolingbrook to I-355
- I-55 between IB I-55 Weigh Station in Bolingbrook to west of OB I-55 Weigh Station
- I-290 from Des Plaines to I-88 Tollway

In most cases DoIT will have a representative to observe the repairs by the Contractor.

Surveillance System Fiber: on Tollway Property

- IL-390 and I-490 Elgin O-Hare western access (Tollway ROW)
- I-90 from Plaza 19 to Roselle Road (Tollway ROW)
- Roosevelt Ramp Building to ISHA Plaza 35 (Tollway ROW)

Wherever Surveillance System fiber on Tollway property is damaged, the Illinois Tollway personnel must perform the restoration of all equipment. The Electrical Maintenance Contractor must represent IDOT and must oversee the repairs and assure they are performed to the Department specifications and standards. The Contractor must perform testing in accordance with IDOT standards at the request of the Engineer.

Illinois Tollway Fiber: on IDOT Property

- I-290 between the Nordic Tower and I-90 (IDOT ROW)
- IL-355 between Army Trail Road and Nordic Road (IDOT ROW)

The Tollway must restore their equipment in accordance with their specifications and standards.

9.12 PREVENTIVE MAINTENANCE PROGRAMS (PM)

For Reporting requirements please reference Routine Maintenance Article 4.24.

9.12.1 SITE MAINTENANCE

Site maintenance is required for the following On Maintenance locations: S-4 REVLAC buildings (A, C, D, E), S-6 Surveillance huts, tower locations, and TSC (winter only). Additional information regarding TSC can be found in Article 11.0. All work must be scheduled on the Daily Agenda.

For Outdoor & Indoor Site Maintenance, refer to Routine Maintenance Article 4.25.

For all locations mentioned above, the contractor needs to perform a quick check of those locations. Specific items to be tested / inspected and repaired as necessary, (or create Follow-Up Tickets) but are not limited to:

Equipment at Huts & Tower Buildings

- Alarms, and Indicators on all equipment
- Electrical Service

Building Interior and Exterior

- Address rodent infiltration – use duct seal and steel wool to fix.
- Spray for insects – ants, etc.
- Seal any openings found.

Check these items: Create Tickets for Follow-Up Work:

- Graffiti
- Lighting Outages – specify type and size on Ticket.
- Phone line problems
- Roof leaks
- HVAC repairs

A Preventive Maintenance program must be conducted once per year, from April through June for all buildings, huts and tower locations. All work must normally be performed in presence of an IDOT inspector. If, however, an IDOT Inspector is not in attendance the Contractor must take one photo report of the completed work in each equipment area, (numbers 1 through 10).

1. **HVAC:**

- Replace air filter.
- Inspect and clean indoor coil, drain pan, and condensation drain line.
- Inspect and clean blower motor and wheel.
- Check electrical connections for tightness.
- Check controls for proper orientation.
- Inspect refrigerant tubing connections.

2. **Panel Boards:**

- Inspect for moisture and damage.
- Clean any accumulation of dust or dirt with compressed air.
- Replace burned out indicating lights.
- Inspect all terminals for excessive heat with infrared scanner, repair loose connections.

3. **Transformers:**

- Clean excessive dirt on windings and insulators

4. **Automatic Transfer Switches:**

- Inspect wiring and connections for tracking, overheating, and deterioration.
- Tighten control circuit wiring terminals.
- Check for free movement and contact continuity in manual switches.
- Adjust time delay settings as necessary.
- Clean or replace main, arcing, and auxiliary contacts.
- Tighten lug connections and mounting insulation bolts.
- Perform transfer operation.
- Calibrate phase and voltage sensitive relays.
- Clean and remove accumulated dust and dirt using compressed air.
- Check for proper operation or door closure, locking bars, and mechanism.

5. **Batteries:**

- Check and record DC voltages of each cell.
- Clean and grease battery terminals
- Clean surfaces
- Check AC/DC power converter charger (if applicable)

6. Ethernet Network:

- Check Cisco Equipment
- Check fiber media converters and switches.
- Clean and remove accumulated dust and dirt using compressed air
- Clean filter
- Check Hirschman Fiber/Ethernet transceivers
- Replace any damaged bulk heads

7. Remote Control CCTV:

- Dust and clean all equipment, check operations and levels and settings.

8. Alarms Checks on the following equipment:

- IMpath
- Optelicom
- Meridian
- Bosch
- Cisco
- IFS
- IMux
- Check and clean PLC.
- Check media converter.
- Check fiber transceiver.

9. General Items:

- Replace or repair corroded conduit, junction boxes and connectors.
- Replace or repair damaged weather stripping and/or minor leaks.
- Replace batteries in the surge arresters, building clocks, and other equipment, per manufacturers' specifications.
- Check heaters for correct operations.
- Check door operations.
- Check Eye Wash stations, replenish as needed, replace expired stations completely.

10. Roof:

- The Contractor must conduct a full roof and flashing inspection on all buildings and structures, by accessing with ladder, and physically walking the roof, checking for leaks or deterioration.
- The Contractor must thoroughly clean the roof and remove surface dirt, debris and contaminants. The roof drains must be unclogged, and minor repairs performed.
- Small Holes and Cracks: Clean surface, apply mastic (roof cement) 1/8" to 1/4" thick into the hole or crack using a roofer's trowel or gloved hand, working the mastic into the opening and 2 to 4 inches beyond.
- Large Holes and Cracks: For damaged areas larger than 1/4" repair, clean surface, use self-adhering SBS Modified Asphalt Membrane be peeling off the backing and pressing it onto the area to remove any entrapped air. A coating of mastic (roof cement) must be applied over all repaired areas.

11. Exhaust Fans:

- Inspect and tighten bolts and set screws.
- Inspect belt wear and alignment.
- Clean exterior surfaces.
- Replace filters.
- Inspect and lubricate bearings if needed.
- Check for proper control/line voltage and operation on supply/exhaust fan starters.

12. Enclosures:

- Blow dirt out of programmable controllers, I/O modules & power supplies w/compressed air.
- Brush dust & construction debris off the I/O racks, wire troughs, & horizontal surfaces.
- Vacuum dust and construction debris out of cabinets.
- Wipe dirt off edges of doors and door frames.
- Check VDT terminal for alarms.
- Clean and inspect air filter.
- Check alarm LED indicator lamp on AB I/O chassis.

9.12.2 GENERATOR INSPECTION (MONTHLY)

The Contractor must inspect the generator at thirteen (13) hut and tower locations. Locations include H55B, H55WS, H57A, H57B, H80, H94, HRIV, TFOS, THIL, TNOR, TPLA, and TSTA. Future Revlac buildings A, C, D, and E will be included for inspection.

Reference article 4.26 for required procedures.

9.12.3 CABINET & DETECTION PM – CABINET INSPECTION & CLEANING

The Contractor must perform an inspection and cleaning of all cabinets between January and November and submit a photo report monthly upon completion on the FTP Site. The cleaning materials and procedures must be approved by the surveillance system engineer prior to the start of work. All equipment associated with the cabinet must be washed once per year.

The work includes:

- Replace Control Cabinet Filter Media
- Inspect Induction Loops
- Inspect electric service disconnect.
- Check Tones for proper operation.
- Check detection controllers, for proper operation (if applicable)
- Check Cabinet Foundation, tighten where necessary.
- Check lubrication of cabinet doors, hinges, and locks
- Clean cabinet inside and out
- Inspect cabinet PDA for proper operation (if applicable)
- Check and record voltage levels for solar powered locations on the load side of the solar regulator battery side, and solar panel side. Take necessary action to correct any issues found.
- Inspect solar panel attachment to aluminum pole. If any issues, take necessary action to make location safe.
- Check radar, microloop, magnetometer (SenSys) and Bluetooth detector operation (if applicable)
- Check tuning and operation of loop detectors or detector input files.
- Update and record/edit cabinet inventories.

Applicable to Ramp Metering

- Verify / replace outages of functioning bulbs, LED's, signal load relays, and flashing beacon controllers, and lenses.
- Telephone TSC/Contractor Telemetry Specialist for Location Turn-On
- Check ramp metering controllers, for proper operation (if applicable)
- Verify aim of beacon and signal head.
- Beacon head must face the top of the ramp, the right-hand signal facing the metering input loop (Loop 1), and the left-hand signal must face the top of leading edge of the demand loop (Loop 2)
- Check for deficient pavement markings-Refer to TSC typical ramp meter striping plan.
- Check for missing, damaged, or loose signs.
- Check cabinet and signal foundation and tighten where necessary.
- Check lubrication or cabinet doors, hinges, and locks.
- Check tuning and operation of loop detectors and/or detector input files.
- Inspect stop bar striping for deficiencies.
- Check for deficient pavement markings or signage (not repaired by Contractor)

9.12.4 DYNAMIC MESSAGE SIGN (DMS) – LOCATION INSPECTION & CLEANING

The Contractor must perform an inspection and cleaning of each DMS cabinet and sign and submit a photo report monthly upon completion for the FTP site. The cleaning materials and procedures must be approved by the surveillance system engineer prior to the start of work.

The inspection includes but is not limited to:

- Replace Control Cabinet Filter Media
- Replace broken fiber jumpers.
- Verify photocells operations.
- Verify functioning of fans/heaters; replace or repair.
- Check cabinet and meter foundation and tighten foundation bolts at the base of cabinet.
- Seal all ducts with steel wool and duct seal.
- Replace filters.
- Inspect/test battery backup units (BBU's) where applicable.
- Inspect/test PDA's where necessary.
- Log into DMS Controller with vendor diagnostic software
- Verify proper operation in remote and local modes.
- Verify proper firmware is loaded and proper sign configurations are loaded.
- If necessary, load correct firmware and configuration and check with Contractor Telemetry Specialist that the DMS is operating properly.

- Inspect communications and power cables incoming and outgoing.
- Replace cables where insulation is deteriorated.
- Verify with Contractor Telemetry Specialist the message correctness and LED intensifies on the DMS sign.
- Replace LED panels as needed.
- Check voltage levels of power supplies and battery and adjust where needed.
- Check blank-out functions, power failure, and communications failures.
- Check meter housing making sure it is seated properly, and weather tight. If any problems are found coordinate with utility company.
- Check for loose connections to power cables and communications cables.
- Check ribbon cables in sign enclosure for worn spots or breaks in the cable/insulation.
- Verify seating of components and connections. The DMS signs are subject to vibrations which cause loose connections and ribbon cable (which rests on metal surfaces) to become worn and/or short over a period of time. The contractor must take immediate corrective action to correct these problems when discovered.
- Check for door for proper operation and lube door handle, pad lock, and door hinges.
- Hand wash outside of cabinet as directed by the Engineer.
- Visually inspect, for general safety, the condition of the DMS, support structure, and catwalk.

The Contractor must trim all trees and bushes blocking the line sight of the DMS display to the motorists. All trimmings must be removed from the site, removed from the right-of-way, and properly disposed.

9.12.5 CAMERA PM INSPECTION AND CLEANING (BI-ANNUAL)

The Contractor must provide twice per year cleaning for all cameras in. A list of locations of cameras must be submitted to the engineer prior to commencement of work. The Engineer reserves the right to have specified cameras cleaned when requested. Additional camera cleaning will be paid through quote work. The Contractor must hand clean the cameras with glass cleaner (Windex or approved brand).

9.13 REVLAC PREVENTIVE MAINTENANCE

9.13.1 REVLAC TRANSITION PATROL (MONTHLY)

Once per month, for the daytime reversible change (approximately 11:30 AM) and for the nighttime reversible change (approximately 11:30 PM), the Contractor must follow an IDOT ETP (Emergency Traffic Patrol) foreman through a complete gate operation at each REVLAC location, both inbound and outbound directions, to check equipment for proper operations.

9.13.2 REVLAC BUILDING QUICK CHECK (MONTHLY)

This preventive maintenance program may be performed at the same time as requirements of Article 4.25 & Article 9.11.1

Specific items to be tested/inspected and repaired as necessary, (or create Follow-Up Tickets) but are not limited to:

Equipment

- Allen Bradley PLC processors
- All input and output cards
- Alarms, and Indicators
- Camera focus and image
- Electrical Service
- Indicator lamps

9.13.3 REVLAC EQUIPMENT INSPECTION & CLEANING (BI-ANNUALLY)

In mid-April through mid-May and mid-September through mid-October, the Contractor must perform the REVLAC PM Equipment Inspection and cleaning. work must be performed in presence of an IDOT Inspector. If, however, an IDOT Inspector is not in attendance the Contractor must take one GPS Photo report of the completed work in each equipment area, (numbers 1 through 3 below).

Contractor must perform the following work:

1. Swing Gates

- Open control cabinet and clean out debris or corrosion.
- Check for fluid leaks in the cabinets and correct any found.
- Check oil level in the drive train and top off as required by the manufacturer's requirements.
- Hand clean control cabinets with biodegradable detergent and water
- Replace gate tip if more than 20% of the tip is damaged, or when directed by the Engineer.
- Check proximity limit switch alignment and bracket conditions.
- Check electrical connectors and wiring condition.
- Check drive and control components.
- Lubricate components with lubricants as listed in maintenance manual.
- Lube flange bearings only if seal failure is noticed.
- Lube chain and sprocket with high grade aerosol chain lube
- Repair or replace speed reducer if it leaks oil.
- Check that panel doors are closed and padlocked.
- Operate the gate using the hand crank to check for operation.
- Inspect quazite j-box covers for damage, replace if directed by Engineer.
- Check gate angle and adjust to Engineer specifications in maintenance manual.

The swing gates should extend and retract smoothly, without excess vibration or noise, stop quickly at extended or retracted positions, and, when in remote operation, provide prescribed status indicator and warning light indications.

All swing gates must be washed. Washing must be performed with a pressure washer and process and cleaning solutions recommended by the reflective sheeting manufacturer. Washing must not take place when the temperatures are expected to drop below freezing. Residual cleaning solution must not be left on the pavement after the cleaning operation. Any cleaning solution must be removed before traffic can be allowed to resume.

2. **Signs**

- Open control cabinet and clean out debris.
- Hand clean control cabinets with biodegradable detergent and water
- Check changeable message signs ventilation system assure all fans operational and clean filter and vents from dirt and debris.
- Check LED Display and photocell operation.
- Check communication system through remote control panels.
- Open access covers on the sign and cabinet clean out any accumulation of bird and insect nests, dirt, and dust, rodent or corrosion debris, seal all openings.
- Clean and inspect interior and exterior sign housing.
- Check and adjust voltage to LED power supply.
- Inspect and verify grounding system and ground resistance.
- Clean all associated control cabinets with biodegradable detergent and water.
- Clean LED sign panels with a cloth and Simple Green cleaner and water.
- Clean CMS as directed by the Engineer.

3. **Barriers**

- Check equipment access covers and hinged openings for proper closure.
- Open control cabinets and clean out debris or corrosion.
- Hand clean control cabinets and reflective strips with biodegradable detergent and water.
- Check for fluid leak in the cabinet and correct.
- Lubricate pillow block and idler sprocket bearings with multipurpose lithium grease, NLGI No. 2, or equivalent.
- Check net condition and positioning and check for damage or vandalism.
- Check wire condition and terminations.
- Open restraining barrier cover doors and hinged openings, clean, check drive chain and sprocket alignment and wear, and general condition and check for oil leaks.
- Check tower cover weather seal for wear or damage.
- Check limit switches and actuators; adjustments, clearances, and secure mounting.
- Check barrier net cables conditions, for tautness/tension and proper height.
- Check inside of tower and cross ramp structure for accumulation of debris, dirt, dust, corrosion, and remove animal nests, and excess grease.
- Lubricate per maintenance manual.

The restraining barrier should run smoothly, without excess vibration or noise, stop quickly at its raised or lowered positions, and, when in remote operation, ensure prescribed status and warning light indications are working.

4. Cattrons – Daytime Work (bi-annually)

The contractor must go to the IDOT Emergency Traffic Patrol (ETP) building at non-Reversible Lane changeover times to check batteries and confirm that the units link to the receiver/decoders at REVLAC Buildings A/C/D/E.

The Contractor must inspect:

- Test battery voltage (replace batteries as needed)
- Check control transmitter, receiver/decoder, relay output rack for loose bolts/screws/clamps.
- Visually check building antenna, mounting devices, cables, and connectors

Since the units are needed daily by ETP for REVLAC operations, the PM must be performed on a maximum of five (5) units at any one time and with maximum turn-around time of one business day, returning the units the same evening. If any unit is found to be defective, the unit must be replaced with a spare unit until the repairs are completed.

9.14 VENDOR MAINTENANCE

9.14.1 UNINTERRUPTED POWER SUPPLY VENDOR INSPECTION (ANNUALLY)

The Contractor must employ a factory authorized service company to perform an inspection and preventive maintenance on the UPS, its transfer switch, and its battery and the battery charger of the UPS Systems in the:

- Four (4) REVLAC Buildings A, C, D, and E.
- Five (5) Huts and Tower locations H55B, H55WS, THIL, TNOR, and TSTA
- IDOT HQ location from Article 11.0 – Various Locations

The Comprehensive inspection must be conducted in March of each year and must include:

- Performing initial and final voltage and current checks at each state – System in bypass and de-energized
- System in bypass and energized – Check all alarms, measure, and adjust critical setting.
- System energized and in normal – Perform short-term (2 minute) discharge to evaluate battery.

The Contractor must obtain a detailed service report from the Vendor service engineer. In addition to the readings the report must note any deficiencies found and/or service recommendations. The Contractor must submit the original service report on the FTP site.

9.14.2 LIEBERT VENDOR MAINTENANCE (BI-ANNUALLY)

During early June and late November, the Contractor must use a certified HVAC company to inspect and clean the Liebert system at the TSC building (5-6). The Contractor must accompany the vendor at all facilities and must provide the water and pressure washer necessary for this service.

The Contractor must obtain a detailed service report from the Vendor service engineer. In addition to the readings the report must note any deficiencies found and/or service recommendations. The Contractor must submit the original service report on the FTP site.

9.14.3 FIRE EXTINGUISHER VENDOR MAINTENANCE (ANNUALLY)

The Contractor must have all fire extinguishers checked yearly in November for proper pressure through a fire inspection service for REVLAC Buildings A, C, D, and E. It will be necessary for the Contractor to travel with the fire inspection service personnel to unlock facilities.

In some locations the dry chemical fire extinguisher will need to be submitted to the fire inspection service for hydrostatic maintenance procedures which require the extinguisher to be tested by being emptied and re-filled (every 6 years) per the NFP specifications. The Contractor must be provided a spreadsheet with the REVLAC Buildings location numbers and dates due for the hydrostatic, maintenance.

Upon the completion of the inspections, the Contractor will submit a spreadsheet list of the dates the REVLAC Buildings A, C, D, and E were inspected and the vendor report which must identify any corrective measures recommended. Both will be submitted on the FTP site.

9.15 WARRANTY AND MAINTENANCE AGREEMENTS

The Contractor must obtain warranty and maintenance agreements for year 2025. The warranty and maintenance agreements must be for the duration of this Contract, and if continued. A list of current equipment maintenance agreements will be provided at the Pre-Bid Meeting.

Prior to signing the agreements, the Contractor must submit, for Engineer approval, the name, and qualifications of the Contractor's proposed vendors at the Pre-Construction Meeting.

The Contractor must provide copies of the signed maintenance agreements specified in this Contract, with contact name and telephone number, by the first Pay Meeting of each year.

REVLAC Systems

Provide AB Rockwell Software Annual Support Agreements (current contacts are Revere Electric or Englewood Electric Supply).

SmartNet Coverage for All CISCO Equipment

Provide a Software Extended Support Maintenance Agreement for 24/7 coverage (contract type SNT) and 4-hour equipment replacement delivery from a CISCO Authorized Service Vendor. (Approximate cost \$85,000.)

Premium Software Assurance Agreement (PSAA)

Renew Premium Software Assurance Agreements (PSAA) with 360/Flir Surveillance for VDS, Google maps and DMS Central Control System servers and clients located at TSC, District 1 Communication Center, and District 2 and District 3 radio communications center.

The PSAA must provide coverage for the following:

- Support coverage Monday to Friday 8:00AM to 5:00PM (PST) excluding major holidays.
- Unlimited telephone, email, and online technical support
- Logan web access to online knowledge base and FAQ's
- Free access to all interim and major releases, patches, and device drivers within the product category
- Access to dedicated technical support developers.
- Priority response and resolution of issues
- Remote configuration and troubleshooting assistance via internet.

Skyline NTCIP Central Control Software

Renew the current Skyline NTCIP Central Control Software, Annual Maintenance License, covering the software used to maintain and operate Skyline DMS Sign within District 1.

The Skyline NTCIP Central Control Software must include the following:

- Telephone Assistance and/or via email, Monday through Friday, 8AM to 5PM MTN time
- Software upgrades, updates, and new releases or versions of software each time Skyline makes updates available.

Solar Winds

Renew software operational/maintenance agreement for the NPM software, equal to or exceeding SolarWinds Orion Network Performance Management Software. Software maintenance must include free access to any software updates, upgrades, and 24/7 support from the vendor.

Fortinet

Renew software support maintenance for the EMCMS Base Network (approximately \$18,000 per year)

INET / ATMS

Provide a Technical Support Agreement/Software Assurance Plan with a vendor who has 24/7 on-call service capability, on-line monitoring and intervention capabilities, and experience in programming using the existing software, and:

Qualified programmer(s) who have experience with:

- Hardware and software of the type installed in the Department locations.
- A data acquisition system
- Synchronized VMIC front end processors.
- Coordination control of Dell Power Edge R720 servers networked to process, control, and archive data from the data acquisition system, within and outside of the Department for traffic management control information dissemination and analytical functions; in an environment similar to that of the Traffic Systems Center.

The Vendor must:

- Respond to correct and address trouble calls and questions from the Department.
- Monitor System Resources and behavior at least once per month.
- Check processes, CPU usage, error logs, etc. at least once per month.
- Aid and assist the Department in user and database management such as adding and deleting users, adding system detectors, DMS, changes to travel time zones, and resetting user passwords.
- Provide log of error messages and actions
- Provide recommended action to be taken by Department on pending issues, which do not need immediate action, but need to be addressed before causing system interruptions.
- Complete security updates
- Provide standard monthly report.

The Contractor supplied maintenance work must include custom reports from the Vendor, if requested by the Engineer, paid through Non-Routine Maintenance.

The ATMS software relies on numerous 3rd party software platforms to run. Changes to these components can cause security risks or loss of functionality. The Software Assurance Plan must cover these components:

- Current version of Application Server – (Java or Wildfly)
- Current Database Server – SQL Server
- Operating System – Windows
- Browser – Firefox
- JDK – Java Development Kit
- User Interface Tool – DOJO

The Vendor must provide an offsite repository which provides for a complete INET / ATMS system back up in the event of a catastrophic failure, which requires a complete reloading of the INET / ATMS software and configuration.

9.16 LOCKS & KEYS

The Contractor must furnish and install new locks or replace cylinder and new key (approximately 500) on Surveillance System equipment in January 2025. The Engineer must approve of the lock and key set prior to purchase by the Contractor, which must be equal or better than Master Lock 6125KA. As new equipment comes on maintenance during the Contract, new locks must be installed at these locations.

ARTICLE 10.0 TRAFFIC SIGNAL SYSTEM

10.1 BIDDING

Unless labor, equipment, or material purchase is specifically noted herein as paid through Non-Routine Maintenance, Article 10.0 Traffic Signal System work must be paid through and is included in Routine Maintenance bid items.

10.2 DESCRIPTION OF WORK

The Traffic Signal System consists of electronically operated traffic control devices owned and maintained by the Department, which includes traffic signal installations, the integrated closed-loop traffic signal monitoring system (CLMS), the advance traffic signal system (ATSS) and flashing beacon installations.

The Contractor must provide labor, equipment, and materials to maintain the operation and performance of all equipment and networks at Contract maintained Traffic Signal System locations. Equipment found during response or inspections (Routine or Non-Routine) which need repair or replacement, or items found to be defective, malfunctioning, or non-operational are covered under this Article.

All work described herein Article 10.0 must meet requirements of Articles 1.0, 2.0, 3.0, 4.0, 5.0 and 6.0 herein.

The equipment specified herein gives a good overview of the items to be maintained, however, there may be other electrical items which require maintenance. The Contractor is urged to visit the locations following the Pre-Bid Meeting to view all the electrical equipment to be maintained.

10.3 ROUTINE MAINTENANCE BID ITEMS

T-1A Traffic Signal – metal pole and post type

T-1B Traffic Signal – span wire type

T-1C Flashing Overhead Mount Beacons

T-1D Flashing Low Mount Beacons

10.4 TRAFFIC SIGNAL INSTALLATIONS

10.4.1 T-1A

T-1A Traffic Signals are considered permanent and generally constructed with metal poles and posts with underground cabling to the controller cabinet and power source.

10.4.2 T-1B

T-1B Traffic Signals are span wire type, typically used as an interim measure and generally constructed with wood poles with most signal heads span wire mounted with underground or aerial cabling to the controller cabinet and power source.

10.4.3 GENERAL

A Traffic Signal installation must consist of all traffic signal equipment controlled by or connected to the traffic signal controller and cabinet with the exception of T-2A and T-2B flashers and red-light running equipment. Red light running equipment is not part of this contract. The Contractor must maintain all traffic signal equipment at a traffic signal installation location, the District 1 CLMS and ATSS, including but not limited to the following:

- Traffic signal heads and mounting hardware, traffic signal posts and bases, mast arm assemblies, poles, shrouds, screening, and foundations including anchor bolts.

The traffic signal heads must consist of, but are not limited to, signal sections, all mounting hardware, back plates, reflective back plates, louvers, visors, visor heaters, signal head snow deterrent devices, aviation red obstruction lights, special signal sections with flashing white strobes, programmable and steerable beams, incandescent lamps, and LED modules.

- Pedestrian and bicyclist signal heads, pedestrian and bicyclist push button detectors, pedestrian and bicyclist posts, foundations, infrared detectors, accessible pedestrian signals (APS), countdown pedestrian signals and associated signs, special pedestrian and bicyclist detection amplifiers and loop/detection.
- Master and Local traffic signal controllers are pre-times, semi-actuated, or actuated NEMA, Caltrans or Advance Traffic Controllers (ATC) types with cabinets, foundation, associated equipment, and enclosures.

The associated equipment must consist of but not be limited to modems, telephone jacks, switching units, interface boards for copper and fiber optic type interconnect cables, Layer I, II or III switches noise suppressers and all associated components for a coordinated traffic control system.

- Controller cabinet or enclosure with all associated equipment including but not limited to system communications equipment, battery backup systems (UPS), switching units (including Layer I, II, and III switches), intersection coordinators, time switches and, where applicable, pedestal and foundation.
- Emergency vehicle preemption (EVP) equipment, intersection monitoring devices, and transit signal priority (TSP) where applicable.

The cost of repairing or replacing the EVP and TSP equipment must be invoiced by the Contractor directly to the local agency.

- Red-light running enforcement equipment is generally located within State ROW and utilizes separate facilities than the traffic signal status. Red-light running enforcement equipment is not the maintenance responsibility of the State or this Contract. However, if the red-light running system impacts the normal operation or visibility of the traffic signals or is determined to be a safety hazard by the Traffic Signal Engineer, the cost of necessary work must be invoiced by the Contractor directly to the local agency.

- All vehicle detection including magnetic detector(s), wireless detector(s), video detector(s), cameras, detector loop(s), micro loops, preformed detector loops, microwave detector(s), radar detector(s), FLIR type detection camera systems and emergency vehicle detector(s) along with their related amplifiers, microprocessors, access points, video decoders, and relays.

The maintenance of video detection must include monitors and all necessary modifications to programmable detection zones and cleaning to assure proper operation as directed by the Traffic Signal Engineer. Microwave or radio communication for video detection including transmitters, receivers, antennas, reflectors, and other miscellaneous communication equipment either on the sending end, receiving end, or in between must be included as part of the Video Detection.

- Illuminated regulatory and warning signs.

The illumination must be accomplished by incandescent lamps, fluorescent lamps, neon tubes, LEDs, or fiber optic lights or other light sources.

- Illuminated street name signs.

The illumination is generally accomplished by LEDs. For lighted street name signs not maintained by the State, the cost of repairing or replacing any associated equipment must be invoiced by the Contractor, directly to the local agency.

- Traffic signal conduit, inter-duct, and interconnect conduit and raceways between traffic signals. The conduit may be in the ground or attached to structure.
- Handholes, junction boxes, and interconnect handholes.

Handholes are in traveled pavement, shoulders area, sidewalks, medians, and other areas. Junction boxes are generally located attached or embedded in structures. Repair of handhole damage caused by the failure of the immediate surrounding area may be paid with Non-Routine Maintenance item(s) if approved by the IDOT Traffic Signal Engineer.

- Traffic signal cable and interconnect cable including copper wire and fiber optic cable, multi-mode and single mode, with associated connectors and splices.

- The Contractor, if approved by the IDOT Traffic Signal Engineer, may temporarily use spare fibers to re-establish communication. A list of these locations must be maintained by Contractor and reported to the Traffic Signal Engineer monthly on an FTP submittal. When field conditions permit, the Contractor must replace the damaged fiber cable with new fiber optic cable under Routine Maintenance.
- Traffic signal wireless interconnect system including microwave/radio type.
- Electrical and telephone service installations
- Cellular communications that include but not limited to modems, routers, antennas, gateways, switches, and converters.
- Pan, tilt and zoom (PTZ) camera installations.
- Combination traffic signal and lighting unit poles.
- In-pavement lighting, flashing beacons and hybrid beacons (pedestrian and emergency vehicle type).
- Railroad interconnected traffic signal equipment, conduit, wiring, and security systems.
- Signal heads and conduit attached to railroad cantilever structures.
- Grounding systems complete with ground rods, ground wells, and grounding cable.
- Flashing or steady burn LED enhanced warning and regulatory signs.

May include pedestrian actuation, supplemental lighting, solar panels, batteries, radio control cabinet and all other necessary appurtenances.

For flashing or steady burn lighted signs not maintained by the State, the cost of repairing or replacing any associated equipment must be invoiced, by the Contractor, directly to the local agency.

- A span wire traffic signal installation T-1B includes many of the items noted above plus wood poles with down guys, span wire cable, span wire accessories, tether wires, and all other associated equipment.

- The Closed Loop Monitoring System (CLMS) includes approximately 265 master controllers interconnected to approximately 1695 intersection controllers maintained by this Contract and another approximately 250 intersection controllers maintained by other agencies. Also included in the CLMS are the interconnect cable, conduit, handhole systems, hardware, software, supplies for the Schaumburg headquarters office, and CLMS field equipment for monitoring including dial-up and cellular communication equipment. The Lake County Division of Transportation's PASSAGE system currently includes approximately three hundred sixty-five (365) and Kane County Division of Transportation traffic management system has approximately thirty-five (35) IDOT intersection controllers with additional intersections planned. Other agencies such as DuPage County, City of Naperville, City of Joliet, and the City of Aurora also operate traffic management systems on State routes.
- An Advance Traffic Signal System (ATSS) management program is currently in use and connected to approximately 315 intersection controllers maintained by this Contract and another approximately 30 intersection controllers maintained by other agencies. Steady future expansion of the ATSS is planned. Much of the existing CLMS field infrastructure such as interconnect cable, conduit, and handhole systems will continue to be used for ATSS traffic signals with new controllers, associated monitoring, switches, and communication equipment.
- The Lake County Division of Transportation's PASSAGE system currently includes approximately 365 and Kane County Division of Transportation traffic management system has approximately 35 IDOT intersection controllers with additional intersections planned. Agencies such as DuPage County Division of Transportation, City of Naperville, City of Joliet, City of Elgin, and the City of Aurora also operate traffic management systems on State routes.
- Four (4) temporary traffic signal trailers owned by the Department.

10.5 FLASHING BEACONS

10.5.1 OVERHEAD MOUNT TYPE – T-2A

The Contractor must maintain a signal head(s), flashing beacon overhead mounted, flasher controller in a housing and the complete span wire installation. The signal head must consist of one (1) or more faces with any number of signal sections. The span wire installations must consist of two (2) or more wood poles with down guys, span wire cable, span wire accessories, electric cable, ground rods, service installation, conduit, and handholes. Overhead flasher locations include units mounted on sign structures, or mast arms. This work will also apply to Rectangular Rapid Flashing Beacons (RRFB) units mounted on mast arms.

10.5.2 LOW MOUNT TYPE – T-2B

The Contractor must maintain a signal head(s), flashing beacon low mount, solar powered flasher (where applicable), flasher controller in a housing, solar panels, batteries, ground rods, service installation, a traffic signal post, foundation, conduits, cabling and handholes. The signal head may consist of one or more signal sections mounted on the same object. This work will also apply to Rectangular Rapid Flashing Beacons (RRFB) installations.

10.6 COMBINATION TRAFFIC SIGNAL AND LIGHTING UNIT

All combination poles with luminaire mast arms including the luminaire(s), lighting mast arm(s), combination pole lighting controls and cabling must be maintained under Article 10, the Traffic Signal System, and must be considered a component of the traffic signal installation (Locations L3). The luminaire(s), the lighting mast arm, cabling for the luminaire on combination mast arm poles and control components must be maintained in the manner listed in Article 7, Lighting System. Standard light poles that have traffic signals attached will be maintained in Article 7, except in some instances the poles may be under maintenance of other agencies.

10.7 GENERAL MAINTENANCE RESPONSIBILITIES

The Contractor must always maintain stock of sufficient materials and equipment to make temporary and permanent repairs within the limits specified in Articles 4 and 10. Refer to Article 3.0 for list of equipment suggested on vehicles, construction equipment, and test equipment requirements. Also refer to general response and maintenance requirements as listed in Article 4.0. In addition, the Contractor must refer to Article 10.13 herein for Inventory requirements.

Clear snow, ice, dirt, debris or address other conditions that obstruct visibility of any traffic signal display or access to traffic signal equipment.

When bagging signal heads is required, light tan colored traffic and pedestrian signal reusable covers must be used to cover dark/un-energized signal sections and visors. Covers must be made of outdoor fabric with urethane coating for repelling water, have elastic fully sewn around the cover to the backplate. A center mesh strip allowing viewing without removal for signal status testing purposes must be part of the cover. Covers must include a message indicating the signal is not in service. Locations with retroreflective backplates will require bagging the signal head and the entire backplate or removal of the backplate for the duration of signal being bagged.

Record and maintain database for traffic signal equipment malfunctions and LED module outages by date, location, manufacturer, type, model, and other related information.

Purchase and maintain database for traffic signal equipment necessary to meet the response or repair time requirements of the Contract. Calibration of test equipment must be completed in accordance with manufacturer recommendations. Refer to Article 3.0 for equipment requirements.

Maintain the District's Closed Loop Traffic Signal System (CLMS) and central/traffic (ATSS, CMS, TMS, etc.) management systems as described within this Article. This includes monitoring and maintenance of any signals included in the Lake County (PASSAGE), Kane County, DuPage County, and any other Traffic Management (ATSS, TMC/TMS/CMS) system within Region One/District One. The Contractor, at no cost to the Department, will supply to the Department any new software required for the monitoring and maintenance of the ATSS and TMC system signals. The signals within the TMC system network will be monitored as described in the CLMS later in this Article. The necessary computer components (use of one or more PCs is anticipated) and one or more standard phone lines and cellular communications required to interface with the TMC system are included in the CLMS and ATSS. All CLMS and ATSS requirements remain in effect for all signals transferred to this system. Refer to Article 10.4.3 and 10.24.1 for requirements.

10.8 REPAIR OF SIGNAL LAMP/MODULE OUTAGES

Signal indication and internally illuminated sign lamp outages must be replaced in the following manner:

Immediate corrective action must be provided if only one (1) signal indication remains in operation on an approach. This also includes left turn and right turn arrow indications if only one (1) signal indication remains in operation. If two (2) or more signal indications remain in operation for any given phase (movement) on any approach to an intersection, the replacement of the LED module, burned-out lamp, damaged socket, or damaged cable must be accomplished within one (1) working day for red or red arrow indications and two (2) working days for all other indications following discovery and/or notification of the outage. LED modules not providing a full circular color, arrow, symbol, and the like must be replaced within one (1) working day for red or red arrows indications and two (2) days for all other indications following discovery and/or notification of the outage.

Immediate corrective action must be provided for partially or dark LED or incandescent type pedestrian indications and internally illuminated signs. The replacement of LED module, damaged socket or damaged cable for a pedestrian signal indication or an internally illuminated sign such that the illuminated symbol is still identifiable must be accomplished within the next working day following discovery and/or notification. At the time of replacement of a malfunctioning LED module, burned out lamp or lamps, the reflector, lens, and LED module lens cover must be cleaned. All replacement lamps must meet the requirement of Article 10, Group Relamping of Flashing Beacon, and Traffic Signal Locations.

10.9 SIGNAL DAMAGE EQUIPMENT REPLACEMENT

Damage to traffic signal systems requires immediate corrective action. Refer to Article 2.15.9 for EMCMS documentation requirements.

The location of a temporary or permanent traffic signal head installation must meet the requirements of the MUTCD and the following:

- The minimum acceptable signal display is two (2) overhead far side signal faces directed toward the through traffic movements of each approach and two (2) signal faces directed toward any separate turning movement (where provided) on each approach pending permanent repairs, except where the distance from the stop line to the far side signal exceeds one hundred fifty (150) feet which requires a near right signal face to be in place. Existing conditions may require additional signal displays.

- Signal faces on mast arm assemblies for through traffic on any one (1) approach must not be less than eight (8) feet apart measured horizontally between center lines of face with a minimum mounting height of seventeen (17) feet above the crown of pavement surface. See the District's Detail sheets for additional mounting requirements.
- Damaged signal heads including pedestrian signals and push buttons, including APS type, must be replaced in-kind. Incandescent must replace incandescent; LEDs must replace LEDs and new pedestrian countdowns must replace pedestrian count-down types unless otherwise directed by the Traffic Signal Engineer.
- Locations where pedestrian signal indications are present one (1) pedestrian signal head must face each direction of a pedestrian crosswalk.
- A span wire signal face must contain the same type, number, and size of lenses as the signal face being replaced except that twelve-inch sections must replace eight-inch or nine-inch sections. LED modules must then be replaced with LED modules of the same make to minimize performance differences, unless directed otherwise.

10.10 POWER OUTAGES AND FLASHING OPERATION PROCEDURES

When repairs at a signalized intersection require that the controller be disconnected and power is available, the Contractor must place the intersection on flashing operation. If there is no flasher, the Contractor must install a temporary flasher in the controller cabinet. The signal must flash red for all directions unless a different flashing operation has been directed. Transition out of flashing mode must follow MUTCD procedures.

At signal installations where power is not available due to a power failure, or the need to disconnect power for safety, or a flasher must be installed, the Contractor must install at least one stop sign, Illinois Standard Sign R1-1-26x36 on each approach to the intersection as a temporary means of regulating traffic. The stop sign must be located at the stop bar and mounted at a height of 5-ft above curb or shoulder with a set-back of 12-ft from travel pavement unless otherwise directed. The Contractor, when installing temporary stop signs, must switch the controller to the flashing operation when responding to a power failure. If the approach flash is amber, the Contractor is not to place a temporary stop sign unless the flashing operation is changed to red by direction of the Traffic Signal Engineer.

The Contractor must furnish and equip all vehicles involved with the maintenance of traffic signal installations with enough stop signs to be erected as specified herein.

10.11 TRAFFIC SIGNAL AND FLASHING BEACON TRANSFER INSPECTIONS

The Contractor must furnish a trained representative for each traffic signal inspection that requires a new or existing traffic signal installation be added to the Contract or the transfer of an existing traffic signal installation of this Contract to another agency or contractor. Refer to transfer requirements in Article 4.17 and the District 1 Traffic Signal Special Provisions, and Article 10.14.3 New Equipment on Maintenance Transfers.

The Contractor must create a Ticket for all maintenance transfers and provide technical assistance at traffic signal inspections and maintenance transfers. Refer to Article 10.12 and 10.14.3 herein and refer to Article 6.0 for Routine Maintenance quantity reconciling requirements.

When transferring a traffic signal Off EMC Maintenance, the Contractor must enter in the EMCMS information that completes all fields in "Location Locate". Construction information must include the IDOT Contract number, Permit number, IDOT Local Roads and Street's section number, Tollway Contract number, or similar reference.

When transferring a traffic signal On EMC Maintenance the Contractor must enter in the EMCMS:

- Electric Utility information specific to each traffic signal location (TS#) such as account numbers, tower numbers, 24/7 contact information and any other information required.
- GPS Longitude and Latitude
- Note any change of equipment type in the Maintenance Transfer Ticket (Example T2B changed to T1A)

The Contractor must:

- Analyze all fiber test results ensuring performance conforms with the Standard Specifications for Road and Bridge Construction and the District 1 Traffic Signal Special Provisions.
- Analyze all induction loop detector loops at the controller cabinet ensuring that each detector loop of set of detectors conforms with the Standard Specifications for Road and Bridge Construction and the District 1 Traffic Signal Special Provisions.
- Assure other vehicles detection, such as video, radar, and electromagnetic systems, are set-up properly.
- Analyze the controller program provided by the controller manufacturer to ensure that the phase and overlap designation on the traffic signal sequence drawing is provided correctly in the controller program and cabinet wiring drawings.

- Ensure that the phase timings in the traffic signal controller are those provided by the Department.
- Assist in placing the traffic signal in operation by observing the signal display and checking of the conflict monitor or MMU while all vehicle traffic is stopped and must report any operational discrepancies or signal outages to the Area Traffic Signal Maintenance and Operations Engineer immediately.
- Assist in the testing and adjusting of emergency vehicle preemption equipment. The Contractor must ensure that any time railroad preemption is in operation with emergency vehicle preemption that the railroad preemption has priority over the emergency vehicle preemption equipment.
- Assist in the testing and adjusting of UPS equipment.
- Ensure that the locations containing railroad preemption are programmed in accordance with the approved railroad preemption program and that all special lock out devices are operating.
- Be reasonable for inspecting each location to determine the completion of construction punch lists as directed by the Traffic Signal Engineer. The punch lists must be prepared and provided by the Traffic Signal Engineer and the Contractor must return written verification of punch list completion or non-completion.
- Upon request, review locations proposed for loop replacement in ongoing pavement resurfacing, patching, or grinding construction contracts.

10.12 PATROL INSPECTIONS

10.12.1 GENERAL REQUIREMENTS

The Contractor must provide a sufficient workforce and equipment to patrol all flashing beacon and traffic signal system locations.

Each traffic signal system location not interconnected to railroad warning devices must be patrolled and inspected once every month.

Each traffic signal system location interconnected to railroad warning device must be patrolled and inspected twice a month. There are 139 traffic signals on state routes that are interconnected to railroad warning devices and maintained by IDOT.

The Contractor must schedule monthly or twice monthly patrols during the same week(s) of each month during the calendar year.

Patrols must inspect for proper alignment of vehicle and pedestrian signal heads, display outages (all sections of every pedestrian and vehicular signal head), visors, backplates, alignment of posts and mast arm poles, mounting hardware, aviation obstruction lights, special traffic signal sections with red lenses and accompanying circular white halo lamps, shielding of optically programmed faces, foundations, anchor bolts, detection, communications and general operation of the traffic signal. The Contractor must make necessary adjustments and repair or replace all worn, missing or damaged components as specified herein.

Unless otherwise permitted or requested, except for emergencies, the Contractor is required to schedule the IDOT traffic signal patrol routes the first portion of each workday and on the approved route day. Emergency services required by IDOT, or other agencies must be attended to immediately, however, any incomplete daily patrol must be completed (by others or the original patrolman) during the normal patrol work week. This may require patrols after the normal workday has ended to complete the normal patrol workweek.

At the Pre-Construction Meeting the Contractor must provide the Engineer the proposed Traffic Signal monthly Patrol Route schedule by week, with the name of the assigned Patrolman. If acceptable to the Department the Contractor will enter the approved route assignments in the EMCMS by the start of the Contract year. Changes to the approved routes and Patrolman assignments may not be made without the proper approval of the Traffic Signal Engineer.

The Contractor must use the EMCMS TS Patrol Entry screen to enter the date, in each month, that each IDOT maintained location was inspected (twice monthly for RR Interconnected signals). Future EMCMS programming may add GPS tracking information, however, for the start of this Contract the Patrolman must take GPS/date-stamped photos of each cabinet at the final calendar year inspection. Three photos will be required focusing on the interior of the cabinet only, showing all the equipment and detector rack. These pictures must be taken at the same time when end of year inventory is recorded. Photos must be downloaded on the FTP site, by route assignment, at the end of each calendar year. The daily Patrol assignments must be listed on the Daily Agenda.

All repairs not completed at the time of the inspection must have EMCMS Tickets created. Repairs not completed at the time of the Patrol Inspection are subject to the time limits stated herein.

If there are missed Patrols by the end of the assigned Patrol Week the Patrolman must send an email to the Traffic Signal Engineer explaining the reason for the delay and when the missed Patrols must be completed.

10.12.2 ROUTINE PATROL DUTIES AND RESPONSIBILITIES

The Contractor's responsibilities must include but are not limited to inspecting, repairing, and replacing the following items:

- Align and straighten all traffic signal equipment including but not limited to signal heads, traffic signal posts, controller of service installation pedestals, mast arm assemblies and poles, foundations, and mounting hardware.
- Check all anchor bolts for mast arm poles, signal posts, controller cabinets, and, in addition, all bolts used to attach the mast arm to the pole.
- Replace missing or damaged screening, handhole access covers, and mast arm or post end caps.
- Damaged mast arm shrouds or bolt covers must be removed and replaced with screening.
- Tighten screws related to signal post base plates, anchor bolt covers, handhole access covers, service installations covers and controller cabinets.
- Repair or replace any failed or damaged signal components including signal controllers, cabinets or peripheral equipment, signal heads, back plates, or mounting hardware, posts or mast arms, illuminated signs, detectors (vehicle, bicyclist and pedestrian), cable, conduit, faded or damaged pedestrian signs, network switches, PTZ cameras, sign frames and other signal appurtenances which are part of a signal installation. Contractor will be required to replace mast arms with significant dent depths greater than 2" deep.
- Electrical grounds must be maintained in accordance with the National Electrical Code.
- Signal back plates must be replaced or re-painted if any unpainted surface is exposed, faded or peeling. Reflectorized backplates with peeling or missing reflectorized tape must be replaced in-kind with new reflectorized backplates.

- The Contractor must keep current the EMCMS and an Excel spreadsheet list of locations with red-light running (RLR) cameras, emergency vehicle preemption (EVP), Transit Signal Priority (TSP), Bus Rapid Transit (BRT) and traffic monitoring cameras. While performing patrol duties, for the duration of the Contract, the Contractor Patrolman must make note of any red-light running (RLR) camera locations, emergency vehicle preemption (EVP), Transit Signal Priority (TSP), Bus Rapid Transit (BRT) and traffic monitoring camera locations, the agency responsible for their installation, and report the installations or removals at the end of each month on a cumulative yearly spreadsheet using Excel and submit on the FTP site.
- The Contractor must clean the PTZ camera lens at least once a year preferably in April after winter salting is complete or as directed by the IDOT Traffic Signal Engineer.
- Document with pictures and notify IDOT Traffic Signal Engineer of any 3rd party equipment such as but not limited to LPRs, cameras, antennas mounted on IDOT maintained signals.

10.12.3 CONTROLLER AND CABINET INSPECTIONS

The Contractor must provide a sufficient work force and equipment to inspect all controllers and cabinets as provided once every month:

- The patrol person must visually inspect the inside of each controller cabinet. The visual inspection will include checking all timing intervals and time base coordination programs to ensure all settings are correct including that the clocks are set to the same hour, minute and second at all locations within the time base coordination system.
- All detector amplifiers must be visually inspected to ensure that the vehicle detectors are receiving vehicle calls and the calls are being placed into the controller. Loop detector amplifiers with automatic vehicle identification necessary for bus preemption must be inspected to ensure they are receiving vehicular phase calls and bus preempt calls; and the calls are being placed into the controller. Bicycle loop detector amplifiers must be tested for proper operation. Pedestrian push button detectors must be tested by pushing each detector and watching for the related walk indication to appear. Other vehicle detection systems must be tested, cleaned, and aligned for optimum operation.

- Test system communication for proper operation.
- Update database on appropriate software for closed loop monitoring system and central/traffic (ATSS, CMS, TMS, etc.) management systems on a laptop computer, tablet or other device approved by the Traffic Signal Engineer.
- Equipment manuals, box prints, and cable logs are to be maintained in each controller cabinet. Any missing documentation must be re-established / reinserted within a week of discovery.
- GPS latitude and longitude coordinates of the controller cabinet, electric service location, UPS, mast arm pole assemblies, posts, fiber optic cable handholes and other items as listed herein, must be recorded, or verified annually for use in the District's record retention and maintenance system. Refer to Article 4.12 for GPS documentation.
- Uninterruptible Power Supply (UPS) must be tested once every month to assure proper operation of the traffic signals upon loss of normal electric utility power. Manual transfer and power loss transfer must be tested which must not put the signal in flash. Nominal output voltage and current along with battery string voltage must be measured and compared to manufacturer's expected values and recorded. Batteries not meeting minimum ratings and capacities must be replaced under Routine Maintenance.
- Railroad preemption, emergency vehicle preemption and bus preemption must be tested during the cabinet inspection. All program settings and each sequence of operation must be verified to be correct during each inspection.
- EVP, TSP, BRT, and their equipment must be tested during the cabinet inspection. All costs of repairing or replacing damaged or missing emergency vehicle preemption equipment is the responsibility of the local fire district or municipality and should not be reflected in the Contractor's bid price for Routine Maintenance items. (This includes maintaining the light detectors, light detector amplifiers, radio transmitters and receivers, antennas, confirmation lights, cables and/or related components.) TSP and BRT equipment must be treated similarly to EVP equipment, but PACE is responsible for maintenance costs. The Contractor must create a ticket and notify the appropriate agency, immediately, that their EVP, TSP or BRT equipment is not operating and ask if immediate repairs are requested or if an estimate of repairs is necessary before repair work is provided. A copy of all PV (Pre-Empt Vehicle Equipment Tickets, correspondence and invoices must be provided in the monthly routine maintenance work submittal on the FTP site.

10.12.4 ROUTINE WORK REQUESTS – RR TICKETS

The Contractor must provide signal operating inspection tasks upon request (RR Tickets) such as:

- Inspect the timing operation of a signal installation at a specific time period and provide a recommendation for improving traffic flow.
- Program timing parameter changes
- Determine the phasing or operation of a signalized installation.
- Check the condition of verify the presence of equipment at a signalized location.
- Provide a copy of timing parameters in use at a signalized location.
- Provide recommendations to improve the safety or the operation of a signalized location.
- Provide a compiled list of all locations meeting specified criteria.

10.12.5 ROUTINE MAINTENANCE SIGNALS – RM TICKETS

The Contractor must generate maintenance tickets for (each):

- LED replacement.
- battery replacement.
- cellular conversion.
- traffic signal controller replacement.
- cabinet replacement.
- conversion to metered service.

10.13 INVENTORY REQUIREMENTS

10.13.1 EMC SPARE PARTS INVENTORY

The Contractor must use the EMCMS Spare Parts Inventory entry and reporting. Refer to Article 2.15.10.

10.13.2 ASSET INVENTORY

The Contractor must provide a complete traffic signal equipment inventory in the EMCMS of the signalized intersections including signal equipment located inside and outside of the controller cabinet and must maintain a library of repair and operation manuals for equipment in the IDOT traffic signal inventory. The exact format and inventory items must be determined by the Traffic Signal Engineer.

This initial asset inventory work must be completed by the last day in April off 2025 and kept current monthly, with maintenance transfers of new equipment and be submitted on the FTP site. If this Contract is continued the asset inventory information must be kept current through the renewal years.

The Contractor must also be responsible for updating and maintaining the Access database or other database designated by the Traffic Signal Engineer for traffic signal equipment inventory. The database must have corrections noted and submitted as applicable, starting with the initial last day or April Asset Inventory.

10.13.3

NEW EQUIPMENT ON MAINTENANCE TRANSFERS

The Contractor must complete the form “IDOT District 1 – Traffic Signal Inventory” for:

- A new traffic signal installation added to the Contractor’s maintenance.
- Maintenance of an existing traffic signal installation when it is transferred from another agency to the Department.
- Maintenance of a traffic signal installation, which had been under construction when it is accepted for maintenance by the Department.
- A change inventory at an existing signal installation.

The Contractor must provide an updated form with a revised date for all locations being accepted for maintenance even if there is no change in inventory items on the form (the date must reflect the acceptance of maintenance). The Bureau of Traffic reserves the right to make minor modifications to the form such as adding or deleting items or modifying the format, but without changing the overall scope of the form.

Refer to Article 4.17 Maintenance Transfers, for Contractor responsibilities.

10.14 INCANDESCENT RELAMPING

Most of the traffic signals in IDOT District 1, including pedestrian signals, have been converted to LED type optics. The Contractor must replace the signal displays (intersection and pedestrian signals) at all the state maintained incandescent traffic signal locations (approximately 10 intersections) annually. The Contractor must complete the work by October 1st of each calendar year.

The Contractor must provide a schedule of all locations to be relamped by each relamping crew. The Contractor is to notify the Traffic Signal Engineer, in writing, of his planned starting date.

Upon completion of the relamping, lens washing and reflector washing, the Contractor must furnish to the Traffic Signal Engineer a completion report, no later than August 1st of the Contract year.

The schedule for the second year and third year relamp program must be approved prior to commencement.

All Aviation Red Obstruction Lights on traffic signal posts or mast arm assemblies and poles must be relamped at the same time the traffic signal installation is relamped as part of the yearly traffic signal group relamping. The lamps used in the Aviation Red Obstruction Lights must meet or exceed the requirements for the fixture's lamp set by the manufacturer of the fixture.

Special traffic signals sections with red lenses and accompanying circular white halo strobe lamps must be relamped.

The Contractor's crew must relamp the entire intersection on the same working day. Old lamps must be disposed of in accordance with the manufacturer recommendations and Environmental Protection Agency and requirements in Article 4.0 as stated herein.

10.15 LED REPLACEMENT

The Contractor must replace all LED displays (intersection and pedestrian signals) at two hundred (200) State maintained traffic signal locations annually. The Contractor must also replace all LED displays and batteries at twenty (20) State maintained traffic flasher locations annually. The locations to be re-lamped are intended to be designated by the Traffic Signal Engineer prior to March 1 of the Contract year. The Contractor must complete the work by the last day of September of each calendar year and submit on the FTP site.

Each intersection must have a consistent make and model of LED display installed. Each LED display installed must be labeled with the month and year of installation. The LED display must be approved by the Traffic Signal Engineer and meet all current ITE and NEMA standards and the requirements of the Standard Specifications for Road and Bridge Construction and the District 1 Traffic Signal Special Provisions. The replaced LED display must become the Contractor's property and must be recycled without re-use.

10.16 UNINTERRUPTIBLE POWER SUPPLY (UPS) BATTERY REPLACEMENT

The Contractor must replace all UPS and batteries at 75 State maintained traffic signal locations each contract year. The proposed locations for battery replacement are listed herein. This list will be finalized by March 1 of each contract year with battery replacement work for all locations completed by the last day of September of each calendar year and submitted on the FTP site.

Work must include, but not be limited to, removal of existing batteries from State ROW, furnishing and installing new battery replacements, recycling of existing batteries, cleaning of battery cable connections and cleaning of UPS compartment shelves, vents, and filters. New batteries must meet the requirements listed in the District 1 Traffic Signal Special Provisions for Uninterruptible Power Supply including run time, sizing, rating, and warranty.

Existing batteries must be recycled meeting all applicable sections of US EPS and IL EPA publications along with the Code of Federal Regulations for transportation.

10.17 CELLULAR CONVERSION

The Contractor must replace existing dial-up service for ten (10) closed loop traffic signal systems designated by the Traffic Signal Engineer. Work must include but not be limited to installation, set-up, support and configure of the cellular communication system to work with the IDOT District 1 network. Equipment must include but not be limited to 1) a rugged cellular modem certified with Verizon Wireless designed with 2 ethernet ports and an RS232 port for connection to the traffic signal controller, 2) an external low profile antenna mounted to the traffic signal cabinet, 3) a router with 2 ethernet ports with static IP address assigned by IDOT, 4) for those traffic signals with controllers that are not ethernet compatible, additional hardware and cabling will be needed, 5) all appurtenances necessary to provide cellular communication for the closed-loop system. IDOT District 1 has installed cellular communication equipment at ninety (90) locations within the District at the time this contract was prepared. For questions regarding these locations, please contact the Traffic Signal Engineer at 847-705-4734. The necessary SIM card will be provided by the District once testing has been completed and accepted by IDOT. The locations for cellular conversion installations are intended to be designated by the Traffic Signal Engineer prior to March 1 of the Contract year. The Contractor must complete the work by the last day of September of each calendar year and submit on the FTP site.

10.18 TRAFFIC SIGNAL CONTROLLER AND CABINET REPLACEMENT

10.18.1 NON-RAILROAD INTERCONNECTED LOCATIONS

The Contractor must remove and replace 25 existing traffic signal controllers and cabinets with new equipment as part of Routine Maintenance. Work will be as described in Section 2.0 Traffic Signal System Non-routine Pay Items General and TC01A, Full Actuated Controller in Type IV Cabinet. In addition, this item must include new inductive loop detectors and new UPS(Complete) system. The existing UPS/Battery back-up system if determined in good operating condition must be relocated to another location, unless otherwise directed by the Traffic Signal Engineer. Locations must be designated by the Traffic Signal Engineer, prior to March 1st, of the contract year. The Contractor must complete the work by the last day of September of each calendar year and submit on the FTP site.

10.18.2 RAILROAD INTERCONNECTED LOCATIONS

The Contractor must remove and replace 2 existing traffic signal controllers and cabinets that are interconnected to railroad warning devices with new equipment as described in Section 2, Traffic Signal System Non-Routine Pay Items General and TC02, Full Actuated Controller In Cabinet With Railroad Equipment. In addition, this item must include new inductive loop detectors and new UPS(Complete) system. Locations must be designated by the Traffic Signal Engineer prior to March 1 of the Contract year. The Contractor must complete the work by the last day of September of each calendar year and submit on the FTP site.

10.19 CONFLICT MONITOR / TESTING PROGRAM

Conflict monitors and malfunction management units (MMUs) must be tested once every two years. One-half of the system must be tested by November 15th of each Contracted year. Conflict Monitors and MMUs must be split evenly into two groups for inspection, and listed as group A and group B. The required inspections will be as followed: 2025 group A; if the contract is continued, 2026 group B and 2027 Group A. The Contractor must submit the list of groups A and B in Excel spread sheet format or another approved format. In addition, the Conflict Monitor or MMU must be tested after damage is done to the cabinet such as a lightning strike, cabinet hit or knock-down, etc. The Contractor must conduct a complete bench test of all Conflict Monitors or Management Malfunction Units including at ATC cabinet locations. The testing method must be pre-approved and must include:

- Removing the intersection's monitor and running a complete test at the Contractor's shop with a conflict monitor/MMU tester unit.
- A spare monitor must be installed temporarily while the test is being performed or monitors may be shop-tested by rotating pre-tested monitors to the field.
- Documentation of the tested monitor must be made which includes the following:
 1. Date
 2. Name of Technician
 3. Location – including EMCMS location number, intersection name, city and/or county.
 4. Serial number of conflict monitor
 5. Comments regarding fail or pass conditions.

Failed monitors must either be repaired so that they pass the monitor test or replaced with a new monitor that passes the test.

Unless prior approval is given, all the above items must be completed by the Contractor within the same working day at a single traffic signal installation. The Contractor must provide a schedule for this work. Any deviation from the approved schedule must be approved.

The Contractor must provide Progress Reports as requested showing the locations which have been completed to date.

The Contractor must provide a final completion report, an Excel spreadsheet report, listing all the signal installations with the date the work was completed and verifying that each item has been completed, by the last day of November in each calendar year. This report must be submitted to the Traffic Signal Engineer and loaded on the FTP site.

Conflict Monitors/Malfunction Management Units must not be replaced at railroad interconnected intersections without prior notification of the Traffic Signal Engineer.

10.20 MAST ARM ASSEMBLY AND POLE INSPECTION

The Contractor must inspect mast arm assemblies, mast arm poles and mounting brackets and hardware supporting traffic signal heads or pedestrian signal heads every two (2) years. Mast arm assembly and pole inspection must be split evenly into two groups for inspection, and listed as group A and group B. The required inspections will be as followed: 2025 group A; if the contract is continued, 2026 group B and 2027 Group A. The Contractor must submit the list of groups A and B in Excel spread sheet format or other format approved by the Engineer for approval. The report on damaged mast arm poles must include dimensioned photos of damaged poles. Reports must include TS#, location, anchor bolt and foundation visual condition. (Also review Contractor Advisory Inspections in Article 2.9)

This inspection must be completed between April 1 and the last day of August of the Contract year and may be concurrent with the group relamping in Article 10.10 or done separately. The Contractor must furnish schedules for this program a minimum of one week in advance of the start of work. The inspection must be conducted in the same manner as described in Article 10.10, which requires reporting the Daily Work Schedule and follow-up documentation of the work. The inspection must focus on the structural elements of the mast arm assemble and must include a close-up, arm's length investigations of the following elements:

Mast Arm

- Provide picture.
- Look for cracking – picture.
- Look for corrosion – picture.
- Assure end cap in place/secure (replace if missing)
- Assure no openings from previous signal heads or other mounted device (cap as necessary [fender washer/molly bolt]).
- Address any traffic signal head backplate issues (bent/faded)

Mast to Pole Connection

- Provide picture.
- Look for cracking – picture.
- Look for corrosion – picture.
- Look for bending or deformation of the connection box or surrounding area in the pole or mast – picture.
- Check for voids where water can infiltrate – picture.
- Seal voids with IDOT approved sealant.

Pole

- Provide picture.
- Lightly hit the pole around the base with the flat side of a ball peen hammer. If the pole “thuds” instead of ‘rings’, there may be corrosion at the base or accumulated corrosion inside due to poor ventilation or age.
- Assure top cap in place/secure (replace if missing)
- Assure no openings from previous signal heads or other mounted device (cap as necessary [fender washer/molly bolt])
- Identify any deformations from poles being hit by vehicles or other objects and measure the depth of dent from normal condition. Record depth and take picture of dent for monitoring.

Base Plate

- Provide picture (will require shroud removal, as applicable)
- Look for corrosion or disturbance – picture.
- Clean out any buildup of corrosion or other material under the base.
 - Remove grout (required for inspection)
 - Replace with screening as necessary.
- Shrouds (replace broken/missing with screening)
- Permanently remove all shrouds (required for inspection) on:
 - 25+ year mast arms
 - Non-galvanized
 - Damaged shrouds
 - Replace with screening.
- Replace shrouds after inspection (or replace with screening) on:
 - Newer (less than 25 years)
 - Visibly clean/corrosion free
- If the pole is painted and not galvanized, paint the area uncovered by removing the shroud with a rust inhibitive paint. Recommend Rust-Oleum Stops Rust or similar.
- If the pole is galvanized, spray the area uncovered by removing the shroud with a cold galvanizing spray paint. Recommend Rust-Oleum Cold Galvanizing Compound Spray or similar.

Anchor Bolts

- Provide picture.
- Visually inspect for loose nuts and damage.
- Strike anchor bolts with a hammer. If the bolts do not 'ring', they are suspect for corrosion or concrete deterioration.

The arm of the assembly must be visually inspected at all signal head connections for any defects, such as cracks or buckles. The most arm-to-pole connection must be inspected for significant loss of section, cracks in welds or base metal, and deterioration of the connection plates. The bolts of the arm-to-pole connection must be inspected for tightness and condition.

The pole must be checked for external corrosion, impact damage, perforation by rust through, and any discernible deflection, distortion, or cracking. The pole must be closely checked for corrosion near the base plate, especially if mounted on a grout bed. The welds of the pole-to-base plate connection must be checked for cracks.

The base plate must be checked for any severe section loss or deformation.

The anchor bolts of the mast arm must be inspected to verify that the existing nuts are not loose or missing. The anchor bolts must also be checked for any corrosion or bending.

Mast Arm Inspection forms are to be scanned and grouped together by intersection. Each traffic signal location must be one (1) PDF file. The file name is to be labeled in the following format:

- TS#_Date of Inspection_MAI.PDF
- Date of Inspection is to be MMYYYY – no spaces.
- Example: TS12345_042016_MAI.PDF

Upon discovery of any buckles, significant structural defects (loose nuts, severe corrosion or dents, cracks in welds, plates, or structure, etc.), the Contractor must immediately notify the Illinois Department of Transportation at (847)705-4374 and take corrective action to ensure the assemblies do not pose an immediate hazard.

Inspection of the entire intersection must be completed on the same working day.

The Contractor must provide the Traffic Signal Engineer a completed form MA-2 (single or double mast arm assemblies), “Annual Mast Arm Inspection Report Form” for each Department maintained traffic signal mast arm assembly and pole inspected monthly, which must be submitted on the FTP site.

Digital pictures, noted by TS number, location name, county, town, and corner (SE, NW, etc.) of any deficient equipment noted in Article 10.13 must be included with report forms on the FTP site. All work must be completed by the last day of August of each Contract year.

10.21 RAILROAD INTERCONNECTED TRAFFIC SIGNAL INSPECTION

The Illinois Commerce Commission must conduct an inspection of all Department traffic signal locations, which are interconnected with railroad crossing flashing signal warning devices with or without railroad gates. Locations not maintained by the Contractor but under the District 1 route jurisdiction system are also included. The inspection must be completed on an annual basis during the calendar year.

In addition to the Contractor an inspection team may consist of personnel from the Department’s Bureau of Traffic, the railroad responsible for the railroad crossing warning equipment, and the Illinois Commerce Commission. The Traffic Signal Engineer will schedule the inspection of each railroad interconnected location based on the availability of personnel from each involved agency.

The Contractor must be responsible for making all necessary measurements. He must determine all signal time intervals and controller settings, which pertain to railroad preemption. The sequences of operation must be checked, and the Contractor must conduct all necessary tests. Any deficiencies or recommendations must be reported directly to the Traffic Signal Engineer.

The Contractor must maintain and update individual security software and proms for the approximately 150 railroad interconnected signals in District 1. These items must remain under strict security and be transferred back to the Department at the end of the Contract. The Contractor must at all times provide and maintain one (1) Yunex traffic signal controller and (1) Econolite traffic signal controller, at a location to be approved by the Traffic Signal Engineer, loaded with District 1 approved security software, which can be used to replace damaged equipment in the field. The controller model must be as directed.

10.22 DETECTOR LOOP MAINTENANCE AND REPLACEMENT

10.22.1 TRAFFIC SIGNAL LOOP REPLACEMENT

The Contractor must reseal all existing traffic signal detector loop wire which has become exposed. The Contractor must clean all debris and damaged detector loop sealer from the existing saw cut. Loop detector wire that is exposed will be reinstalled into the existing saw cut and held in place by wedges prior to the resealing of the detector loop.

10.22.2 DETECTOR LOOP REPLACEMENT

The Contractor must replace all detector loops, which become inoperable. The cost of replacing the detector loop must be part of Traffic Signal Routine Maintenance. Detector loops that are damaged by state forces must be replaced and paid through a Non-Routine Authorization letter.

A detector loop, which is milled out during a pavement resurfacing, will be replaced as part of the Department's resurfacing contract. The Department's Electrical Maintenance Contractor will be notified by the Traffic Signal Engineer to dispatch a patrol person to the location to disconnect the loop detector cable from its terminals and place the affected phase(s) on maximum recall and/or other adjustments made as directed by the Traffic Signal Engineer.

System Detector Loops must be replaced throughout the entire year. Between November 30th and March 1st, the Contractor may replace non-system loops with standards detector loops or temporary vehicle detection system. Temporary vehicle detection system must be removed and replaced permanently by detector loop by March 31st. If the Contractor is unable to install cable for the temporary vehicle detector due to frozen or full conduits, the Contractor may temporarily span the cable overhead if proper clearances over the roadway can be maintained. Temporary vehicle detection system and installation must be approved by the Traffic Signal Engineer. No additional compensation will be provided for temporary vehicle detection system or equipment necessary for the installation. Temporary and permanent repairs must adhere to response and repair time requirements specified in Article 4.27.

At locations where the Contractor deems the pavement condition to be unfit to replace existing inoperable detector loop with a new loop, the Contractor must, with prior approval from the Traffic Signal Engineer, install a permanent video detection system or other Department approved detection system selected by the Traffic Signal Engineer. The new detection system must be installed in accordance with the applicable standard specification under Non-Routine Work. Otherwise, the cost of providing and installing the new detection system including all necessary connections, monitors, electronics, handhole drilling, trench and backfill, non-metallic raceway and restoration must be included in Routine Maintenance of the traffic signal installation and no extra payment will be allowed.

10.23 LICENSES TO FURNISH

Furnish software and maintenance agreements (SMAs to operate, support and maintain all Closed Loop Traffic Signal Systems, Video and Detection Systems, ATSS and related central/traffic (CMS, TMS, etc.) management systems for Contractor personnel and IDOT personnel's laptops and desk computers (approximately 15 locations). This must include the latest versions of Centrac, Tactics, Aries, and TranSuite.

The Contractor must furnish 25 Centrac or Tactics intersection licenses for integration into IDOT's ATSS system as directed by the Traffic Signal Engineer.

At the beginning of the EMC 2025 it is estimated that District 1 will have approximately two hundred fifty (250) intersections with video, radar, wireless or other detection in operation. Video and other detection types will increase each year. The Contractor must provide license software for each of the System Patrolmen who have video and other detection types in their respective area. The System Patrolmen must be fully instructed in the operation and maintenance of each detection system.

At the beginning of the EMC 2025 it is estimated that District 1 will have one hundred fifty (150) traffic tilt/pan/zoom video cameras in operation. The Contractor must provide licensed software for each of the System Patrolmen which have this video in their respective areas. The System Patrolmen must be fully instructed in the operation and maintenance of these cameras.

At the beginning of the EMC 2025 it is estimated that District 1 will have approximately two hundred fifty (250) intersections with APS push buttons. The Contractor must provide license software for each of the System Patrolmen who have APS push buttons in their respective area. The System Patrolmen must be fully instructed in the operation and maintenance of each APS push button.

10.24 INTEGRATED CLOSED-LOOP TRAFFIC SIGNAL AND ATSS MONITORING SYSTEM

10.24.1 CONTRACTOR RESPONSIBILITIES

The Contractor must daily monitor, review, and maintain the District 1 CLMS and ATSS systems. The Contractor must use a local area network (LAN) computer system, with licensed software for each brand of master controller (used in District 1) to monitor the District 1 closed loop signal system. The LAN system must communicate with each master through dial-up telephone lines or cellular communications. The LAN must also be capable of comparing databases with the Department's LAN at the District Headquarters in Schaumburg. The Contractor must provide daily and weekly reports updating the status of the CLMS. The Contractor must also provide current licensed traffic signal system software for all laptop/tablet computers used by its patrolmen.

A copy of the Official District 1 Closed-Loop Database must be supplied to the Traffic Signal Engineer at the termination of this Contract. The database must also be electronically provided to the next Maintenance Contractor at the termination of this contract.

10.24.2 MONITORING

The Contractor must concurrently monitor all traffic signals operating as a closed loop system or operating on a traffic management system maintained under this contract. Monitoring must be on a 24 hour per day, 7 days per week basis. The Contractor's system monitoring functions must include, but not be limited to, the reception of telephone calls from Closed Loop System Master Controllers and the storing, displaying, and acting upon any reported events, alarms, equipment failures, operational exceptions, and programmed data collection. The Contractor must have sufficient dedicated telephone lines, dedicated Closed Loop Monitoring System(s) with appropriate software, and qualified electrical technicians to provide for the monitoring of all closed-loop traffic control systems being maintained under this contract. The Contractor must program all Closed Loop Systems to receive all system alarms, events, and messages on its Central Closed Loop Monitoring System(s). The Contractor must respond to all alarms, events, and messages and provide the indicated response or corrective action within the time frame specified in the "Response and Repair Time Requirements" listed under Article 10.8 the Contractor's dispatch center must also be equipped with the necessary equipment to receive all alarms, events, and messages as described above.

Before the end of the first month of the Contract, the Contractor must submit a list of alarms, events, or messages that each brand of Closed-Loop System is programmed to send to the Contractor's dispatch center for approval by the Traffic Signal Engineer.

The Contractor must maintain the integrity of the timings and programming information contained in the local controllers and the master controllers. The Contractor must maintain each Traffic Control System in the mode for which it has been set-up and programmed (i.e., Traffic Responsive (TRP), Time-of-Day (TOD), FREE, etc.) The Contractor must maintain its own database of local and master controller timings, settings and programming information including graphic displays for intersections and systems. This database must be kept by the Contractor for use in the normal course of system maintenance. The Contractor's database must be the Official District 1 Closed Loop System Database. This database must also include Municipal, and County maintained Closed Loop Traffic Signal Systems that are on marked and unmarked IDOT routes. The Contractor must insure database agreement between IDOT Schaumburg Headquarters Database and the Official District 1 Closed Loop Database.

The Contractor must provide a Status Report of each master controller and its local controllers (including municipal and county maintained Closed Loop Traffic Signal Systems on IDOT maintained routes) once every day, seven (7) days a week. This Status Report must be done in addition to any field patrols done as part of Routine Maintenance. The Status Report must document that all equipment is working properly.

In addition, this monitoring must include, but not be limited to, system loop checks (failed, maximum presence, and no activity), local loop checks, loops with system outputs (volume/occupancy checks), (i.e., Failed, Max presence, no activity), master controllers answering, local intersections on-line (telemetry checks). Any exceptions found must be reported to the Traffic Signal Engineer via email by 8:00 AM every workday and corrected within the time frame specified in the "Response and Repair Time Requirements" listed under Article 10.3. The format and content required for this email must be approved by the Traffic Signal Engineer. Any discrepancies must further be reported in the Closed Loop System Status Report.

All changes to Local or Master Controller programming must have prior approval of the Traffic Signal Engineer. Minor temporary changes to alleviate any sporadic operational problems are acceptable provided it is done by a qualified IPSI / IMSA certified electrical technician and reported to the Traffic Signal Engineer as soon as practical. Major re-programming must be done through a comprehensive traffic study independent of this maintenance contract. The Contractor must keep records of all changes to local and master controller databases with the dates the changes were implemented and the name of the individual who authorized the changes.

The Contractor must maintain a System Operational Log accumulating in it the day-to-day operational information for the District's Traffic Control Systems. This log must contain a listing of all program and mode changes that have occurred in each system and any anomalies to normal operation. The Contractor must monitor this log for any changes from normal system operating modes and the Contractor must report them to the Traffic Signal Engineer as soon as practical. The repeated cycle failures, loss of coordination, excessive pre-emptions or conditions that dictate manually commanded free operation must be reported. The operational log must be maintained by the Contractor for the duration of this contract. Up to six (6) months of the current log must be available for inspection at any time and copies must be provided to the Traffic Signal Engineer upon request. The format, content, and method used to keep the Operational Log must be approved.

The Contractor must also maintain a System Failure Log for all system alarms, events, anomalies, and reported failures. It must contain the date, time of occurrence, the corrective action taken, a notation as to the cause, and a record thereon as to the repair time required to correct the malfunction. The System Failure log must be maintained by the Contractor for the duration of this Contract. Six (6) months of the current log must be available at any time for inspection by the Traffic Signal Engineer and copies must be provided.

The Contractor must prepare a System Status Report every two (2) weeks. Copies of the System Status Report must be forwarded to the Traffic Signal Engineer and the Signal Systems Engineer on the first and third week of every month. The System Status Report must describe the status of each system being maintained by the Contractor under this Contract and a summary of failures and alarms occurring within each system during the two (2) week reporting period. The Operations Log and the Closed Loop Failures Log System Status Report must in addition highlight any equipment failures that were not attended to, repaired, or brought back into operation within the required time frame specified in the Repair Timetable and the reason for failing to meet the specified response/repair time schedule. The report format must be approved. Where applicable, to ensure proper system operation and alarm reporting (should a master controller go into backup), the Contractor must maintain a location specific backup program in the backup PROMS of each Master Controller. The backup program in PRO< must duplicate the normal master programming as closely as possible. The Contractor must be responsible for maintaining the backup programming and incorporate appropriate changes whenever normal programming changes are made at a Master or when directed to do so by the Traffic Signal Engineer. Should a Master Controller ever need to be removed or replaced, the Contractor must make the appropriate backup PROM switch with the replacement controller.

One month prior to the Contract start date, the Contractor must supply to the Traffic Signal Engineer for approval, the proposal for the Closed Loop Monitoring System to be located at the Contractor's place of business. The proposal must include a detailed description of the proposed Closed Loop Monitoring System and a timetable for the installation of the system and components.

The Contractor must assist consultants who are preparing Signal Coordination and Timing (SCAT) reports for the Department. This assistance must be limited to a qualified Contractor representative at a system location during a consultant download of system timings at that location at the time of the download. Occasional operational questions by the consultants may also need to be answered by the Contractor as well as any required correction of items related to the maintenance systems. In instances beyond these such as multiple requests for assistance in downloading system timing, programming errors which result in Contractor maintenance intervention, or multiple requests for assistance in programming, the Contractor will be allowed to bill the consultant. An itemized bill, including the date and system number, as well as the reason for the bill must be submitted in conjunction with the bill being sent to the consultant.

10.25 SITE MAINTENANCE

In addition to the requirements of Article 4.0, Section 4.25, the Contractor must perform the following:

- Trim trees and bushes blocking the line of sight of the traffic signal or flasher face to the motorists. Line of sight standards are established in the Manual on Uniform Traffic Control Devices for Streets and Highways.
- All trimmed branches must be legally disposed of by the Contractor off the right-of-way.
- The Traffic Signal Engineer, at any time during the Contract year, may request trimming of trees or bushes. This trimming must be completed immediately.
- Work must be completed monthly in the months of April through October, usually at the time of the monthly inspection. When work is completed, it must be noted on a RR (Routine Work) Ticket. The Ticket Summary must be included with the monthly submittals on the FTP site.

10.26 PAINTING BY OTHERS ON STATE MAINTAINED FACILITIES

Other agencies will be permitted to paint traffic signal equipment, utilizing their own forces, as approved. The Contractor must inspect the location, before and after the location is painted, as part of Routine Maintenance. Maintenance will not be transferred. The Contractor must document dates of painting in the Daily Agenda. If any damages are observed to IDOT equipment as a result of the painting the Contractor will repair immediately and recover the expenditures through the 3rd party damages billing. (Refer to Articles 4.9 and 2.15.15 work billing and documentation requirements for 3rd party damage expenditure recovery.)

10.27 LOCKS AND KEYS

In January of 2025, each traffic signal cabinet and UPS cabinet must be furnished with a padlock that meets the specifications of the weather resistant padlock currently specified for District 1 pump stations or as specified, equal or better than Master Lock 6125KA. The key number must be approved by the Traffic Signal Engineer prior to the purchase/install. If the equipment is currently locked with a Master Lock 6125KA model the Contractor may replace the cylinder and new key (for Master Lock 6125KA) instead of replacing the entire lock. Railroad interconnected traffic signal controller cabinets and associated UPS cabinets must have a similar lock number but different cylinder and key than standard traffic signal and UPS cabinets. It is estimated that there are 140 railroad traffic signal cabinets and 2794 standard traffic signal cabinets and similar number of UPS cabinets that require padlocks.

10.28 CONVERT EXISTING ELECTRIC UTILITY SERVICE TO METERED SERVICE

The traffic signal electric utility service at 100 locations per year must be converted from non-metered to metered service. The Contractor must supply and install an electric meter housing, meter socket, riser, service head, conduit, cable, caulking and all appurtenances necessary to provide metered utility service to the traffic signal controller cabinet. Materials must be in accordance with the electric utility's requirements. The electric utility meter housing must be mounted to the battery back-up enclosure or other surface approved by the Traffic Signal Engineer. The Contractor must coordinate with the electric utility company to convert to metered service. The Contractor must complete the work by October 1st of each calendar year. The Contractor is required to provide a quarterly update on the locations with meter installed, date, location number, meter number, and account numbers in excel format must be provided to Traffic Signal Engineer.

10.29 TRAFFIC SIGNAL OUTAGE AND OPERATION REPORT

The Contractor must maintain a database that tracks traffic signal outages and operation and generates a report that provides a comprehensive list of these traffic signals locations on a daily and monthly basis. The report must include, but is not limited to:

- Traffic signal locations that are currently dark or are in flashing red mode.
- Traffic signal locations that have been dark or in flashing red mode within the last 24-hour period
- Locations identified by TS number, intersection and route, county, and community.
- Identify reason for dark or flashing condition with estimated time/date of restoration to normal operation.
- Corrective action taken with date and time normal operation was restored.

The report must be generated from the database and emailed to the Traffic Signal Engineer, Area Signal Engineers and IDOT ComCenter every 8 hours starting at 4am each morning. However, in the case of storms or other emergency situations, reports must be made every 4 hours or as directed. Monthly reports must be submitted on the FTP site.

10.30 RAILROAD INSURANCE

The Contractor must obtain railroad protective liability insurance coverage for performing Non-Routine work relating to the installation of new traffic signal facilities on railroad R.O.W. where the Department has no existing appurtenances, e.g., railroad interconnect, railroad structure mounted traffic devices, etc.

10.31 SUBMITTALS FOR ARTICLE 10.0 TRAFFIC SIGNALS

| Article # | Program | Submit Report Month End | FTP Final Due |
|-----------|--|-------------------------|---------------|
| 10.4.3 | Monthly Spare Fiber Used Report | Monthly | December |
| 10.15.1 | Yearly Replacement of Incandescent Displays | Monthly | September |
| 10.15.1 | Yearly Completed Relamping Report | Monthly | September |
| 10.15.2 | Daily Relamping Report | Email by 7:15AM | NA |
| 10.16 | LED Relamp Report | Monthly from March | September |
| 10.17 | Yearly UPS Battery Replacement | Monthly from March | September |
| 10.19 | Yearly Conflict Monitor Testing Report | Monthly | November |
| 10.25 | Monthly Site Maintenance | Monthly from April | October |
| 10.27 | Year 2025 Replacement of Locks and Keys | January 2025 | January 2025 |
| 10.28 | Daily Outage and Operations Report (8 HR Report) | Start 4AM – Every 8 HR | NA |

10.32 CONTRACTOR OWNED MATERIALS – SUGGESTED STARTING QUANTITIES

| QTY | TRAFFIC SIGNAL SYSTEM |
|-----|--|
| 5 | Cabinets and Econolite Controller Assemblies, TS-2, Type 1, 16 Phase |
| 2 | Cabinets and Yunex Controller Assemblies, TS 2, Type 1, 16 Phase |
| 10 | Controllers, TS 2, Type 1 |
| 2 | Econolite Master Controllers |
| 2 | Yunex Master Controllers |
| 10 | Mast Arm Pole Assemblies of Various Lengths with Foundation Bolts |
| 25 | APS Push Button |
| 3 | Electrical Service Disconnects |
| 30 | Conflict Monitors and Malfunction Management Units (MMUs) |
| 40 | Detector Amplifiers – Rack and Shelf |
| 10 | BIUs |
| 50 | Traffic Signal Posts of Various Sizes |
| 30 | Signal Heads, 12-inch, with LED Modules of various numbers of sections |
| 20 | Signal Head Mounting Hardware - Mast Arm Mounted |
| 50 | Signal Head Mounting Hardware – Post Mounted |
| 2 | Controller and Cabinet Assemblies with Railroad Security Software (one each Econolite and Yunex), TS 2, Type 1 or Type 2 |

10.33 NON-ROUTINE MAINTENANCE SPECIAL PROVISIONS AND NON-ROUTINE WORK ITEMS

Article 1.0 for Non-Routine work pay items and Section 2 for Special Provisions.

10.34 NON-ROUTINE WORK IN RAILROAD RIGHT OF WAY

The Contractor must be responsible for obtaining any necessary permits as required by the railroad for any Non-Routine work to be performed on the railroad right-of-way (R.O.W.). The Contractor must also be responsible to coordinate all activities between the Department and the railroad.

The Contractor must be responsible for completing any required forms and must coordinate all activities between the Department and the railroad. Any fees associated with obtaining the permit must be paid by the Department in accordance with Article 109.05 of the Standard Specifications for Road and Bridge Construction, as modified and noted in Article 5.0.

10.35 LOGS AND FORMS

A sample of logs and forms as required for this Contract will be available at the Pre-Bid Meeting.

10.36 EQUIPMENT / LOCATIONS INCLUDED IN TRAFFIC ROUTINE MAINTENANCE

Review Section 3

ARTICLE 11.0 – VARIOUS EQUIPMENT AT VARIOUS LOCATIONS

11.1 BIDDING

Unless the labor, equipment, or materials listed in Article 11.0 Various Equipment at Various Locations is stated as paid through Non-Routine Maintenance, all work must be paid through Routine Maintenance bid item V-1.

11.2 DESCRIPTION OF WORK

In Article 11.0 - Various Equipment at Various Locations the Contractor must maintain equipment at specialized maintenance locations, solar speed stations, Joliet moveable bridges, IDOT maintenance yards (specified equipment only), IDOT weigh stations (specified equipment only) and other various IDOT facilities.

The Contractor must maintain the operations and performance of all equipment and networks in Article 11.0 which includes equipment (found during response or inspections) which needs repair or replacement, or items found to be defective, malfunctioning, or non-operational.

The equipment specified herein gives a good overview of the items to be maintained, however, there may be other electrical items which require maintenance. The Contractor is urged to visit the locations following the Pre-Bid Meeting to view all the electrical equipment to be maintained.

11.2.1 EMCMS CODES – (EQUIPMENT LOCATIONS CURRENTLY ON-MAINTENANCE) Equipment Types:

V-1A Special Maintenance Locations (31)

V-1D Joliet Moveable Bridges and Office (3)

V-1E IDOT Maintenance Yards (25)

V-1F IDOT Weigh Stations (12)

V-1G Various IDOT Facilities (16)

Refer to Section 3 for list of locations.

11.3 SPECIALIZED MAINTENANCE LOCATIONS

11.3.1 IDOT HEADQUARTER – COMMUNICATION CENTER AND EQUIPMENT ROOM

The Contractor must maintain the numerous items of equipment and monopole at the IDOT Headquarters buildings in Schaumburg which also includes the Communication center and Equipment room.

Maintenance includes fiber optic terminations, the network equipment, all electrical systems, control systems, mechanical systems, communications systems, alarm monitoring systems, backup systems, fiber optic systems, conduit, cable, wire, generators, software, hardware, and all associated equipment and appurtenances.

Specific Items of Equipment to Maintain:

- Cables and wire
- CAD/Communications Stations
- CWDM and/or DWDM
- Desk Controllers in Communication center
- EMCMS system/servers
- Fiber jumpers and patch cords
- Fiber patch panels
- Fiber optic switches
- Generator
- Lighting SCADA system/servers
- Monitors
- Pump Station SCADA systems/servers (as maintained through Article 8.0)
- REVLAC & RACS equipment including operations cameras.
- Servers
- Switched Ethernet network.
- Transceivers
- Transfer Switches
- UPS
- Video distribution amplifiers
- 360 workstations

The Contractor must respond to Tickets regarding the HVAC in the communication center. If the problem is not power related, a qualified HVAC repair company/specialty vendor must be notified, 24/7, to troubleshoot problems and immediately provide an estimate of labor, and repairs/replacements of the HVAC equipment. The Engineer must be immediately notified, as approval is required for Special Vendor repair work, which must be paid through Non-Routine Maintenance.

The Contractor is required to have EMC personnel to accompany any vendor working on Department equipment in the IDOT Headquarters. The IDOT Communication center Supervisor must be notified by the Contractor as to the expected arrival time of any specialty vendor to allow access to the IDOT Headquarters building.

11.3.2 IDOT FIBER AND FIBER CABINETS

The Contractor is to maintain the IDOT fiber in District 1, currently there are eleven (11) listed highway locations in the EMCMS and various fiber cabinets, paid through Routine Maintenance.

11.3.3 SPECIAL FIBER CABINET (CIE1)

The Contractor must maintain all the equipment in a special fiber cabinet at I-80 and I-355. This cabinet contains three (3) network switches, a UPS, media converters, fiber optic patch panels, and a cabinet heater.

11.3.4 SPECIAL TOWER LOCATION (FOSTER AVENUE)

The Contractor must maintain the generator, the media converter, and fiber panel in the building at the Foster Tower, I-94 (Edens expressway @ Foster Avenue). The camera must be maintained under the Article 9.0.

11.3.5 ILLINOIS TOLLWAY AUTHORITY CENTRAL ADMINISTRATION BUILDING AND VARIOUS PLAZA SITES

This location is listed as one location for payment; however, it includes Plaza sites #21, #23, #35, #41, and #47. The Contractor must maintain the IDOT patch panels, fiber cable jumpers, and cisco SMARTnet switches through Routine Maintenance. Also, refer to Surveillance Article 9.11.

There are specific procedures which must be followed for Illinois Tollway site access. The Contractor must follow the official "Illinois Tollway Information Technology Procedure" (available on-line). For all work other than emergency cases, two business day prior notice of planned work is required to schedule any site access. A Department representative must accompany the Contractor in all cases.

11.3.6 UNIVERSITY OF ILLINOIS – CIRCLE CAMPUS – 1140 S. PAULINA STREET, CHICAGO, IL 60612

Items to be maintained under Routine Maintenance include:

- 3 Bosch cameras with PTZ and mounts (paid through Article 9.0)
- Control Rocket Lynx Switch
- Equipment and connections
- Equipment Cabinet NEMA 4X
- Fiber Connection
- GCM Gateway Network
- Power Supplies
- Siquira Video Encoders
- WTM4000 (planned installation)
- Power Service Panel and Disconnect Switch

11.3.7 ILLINOIS STATE POLICE DISTRICT CHICAGO – 9511 HARRISON STREET, DES PLAINES, IL 60016

The items to be maintained include 360 workstations and a fiber optic switch. The Contractor may receive a request from the Engineer for light outage repairs or other minor electrical repairs which will be paid through Non-Routine Maintenance.

11.3.8 ILLINOIS BILANDIC BUILDING – 160 LASALLE STREET, CHICAGO, IL 60601

The Contractor must maintain the IDOT owned fiber optic patch panels, fiber jumpers, fiber cables, fusion splice trays and associated equipment under Routine Maintenance.

11.3.9 IDOT EQUIPMENT AT CONTRACTOR FACILITIES

For ease of EMCMS searches, this equipment is given an EMCMS location of V EMC.

Items to be maintained include:

- Traffic System Conflict Monitor Alarm System - check
- AEGIS Alarm Equipment, or Replacement
- Other monitoring equipment as required by the Engineer.

- **Lighting SCADA System**

One (1) client and monitor, all software including OS, GUI software, FIU cabinet, SCADA CPUs, EMCMS Base network, radio power supplies and back-up batteries, rocket port, printers, radio concentrators, four VHF/UHF radio, portable UPS and batteries, and all other equipment and appurtenances.

- **PS SCADA System**

Allen Bradley RS view server computer (hardware & software), EMCMS Base network, computer monitor, printer, radio equipment, rocket port multi-serial board and cables, batteries and all other equipment and appurtenances.

11.3.10 SOLAR SPEED STATIONS (SSS)

The Contractor must maintain the current ten (10) solar speed stations on maintenance. The Contractor must maintain the post, base, solar panels, speed display, etc.

11.4 JOLIET MOVEABLE BRIDGE EQUIPMENT (V-4) (6 Moveable Bridge locations and Joliet Bridge Office)

Equipment to be furnished, removed and or installed, includes operational cameras, relays, timers, JB's, switches, alarm panels, navigation signals, street lighting on the bridge and in the control buildings, river traffic controls, traffic signals and its associated equipment which is powered and controlled by the moveable bridge, and all electrical appurtenances.

Contractor must also:

- Maintain the generators. See article 4.26 of routine maintenance.
- Trouble shoot to determine the cause of any bridge electrical control malfunctions.
- Create an EMCMS Ticket for each power related problem found on the Moveable Bridges equipment.

Moveable Bridges Centralized and Integrated Controls Operation Contract 60P55

While under construction the EMC Contractor must provide qualified personnel to attend the testing, training and acceptance of new electrical bridge controls and power equipment. The Contractor will be notified of the scheduled testing and training dates and times during the contract year.

The EMC Contractor must coordinate and cooperate with IDOT Construction and the construction contractor for the transfer On-EMC Maintenance of the new Moveable Bridges centralized control equipment. It is currently anticipated that this new equipment will come On-EMC Maintenance in 2025.

The new items for Contractor Routine Maintenance include, but are not limited to:

- Automatic Bridge Operating System
- Bridge Video Systems (7)
- Operation Cameras (84) (Fourteen (14) per bridge)
- Operation Camera Poles (4 – 50') and (40 – 30')
- Control Equipment
- Fiber Optic Inter-connected cabinets (8)
- Public Monitoring Cameras (pedestrian traffic)
- Public Announcement Equipment
- SCADA System
- Video Server
- Wireless backup system

11.5 MAINTENANCE YARDS (V-5)

The Contractor must maintain, but not limited to:

General Items:

- Brine pump, including connect / dis-connect service.
- Cables
- Conduits / raceways, handholes
- Control boxes, lighting power centers
- Controllers, clocks, photocells
- Electrical outlets
- Electrical service, main distribution panel and sub-panels
- Emergency exit lighting fixtures and signs
- Foundations, anchor rods, grounding
- GFCI outlets, exterior and interior
- Generators (See article 4.26)
- Junction boxes, fuses, disconnects
- Light poles, aluminum, steel or wood, mast arm, luminaires
- Light towers, ring lowering system, luminaires
- Lighting fixtures, luminaires exterior and interior and control equipment
- Lighting wall packs (outdoor)
- Motion sensors
- Power and connections for wastewater pumps, pressure washer equipment, asphalt heating tanks, exhaust fans, garage doors, HVAC, and other controllers and electrical equipment
- Power to traffic monitoring cameras (maintained through the Surveillance System)
- Power controls
- Relays, contractors, breakers, electrical devices, fittings, and appurtenances
- Roof and ceiling lighting fixtures
- Salt dome and storage lighting
- Service entrance equipment
- Switches
- Wiring and associated equipment

Special Use Items

The Contractor through Routine Maintenance must respond and investigate / troubleshoot and provide description of work needed on a Ticket. If requested by the Engineer, the Contractor must provide Non-Routine Agreed Price quotes for this equipment to be repaired or replaced:

- Air compressors
- Brine spray pumps
- Conveyor for salt dome (motor & electrical)
- Exhaust fans
- Garage door openers
- Hot asphalt box
- HVAC systems/repairs
- Lift motors/hoist system
- Motors and pumps for asphalt heating tanks
- Pressure washer pumps
- Septic pumps
- Test equipment
- Wastewater lift stations pumps
- Welders
- Any other electromechanical equipment

The Department may purchase the replacement materials on this Contract or from other sources, for the Contractor to install through Non-Routine Maintenance pay items or agreed price work, however, the Department has no obligation to authorize any Non-Routine work.

11.6 WEIGH STATIONS (V-6)

The Contractor must maintain, but not limited to:

- Breakaway devices
- Cable
- Cable Splice boxes
- Cameras
- Fiber optic transceiver
- Foundations
- Handholes
- Height detector poles and equipment
- Lighting System; inside and outside including cabinet, poles, mast arms, luminaire, lamp, cable, conduit, panels, lenses, reflectors, shields, ballasts, decals, control devices, radios.

- Loop detectors
- Monitors, inside
- Over-height detectors
- Power to sump/waste pump, HVAC, and appurtenances
- Power to traffic monitoring cameras (maintained through Surveillance System)
- Traffic control devices, electronically operated.
- Traffic signals, flashers, heads, posts
- Truck waiting warning devices
- Vehicle amplifiers
- Weigh Station Open/Closed sign equipment (fiber optic message signs, interconnecting cables, controllers, including radio and power)

Excluded from Routine Maintenance are weigh-scales, repair of circuit boards, relays, or cabinets associated with the weigh scales, or weigh-in-motion equipment.

During the Contract year the Department may have other contractors performing planned upgrade work at the Weigh Stations. Any damages to EMC maintained equipment by 3rd party contractors will be repaired through Non-Routine Maintenance. It is the Department's goal that the Contractor will be informed prior to the start of this upgrade work, however, depending on the scope of the upgrade work, the location may or may not be transferred off monthly maintenance responsibilities.

Special Use items as listed in Article 11.7 Maintenance Yards, but applicable to Weigh Station locations in Article 11.8 must be paid through Non-Routine Agreed-Price Work, if approved by the Engineer.

11.7 VARIOUS FACILITIES (V-7)

- Biesterfield Bridge Office (BBO)
- Dan Ryan Field Office (DRO)
- Cold / Storage Areas (ACS, MSY, SPS)
- Emergency Traffic Patrol (ETP)
- Hut / Building (FRB & HRB)
- Material Lab (MAT)
- Rest Areas (57IBRA & 57OBRA)
- Sign Shops (ESS, LZSS, NLSS, SSS)

The Contractor must maintain, but not limited to:

Exterior and interior lighting, emergency/exit lights, light switches, GFCI outlets, convenience outlets, all electrical panels and controls, power to equipment including Material Lab test ovens and other testing equipment, 3 video workstations, work panel and fiber connection to I-55 at Emergency Traffic Patrol (ETP), former REVLAC Building (FRB) and Roosevelt Ramp Building (HRB) equipment.

Special Use items as listed in Article 11.7 Maintenance Yards, but applicable to Various Facility locations in Article 11.9 must be paid through non-routine agreed-price work, if approved by the Engineer.

11.8 PREVENTIVE MAINTENANCE PROGRAMS (PM)

For reporting requirements, please reference Routine Maintenance Article 4.24.

11.9 REVLAC COMMUNICATION CENTER TRANSITION RECORDER INSPECTION (MONTHLY)

The Contractor must inspect the Communication center transition recording video for REVLAC once per month, to confirm the transitions are recording properly. This inspection must be scheduled on the same week for each month, for the duration of the Contract. If problems are found, repairs or equipment must be completed within twenty-four (24) hours.

11.10 SITE MAINTENANCE (MONTHLY)

Site maintenance is required for Facility locations HRB (Hillside Ramp Building), TSC (Traffic Systems Center – winter only) and FOS (Foster Tower). The work must be scheduled on the Daily Agenda.

Site Maintenance includes indoor, outdoor, and winter maintenance referenced in Article 4.25.

11.11 HEAD-QUARTER UPS BATTERY INSPECTION & SCADA BATTERY REPLACEMENT (QUARTERLY)

The Contractor must inspect the batteries of the UPS Systems, once per quarter at Schaumburg HQ. Water levels must be checked, add if necessary. Connections must be cleaned and tightened if necessary. A GPS Photo (Report #2) must be taken and submitted on the FTP site.

The Contractor may be required to replace the SCADA backup battery for the radio, and the lithium battery in each CPU of the FIUs and the back-up battery pack in each FIU of the lighting SCADA system, for equipment located in the IDOT Communication center and EMC Dispatch Center in the September through November period of first year of the contract execution.

11.12 GENERATOR INSPECTION (MONTHLY)

The Contractor must test the generator monthly at the IDOT Headquarters, Foster Tower, Traffic Systems Center, and the Joliet Moveable Bridges once per quarter, at approximately the same date each month.

Reference article 4.26 for required procedures.

11.13 JOLIET MOVEABLE BRIDGE INSPECTION (MONTHLY)

For those moveable bridges On EMC maintenance the contractor must perform a monthly inspection of the bridge monitoring CCTV and associated equipment:

- Camera operations
- Camera housing
- Lens
- Monitor

The Contractor must also check for outages of the bridge signals (TS) or exterior or interior lighting outages and replace with proper lamps.

The Contractor must determine whether the Department bridge tender has any electrical power problems to report, which must have tickets created.

11.14 WEIGH STATION INSPECTION (QUARTERLY)

The Contractor must provide Lighting System personnel, to inspect quarterly, during the daytime, each weigh station installation as follows, but not limited to:

- Check operation of Open/Close signs
- Replace all burned out lamps and damaged sockets.
- Check lighting in scale pit.
- Replace damaged, discolored, cracked or peeling signal lenses.
- Repair or replace any damaged signal posts, foundations, signal heads, cable, conduit and over height vehicle detector posts from any cause whatsoever.
- Check alignment of signal heads
- Check alignment of over height vehicle detectors
- Check operation and condition of loop detectors.
- Align signal posts.
- Identify vehicle detector loops in need of replacement.
- Create ticket for loop resealing if required.
- Check proper operation of the CCTV System and monitors filling washer fluid for proper camera operation. The wiper system on the cameras at the WS800B Weigh Station, I-80 outbound, west of 80th Ave, require refilling.
- Refer to Article 11.8 for Special Use Items

11.15 CLOCK INSPECTION (BI-ANNUALLY)

The Contractor must perform the twice per year clock inspection (all 59 locations) for the Maintenance Yards, Weigh Stations and Various Facilities in March and November of each year. Refer to specifications of work in Article 7.19.

11.16 MAINTENANCE YARD & FACILITY EQUIPMENT INSPECTION (BI-ANNUALLY)

The Contractor must inspect the IDOT Maintenance Yards (V-5) and Facility offices (V-7) twice per year, once in mid-April to mid-May and again mid-September to mid-October. Items for inspection include exterior and interior lighting and its control equipment, service entrance and feeder panels, emergency / exit lights, light switches, GFCI outlets, salt dome, storage lighting, and proper electrical operations of lift motors and pumps, asphalt heating tanks, spray pumps and their controllers, electrical equipment, pressure washer pumps, exhaust fans, and other items as listed herein in the Special Use Equipment.

The Contractor personnel must check-in with the IDOT Maintenance Yard Technician before starting the inspection. The IDOT Technician may direct the Contractor personnel to electrical items which need attention.

During the spring inspection the Contractor must disconnect the beet juice or brine pumps, drain fluids, clean, and lubricate. During the fall inspection the same pumps must be re-connected, lubricated and checked for proper electrical and mechanical operation.

Service Entrance and Feeder Panel Inspection:

Inspection Procedure:

- Clean enclosure and control equipment by blowing out with low air pressure or vacuuming.
- Clean contacts, relays and timers and visually inspect for damage or out of adjustment parts.
- Remove all dust from electrical devices and equipment.
- Check connections.
- Exercise breaker
- Check trip setting.
- Inspect wiring/conductors for overheating and discoloration.
- Check tightness of wire terminations and connections
- Check for proper labeling, provide and install missing labels.
- Check wire tags/labels, provide and install missing labels.
- Check fuse disconnects for proper operations, keep fuse clips clean and tight.
- Check fuses for proper size.
- Test equipment ground system

The Contractor must submit a photo report on the FTP site, noting which locations have had LED fixture installations.

11.17 PHOTOCCELL CALIBRATION (ANNUALLY)

Each year, on the day of the summer solstice, normally June 21st, the Schaumburg Headquarter photocell must be cleaned, tested, and adjusted to 5 +/- 0.5 ft. cd., or as specified by the Engineer for proper lighting control operations.

11.18 CONTROL INSPECTION (ANNUALLY)

The Contractor must perform the yearly control inspection of 60 locations for the maintenance yards, weigh stations, and various facilities in the period of January through November. Refer to specifications of work in Article 7.20. Submit an excel spreadsheet for the FTP Site.

11.19 LIGHT POLE INSPECTION (ANNUALLY)

The Contractor must perform the yearly 160 light pole inspection for the maintenance yards, weigh stations, and various facilities in the period of January through November. Refer to specifications of work in Article 7.21. Submit an excel spreadsheet for the FTP Site.

11.20 LIGHT TOWER INSPECTION (ANNUALLY)

The Contractor must perform the yearly 16 light tower inspection for the maintenance yards, weigh stations, and various facilities in the period of January through November. Refer to specifications of work in Article 7.22. Submit an excel spreadsheet for the FTP Site.

11.21 VARIOUS SYSTEMS COMMUNICATION TOWER INSPECTIONS

The Contractor must perform a yearly Communication Tower Inspection for the tower / monopole at IDOT Schaumburg HQ, Material Lab, at the maintenance yards, and others as applicable to the Various System herein, in the period of January through November. Refer to applicable specifications of work from Article 7.22. Submit a photo report to the FTP site.

12.0 DEFINITION, SPECIFICATION & STANDARDS

Definitions of Terms Used Herein:

| | |
|---------------------------------------|---|
| AEGIS | District 1 Dial-up Pump Station Alarm System |
| ANSI | American National Standards Institute |
| ATC | Automatic Traffic Control or Advanced Transportation Controller |
| ATMS | Advanced Traffic Management System |
| AVL | Automatic Vehicle Locator |
| BASE STATION | When used herein describes a short-range transceiver which connects a computer or other wireless devices to a central hub and allows a connection to a network. |
| CLEAR/CLEARING SITE FOR SAFETY | When used herein “clear” is a ticket terminology, the departure of the Contractor personnel from the initial response to the site of a reported incident of damage or trouble on system equipment after verifying that the highway is safe for the traveling public. “Clearing Site for Safety” refers to a term used herein to assure the Electrical, Mechanical and Structural integrity of IDOT property maintained under this contract is safe for workers and the traveling public. Site clearing must comply with the most current standards (such as NEC and OSHA requirements) as applicable. |
| CLMS | Closed-Loop (Traffic Signal) Monitoring System |
| CMS | Changeable Message Sign |
| COMCENTER | Illinois Department of Transportation, District 1 Communications Center |

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| COMPLETION DATE | When used herein refers to stocks of materials and equipment which are state owned, are to be kept separate from the Contractor's materials and equipment and must be used exclusively for the Department's installations and systems. |
| CONTRACT SPARE PARTS | When used herein refers to stocks of materials and equipment which are state owned, are to be kept separate from the Contractor's materials and equipment and must be used exclusively for the Department's installations and systems. |
| DAMAGED EQUIPMENT | Any piece of equipment owned or maintained by the Department that is no longer capable of functioning as originally designed, or as since modified, or any piece of equipment that had deteriorated sufficiently in the opinion of the Engineer so that failure is imminent or for which safety could be a concern. |
| DBE | Disadvantaged Business Enterprise |
| DEPARTMENT | When used herein stands for the Illinois Department of Transportation |
| DID | Direct Inward Dialing |
| DISPATCH CENTER | The Contractor's 24/7 dispatching area as required herein, also referred herein as the EMC Dispatch Center. |
| DISTRICT 1/REGION 1 | IDOT Department of Transportation area defined as Cook, DuPage, Kane, Lake, McHenry, Will, and a portion of Kendall counties as well as specified locations herein, where District 1 equipment is maintained, in other Illinois counties. |
| DMS | Dynamic Message Sign |
| DWDM | Dense Wavelength Division Multiplexing |

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| EFO | Illinois Department of Transportation, District 1, Bureau of Traffic, Electrical Maintenance Field Office, 445 Harrison St., Oak Park, IL. 60304 |
| EMC | Electrical Maintenance Contract or the Electrical Maintenance Contractor |
| EMCMS | Electrical Maintenance Contract Management System (database) |
| EMERGENCY | A condition, which is a hazard to the public, or is designated by the Engineer to be a hazard of such severity that life and property are endangered, and which requires immediate corrective action. |
| ENGINEER | IDOT Resident Engineer on this Contract or authorized representative |
| EQUIPMENT SERVICE | Refers to the servicing and/or restoration of any equipment to normal operating condition and appearance necessitated by service equipment wear-out, failure, damage, or loss. |
| ETP | Emergency Traffic Patrol |
| EXTENSIVE | Covering or affecting a large area |
| FIU | Field Interface Unit, sometimes called an FEP, Front End Processor |

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| FROM ANY CAUSE WHATSOEVER | When used herein must include any and all causes except those resulting in extensive damage from declared area wide disasters such as fires and floods, acts of the public enemy, or an Act of God. (The declared disaster exclusion will be valid only for the area and time-period specified by IEMA and FEMA policies.) |
| FSK | Frequency Shift Key |
| FTP SITE | File Transfer Protocol |
| GCM GATEWAY | Gary-Chicago-Milwaukee Corridor Transportation Information Network |
| GENERAL BILLING INVOICE | Refers to a daily invoice created by the Contractor for time and material work, or additional services rendered, or work performed for, or on behalf of, a 3 rd party, on any part thereof or concerning System installations and equipment owned by IDOT which is included under the scope of maintenance of this contract. Examples would include 3 rd party construction related damage repair invoices, work for 3 rd party permits involved with construction in the state ROW, 3 rd party invoicing for additional cable locate service, etc. |
| GUI | Graphical User Interface |
| HUT/SHELTER (COMMUNICATIONS) | Refers to a building or structure used to house equipment which may contain equipment for IDOT towers. |
| IDOT INSPECTOR | Employees of the Illinois Department of Transportation assigned duties by the Engineer. |

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| IMMEDIATE CORRECTIVE ACTION | Refers to all activity necessary to restore the safe operating integrity of a system or system element, without delay. |
| IMSA | International Municipal Signal Association |
| INET | Intelligent Networks |
| IPSI | International Public safety Institute |
| ISP/CMS | Illinois State Police Area in a State of Illinois Central Management Service facility |
| KNOCKDOWN (KD) | Refers to damage which results in the knockdown of a light pole, luminaire, or cabinet, a traffic signal or cabinet, a surveillance signal or cabinet, or camera pole and camera. |
| LABOR, METHODS, AND EQUIPMENT | Definition is applicable per the Standard Specifications for Road and Bridge Construction, per Article 108.06 Labor, Methods, and Equipment. |
| LIGHT TOWER | Also known as High Mast Lighting Tower |
| LIGHTING INSTALLATION | One or more lighting units powered from one common electric service. |
| LIGHTING SCADA | The standard specifications for the Illinois Department of Transportation, District 1, Lighting System supervisory Control and Data Acquisition System. |

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| LOCATION | For purposes of this Contract, a single defined locally operational sub-portion of a defined system, usually having a unique control cabinet, building, etc., and having a unique system identifier in the Contract, and paid through routine maintenance. A location may also refer to a tower in a maintenance yard or equipment attached to or in a building, cabinet, tower, or other structure which are paid through the location from which it is located an/or powered. |
| LPR | License Plate Reader |
| M.U.T.C.D. | State of Illinois "Manual on Uniform Traffic Control Devices" |
| MOSCAD | Motorola Supervisory Control and Data Acquisition |
| MOSYS | Motorist Outreach System, a computer system located at the Traffic Systems Center and ComCenter, which controls Dynamic Message Signs at various expressways. |
| MOTORIST CAUSED HIGHWAY DAMAGE (MCHD) REPAIR FUND | A budgeted, re-appropriated item in the state budget from which the IDOT is given the replacement costs for damaged system equipment caused by motorists, if a police accident report links the motorist to the accident. |
| NAGIOS | A software monitoring system that enables organizations to identify and resolve IT infrastructure problems before they affect critical business processes. |
| NEC | National Electric Code |
| NEMA | National Electrical Manufacturers Association |

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| NON-ROUTINE WORK | Non-Routine Work must refer to all maintenance work which is not included under Routine Work, but which is authorized and paid separately. IDOT is under no obligation to issue authorizations for Non-Routine Work. Methods of payment include use of contract pay items, established agreed prices, or other force mechanisms. |
| NORMAL WEATHER | Time during which regular dispatch operations continue, no storm alert procedures in effect. |
| OFF MAINTENANCE | Term used to define a system location which is not being maintained by the State's maintenance Contractor. |
| OSHA | Occupational Safety Health Administration |
| PATROLMAN | Defines an electrician, who is assigned regular electrical system patrol and street maintenance response duties by the Contractor. Patrolmen have the responsibility for inspecting and servicing a pre-assigned select group of installations in accordance with a defined regular time schedule. The assigned installations may be from any, one (1), or all, of the Electrical Systems included under the overall scope of the Contract. |
| PAY MEETING | The Pay Meeting is held on the third Thursday of each month, to which the Contractor brings the monthly invoice for the payment of the reconciled quantities of Routine Maintenance work and monthly summary and completed/approved Non-Routine invoices from the prior month. |
| PERMANENT REPAIR TIME | Amount of time from initial notification to the Contractor until the time permanent (non-temporary) repairs are made. |
| PLC | Programmable Logic Control |

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| PM | Preventive Maintenance Program |
| PLNC | Private line telephone service which provides a direct connection between two points through an automatic ring signal at one end when initiated at the other. |
| PRIVATE LOCATION | When used herein refers to locations which are not maintained under the EMC, but which are owned or maintained by other agencies or municipalities and are entered, maintained, and kept current in the EMCMS by the Contractor. |
| PS | Pump or Pumping Station |
| PS – SCADA | The standard specifications for the Illinois Department of Transportation, District 1, for Pumping Station Supervisory Control and Data Acquisition System. |
| QA/QC | Quality Assurance/Quality Control |
| RACS | IL 38 (Roosevelt Road) Ramp Access Control System |
| RAMP | When used in context of the REVLAC system, it refers to an entire reversible lane entrance ramp, including, but not limited to, signs, outside gates, barrier, inside gates, and/or the highway pavement that transitions from one roadway element to another. In this Contract, it may also refer to all access control equipment and systems associated with a particular ramp location. |
| RESPONSE TIME | Amount of time from the initial notification to the Contractor until a repair person physically arrives at the location. |
| REVLAC | Reversible Lane Access and Control System for the Kennedy Expressway |

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| ROUTINE MAINTENANCE | Refers to all work required to staff, equip, patrol, inspect and maintain/repair electrical systems, whole and operational, at locations as defined herein, covered under, and paid through Routine Maintenance pay items. |
| ROW | Right of Way |
| RTU | Remote Terminal Unit |
| RUS | Rural Utilities Service, USDA |
| SALVAGE | Material/equipment which has been removed from the installed location, inspected for quality, and re-stored in Contract Spare Parts for further use, if directed by the Engineer. |
| SCADA | Supervisory Control and Data Acquisition System |
| SEOC | State Emergency Operations Center |
| SERVICES RESTORATION TIME | Amount of time from the initial notification to the Contractor until the time the system is sage and operational. (In cases of motorist caused damage when the undamaged portions of the system are operational.) |

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| SPECIALTY SERVICE | <p>S pecialty Service, or Specialty Service Work must refer to work performed by entities other than the electrical maintenance contractor who may not be prequalified subcontractors but whose services are necessary because of specialized equipment, specialized expertise, or the maintenance restrictions on a particular piece of electrical system equipment. Examples of specialty service entities include traffic signal control equipment and cabinet repair, motor repair shops, pump rebuild shops, communication and/or electronics repair shops, software programmers/developers, manufacturer's authorized repair agents and similar service providers. Such work is not restricted to in-shop work and such services may be field performed. Such services will not be considered as materials.</p> |
| STANDARD SPECIFICATIONS | <p>Illinois Department of Transportation's "Standard Specifications for Road and Bridge Construction."</p> |
| STORM ALERT | <p>A communication issued by the IDOT ComCenter, as provided by its weather service. Upon receipt of this report, the EMC Dispatch Center storm alert procedure goes into effect.</p> |
| SYSTEM | <p>When used herein refers to any or all the Electrical Systems covered by this Contract including Lighting System, Pump Station System, Surveillance System, and Traffic Signal System.</p> |
| SYSTEM ENGINEER | <p>When used herein refers to IDOT Engineers in charge of maintenance for a particular electrical system for a designated IDOT Bureau.</p> |
| SYSTEM TYPE | <p>When used herein refers to various types of equipment within the electrical systems.</p> |
| TBD | <p>To Be Determined</p> |
| THIRD PARTY | <p>Any entity other than IDOT or the Contractor.</p> |

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| TICKET | Maintenance documentation record which is used by the Contractor to record various types of malfunctions, failures, damages, knockdowns, vandalism, theft, or various other concerns relating to safety matters and/or the reported follow-up response information as necessary to make temporary and/or permanent repairs to restore and/or assure that the system equipment is operating in a normal manner. A Ticket consists of various entry screens; dispatch, field response, crew repair follow-up, MCHD repair log, and 3 rd party damage information. |
| TOWER (COMMUNICATIONS) | When described herein refers to a 3-legged tower, monopole, pole, or similar structure which supports a telecommunications antenna operated above ground in a fixed location, free-standing, guided, or other building structure. |
| TRAFFIC SPECIFICATIONS | The Illinois Department of Transportation’s “Standard Specifications for Traffic Control Items”, and “Keeping the Expressway Open to Traffic”. |
| TSC | The Illinois Department of Transportation, District 1, Bureau of Traffic, Traffic Systems Center, 445 W. Harrison, Oak Park, IL 60304 |
| TSC SPECIFICATIONS | The Illinois Department of Transportation’s “Standard Specifications for Traffic Control Items” which includes current design standards for the Traffic Surveillance System. |
| UPS | Uninterruptible Power Supply |
| WEEK | A period of seven (7) consecutive calendar days. Any multiple of this term must mean a corresponding multiple of number of calendar days. |

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| WORKDAY | A normal workday is the 1 st eight-hour shift, in a 24-hour day, Monday through Friday, where the Contractor works straight time. Where Articles herein specify <u>workday</u> , this definition applies. |
| YARD | Any District 1 maintenance yard, sign shop, or other field facility. |
| YUNEX | Traffic controller brand that contains legacy equipment Eagle and Siemens brand controller and support. |
| 24/7 | Refers to operations required twenty-four hours per day, seven days per week. |

All definitions in reference publications and standards must apply, except as may be modified herein.

SPECIFICATIONS AND STANDARDS

The latest issue, at the bid date, of the following standards, including subsequent additions or revisions made prior to the bid date, must apply to all work, materials and equipment furnished and installed under this Contract. In case of conflict with any or parts of the standards listed below the Special Provisions contained herein must take precedence and must govern. In case of conflict between referenced standards, the most stringent as determined by the Engineer, must take precedence, and must govern.

ILLINOIS DEPARTMENT OF TRANSPORTATION STANDARDS AND SPECIFICATIONS

Specifications for Road and Bridge Construction, current version. Note: Article 801.02, Standards of Installation must apply to all systems under this Contract.

Design Manual Section 3-600 published on Highway Lighting

Flaggers' Handbook

Highway Standards

Manual on Uniform Traffic Control Devices

Accommodating Utilities on Rights-of-Way of IL State Highway System

Recurring Special Provisions for Traffic Signals, Road and Bridge

Special Provisions for Special Non-RCRA Waste and RCRA Hazardous Waste Working Conditions

BDE Special Provisions

Standard Specifications for Traffic Control Items

Supplemental Construction Specifications and Recurring Specifications, Current Version

IDOT DISTRICT 1 – STANDARDS, SPECIFICATIONS, AND SPECIAL PROVISIONS

Confined Entry Space Policy

District 1 Highway Standards

District 1 Traffic Signal Special Provisions

Freeway Details Freeway Entrance and Exit Ramp Closure Details TC-8

Traffic Control Details for Freeway Shoulder and Partial Ramp Closures TC-17

Micro Computer Management Manual

Permit Specifications Governing Permit Work on State Right-of-Way

Recurring Special Provisions for Roadway Lighting

Resident Engineers Construction Guide for Electrical Equipment Construction on State Highways

Standard 2308-4 (Day or Night Moving Operations)

Standard Specifications for Electrical Maintenance Contract Management System

Standard Specifications for the Emergency Data Acquisition System

Standard Specifications Integrated Closed-Loop Traffic Signal Monitoring

Standard Specification for Pump Station Supervisory Control/Data Acquisition System

Standards for Roadway Lighting by Permit on State Routes

Standard Traffic Signal Design Details

Traffic Signal Plan Preparation and Design Guide

Traffic Surveillance Special Provisions & Traffic Surveillance Typical Drawings

Keeping the Expressway Open to Traffic

NATIONAL STANDARDS AND SPECIFICATIONS

An Informational Guide for Roadway Lighting, published by American Association of State Highway and Transportation Officials (AASHTO), 444 N. Capitol St., NW, Washington, DC 20001

Insulated Cable Engineers Assn. and Underwriters Laboratories publications when applicable for cable and other materials.

National Electrical Manufacturers Association Standards, American National Standards Institute, where applicable, for signals, lamps, ballasts, and other accessories

ASTM Standards for materials

All applicable manuals and policies of GHWA

American National Standard Practice for Roadway Lighting, published by Illuminating Engineering Society of North America, 120 Wall St., 17th Floor, New York, NY 1005, Phone (212-248-5000)

National Electrical Code, National Fire Protection Association, Batterymarch Park, Quincy, MA 02269, approved by the American National Standards Institute

Publications #ANSI/C2, published by IEEE, 345 E. 47th Street, New York, NY 10017

Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals, an AASHTO Publication

Institute of Traffic Engineers Technical Report No. 1 (A Standard for Adjustable Face Vehicular Traffic Control Heads)

Emergency Response Guidebook by U.S. Dept. of Transportation, latest version, for further assistance call National Response Center (NRC) 1-800-424-8802

Hazardous Materials Regulations, Hazardous Materials Transportation Uniform Safety Act of 1990, Hazardous Materials Regulations and Motor Carrier Safety Regulating by U.S. Department of Transportation

OSHA, all applicable regulations

RUS, all applicable regulations

IPSI Standards & manuals

Federal Communications Commission

ARTICLE 13.0 TICKET TYPES AND CHARTS

TICKET TYPES FOR EMCMS:

| | |
|----|--|
| AL | ALARM |
| CT | CABLE TROUBLE |
| DA | DAMAGE |
| EQ | EQUIPMENT MALFUNCTION OR PROBLEM |
| GB | GENERAL BILLING BY CONTRACTOR TO 3 RD PARTY |
| ID | IDOT HAS PLACED A "HOLD" ON THE TICKET |
| IS | IDOT SPARE PARTS USED BY CONTRACTOR |
| LP | LOOP PROBLEM |
| MC | MOTORIST CAUSED HIGHWAY DAMAGE |
| MT | MAINTENANCE TRANSFER |
| OM | OFF MAINTENANCE |
| OT | MULTIPLE OUTAGES |
| SO | SINGLE OUTAGE |
| SR | SERVICE REQUEST |
| UT | UTILITY PROBLEM |
| VO | VOID |
| WA | WORKING UPON ARRIVAL/WORKING AS PROGRAMMED |
| WP | WATER ON PAVEMENT |

TICKET SORT (SUB-GROUPS TO TICKET TYPE ENTRIES IN EMCMS)

Although we have not shown charts with the sort types, the Contractor's Dispatchers need to become familiar with the various Ticket Types for Ticket entry in the EMCMS.

| | |
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| AEG | AEGIS ALARM |
| AO | ALL OUT |
| BA | BARRIER (REVLAC) |
| BLD | BUILDING OR HUT |

CAB CABINET OR CONTROLLER
CAM CAMERA
CCS CONTINUOUS COUNT STATION
CE COM ED
COM COMCENTER
DIS OFFICIAL DECLARED DISASTER
DMS DYNAMIC MESSAGE SIGN
EVP EMERGENCY VEHICLE PRE-EMPTION
FAC STATE OWNED FACILITY
FIB FIBER OPTIC
FLA FLASHER OR FLASHING BEACON
FR FLASHING RED
GAS GAS DETECTOR
GRF GRAFFITI
GRN GREEN LIGHT OUT
GT GATE
HH HANDHOLE
INS INSPECTION
JB JUNCTION BOX
LP LOOP DAMAGE
MA MAST ARM
MB MOVEABLE BRIDGE
MIS MISCELLANEOUS
MOD MODEM
NAV NAVIGATIONAL LIGHTING
NDF NO DAMAGE FOUND
NT NO TRANSFER
OFF OFF-MAINTENANCE TRANSFER
ON ON-MAINTENANCE TRANSFER

OT MULTIPLE OUTAGES
OWN OWNER OR MAINTAINER TRANSFER
PAR PARTIAL MAINTENANCE TRANSFER
PED PED SIGNAL/BUTTON/MODULE
PL POLE
PM PREVENTIVE MAINTENANCE PROGRAM
PSY POWER SUPPLY
PUM PUMP
RA REST AREA
RED RED LIGHT OUT
REM REMOVE LOCATION
RP RAMP METERING
RR ROUTINE WORK
SCA SCADA
SN SIGN
SP SPARE PART TO BE RETURNED
ST SIGNAL TURN-ON
STD TS STANDARD
T&C TWISTED AND CONFLICTING
TEL TELEMETRY
TM TIMING
TRR TRASH RACK
TW TOWER
UPS UNINTERRUPTED POWER SUPPLY
WFL WATER OR FLOOD
WIN WIND DAMAGE
WS WEIGH STATION
YEL YELLOW LIGHT OUT
YRD MAINTENANCE YARD

DISTRICT 1 – FORMAL CONTRACT – ELECTRICAL MAINTENANCE

CONTRACT NO. 62W79

VARIOUS COUNTIES

SECTION 2024-916-ELE

SECTION 2 – SPECIAL PROVISIONS

GENERAL ITEMS

LIGHTING ITEMS

PUMP STATION ITEMS

SURVEILLANCE ITEMS

TRAFFIC SIGNAL ITEMS

GENERAL ITEMS

GA01 AERIAL CABLE WITH MESSENGER WIRE

Description. This item consists of furnishing, installing, testing, and connecting aerial electric cable of the size indicated for temporary lighting or service as specified by an Engineer, and as shown on the contract drawings. The cable must be new, unless otherwise indicated.

The cost of disconnecting and abandoning in place the existing cables feeding underpass, sign, and ramp lighting and reconnecting to the temporary lighting system must be included in the contract unit price for this item.

The cost of removing the used cable must be included in the cost of the new cable. The rewiring to facilitate relocation of the cable due to staging or other construction requirements must be included in the cost of this item.

Materials. Section 818 and 1066 of the Standard Specifications for Road and Bridge Construction, current version, must apply to this pay item.

Method of Measurement. The aerial electric cable will be measured in feet in place and will be taken as the length of the messenger wire. Measurement will be made in a straight line between changes in direction and to the centers of light standards and control cabinets. Sag of the aerial cable or vertical cable will not be measured for payment. Used aerial cable will not be measured for payment but must be included in the cost of the item.

Basis of Payment. This item will be paid at the contract unit price per foot for AERIAL CABLE WITH MESSENGER WIRE, 4-1/C up to No. 2 of the size and number of conductors indicated which must be payment in full for the work described herein.

GC01 – GC04 CONDUIT, GALVANIZED STEEL, AND/OR PVC COATED

Description. This item must consist of furnishing and installing galvanized steel or PVC coated conduit, fittings and accessories attached to structure for roadway or building, as specified herein and as shown on the contract drawings. All conduit splices must be threaded as directed by the Engineer.

These items must conform to Sections 1088 and 811 of the Standard Specifications for Road and Bridge Construction, current version, for this pay item, with the following exceptions:

Add the following to Article 811.03(b) of the Standard Specifications: "The personnel installing the PVC coated conduit shall be certified by the conduit manufacturer for installing PVC coated conduit." Delete the following sentence of the third paragraph of Article 1088.01(a) (3) of the Standard Specifications: "The exterior galvanized surfaces shall be coated with a primer before the PVC coating to ensure a bond between the zinc substrate and the PVC coating."

In-ground work must consist of furnishing and installing galvanized steel conduit, fittings, and accessories in the ground, either pushed, trenched, plowed, or directionally bored with fittings complete as specified herein and as shown on the contract drawings. All conduit splices must be solid threaded couplings as directed by the Engineer. Trenching, backfilling, and restoration are incidental to this pay item in accordance with the District 1 Traffic Signal Specifications.

These items must conform to Sections T420 and T642 of the Traffic Specifications and District 1 Traffic Signal Specifications, except as herein revised. All conduits must be placed at a depth of thirty inches, except under railroad tracks the conduit must be a minimum of five feet.

Add the following to Article 811.03 of the Standard Specifications:

“Pavement, driveways, sidewalk, and curbs must not be removed to install electrical conduits.”

Revise Article 810.04 of the Standard Specifications to read:

“Installation. All underground conduit shall have a minimum depth of 30-inches (700 mm) below the finished grade.”

Add the following to Article 810.04 of the Standard Specifications:

“All metal conduit installed underground must be Rigid Steel Conduit unless otherwise indicated in plans.”

Add the following to Article 810.04 of the Standard Specifications:

“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 300 mm (12”) or the length shown on the plans beyond the structure or duct bank. The end of this extension must 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 Coillable nonmetallic conduit must be capped with a rigid PVC cap of not less than 3 mm (o.125”) thick. The cap must 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 pull cord must be tied to this ring.”

Add the following to Article 811.03 of the Standard Specifications:

“Pavement, driveways, sidewalk, and curbs must not be removed to install electrical conduits.”

Conduit Wall Seals. Conduit wall seals must be incidental to the conduit specified under this item. Conduit wall seals used in new concrete walls must consist of a polyvinylchloride (PVC) oversize sleeve with sealing assemblies at both sides of the wall. The sealing assemblies must be cast iron alloy or malleable iron with pressure rings and neoprene sealing grommets, membrane clamp and they must be tightened by means of hex-head screws. Each wall seal must accept multiple conduit sizes. The sealing assemblies’ castings must be hot dip galvanized.

Conduit wall seals used in cored holes in existing concrete must consist of an assembly of an oversize outside pressure disc with membrane clamp, a neoprene sealing ring and an interior pressure disc, with the discs tightened by means of not less than three stainless steel socket head cup tightening screws with stainless steel washers. Pressure discs must be PVC-coated steel.

Installation. These items must conform to Section 811 of the Standard Specifications for Road and Bridge Construction, current version.

Method of Measurement. Conduit must be measured for payment in feet in place. Measurements must be made in straight lines along the center line of the conduit between ends and changes in direction. Vertical conduit shall be measured for payment. Liquid-tight flexible conduit must be included in the bid price for conduit attached to structure regardless of size and type.

Basis of Payment. This work will be paid at the contract unit price per foot of CONDUIT, GALVANIZED STEEL or PVC coated, attached to structure for roadway or building, of the type, diameter, and number of raceways wide by the number of raceways high. Payment must be in full for furnishing and installing the galvanized steel conduit and fittings complete.

For in-groundwork, trenching, backfilling, and restoration, including removal and replacement of sidewalk, are incidental in accordance with the District One Traffic Signal Specifications.

GC01 CONDUIT, GALVANIZED STEEL, 1/2" TO 2 1/2."

GC02 CONDUIT, GALVANIZED STEEL, 3" TO 5"

GC03 CONDUIT, GALVANIZED STEEL, ATTACHED TO STRUCTURE, PVC COATED, 1/2" TO 2 1/2."

GC04 CONDUIT, GALVANIZED STEEL, ATTACHED TO STRUCTURE, PVC COATED, 3" TO 5"

GC05 CONDUIT, NON-METALLIC, COILLABLE, IN GROUND

Description. This item must consist of furnishing and installing Coillable non-metallic, fittings and accessories in the ground, either pushed, trenched, or directionally bored with fittings complete as specified herein and as shown on the contract drawings.

Materials. These items must conform with Sections T420 and T642 of the Traffic Specifications and District 1 Traffic Signal Specifications, except herein revised. All conduits must be placed at a depth of thirty inches, except under railroad tracks the conduit must be a minimum of five feet.

Also, these items must conform to Sections 1088 and 810 of the Standard Specifications for Road and Bridge Construction, Current version, must apply to this pay item, with the following exceptions:

The duct must 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 and its manufacture must conform to the standards of NEMA Publication TC7 and ASTM Designation D3485.

The duct must be made of high-density polyethylene which must meet the requirements of ASTM Designation D 1248, Type III Class C and the requirements listed in table 2-1 of NEMA TC7. Submittal information must demonstrate compliance of these requirements.

Duct dimensions must conform to the standards listed in table 2-2 of NEMA TC7. Submittal information must demonstrate compliance with these requirements.

As specified in NEMA TC7, the duct must be clearly and durably marked at least every 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.

Add the following to Article 810.04© of the Standard Specifications:

“Coillable non-metallic conduit must be machine straightened to remove the longitudinal curvature caused by coiling the conduit onto reels prior to installing in trench, encasing in concrete or embedding in structure. The straightening must not deform the cross-section of the conduit such that any two measured outside diameters, each from any location and at any orientation around the longitudinal axis of the straightened conduit must not deviate by more than 20 mm per meter (0.25” per foot”) from a straight line. The HDPE and straightening mechanism manufacturer operating temperatures must be followed.

Method of Measurement. Conduit must be measured for payment in feet in place. Measurements must be made in straight lines along the centerline of the conduit between ends and changes in direction. Vertical conduits must be measured for payment. Liquid-tight flexible conduit must be included in the bid price for conduit attached to structure regardless of size and type.

Coillable nonmetallic conduit installed in excess of the limits described will not be measured for payment.

Basis of Payment. This work will be paid for at the contract unit price per foot of CONDUIT, NONMETALLIC, COILLABLE, IN GROUND, ½” of the type, diameter, and number of raceways wide by the number of raceways high, which price must be payment in full for furnishing and installing the conduit in ground, Coillable non-metallic either pushed, trenched, or directionally bored with fittings complete. Trench and backfill will be paid for separately except the restoration of ground is incidental to this pay item.

GC06 CONDUIT, REMOVAL

Description. This work must consist of disconnecting, removing, dismantling, and transferring off the site existing conduit. Other items including connectors and appurtenances as herein specified and directed by the Engineer. Except when indicated by the Engineer, the existing conduit is deemed not salvageable upon removal and must then be disposed of.

Construction Requirements. No removal work will be permitted without approval from the Engineer. Any damage resulting from the removal and/or transportation of the existing conduit and associated hardware, must be repaired to its original condition, or replaced in kind, at the Contractor's own expense, to the satisfaction of the Engineer. The Engineer must be the sole judge to determine the extent of damage.

Method of Measurement. Conduit removal must be measured for payment in feet in place.

Measurements must be made in straight lines along the centerline of the conduit between ends and changes in direction. Vertical conduit must be measured for payment.

Basis of Payment. This item must be paid at the contract unit price per foot for CONDUIT REMOVAL, including connectors and appurtenances, which must be payment in full for the work as described herein.

GE01 – GE02 ELECTRIC CABLE ASSEMBLY

Description. This item must consist of furnishing and installing multi-conductor power cable, suitable for direct burial, in conduit or trench, as specified herein, complete with all testing. The cable must be an assembly of insulated power conductors, plus an insulated ground wire cabled in accordance with UL 1277 with fillers and binder tape, and with a jacket overall. The cable must be UL Listed for direct burial use and shall be rated 90 degrees C dry and 75 degrees C wet.

Materials. Materials shall be according to Article 1076.01 and 1066.06 of the Standard Specifications for Road and Bridge Construction, current version, must apply to this pay item.

Installation. Section 870 of the Standard Specifications for Road and Bridge Construction, Current version, must apply to this pay item, with the following exceptions:

Add the following to Article 870.03 of the Standard Specifications:

“Bored and Pulled. A remotely steerable, fluid cutting tunneling system must be used to install the cable assembly. The tunneling system must be electronically detectable and must line the tunnel with a clay lining as it tunnels. The tunneling system must be approved by the Engineer prior to its use.”

Method of Measurement. Electric cable assembly, in conduit or trench, must be measured, per feet.

Basis of Payment. This item must be paid at the contract unit price per foot for:

GE01 ELECTRIC CABLE ASSEMBLY, XLP, 3/C NO. 2, 1/C NO. 6 GREEN

GE02 ELECTRIC CABLE ASSEMBLY, XLP, 3/C NO.4, 1/C NO.6 GREEN of the size and number of conductors indicated, which must be payment in full for furnishing, installing in conduit or trench and testing the cable as specified herein.

GE03 – GE05 ELECTRICAL CABLE IN CONDUIT, XLP

Description. This work must consist of furnishing materials and labor for installation of electric cables in conduit as shown on the contract drawings or as otherwise indicated, complete with all spicing, identification, terminating and testing. Replacing existing cable must be included in this pay item.

Sections 817 and 1066 of the Standard Specifications for Road and Bridge Construction, current version, must apply to this pay item, with the following exception(s):

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

Cable sized No. 2 AWG and smaller must be UL listed Type RHH/RHW and may be Type RHH/RHW and may be Type RHH/RHW/USE. Cable sized larger than No. 2 AWG must be UL listed Type RHH/RHW/USE.”

Method of Measurement. The cable must be measured for payment in feet, in place. Measurements must be made in straight lines between changes in direction and to the centers of equipment. All vertical cable and permissible cable slack must be measured for payment. A total of 6 ft. slack must be allowed for the end of a run terminating at a panel and 4 ft. must similarly be allowed when terminating at a wall-mounted panel. Additional vertical distance for the height of conduit risers, etc., as applicable must be measured for payment for equipment so mounted.

Basis of Payment. This item must be paid at the contract unit price per foot for furnish & installation of:

GE03 ELECTRICAL CABLE, XLP, 1/C UP to No. 4

GE04 ELECTRICAL CABLE, XLP, 1/C No. 2 to No. 2/0

GE05 ELECTRICAL CABLE, XLP, 1/C No. 3/0 to No. 500 MCM of the size, number and type of conductors indicated, which must be payment in full for the work as described herein.

GE06 ELECTRICAL CABLE, PULL OR REMOVE

Description. This work must consist of pulling and/or removing an existing electric cable into / from a conduit.

Method of Measurement. Electric cable in conduit, pull/remove, must be counted, each, per foot.

Basis of Payment. This work must be paid for at the contract unit price per foot per electrical cable for ELECTRIC CABLE, PULL OR REMOVE, which price must be payment in full for removing the electric cable complete. If two or more cables in a conduit are to be removed each cable must be measured for payment separately.

GE07 ELECTRICAL CABLE, THWN

Description. This work must consist of furnishing materials and labor for installation of electric cables in conduit as specified herein and indicated by the Engineer, complete with all splicing, identification, terminating and testing.

Materials. All cables must be UL listed as Type THHN or THWN per Standard 83, rated for 600 volts, 90 degrees C. dry and 75 degrees C. wet. They must be suitable for installation in wet and dry locations, exposure to the weather, and must be resistant to oils and chemicals. It must confirm to the Federal Specification J-C-30B. The UL listing mark, cable voltage, insulation type and ratings, as well as the cable size must all be clearly printed on the cable in a color contrasting with the insulation color. Conductors shall be annealed uncoated copper per UL Standard 83 or 1063 and unless otherwise indicated, must be Class B or Class C stranded. Conductors used for general building lighting and receptacle circuits may be solid.

Each cable must be insulated with Polyvinyl Chloride (PVC) and sheathed with nylon complying with requirements of UL Standard 83 for Types THHN or THWN. The minimum thickness at any point, of the PVC insulation, must be not less than 90% of the specified average thickness.

Unless otherwise indicated, cable must be solid full color coded via insulation color. Unless specifically approved by the Engineer, color coding of neutral and ground wires must be by means of colored insulation, except where bare ground wires are indicated.

Branch circuit from panelboards, for lighting, receptacles and similar loads must be color coded by mean of colored wire insulation. Colors must be as selected by the Contractor, but a sufficient number of colors must be used such that wiring in common enclosures is clearly differentiated and color combinations or runs are generally not repeated. Care must be taken in the phasing of combined-neutral circuit runs. Switched legs must be differentiated form un-switched legs of a circuit.

Wiring must be color coded by means of colored wire insulation as follows:

“line”: black

neutral: white

ground: green

others: color coded using a repeating color format as approved by the Engineer. Signal cable conductor insulation shall be color coded.

Quality Control. Submittal information must include demonstration of compliance with all specified requirements. All cables must be new, having been manufactured within the 18 months preceding the date of delivery to the site. All cables must be delivered to the site in full reels. Cable on the reels must be protected from damage during shipment and handling by wood lagging or other means acceptable to the Engineer. Reels must be tagged or otherwise identified to show the UL listing.

Installation. Wires and cables must be carefully installed to avoid damage to insulation and cable jackets as applicable. Wire lubricant must be used when pulling wires into conduits. The lubricant must be non-corrosive to conduits, conductors, insulations or jackets and the lubricant shall be UL listed. Each run of cable must have sufficient slack. Where a number of wires are trained through a box, manhole or handhole, they must be bundled using appropriate cable ties and supported to minimize pressure or strain on cable insulation. Wire and cable must not be bent to a radius less than the manufacturer’s recommended bending radius, either in permanent placement or during installation. Cable pulling apparatus must have no sharp edges or protrusions which could damage cables or raceways.

Wire splices must not be allowed on a SCADA system signal or control wiring. All splices must be approved by the Engineer. Splices and terminations, as required, must be incidental to this item and must be in conformance with Basic Materials and Methods, elsewhere herein.

All wiring must be tagged with pre-printed, self-sticking, wrap or heat shrink type wire markers or other markers approved by the Engineer. Handwritten wire markers are not acceptable. The tagging must be applied at each termination and splice. The tagging must include the full circuit and wire designation. Markers must be permanent, of a size recommended by the manufacturer for the respective wire size and shall be applied as recommended by the marker manufacturer. All wiring must be terminated as indicated by the Engineer.

Testing. After installation, the cable must be tested as approved by the Engineer. Cable failing to pass the test must be replaced with new cable at no additional cost.

Method of Measurement. The cable must be measured for payment in feet in place. Measurements must be made in straight lines between changes in direction and to the centers of equipment. All vertical cable and permissible cable slack must be measured for payment.

A total of six (6) feet slack must be allowed for the end of a run terminating at a panel and four (4) feet will similarly be allowed when terminating at a wall-mounted panel. Additional vertical distance for the height of conduit risers, etc., as applicable, must be measured for payment for equipment so mounted.

Basis of Payment. This work must be paid at the Contract unit price per foot installed ELECTRICAL CABLE, THWN, I/C from No. 14 to No. 8 of the size and type indicated, which must be payment in full for the work as described herein.

GEC1 ETHERNET CABLE, OUTSIDE PLANT CAT 6

Description. This item shall consist of furnishing and installing an Outside Plant Category 6 Ethernet cable as described herein and as indicated in the Plans.

Material/Cable Construction.

| | |
|---------------------------------------|---|
| Pair Count: | 4 |
| Conductor: | Solid annealed copper |
| AWG (mm): | 24 (0.51) |
| Filling Compound: | PFM gel |
| Insulation: | Polyolefin |
| Inner Shield: | Electrically continuous 0.008 in (0.20 mm) polymer coated smooth aluminum tape, applied with an overlap |
| Dry Water Block: | SAP powder |
| Jacket: | Black, sunlight and weather resistant polyethylene |
| Characteristic Impedance Ohms: | 100 ± 15 |
| Nominal Velocity of Propagation %: | 68 |
| Performance Compliance: | ANSI/TIA-568.2-D ANSI/ICEA S-107-704-2012 RoHS-compliant/RoHS 2-compliant REACH-compliant |

The Outside Plant Category 6 Ethernet cable must be equal to or exceed Superior Essex EnduraGain OSP Shielded Outside Plant Category 6 Ethernet cable.

Method of Measurement. Outside Plant Category 6 Ethernet cable will be measured for payment in feet in place installed and tested.

Basis of Payment. This work will be paid for at the contract unit price per foot for Ethernet Cable, Outside Plant, Category 6 Ethernet cable as specified. Payment must not be made until the cable is installed, spliced, and tested in compliance with these special provisions.

GF01 FIBER OPTIC TRUNK / DISTRIBUTION CABLE, 6 TO 144 SM

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

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

Materials. The single-mode, fiber optic cable must incorporate a loose, buffer-tube design. The cable must be an accepted product of the United States Department of Agriculture Rural Utilities Service (RUS) 7 CFR 1755.900 and meet the requirements of ANSI/ICEA Standard for Fiber Optic Outside Plant Communications Cable, ANSI/ICEA S-97-640-1999 for a single sheathed, non-armored cable, and must be new, unused and of current design and manufacture.

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

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

| Physical Construction | | | |
|---|------------|-------------------|-----------------------------|
| Requirement | | Units | Value |
| Cladding Diameter | | (μm) | 125.0 \pm 0.7 |
| <u>Core-to Cladding Concentricity</u> Cladding Non-Circularity | | (μm) | ≤ 0.5 ----- 0.7% |
| Mode Field Diameter | 1310 nm | (μm) | 9.2 \pm 0.4 |
| | 1550 nm | | 10.4 \pm 0.5 |
| Coating Diameter | | (μm) | 245 \pm 5 |
| Colored Fiber Nominal Diameter | | (μm) | 253 – 259 |
| Fiber Curl radius of curvature | | (m) | > 4.0 m |

| Optical Characteristics | | | |
|---|---------|----------------------------|---------------------------------|
| Requirement | | Units | Value |
| Cabled Fiber Attenuation | 1310 nm | (dB/km) | ≤ 0.4 |
| | 1550 nm | | ≤ 0.3 |
| Point discontinuity | 1310 nm | (dB) | ≤ 0.1 |
| | 1550 nm | | ≤ 0.1 |
| Macrobend Attenuation | Turns | Mandrel OD | |
| | 1 | 32 \pm 2 mm | (dB) |
| | 100 | 50 \pm 2 mm | < 0.05 at 1550 nm |
| | 100 | 50 \pm 2 mm | < 0.05 at 1310 nm |
| | 100 | 60 \pm 2 mm | < 0.10 at 1550 nm |
| | 100 | 60 \pm 2 mm | < 0.05 at 1550 nm |
| | 100 | 60 \pm 2 mm | < 0.05 at 1625 nm |
| Cable Cutoff Wavelength (λ_{ccf}) | | (nm) | < 1260 |
| Zero Dispersion Wavelength (λ_0) | | (nm) | 1302 $\leq \lambda_0 \leq$ 1322 |
| Zero Dispersion Slope (S_0) | | (ps/(nm ² -km)) | ≤ 0.089 |

| | | | | |
|-------------------------------------|----------------|----------|-----------------------|------------|
| Total Dispersion | 1550 nm | | (ps/(nm-km)) | ≤ 3.5 |
| | 1285 – 1330 nm | | | ≤ 17.5 |
| | 1625 nm | | | ≤ 21.5 |
| Cabled Polarization Mode Dispersion | | | (ps/km ²) | ≤ 0.2 |
| IEEE 802.3 GbE ± 1300 nm | Laser | Distance | (m) | Up to 5000 |
| Water Peak Attenuation: | 1383 ± | 3 nm | (dB/km) | ≤ 0.4 |

Cable Construction. The number of fibers in each cable must be as specified on the plans.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

The cables must be sheathed with medium density polyethylene (MDPE). The minimum nominal jacket thickness must be 1.4 mm. Jacketing material must be applied directly over the tensile strength members (as required) and water swellaable tape. The polyethylene must contain carbon black to provide ultraviolet light protection and must no promote the growth of fungus.

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

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

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

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

The maximum pulling tension must be 2700 N (608 lbf) during installation (short term) and 8890 N (200 lbf) long term installed.

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

General Cable Performance Specifications. The fiber optic cable manufacturer must provide documentation and certify that the fiber optic cable complies with the following EIA-455-xxx Fiber Optic Test Procedures (FOTP):

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

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

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

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

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

When tested in accordance with FOTP-25, "*Repeated Impact Testing of Fiber Optic Cables and Cable Assemblies,*" except that the number of cycles must be two at three locations along a one-meter cable length and the impact energy must be at least 4.4 Nm (in accordance with ICEA S87-640)", the change in attenuation must not exceed 0.15 dB at 1550 nm for single-mode fiber and 0.30 dB at 1300 nm for multimode fiber.

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

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

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

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

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

- Cable Number
- Gross Weight
- Shipped Cable Length in Meters
- Job Order Number
- Product Number
- Customer Order Number
- Date Cable was Tested.
- Manufacturer Order Number

Cable Length Markings a: Top (inside end of cable)

b: Bottom (outside end of cable)

The reel (one flange) marking must include:

- Manufacturer
- Country of origin
- Arrow indicating proper direction of roll when handling.
- Forklift-handling illustration
- Handling Warnings

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

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

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

The cables must meet all of specified requirements under the following conditions:

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

Optical Patch Cords and Pigtails. The optical patch cords and pigtails must comply with the following:

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

Connectors. The optical connectors must comply with the following:

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

CONSTRUCTION REQUIREMENTS

Experience Requirements. Personnel involved in the installation, splicing, and testing of the fiber optic cables must meet the following requirements:

A minimum of three (3) years' experience in the installation of fiber optic cables, including fusion splicing, terminating, and testing single mode fibers.

Install two systems where fiber optic cables are outdoors in conduit and where the systems have been in continuous satisfactory operation for at least two years. The Contractor must submit as proof, photographs or other supporting documents, and the names, addresses and telephone numbers of the operating personnel who can be contacted regarding the installed fiber optic systems.

One fiber optic cable system (which may be one of the two in the preceding paragraph), which the Contractor can arrange for demonstration to the Department representatives and the Engineer.

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

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

Installation in Raceways. Prior to installation, the Contractor must provide a cable-pulling plan. The plan must include the following information:

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

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

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

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

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

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

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

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

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

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

Tracer Wire. A tracer wire must be installed with all fiber optic cable runs. One tracer wire must be installed along with the fiber optic cable in each raceway. If a raceway has more than one fiber optic cable, only one tracer wire per raceway is required. If there are parallel raceways, a tracer wire is required in each raceway that contains a fiber optic cable. Tracer wire must be installed in raceway segments which are metallic to provide a continuous tracer wire system.

The tracer wire must be a direct burial rated, number 12 AWG (minimum) solid (0.808" diameter), steel core soft drawn high strength tracer wire. The wire must have a minimum 380-pound average tensile break strength. The wire shall have a 30-mil high density yellow polyethylene (HDPE) jacket complying with ASTM-D-1248, and a 30-volt rating.

Connection devices used must be as approved by the tracer wire manufacturer, except wire nuts of any type are not acceptable and must not be used.

The cost of the tracer wire must be included in the cost of the fiber optic cable and not paid for separately.

Aerial Fiber Optic Cable. Aerial fiber optic cable assemblies must be of a self-supporting figure-eight design. The fiber optic cable must be as described herein and must be water blocked utilizing water-swellaable materials. The cable assembly must be designed and manufactured to facilitate midspan access.

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

Construction Documentation Requirements.

Installation Practices for Outdoor Fiber Optic Cable Systems

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

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

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

Testing Requirements. The Contractor must submit detailed test procedures for approval by the Engineer. All fibers (terminated and un-terminated) must be tested bi-directionally at both 1310 nm and 1550 nm with both an Optical Time Domain Reflectometer (OTDR) and a power meter with an optical source. For testing, intermediate breakout fibers may be concatenated and tested end-to-end. Any discrepancies between the measured results and these specifications must be resolved to the satisfaction of the Engineer.

Fibers which are not to be terminated must be tested with a temporary fusion spliced pigtail fiber. Mechanical splice or bare fiber adapters are not acceptable.

The Contractor must provide the date, time and location of any tests required by this specification to the Engineer at least 5 working (7 calendar) days before performing the test. Included with the notification must be a record drawing of the installed fiber optic cable system. The drawings must indicate actual installed routing of the cable, the locations of spliced, and locations of cable slack with slack quantities identified.

Upon completion of the cable installation, splicing, and termination, the Contractor must test all fibers for continuity, events above 0.1 dB, and total attenuation of the cable. The test procedure must be as follows:

A Certified Technician utilizing an Optical Time Domain Reflectometer (OTDR) and Optical Source/Power Meter must conduct the installation test. The test equipment used must have been calibrated within the last two years. Documentation must be provided. The Technician is directed to conduct the test using the standard operating procedures defined by the manufacturer of the test equipment. All fibers installed must be tested in both directions.

A fiber ring or fiber box must be used to connect the OTDR to the fiber optic cable under test at both the launch and receive ends. The tests must be conducted at 1310 and 1550 nm for all fibers. All testing must be witnessed by the IDOT Engineer, and a copy of the test results (CD ROM or USB Drive) must be submitted on the same day of the test. Hardcopies must be submitted as described herein with copies on CD ROM.

At the completion of the test, the Contractor must provide copies of the documentation of the test results to the Project Engineer. The test documentation must be submitted as two bound copies and three CD ROM copies, and must include the following:

Cable and Fiber Identification:

- Cable ID
- Cable Location – Beginning and End Point
- Operator Name
- Date & Time
- Fiber ID, including tube and fiber color.
- Wavelength
- Pulse Width (OTDR)
- Refractory index (OTDR)
- Setup parameters
- Range (OTDR)
- Scale (OTDR)
- Setup Option chosen to pass OTDR “dead zone.”

Test Results must include:

- OTDR Test Results
- Total Fiber Trace
- Splice Loss/Gain
- Events ≥ 0.10 db
- Measured Length (Cable Marking)
- Total Length (OTDR)
- Optical Source/Power Meter
- Total Attenuation (dB/km)

Sample Power Meter Tabulation

Power Meter Measurements (dB)

| Location | | Fiber No. | Cable Length (km) | A to B | | B to A | | Bidirectional Average | |
|----------|---|-----------|---------------------|---------|---------|---------|---------|-----------------------|--------|
| A | B | | | 1310 nm | 1550 nm | 1310 nm | 1550 nm | 1310 nm | 1550nm |
| | | 1 | | | | | | | |
| | | | | | | | | | |
| | | 2 | | | | | | | |
| | | | | | | | | | |
| | | | Maximum Loss | | | | | | |
| | | | Minimum Loss | | | | | | |

The OTDR test results file format must be Bellcore/Telcordia compliant according to GR-196CORE Issue 2, OTDR Data Standard, GR 196, Revision 1.0, GR 196, Revision 1.1, GR 196, Revision 2.0 (SR-4731) in a “. SOR” file format. A copy of the test equipment manufacturer’s software to read the test files, OTDR and power, must be provided to the Department. These results must also be provided in tabular form, see sample below:

Sample OTDR Summary

| Cable Designation: | | TCF-IK-03 | OTDR Location: | | Pump Sta. | Date: 1/1/00 | |
|--------------------|------------|----------------|-----------------|------|-----------|--------------|--|
| Fiber Number | Event Type | Event Location | Event Loss (dB) | | 1310 nm | 1550 nm | |
| 1 | Splice | 23500 Ft. | .082 | .078 | | | |
| 1 | Splice | 29000 Ft. | .075 | .063 | | | |
| 2 | Splice | 29000 Ft. | .091 | .082 | | | |
| 3 | Splice | 26000 Ft. | .072 | .061 | | | |
| 3 | Bend | 27000 Ft. | .10 | .009 | | | |

The following must be the criteria for the acceptance of the cable:

The test results must show that the dB/km loss does not exceed +3% of the factory test or 1% of the cable’s published production loss. However, no event must exceed 0.10 dB. If any event is detected above 0.10 dB, the Contractor must replace or repair the fiber including that event point.

The total loss of the cable (dB), less events, must not exceed the manufacturer's production specifications as follows: 0.5 dB/km at both 1310 and 1550 nm.

If the total loss exceeds these specifications, the Contractor must replace or repair the cable run at no additional cost to the State, both labor and materials. Elevated attenuation due to exceeding the pulling tension, or any other installation operation, during installation must require the replacement of the cable run at no additional cost to the State, including labor and materials.

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

Slack Storage of fiber Optic Cables. Included as a part of this item, slack fiber must be supplied as necessary to allow splicing the fiber optic cables in a controlled environment, such as a splicing van or tent. After splicing has been completed, the slack fiber must be stored underground in handholes or in the raised base adapters of ground mounted cabinets in accordance with the fiber optic cable manufacturer's guidelines. Fiber optic cable slack must be 100 feet for each cable at access points, above or below ground, where splicing is not involved. If the innerduct is cut, the ends of the innerduct should extend beyond the first vertical rack so they can be secured at that point. This slack must be measured for payment.

Fiber optic cable must be tagged inside handholes with yellow tape containing the text: "CAUTION – FIBER OPTIC CABLE." In addition, permanent tags, as approved by the engineer, must be attached to all cable in a hand hole or other break-out environment. These tags must be stainless steel, nominally 0.75" by 1.72", and permanently embossed. These tags must be attached with stainless steel straps, and must identify the cable number, the number of fibers, and the specific fiber count. Tags and straps must be Panduit or approved equal.

Label the destination of each trunk cable onto the cable in each handhole, vault or cable termination panel.

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

Basis of Payment. This work must be paid for at the contract unit price per foot for FIBER OPTIC TRUNK / DISTRIBUTION CABLE, 6 UP TO 144 SM of the type, size, and number of fibers specified. Payment must not be made until the cable is installed, spliced, and tested in compliance with these special provisions.

GF02 FIBER OPTIC CABLE, HYBRID 12 MM AND 24 SM

Description. This work must conform with Section 871 of the Standard Specification for Road and Bridge Construction and District Traffic Signal Specifications as directed by the Signal Engineer.

Method of Measurement. The Fiber Optic Cable, Hybrid 12 MM and 24 SM must be measured for payment at the contract unit price (each). This cost must include the cost of furnishing all labor, materials, documentation, tools, and equipment to install, test, and make the location operational.

Basis of Payment. This work must be paid for at the contract unit price (per foot) for Fiber Optic Hybrid 62.5/125 multimode (MM) 12 fiber and single mode 24 fiber, this price must include furnishing and installing the fiber optic cable, necessary slack, cable termination and testing, distribution, enclosures, breakout kits, connectors, lashing wire, messenger wire, splices, pigtail assemblies and all other materials, hardware, and labor necessary to complete the installation as directed by the Signal Engineer. The single mode fiber must comply with the requirements in GF01. In addition to traffic signal use, this item may also be used at pumping stations and other highway systems.

GF03 FIBER OPTIC TERMINATION PANEL, 6 OR 24 SM

Description. Work under this item must consist of furnishing and installing a Fiber Optic Termination Panel, type and size as specified on the plans and described herein. This equipment must be used to link field equipment using single-mode fiber optic cable.

Materials. The Fiber Optic Termination Panel must provide storage, protection, and termination of optical fibers. The units must be compact, stackable, and built-in splice trays with routing guides. The termination panel must be made of durable metal and suitable for building entrance. The termination panel must be mountable in multiple configurations including wall and DIN rail application. Each Termination Panel must be provided with factory terminated and tested single mode pigtail ST or SC adaptors. The Fiber Optic Termination panel must be equal to or exceed Corning Single-Panel Housing (SPH). The factory terminated ST or SC adaptors must be equal to or exceed Corning Closet Connector Housing (CCH) Panel, pigtailed, ST or SC Connectors.

Construction Requirements. The Fiber Optic Termination Panel must be installed in the Traffic Signal, Surveillance cabinets or Pump Stations as specified on the plans. The panels must come with cable strain relief hardware and pull-out label for administrative documentation. All work must be neat and in a workmanlike manner. Care must be taken as to not crush or kink the fiber optic cable. If in the opinion of the engineer the cable has been crushed or kinked, the entire cable span must be removed and replaced at the Contractor's expense.

Method of Measurement. The Fiber Optic Termination Panel, 12F or 24F, must be measured for payment at the contract unit price (each). This cost must include the cost of furnishing all labor, materials, documentation, tools, and equipment to install, test, and make the location operational.

Basis of Payment. Fiber Optic Termination Panel, 12F or 24F, must be paid for at the contract unit price (each). This price must be payment for furnishing and installing the Fiber Optic Termination Panel, 12F or 24F, along with any necessary fiber optic patch cords and any other materials, hardware, and labor necessary to complete the installation.

GF04 FIBER OPTIC PATCH PANEL 96 OR 144 SM

Description. This item must consist of furnishing and installing a 96 port, St or SC style, rack or wall mounted, patch panel for single mode fiber. The hardware must include label holders, numbered ports, front and rear cable management rings.

Splicing must be as described in GF01.

Materials. The Fiber Optic Patch Panel must be rack or wall mounted complete with strain relief, routing clips, guides, and mounting brackets for proper installation. Each Fiber Optic Patch Panel must be provided with factory terminated and tested single mode pigtail ST or SC adaptors. Each Fiber Optic Patch Panel must be equipped with enough splice trays that provide positive holding and retention of the splice/heat shrink, fiber loop retention, and additional strain relief to secure the buffer tubers for the entire cable assembly being terminated. The rack mounted Fiber Optic Patch Panels must be equal to or exceed Corning Closet Connector Housing (CCH) panel that holds up to 12 CCH pigtailed ST or SC single mode connectors. The wall mount Fiber Optic Patch Panel must be equal to or exceed Corning Classic Wall-Mountable Connector Housing (WCHCLSSC-12P).

Method of Measurement. The Fiber Optic Patch Panel, 96 SM, must be measured for payment at the contract unit price (each). This cost must include the cost of furnishing all labor, materials, documentation, tools, and equipment to install, test, and make the location operational.

Basis of Payment. This work must be paid for at the contract unit price each for Fiber Optic Patch Panel 96 SM, which must be payment in full for furnishing, delivering, installing, trimming, and organizing fiber optic cable and testing, supplying optical pigtails and patch cords and all other materials and labor necessary to complete the installation.

GF05 FIBER OPTIC SPLICE ENCLOSURE

Description. Work under this item must consist of furnishing and installing a Fiber Optic Splice Enclosure as described herein.

Fiber Optic Splice. The Contractor must splice optical fibers from different cable sheaths and protect them with a splice closure at the locations shown on the Plans. Fiber splicing consists of in-line fusion splices for all fibers described in the cable plan at the splice location.

Materials:

Splice Closures. Splice Closures must be designed for use under the most severe conditions such as moisture, vibration, impact, cable stress and flex temperature extremes as demonstrated by successfully passing the factory test procedures and minimum specifications listed below:

- **Physical Requirement** – The closure must provide ingress for up to four cables in a butt configuration. The closure must prevent the intrusion of water without the use of encapsulates.

The closure must be capable of accommodating splice organizer trays that accept mechanical or fusion splices. The splice closure must have provisions for storing fiber splices in an orderly manner, mountings for splice organizer assemblies, and space for excess or un-spliced fiber. Splice organizers must be re-enterable. The splice case must be UL rated.

Closure re-entry and subsequent reassembly must not require specialized tools or equipment. Further, these operations must not require the use of additional parts.

The splice closure must have provisions for controlling the bend radius of individual fibers to a minimum of 38 mm (1.5 in.).

- **Factory Testing:**

1. **Compression Test** – The closure must not deform more than 10% in its largest cross-sectional dimension when subjected to a uniformly distributed load of 1335 N at temperature of -18° and 38° C (0 and 100° F). The test must be performed after stabilizing at the required temperature for a minimum of two hours. It must consist of placing an assembled closure between two flat parallel surfaces with the longest closure dimension parallel to the surfaces. The weight must be placed on the upper surface for a minimum of 15 minutes. The measurement must then be taken with weight in place.
2. **Impact Test** - The assembled closure must be capable of withstanding an impact of 28 N-M at temperatures of -18° and 38° C (0 and 100° F). The test shall be performed after stabilizing the closure at the required temperature for a minimum of 2 hours. The test fixture must consist of 9 kg (20 lbs.) cylindrical steel impacting head with a 50 mm (2 in.) spherical radius at the point where it contacts the closure. It must be dropped from a height of 305 mm (12 in.). The closure must not exhibit any cracks or fractures to the housing that would preclude it from passing the water immersion test. There must be no permanent deformation to the original diameter or characteristic vertical dimension by more than 5%.

3. **Cable Gripping and Sealing Testing** -The cable gripping and sealing hardware must not cause an increase in fiber attenuation in excess of 0.05 dB/fiber at 1550 nm when attached to the cables and the closure assembly. The test must consist of measurements from six fibers, one from each buffer tube or channel, or randomly selected in the case of a single fiber bundle. The measurements must be taken from the test fibers before and after assembly to determine the effects of the cable gripping and sealing hardware on the optical transmission of the fibers.
4. **Vibration Test** – The splice organizers must securely hold the fiber splices and store the excess fiber. The fiber splice organizers and splice retaining hardware must be tested per EIA Standard FOTP-II, Test Condition 1. The individual fibers must not show an increase in attenuation in excess of 0.1 dB/fiber.
5. **Water Immersion Test** -The closure must be capable of preventing 3 m (10 ft.) water head from intruding into the splice compartment for a period of 7 days. Testing of the splice closure is to be accomplished by the placing of the closure into a pressure vessel and filling the vessel with tap water to cover the closure. Apply continuous pressure to the vessel to maintain a hydrostatic head equivalent 3 meters (10 ft.) on the closure and cable. This process must be continued for 30 days. Remove the closure and open to check for the presence of water. And intrusion of water in the compartment containing the splices constitutes a failure.
6. **Certification** – It is the responsibility of the Contractor to ensure that either the manufacturer or an independent testing laboratory has performed all of the above tests, and the appropriate documentation has been submitted to the Department. Manufacturer certification is required for the model(s) of closure supplied. It is not necessary to subject each supplied closure to the actual tests described herein.

Construction Requirements. The closure must be installed according to the manufacturer's recommended guidelines.

The Contractor must submit the proposed locations of the mainline splice points for review by the Department.

The Contractor must prepare the cables and fibers in accordance with the closure and cable manufacturers' installation practices. A copy of these practices must be provided to the Engineer 21 days prior to splicing operations.

As directed by the Engineer, the Contractor (at no additional cost to the Department) must replace any cable splice not satisfying the cable splice requirements set forth in the fiber optic cable spec GF01.

The Contractor must secure the Splice Closure to the side of the splice facility using cable support brackets. All cables must be properly dressed and secured to rails or racks within the manhole. No cables or enclosures will be permitted to be on the floor of the splice facility. Cables that are spliced inside a building must be secured to the equipment racks or walls as appropriate and indicated on the plans.

Method of Measurement. The Fiber Optic Splice Enclosure must be measured for payment at the contract unit price (each). This cost must include the cost of furnishing all labor, materials, documentation, tools, and equipment to install, test, and make the location operational.

Basis of Payment. The work must be paid for at the contract unit price for Fiber Optic Splice Enclosure, which must be payment in full for furnishing, delivering, installing, trimming, and organizing the fiber optic splice, testing, and all other materials and labor necessary to complete the installation.

GF06 FIBER OPTIC INNERDUCT, UP TO 1 ½”

Description. This item must consist of furnishing, installing, splicing, connecting, and demonstrating continuity of fiber optic cable innerduct of sizes specified herein and as shown on the contract drawings. The innerduct must be High Density Polyethylene.

Materials.

A. General. The duct must be a spiral ribbed 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 ribbed duct must have internally designed longitudinal ribs for reduced pulling frictions and increased lubrication effectiveness.

The duct must be made of high-density polyethylene which must meet the requirements of ASTM D 3035. The innerduct material must be composed of high-density polyethylene meeting the requirements of PE334470E/C as defined in ASTM D 3350.

Submittal information must demonstrate compliance with the details of following requirements.

B. Dimensions.

Duct dimensions must conform to the standards listed in ASTM D 3035, SDR-11. Submittal information must demonstrate compliance with these requirements.

| Nominal Size (Diameter) | Inside Diameter (Minimum) | Outside Diameter (Average) | Wall Thickness (Min.) | Bend Radius (Minimum) | Pull Strength | Weight Average (lbs/100ft) |
|-------------------------|---------------------------|----------------------------|-----------------------|-----------------------|---------------|----------------------------|
| 1” | 1.030” | 1.315” | 0.120” | 14” | 500 | 19 |
| 1.25” | 1.313” | 1.660” | 0.151” | 17” | 750 | 31 |
| 1.5” | 1.506” | 1.900” | 0.173” | 19” | 1000 | 40 |

- C. Marking.** As specified in NEMA Standard Publication No. TC-7, the duct must be clearly and durably marked at least every 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.
- D. Color.** Orange (Trunk) & Blue (Distribution)

Construction Requirements.

- A. Pulling Tension.** Pulling tension of the duct must be monitored through the pull and pulling tension must not exceed those listed in the table or the specific manufacturer maximum pulling tensions as indicated in the catalog cut submittals. Failure to monitor the pulling tension will result in non-payment of that particular duct span and the span may be reinstalled with new duct at no additional cost to the State. Lubricants used must be compatible with the duct.
- B. Junction Boxes.** Where duct passes through junction and/or pull boxes, the duct must remain continuous unless a break is specifically indicated in the plans or as directed by the Engineer.
- C. Handholes and Communications Vaults.** Where duct passes through handholes or vaults, the duct must be looped uncut within the handhole unless otherwise indicated on the plans or directed by the Engineer.
- D. Bends.** Minimum bending radius must be in accordance with the above table or the manufacturer's recommended radius, whichever is larger. Bends shall be made so that the duct will not be damaged, and the internal diameter of the duct will not be effectively reduced. The degrees of bend in one duct run must not exceed 360° between termination points.
- E. In Trench.** Where duct is installed in trench, it must be placed in the bottom of the trench after all loose stones have been removed and all protruding stones have been removed or covered with backfill material as directed by the Engineer.
 - a. Where duct is shown to be installed in trench, it must be installed at a depth not less than 30 inches unless otherwise indicated or specifically directed by the Engineer.
 - b. The inner duct may be plowed into place. Unless otherwise indicated or specifically approved by the Engineer, plowing of inner duct must lay the duct in place and must not pull the duct through the length of the cut behind a bullet-nose mandrel or similar apparatus. In all cases, plowing operations must be non-injurious to the duct.

F. In Raceway. Where duct is installed in raceways, lubricating compounds must be used where necessary to assure smooth installation.

G. Encased in Concrete. Concrete must be class SI complying with Section 720 of the Standard Specifications.

- a. Steel reinforcement bars must comply with Section 706.10 of the Standard Specifications.
- b. Underground concrete-encased conduit must be supported on interlocking plastic spacers specifically designed for the purpose spaced along the length of the run as recommended by the manufacturer. Spacing between raceways within a common duct bank must be not less than 2 inches. The interlocking spacers must be used at a minimum interval of 8ft.
- c. Concrete cover overall must not be less than 3 inches all around the encased run. Space below the conduit, and concrete fill must be assured. Care shall be exercised during concrete placement to assure that there are no voids, so that spacers are undisturbed, and so that conduit joints stay secure and unbroken. Concrete must be deflected during placement to minimize the possible damage to or movement of the conduits.
- d. Conduit encased in concrete must have steel reinforcing when installed below roadway or other paved vehicle areas (including shoulder) and the reinforcement must extend not less than 5 feet additional from the edge of pavement unless otherwise indicated. Steel reinforcement must not be less than No. 4 bars at corners and otherwise spaced on 12-inch centers, tied with No. 4 bars on 12-inch centers.
- e. The Engineer must examine all conduit joints for compliance with section 5 of this specification before concrete is poured.

H. Embedded. Conduit embedded in structure must be supported on interlocking plastic spacers specifically designed for the purpose spaced along the length of the run as recommended by the manufacturer. Spacing between raceways within a common structure must be not less than 2 inches. The interlocking spacers must be used at a minimum interval of 8 ft.

Concrete cover overall must not be less than 3 inches all around the embedded run. Space below the conduit and concrete fill shall be assured. Care must be exercised during concrete placement to assured that there are no voids, so that spacers are undisturbed, and so that conduit joints stay secure and unbroken. Concrete must be deflected during placement to minimize the possible damage to or movement of the conduits.

The Engineer must examine all conduit joints for compliance with section 5 of this specification before concrete is poured.

- I. **Joints.** All HDPE duct to HDPE duct joints must be made with an approved duct fusion splicing device.
HDPE coillable non-metallic conduit to non-HDPE coillable non-metallic conduit joints must be either made with an approved mechanical connector or with a chemical compound. Both methods must be specifically designed for joining HDPE coillable non-metallic conduit. Minimum pullout force for the chemical compounds must be as listed in the following table:

| Nominal Size | | Pullout Force | |
|--------------|------|---------------|-------|
| Mm | In | N | Lbs. |
| 31.75 | 1.25 | 2400 | 540 |
| 38.1 | 1.50 | 2535 | 570 |
| 50.8 | 2.0 | 3335 | 750 |
| 63.5 | 2.5 | 4445 | 1,000 |
| 76.2 | 3.0 | 6225 | 1,400 |
| 101.6 | 4.0 | 8890 | 2,000 |

Measurement. The duct must be measured for payment in linear feet in place as described herein. Measurements shall be made in straight lines between horizontal changes in direction between the centers of the terminating points (poles, cabinets, junction boxes). Vertical measurement of the duct must be as follows:

For runs terminating at junction boxes and/or control cabinets, the vertical measurement must be taken from the bottom of the trench, or horizontal raceway, to a point 18-inches beyond the center of the junction box or control cabinet.

For runs terminating at poles, the vertical measure must be taken from the bottom of the trench, or horizontal raceway, to a point 18-inch beyond the center of the light pole handhole regardless of light pole mounting method.

Innerduct installed in excess of the limits described herein must not be paid for.

Basis of Payment. This item must be paid for at the contract unit price (per foot) installed for FIBER OPTIC INNERDUCT, UP TO 1 ½", of the size of duct as indicated, which must be payment in full for all material and work as specified herein.

GF07 FIBER OPTIC CABLE, INSTALL ONLY

Description. This item must consist of retrieving from the owner's storage facility, installing, and testing a single mode fiber optic cable of the type, size, and number of fibers specified, at the locations shown in the plans. Splicing, testing, splice closures, documentation, and all other miscellaneous equipment to make a complete and operational system must be as described in GF01, termination and or patch panels, must be as described in GF04 or GF05, fiber optic splice closure must be as described in GF06.

Pre-Installation Testing at the Owner's Storage Facility. An optional domain reflectometer (OTDR) must be used to evaluate the length and quality of cable reels prior to their use on the project. Testing must be done as described in GF01. Cable which does not meet the requirements set forth in GF01 must not be installed on the project. It is the Contractor's responsibility to ensure that the fiber is suitable for installation. If cable which does not meet GF01 is installed, the Contractor must remove said cable at their own expense. Contractor must make the Engineer aware of the cable which does not meet the Specification. The Engineer must assign an alternate reel or length of cable for installation on the project. The Contractor must be responsible for testing all cable assigned for install under this pay item. The Contractor must not be entitled to extra compensation for testing multiple cable reels or cable lengths.

Method of Measurement. The fiber optic cable must be measured for payment at the contract unit price per foot which cost must include the cost of furnishing all labor, materials, documentation, tools, and equipment to install, test, and make the location operational.

Basis of Payment. The installation of fiber optic cable must be measured in feet of cable installed between controllers. This work must be paid for at the contract unit price (per foot) for Fiber Optic Cable Install Only of the type, size, and number of conductors specified, which price must include retrieving, loading, transporting, installing, and all necessary slack to connect between controllers. Patch panels, inner duct, termination panels, and splice closures must be paid for separately.

GFR1 FOUNDATION REMOVAL

Description. This item must consist of removing a metal foundation or concrete foundation to a level at least three feet (3ft) below the adjacent grade, disposing of the foundation outside the right-of-way, backfilling the excavated areas with approved material and reconstructing the surface to match the adjoining area. If the concrete foundation is in the sidewalk area, the entire sidewalk square or squares where the concrete foundation is located must be replaced with new sidewalk. This item must conform to Section 444 of the Traffic Specifications and as required by the Engineer.

General. Concrete foundations must be removed to at least 3 ft. below grade with removed material disposed of off the site. The metal foundations must be removed completely from the ground. The removal must extend deeper where required to facilitate roadway construction at no additional cost. Underground conduits and cables must be separated from the foundation at 2-1/2 ft. below grade and must be abandoned or re-used as indicated.

The space caused by the removal of the foundations must be backfilled with trench backfill in accordance with Section 208 of the Standard Specifications.

The removal of an existing concrete foundation must meet the requirements of Section T444 of the Traffic Specifications.

The removal of a concrete foundation three feet or less in depth below grade must be removed completely and disposed of outside of the right-of-way. A concrete foundation greater than three feet in depth must have the first three feet below grade removed and disposed of outside of the right-of-way.

The area where the foundations have been removed must be backfilled and restored to meet the existing grade and terrain.

Basis of Payment. This item must be paid at the contract unit price (each) for FOUNDATION REMOVAL, which shall be payment in full for the removal and disposal of a foundation as specified herein.

GGR1 GROUND ROD

Description. This item must consist of furnishing, installing, and connecting ground rods for the grounding of service neutral conductors and for supplementing the equipment grounding system via connection at poles or other equipment throughout the system. All materials and work must be in accordance with Article 250 of the NEC.

Articles 806, and 1087.01 of the Standard Specifications for Road and Bridge Construction, Current version, must apply to this pay item.

For Traffic Signal Applications, the District 1 Traffic Signal Specifications and the District 1 Standard Traffic Signal Design details must apply to this item.

Materials. Materials must be according to the following Articles of Section 1000 – Materials

| | Item | Articles/Section |
|-----|--------------------|-------------------------|
| (a) | Ground Rod | 1087.01 |
| (b) | Copper Ground Wire | 1066.02 |

Installation. All connections to ground rods, structural steel or fencing must be made with exothermic welds. Where such connections are made to insulated conductors, the connection must be wrapped with at least 4 layers of electrical tape extended 152.4 mm (six inches) onto the conductor insulation.

Ground rods must be driven so that the tops of the rod are 24 inches below finished grade. Where indicated, ground wells must be included to permit access to the rod connections. Where indicated, ground rods must be installed through concrete foundations. Where ground conditions, such as rock, preclude the installation of the ground rod, the ground rod may be deleted with the approval of the Engineer.

Where a ground field of electrodes is provided, such as at control cabinets, the exact locations of the rods must be documented by dimensioned drawings as part of the Record Drawings.

Ground rod connection must be made by exothermic welds. Ground wire for connection to foundation steep or as otherwise indicated must be stranded uncoated bare copper in accordance the applicable requirements of ASTM Designation B-3 and ASTM Designation B-8 and must be included in this item. Unless otherwise indicated, the wire must not be less that No. 2 AWG. Where connections are made to epoxy coated reinforcing steel, the epoxy coating must be sufficiently removed to facilitate the exothermic weld.

Method of Measurement. Ground rods must be counted, each, furnished and installed.

Basis of Payment. This item must be paid at the contract unit price (each) for a GROUND ROD, which must be payment in full for furnishing and installing the materials and work specified herein.

GH01 – GH04 HANDHOLE

Description. This item must consist of furnishing and installing a handhole at the location shown on the plans or as diverted by the Engineer.

Material. Materials must be according to Section 814 of the Standard Specifications for Road and Bridge Construction, current version, must apply to this pay item. The outside cover must contain a legend "IDOT TSC", or "IDOT TRAFFIC", or "IDOT LIGHTING" as directed by the Engineer.

Installation. The installation of a handhole must meet the requirements of Section T428 of the Traffic Specifications, except as follows: All concrete handholes are to be cast in place against undisturbed earth. No precast concrete handholes will be accepted. All conduits must enter the handhole at a depth of 30 in. except for the conduits between the curb and first handhole for detector loops when the handhole is less than 5 ft. from the detector loop.

Basis of Payment. This work must be paid for at the contract unit price (each) for:

GH01 HANDHOLE

GH02 HANDHOLE, FIBER OPTIC

GH03 HANDHOLE, HEAVY-DUTY

GH04 HANDHOLE, HEAVY-DUTY, DOUBLE

which price must be payment in full for all necessary excavating, backfilling, disposal of unsuitable materials, and furnishing all materials within the limits of the handhole.

GH05 HANDHOLE, HEAVY-DUTY, SPECIAL

Description. This item must consist of constructing a heavy-duty handhole, special extra-large cast in place, complete with heavy-duty frame and cover and in accordance with the following requirements and conforming in all respects to the lines, grades, and dimensions shown on the plans or as directed by the Engineer. All handholes must be installed in accordance with the Standard Specifications for Road and Bridge Section 814 and TSC Typical TY-1TSC-400#15.

Materials. All materials must conform to Section 1088.05 and 1088.06 of the Standard Specifications for Road and Bridge Construction. All handholes must be constructed of Class S1 concrete meeting the requirements of the Standard Specifications for Road and Bridge Construction Article 1020.

Construction Details. Handhole of the type specified must be constructed in accordance with the details shown on the plans and conform to the following requirements:

Concrete. Concrete construction must be done in accordance with the provisions of Concrete for Structures and Incidental Construction contained in the Standard Specifications for Road and Bridge Construction, Section 503.

Placing Castings. Castings must be set accurately to the finished elevation so that no subsequent adjustment will be necessary. Castings must be set flush with a sidewalk or pavement surface. When installed in an earth shoulder away from the pavement edge, the top surface of the casting must be 25.4 mm (1 inch) above the finished surface of the ground.

Backfilling. Any backfilling necessary under a pavement, shoulder, and sidewalk or within 60 cm (2 feet) of the pavement edge must be made with sand or stone screenings.

Forming. Forms will be required for the inside face of the handhole wall, and across all trenches leading into the handholes excavation. The ends of conduits leading into the handhole must fit into a conduit bell which must fit tightly against the inside form and the concrete must be carefully placed around it prevent leakage. Handhole walls shall be 10 inches.

French Drain. A French Drain conforming to the dimensions shown on the plans must be constructed in the bottom of the handhole excavation.

Steel Hooks. Each handhole must be provided with four galvanized steel hooks of appropriate size, one on each wall of the handhole excavation.

Frame and Cover. The outside of the cover must contain a Type "G": handle for lifting and a legend "IDOT" "TSC" cast in. Frame must be HD F&C 184 Kg (405 lbs.)

Hinges. Type "T" hinges required only on heavy duty special only.

Cleaning. The handhole must be thoroughly cleaned of any accumulation of silt, debris, or foreign matter of any kind, and must be free from such accumulations at the time of final inspection.

Basis of Payment. This work must be paid at the contract unit price (each) for a HANDHOLE, HEAVY-DUTY, SPECIAL, which price must be payment in full for all necessary excavating, backfilling, disposal of surplus material and form work, frame, and cover, and furnishing all materials within the outside limits of the handhole.

GH06 HANDHOLE, REMOVE

Description. This work must consist of removing the frame and cover of an existing handhole, breaking off the top section of the handhole wall to a minimum depth of 6 inch below the surrounding grade, or as specified, disposing of the concrete debris outside the right-of-way, backfilling the hole with approved material, reconstructing the surface to match the adjoining area, and disposing of the frame and cover as directed by the Engineer. If the handhole is located in the sidewalk area, the entire sidewalk square or squares where the handhole is located must be replaced with new sidewalk per applicable contract pay items.

Method of Measurement. Handhole to be removed must be tallied as each.

Basis of Payment. This work must be paid for at the contract unit price (each) for HANDHOLE, REMOVE which price must be payment in full for all labor and materials necessary to complete the work as described herein.

GH07 HANDHOLE, REBUILD OR MODIFY TO HEAVY-DUTY TYPE

Description. This item must consist of rebuilding and bringing to grade a handhole at a location shown on the plans or as directed by the Engineer. Also covered is the modification of an existing handhole to be reconstructed to the specifications of heavy-duty handhole including new frame and cover, at location(s) shown in the plans or as directed by the Engineer.

General. The work must consist of removing the handhole frame and cover and the wall of the handhole to a depth of 203.2 mm (8 in.) below the finished grade. Upon completion, four (4) holes, 101.6 mm (4 in.) in depth and 12.7 mm (1/2 in.) in diameter, must be drilled into remaining concrete; one hole centered on each of the four handhole walls. Four (4) #3 steel dowels, 203.2 mm (8 in.) in length, must be furnished and must be installed in the drilled holes with a masonry epoxy. All concrete debris must be removed from State right-of-way to a location approved by the Engineer. The area adjacent to each side of the handhole must be excavated to allow forming. All steel hooks, handhole frame, cover, and concrete must be provided to construct a rebuilt handhole according to applicable portions of Section 814 of the Standard Specification for Road and Bridge Construction. The existing frame and cover must be replaced if it was damaged during removal or as determined by the Engineer.

Any pavement or asphalt surface removal required to install the new concrete must have straight and neat edges using a method approved by the Engineer. Care must be taken to protect the existing cable. Any cable damaged must be reported immediately and repaired as directed by the Area System Engineer.

Method of Measurement. Each handhole, which is rebuilt or reconstructed to a heavy-duty handhole, must be counted as a unit of payment.

Basis of Payment. This work must be paid for at the contract unit price (each) for HANDHOLE, REBUILD OR MODIFY TO HEAVY-DUTY TYPE, which price shall be payment in full for all labor, materials, and equipment necessary to complete the work described above and as indicated on the drawings.

GJ01 JUNCTION BOX AND ALL APPURTENANCES, REMOVE

Description. This work must consist of completely removing an existing junction box and all appurtenances, being careful not to damage those existing conduits which will be re-used in the system. In case of an existing conduit being damaged, a new conduit will be furnished in place. The repair work must not be paid for separately but must be incidental to this bid item. The junction box and cover must be disposed of as directed by the Engineer and all debris removed beyond the right-of-way.

Method of Measurement. Each junction box, which is removed including all appurtenances, must be counted as a unit of payment.

Basis of Payment. This work must be paid for at the contract unit price (each) for JUNCTION BOX AND ALL APPURTENANCES, REMOVE, which price must be payment in full for all labor and material necessary to complete the work as described above.

GJ02 – GJ03 JUNCTION BOX, STAINLESS STEEL

Description. This item must consist of furnishing and installing a stainless-steel junction or pull box of the size indicated in locations shown on the contract drawings and as directed by the Engineer. It is not intended to use for installation of fixture.

Section 813 and 1088 of the Standard Specifications for Road and Bridge Construction, current version, must apply to this pay item with the following exceptions: Revise the second sentence of the third paragraph of Article 1088.04 of the Standard Specifications to read: "The gasket must be extruded directly onto the junction box cover."

Basis of Payment. This work must be paid for at the contract unit price each for:

GJ02 JUNCTION BOX, STAINLESS STEEL, UP TO 6 INCH DEPTH

GJ03 JUNCTION BOX, STAINLESS STEEL, 10 INCH DEPTH

of the size indicated, which must be payment in full for the work as described herein.

GLH1 – GLH3 LABOR HOURS

Description. This item must consist of providing a fixed hourly rate of labor for qualified personnel to perform work within District 1 on any system at any location as approved by the Engineer. Bid price hourly rate must be inclusive of all overhead, profit, travel time and all other costs not specified herein. Hours of work must only be counted for actual work performed at the site as requested by the Engineer. The hourly rate must include the equipment and test instruments to perform work. The Contractor must submit a fixed hourly rate that will be utilized for any project or work under this Contract.

GLH1: Union Certified Electrician/Journeyman or equivalent to troubleshoot, repair, remove or install electrical equipment in accordance with NEC 2024.

GLH2: Maintenance Helper or equivalent must be proficient in MS Office Suite, must perform work of entering or importing data into spreadsheets and databases, and scanning documentation, also may assist a Journeyman Electrician and or Foreman on major projects or independently performs routine electrical work including, but not limited to replacing outlets, switches, and ballasts, removing, and replacing light fixtures; and repairs of minor electrical equipment and systems.

GLH3: Foreman must be a certified electrician with a minimum of 5 years' experience as Electrician and 3 years as Foreman in a lead role who oversees planning and implementation of large electrical projects leading skilled Electricians in the installation, alteration, maintenance, and repair of electrical systems and equipment.

Method of Measurement. The measurement for payment in Hour increments must be made for labor performed as directed and approved by the Engineer shall be counted as a unit for payment.

Basis of Payment. This item must be paid at the contract unit price (per hour) for:

GLH1 Certified Electrician/Journeyman

GLH2 Maintenance Helper

GLH3 Foreman

GRM1 ROUTINE MAINTENANCE ADDITIONAL LOCATION

Description. This pay item provides a monthly payment for each additional location of equipment maintained, each month, (maintained on-maintenance on the last day of the month) that exceeds the total of 6206 locations (5706 of existing equipment locations as listed for bidding in the Schedule of Prices, plus the 500 Planned Locations).

Method of Measurement. The Contractor must provide the Engineer monthly, an Excel spreadsheet, The Routine Maintenance Quantity Report, which shows number of all locations maintained each month.

Basis of Payment. The work must be paid at the contract unit price (each) for ROUTINE MAINTENANCE ADDITIONAL LOCATION, maintained on the last day of each month, in a calendar year, which exceeds 6206 equipment locations maintained by the Contractor per month, which must be payment in full for completing the work as described.

GTC1 – GTC2 TRAFFIC CONTROL

Description. This item of work must include furnishing, installing, maintaining, replacing, relocating, and removing all traffic control devices used for the purpose of regulating, warning, or directing traffic on Expressway during special maintenance or special construction activities throughout this Contract (since most traffic control is paid through routine maintenance).

The Engineer must determine when this pay item is used. The Contractor must contact the District One Bureau of Traffic in advance of beginning work as specified herein.

Basis of Payment. This work must be paid for at the contract unit price “per each” for:

GTC1 SINGLE LANE TRAFFIC CONTROL

GTC2 TWO LANE TRAFFIC CONTROL

of the closure type indicated, which price must be payment in full for all labor to install, maintain, replace, relocate, and remove all traffic control devices as directed by the Engineer.

Delays to the Contractor caused by complying with these requirements will be considered incidental to the item for traffic control and no additional compensation will be allowed for daytime or nighttime closures (or for traffic lanes or ramp closure) on the expressway.

GU01 – GU03 ELECTRIC CABLE ASSEMBLY WITH XLP INSULATED CABLES

Description. This item must consist of furnishing, installing, splicing, connecting, and testing of electric cable in non-metallic raceway with warning tape of sizes specified herein and as shown on the contract drawings. The non-metallic raceway must be an assembly of insulated conductors, which are factory preinstalled in a continuous flexible plastic duct. Article 810.04 must apply for non-metallic raceway and warning tape installation. The non-metallic raceway must be manufactured and installed in accordance with NEC Article 354.

As stated in NEC Article 354.12, the non-metallic raceway must not be used in exposed locations, and inside buildings except for termination purposes, and in hazardous (classified) locations.

Section 816 of the Standard Specifications for Road and Bridge Construction, current version, must apply to this pay item.

Method of Measurement. The non-metallic raceway must be measured for payment in (foot in place). Measurements will be made in straight lines between changes in direction and to the centers of equipment and boxes access points. 10 feet will be allowed when terminating cable at a controller. Three feet of slack will be allowed at light pole, handholes, pull boxes, junction boxes, and similar locations.

All vertical non-metallic raceway must be measured for payment. The vertical distance required for breakaway devices, barrier walls, concrete pedestals, etc., and the depth of any burial will be measured. Changes in direction must assume perfect straight line runs, ignoring actual raceway sweeps.

Basis of Payment. This item must be paid at the contract unit price (per linear foot) for:

GU01 ELECTRIC CABLE ASSEMBY, WITH XLP INSULATED CABLES, 3/C NO.6 & 1/C NO.8 GREEN, 1”

GU02 ELECTRIC CABLE ASSEMBLY, WITH XLP INSULATED CABLES, 3/C NO.5 & 1/C NO.6 GREEN, 1 ¼”

GU03 ELECTRIC CABLE ASSEMBLYH XLP INSULATED CABLES, 3/C NO.2 & 1/C NO.6 GREEN, 1 ½”

of the size of duct as indicated, which must be payment in full for all material and work as specified herein.

Changes in direction must assume perfect straight line runs, ignoring actual raceway sweeps.

GVB1 BUDGETARY ALLOWANCE FOR ELECTRICAL MAINTENANCE

Description. This item is to establish a budget account to allocate funds for the payment of repairs and replacement of electrical equipment or work on electrical systems, including the EMCMS, which at the time of bidding is not identifiable.

Work must be applicable to equipment at locations covered in this contract and maintained as specified herein. This item establishes a budget account to allocate funds for the payment of various types of vendor work/repair or replacement services.

The total estimated amount of the annual expenses for services performed which must be paid under this Contract, is \$700,000 as indicated for Pay item GVB1. For bidding purposes this amount must be used.

LIGHTING SYSTEM ITEMS

LA01 ARM, OR TWIN ARM WITH LUMINAIRE, INSTALL ONLY

Description. This item must consist of retrieving from EMC storage facility, loading, and installing, one or two mast arms or twin arm with luminaire(s) and associated hardware on one light pole, as specified herein, at locations designated by the Engineer. Furnished arm(s) and/or luminaire(s) shall be paid separately.

Installation. Installation must be in accordance with Article 830 of the Standard Specifications for Road and Bridge Construction, current version.

The mast arm or arms must be set at right angles to the centerline of the pavement, unless otherwise shown on the plan.

Each arm must be mounted as indicated and as required for the permanent installation, or temporary lighting on wood pole installation.

This item must be coordinated with the applicable luminaire (with pole wire and fusing), foundation and anchor bolts, breakaway device (if applicable) which shall be provided under separate pay items, as applicable.

The installation must be complete with pole wire, fusing and connection to the applicable lighting feeder circuits, all incidentals to this item.

Arms must not be installed until luminaires are available for installation, which must be at the same time the pole is installed. This item must not be paid unless the coordinated assembly of the pole and luminaire is installed, complete.

The manufacturer's recommendations must be followed during the installation process. The wiring connections must be made in accordance with the National Electric Code. The Contractor must energize the system to assure that all the components are working in accordance with their specifications and carrying rated load.

Method of Measurement. Arm, or twin arm, with luminaire(s), on light pole, must be counted (each) installed.

Basis of Payment. This item must be paid at the contract unit price (each) for ARM, OR TWIN ARM WITH LUMINAIRE, INSTALL ONLY, which must be payment in full for installing the item as specified herein.

LA02 MAST ARM, OR TWIN MAST ARM

Description. This item must consist of furnishing and installing, new, one or two mast arms or twin arm with luminaires(s) and associated hardware on one light pole, as specified herein, at locations designated by the Engineer.

Installation. Installation must be in accordance with Article 830 of the Standard Specifications for Road and Bridge Construction, current version.

The mast arms must be set at right angles to the centerline of the pavement, unless otherwise shown on the plan.

Each arm must be mounted as indicated and as required for the permanent installation, or temporary lighting on wood pole installation.

This item must be coordinated with the applicable luminaire (with pole wire and fusing), foundation and anchor bolts, breakaway device (if applicable) which must be provided under separate pay items, as applicable.

The installation must be complete with pole wire, fusing and connection to the applicable lighting feeder circuits, all incidentals to this item.

Arms must not be installed until luminaires are available for installation, which must be at the same time the pole is installed. This item must not be paid unless the coordinated assembly of the pole and luminaire is installed, complete.

The manufacturer's recommendations must be followed during the installation process. The wiring connections must be made in accordance with the National Electric Code. The Contractor must energize the system to assure that all the components are working in accordance with their specifications and carrying rated load.

Method of Measurement. Arm, or twin arm, with luminaire(s), on light pole, must be counted (each), installed.

Basis of Payment. This item must be paid at the contract unit price (each) for ARM, OR TWIN ARM WITH LUMINAIRE, which must be payment in full for installing the item as specified herein.

LB01 BREAKAWAY DEVICE, T-BASE

Description. This item must consist of furnishing and installing a breakaway device, transformer base, height specified, for standard, davit, or painted davit light pole, with all associated hardware, as specified herein.

This item must also include replacement of the old-style breakaway coupling to a T-Base Type.

The existing breakaway coupling and other appurtenances must be removed and any necessary modifications made to the foundation such as grinding down the concrete to expose more of the anchor bolts is part of this pay item.

Materials. Materials must be according to Article 1070.04 of the Standard Specifications for Road and Bridge Construction, current version, except that certification must be submitted from the supplier that the device used under the conditions of the particular design meets the 1985 AASHTO breakaway specification.

Breakaway device and transformer base information submitted for approval must include any recommendations of the Manufacturer for storage as provided under this contract.

The packaging of the breakaway devices, transformer bases, must incorporate the provisions recommended by the Manufacturer to accommodate storage.

Revise the second sentence of Article 1070.04(a)(1) of the Standard Specifications to read:

“Certification must be submitted from the supplier that the device used under the conditions of the particular design meets the 1985 AASHTO breakaway specification.”

The breakaway device, transformer base for a painted davit light pole is normally installed on the Kennedy Expressway at Power Center C & D. The height, top and bottom bolt circle as specified on the plan submitted must be used as part of this pay item.

MATERIALS FOR PAINTED DAVIT LIGHT POLES ONLY:

Preparation. Components must receive a mild etch solvent cleaning.

Primer. Components must receive two (2) coats of epoxy primer. The primer must be a polyamide white epoxy primer with a corrosion inhibitor having a solid content by volume, of not less than 65% (+/3%). Each coat must be applied in a 3-5 dry MIL thickness.

Finish Coat. Components must receive one finish coat of aliphatic urethane enamel having a solid content, by volume, of not less than 58% (+/3%). The finish coat must have a dry MIL thickness of 1.5-2.5 mils. The color of the finish paint must match that of the existing State-owned davit poles which is Benjamin Moore Iron Clad Bronzitone No. 16360. A sample of the proposed paint color must be submitted for approval to the Engineer.

General. The cleaning and finish work must be performed indoors, under conditions of controlled temperature, humidity, and dust in full conformance with the paint manufacturer's recommendations, and in the presence of an authorized representative of the paint manufacturer.

The paint manufacturer must certify, in writing that the preparation and finishing of the breakaway transformer base housings has been done properly and in conformance with the Manufacturer's recommendations, and must furnish this certification, together with its standard warranty in triplicate, when the finishing is complete.

A certification from the paint manufacturer, attesting the intent to witness the finishing operation and to provide the above-referenced certification together with a copy of the paint manufacturer's standard warranty must be included with the pole submittal information.

Installation. Installation must be in accordance with Section 838 of the Standard Specification for Road and Bridge Construction, current version.

Manufacturer's recommendations must be followed during the installation process.

Add the following to Article 838.03(a) of the Standard Specifications:

"All nuts, bolts, washers, and lock washers required for the installation of the transformer base to the pole must be included as a part of this item."

When changing from the old-style break away devices to a t-base style the anchor rods may not be exposed long enough to engage the mounting nuts properly, the top of the concrete foundation must need to be grounded down to expose enough anchor rod for the mounting nuts to engage properly, this work must be incidental to the pay item.

Method of Measurement. Breakaway device, transformer base of the height, top and bottom bolt circle diameter specified for standard, davit, or painted davit light pole, must be counted, (each), furnished and installed.

Basis of Payment. This item must be paid at the contract unit price (each) for BREAKAWAY DEVICE, T-BASE, FURNISH AND INSTALL, with all associated hardware, of the bolt circle and height as specified, which must be payment in full for furnishing the item as specified herein.

LBB1 BREAKER, BRANCH 20A TO 70A

Description. This item must consist of furnishing and installing a circuit breaker, regular or GFI type, of the amperage and number of poles specified, with all associated hardware, for overload and short circuit protection for conductors and connected apparatus, as specified herein, as shown on the plans, (where applicable), or as directed by the Engineer.

Material. Unless otherwise indicated, circuit breakers must be standard UL-listed molded case, thermal-magnetic bolt-on type circuit breakers with trip-free indicating handles.

Unless otherwise indicated, circuit breakers must have a UL-listed interrupting rating of not less than 10,000 rms symmetrical amperes at rated circuit voltage for which the breaker is applied. All breakers must be equipped with auxiliary dry contacts. These contacts may be on the breaker body or off a breaker-attached device. Contacts must be in normally open configuration.

Installation. The branch breaker must be installed into the panel in accordance with the manufacturer's recommendation and in accordance with the National Electrical Code, as indicated on the plan drawing (if applicable) or as directed by the Engineer. All the connections must be tight to prevent any arcing. The branch breaker must be labeled to indicate circuits. The auxiliary contact switch, if used, must be wired as directed by the Engineer.

Method of Measurement. Breaker, branch, must be counted, (each), as a unit of payment, furnished and installed.

Basis of Payment. This item must be paid at the contract unit price (each) for a BREAKER, BRANCH, 20a TO 70a, of the amperage and number of poles specified, which must be payment in full to provide an installation, complete and operating.

LBB2 BREAKER, MAIN 80A TO 250A

Description. This item must consist of removing (if upgrading), furnishing, and installing a main breaker, amperage and number poles as per plan or specified for overload and short circuit protection for conductors and connected apparatus as specified herein. All feeders, branch circuits, auxiliary, and control circuits must have overcurrent and short circuit protection for conductors and connected apparatus. Unless otherwise indicated, the overcurrent protection must be by means of circuit breakers.

Materials. Unless otherwise indicated, main breakers must be standard UL-listed molded case, for reverse feed applications, thermal-magnetic bolt-on type circuit breakers with trip-free indicating handles. Unless otherwise indicated, main breakers must have a UL-489 interrupting rating of not less than 35,000 rms symmetrical amperes at 480 volts and 65,000 rms symmetrical amperes at 240 volts. Multi-pole main breakers larger than 100 amps size must have instantaneous adjustable magnetic trip settings. The main breaker must be equipped with auxiliary contacts.

Removal. Prior to the removal of any equipment, the Contractor must arrange an inventory inspection with the Engineer. All equipment must be inspected and logged as to type, size and condition. No removal work must be permitted without approval from the Engineer. Any damage resulting from the removal and/or transportation of the main breaker must be repaired, to its original condition, or replaced in kind, at the Contractor's own expense, to the satisfaction of the Engineer.

Installation. Unless otherwise indicated, power wiring must be of the size specification for the corresponding service conductors and must be rated RHH/RHW, 600 volts and tagged with the self-sticking cable markers. The labor and material to make the appropriate terminal connections in the cabinet as directed by the Engineer must be incidental to this pay item.

The manufacturer's recommendations shall be followed during the installation process. The wiring connections must be made in accordance with the National Electric Code. The Contractor must organize the system to assure that all the components are working in accordance with their specifications and carrying rated load. The main lugs must be secured in line with Underwriters' Laboratories standards to prevent lugs from turning or loosening when incoming cables are installed. The current carrying parts must be secured in place to prevent flexing and loosening or damage during and after installation. At the branch circuit, breakers and associated wiring must be labeled to identify the location of equipment and/or loads used. The auxiliary contact switch, if used, must be wired as directed by the Engineer.

Method of Measurement. Main breaker must be counted, each, furnished and installed.

Basis of Payment. This item must be paid at the contract unit price each for BREAKER, MAIN 80A TO 250A, which must be payment in full for furnishing and installing a main breaker as shown on the plan and as specified herein, with all related hardware necessary to provide a complete installation.

LBT1 BUCK-BOOST TRANSFORMER

Description. This item must consist of furnishing and installing a single-phase buck-boost transformer of KVA specified complete with all the appurtenances and all required hardware, connecting cables and terminal connections as specified herein and as directed by the Engineer. The unit(s) may be installed on a sign structure or on a bridge structure or in a lighting control cabinet or at a location specified by the Engineer. Units are single-phase but can be installed as a three-phase bank.

General Requirements. The buck-boost transformer is used as an autotransformer for slight upward (boost) or downward (buck) adjustments in voltage. Buck-boost transformers are encapsulated designs with totally enclosed, non-ventilated enclosures. In an autotransformer, the primary and secondary are electrically and mechanically connected together. Autotransformers can be used only where local electrical codes permit and isolation of the two circuits are not required.

Material. The transformers must be UL listed and/or CSA approved to meet or exceed all applicable NEMA, ANSI, UL, OSHA, and CSA requirements. The enclosure shall be NEMA 3R suitable for indoor/outdoor applications, coated with a UL approved ASA-61 gray finish. The transformer must be encapsulated with electrical grade epoxy and silica sand to completely seal the core and coil from moisture and contaminants. It must be tested in accordance with the latest issue of UL 506 and CSA C22.2 No. 47. The conductor material must be copper, and the insulation must be rated for class 180 degrees Celsius.

Installation. Unless otherwise indicated, power wiring must be of the size specified for the corresponding service conductors and must be rated RHH/RHW, 600 volts and tagged with the self-sticking cable markers. The labor and material to make the appropriate terminal connections in a junction box as directed by the Engineer shall be incidental to this pay item.

The manufacturer's recommendations must be followed in the installation. The wiring connections must be made in accordance with the National Electric Code. The Contractor must energize the system to assure that all the components are working in accordance with their specifications and carrying rated load. The Contractor must provide the electrical data as specified and directed by the Engineer.

Method of Measurement. Buck-Boost transformer must be counted, (each), as specified, furnished, and installed.

Basis of Payment. This item must be paid at the contract unit price (each) for a single-phase BUCK-BOOST TRANSFORMER, of the KVA specified, which shall be payment in full for furnishing all labor, materials and equipment to install the transformer(s) and related appurtenances necessary to provide a complete and operational installation.

LC01 CONTROLLER, DUPLEX CONSOLE, WITH RADIO

Description. This item must consist of furnishing and installing a roadway lighting controller, duplex console type with radio control and associated wiring for control of highway lighting and delivering to storage a lighting controller, as specified herein. All work must be according to the Article 7 – Lighting System in Section 1 and Standard Specification for Road and Bridge Construction.

Method of Measurement. Each lighting controller, duplex console type, with radio control, inspected and approved by the Engineer, must be counted, (each), as a unit for payment, furnished and installed.

Basis of Payment. This item must be paid at the contract unit price (each) for CONTROLLER, DUPLEX CONSOLE TYPE, WITH RADIO, which must be payment in full for furnishing and installing the lighting controller, complete, as specified herein.

LC02 CONTROLLER, DUPLEX CONSOLE, WITHOUT RADIO

Description. This item must consist of furnishing and installing a roadway lighting controller, duplex console type, without radio control, including associated wiring, for the control of highway lighting, as specified herein. All work must be according to the Article 7 – Lighting System in Section 1.

Method of Measurement. Lighting controller, duplex console type, without radio, must be counted, (each), as a unit for payment, furnished and installed.

Basis of Payment. This item must be paid at the contract unit price (each) for CONTROLLER, DUPLEX CONSOLE, WITHOUT RADIO CONTROL, which must be payment in full for furnishing and installing the lighting controller, complete, as specified herein.

LC03 CONTROLLER, LIGHTING, INSTALL ONLY

Description. This item must consist of retrieving from State's storage facility, loading, transporting, and installing a lighting controller complete with all the appurtenances and all required hardware as specified herein, at locations designated by the Engineer. The lighting controller and foundation must be paid separately. The Contractor must transport, handle and store (as applicable) the lighting controller in complete conformance with the manufacturer's recommendations and as directed by the Engineer.

Installation. The lighting controller must be installed as shown on the contract plans or as directed by the Engineer. The installation work must be in accordance with Section 825 of the Standard Specifications for Road and Bridge Construction, current version, except the foundation will be paid separately.

Manufacturer's recommendations must be followed during the installation process. The wiring connections must be made as shown on the drawings and in accordance with the National Electrical Code. The Contractor must energize the lighting controller to assure that all the components are working in accordance with their specifications and carrying rated load.

Method of Measurement. Lighting controller must be counted of the type specified, (each), installed.

Basis of Payment. This item must be paid at the contract unit price (each) for CONTROLLER, LIGHTING, INSTALL ONLY, of the type specified, which must be payment in full for the complete installation as specified herein.

LC04 CONTROLLER, LIGHTING, REMOVE AND SALVAGE

Description. This item must consist of disconnecting, completely removing, transporting to the State's storage facility, unloading as salvage, and stacking or boxing if necessary, and all types of existing lighting controller or designated components thereof, as specified herein. Proper documentation of the State's salvage is required in this pay item.

General. Prior to the removal of any equipment, the Contractor must arrange an inventory inspection with the Engineer. All equipment must be inspected and logged as to type, size, and condition.

No removal work must be permitted without approval from the Engineer. Direct buried underground electric cables need not be removed. Cables which are abandoned must be cut one foot below ground level. Cables in non-metallic raceway must be removed from the duct, or as designated by the Engineer. Duct must be abandoned and cut one foot below ground level.

Except as otherwise indicated, the cabinet, control equipment, and all associated hardware and appurtenances must remain the property of the Department and shall be delivered to the State's storage facility as directed by the Engineer.

Unless otherwise directed by the Engineer, the concrete foundation must be removed to at least two feet below grade and disposed of off the job site. The underground conduits and cables must be separated from the foundation at 2.5 feet below grade and abandoned. The space caused by the removal must be backfilled with trench backfill in accordance with Section 815 of the Standard Specifications.

Any damage resulting from the removal and/or transportation of the controller, control equipment, and associated hardware, must be repaired to its original condition, or replaced in kind, at the Contractor's own expense, to the satisfaction of the Engineer. The Engineer must be the sole judge to determine the extent of damage.

Method of Measurement. Each lighting controller, and all associated control equipment, which is removed, delivered to storage, unloaded, inspected, stacked, and documented properly, must be counted as a unit for payment.

Basis of Payment. This item must be paid at the contract unit price (each) for existing CONTROLLER, LIGHTING, REMOVE AND SALVAGE, which must be payment in full for the work specified herein.

LC05 CONTROLLER, SINGLE DOOR, CONSOLE, WITHOUT RADIO

Description. This item must consist of furnishing and installing a roadway lighting controller, single door., console type, without radio control, including associated wiring, for the control of roadway lighting, as specified herein. All work must be according to the Article 7 – Lighting System in Section 1.

Method of Measurement. Lighting controller, single door enclosure, console type, without radio control, must be counted, (each), as a unit for payment, furnished and installed.

Basis of Payment. This item must be paid at the contract unit price (each) for CONTROLLER, SINGLE DOOR, CONSOLE, WITHOUT RADIO, which must be payment in full for furnishing and installing the controller, as specified herein.

LC06 CONTROLLER, COMBINATION LIGHTING

Description. This item must consist of furnishing and installing a roadway lighting controller, mounted on traffic signal cabinet for combination lighting and associated wiring as specified herein.

Material. The lighting controller must be as follows:

Enclosure: The completed controller must be an industrial control panel NEMA 4X with an overall dimension of 20" X 16" X 8" as shown on the plan and must comply with UL 508 standards. The enclosure must be made from molded fiberglass polyester with fray finish and enhanced with UV inhibitors to protect against outdoor weathering. The door fasteners must be stainless with butterfly type twist lock including a provision for padlocking.

Electrical Components: Refer to the figure L-21 BE – 235 or latest for cabinet wiring diagram and list of components. Article 1068 (d), and € of the Standard Specification for Road and Bridge Construction, current revision must apply to this pay item.

Installation. The lighting controller installation must be according to the details, location, and orientation shown on the plan.

Method of Measurement. Each lighting controller, combination type, inspected and approved by the Engineer, must be counted (each), as a unit for payment, furnished and installed.

Basis of Payment. This item must be paid at the contract unit price (each) for CONTROLLER, COMBINATION LIGHTING, which must be payment in full for furnishing and installing the lighting controller, complete, as specified herein.

LCL1 CLOCK, DIGITAL ASTRONOMICAL

Description. This item must consist of removing, furnishing, and installing, a solid state digital astronomical time clock with necessary contactors for control of lighting, as specified herein. All boxes required for proper storage must be included in this item.

Materials. Article 1068.01 (e) (1) of the Standard Specifications for Road and Bridge Construction, current version, must apply to this pay item. The timing of the unit must be synchronous with the 60-Hertz power line frequency.

Installation. The contractor must transport and handle the digital time switch in complete conformance with the manufacturer's recommendations. Manufacturer's recommendations must be followed during the installation process.

The contact rating of the time switch must be sufficient to energize the contactor. If an external relay is needed to energize the contactor, then the relay, wiring, and installation must be incidental to this pay item.

The digital astronomical time switch must be installed inside the lighting controller or as indicated on the plan drawing and wired accordingly. It must be programmed to set time of the day and set other functions to operate the lighting.

Method of Measurement. Digital astronomical clock, furnished, removed, and installed must be counted (each) for payment.

Basis of Payment. This item must be paid at the contract unit price (each) for a CLOCK, DIGITAL ASTRONOMICAL, which must be payment in full for furnishing and installing as specified herein.

LCN1-LCN2 CONTACTOR

Description. This item must consist of furnishing and installing a lighting contactor, with number of poles, with or without an auxiliary switch contact, as per plan and wiring for control of lighting as specified herein.

Material. Article 1068.01€ (4) of the Standard Specifications for Road and Bridge Construction, current version, must apply to this pay item with the following exception:

Revise the first sentence of Article 1068.01(e)(4) of the Standard Specifications to read:

“Contactors must be electrically operated, mechanically held as Specified, with the number of poles required for the service and with operating coil voltage as indicated.”

Ampere rating of contactors must be not less than that required for the duty shown and shall otherwise be rated as indicative.

Contactors must come equipped with normally open, dry, auxiliary contacts. A device attached to the CAM of the contactor may provide these contacts. Unless otherwise indicated, the contactor operating coil must operate at 240 volts, single phase and contactors furnished under this specification must be with continuous rating as specified per pole at 480 Volts AC.

Installation. The lighting contactor must be carefully installed in accordance with the manufacturer’s recommendation and in accordance with the design requirements represented on the plans. The wire sizes listed on the manufacturer’s catalog must be utilized and it must meet the National Electrical Code. The proper electrical clearance between the live metal parts and grounded metal must be maintained. The proper size wire must be used for control circuit connections designated “L”, “O” and “C” supplied with clamp type terminals. The auxiliary contact, if used, must be wired as directed by the Engineer.

Method of Measurement. Lighting contactor must be counted, (each), as a unit of payment, furnished and installed.

Basis of Payment. This item must be paid at the contract unit price (each) for LIGHTING CONTACTOR, of the amperage indicated below, which must be payment in full for furnishing and installing the lighting contactor.

LCN1 CONTACTOR, 125A TO 250A

LCN2 CONTACTOR, 30A TO 100A

LD01-LD04 DECAL SET, LIGHTING UNIT

Description. This item must consist of furnishing and installing, a lighting unit identification decal set for a pole or underpass, a lighting unit identification decal set including bracket for underpass mounting, a lighting unit identification decal set for a light tower with painted surface only, or a light tower which has a camera mounted on the luminaire ring, at installations and at heights as designated by the Engineer. This work must also include the removal of all existing decals as necessary to complete the installation in a neat and aesthetically pleasing manner.

Materials. Article 1069.06 of the Standard Specifications for Road and Bridge Construction, current version, must apply to this pay item.

Installation. Underpass luminaires, including appurtenances, identification brackets and conduit, and associated anchors, must not be attached and/or drilled into precast, prestressed concrete beams. However, existing anchors, which have been installed improperly, must be left in place. (Removal of such would cause more damage to the beam, than leaving the anchors in place). Articles 830.03, 835.02, and 844.03 of the Standard Specifications for Road and Bridge Construction, current version, must apply to this pay item.

Method of Measurement. Lighting unit identification decal set must be counted (each), furnished and installed.

Basis of Payment. This item must be paid at the contract unit price (each) for furnishing and installing an IDENTIFICATION (ID) DECAL SET, of the size per maximum character mounting as described below, which must be payment in full for the work as specific herein.

LD01 DECAL SET, LIGHTING UNIT, POLE, 4 INCH, MAX 10 CHARACTERS

LD02 DECAL SET, LIGHTING UNIT, TOWER, 8 INCH, MAX 10 CHARACTERS

LD03 DECAL SET, LIGHTING UNIT, TUNNEL OR UNDERPASS WITH BRACKET, 4 INCH, MAX 10 CHARACTERS

LD04 DECAL SET, LIGHTING UNIT, TOWER WITH CAMERA, 4 INCH, MAX 10 CHARACTERS

LDS1 DISCONNECT SWITCH

Description. This item must consist of removing, furnishing, and installing a disconnect switch, as directed by the Engineer.

Materials. The disconnect switch must be 600 volt, 2-pole, or 3-pole, up to 60-ampere, fusible, with solid neutral in a NEMA 4X stainless steel enclosure, complete with 20 amperes, 600-volt, dual element, time delay 4L, Class R fuses, having a UL listed interrupting rating of not less than 200,000 rms symmetrical amperes at rated voltage and suitable for use as service equipment for building.

Fuse holders must be standard type fuse holders complete with fuses. All electrical materials must conform to Article 1065, latest version of Standard Specification for Road and Bridge Construction. Raceways must be as detailed on the plans. Wire from the base fuse to the disconnect switch and to the sign luminaires must be as specified for pole wire.

The fuse at the base of the sign structure must be 30 amperes with a solid neutral assembly.

Removal. Prior to the removal of any equipment, the Contractor must arrange an inventory inspection with the Engineer. All equipment must be inspected and logged as to type, size, and condition.

No removal work must be permitted without approval from the Engineer. Any damage resulting from the removal and/or transportation of the controller, control equipment, and associated hardware, must be repaired to its original condition, or replaced in kind, at the Contractor's own expense, to the satisfaction of the Engineer.

Installation. The Contractor must provide all equipment, transportation, and labor necessary to install the equipment as specified. New wiring, conduit and luminaires will be paid by separate pay items specified elsewhere herein.

Manufacturer's recommendations must be followed during the installation process. The wiring connections must be made as shown on the drawings and in accordance with the National Electrical Code. The Contractor must energize the disconnect switch to assure that all the components are working in accordance with their specifications and carrying rated load.

Method of Measurement. Removing, furnishing, and installing each DISCONNECT SWITCH for a sign unit or State-owned facilities as specified above.

Basis of Payment. This work must be paid at the contract unit price (each) for removing, furnishing, and installing a DISCONNECT SWITCH, which must be payment in full for the work specified herein.

LDS2 ON/OFF SWITCH

Description. This item must consist of furnishing and installing ON/OFF switch, the removal of old switch is incidental, as directed by the Engineer.

Materials. The ON/OFF switch must be 600-volt, 2-pole, 3-pole, 2-way, or 3-way, up to 20 amperes, having a UL listed interrupting rating of not less than 20,000 rms symmetrical amperes at rated voltage and suitable for building.

All electrical materials must conform to Article 1065, latest version of Standard Specifications for Road and Bridge Construction.

Removal. Prior to the removal of any equipment, the Contractor must arrange an inventory inspection with the Engineer. All equipment must be inspected and logged as to type, size, and condition.

No removal work must be permitted without approval from the Engineer.

Any damage resulting from the removal and/or transportation of the controller, control equipment, and associated hardware, must be repaired to its original condition, or replaced in kind, at the Contractor's own expense, to the satisfaction of the Engineer.

Installation. The Contractor must provide all equipment, transportation, and labor necessary to install the equipment as specified. New wiring, conduit and luminaires must be paid by separate pay items specified elsewhere herein.

Manufacturer's recommendations must be followed during the installation process. The wiring connections must be made as shown on the drawings and in accordance with the National Electrical Code. The Contractor must energize the ON/OFF switch to assure that all the components are working in accordance with their specifications and carrying rated load.

Method of Measurement. Removing, furnishing, and installing each ON/OFF switch for State owned facilities as specified above.

Basis of Payment. This work must be paid at the contract unit price (each) for removing, furnishing, and installing an ON/OFF SWITCH, which must be payment in full for the work specified herein.

LDS3 MOTION SENSOR

Description. This item must consist of furnishing and installing a Motion Sensor with visual indicator and hardware as specified herein. All required hardware is incidental to this pay item, however, the conduit and wiring, must be paid under a separate pay item.

Materials. The Motion Sensor must be ceiling mount H-Moss Adaptive Technology with passive infrared to cover up to 1,500 sq. ft. areas, equivalent to or better than Hubbell model ATP1500C. It should be able to study their environment and automatically adjust the time delay and sensitivity to optimize the sensor's performance for specific application.

The motion sensor must be used in conjunction with a control unit. The control units provide a 24-volts dc power supply for one (1) to three (3) sensors. The control unit must be selected for the operating voltage of application from 120-V to 240-V, 60 Hz.

Transportation. The Contractor must transport, handle and store (as applicable) the Motion Sensor in complete conformance with the manufacturer's recommendations.

Installation. The Motion Sensor must be ceiling mounted as indicated on the contract drawing or as directed by the Engineer, if applicable, AAR Add-A-Relay. The installation must be complete with necessary conduit and cable (paid under separate pay item) and connected to the applicable circuit.

The Contractor must mount to a junction box for hard ceiling; attach to cover plate by using machine screws and punching a small hole through the ceiling tile for the sensor wires or using threaded mounting post then running sensor wires through the center of the post.

The Contractor must use NEMA 4X enclosure cover "ACIPE" for the sensor and install the control unit inside the NEMA 4X box for the wet locations. The box and cover must be made out of heavy-duty die cast aluminum, 0.094 in. thick for damp or wet locations and must follow the NEC Article 406-8(B). The box must be UL listed and comply with Federal Spec. W-C586C.

Method of Measurement. A Motion Sensor must be counted, (each), furnished and installed.

Basis of Payment. This item must be paid at the contract unit price (each) for furnishing and installing a MOTION SENSOR which must be payment in full for the item specified herein.

LF01 FOUNDATION, LIGHT POLE, CONCRETE

Description. This item must consist of the construction of a steep reinforced concrete light pole foundation, up to 30" diameter, of the diameter specified, complete with raceways, as specified herein. Excavation in rock must be paid as specified in Section 502.12 for Excavation for Structures. The foundation depth must be as indicated in the Foundation Depth Table on the plans (where applicable) or as directed by the Engineer.

The foundation must include soil testing, excavation, reinforcement, concrete, anchor bolts, nuts, washers, and raceways as well as clean-up and restoration of the location when such work is not provided under other paid items.

Sections 836, 1020, 1070 and also Articles 1006.08, 1006.09, 1088.01, of the Standard Specifications for Road and Bridge Construction, current version, must apply to this pay item with the following:

Anchor bolts for light poles must be heat-treated. Therefore, an exothermic ground wire connection must not be made to the anchor bolt. Instead, a mechanical connection of the ground wire must be made to the anchor bolt. However, the cable connections to the ground rod and the rebar cage must be exothermic.

Method of Measurement. Light pole foundation of the diameter and depth specified must be counted, "per linear foot", furnished and installed.

Basis for Payment. This item must be paid at the contract unit price for soil testing, furnishing, and installing "per linear foot" for FOUNDATION, LIGHT POLE, CONCRETE of the diameter specified, of the depth indicated, which must be payment in full for the work as specified herein.

LF02 FOUNDATION, LIGHT POLE, METAL

Description. This item must consist of furnishing and installing a metal foundation of the diameter specified for a light pole, consisting of a helix type screw base, base plate, pilot point and hardware for supporting a light pole as specified herein. Excavation in rock must be paid as specified in Section 502.12 for Excavation for Structures.

Materials. Article 1070.01 of the Standard Specifications for Road and Bridge Construction, current version, must apply to this pay item.

Installation. Installation must conform to Article 836.03 (b) of the Standard Specifications for Road and Bridge Construction, current version.

Method of Measurement. Light pole foundation of the diameter specified must be counted (each), furnished and installed.

Basis of Payment. This item must be paid at the contract unit price (each) for a FOUNDATION, LIGHT POLE, METAL, of the diameter, specified, which must include all excavation or dripping

except excavation in rock, backfilling, disposal or unsuitable material, form work and furnishing all materials within the limits of the foundation.

LF03 FOUNDATION, LIGHT TOWER, UP TO 54 INCH DIAMETER

Description. This item must consist of the construction of a steel reinforced concrete light tower foundation, up to 54 inch in diameter, complete with raceways, as specified herein. The foundation depth must be as indicated in the Foundation Depth table on the plans (where applicable) or as directed by the Engineer.

The foundation must include soil testing, excavation, reinforcement, concrete, anchor bolts, nuts, washers, and raceways as well as clean-up and restoration of the location.

Excavation in rock must be paid according to Section 502.05 and 502.12 of the Standard Specifications for Road and Bridge Construction, current version.

Sections 837 of the Standard Specifications for Road and Bridge Construction, current version, must apply to this pay item with the following.

Method of Measurement. Light tower foundation, up to 54" in diameter, must be counted (per linear foot) depth, furnished and installed.

Basis of Payment. This item must be paid at the contract unit price for furnishing and installing (per linear foot) for FOUNDATION, LIGHT TOWER, UP TO 54 INCH DIAMETER, of the depth indicated which must be payment in full for the work as specified herein.

LP01 LIGHT POLE, KIT

Description. This item must consist of removing existing damaged basic materials and furnishing and installing new basic materials such as new lamp, fuses, fuse holder, decal, pole wire, pole cap, or photocell if specified, hardware, nut covers, hand hole door and grommets in conjunction with the use of a light pole from State's storage facility and utilizing one or two mast arms and luminaires. This item must also include the removal of old decals, accident reference markers and graffiti from used poles prior to installation at new locations.

Materials. Materials must be in accordance with Section 1065 and 1066 of the Standard Specifications for Road and Bridge Construction, current version.

Installation. Installation must be in accordance with Section 830 of the Standard Specifications for Road and Bridge Construction, current version.

The luminaire must be cleaned from inside/outside, replace bulb with new one rated for minimum of 40,000 hrs. equal or better than Sylvania ET 18 – 67584 and test before installation.

Method of Measurement. Light pole kit for Contract Spare Parts light pole, must be counted, (each), furnished and installed.

Basis of Payment. This item must be paid at the contract unit price (each) for LIGHT POLE KIT which must be payment in full for removing damaged materials and furnishing and installing all new materials including the necessary hardware as specified herein.

LP02 LIGHT POLE UNIT, INSTALL ONLY

Description. This item must consist of retrieving from State's storage facility (if required), loading, transporting, and installing an aluminum light pole unit which is a standard, davit, or painted davit light pole with (all sizes) mast arm or twin mast arm, and (all types) luminaire(s), complete with appurtenances, length of 10 to 60 feet and all required hardware including bolt covers as specified herein.

Installation. Installation must be as described in Section 830, except that the light pole must be set plumb on the foundation without the use of shims, grout, or any other leveling devices under the pole base. The mast arm or arms must be set at right angles to the centerline of the pavement. (The leveling area of the luminaire must be set in a plane parallel to the roadway taking into consideration the upgrade or downgrade and the super-elevation of the roadway).

The Contractor must transport, handle and store (as applicable) the metal light pole in complete conformance with the manufacturer's recommendations.

The luminaire must be washed and relamped as specified under Light Pole Kit. This item must include the applicable luminaire (with pole wire and fusing), foundation, anchor bolts, and breakaway device which must be provided under separate pay item.

Poles must not be installed until luminaires are available for installation which must be at the same time the poles are installed. Poles must not be installed and left standing without a coordinated installation of mast arm and luminaire.

The removal of breakaway couplings and installation or replacement with breakaway device (TBase) is included part of the installation procedure and it must not be paid separately.

Method of Measurement. Light pole unit must be counted, (each), installed.

Basis of Payment. This item must be paid at the contract unit price (each) for LIGHT POLE UNIT, INSTALL ONLY, of the length and mounting height as indicated by the Engineer, which must be payment in full for the work as specified herein. This item must not be paid unless the coordinated assembly, including mast arm, luminaire, and breakaway device is specified, is complete.

LP03 LIGHT POLE UNIT, REMOVAL AND SALVAGE

Description. This item must consist of the disconnection, removal, dismantling, and transportation to the State's storage facility and unloading as salvage, a light pole unit, which is a standard, davit, or painted davit light pole with (all sizes) arm or twin arm, and (all types) luminaire(s), complete with appurtenances, as specified herein and as directed by the Engineer. Removal of the associated conduit, wire and junction boxes must be included in this item. This pay item must also include all storage documentation as required by the Engineer.

General. Light pole removal must be in accordance with Section 842 of the Standard Specifications for Road and Bridge Construction, current version. Proper documentation of the Department's salvage is required.

Prior to the removal of any equipment, the Contractor must arrange an inventory inspection with the Engineer. All equipment must be inspected and logged to specify type, size, and condition. No removal work must be permitted without approval from the Engineer.

Any damage resulting from the removal and/or transportation of the light pole must be repaired, to its original condition, or replaced in kind, at the Contractor's own expense, to the satisfaction of the Engineer.

Method of Measurement. Each light pole unit, which is removed, delivered to storage, unloaded, inspected, and documented properly, must be counted as a unit for payment.

Basis of Payment. This item must be paid at the contract unit price (each) for LIGHT POLE UNIT, REMOVAL, SALVAGE, which must be payment in full for the removal and disposition of light pole as specified herein.

LP04 WOOD POLE UNIT, INSTALL ONLY

Description. This item must consist of retrieving from State's storage, loading, transporting, and installing a wood pole with mast arm(s) and luminaire(s) complete with appurtenances of the mounting height as specified herein, including all necessary hardware and accessories required. The wood light pole unit must be paid separately.

Installation. Installation must be in accordance with Section 830 of the Standard Specifications for Road and Bridge Construction, current version.

The Contractor must be paid separately for CCTV and Traffic Signal installation using the nonroutine pay items if the wood pole is used for CCTV on Traffic Signal.

The Contractor must transport and handle the light pole in complete conformance with the manufacturer's recommendation.

Mechanical Damage. Poles are not acceptable if they contain indentations attributed to loading or handling slings that are ¼ inch or deeper over 20% or more of the pole circumference, or more than ½-inch-deep at any point. Other indentations or abrasions, for example, forklift damage, chain-saw damage, etc., must not be more than 1/10 the pole diameter at the point of damage up to a maximum of 1 inch. Such damage is permitted in an oversized section, where the excess of wood shall be taken into consideration in evaluating the effects of the damage. In any case, the circumference for a given class is still required to be not less than the specification minimum.

Method of Measurement. Wood pole unit of the mounting height as specified, complete with necessary hardware, must be counted, (each), installed.

Basis of Payment. This item must be paid at the contract unit price (each) for WOOD POLE UNIT, INSTALL ONLY, of the mounting height up to 90', must be payment in full for installing a wood pole unit with necessary appurtenances as specified herein.

LP05 WOOD POLE, REMOVAL AND SALVAGE

Description. This item must consist of disconnecting, completely removing, dismantling, transporting to the State's storage, and unloading as salvage, a wood pole with mast arm(s) and luminaire(s) complete with appurtenances, as specified herein. Removal of the CCTV and Traffic Signal, associated conduit, wire and junction boxes must be included in this item. Proper documentation of the State's salvage is required with this pay item.

General. Prior to the removal of any equipment, the Contractor must arrange an inventory inspection with the Engineer. All equipment must be inspected and logged as to type, size, and condition. No removal work must be permitted without approval from the Engineer. Any damage resulting from the removal and/or transportation of the light pole unit must be restored, to its original condition, or replaced in kind, at the Contractor's own expense, to the satisfaction of the Engineer.

Method of Measurement. Each wood pole unit, complete with CCTV, Traffic Signal, Arm and Luminaire which is removed, delivered to storage, unloaded, inspected, and documented properly, must be counted as a unit for payment.

Basis of Payment. This item must be paid at the contract unit price each for WOOD POLE, REMOVAL AND SALVAGE, complete with CCTV, Traffic Signal, Arm and Luminaire, which shall be payment in full for the removal and disposition as specified herein.

LPN1 PANEL, DISTRIBUTION

Description. This item must consist of removing (if upgrading) furnishing and installing, a lighting and distribution panel of the amperage (up to 400 Amps) and number of poles (up to 42) specified for lighting and/or equipment with branch breakers as specified by the Engineer.

General Requirements. The panel with all of its electrical components and parts must be assembled in a neat orderly fashion. All of the electrical cables must be installed in a trim, neat, professional manner. The cables must be trained in straight horizontal and vertical directions and be parallel, next to, and adjacent to tother cables whenever possible. The completed controller must be UL listed as an industrial control panel under UL508 and UL 98, service entrance rated panel.

If the enclosure of the existing service or distribution panel is in good condition, the Contractor may use the existing enclosure and replace only the panel board upon approval by the engineer.

Materials. The panel board must be test-verified by, and listed with, Underwriters Laboratories, Inc. and must meet all NEMA standards for panelboards. Panel board must be designed for sequence phase connection of branch circuit devices to allow complete flexibility of circuit arrangement (1, 2 or 3 poles) to evenly balance the electrical load on each phase. Main lugs must be mechanical, solderless type, and approved for Cu or Al conductors. The chassis must be sturdy, rigid and must assure accurate alignment of interior with panel front. The fronts (trims) and flush-type lock/latch handle assembly must have an appearance equivalent to an ANSI-61 light gray finish. Wiring gutter must be furnished in accordance with Underwriters' Laboratories Inc. Standards.

Main Breaker. (omit if main lug only panel) The main breaker must be of the same manufacturer as the lighting or distribution panel. The electrical requirement must be of the

voltage, phase and ampacity of the lighting or distribution panel. The lugs of the main breaker must be sized to handle the required cable size of the incoming cable. Unless otherwise indicated, main breakers must be standard UL-listed molded case, thermal-magnetic bolt-on type circuit breakers with trip-free indicating handles. Unless otherwise indicated, main-breakers must have a UL-489 interrupting rating of not less than 35,000 rms symmetrical amperes at 480 volts and 65,000 rms symmetrical amperes at 240 Volts. Multi-pole main breakers larger than 100 amps size must have instantaneous adjustable magnetic trip settings. The main breaker must be equipped with auxiliary contacts.

The interrupting capacity must be capable of removing a fault at the applied voltage without damage to the breaker. The breaker may be a fixed trip or interchangeable trip as specified by the engineer. The breaker must be specified as “fully rated” unless noted otherwise. The main breaker must be a thermal magnetic trip breaker unless noted otherwise.

Top feed or bottom feed should be as specified. The “on/off” position must be clearly visible and designed to operate in a vertical plane “on” up, “off” down. A tripped indicated of the breaker must be clearly visible. Lugs on the breaker must be suitable for 75 degrees Celsius wire. The breaker must be UL listed for use in lighting and distribution panels.

Circuit Breakers. All feeders, branch circuits, and auxiliary and control circuits must have overcurrent protection. Unless otherwise indicated, the overcurrent protection must be by means of circuit breakers.

Unless otherwise indicated, circuit breakers must be standard UL-listed, molded case, thermal magnetic, bolt-on-type circuit breakers with trip-free indicating handles.

Unless otherwise indicated circuit breakers must have a UL-listed interrupting rating of not less than 10,000 rms symmetrical amperes at rated circuit voltage for which the breaker is applied.

The number of branch circuit breakers must be as indicated on the control cabinet detail drawings or lighting system wiring diagram, whichever is greater, plus two (2) spare circuit breakers.

Ground & Neutral Bus Bars. Separate ground and neutral bus bars must be provided. The ground bus bar must be copper, mounted on the equipment panel, fitted with 22 connectors of the type as shown on the plans, as a minimum. The neutral bar must be similar. The heads of connectors of the type as shown on the plans as a minimum. The neutral bar must be similar. The heads of connector screws must be painted white for neutral bar connectors and green for ground bar connectors.

Standards. The panel boards must meet the following applicable industry standards, except where noted:

Underwriters' Laboratories, Inc.

- Panelboards: UL67
- Cabinets and boxes: UL50

Note: Only panelboards that contain UL listed devices can be UL labeled.

National Electrical Code – Article 408 and 409

NEMA Standards: PB1

Federal Specifications

- Panelboards: W-P-115c
- Molded case breakers W-C-375a, b
- Fusible Switches: W-S-865c
- NFPA: 79

Removal. Prior to the removal of any equipment, the Contractor must arrange an inventory inspection with the Engineer. All equipment must be inspected and logged as to type, size and condition.

No removal work must be permitted without the approval of the Engineer.

Any damage resulting from the removal and/or transportation of the lighting distribution panel, of the size as specified, must be repaired to its original condition, or replaced in kind, at the Contractor's own expense, to the satisfaction of the Engineer.

Installation. Service entrance equipment NEC Article 230 and UL require that a panel used as service entrance equipment must be located near the point where the supply conductors enter the building.

A disconnectable electrical bond must be provided between the neutral and ground.

A service-entrance-type UL label must be factory installed.

The main lugs must be secured in line with Underwriters' Laboratories standards to prevent lugs from turning or loosening when incoming cables are installed.

The current carrying parts must be secured in place to prevent flexing and loosening or damage during and after installation.

At the branch circuit, breakers and associated wiring must be labeled to identify the location of equipment and/or loads used.

The manufacturer's recommendations must be followed during the installation process. The wiring connections must be made in accordance with the National Electric Code. The Contractor must energize the system to assure that all the components are working in accordance with their specifications and carrying rated load.

Method of Measurement. Lighting and distribution panel removed, furnished, and installed must be counted, (each).

Basis of Payment. This item must be paid at the contract unit price (each) for PANEL, DISTRIBUTION, of the amperage (up to 400 Amps) and number of poles (up to 42) of the amperage and number of poles specified, which must be payment in full for removing, furnishing, and installing the distribution panel, as specified herein.

LT01 – LT02 LIGHT TOWER

Description. This item must consist of furnishing, delivering to State's storage facility and unloading, as specified, and installing a light tower including a lowering device with ring, luminaires, and lamps, as specified herein. The tower foundation must be provided under separate pay items. The specifications for this item must be fully coordinated with the lowering device, ring, luminaire, and foundation requirements.

Materials. Materials must be in accordance with Article 1069.08 of the Standard Specifications for Road and Bridge Construction, current version with the following exceptions:

Revise the sixth and eighth paragraphs of Article 1069.08(a) of the Standard Specifications to read:

The handhole must have a door with a full collar of similar material that extends over the handhole frame to exclude liquids and contaminants when closed against the flange and gasketed handhole opening. The door must be mounted with a full-height stainless steel piano hinge or not less than two stainless steel hinges or other hinge arrangement acceptable to the Engineer. A bolt through door and frame eyelet must not constitute an acceptable hinge. Hinges must be heavy duty, suitable for the weight of the handhole door. Hinges must be welded to the handhole frame and must be welded or attached with stainless steel nuts, bolts, and lock washers (5 minimum) to the handhole door. Rivets will not be allowed to attach any hardware. The door/opening must be gasketed in a manner, which must prevent the entry of water into the pole, and the door must have a tight compressive seal employing a tubular gasket with a flexible wire core. The gasket must have a mechanical gripping action and be mounted on a metal edge inside the handhole door. The door must be held closed with 12-gauge captive stainless-steel clamps. The clamps must be held closed with spring loaded captive clamps. The clamps must have a depth stop feature to insure uniform sealing pressure at all clamp points. A minimum of four (4) clamps must be used around the non-hinged sides of the door assembly. A stainless-steel padlock hasp and staple shall be provided for locking the door. Door hardware must be stainless steel. The door must be equipped with an integral door stop mechanism.”

Revise the last paragraph of 1069.08(b), (2) Inspection, to read:

“The independent welding inspector must send the test results directly to the Engineer at the following address:

Illinois Department of Transportation
Division of Highways, District 1
Attn: Bureau of Traffic Operations/Maintenance Section
201 West Center Court
Schaumburg, Illinois 60196-1096

The cost for all independent welding inspections must be included in the unit price for the bid item.”

Add the following to Article 1069.08(c) of the Standard Specifications:

“The primer paint must be white polyamide epoxy, with minimum solids by volume 65%. The primer must be applied in two coats to a total thickness of 6-8 mils dry film thickness following manufacturer's method of application. The two primer coats must be of different colors.

The finish paint must be silicone-alkyd resin type paint poly-silicone enamel, minimum solids by volume 53%. The finish paint must be applied in one coat to a 2-3 mils dry film thickness following manufacturer's method of application. The finish paint shall be applied to the outside surface only."

Revise the second and third paragraphs of Article 1069.08(p) of the Standard Specifications to read:

"A flexible UL Listed Class II conductor must be installed between the lightning rod and the grounding lug on the top of the tower shaft. The conductor must be a rope lay cable consisting of 28 strands of No. 14 AWG copper wire. The cable must have a minimum outside diameter of 7/16", a cross sectional area of 58 mm², and a net weight of 1668 N per 375 pounds per 1000 pounds per 1000 ft. The same conductor must be attached with studs and exothermic welds at tower shaft sections. The grounding conductor terminations shall be UL Listed."

Installation. Installation and shipment shall be in accordance with Article 835.04 of the Standard Specifications for Road and Bridge Construction, current version.

Method of Measurement. Light tower must be counted, (each), furnished, and installed complete.

Basis of Payment. This item must be paid at the contract unit price (each) for LIGHT TOWER, of the length as specified below, which must be payment in full for furnishing and installing complete as specified herein. The tower foundation must be paid under separate pay item.

LT01 LIGHT TOWER, 110 FT. OR LESS IN LENGTH

LT02 LIGHT TOWER, 111 FT. OR MORE IN LENGTH

LT03 LIGHT TOWER, IN PLACE, CLEAN AND PAINT

Description. The Contractor must sand blast and prime a tower that is standing in place on the foundation, with luminaire ring assembly and hood. Per the direction of the engineer, the tower can be either complete or partial painted. The Contractor must prepare the existing deteriorated surfaces and paint all designated surfaces of the various components of the light towers with coatings specified by the Engineer.

The work involves the surface preparation and application of coating materials on existing steel light towers greater than 80 ft. high. The Contractor must provide all management, supervisory, administration, quality control personnel, labor forces and all other services required to carry out the surface preparation work, coating operations, including the furnishing, handling and removal of spent abrasive material, if required and all testing and reporting as specified herein.

Tower Number, Luminaire Quantity Decals, and Accident Reference Marker Decals. All identification decals must be removed prior to the start of work and replaced after the finish coat has fully dried. Removal of all decals, purchase of new decals, and installation of new decals must be incidental to this pay item. Following sufficient curing of the finish coat, new tower number and luminaire quantity decals 8-inch x 9-inch must be affixed to the tower at locations where the existing decals were removed during the surface preparation process. The Contractor must

schedule the decal replacement six months from the time the tower was painted, allowing sufficient time for the finish coat to dry.

Responsibilities. The Contractor must be responsible for the planning and performance of all scaffolding work, ventilation, enclosures, protective covers, and utilization of labor and equipment, supplying and maintaining of tools, test equipment, enclosures, scaffoldings etc., purchasing and/or requisitioning of supplies, performing tests to assure proper lasting equipment performance and required dry film thickness of coatings, relocating and/or removing all temporary equipment, enclosures, scaffolding etc., at the completion of the work, or as directed by the Engineer throughout the course of the job schedule to permit the work of others, providing the testing and inspection, equipment, and services for all surface preparation and material application, protecting the testing and inspection, equipment, and services for all surface preparation and material application, protecting all existing equipment, piping, ducts, etc. and complete coated areas from damage application, protecting all existing equipment, piping, ducts, etc. and complete coated areas from damage resulting from blasting work and/or misapplied coating materials, and removal of all debris from the work site.

General Work Provisions. All coating work must be done in a careful workmanlike manner using the materials specified herein in strict accordance with this specification.

Surface preparation and coating application must be in accordance with the Coating Schedule contained herein. The manufacturer's specifications regarding the mixing, thinning, application, drying and general handling of the various materials must be followed as being supplementary to this specification.

The scaffolding, ladders, etc., required for surface preparation and/or painting shall be designed for loads not less than those established by the State of Illinois. All coatings must be applied as recommended by the manufacturer. Thinning must be done only as recommended by the manufacturer for a particular application.

The surfaces to be coated must be dry. No coating work must be done in damp weather (rain, fog, mist, dew, etc.) which might cause a slight amount of moisture to collect or condense on the surface. No coating work must be done when the ambient air temperature is below 50 degrees Fahrenheit or above 100 degrees Fahrenheit. No coating work must be done if the relative humidity exceeds 85% or if the substrate temperature is not at least 5 degrees Fahrenheit above the dew point.

Coatings must be applied in a workmanlike manner by skilled applicators. All coatings must be evenly spread and smoothly flowed on and must be free from runs and sags. Care must be taken to apply a film of uniform thickness that completely covers all surfaces required to be coated and avoids local thin spots.

All coating materials must be specified and approved in writing by the Engineer. Intermixing of materials from different manufacturers must not be permitted.

All coating materials delivered to or received at the job site must be in original unopened and sealed containers bearing manufacturer's name, type of designation, batch number and shelf life. All coatings must be mixed in strict accordance with the manufacturer's written instructions, and thinning must not be permitted unless specified in those instructions.

All containers of coatings must remain unopened until ready for use. The oldest of each kind of coating must be used first. Containers, which have been opened, must be used first.

Any coating material found not be in conformance with the specification must be removed from the site, and from the structure, if already applied, at the Contractor's expense. If reapplication to a formerly coated surface is required, it must be treated as if it had never been coated insofar as this specification is concerned.

All coatings must be stored in an area that is well-ventilated and free from excessive heat, sparks, flame, or the direct rays of the sun. The ambient temperature of the storage areas must be maintained within the range specified in the coating manufacturer's printed instructions, unless otherwise specified.

Coatings, which have livered, gelled, exceeded manufacturer's recommended shelf life, or otherwise deteriorated during storage must not be used, and shall be removed promptly from the site. Mixing of coatings must be done in accordance with manufacturer's printed instructions. Power mixers may be used, but it should be noted that the heat generated could shorten the pot life of the coating.

Catalysts and/or thinners shall be added to the coatings strictly in accordance with the manufacturer's printed instructions. Uniform mixing must be assured by checking for consolidated pigment remains.

If the coatings become thick in cool weather, they must preferably be heated in the container using paint heaters and not thinned by the addition of solvents. Deviations from manufacturer recommended storage temperature ranges must not be permitted without manufacturer's approval.

The Contractor must furnish, to the Engineer, all information on materials and supplies utilized by the Contractor.

Surface Preparation. The Contractor must be wholly responsible for finish of the work and must not commence any coating work until the surface to be coated has been properly prepared in accordance with the surface preparation portion of the Coating Schedule contained herein. Chemical contamination must be removed by washing with clean water, steam, neutralizing solutions, detergents, or other methods recommended by the coating manufacturer.

Each designated surface areas of each light tower to be painted must be thoroughly washed clean using a sufficient number or cleaning cloths. The cloths must be changed frequently to avoid using contaminated cleaning materials.

Application of Coating Materials. Coatings may be applied by brushes, roller, or paint mitt. All methods of application must be in accordance with the best practice as recommended by the manufacturer.

When coatings are applied by brushing or rolling, the surface must be cross-brushed or cross-rolled to secure uniformity of surface and the specified paint film thickness.

All surfaces must be primed the same day as they are prepared. Finish coats must be applied as soon as practicable after cleaning. If the surface becomes contaminated in the interim, it must be refinished to the original cleanliness requirements.

Adequate ventilation must be assured, at all times, for proper drying.

Film thickness of the coating being applied must be periodically checked using a wet film thickness gauge. Dry film thickness must be calculated from wet film thickness and volume solids and as recommended by the coating manufacturer. In addition, each coat must have been visually inspected for holes and thin spots before the next coat is applied.

Surfaces, which have been coated, must not be handled, worked on, or otherwise disturbed until the coating is completely set. Sufficient time must elapse between coats to permit them to dry hard. All layers of coated surfaces must be unscarred and completely integral at the time of application of all succeeding coats.

Each coat must follow the preceding coat within the time limits set by the manufacturer.

After the application of the scheduled number of coatings, the total dry film thickness (DFT) must be within the range of the sum of the thickness of the coats as specified. The Contractor must apply enough paint to adequately cover and to fulfill the DFT as specified in the Coating Schedule continued herein no matter how many coats are necessary.

All finished coating surfaces must be uniform texture, free of any runs, drips, sags, or other detrimental defects, and acceptable to the Engineer.

Misplaced coating materials must be promptly removed, and the surface must be made thoroughly clean and satisfactory to the Engineer.

Copies of manufacturer's application guides or printed instructions must be conspicuously posted wherever materials are being prepared for application.

Cloths, cotton and waste material which might constitute a fire hazard, must be placed in closed metal containers or removed from the working area at the end of each day's work.

The Contractor must provide portable fire extinguishers of suitable type and sufficient number to permit placing at least one (1) extinguisher in any areas where coating with fume-creating or flammable products is in progress, and where coatings are stored and mixed. No smoking must be permitted in these areas and the Contractor must be responsible for policing the work.

All protective cover must be removed upon completion of paint application.

Testing. The Engineer must furnish to the Contract, upon the transmittal of the authorization of work, the required tests for the tower cleaning and painting.

Test Equipment to be furnished and used by the Contractor:

Surface Temperature Thermometer

- Part # PTC 312F

Sling Psychrometer

- Part # 127012

Weather Psychometric Tables

- Part # WB235

Dry and Wet Film Thickness Gauges

Light Tower Shaft

Surface Preparation. The tower must be spot abrasive blasted as required in accordance with SSPC SP-6 Commercial Blast Cleaning and/or Power Tool Cleaned to SSPC SP-3, depending on overall condition. The remaining surface must then be hand tool cleaned in accordance with SSPC SP-2 to remove all loose corrosion and existing paint. All oil, grease, dirt, salt and other surface contaminants must be removed in accordance with Steel Structures Painting Council's SSPC SP-1 Solvent Cleaning Specification.

Luminaire Ring Assembly and Hood

Surface Preparation. All oil, grease, dirt, salt and other surface contaminants must be removed in accordance with Steel Structures Painting Council's SSPC SP-1 Solvent Cleaning. The surface must then be Hand Tool Cleaned in accordance with SSPC SP-2 to remove all loose corrosion and existing paint.

Cleats, Welds and Hand Hole Door Hardware Surfaces

Surface Preparation. Prepare surfaces using the SSPC SP-11 power tool cleaning to bare metal to remove all rust and existing coating.

Coating System Requirements To Be Used For Light Tower Shaft, Luminaire Ring Assembly & Hood, and Cleats, Welds and Hand Hole Door Hardware Surfaces

Primer. The primer must be applied to the entire designated area of each tower and be a Keeler & Long Tri-Polar Primers KL6040 series or equivalent approved by the Engineer.

Finish Coat. The finish must be applied to the entire designated area of each tower and be a Keeler & Long Anodic Self-Priming Paint KL4400 Series or equivalent approved by the Engineer.

Documentation of Work. The Contractor must document testing information and provide the Engineer a weekly progress report on an Excel spreadsheet for each work authorization. Each tower must be reported separately. The Contractor must scan the Excel spreadsheet and the general billing logs to the Engineer daily (if requested by the Engineer) or weekly, for each authorization letter. The format of the spreadsheet must be furnished to the Contractor upon the authorization of the work.

Basis of Payment. This item must be paid at the contract unit price, per foot, of tower length for LIGHT TOWER, IN PLACE, CLEAN AND PAINT with applicable documentation, which must be payment in full for all labor, materials and equipment required to complete the work as described herein.

LT04 LIGHT TOWER, REMOVE AND RE-ERECT

Description. This item must consist of removing an existing light tower for inspection and/or retrofitting and reinstalling the tower on the foundation all during the same workday as designated by the Engineer. This pay item must also include the removal of towers found unsafe by IDOT inspectors. Clearing the site for safety, including the removal of damaged equipment, site restoration, and all appurtenant materials and worked required for removing and reinstalling must be included as part of this item. The retrofitting work as specified by the Engineer must be paid

separately. The electric cables must be reconnected so that tower becomes operational that evening without interruption.

General. The existing light tower must be disconnected and removed from the existing foundation by the way of removing the anchor bolt nuts and lifting the light tower from the foundation. And damage sustained to the light tower during removal operations must be repaired, or replaced in kind, to the satisfaction of the Engineer at Contractor's own expense.

The light tower must be reinstalled immediately after inspection and/or modification work the same day on the foundation.

All components must be replaced upon re-installation of the tower. The anchor nuts must be repainted. The nuts must be tightened in compliance with torque specifications recommended by the manufacturer of the lighting unit.

As applicable, recently calibrated dynamometers must be employed by the Contractor for measuring the applied force during final assembly.

The Contractor must remove the stainless-steel screening at the base of the tower, prior to the removal of the tower, and after re-erecting and plumbing the tower, must reinstall the screening and tighten all anchor bolt nuts, to the satisfaction of the Engineer. The Contractor must exercise care in the removal of the screening, so it remains in a serviceable condition. Replacement screening must be included in this pay item.

A penetrating oil must be applied to all anchor bolt nuts prior to removing. The Contractor must exercise extreme care in the removal of the anchor bolt nuts so that no damage occurs to the anchor bolt threads. If an anchor bolt nut cannot be easily removed, the Contractor must consult the Engineer to determine the best method to be used to remove the anchor bolt nut.

Any anchor bolt nuts damaged in the removal process or which the Engineer determines should not be reused, must be replaced with anchor bolt nuts meeting the requirements of Article 1070.03 of the Special Provisions for Road and Bridge Construction, current version, for Light Towers.

Method of Measurement. Light tower must be counted, each, remove and re-erect.

Basis of Payment. This item must be paid at the contract unit price each for LIGHT TOWER, REMOVE AND RE-ERECT, which must be payment in full for performing the work as specified herein.

LT05 LIGHT TOWER, INSTALL ONLY

Description. This item must consist of erecting a light tower as specified herein and as directed by the Engineer. Luminaire, lamp, lowering device and foundation must be provided under separate pay items. This item must be fully coordinated with the luminaire, lowering device, and foundation requirements. The light tower must be paid separately.

Installation. Installation and shipment must be in accordance with Article 835.04 of the Standard Specifications for Road and Bridge Construction, current version.

Method of Measurement. Light tower must be counted, (each), installed.

Basis of Payment. This item must be paid at the contract unit price (each) for LIGHT TOWER, INSTALL ONLY, which must be payment in full for installing the item as specified herein.

LU01-LU02 LUMINAIRE, LED, POLE

Description. This work must consist of furnishing and installing a light pole LED luminaire as specified herein or an equivalent. This work may include removal of an old luminaire and placing into EMC Spare Parts.

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

Submittal Requirements.

The Contractor must also 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 manufacturer's experience and verification that luminaires were assembled in the U.S.A. as specified.
10. Written warranty.

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

- a. TM-21 calculator spreadsheet (XLSL or PDF format) and if available, TM-28 report for the specified luminaire or luminaire family. Both reports must 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 must 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 B 117/ASTM D 1654 (neutral salt spray) test and sample evaluation report in PDF format.
- h. ASTM G 154 (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.

Manufacturer Experience. The luminaire must be designed to be incorporated into a lighting system with an expected 20-year lifetime. The luminaire manufacturer must have a minimum of 33 years' experience manufacturing HID roadway luminaires and must have a minimum of seven (7) years' experience manufacturing LED roadway luminaires. The manufacturer must have a minimum of 25,000 total LED roadway luminaires installed on a minimum of 100 separate installations, all within the U.S.A.

Housing.

Materials. The luminaire must be a single device not requiring on-site assembly for installation. The driver for the luminaire must be integral to the unit.

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

The finish must 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 to 1000 hours of testing according to ASTM B117 for painted or finished surfaces under environmental exposure.

The luminaire finish must 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 must slip-fit on a mounting arm with a 2" diameter tenon (2.375" outer diameter) and must have a barrier to limit the amount of insertion. The slip fitter clamp must utilize four (4) bolts to clamp to the tenon arm. The luminaire must be provided with a leveling surface and must be capable of being tilted \pm 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 must 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 must not exceed 1.6 sq. ft.

The total weight including accessories, must not exceed 40 lb. (18.14 kg). If the weight of the luminaire is less than 20 lb. (9.07 kg), weight must be added to the mounting arm, or a supplemental vibration damper installed as approved by the Engineer.

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

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

Vibration Testing. All luminaires must 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 must pass this test with no noticeable damage and the luminaire must remain fully operational after testing.

Labels. An internal label must be provided indicating the luminaire is suitable for wet locations and indicating the luminaire is an NRTL listed product to UL 1598 and UL 8750. The internal label must 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 must be the alphabetical character representing the initial lumen output as specified in Table 1 of Article 1067.06©. The second character must 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 must be stainless steel or of other corrosion resistant material approved by the Engineer.

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

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

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

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

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

The driver must 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) or less.

The driver must have an input voltage range of 120 to 277 volts ($\pm 10\%$) or 347 to 480 volts ($\pm 10\%$) 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 must be not less than 0.9 and the THD measurement must be no greater than 20%.

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

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

Surge Protection. The luminaire must comply the requirements of ANSI C136.2 for electrical transient immunity at the "Extreme" level (20KV/10KA) and must be equipped with a surge protective device (SPD) that is UL 1449 compliant with indicator light. An SPD failure must open the circuit to protect the driver.

LED Optical Assembly. The optical assembly must have an IP66 or higher rating in accordance with ANSI C136.25. The circuiting of the LED array must be designed to minimize the effect of individual LED failures on the operation of other LEDs. All optical components must be made of glass or a UV-stabilized acrylic or glass.

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

Lumen depreciation at 50,000 hours of operation must 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 must not protrude lower than the luminaire housing.

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

Photometric Performance. Luminaires must be tested according to IESNA LM-79. This testing must 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 must yield an Isofootcandle chart, with max candela point and half candela trace indicated, maximum plane a 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 must 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. Submitted report must 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 listing of all indicated averages and ratios as applicable must be provided in accordance with IESNA RP-8 recommendations. Lighting calculations must be performed using Agi32 software with all luminance calculations performed to one decimal place (i.e., x.x cd/m²). Uniformity ratios must also be calculated to one decimal place (i.e., x.x:1). Calculation results must demonstrate that the submitted luminaire meets the lighting metrics specified in the project Luminaire Performance Table(s). Values must be rounded to the number of significant digits indicated in the luminaire performance table(s).

All photometry must be **photopic**. Scotopic or mesopic factors must not be allowed. The Agi32 file must be submitted at the request of the Engineer.

Installation. Each luminaire must be installed according to the luminaire manufacturer's recommendations.

Luminaires which are pole mounted must be mounted on site such that poles and arms are not left unloaded. Pole mounted luminaires must be leveled/adjusted after poles are set and vertically aligned before being energized. When mounted on a tenon, care must be exercised to assure maximum insertion of the mounting tenon. Each luminaire must 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 must be corrected at no additional cost.

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

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

Pole wire must be extended through the pole, pole grommet, luminaire ring, and any associated arm and tenon. The pole wire must 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 must be trained away from heat sources within the luminaire. Wires must 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 tightened.

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

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

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

When the pole is bridge mounted, a minimum size stainless steel ¼-20NC set screw must be provided to secure the luminaire to the mast arm tenon. A hole must be drilled and tapped through the tenon, and luminaire mounting bracket and then fitted with the screw.

Warranty. The entire luminaire and all its component parts must 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 shipment. The Contractor must verify that the Resident Engineer has noted the shipment date in the daily diary. Copy of the shipment documentation must be submitted.

The replacement luminaire must 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, must be according to the following table for each specified output designation.

| Designation Type | Minimum Initial Luminous Flux | Old HPS Equivalent | Luminaire Model # Specified | Pay Item |
|------------------|-------------------------------|--------------------|-----------------------------|----------|
| G | 15,500 | Up to 250W | GE # ERLH014B340DGRAYAGILT | LU01 |
| H | 25,200 | Up to 400W | GE # ERL2028B340DGRAYAGILT | LU02 |

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 must not be acceptable even if they meet the requirements given in the Luminaire Performance table shown in the contract.

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

LU01 LUMINAIRE, LED – 14K LUMINOUS, POLE

LU02 LUMINAIRE, LED – 28K LUMINOUS, POLE

LU03 LUMINAIRE, POLE, INSTALL ONLY

Description. This item must consist of retrieving an HPS or LPS luminaire from the State’s storage facility, loading, transporting, and installing on a light pole. The HPS luminaire must be complete with a new lamp, of the wattage as specified by the Engineer, and all required hardware as specified herein. The luminaire and new lamp must be paid separately.

Installation. Installation must be as described in Section 821.04 of the Standard Specifications for Road and Bridge Construction, current version and within the Special Provisions.

Method of Measurement. Luminaires must be counted (each), installed.

Basis of Payment. This item must be paid at the contract unit price (each) for LUMINAIRE, POLE, INSTALL ONLY, which must be payment in full for the complete installation as specified herein.

LU04 LUMINAIRE SHIELD, POLE

Description. This item must consist of furnishing, delivering, and installing a luminaire shield, for highway luminaires on light poles, at locations as directed by the Engineer, to minimize off-highway light infringement.

Materials. The luminaire shields must be curved shield, off-highway side luminaire shield, or approved equal. Highway side shields must not be used.

Method of Measurement. Luminaire shield, pole, must be counted, (each), furnished and installed.

Basis of Payment. This item must be paid at the contract unit price (each) for furnishing and installing one, LUMINAIRE SHIELD, POLE, of the type and construction as specified, which must be payment in full for this item specified herein.

LU05 LUMINAIRE, KEEPER

Description. This item must consist of furnishing, delivering, and installing a luminaire keeper of the type and construction, as shown in figure L-22, to secure the luminaire to the mast arm or davit arm in case of a failure of the luminaire mounts.

Materials. The cable used for the luminaire keeper must be 3.18 mm (0.0125") stainless steel aircraft cable. The cable must be secured at both ends, as shown on the drawing.

Method of Measurement. Luminaire keeper must be counted, (each), furnished and installed.

Basis of Payment. This item must be paid at the contract unit price (each) for furnishing and installing one, LUMINAIRE KEEPER, of the type and construction as specified, which must be payment in full for the item specified herein.

LU06 LUMINAIRE, REMOVAL AND SALVAGE

Description. This item must consist of disconnecting, completely removing and transporting to the State's storage facility, and unloading as salvage, a luminaire mounted on a wall, roof, or ceiling, in a maintenance yard, sign shop, weigh station, rest areas and other IDOT facilities, light pole, light tower, underpass, tunnel sign structure or navigation light fixture as specified herein. This pay item must also include removal of the associated conduit, wire, disconnect switch and junction boxes. Proper documentation of the State's salvage is required with this pay item.

General. Luminaire removal must be in accordance with Section 841 of the Standard Specifications for Road and Bridge Construction, current version.

Prior to the removal of any equipment, the Contractor must arrange an inventory inspection with the Engineer. All equipment must be inspected and logged as to type, size, and condition. No removal work must be permitted until approved by the Engineer.

Unless otherwise indicated, luminaires must be removed, boxed in containers approved by the Engineer, and delivered and unloaded at the storage facility of the State, or as directed by the Engineer.

Any damage resulting from the removal and/or transportation of the luminaire must be repaired to its original condition, or replaced in kind, at the Contractor's own expense, to the satisfaction of the Engineer.

Existing anchors for underpass or tunnel lighting fixture which have been attached improperly must be left in place as removal would cause more damage to the beam than leaving the anchors in place.

Method of Measurement. Each luminaire, which is removed, boxed as approved, delivered to storage, unloaded, inspected, and documented properly, must be counted as a unit for payment.

Basis of Payment. This item must be paid at the contract unit price (each) for LUMINAIRE, REMOVAL AND SALVAGE, which must be payment in full for the luminaire location as specified herein.

LU07-LU09 LUMINAIRE, LED, TOWER

Description. This work must consist of furnishing and installing a light tower LED luminaire as specified herein or equivalent. This could include the removing an old luminaire and placing into IDOT stock.

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

Submittal Requirements.

The Contractor must provide 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 manufacturer's experience and verification that luminaires were assembled in the U.S.A. as specified.
10. Written warranty.

Upon request by the Engineer, submittals must 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 must 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 must 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.

Manufacturer Experience.

The luminaire must be designed to be incorporated into a lighting system with an expected 20-year lifetime. The luminaire manufacturer must have a minimum of 33 years' experience manufacturing HID roadway luminaires and must have a minimum of seven (7) years' experience

manufacturing LED roadway luminaires. The manufacturer must have a minimum of 25,000 total LED roadway luminaires installed on a minimum of 100 separate installations, all within the U.S.A.

Housing.

Material. The luminaire must be a single device not requiring on-site assembly for installation. The driver for the luminaire must be integral to the unit.

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

The finish must 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 to 1000 hours of testing according to ASTM B117 for painted or finished surfaces under environmental exposure.

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

The luminaire must slip-fit on a mounting arm with a 2" diameter tenon (2.375" outer diameter) and must have a barrier to limit the amount of insertion. The slip fitter clamp must utilize four (4) bolts to clamp to the tenon arm. The luminaire must be provided with a leveling surface and must be capable of being tilted \pm 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 must 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 must not exceed 1.6 sq. ft.

The total weight including accessories, must not exceed 40 lb. (18.14 kg). If the weight of the luminaire is less than 20 lb. (9.07 kg), weight must be added to the mounting arm, or a supplemental vibration damper installed as approved by the Engineer.

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

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

Vibration Testing. All luminaires must 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 must pass this test with no noticeable damage and the luminaire must remain fully operational after testing.

Labels. An internal label must be provided indicating the luminaire is suitable for wet locations and indicating the luminaire is an NRTL listed product to UL 1598 and UL8750. The internal label must 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 must be the alphabetical character representing the initial lumen output as specified in

Table 1 of Article 1067.06©. The second character must 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 must be stainless steel or of other corrosion resistant material approved by the Engineer.

Luminaires must 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 must be according to military specification MIL-f-5591.

All hardware must be captive and not susceptible to falling from the luminaire during maintenance operations. This must 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 must be indicated along with means of attachment.

Circuiting must be designed to minimize the impact of individual LED failures on the operation of the other LEDs.

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

Driver.

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

The driver must incorporate the use of thermal foldback circuitry to reduce output current under abnormal driver case temperature conditions and must 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 must not turn off the LEDs when operated at 104° F (40° C) or less.

The driver must have an input voltage range of 120 to 277 volts ($\pm 10\%$) or 347 to 480 volts ($\pm 10\%$) 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 must be not less than 0.9 and the THD measurement must be no greater than 20%.

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

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

LED Optical Assembly

The optical assembly must have an IP66 or higher rating in accordance with ANSI C136.25. The circuiting of the LED array must be designed to minimize the effect of individual LED failures on

the operation of other LEDs. All optical components must be made of glass, or a UV stabilized, non-yellowing material.

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

Lumen depreciation at 50,000 hours of operation must 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 must not protrude lower than the luminaire housing.

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

Photometric Performance.

Luminaires must be tested according to IESNA LM-79. This testing must 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 must 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 outputs of the above-mentioned tests.

The luminaire must 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 must 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 must be provided in accordance with IESNA RP-8 recommendations. Lighting calculations must be performed using Agi32 software with all luminance calculations performed to one decimal place (i.e., x.x cd/m²). Uniformity ratios must also be calculated to one decimal place (i.e., x.x:1). Calculation results must demonstrate that the submitted luminaire meets the lighting metrics specified in the project Luminaire Performance Table(s). Values must 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 must be submitted at the request of the Engineer.

Installation.

Each luminaire must be installed according to the luminaire manufacturer's recommendations.

Luminaires which are pole mounted must be mounted on site such that poles, and arms are not left unloaded. Pole mounted luminaires must be leveled/adjusted after poles are set and vertically aligned before being energized. When mounted on a tenon, care must be exercised to assure maximum insertion of the mounting tenon. Each luminaire must 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 must be corrected at no additional cost.

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

Pole wiring must be provided with the luminaire. Pole wire must run from handhole to luminaire. Pole wire must be sized No. 10, rated 600 V, RHW/USE-2, and have copper conductors, stranded in conformance with ASTM B 8. Pole wire must be insulated with cross0linked polyethylene (XLP) insulation. Pole wire must include a phase, neutral, and green ground wire. Wire must be trained within the pole or sign structure so as to avoid abrasion or damage to the insulation.

Pole wire must be extended through the pole, pole grommet, luminaire ring, and any associated arm and tenon. The pole wire must 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 must be trained away from heat sources within the luminaire. Wires must 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 must be fusing located in the handhole. Fusing must be according to Article 1065.01 with the exception that fuses must be 6 amperes.

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

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

When the pole is bridge mounted, a minimum size stainless steel ¼-20NC set screw must be provided to secure the luminaire to the mast arm tenon. A hole must 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 must 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 shipment. The Contractor must verify that the Resident Engineer has noted the shipment date in the daily diary. Copy of the shipment documentation must be submitted.

The replacement luminaire must 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, must be according to the following table for each specified output designation.

| Designation Type | Minimum Initial Luminous Flux | Old HPS Equivalent | Luminaire Model # Specified | Pay Item |
|------------------|-------------------------------|--------------------|--|----------|
| H | 25,200 | Up to 400W | GE# ERHM01040G1740D D4BGRAYR(G007) | LU07 |
| I | 47,250 | Up to 750W | GE# ERHM01050G1740D D4BGRAYR(G007) | LU08 |
| J | 63,300 | Up to 1000W | GE# ERHM01060G1740D D4GRAYR(G007) | LU09 |

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 must not be acceptable even if they meet the requirements given in the Luminaire Performance table shown in the contract.

Basis of Payment. The work will be paid at the contract unit price per each LUMINAIRE, LED, TOWER, of the output designation specified, for a luminaire which is equivalent in size and dimension to GE brand shown above to fit the applicable Department towers.

Of an equivalent brand is purchased and there is need to modify the arms on the luminaire ring to fit the Department towers the Contractor must be responsible for the cost of the modification work which must be approved by the Engineer.

LU07 LUMINAIRE, LED – 28K LUMINOUS, TOWER

LU08 LUMINAIRE, LED – 50K LUMINOUS, TOWER

LU09 LUMINAIRE, LED – 65K LUMINOUS, TOWER

LU10 LUMINAIRE, TOWER, INSTALL ONLY

Description. This item must consist of retrieving an HPS or LPS luminaire from State’s storage facility, loading, transporting, and installing on a light tower. The HPS luminaire must be complete with a new lamp, of the wattage as specified by the Engineer, and all required hardware as specified herein. The luminaire and new lamp must be paid separately.

Installation. Installation must be as described in Section 821.05 of the Standard Specifications for Road and Bridge Construction, current version and within the Special Provisions.

Method of Measurement. Luminaires must be counted (each), installed.

Basis of Payment. This item must be paid at the contract unit price (each) for LUMINAIRE, TOWER, INSTALL ONLY, which must be payment in full for the complete installation as specified herein.

LU11 LUMINAIRE SHIELD, TOWER

Description. This item must consist of furnishing, delivering, and installing a luminaire shield, for highway luminaires on light towers, at locations, as directed by the Engineer, to minimize off highway light infringement.

Materials. The luminaire shields must be 15" high, curved shield, GE Lighting Systems Model ELS-HMAA060, off-highway side luminaire shield, or approved equal. Highway side shields must not be used.

Method of Measurement. Luminaire shield, tower, must be counted, (each), furnished and installed.

Basis of Payment. This item must be paid at the contract unit price (each) for furnishing and installing one, LUMINAIRE SHIELD, TOWER, of the type and construction as specified, which must be payment in full for the item specified herein.

LU12 LUMINAIRE, NAVIGATION LED

Description. This item shall consist of furnishing and installing a navigation LED light fixture including LED lamp, of the wattage as specified, conduit connection, wiring and all appurtenances mounted on fixed and moveable bridges, piers, abutment walls and dolphins.

Materials. The existing navigation light fixtures currently installed on the Department structures meet U.S. Coast Guard Bridge Lighting Regulations. Refer to Section 822 of the Standard Specifications for Road and Bridge Construction, current version.

Replacement fixtures of equipment required under this contract must:

- Meet current U.S.C.G. regulations.
- Be mounted in the same location and manner as the original units.
- Match the Fresnel lens color and degree spread (either 180 degrees or 360 degrees) as the existing units.
- Be equipped with a shielding device for protection from flying debris and other spurious objects.

The existing equipment was manufactured by Security Products Division of Federal Signal Corporation and identified as follows:

| TYPE | DESCRIPTION |
|---------------------|--|
| Type 1 Pier light | 180 Degree red lens, cast aluminum housing |
| Type 1-A Pier light | 180 Degree red lens, cast aluminum housing |
| Type 1-P Pivot type | 180 Degree red lens, cast aluminum housing |

| | |
|-------------------------------------|--|
| Channel or Pier light | |
| Type 2 Pivot type Bridge Light | 1 Green and 1 Red 180 Degree lenses, cast aluminum housing |
| Type 6 Channel Marker | 360 Degree green or red lens, cast aluminum housing |
| Type 6 PSU Pivot Type Channel light | 360 Degree green or red lens, cast aluminum housing |
| Type 11 Channel light | 2-360 Degree green or red lenses, cast aluminum housing |

Installation. The Contractor must provide all equipment, transportation, and labor necessary to furnish and install the equipment as specified. New wiring and conduit will be paid under separate contract pay items. The mounting hardware, junction box and other appurtenances required are included as part of this pay item except the cable and conduit must be paid under separate pay item.

Materials. The housing must be one piece constructed of die-formed cold rolled steel with longitudinal V-grooves in channel for strength. The channel cover must be secured by latch for easy access to wire way. The luminaire must be designed and constructed in accordance with the requirements of UL. The mounting accessories, hardware, and brackets must be made out of step for environmental conditions.

The finish must be five stage iron phosphate permanent ensuring superior paint adhesion and corrosion resistance. Reflector and channel finished with a high gloss baked white enamel. Reflector is painted after fabrication.

The ballast must be multi-voltage, thermally protected, resetting, class P, HPF, non-PCB, UL listed, and CSA certified. The fluorescent fixture must be equivalent to Lithonia Lighting model TEJS or better.

A decal, complying with the ANSI standard, must be factory attached permanently to the luminaire. The information contained in the decal must enable a viewer, from the ground level, to identify the lamp wattage and type of luminaire distribution.

Luminaire information submitted for approval must include any recommendations of the manufacturer for storage as provided under this contract.

The packaging of the luminaires must incorporate the provisions recommended by the manufacturer for storage.

Installation. The luminaires must be installed in accordance with the plans as specified by the Engineer. The mounting hardware, junction box and other appurtenances required are included as part of this pay item except the cable and conduit must be paid under separate pay item.

Method of Measurement. Luminaire must be counted (each), furnished and installed.

Basis of Payment. This item must be paid at the contract unit price (each) for furnishing and installing a LUMINAIRE, FLUORESCENT, of the length and type indicated, wattage and operating voltage indicated or shown on the plan, which must be payment in full for the item as specified herein.

LU13 LUMINAIRE, LED, FOR BUILDING ROOF

Description. This item must consist of furnishing and installing, a LED, luminaire, with lamp and photocell, if specified, for flood lighting or roof mount, as specified herein. All boxes, recommended by the manufacturer for proper storage, must be included in this item.

Materials. The housing must be heavy duty, made of die cast aluminum. The luminaire must meet NEMA specifications, high pressure sodium lamp, of specified wattage and voltage. The shield and other mounting accessories, as specified on the contract drawing, must be included with the luminaire.

When closed, the optical assembly must be sealed with a gasket against the entry of moisture, dirt, and insects. The cover-reflector and socket-reflector joints must be sealed against the entry of moisture, dirt and insects with a thick, high-density Dacron felt gasket, securely attached by mechanical means, such as a retaining lip, or by a wide-temperature permanent adhesive in a manner acceptable to the Engineer. Submittal information must include data relative to gasket thickness and density and the means of securing it in place. Any alternative gasket material must be approved by the Engineer. There shall be a provision for thermal breathing. A charcoal filter may be used, subject to approval by the Engineer.

A decal, complying with the ANSI standard, must be factory attached permanently to the luminaire. The information contained in the decal must enable a viewer, from the ground level, to identify the lamp wattage and type of luminaire distribution.

Installation. The installation must be as indicated on the plans, or as directed by the Engineer. All mounting hardware must be corrosion resistant and shall be stainless steel unless otherwise indicated. The mounting hardware, junction box and other appurtenances required are included as part of this pay item except the cable and conduit must be paid under separate pay item.

Method of Measurement. Luminaire must be counted (each), furnished and installed.

Basis of Payment. This item must be paid at the contract unit price (each) for furnishing and installing a LUMINAIRE, LED, FOR BUILDING ROOF, of the wattage and operating voltage specified, which must be payment in full for the item as specified herein.

LU14 LUMINAIRE, LED, FOR WALL

Description. This item must consist of furnishing and installing, a wall mounted LED luminaire, with lamp, as specified herein. All boxes, recommended by the manufacturer for proper storage, must be included in this item.

Materials. The housing must be of aluminum construction consisting of a single piece extruded main frame and flat sheet back panel. Heavy-duty cast aluminum doorframe must be hinged and latched by means of a single screw. The optical system must be adjustable, with "sharp cutoff", reflector optical assembly consisting of a hydroformed, specular Alzak main reflector with both parabolic and cylindrical reflecting surfaces, auxiliary reflecting elements, and a support frame. Optical elements may be rotated to permit adjustment of cutoff over a range from 70 degrees through 86 degrees. The refractor must be vandal resistant, injection molded, polycarbonate lens, UV stabilized, and complete with special UV inhibiting coating. The luminaire must be UL listed

for wet locations. The mounting accessories, hardware, and brackets must be stainless steel, unless indicated otherwise.

The cover-reflector and socket-reflector junctions must be sealed against the entry of moisture, dirt and insects with a thick, high-density Dacron felt gasket, securely attached by mechanical means, such as a retaining lip, or by a wide-temperature permanent adhesive in a manner acceptable to the Engineer. It must be an equivalent or better than the Paracyl luminaire.

A decal, complying with the ANSI standard, must be factory attached permanently to the luminaire. The information contained in the decal must enable a viewer, from the ground level, to identify the lamp wattage and type of luminaire distribution.

Luminaire information submitted for approval must include any recommendations of the manufacturer for storage as provided under this contract.

The wattage and operating voltage as specified on the plan submitted must be used as part of this pay item.

Installation. Wall mount luminaires must be either attached to structures, such as a wall, as indicated or implied by the configuration on the plans, or as directed by the Engineer. The mounting hardware, junction box and other appurtenances required are included as part of this pay item except the cable and conduit must be paid under separate pay item.

Method of Measurement. Luminaire must be counted, (each), furnished and installed.

Basis of Payment. This item must be paid at the contract unit price (each) for furnishing and installing a LUMINAIRE, LED, FOR WALL, of the wattage and operating voltage specified, which must be payment in full for the item as specified herein.

LU15 EMERGENCY EXIT LIGHT FIXTURE

Description. Furnish and install one emergency/exit light fixture at the Maintenance Yards, Sign Shops, and other Department facilities in District 1, as directed by the Engineer. The fixture must be a 2-lamp, 120 V, with a minimum two-hour battery backup, totally enclosed industrial type fixture. Installation must include all hardware, hangers, junction box, fuse, lamp as specified and other appurtenances. Removal of the existing fixture, if necessary, must be included in this work. Conduit and wire installation must be paid through other pay items, where needed.

Method of Measurement. Furnishing and installing, removing old fixture, if necessary, as specified above and approved by the Engineer, must be counted as a unit of payment.

Basis of Payment. This work must be paid at the contract unit price (each) for EMERGENCY EXIT LIGHT FIXTURE, which must be payment in full for furnishing, delivering storing, installing, and connecting the fixture, complete.

LU16 LUMINAIRE – WALL, CEILING, UNDERPASS OR TUNNEL

Description. This item must consist of furnishing and installing a wall mounted or ceiling mounted underpass or tunnel LED as specified by the Engineer, and all required hardware, as specified herein.

Installation. Installation must be as described in Section 821.06 of the Standard Specifications for Road and Bridge Construction, current version and with the District 1 Special Provisions.

The mounting hardware, junction box and fuse, as specified and other appurtenances required are included as part of this pay item except the cable and conduit must be paid under a separate pay item.

Unless otherwise indicated, attachment of underpass lighting appurtances including the placement of associated anchors, but not limited to underpass luminaires, identification brackets and conduit must not be attached and/or drilled into precast, prestressed concrete beams. However, existing anchors, which have been installed improperly, must be left in place, as removal may cause more damage to the beam than leaving it in place.

Method of Measurement. Luminaire must be counted (each), installed.

Basis of Payment. This item must be paid at the contract unit price (each) for a LUMINAIRE, LED for WALL, CEILING, UNDERPASS or TUNNEL, of the proper calculated luminaire level as to fit the applicable Department location of a wall, ceiling, underpass, or tunnel location, which must be payment in full for the complete installation as specified herein.

LW01 WASH HUBBARD'S CAVE TUNNEL WALLS

Description. The tiles tunnel walls at highway lighting locations L0883, (Hubbard's Cave) shall be steam washed per paint and grout manufacturers' recommended pressure and temperature. Both I/B and O/B sides must be washed to remove dirt, dust, or other foreign material. The Contractor must inspect locations prior to bidding this item.

Hubbard's Cave approximate dimensions:

Maximum Height: 14'

Length (4 sides): 741', each side

Tile Manufacturer: Buchtal

Grout: Epoxy coated latex modified according to ANSI Standard A118.6.

General. Protect all surrounding painted surfaces and foliage to avoid damage from contact with washing solutions. Avoid wind drift onto passersby, vehicles, or adjacent properties. Protect and/or divert pedestrian and auto traffic from the work area. Use a soft bristled brush or broom for washing, and rinse with sponge and water. Pressure water rinsing may improve cleaning results but is not required.

Materials. The detergent, used for the tile washing, shall be ONERESTORE, made by EaCo SHEM Inc., or equal. The Contractor must follow all manufacturer instructions for application and use of the product.

Test each type of surface before overall application to ensure suitability and desired results. Apply test areas according to the manufacturer's recommendations.

Cleaning. Protect all surrounding painted surfaces and foliage to avoid damage from contact with washing solutions. Avoid wind drift onto passerby, vehicles, or adjacent properties. Protect and/or divert pedestrian and auto traffic from the work area. Block any and all drains where present and setup water recovery to recover wastewater.

Use pressurized water to rinse the tiles, then spray the chemical detergent and scrub clean, high pressure wash surface until clean. Use soft bristled brush or broom for extra washing as applicable, and rinse clean with a pressure water and recover wastewater.

The Contractor must recover wastewater and detergent chemical, the recovered wastewater must be picked up after completion by an environmental vacuum truck and must be disposed of in accordance with IEPA rules and guidelines as specified herein.

The Contractor must provide the traffic control for lanes and ramps as per the Bureau of Traffic Expressway closure guidelines for Hubbard's cave and protection of workers and motorists as part of this pay item.

Method of Measurement. Tiled tunnel walls, (each) installation, washed.

Basis of Payment. This item must be paid at the contract unit price, (each), for WASH HUBBARD'S CAVE TILED TUNNEL WALLS, WASH, as specified which must be payment in full for all work specified herein.

SPECIAL PROVISIONS FOR LUMINAIRES & LIGHTING CONTROLLER SPECIFICATIONS & LUMINAIRE, LED SPECIFICATIONS & OTHER SPECIFICATIONS

Will be available at the Pre-Bid Meeting and/or will be available on-line for bidder's review.

PUMP STATION SYSTEM ITEMS

PS01 PUMP, VIBRATION TESTING AND ANALYSIS

Description. The Contractor must provide a Vibration and Analysis Testing Consultant who is a data analyst with a minimum of two years' experience in vibration data collection and spectrum analysis and must have a Level II certification by a vibration institute or equivalent.

The Consultant must conduct the testing and start-up on all the pumps and including new and/or rebuild. The Consultant must provide recommendations for pump motor inspection, balancing, repair or replacements of pumps and motors, maintenance and troubleshooting of all associated equipment. A strobe tachometer should also be used to verify motor speed.

The Contractor must provide the Consultant with records of the type of pump, head design, manufacturer's performance curve, moisture resistance and megger test results and other pertinent data to the pump operation prior to start-up of the above inspections and testing.

The contractor must conduct the first vibration test with the capacity test.

The consultant must be equipped with required tools, transportation, equipment, instrumentation and supplies to perform the Pump Vibration and Analysis Testing Inspection.

The Vibration and Analysis Testing Consultant must perform vibration analysis on all pumps, utilizing a Smart Meter Plus, Model 1330F or better which will include a copy of the associated software for IDOT, and the Electrical Maintenance Contractor use for the duration of the contract.

The Electrical Maintenance Contractor must calibrate and maintain the IDOT vibration meter including all software and accessories. The first testing must be conducted at the same time as the Yearly Pump station Inspection and Pump capacity Test. The 2nd testing must be due November 30 of each contract year. All results must be entered into the Log Book for each station, in chart Z. Each inspection report must be entered in the FTP site. Any deficiencies found on this inspection must have appropriate EMCMS Tickets issued, and the numbers must appear on the inspection report, Form P-5. A start-up testing on the Pump repair/replacement work must be scheduled by the Consultant following completion of any necessary repair/replacement work.

The Consultant must provide testing, analysis, database development, baseline data acquisition and problem identification and reporting, for all the pumping station equipment.

Full vibration signatures must be acquired for all mechanical equipment included in the program. The baseline data is to be analyzed to determine baseline condition of all equipment. The analysis will result in a series of reports that: (1) identify specific problems, (2) provide specific corrective actions, and (3) establish a priority (based on the problem severity) for maintenance actions.

Monitoring and analysis of the operating condition of the pumps is an absolute requirement of the preventive maintenance program. Therefore, all pumps must be monitored twice per year, additional tests are required for the pumps that indicated potential problems.

Problem Identification and Reporting. A report must be prepared each month that defines specific maintenance tasks that are required to correct incipient problems identified by the monthly data acquisition and analysis program. These reports must be submitted within five (5) working

days following completion of the data acquisition. The format of the report should be designed to reduce the amount of paperwork necessary to properly maintain accurate communication between the Consultant and IDOT. Each report is to provide a prioritized list of specific maintenance or inspection tasks that are required to verify or correct developing problems.

The Consultant must notify IDOT and the Electrical Maintenance Contractor immediately when any deficiency is noted that could jeopardize equipment operation or personnel safety. Written reports must address all monitoring points but will place a priority on “exception” reports describing problems that have been identified including a detailed evaluation of pump status and recommended maintenance actions.

A. Tests must be conducted with a flooded suction so not to cause vortexing or cavitation. For data history purpose each test should be conducted with about the same amount of pump submergence as the previous test for that pump. The Electrical Maintenance Contractor must store or provide water in order to conduct the proper test in accordance with normal operation of the pumps. Two vibration readings must be taken at the thrust end of the motor (one should be parallel to the discharge pipe and one perpendicular to the discharge pipe), and two readings must be taken at the coupling end of the motor and should be in the same plane. Finally, an axial reading should be taken. The transducer location must be marked with different colors which will correspond to x and y-axis.

B. The results of the tests must be saved on intelli-cards or 3.5-inch floppy showing the velocity in inches per second (ips). If the vibration exceeds 0.3 ips the Engineer may require that the motor be uncoupled from the pump and another test be conducted. Where motor speed is below 1000 RPM, the 0.3 ips velocity “evaluation point” must be decreased by 10% for each 100 RPM below one thousand. The worst-case reading must be assumed to be the “true” reading.

C. Readings must be considered “abnormal” when the vibration exceeds 0.3 ips. The test card data must be entered into the EMCMS System for each station, no later than 48 hours after the completion of the inspection of each station, with the entire inspection report and test cards to be received by the Engineer by June 30th and November 30th of each contract year. Note the location axis of the transducer, the pump manufacturer, model number and serial number of the associated pumps must be specified for each station. Any deficiencies found on this inspection must have appropriate Tickets issued, and the numbers must appear on the inspection report, Form P-5.

D. If necessary, the Contractor must balance a motor of a specified horsepower. The balancing must be done in conjunction with the motor inspection tests. The Contractor must record all test readings as identified in the motor inspection before and after balancing and with coupled and uncoupled drive shaft.

Coordination with Contractor PS Foreman. The Vibration and Analysis Testing Consultant must coordinate with the Contractor PS Foreman Consultant on all findings and results to develop an overall condition of the equipment.

Method of Measurement. This work must be measured and paid based on each pump tested in a pump station and analysis of results and reports delivered, as well as all labor costs, travel expenses, miscellaneous expenses, as specified in this pay item for each pumping station inspected.

Basis of Payment. This item must be paid at the contract unit price (each) for PUMP, VIBRATION TESTING AND ANALYSIS of a pump that must be payment in full for the work described herein.

PVB1 BUDGETARY ALLOWANCE FOR PUMP REPAIR SERVICES / REPLACEMENT

Description. This item is to establish a budget account to allocate funds for the payment of various types of repair services including replacement pumps, appurtenances, and miscellaneous system equipment required for the ongoing pump station system maintenance program, but which are not accurately or completely identifiable at the time of bidding. When mentioned herein, Article 109.05 is modified whereas the Contractor must be paid administrative costs of an amount equal to five (5) percent of the first \$10,000, and the Department must allow an additional one (1) percent of any amount over \$10,000 of the total approved costs, on individual work authorization.

Following is detailed information concerning each major category of work, which requires the allocation of funds for certain expenses:

1. Pump Repair Services

The annual pump rebuilding program involves many repairs for which the costs cannot be estimated or determined until the pumps are removed from operation and disassembled for examination. Most pump repairs cannot be performed by the General Contractor's forces, and it is therefore necessary to have various service and/or pump manufacturing companies perform the necessary specialty service work. Specifically, the work consists of the repair of pump bowl assemblies, discharge column repairs, shafting and oil tube assembly overhaul, and other miscellaneous services.

2. Pump Bowl Replacement

The annual pump rebuilding program involves the necessity to replace certain major parts of the pump assembly called the pump suction bowl. Until the pumps are removed from operation, it is not known whether pumps suction bowl will need to be replaced with a completely new unit. When it becomes known, after disassembly of the pump that the pump bowl cannot be repaired, the Contractor is directed by the Engineer to obtain quotations for a new replacement unit.

3. Complete Pump Replacement or Trash Rack Replacement

There may be the need to replace complete pump assemblies or trash racks at certain pump stations because of the extent of their deteriorated conditions. For these cases, the Contractor must obtain quotations for direct replacements from the same manufacturer and sometimes from other pump manufacturers.

The Engineer will evaluate the specialty service quotations and purchase quotations and authorize work accordingly. The total estimated amount of the annual expenses incurred for the work, or services performed by others, or expenses, which will be paid under Article 109.05 of the Standard Specifications as herein modified in Article 5.0, is \$500,000.00 as indicated for Pay Item PVB1. For bidding purposes, this amount must be used.

PW01 WET PIT, CLEANING AND POWER WASH

Description. This item must include the removal of all debris from the designated pump station wet pit as described herein and a power wash of the pump station wet pit, walls, floors, beams, grating, railings, piping, ladders, and stairs.

Work Description. The method by which the debris is removed from the wet pit must include any traffic control, safety, transportation, and vacuum equipment and must require the approval of the Engineer.

Equipment. 2500 PSI

All removed material must be disposed of outside the State right-of-way and in accordance with the local EPA rules and regulations.

Areas outside the bar screen(s)/trash rack(s) up to the inlet sewer must be cleaned at the same time in accordance with Article 8.

Method of Measurement. Each square yard area of wet pit silt material that is cleaned and all refuse disposed of in accordance with the above specifications and approved by the Engineer must be counted as a unit for payment.

Basis of Payment. This item must be paid at the contract unit price per square yard for WET PIT, CLEANING AND POWER WASH, which must be payment in full for the work described herein.

SURVEILLANCE SYSTEM ITEMS

SDMS DMS SIGN WALK IN EXPRESSWAY

General Requirements. This special provision must govern the furnishing and installation of a Walk-In Access, Full matrix, Color, NTCIP 1203 Dynamic Message Sign (DMS) and associated equipment cabinets as shown in the plans and as detailed in this special provision. The high resolution, full color display must be a full matrix configuration of 96 pixels high by 400 pixels wide. The size of the sign must be as shown in the plans. All display elements and modules must be solid state. No mechanical or electromechanical elements or shutters must be used.

Equipment to be furnished at each dynamic message sign field site shown in the plans must include, but not be limited to the following: LED DMS, sign controller, cabling, sign enclosure, documentation, warranties, mounting hardware, latest vendor maintenance diagnostic software with 20 licenses to load software on Department/Department's maintenance forces laptops.

The Central Controller resides at the Traffic Systems Center. The DMS Central Software was developed by 360 Surveillance, Inc. The successful sign vendor must perform an on-site Working Sample demonstration test to prove their product is compatible with the 360 Cameleon Client/Server Software. The Working Sample demonstration test criteria are outlined in Section 2.0 of this document.

Each DMS assembly must consist of a LED DMS sign case including contents, mounting brackets, its associated sign controller unit (SCU), and communication unit, cabling between the DMS case and the sign controller unit, optically coupled interface from controller to sign, and DMS walkway platforms with permanent safety and mounting brackets and hardware.

Each LED DMS must be capable of displaying three lines of text. Each line must consist of a string of 21 alphanumeric characters. Each character must be composed from a luminous dot matrix system. The matrix system for a high resolution, full color display must consist of 384 dots composed of 24 columns and 16 rows. A luminous pixel must consist of a LED pixel array. All display elements and modules must be solid state.

All characters, symbols, and digits must be 18-inch nominal character size and must be clearly visible and legible at a distance of 1100 feet within a 30-degree cone of vision centered on the optical axis of the pixel.

The signs must be capable of displaying the following:

- A static message
- A flashing message
- Two alternating messages, either flashing or static

The changing from one message to another must be instantaneous.

The total weight added to the sign structure must be no greater than 4000 pounds. The dimensions of the sign housing must not exceed 8'0" tall, 30'0" wide, and 4' deep and access to the electronics must be achieved through the front display panels of the DMS. Larger signs may

be submitted, but they will require additional review time to evaluate the structural adequacy of the Department's standard sign trusses.

The Contractor must provide structure mounted service equipment to provide power to each sign. The cost of this must be considered incidental to the unit price for the DMS.

The Contractor must be responsible to have a Licensed Structural Engineer in the State of Illinois design the sign attachment to the DMS sign truss and stamp the drawings. These drawings must be submitted to the Engineer for approval before work can commence. These drawings will describe the mounting required to attach the DMS to the structure. Shop drawings for the structures may be available upon request. The Contractor must supply all mounting hardware necessary to attach the DMS to the structure. The cost of this work must be included in the contract bid price for the item. No additional compensation will be allowed for any modifications that may be required to the structure.

All field equipment must remain fully functional over an ambient temperature range of -40° F to +149° F with relative humidity of up to 95%. All field equipment enclosures must be designed to and must withstand the effects of sand, dust, and hose-directed water. All connections must be watertight.

Working Sample Demonstration (Dynamic Message Sign. To ensure timely delivery for installation, it is imperative that the DMS manufacturer be regularly engaged in the manufacture of the specified equipment and capable of immediately demonstrating a sample DMS that is in clear compliance with the key portions of the specifications. Delay from the specified timeline, and failure to present the sample in a timely manner may result in termination of the contract, at the discretion of the Engineer.

The DMS manufacturer must provide a satisfactory, approvable demonstration of a working sample DMS within 14 calendar days after contract execution. The sample must be a complete mock-up of a working DMS based on the proposed equipment to be furnished under this contracted and identified in the submittal material. The sample demonstration may utilize a portable sample at the IDOT Traffic Systems Center, or it may be at the manufacturer's production facility if located within District 1. A demonstration of an identical installed unit for some other contract will be acceptable.

The sample demonstration must be for purposed of review and approval by the engineer. The Engineer will issue review comments based on examination of the unit and its operation at the time of the demonstration, and the Engineer may require a subsequent revised sample demonstration if, in the Engineer's judgement, the comments warrant re-work of the sample unit.

Delay in presenting the specified demonstration or delay in attaining "Approved" or "Approved as Noted" status will result in the assessment of liquidated damages in the amount of \$3,000 per calendar day until a satisfactory sample and demonstration are attained.

For a demonstration to be held at the IDOT Traffic Systems Center, the manufacturer must coordinate the exact date, time, demonstration location, and power requirements with the Traffic Systems Center Engineer.

The sample unit must be in substantial compliance with the contract requirements. The Engineer may elect to waive minor deviations for purposes of the demonstration or may waive minor

deviations completely if alternative provisions are judged superior to specified requirements, but deviations from key specified requirements will not be accepted.

Materials. All materials furnished, assembled, fabricated or installed under this item must be new, corrosion resistant and in strict accordance with the details shown in the plans and as detailed in this specification. All details and functionality listed in this specification must be thoroughly inspected and tested by the department. Failure to meet all details and functionality detailed in this specification must be grounds for rejection of the equipment.

Terminology. Due to the varying definitions used in Dynamic Message Sign technology, this section defines specific terms as they apply to this specification.

- Sign: The sign housing and its contents.
- Sign Controller: Located in a ground cabinet (as detailed in this specification), the sign controller specifies the message to be displayed. Messages can be selected either remotely from the central controller, locally from a laptop computer or from the front panel of the sign controller.
- Central Controller: The MS Windows Server computer system and related software, which operates the system from a remote-control site.
- Workstation: This computer operates as a remote client to the central controller. A workstation operator may dial-in to the central controller and gain access to the functions of the central by using the appropriate access codes.
- LED: Light Emitting Diode
- Pixel: Any of the small discrete elements that, when arranged in a pixel matrix, create a character. A pixel contains a cluster of LEDs.
- Pitch: Distance measured from center to center of adjacent pixels within a matrix. This distance is measured both horizontally and vertically.
- Poll: The central controller and laptop computer are said to “poll” a sign when they request the sign’s status information. The term is derived from the periodic status polling, which a central can perform, but is loosely used to refer to any status request.
- Message: Text; the information shown on the sign.
- Display: The message seen by the motorist. A display may include more than one page of text (an alternating display). Any character or set of characters of a display may be flashed (a flashing display).
- Neutral State: Sign is blank, or displaying a predefined message that is displayed regularly.
- WYSIWYG: What You See Is What You Get. In this specification, this is the function of the LED DMS system where the central, workstation or laptop display mimics the actual message that is visibly displayed on the sign on an individual pixel basis.

DMS Manufacturer Requirements. The company that designs and manufactures the LED DMS must be currently ISO 9001 certified of the bid date for this project and must have received its ISO 9001 certification a minimum of three years prior to the bid date for this project. The scope of this company’s ISO 9001 certifications must be for the Design, Manufacture, Installation, Maintenance and Sales of Dynamic Message Sign Systems. The facility where this company actually designs and manufactures the LED DMS must be ISO 9001 certificate. This ISO 9001 certificate must be provided with the bid. The name, phone number and address of both the Authorized ISO 9001 Registrar that certified this company and the Authorized ISO 9001

Accreditation Body that accredited this Registrar must be provided with the bid. Failure to fully comply with these requirements and to provide all this information will cause this company's equipment and software to be rejected. ISO 9002 and ISO 9003 certifications are not adequate and do not meet this requirement.

Experience Requirements. The LED DMS Manufacturer must submit a State Department of Transportation reference for a minimum of three (3) different states that have been successfully operating a highway full color LED Dynamic Message Sign System and that completely meets these specifications, manufactured, and supplied by this manufacturer for a period of no less than five (5) years.

The LED DMS Signs and System must be fabricated by an established DMS manufacturer having the minimum:

- 10 years of experience, under the current corporate name, in the design and manufacturing of State Highway or Interstate Highway, permanently mounted, overhead dynamic message signs and central control systems installed in freeway service. These 10 years of experiences must include the complete design and manufacturing of all aspects of the dynamic message signs, including the electronic hardware, software, and sign housings.
- 100 State Highway or Interstate Highway permanently mounted overhead dynamic message signs installed in freeway service, under the current corporate name.
- 50 State Highway or Interstate Highway, permanently mounted, overhead LED dynamic message signs that completely meet this specification with three lines of 18-inch characters and Walk-In Access housing installed in freeway service, under the current corporate name.
- The manufacturer of the LED DMS Signs and System must submit documentary evidence and reference data for the above requirements. Reference data must include the name and address of the organization, and the name and telephone number of an individual from the organization who can be contacted to verify the above requirements. The name of the DMS manufacturer that meets these experience requirements must have the same corporate name as the DMS manufacturer that meets the ISO 9001 requirements stated elsewhere in this specification. This information must be provided prior to documentation submittal. Failure to furnish the above references will be sufficient reason for rejection of the supplier's equipment.
- The contractor must submit the information described in this section to the Engineer within 15 days of award of the contract. The Engineer must review the submitted information and provide comments and approval of the information to the Contractor within 15 calendar days after receipt. Review of the submittal information by the Engineer must not relieve the Contractor of the contractor's obligation to furnish and install the work in accordance with the contract documents. No time extensions will be granted to the Contractor as a result of the need to resubmit various items to review.
- Shop drawings must be submitted in accordance with Article 105.04 of the Standard Specifications and as specified in these special provisions.
- Prior to purchase or fabrication of any equipment or materials for use in this project, the Contractor must submit, for review by the Engineer, appropriate catalog cuts sheets, and specifications for all standard, off-the-shelf items and must submit shop drawings and other necessary data for all non-catalog or custom-made items.

- The Contractor must furnish five sets of submittal data directly to the Engineer. Two copies of this information, with appropriate notations, must be returned to the Contractor after the review.
- If reprinted literature, such as catalog cut sheets, is used to satisfy the submittal data requirements, there must be no statements on the literature which conflict with the requirements of the contract documents. Any such statements must be crossed off and initialed by the Contractor. Explanation of how specifications must be met pertaining to items changed from the literature must be documented in writing and included with the submittal information.
- All items must be submitted together.
- Each submittal must contain sufficient information and details to permit full evaluation of each item, and its interrelationships among the various items must be carefully addressed.
- The Contractor must prepare and submit detailed shop drawings for each sign type indicating types of materials proposed for each component of each sign, parts, lists, assembly techniques, layout of all display elements and wiring schematics. The shop drawings must also illustrate in detail how the Contractor proposes to mount and connect the DMS sign case to the sign support structure (truss). The DMS sign case must include any support mechanism necessary for the installation of the DMS sign case that is not installed in the truss. These drawings must be submitted to the Engineer for review and approval prior to fabrication of any sign. Parts lists must include circuit and board designation, part type and class, power rating, component manufacturer and mechanical part manufacturer.
- As part of the submittals for the DMS assembly, the Contractor must submit an engineering drawing illustrating the DMS character set including 26 upper case letters, 10 numerals, a dash, a plus sign (+), and a slash. The Contractor must also submit complete technical information, shop drawings, photographs, graphs, circuit diagrams, instruction manuals, security provisions, and any other necessary documents to fully describe the DMS assembly and associated equipment.

Product Testing

The DMS manufacturer must provide documentation indicating that the DMS product has been tested to the following standards. It must be acceptable for the testing to be performed on scale-sized versions of the actual DMS provided that the test unit is functionally and structurally equivalent to the full size DMS.

Failure to conform to these testing requirements must be grounds for rejection. Rejected equipment may be offered for test or retest provided all non-compliant items have been corrected and tested or retested by the DMS manufacturer. Any corrections deemed necessary by the Engineer must be made by the DMS manufacturer, at no additional cost to the Department.

Third Party Testing

Third party test reports must be submitted for the following testing:

- NEMA Standards Publication TS 4, Hardware Standards for Dynamic Message Signs (DMS), with NTCIP Requirements – Section 2, Environmental Requirements. Test report must detail results of mechanical vibration and shock, electrical noise and immunity, temperature, and humidity.

- Underwriters Laboratories (UL), UL 48 Standard for Electric Signs, UL 50 Enclosures for Electrical Equipment, and UL 1433 Standard for Control Centers for Changing Message Type Electric Signs. The UL report number(s) for all DMS and control equipment manufactured by the DMS manufacturer must be submitted and the products must bear the UL mark.

The supplier must provide a record of each test performed including the results of each test. The report must include a record of the 3rd party test laboratory and the test lab's representative that witnessed the tests, including the signature of the lab's representative. The test reports must be provided to the Engineer for review as part of the technical submittal.

Self-Certification

The DMS manufacturer must provide self-certification, including a statement of conformance and copies of test reports, indicating that the following tests have been performed and passed.

Third party test reports must be submitted for testing of the following National Transportation Communications for ITS Protocol (NTCIP) standards:

- NTCIP 1201:1996, NTCIP Global Object Definitions (including Amendment 1)
- NTCIP 1203:1997, Object Definitions for Dynamic Message Signs (including Amendment 1)
- NTCIP 2101:2001, Point to Multi-Point Protocol Using RS-232 Subnetwork Profile
- NTCIP 2103(Draft v1.13), Point-to-Point Protocol over RS-232 Subnetwork Profile
- NTCIP 2104 V01.11 Ethernet Subnetwork Profile

The NTCIP testing must have been completed using industry accepted test tools such as the NTCIP Exerciser, Trevilon's NTester, Intelligent Devices' Device Tester, and/or Frontline's FTS for NTCIP. The NTCIP test report(s) must include testing of sub-network communications functionality, all mandatory objects in all mandatory conformance groups, and a subset of the remaining objects.

Physical Construction

Wiring and Power Distribution

Power and Signal Entrances. Two threaded conduit hubs must be located on the rear or side wall of the DMS housing, One hub must be for incoming AC power and the other must be for incoming DMS signal cabling or a communications line.

Panel Board. The DMS must contain a power panel board and circuit breakers that meet the following minimum requirements:

- Service entrance-rated
- Minimum of 20 circuit breaker mounting positions
- Short circuit ratings of 22,000 amps and 10,000 amps for the main and branch circuits, respectively
- IL listed panel board and circuit breakers

Internal Wiring. Wiring for LED display module control, environmental control circuits and other internal DMA components must be installed in the DMS housing in a neat and professional manner. Wiring must not impede the removal of display modules, power supplies, environmental

control equipment, and other sign components. Wires must not contact or bend around sharp metal edges. All wiring must conform to the National Electrical Code.

Earth Grounding. The DMS manufacturer must provide one earth ground lug that is electrically bonded to the DMS housing. The lug must be installed near the power entrance location on the DMS housing's rear wall. The DMS installation contractor must provide the balance of materials and services needed to properly earth ground the DMS, including ground rods and grounding wire between the DMS, grounding triad, and ground mounted controller cabinet. All earth grounding must conform to the National Electrical Code.

DMS Enclosure. The LED DMS must enable the display of text, consisting of a string of alphanumeric and other characters. The size of the sign must be as shown in the plans, and elsewhere in the specification. Each character must be formed by a matrix of luminous pixels. The matrix of a standard character must consist of 345 pixels over 15 columns and 23 rows.

The equipment design and construction must utilize the latest available techniques with a minimum number of different parts, subassemblies, circuits, cards, and modules to maximize standardization and commonality. The equipment must be designed for ease of maintenance. All component parts must be readily accessible for inspection and maintenance. Test points must be provided for checking essential voltages.

The sign must be designed for a minimum life of 20 years.

The sign shall be designed and constructed so as to present a clean and neat appearance. Poor workmanship must be cause for rejection of the sign.

All cables must be securely clamped or tied in the sign housing. No adhesive attachments will be allowed.

The dynamic message sign, including the sign housing and all modules and assemblies, must be designed and manufactured in the USA.

The complete sign housing must be designed and manufactured in-house by the LED DMS Sign Manufacturer.

A registered structural engineer in the State of Illinois must analyze the DMS structure and certify that the DMS will withstand the temporary effects of being lifted by the provided eye bolts, will comply with the applicable requirements of AASHTO Standard Specification for Structural Supports for Highway Signs, Luminaries and Traffic Signals, Fourth Draft, 2001, and will support a front face ice load of 4 lbs. per square foot.

The equipment within the sign housing must be protected from moisture, dust, dirt and corrosion. The sign must be constructed of aluminum alloy 5052-H32 or 3003-H14 which must not be less than 1/8" thick, unless otherwise specified in this document. Framing structural members must be made of aluminum alloy 6061-T6 or 6063-T5.

All welding must be by an inert gas process in accordance with the American Welding Society (AWS) Standards, ANSI/AWS D1.2-97. The LED DMS manufacturer's welders and welding procedures must be certified by an ANSI/AWS Certified Welding Inspector to the 1997 ANSI/AWSd1.2-97 Structural Welding Code for Aluminum. Proof of certification of all the LED DMS manufacturer's welders and applicable welding procedures must be supplied with the submittals. The name, phone number and address of the ANSI/AWS Certified Welding Inspector

that certified the LED DMS manufacturer's welders and procedures must also be provided with the submittals.

The DMS housing's right, left, and rear walls must be vertical. The top and bottom sides must be horizontal.

The sign housing must be capable of withstanding a wind loading of 120 M.P.H. without permanent deformation or other damages.

All 120/240 VAC wiring located inside the sign housing must be run in conduit pull-boxes, handy-boxes, power supply boxes, control cabinets, and circuit breaker boxes.

The performance of the sign must not be impaired due to continuous vibration caused by wind, traffic, or other factors. This includes the visibility and legibility of the display.

The presence of power transients or electromagnetic fields, including those created by any components of the system, must have no deleterious effect on the performance of the system. The system must not conduct or radiate signals which will adversely affect other electrical or electronic equipment including, but not limited to, other control systems, data processing equipment, audio, radio, and industrial equipment.

All DMS structural hardware must be stainless steel and appropriately sized for the application.

The DMS Manufacturer must provide a signed and sealed copy of these certifications by the registered Structural Engineer as part of the catalog cut submittal.

Electronical Components. All electronic components, except printed circuit boards, must be commercially available, easily accessible, replaceable and individually removable using conventional electronics repair methods.

All workmanship must comply with ANSI/IPC-1-610B Class 2 titled "acceptability of Electronic Assemblies", ANSI/IPC-7711 titled "Rework of Electronic Assemblies", and ANSI/IPC-7721 titled "Rework and Modification of Printed Boards and Electronic Assemblies".

All electronic components must comply with Section Electronic Materials and Construction Methods, located in this document.

All Printed Circuit Boards (PCBs) must be completely conformal coated with a 0.010 inch (10 MIL) minimum thickness silicone resin conformal coat. The LED mother boards must be completely conformal coated, except at the pixels on the front of the PCB, with a 0.010 inch (10 MIL) minimum thickness silicone resin conformal coat. The material used to coat the PCBs must meet the military specification: MIL-I-46058C Type SR.

Mechanical Components. All external screws, nuts, and locking washers must be stainless steel. No self-tapping screws must be used. All parts must be made of corrosion resistant materials, such as plastic, stainless steel or aluminum. All materials used in construction must be resistant to fungus growth and moisture deterioration. An inert dielectric material must separate dissimilar metals.

Convenience Outlets. The DMS housing must contain a utility outlet circuit consisting of a minimum of three (3) 15-A NEMA 15-R, 120 VAC duplex outlets, with ground-fault circuit interrupters. One outlet must be located near each end of the DMS housing interior, and the third outlet must be located near the housing's center.

If the sign controller and communication equipment is to be mounted in the sign, a second outlet circuit must be included consisting of a minimum of two (2) 15-A NEMA 15-R, 120 VAC duplex outlets. These outlets must be located near the controller and communication equipment mounting location.

Front Face Construction

The DMS front face must be constructed with multiple rigid panels, each of which supports and protects a full-height section of the LED display matrix. The panels must be fabricated using aluminum sheeting on the exterior and polycarbonate sheeting on the interior of the panel.

Front face panels must provide a high-contrast background for the DMS display matrix. The aluminum mask of each panel must be painted black and must contain an opening for each pixel. Openings must be large enough to not block any portion of the viewing cones of the LEDs.

Face panels must be attached to each other using stainless steel hardware. Seams that separate adjacent panels must be sealed. Panels must not be welded or otherwise permanently mounted to the DMS housing.

Each panel must have a single polycarbonate sheet attached securely to the inside of the aluminum panel. The polycarbonate sheet must cover all of the pixel openings. The polycarbonate must be sealed to prevent water and other elements from entering the DMS. The polycarbonate must contain UV inhibitors that protect the LED display matrix from the effects of ultraviolet light exposure and prevent premature aging of the polycarbonate itself. The use of a plastic lens system will not meet the requirements and will be cause for rejection.

LED display modules must mount to the inside of the DMS front face panels. No tools must be needed for removal and replacement of LED display modules.

DMS front face borders (top, bottom, left side and right side) which surround the front face panels and LED display matrix, must be painted black to maximize display contrast and legibility.

In the presence of wind, the DMS front face must not distort in a manner that adversely affects LED message legibility.

Service Access. The DMS housing must provide safe and convenient access to all modular assemblies, components, wiring and subsystems located within the DMS housing. All of those internal components must be removable and replaceable by a single technician.

At least one (1) 80" vertically hinged door must be located on each end (left, right or left and right side) of the DMS housing. Each access door must be mounted to an integral doorframe. A vertical stainless-steel hinge must support each door and all doors must open outward. In the closed position, each door must latch to its frame with a three-point draw-roller mechanism. The latching mechanism must include an internal handle and release lever. Door release levers must be located so that a person with no key and no tools cannot become trapped inside the housing.

Access doors, when open at a 90-degree angle from the DMS housing end wall, must not extend more than 38-inches (965 mm) from the housing. The bottom edge of each door must be at least 3.5 inches (89 mm) from the bottom edge of the DMS housing. This will provide clearance for the doors to swing open over external access platform.

Door frames must be double flanged on all sides to shed water. Each door must close around its flanged frame and compress against a closed-cell foam gasket, which adheres to the door. All doors must contain a stop that retains the door in a 90-degree open position. When a door is open, the door and its stop must not be damaged by a 40 mph (64km/h wind).

Each door must be furnished with a lock that is keyed to a Corbin #2 lock.

The DMS must be equipped with an OSHA compliant safety rail assembly, which prevents service personnel from falling out of the DMS when closed across an open access door. A rail assembly must be provided for each door in the display. The safety rail must consist of a top rail that extends 42-inches (1,067 mm) above the interior walkway and a mid-rail that extends 21-inches (533 mm) above the interior walkway. The rail assembly must require no tools to open and close.

The DMS cabinet must be equipped with an OSHA compliant anchor point at each entrance location for the connection of a personal fall arrest system. These anchorages integrated to the support structure must be strong enough to withstand a force of 5,000 pounds (22.2 kilonewton(s)) as required by OSHA. The anchorages must be located such that they must not allow a person to free-fall more than 6 feet when a 6-foot lifeline is used. The anchorages must be located just inside each access door within easy reach from the outside.

Interior work area, minimum headroom of 72-inches (1,829 mm) must be provided. This free space must be maintained across the entire width of the DMS housing, with the exception of structural frame members. Structural members must be designed not to obstruct the free movement of maintenance personnel throughout the DMS.

A level aluminum walkway must be installed in the bottom of the DMS housing. The walkway must be a minimum of 24-inches (610 mm) wide, and it must run the entire length of the housing. The walkway's top surface must be non-slip and must be free of obstructions that could trip service personnel. The walkway must support a load of 500 pounds (136 kg) per two (2) linear feet per AASHTO STA Specifications for Highway Signs section 3.6 Live Loads and it must be constructed of multiple aluminum removable panels.

Face Panels. Front face panels must provide a high-contrast background for the DMS display matrix. The aluminum mask of each door panel must be painted black and must contain an opening for each pixel. Openings must be large enough to not block any portion of the viewing cones of the LEDs.

Each panel must have a single polycarbonate sheet attached securely to the inside of the aluminum panel. The polycarbonate sheet must cover all of the pixel openings. The polycarbonates must be sealed to prevent water and other elements from entering the DMS. The polycarbonate must contain UV inhibitors that protect the LED display matrix from the effects of ultraviolet light exposure and prevent premature aging of the polycarbonate itself. Polycarbonate sheet must have the following characteristics:

- Tensile Strength, Ultimate: 10,000 PSI
- Tensile Strength, Yield: 9,300 PSI
- Tensile Strain at Break: 125%
- Tensile Modulus: 330,000 PSI
- Flexural Modulus: 330,000 PSI
- Impact Strength, Izod (1/8", notched): 17 ft-lbs./inch of notch.

- Rockwell Hardness: M75, R118
- Heat Deflection Temperature Under Load: 264 PSI at 270F and 66 PSI at 288F
- Coefficient of Thermal Expansion: 3.9×10^{-5} in/in/F
- Specific Heat: 0.30 BTU/lb./F
- Initial Light Transmittance, 3 years exposure in a Southern latitude: 3%
- Change in Light Transmittance, 3 years exposure in a Southern latitude: 3%
- Change in Yellowness Index, 3 years exposure in a Southern latitude: Less than 5%

LED display modules must mount to the inside of the DMS front face panels. Common hand tools must be used for removal and replacement.

DMS front face borders (top, bottom, left side, and right side), which surround the front face panels and LED display matrix, must be painted black to maximize display contrast and legibility.

In the presence of wind, the DMS front face must not distort in a manner that adversely affects LED message legibility.

Exterior Finish

DMS front face panels and front face border pieces must be coated with semi-gloss black Kynar 500 resin or an equivalent brand of oven-fired fluoropolymer coating, which has an expected outdoor service life of 20 years. All other DMS housing surfaces, including the DMS mounting brackets, must be natural mill-finish aluminum.

Heating

The lens panel must use heated, forced air to prevent fogging and condensation. An eight watt-per-foot, self-regulating, heat tape must be provided along the bottom of the message area, between the glazing and the display modules. The sign controller must control the heat tape. All heat tape terminal blocks must be covered for safety.

Humidity Control

A humidity sensor must be provided and sensed by the sign controller from 0 percent to 100 percent relative humidity in one percent or fewer increments. The sensor must operate and survive from 0 percent to 100 percent relative humidity.

The sensor must have an accuracy that is better than +/- 5 percent relative humidity. The sign controller must read the internal temperature sensors, external ambient temperature sensor and the humidity sensor. The sign controller must use these readings in an algorithm that turns on the heat tape and/or the fans at the appropriate times to reduce both frost on the face of the sign and condensation on the display modules and other electronic circuitry.

Drain Holes

The bottom panel of the housing must contain small drain holes. The drain holes must be screened to prevent the entrance of insects and small animals and must be replaceable.

Ventilation System

The DMS must contain systems for cabinet ventilation and safe over-temperature shutdown.

The DMS must contain a electronically controlled ventilation system and a failsafe thermostat designed to keep the internal DMS air temperature lower than +140° F (+60° C), when the outdoor ambient temperature is +115° F (+46° C) or less.

The ventilation system must consist of two or more air intake ports. Intake ports must be located near the bottom of the DMS rear wall. Each intake port must be covered with a filter that removes airborne particles measuring 500 microns in diameter and larger. One or more ball bearing-type fans must be mounted at each intake port. These fans must positively pressure the DMS cabinet.

Fans and air filters must be removable and replaceable from inside the DMS housing.

Each ventilation fan must contain a sensor to monitor its rotational speed, measured in revolutions per minute. The fan speed must be reported to the sign controller upon request.

The ventilation system must move air across the rear of the LED modules in a manner such that heat is dissipated from the LEDs. The airflow must move from the bottom of the cabinet towards the top to work with natural convection to move heat away from the modules.

Each exhaust port must be located near the top of the rear DMS wall. One exhaust port must be provided for each air intake port. All exhaust port openings must be screened to prevent the entrance of insects and small animals.

An aluminum hood attached to the rear wall of the DMS must cover each air intake and exhaust port. All intakes and exhaust hoods must be thoroughly sealed to prevent water from entering the DMS.

The DMS must automatically shut down the LED modules to prevent damaging the LEDs if the measured internal cabinet air temperature exceeds a maximum threshold temperature. The threshold temperature must be configurable and must have a default factory setting of 140° F (+60° C). The factory default setting must be overridden if the selected message priority is set above 200 or is selected as an emergency message.

Alternate sign ventilation systems can be submitted to the Engineer for approval. Extra time and additional demonstration testing, and documentation of the proposed alternate system may be needed to secure the necessary approval from the Engineer. No extra compensation must be awarded to the Contractor for the alternate design but if the alternate design is rejected, liquidated damages may apply.

LED Display Modules

The DMS must contain LED display modules that include an LED pixel array, LED driver circuitry, and mounting hardware. These modules must be mounted adjacently in a two-dimensional array to form a continuous LED pixel matrix. Each LED display module must be constructed as follows:

- Each LED display module may consist of one or two circuit boards. If two boards are used, they must be mounted physically to each other using durable corrosion resistant hardware. They must be electrically connected via one or more header-type connectors. The header connectors must be keyed such that the boards cannot be connected incorrectly.
- All LED modules must be manufactured using laminated fiberglass printed circuit boards.
- Each LED display module must be mounted to the rear of the display's front face panels using durable corrosion resistant hardware. No tools must be required for module removal and replacement. The modules must be mounted such that the LEDs emit light through

the face panel's pixel holes and such that the face panel does not block any part of the viewing cone of any of the LEDs in any pixels.

- LED display module power and signal connections must be a quick-disconnect locking connector type. Removal of a display module from the DMS, or a pixel board or driver circuit board from its display module, must not require a soldering operation.
- All exposed metal on both sides of each printed circuit board, except connector contracts, must be protected from water and humidity exposure by a thorough application of conformal coating. Bench level repair of individual components, including discrete LED replacement and conformal coating repair, must be possible.
- Individual addressing of each LED display module must be configured via the communication wiring harness and connector. No on-board addressing jumpers or switches must be allowed.
- Removal or failure of any LED display module must not affect the operation of any other LED module or sign component. Removal of one or more LED module must not affect the structural integrity of any part of the sign.
- It must not be possible to mount an LED display module upside-down or in an otherwise incorrect position within the DMS display matrix.
- All LED display modules, as well as the LED pixel boards and driver circuit boards, must be identical and interchangeable throughout the DMS.

LED Pixels

- Each Led module must contain a printed circuit board to which LED pixels are soldered. The LED pixel matrix must conform to the following specifications:
- Each LED module must contain a minimum of 256 LED pixels configured in a two-dimensional array. The pixel array must be a minimum of sixteen (16) pixels high by sixteen (16) pixels wide.
- The distance from the center of one pixel to the center of all adjacent pixels, both horizontally and vertically, must be 0.81-inches (20.6 mm).
- Each pixel must consist of a minimum of one (1) independent string of discrete LEDs for each color. All pixels must contain an equal quantity of LED strings.
- The failure of an LED string or pixel must not cause the failure of any other Led string or pixel in the DMS.
- Each pixel must contain the quantity of discrete LEDs needed to output white colored light at a minimum luminous intensity of 12,400 candelas per square meter when operated within the forward current limits defined in these specifications.
- Each pixel must also be capable of displaying amber colored light with a minimum luminous intensity of 7,440 candelas per square meter when operated within the forward current limits defined in these specifications.
- Each LED pixel must not consume more than 1.5 watts.
- The circular base of the discrete LEDs must be soldered so that they are flush and parallel to the surface of the printed circuit board. The longitudinal axis of the LEDs must be perpendicular to the circuit board.

Discrete LEDs

DMS pixels must be constructed with discrete LEDs manufactured by Avago Technologies (formerly Agilent Technologies), Toshiba Corporation, Nichia Corporation, OSRAM, or equivalent. Discrete LEDs must conform to the following specifications:

- All LEDs must have a nominal viewing cone of 30 degrees with a half-power angle of 15 degrees measured from the longitudinal axis of the LED. Viewing cone tolerances must be as specified in the LED manufacturer's product specifications and must not exceed +/- 3 degrees.
- Red LEDs must utilize AlInGaP semiconductor technology and must emit red light that has a peak wavelength of 615 – 650 nm.
- Green LEDs must utilize InGaN semiconductor technology and must emit green light that has a peak wavelength of 525 – 535 nm.
- Blue LEDs must utilize InGaN semiconductor technology and must emit blue light that has a peak wavelength of 646 – 470 nm.
- The LED lenses must be fabricated from UV light resistant epoxy.
- The LED manufacturer must perform color sorting of the bins. Each color of LEDs must be obtained from no more than two (2) consecutive color "bins" as defined by the LED manufacturer.
- The LED manufacturer must perform intensity sorting of the bins. LEDs must be obtained from no more than two (2) consecutive luminous intensity "bins" as defined by the LED manufacturer.
- The various LED color and intensity bins must be distributed evenly throughout the sign and must be consistent from pixel to pixel. Random distribution of the LED bins must not be accepted.
- LED package style must be either through-hole flush-mount or surface-mount. Through-hole LEDs with standoffs must not be accepted.
- All LEDs used in all DMS provided for this contract must be from the same manufacturer and of the same part number, except for the variations in the part number due to the intensity and color bins.
- The LEDs must be rated by the LED manufacturer to have a minimum lifetime of 100,000 hours of continuous operation while maintaining a minimum of 70% of the original brightness.

Pixel Drive Circuitry

One (1) electronic driver circuit board must be provided for each LED pixel module and must individually control all pixels on that module. The driver circuit boards must conform to the following specifications:

- Each Led driver board must be microprocessor-controlled and shall communicate with the sign controller on a wire or fiber optic communication network using an addressable network protocol. The microprocessor must process commands from the sign controller to display data, perform diagnostic tests, and report pixel and diagnostic status.
- Constant current LED driver ICs must be used to prevent LED forward current from exceeding the LED manufacturer's recommended forward current whenever a forward voltage is applied. To maximize LED service life, LED drive currents will not be allowed that exceed the manufacturer's recommendations for the 100,000-hour lifetime requirement.
- The LED pixels must be directly driven using pulse width modulation (PWM) of the drive current to control the display intensity. This LED driver circuitry must vary the current pulse width to achieve the proper display intensity levels for all ambient light conditions. The

drive current pulse must be modulated at a frequency high enough to provide flicker-free operation and a minimum of 200 brightness levels.

- The LED driver circuitry must receive updated display data at a minimum rate of ten (10) frames per second from the sign controller.
- Each LED driver circuit must be powered by 24 VDC from external regulated DC power supplies. Each driver circuit must receive power from a minimum of two (2) independent power supplies. Indicator LEDs must be provided to indicate the status of each power source.
- Each LED driver circuit must contain a microprocessor-controlled power regulation circuit that controls the voltage applied to the LED strings. The power circuit must automatically adjust the voltage supplied to the LEDs to optimize power consumption efficiency as the temperature changes.
- The voltage of each power input must be measured to the nearest tenth of a volt and reported to the sign controller upon request. Each driver circuit must also contain one status LED for each power source that indicates if the power source is present or not.
- The LED driver circuitry must be able to detect that individual LED strings or pixels are stuck off and must report the pixel status to the sign controller upon request.
- The LED driver board must contain a seven-segment numeric LED display that indicates the functional status of the driver and pixel boards. At a minimum, it must indicate error states of the LED pixels and communication network. The indicator must be positioned such that a maintenance technician can easily view the status code for diagnostic purposes. The status codes must also be reported to the sign controller upon request.

Characters Displayed

The signs must be capable of displaying ASCII characters 32 through 126 (including all upper- and lower-case letters and digits from 0 to 9) at any location in a message line.

The display area must be 96 pixels high by 400 pixels wide.

The sign must normally display 18-inch characters using triple-stroke (23 x 15) characters with four-column spacing between characters. The operator must be able to change the default spacing between characters. The spacing options must be one-, two-, or three-pixel columns. Font access privileges must be assigned by the system supervisor.

The full matrix display must be capable of displaying other sized character, graphics/symbols, and other number of lines depending on the height of the character utilized.

The separation between the last column of one module and the first column of the next must be equal to the horizontal distance between the columns of a single display module. The separation between the last row of one module and the first row of the next must be equal to the horizontal distance between the rows of a single display module.

18-inch character must be legible under all light conditions at a distance of 900 feet within a 30-degree cone of vision centered on the optical axis of the pixel. The cone perimeter must be defined by its 50% intensity points.

The sign must be the proper brightness in all lighting conditions for optimum legibility. It must be bright enough to have a good target value, but not be the point where the pixels bloom, especially in low ambient light level conditions.

The brightness and color of each pixel must be uniform over the entire face of the sign within the 30-degree cone of vision from 900 feet to 200 feet in all lighting conditions. Non-uniformity of brightness or color over the face of the sign under these conditions must be cause for rejection of the sign.

Display of Graphic Images

The DMS control software must support the inclusion of graphics in messages. If the NTCIP 1203 v3 standard has not reached a “recommended” or “approved” state by the time of contract award, the vendor must support graphics using manufacturer-specific objects and MULTI tags.

If a manufacturer-specific means of supporting graphics is used, the vendor must commit to provide NTCIP 1203 v3 firmware updates at no cost to the customer. These updates must include all current requirements of these specifications and standard graphics support. The vendor must install the updates no later than six months after the NTCIP 1203 v3 standard reaches the “approved” state.

Regulated DC Power Supplies

The LED pixel display modules must be powered with auto-ranging regulated switching power supplies that convert the incoming AC to DC at a nominal voltage of 24 volts DC. Power supplies must be wired in a redundant parallel configuration that uses multiple supplies for the DMS display matrix.

Power supplies must be redundant and rated such that if one supply fails, the remaining supply(s) must be able to operate 100% of the pixels in that display region at 100% brightness when the internal DMS air temperature is +140° F (60° C) or less.

Each power supply must receive 120VAC power from separate circuits on separate circuit breakers, such that a single tripped breaker must not disconnect power from more than one supply.

The power supplies must be sufficient to maintain the appropriate LED display intensity throughout the entire operating input voltage range.

The output of each power supply must be connected to multiple circuits that provide power to the LED modules. Each output circuit must not exceed 15 amperes and must be fused.

Each power supply must be monitored by a microprocessor-controlled circuit. This circuit must monitor the voltage of each power supply. The power supply voltages must be reported to the sign controller upon request. The power supplies used to power the LED pixel modules must be identical and interchangeable throughout the DMS.

Regulated DC power supplies must conform to the following specifications:

- Nominal output voltage of 24 VDC +/- 10%
- Nominal maximum output power rating of 1000 watts
- Operating input voltage range must be a minimum of 90 to 260 VAC.
- Operating temperature range must be a minimum of -30° F to +165° F (-34° C to +74° C)
- Maximum output power rating must be maintained over a minimum temperature range of -30° F to +140° F (-34° C to + 60° C)
- Power supply efficiency must be a minimum of 80%

- Power factor rating must be a minimum of 0.95.
- Power supply input circuit must be fused.
- Automatic output shut down and restart if the power supply overheats or one of the following output faults occurs: over-voltage, short circuit, or over-current.
- Power supplies must be UL listed.
- Printed circuit boards must be protected by an acrylic conformal coating.

Photoelectric Sensor Devices

Three (3) photocells must be installed on the sign. These devices must permit automatic light intensity measurement of light conditions at each sign location.

These photocells must be mounted in a manner to measure front, rear and ambient light conditions.

Brightness Control

Automatic adjustment of the LED brightness must occur in small enough increments so that the brightness of the sign changes smoothly, with no perceivable brightness change between adjacent levels. Provision must be made to prevent perceivable brightening of the sign due to stray headlights shining upon the photo sensors at night.

Pixel brightness must be controlled by pulse width modulation of the DC current. The pixel current wave form must have a frequency of 100 +/-5 Hertz at nighttime brightness levels and 2400 ± 120Hertz at daytime brightness levels with an adjustable duty cycle of 0.03 to 99.9% in 0.5% or finer increments. Brightness must be manually settable from the front panel of the controller and remotely from the central computer in 1% increments. Brightness control must be able to be returned to automatic from the sign controller front panel and the central computer.

Pixel Status Feedback:

Two separate types of pixel status feedback must be provided to the central controller from the local sign controller. These include a pixel test and a pixel read:

Pixel Test: The pixel test must be performed from the central controller on command and automatically once a day. During a pixel test, the full operational status of each string of LEDs in each pixel must be tested and then transmitted to the central controller or laptop computer. This pixel status test must distinguish the difference between half out, full out, half stuck-on and fully stuck-on pixels. A list of defective pixels must be provided, listing pixel status, line number, module number, column number and row number for each defective pixel. The pixel test may briefly disturb the displayed message for less than 0.5 seconds.

Pixel Read: The pixel read must be performed during both message downloads and during every sign poll from the central controller or laptop computer. The pixel read must perform a real-time read of the displayed message and must return the state of each pixel to the central controller as it is currently displayed to the motorist, including any errors. This must allow the central controller operator to see what is visibly displayed to the motorist on an individual pixel basis. During a pixel read, the state of each pixel (full-on, half-on or off) on the sign must be read by the sign controller to allow the central controller or laptop computer to show the actual message, including static flashing and alternating messages, that is visible displayed on the sign in a WYSIWYG format. This pixel reading must take place while a message is displayed on the sign without disturbing

the message in any way. Any flashing, flickering, blinking, dimming, or other disturbance of the message during this pixel read must be cause for rejection of the sign.

The pixel read must be an actual real-time read of the current flowing through each string of LEDs at the time of the associated sign poll or message download and must not be accomplished by simulating errors based on the last pixel test.

Environmental Operating Parameters

All DMS components must be capable of operating without any decrease in performance over a temperature range of -40° C (-40° F) to + 70° C (+158° F) with a relative humidity of up to 95% non-condensing, unless otherwise noted in this specification.

Sign Controller

General Requirements

Each DMS must be controlled and monitored by its own sign controller. The sign controller must be a stand-alone microprocessor-based system, which does not require continuous communication with DMS control software in order to perform most DMS control functions.

The sign controller must meet the following operational requirements:

- Communicate using the NTCIP protocol.
- Contain memory for storing changeable and permanent messages, schedules, and other necessary files for controller operation.
- Include a front panel user interface with LCD and keypad for direct operation and diagnostics as described herein.
- Contain a minimum of three (3) NTCIP-compliant RS232 communication ports.
- Contain a minimum of one (1) NTCIP-compliant Ethernet port with RJ45 connector.
- Contain DMS-specific control firmware (embedded software) that must monitor all external and internal sensors and communication inputs and control the display modules as directed by external control software and the front panel interface NTCIP must be natively supported in the DMS controller. External protocol converter or translator devices must not be allowed.

Controller Location

The sign controller and associated communication equipment must be installed inside the ground mounted cabinet as shown on plans.

Environmental

The sign controller must meet the following environmental requirements defined in NEMS Standards Publication TS 4, Hardware Standards for Dynamic Message Signs (DMS), with NTCIP Requirements.

Mechanical and Electrical

The sign controller must meet the following electrical and mechanical requirements:

- Mount in a standard EIA 19-inch (480 mm) equipment rack with a maximum 4U space requirement
- Weigh no more than 10 pounds, including its enclosure.
- Consume no more than 30 watts of power.
- Powered by an internal regulated DC power supply capable of operating on 120VAC or 240VAC at both 50Hz and 60Hz.
- All printed circuit boards must be sealed with an acrylic conformal coating.

Operational Requirements

Front Panel User Interface

The sign controller's front panel must include a menu driven, 16 button keypad and a 280 x 472 graphical LCD. These devices must be used to perform the following functions with the sign controller and DMS:

- Monitor the current status of the sign controller, including the status of all sensors and a RGB what-you-see-is-what-you get (WYSIWYG) representation of the message visible on the display face.
- Perform diagnostics testing of various system components, including pixels, power systems, sensors, and more.
- Activate, create, preview and delete messages stored in memory.
- Blank the sign.
- Start and stop the schedule.
- Configure display parameters, including display size and color technology.
- Configure date and time.
- Configure communications port settings and NTCIP options.
- Configure level of password protection per user.
- Select automatic or manual brightness mode of operation.

The front panel interface must also include:

- Power switch to turn the controller on and off.
- LED power "on" indicator
- Local/remote selection from LCD interfaces.
- LED to indicate when any of the NTCIP communication channels are active.

Memory

The sign controller must have non-volatile electronically changeable memory. This memory must be formed by flash or battery-backed static RAM integrated circuits that retain the data in memory for a minimum of 30 days following a power loss. This changeable memory must be used to store messages and schedules. The controller memory must be capable of storing a minimum of 500 changeable test-based messages in non-volatile RAM. There must be a minimum of 2 GB RAM and 8 GB of storage.

Internal Clock

The DMS sign controller must contain a computer-readable clock that has a battery backup circuit. The battery must keep the clock operating properly for at least 5 years without external power, and the clock must automatically adjust for daylight savings time and leap year using hardware, software, or a combination of both. The clock must be set electronically by the sign controller microprocessor and must be accurate to within one (1) minute per month.

Communications

All remote communication ports must be NTCIP-compatible as defined in the “Requirements for NTCIP Compatibility” section of these specifications.

Communication Modes

The DMS sign controller must be able to receive instructions from and provide information to a computer containing DMS control software using the following communication modes:

- Remotely via direct or dial-up communications with a remotely located computer. The system communications backbone, as well as all field modems or signal converters, must provide the DMS sign controller with an RS232 signal.
- Locally via direct connection with a laptop computer that is connected directly to the sign controller using an RS232 null modem connection.

Serial Communication Ports

The DMS sign controller must contain a minimum of three (3) NTCIP-compatible RS232 communication ports. These ports must support multiple communication interfaces, including, but not limited to, direct null-modem (for local laptop control), dial-up and leased-line modems, radio systems, cellular modems, and fiber optic modems. The RS232 ports must all have standard DB9M connectors.

The baud rate, connection type, and NTCIP communication protocol must be configurable. Each port must support all typical serial baud rates ranging from 1200 to 115,200 baud. All three ports must be capable of supporting either of the following sub network profiles: NTCIP 2101 (PMPP) or NTCIP 2103 (PPP). They must also be capable of supporting either NTCIP 2201 (Null) or NTCIP 2202 (Internet) transport profiles. Only one each of the transport and sub network profiles must be active at any time on each port.

Ethernet Port

The DMS sign controller must contain a minimum of one (1) 10/100 Base -T Ethernet communication port. This port must be available for use for communicating from the central control system to the DMS sign controller when an Ethernet network is available. The Ethernet port must have a standard RJ45 connector.

Communications on the Ethernet port must be NTCIP-compatible using the NTCIP 2202 Internet transport profile and the NTCIP 2104 Ethernet sub network profile. This must permit the controller to be operated on any typical Ethernet network using the TCP/IP and UDP/IP protocols.

Controller Addressing

Thirty (30) days prior to the scheduled field installation of each DMS controller, the Contractor must deliver the controller to the Traffic Systems Center (TSC) for network configuration prior to installation by the Contractor. The controller must be clearly identified as to which location it is to be installed for proper configuration. The controller's MAC address must be clearly identified. After the controller is configured, the Contractor must retrieve the controller from the TSC and install it.

Transient Protection

The DMS and sign controller signal and power inputs must be protected from electrical spikes and transients as follows:

Sign AC Power

The AC power feed for all equipment in the sign cabinet must be protected at the panel board by a parallel-connection surge suppressor rated for a minimum surge of 50kA. This device must conform to the following requirements:

- Withstand a peak 100,000-ampere surge current, 50kA L-N, 50kA L-G
- Designed, manufactured, & tested consistent with: ANSI/IEEE C62.41.1-2002, C62.42.2-2002, C62.45-2002, NEMA LS-1, NEC 285 and IEC 61643, CE
- Less than 1 nanosecond response time
- Temperature range of -15° F to +140° F (-26° C to +60° C)
- Approximate dimensions of 3-inches (76 mm) wide by 8-inches (203 mm) long by 3-inches (76 mm) high
- High Energy Parallel Design for Category C3 & C-High Application
- UL listed to UL 1449 Third Edition 200kA & 100kA SCCR.

Control Equipment AC Power

- Withstand a peak 100,000-ampere surge current, 50kA L-N, 50kA L-G
- Designed, manufactured, & tested consistent with: ANSI/IEEE C62.41.1-2002, C62.42.2-2002, C62.45-2002, NEMA LS-1, NEC 285 and IEC 61643, CE
- Less than 1 nanosecond response time
- Temperature range of -15° F to +140° F (-26° C to +60° C)
- Approximate dimensions of 3-inches (76 mm) wide by 8-inches (203 mm) long by 3-inches (76 mm) high
- High Energy Parallel Design for Category C3 & C-High Application
- UL listed to: UL 1449 Third Edition 200kA & 100kA SCCR.

Communications Signals

Transient voltage surge suppressors must protect all communication signals connecting to the control equipment from off-site sources using sopper cables. Transient voltage surge suppressors must protect all copper communication lines used to pass data between the sign controller and sign.

Protection

A series/parallel two-stage suppression device must protect the modem communication port from over-voltage and over-current conditions. This surge protection must be integrated internally within the controller.

Local User Auxiliary Interface

When DMS sign controller is located inside of DMS sign enclosure.

Auxiliary Control Panel

The DMS must include an auxiliary control panel that will provide a secondary used interface panel for DMS control, configuration, and maintenance. The auxiliary control panel must meet the same electrical, mechanical, and environmental specifications as the DMS controller. It must be powered independently from a 120 VAC outlet. There also must be a 120 VAC convenience outlet for maintenance personnel lap top computers and a hinged shelf which folds from inside the cabinet and is suitable for the laptop computer to rest on.

Interface Panel

The auxiliary control panel must have an LCD panel and keypad identical to those found on the DMS controller. It must also contain a local/remote control switch; reset switch, status LEDs, and one NTCIP compatible RS232 communication port that meet the same specifications as the DMS controller.

DMS Control Interface

The auxiliary control panel must include an identical menu system to the DMS controller with all of its features and functionality.

Location

The auxiliary control panel must be installed at grade level in a location that is safe and easy for maintenance personnel to access.

Controller Signal Interface

The auxiliary control panel must interface to the DMS controller using fiber optic. It must be capable of operating up to 4000 feet from the DMS controller.

Sign Controller Functions

The sign controller must be capable of being controlled from the central controller or the laptop computer.

The controller software must be capable of displaying a message, including static messages, flashing messages, and alternating messages.

Messages must be capable of displaying text, graphics or a combination of both. The graphics area must be downloaded from the central controller with each message.

It must be possible to separately vary the flashing and alternating frequencies. Flashing messages must have the following adjustable timing:

- Message time on from 0.5 to 5.0 seconds in 0.1 second increments
- Message time off from 0.5 to 5.0 seconds in 0.1 second increments

It must be possible to flash any character or set of characters in a static message.

Alternating messages must have the following adjustable timing:

- Primary message time on from 0.5 to 5.0 seconds in 0.1 second increments
- Primary message time off from 0 to 5.0 seconds in 0.1 second increments
- Alternative message time on from 0.5 to 5.0 seconds in 0.1 second increments
- Alternate message time off from 0 to 5.0 seconds in 0.1 second increments

It must be possible to flash any character or set of characters in an alternating message at the adjustable frequencies listed above for flashing messages. The flashing period must be a sub-multiple of the alternating on-time it is associated with.

Report errors and failures, including:

- Power failure
- Power recovery
- Pixel string failure
- Fan failure
- Over a user selectable critical temperature
- Power supply failure
- Data transmission error
- Receipt of invalid data
- Communication failure recovery

Message and Status Monitoring:

The sign controller must respond to the central controller whenever it receives a request for status (a poll). The return message must be capable of providing the following information:

- Actual message that is visibly displayed on the sign on an individual pixel basis (full-on, half-on or off)
- Current sign illumination level
- Local Control Panel switch position (central, local or local override mode)
- Error and failure reports
- Temperature readings
- LED power supply voltage levels
- Origin of display message transmission (laptop, manual or central)
- Heater status
- Address of sign controller
- Uninterruptable power supply status
- AC Surge protection status
- Communication line protection status
- Operational status of the following sensors
 - Each temperature sensor
 - Each photocell
 - Each airflow sensor
 - Humidity sensor
 - Each power supply sensor
- Severe error condition response

Each time the sign controller is polled by the DMS Master Controller or laptop computer, the sign controller must test the operation status of the sensors listed below and return this information to the DMS Master Controller. This operational status test must determine if each of the following sensors are functioning properly:

- Each temperature sensor
- Each photocell
- Humidity sensor
- Each LED power supply

The sign controller must provide a library with a minimum of 50 permanent messages, consisting of 30 or less characters per line, stored in PROM. The sign controller must also be able to accept a downloaded library from the central or laptop computer of a minimum of 25 changeable messages stored in non-volatile RAM. These messages may be called for display on the sign from the keypad on the front panel of the DMS Controller.

The sign controller must also be capable of displaying messages on the sign that are downloaded from the central controller or laptop computer but are not located in the library stored in the non-volatile memory of the sign controller.

The sign must normally display triple stroke (23 x 15) characters with four-column spacing between characters. The sign must also be able to display single stroke (5 x 7), expanded (6 x 7) or double-stroke (7 x 7) nominal character fonts or change the default spacing between characters. The spacing options must be one-, two-, or three-pixel columns. Each font may be edited and downloaded to the sign controller from the central controller or laptop computer at any time without any software or hardware modifications.

The full matrix display must also be capable of displaying other sized characters, graphics/symbols, and other number or lines depending on the height of the character utilized. The interline spacing must be variable.

The sign controller must monitor the photocell circuits in the sign and convert the measured light intensity into the desired pixel brightness. The photo circuit readings must be correlated with a brightness table in the sign controller. The brightness table must have a minimum of 225 brightness levels. Automatic adjustment of the LED driving waveform duty cycle must occur in small enough increments so that brightness table in each individual sign controller must be adjustable from the central controller and can be customized according to the requirements of the installation site. Each sign must have its own, independent brightness table.

Brightness must be manually settable from the front panel of the controller and remotely from the central computer in one percent increments from one to 99%.

There must be a means to adjust how rapidly the sign responds to changes in ambient light as measured by the photocells. This can be used, for example, to prevent the sign from changing its brightness due to a vehicle's headlight momentarily hitting the sign. The adjustment must be made from the central controller or laptop computer and must have two different settings, one for daytime control and one for nighttime control, with the day/night ambient light threshold also being an adjustable value. In addition, there must be a means to specify different weighting factors for each photocell, to specify how prominently each photocell figures in the calculation of nighttime ambient light.

In the event of a power failure, the sign controller must activate a programmable default message (which must be a blank message) and must report the AC power failure to the central controller. The operational status of each pixel in the sign must be automatically tested once a day and tested when a pixel test is requested from the central controller or laptop computer. A list of defective pixels must then be transmitted to the central controller or laptop computer, listing pixel status test must distinguish the difference between half-out, full-out, half-stuck on and fully stuck-on pixels. The test must not affect the displayed message for more than 0.5 seconds.

When the sign controller is polled and when messages are downloaded from the central controller or laptop computer, each pixel in the sign must be read and its current state (full-on, half-on or off), for the currently displayed message, must be returned to the central controller. This will allow the central controller or laptop computer to show the actual message that is visibly displayed on the sign on an individual pixel basis in a WYSIWYG format. (This is different from the pixel test above.) This pixel status read must not affect the displayed message in any way. The pixel read must be an actual real-time read of the current flowing through each string of LEDs at the time of the associated sign poll or message download and must not be accomplished by simulating errors based on the last pixel test.

The operational status of the fans must be automatically tested once a day and tested on command from the central controller or laptop computer. Any failure will cause an error message to be sent to the central controller or laptop when the sign controller is polled by the central controller or laptop computer.

The sign controller must read the internal temperature sensors, external ambient temperature senso and the humidity sensor. The sign controller must use these readings in an algorithm that turns on the heat tape and/or the fans at the appropriate times to reduce both frost on the face of the sign and condensation on the display modules and other electronic circuitry.

Temperature sensors must be continuously measured and monitored by the sign controller. A temperature greater than a user selectable critical temperature must cause the sign message to go to blank and the sign controller must report this error message to the central controller. This user selectable critical temperature must be capable of being changed by the central controller or laptop computer. The central controller and laptops computers shall have the ability to read all measurements from the sign controller.

All LED module power supply voltages must be continuously measured by the sign controller. The sign controller must provide these voltage readings to the central controller or laptop computer when the sign controller is polled by the central controller or laptop computer.

There must be no perceivable blinking, flickering, or ghosting of the pixels at any time, except during a pixel test as described above. The displayed message must not be affected in any way at any time for the pixel status read as described above.

In the event the central controller fails to communicate with the sign controller within a programmable time limit, the sign must activate a programmable default message (which must be a blank). This function must apply only when the sign controller is in central control mode.

Failure of any sign must not affect the operation of any other sign in the system.

The sign controller must perform a consistency check of messages downloaded from the central controller or laptop computer to ensure that the message will fit in the display area of the sign. If

any part of the message fails this check, the downloaded message must not be displayed, and an error message must be displayed on the operator's GUI.

The sign controller internal time clock must ensure that a message is taken down at the correct time, even in the event of a communications loss.

The sign controller must allow a moving arrow to be displayed by the central controller or laptop computer. The moving arrow must be on one line with a standard message on the other lines. The moving arrows must be from the left or right and must start from one end or in the middle of the sign and continue to the end of the sign.

The sign controller must blank the sign in the event of a communication failure or power failure. The controller must blank the sign if failure lasts greater than 5 minutes. Communication failures are either on the field transmit, field receive, or both.

The sign controller must have a special function output to control an auxiliary blank-out sign. This must be a contact closure to ground capable of sinking at least 10 mA. It must be controlled from the central controller.

The sign controller must be capable of being remotely reset from the central controller.

The system power must be protected by two stages of transient voltage suppression devices as required in the AC Power Section of this specification. Tripping of each stage (or both if tripped simultaneously) of the surge protection must cause the sign controller to call central and report the error condition (for dial-up operation) or report the error condition to central on the next poll (for multi-drop operation). There must be an option that is either enabled or disabled and is selected and downloaded from the central controller to the sign controller. When this option is enabled, tripping of the second stage of surge protection must prevent power from reaching any components of the sign until the surge protection has been replaced. When this option is disabled, the sign will continue to function normally after the second stage of surge protection is tripped.

Communication lines must be protected by two stages of transient voltage suppression devices as required in the Sign Controller Communication Interface Section of this specification. Tripping of each stage (or both if tripped simultaneously) of the surge protection must cause the sign controller to call central and report the error condition (for dial-up operation) or report the error condition to central on the next poll (for multi-drop operation). There must be an option that is either enabled or disabled and is selected and downloaded from the central controller to the sign controller. When this option is enabled, tripping of the second stage of surge protection must disconnect the communication lines until the surge protection has been replaced. When this option is disabled, tripping of the second stage of surge protection must disconnect the communication lines until the surge protection has been replaced. When this option is disabled, the sign must continue to function normally after the second stage of surge protection is tripped.

Modes of Operation

The mode of operation determines which level of control governs the DMS message selection. The three modes of operation are:

- Central Mode: The local control panel switch is off and the central controller controls and monitors the sign.

- Local Mode: The local control panel switch is on, and the laptop computer is used to locally control the sign. The central controller only monitors the sign (i.e., status poll).
- Local Override: The local mode has been overridden by the central to allow the central to control the sign in case the local control panel switch was unintentionally left in local mode.

AC Power

The sign and its sign controller must be capable of operating with 120/240 VAC, 50 amp per leg, 60 hertz, single-phase power.

The sign must have a 50 amp per leg, 120/240 VAC, two-pole load center with 16 circuit capability. Each circuit in the sign must be powered from a separate circuit breaker. The system must be protected by two stages of transient voltage suppression devices including MOVS and spark gap arrestor. If enabled by the central controller, tripping of the second stage must prevent power from reaching any components of the sign until the surge protection has been replaced. Tripping of each stage of the surge protection must cause the sign controller to call central and report the error condition (for dial-up operation) or report the error condition to central on the next poll (for multi-drop operation).

Transient Test Requirements

The sign housing electronics and the control cabinet must be separately capable of withstand a high-energy transient having the following characteristics repeatedly applied to the AC input terminals: a ten-microfarad oil filled capacitor charged to 1000 VDC \pm 5% must be discharged into the power input terminals a minimum of three times for each polarity. Immediately following this test, the unit under test must perform all of its defined functions upon the restoration of normal AC power.

Electronic Materials and Construction Methods

Printed Circuit Boards

Printed Circuit Boards (PCB) design must be such that components may be removed and replaced without damage to boards, traces, or tracks. Only FR-4 0.062-inch material must be used. Inter-component wiring must be copper clad track having a minimum weight of 2 ounces per square foot with adequate cross section for current to be carried. Jumper wires will not be permitted, except from plated-through holes to component. The maximum number of jumper wires allowed per circuit board is two.

All PCBs must be furnished with a solder mask and a component identifier silk screen.

Components

All components must be of such design, fabrication, nomenclature, or other identification as to be purchased from a wholesale electronics distributor, or from the component manufacturer, except for printed circuit board assemblies: Circuit must be such that all components of the same generic type, regardless of manufacturer, must function equally in accordance with the specifications. All discrete components, such as resistors, capacitors, diodes, transistors, and integrated circuits

must be individually replaceable. Components must be arranged so they are easily accessible for testing and replacement.

Technical Assistance

The DMS manufacturer's technical representative must provide on-site technical assistance in following areas:

- Sign to structure installation
- Sing controller cabinet installation.
- Sign to controller cabling

The initial powering up of the sign(s) must not be executed without the permission of the DMS manufacturer's technical representative.

Testing Requirements

The equipment covered by this specification must be subjected to design approval tests (DAT), factory demonstration tests (FDT), stand-alone test, system tests and 72 hour and 90-day test periods to determine conformance with all the specification requirements. The Engineer may accept certification by an independent testing lab in lieu of the design approval tests to verify that the design approval tests have previously been satisfactorily completed. The DMS vendor must arrange for and conduct the tests in accordance with the testing requirements stated herein. Unless otherwise specified, the DMS vendor is responsible for satisfying all inspection requirements prior to submission for the Engineer's inspection and acceptance. The contract periods will not be extended for time lost or delays caused by testing prior to final Department approval of any items. The Engineer reserves the right to have his representative witness any and all tests. The results of each test must be compared with the requirements specified herein. Failure to conform to the requirements of any test must be counted as a defect, and the equipment must be subject to rejection by the Engineer. Rejected equipment may be offered again for a retest provided that all non-compliances have been corrected and retest by the DMS vendor and evidence thereof submitted to the Engineer.

Final inspection and acceptance of equipment must be made after installation at the designated location as shown on the plans, unless otherwise specified herein.

Test Procedures

The DMS vendor must provide five (5) copies of all design approval, factory demonstration, stand-alone and system test procedures and data forms for the Engineer's approval at least sixty (60) days prior to the day the tests are to begin.

The test procedures must include the sequence in which the tests will be conducted. The test procedures must have the Engineer's approval prior to submission of equipment for tests.

The DMS vendor must furnish data forms containing all of the data taken, as well as quantitative results for all tests. The data forms must be signed by an authorized representative (company official) of the equipment manufacturer. At least one copy of the data forms must be sent to the Engineer.

The DMS vendor must be responsible for providing the test fixtures and test instruments for all of the tests.

Design Approval Tests

Design approval tests must be conducted by the DMS vendor on one or more samples of equipment of each type, as approved by the Engineer, to determine if the design of the equipment meets the requirements of this specification. The test must be conducted in accordance with the approved test procedures as described under the Factory Demonstration Test section of this special provision.

If the design approval tests have not previously been satisfactorily completed by an independent testing lab and accepted by the Engineer, the Engineer must be notified a minimum of thirty (30) calendar days in advance of the time these tests are to be conducted.

The design approval tests must cover the following:

Temperature and Condensation. The DMS sign system equipment must successfully perform all the functionality requirements listed in this specification under the following conditions in the order specified below:

- The equipment must be stabilized at -40° F (-40° C). After stabilization at this temperature, the equipment must be operated without degradation for two (2) hours.
- Moisture must be caused to condense on the equipment by allowing it to warm up to room temperature in an atmosphere having relative humidity of at least 40% and the equipment must be satisfactorily operated for two (2) hours while wet.
- The equipment must be stabilized at 149° F (65° C). After stabilization, the equipment must be satisfactorily operated for two (2) hours without degradation or failure.

Primary Power Variation. The equipment must meet the specified performance requirements when the nominal input voltage is 115 V ± 15 V. The equipment must be operated at the extreme limits for at least 15 minutes during which the operational test of the FDT must be successfully performed.

Power Service Transients. The equipment must meet the performance requirements, specified in the parent specification, when subjected to the power service transient specified in 2.1.6 “Transient, Power Service”, of the NEMA standard TS1. The equipment must meet the performance requirements specified in the parent specification.

Relative Humidity. The equipment must meet its performance requirements when subjected to a temperature of 149° F (65° C) and a relative humidity of 90%. The equipment must be maintained at the above condition for 48 hours. At the conclusion of the 48-hour soak, the equipment must meet the requirements of the operational test of the FDT within 30 minutes of beginning the test.

Vibration. The equipment (excluding cabinets) must show no degradation of mechanical structure, soldered components, or plug-in components and must operate in accordance with the manufacturer’s equipment specifications after being subjected to the vibration tests as described in Section 2.2.5, “Vibration Test”, of the NEMA standard TS1.

Consequences of Design Approval Test Failure. If the unit fails the design approval test, the design fault must be corrected, and the entire design approval test must be repeated. All

deliverable units must be modified without additional costs to the Department, to include design changes required to pass the design approval tests.

DMS Controller Uninterruptible Power Supply

A UPS must be provided to allow the sign controller to notify the central controller when an improper power condition at the DMS persists for longer than 30 seconds. The UPS must meet the following minimum specifications:

- Line Transient Protection: Passes ANSI/IEEE C62.41 Category A testing.
- Safety Compliance: UL listed to UA1778.
- EMC Compliance: FCC Class B
- Efficiency: >95% on line
- Capacity VA/Watts @ 0.67P.F.:425VA/285W
- Voltage Nominal: 120 VACs
- Voltage Range: 100-142 VACs
- Typical run time (minutes): Full load: 3 minutes. Typical load: 5 minutes
- Transfer time: 4 ms typical
- Battery: Sealed, maintenance-free, valve regulated, UL 924 recognized.
- Battery recharge time (to 95% of capacity): 8 hours with output fully loaded.
- Over current protection (on line): circuit breaker
- Input fault current (maximum): 15A
- Operating temperature: Range minimum -10° F -140° F (-23° C to 60° C)
- Humidity: 5% - 95% RH (non-condensing)

Factory Demonstration Tests

The DMS vendor must be responsible for conducting Factory Demonstration Tests on all units at the DMS Vendor's Manufacturing Facility. These tests must be performed on each unit supplied. The Engineer must be notified a minimum of sixty (60) calendar days before the start of tests. The DMS Vendor must provide for video conferencing of the factory demonstration tests. All tests must be conducted in accordance with the approved test procedures of Section 17.0. All equipment must pass the following individual tests:

Examination Tests. All equipment must be examined carefully to verify that the materials, design, construction, markings, and workmanship comply with the requirements of the specification.

Continuity Tests. The wiring must be checked to determine that it meets the requirements of the appropriate paragraphs in the specifications.

Operational Test. All equipment must be operated long enough to permit equipment temperature stabilization, and to check and record an adequate number of performance characteristics to ensure compliance with the requirements of this specification.

Consequences of Factory Test Failure. If any unit fails to pass its demonstration test, the unit must be corrected and another unit substituted in its place and the test successfully repeated.

If a unit has been modified as a result of a demonstration test failure, a report must be prepared and delivered to the Engineer prior to shipment of the unit. The report must describe the nature of the failure and the corrective action taken.

If a failure pattern develops, the Engineer may direct that design and construction modifications be made to all units without additional cost to the Department or extension of the contract period.

Stand-Alone Tests

The DMS vendor must conduct an approved stand-alone test of the equipment installation at the field site. The test must, as a minimum, exercise all stand-alone (non-network) functional operations of the field equipment with all of the equipment installed as per the plans, or as directed by the Engineer.

Approved data forms must be completed and turned over to the Engineer as the basis for review and rejection or acceptance. At least thirty (30) working days' notice must be given prior to all tests to permit the Engineer or his representative to observe each test.

Consequences of Stand-Alone Test Failure. If any unit fails to pass its stand-alone test, the unit must be corrected or another unit substituted in its place and the test successfully repeated.

If a unit has been modified as a result of a stand-alone test failure, a report must be prepared and delivered to the Engineer prior to the re-testing of the unit. The report must describe the nature of the failure and the corrective action taken.

If a failure pattern develops, the Engineer may direct that design and construction modifications be made to all units without additional cost to the Department or extension of the contract period.

System Test

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

Approved data forms must be completed and turned over to the Engineer as the basis for review and for rejection or acceptance.

Consequence of System Test Failure. If system tests fail because of any component(s) in the subsystem, the particular component(s) must be corrected or substituted with other component(s) and the tests must be repeated. If a component has been modified as a result of the system test failure, a report must be prepared and delivered to the Engineer prior to retest.

72 Hours and 90 Days Test Failure

After the installation of the DMS system is completed and the successful completion of the System Test, the DMS vendor must conduct one continuous 72-hour full operating test prior to conducting a 90-day test period. The type of test to be conducted must be approved by the Engineer, and must consist primarily of exercising all control, monitor and communications functions of the field equipment by the central equipment.

The 90-day test period must commence on the first day after the successful completion of the approved 72-hour continuous full operating test period.

During the 90-day test period, downtime, due to mechanical, electrical and/or other malfunctions, must not exceed five (5) working days. The Engineer may extend the 90-day test period by a number of days equal to the downtime in excess of five (5) working days.

The Engineer will furnish the DMS vendor with a letter of approval stating the first day of the 90-day test period.

Final System Acceptance

Final system acceptance must be defined as when all work and materials provided for in this item have been furnished and completely installed, and all parts of the work have been approved and accepted by the Engineer and the Dynamic Message Sign System has been operated continuously and successfully for ninety (90) calendar days with no more than five (5) working days downtime due to mechanical, electrical and/or other malfunctions.

Warranty

Equipment furnished under this specification must be guaranteed to perform according to these specifications and to the manufacturer’s published specifications. Equipment must be warranted for a minimum of **five years** return to factory against defects and/or failure in design, materials and workmanship. Unless otherwise specified in the invitation for bids, warranty coverage must become effective on the date of final acceptance of the system by the Department. The Contractor must assign to the Department all manufacturer’s normal warranties or guarantees, on all such electronic, electrical, and mechanical equipment, materials, technical data, and products furnished for and installed on the project. Defective equipment must be repaired or replaced, at the manufacturer’s option, during the warranty period at no cost to the Department. The Contractor must provide a written document on DMS Vendor letterhead, signed by the DMS Principle, documenting said warranties or guarantees and must be submitted to the Engineer before project acceptance.

Center to Field Communications NTCIP Requirements

This section describes the minimum specifications for the NTCIP communication capabilities of the DMS controller and DMS control software. The Contractor must provide all the software, firmware, and services necessary to operate a dynamic message sign (DMS) system that fully complies with the NTCIP functional requirements specified herein, including incidental items that may have been inadvertently omitted.

References

These specifications reference standards through their NTCIP designated names. The following list provides the current versions of each of these standards.

Each NTCIP device covered by these project specifications must implement the version of the standard that is specified in the following table. Refer to the NTCIP library at www.ntcip.org for information on the current status of NTCIP standards.

| Document Number and Version | Document Title | Document Status |
|---------------------------------|---|----------------------------------|
| NTCIP 1101:1996 and Amendment 1 | Simple Transportation Management Framework (STMF) | Approved Standard with Amendment |
| NTCIP 1102:2004 | Octet Encoding Rules (OER) Base Protocol | Approved Standard |

| | | |
|---------------------------------|---|----------------------------------|
| NTCIP 1103 v1.26a | Transportation Management Protocols | Recommended Standard |
| NTCIP 1201:1996 and Amendment 1 | Global Object (GO) Definitions | Approved Standard |
| NTCIP 1203:1997 and Amendment 1 | Object Definitions for Dynamic Message Signs | Approved Standard with Amendment |
| NTCIP 2001:1996 and Amendment 1 | Class B Profile | Approved Standard |
| NTCIP 2101:2001 | Point-to-Multi-Point Protocol (PMPP) Using RS-232 Subnetwork Profile | Approved Standard |
| NTCIP 2103:2003 | Point-to-Point Protocol Over RS-232 Subnetwork Profile | Approved Standard |
| NTCIP 2104:2003 | Ethernet Subnetwork Profile | Approved Standard |
| NTCIP 2201:2003 | Transportation Transport Profile | Approved Standard |
| NTCIP 2202:2001 | Internet (TCP/IP and UDP/IP) Transport Profile | Approved Standard |
| NTCIP 2301:2001 | Simple Transportation Management Framework (STMF) Application Profile | Approved Standard |

Table 1: NTCIP Document References

Subnetwork Profiles

Each serial or modem port on each NTCIP device must be configurable to support both NTCIP 2101 and NTCIP 2103. Only one of these profiles must be active at any given time. Serial ports must support external dial-up modems.

Each Ethernet port on the NTCIP device must comply with NTCIP 2104. The NTCIP device(s) may support additional Subnet Profiles at the manufacturer's option. At any time, only one subnet profile must be active on a given port of the NTCIP device. All response datagram packets must use the same transport profile used in the request. The NTCIP device must be configurable to allow a field technician to activate the desired subnet profile and must provide a visual indication of the currently selected subnet profile.

Transport Profiles

Each serial or modem port on each NTCIP device must be configurable to support both NTCIP 2201 and NTCIP 2202.

Each Ethernet port on the NTCIP device must comply with NTCIP 2202.

The NTCIP device(s) may support additional transport profiles at the manufacturer's option. Response datagrams must use the same transport profile used in the request. Each NTCIP device must support the receipt of datagrams conforming to any of the supported transport profiles at any time.

Application Profiles

Each NTCIP device must comply with NTCIP 2301 and must meet the requirements for Conformance Level 1.

An NTCIP device may support additional application profiles at the manufacturer's option. Responses must use the same application profile used by the request.

Each NTCIP device must support the receipt of the application data packet at any time allowed by the subject standards.

Object Support

Each NTCIP device must support all mandatory objects of all mandatory conformance groups as defined in NTCIP 1201 and NTCIP 1203.

Each NTCIP device must support all mandatory objects in all optional conformance groups required herein. All optional objects listed in these specifications must be supported.

The NTCIP device(s) must support the following optional conformance groups.

| Conformance Group | Reference |
|---------------------------------|------------|
| Time Management | NTCIP 1201 |
| Timebase Event Schedule | NTCIP 1201 |
| Report | NTCIP 1201 |
| PMPP | NTCIP 1201 |
| Font Configuration | NTCIP 1203 |
| DMS Configuration | NTCIP 1203 |
| MULTI Configuration | NTCIP 1203 |
| MULTI Error Configuration | NTCIP 1203 |
| Illumination/Brightness Control | NTCIP 1203 |
| Scheduling | NTCIP 1203 |
| Sign Status | NTCIP 1203 |
| Status Error | NTCIP 1203 |
| Pixel Error Status | NTCIP 1203 |

Table 2: Required Optional Conformance Groups

The following table indicates objects that are considered optional in the NTCIP standards but are required by this specification. It also indicates modified object value ranges for certain objects.

Each NTCIP device must provide the full, standardized object range support (FSORS) of all objects required by these specifications unless otherwise indicated below.

| Object | Reference | Project Requirement |
|----------------------------|-------------------------------------|---|
| moduleTable | NTCIP 1201 Clause 2.2.3 | Must contain at least one row with module type equal to 3 (software). |
| maxTimeBaseScheduleEntries | NTCIP 1201 Clause 2.4.3.1 | Must be at least 28 |
| maxDayPlans | NTCIP 1201 Clause 2.4.4.1 | Must be at least 20 |
| maxDayPlansEvents | NTCIP 1201 Clause 2.4.4.2 | Must be at least 12 |
| maxEventLogConfig | NTCIP 1201 Clause 2.5.1 | Must be at least 50 |
| eventConfigMode | NTCIP 1201 Clause 2.4.3.1 | The NTCIP Component must support the following Event Configuration: on Change, Greater Than Value, Smaller Than Value |
| eventConfigLogOID | NTCIP 1201 Clause 2.5.2.7 | FSORS |
| eventConfigAction | NTCIP 1201 Clause 2.5.2.8 | FSORS |
| maxEventLogSize | NTCIP 1201 Clause 2.5.3 | Must be at least 200 |
| maxEventClasses | NTCIP 1201 Clause 2.5.5 | Must be at least 16 |
| eventClassDescription | NTCIP 1201 Clause 2.5.6.4 | FSORS |
| maxGroupAddresses | NTCIP 1201 Clause 2.7.1 | Must be at least 1 |
| communityNamesMax | NTCIP 1201 Clause 2.8.2 | Must be at least 3 |
| numFonts | NTCIP 1203 Clause 2.4.1.1.1.1 | Must be at least 12 |
| maxFontCharacters | NTCIP 1203 Clause 2.4.1.1.3 | Must be at least 255 |
| defaultFlashOn | NTCIP 1203 Clause 2.5.1.1.1.3 | The DMS must support flash "on" times ranging from 0.1 to 9.9 seconds in 0.1 second increments |
| defaultFlashOff | NTCIP 1203 Clause 2.5.1.1.1.4 | The DMS must support flash "off" times ranging from 0.1 to 9.9 seconds in 0.1 second increments |
| defaultBackgroundColor | NTCIP 1203 Clause 2.5.1.1.1.1 | The DMS must support the black background color |
| defaultForegroundColor | NTCIP 1203 Clause 2.5.1.1.2 | The DMS must support the amber foreground color |

| | | | |
|------------------------------|----------------------------------|------|---|
| defaultJustificationLine | NTCIP Clause 2.5.1.1.1.6 | 1203 | The DMS must support the following forms of line justification - left, center, and right |
| DefaultJustificationPage | NTCIP Clause 2.5.1.1.1.7 | 1203 | The DMS must support the following forms of page justification: top, middle, and bottom |
| defaultPageOnTime | NTCIP Clause 2.5.1.1.1.8 | 1203 | The DMS must support page "on" times ranging from 0.1 to 25.5 seconds in 0.1 second increments |
| defaultPageOffTime | NTCIP Clause 2.5.1.1.1.9 | 1203 | The DMS must support page "off" times ranging from 0.1 to 25.5 seconds in 0.1 second increments |
| defaultCharacterSet | NTCIP Clause 2.5.1.1.1.10 | 1203 | The DMS must support the eight-bit character set |
| dmsMaxChangeableMsg | NTCIP Clause 2.6.1.1.1.4 | 1203 | Must be at least 100 |
| dmsMessageMultiString | NTCIP Clause 2.6.1.1.1.8.3 | 1203 | The DMS must support any valid MULTI string containing any subset of those MULTI tags listed in Table 3 (below) |
| dmsControlMode | NTCIP Clause 2.7.1.1.1.1 | 1203 | Must support at least the following modes: local, central, and central Override |
| dmsSWReset | NTCIP Clause 2.7.1.1.1.2 | 1203 | FSORS |
| dmsMessageTimeRemaining | NTCIP Clause 2.7.1.1.1.4 | 1203 | FSORS |
| dmsShortPowerRecoveryMessage | NTCIP Clause 2.7.1.1.1.8 | 1203 | FSORS |
| dmsLongPowerRecoveryMessage | NTCIP Clause 2.7.1.1.1.19 | 1203 | FSORS |
| dmsShortPowerLossTime | NTCIP Clause 2.7.1.1.1.10 | 1203 | FSORS |
| dmsResetMessage | NTCIP Clause | 1203 | FSORS |
| dmsCommunicationsLossMessage | NTCIP Clause 2.7.1.1.1.12 | 1203 | FSORS |
| dmsTimeCommLoss | NTCIP Clause 2.7.1.1.1.12 | 1203 | FSORS |

| | | | |
|-------------------------------|---------------------------------|------|---|
| dmsEndDurationMessage | NTCIP Clause 2.7.1.1.1.15 | 1203 | FSORS |
| dmsMemoryMgmt | NTCIP Clause 2.7.1.1.1.16 | 1203 | The DMS must support the following Memory Management Modes: normal and clear changeable messages |
| dmsMultiOtherErrorDescription | NTCIP Clause 2.4.1.1.1.20 | 1203 | If the vendor implements any vendor specific MULTI tags, the DMS must provide meaningful error messages within this object whenever one of these tags generates an error. |
| dmsIllumControl | NTCIP Clause 2.8.1.1.1.1 | 1203 | The DMS must support the following illumination control modes: Photocell and Manual. |
| dmsIllumBumBrightLevels | NTCIP Clause 2.8.1.1.1.4 | 1203 | Must be at least 100 |
| dmsIllumLightOutputStatus | NTCIP Clause 2.8.1.1.1.9 | 1203 | FSORS |
| numActionTableEntries | NTCIP Clause 2.9.1.1.1 | 1203 | Must be at least 200 |
| watchdogFailureCount | NTCIP Clause 2.11.1.1.1.5 | 1203 | FSORS |
| dmsStatDoorOpen | NTCIP Clause 2.11.1.1.1.6 | 1203 | FSORS |
| fanFailures | NTCIP Clause 2.11.2.1.1.8 | 1203 | FSORS |
| fanTestActivation | NTCIP Clause 2.11.2.1.1.9 | 1203 | FSORS |
| tempMinCtrlCabinet | NTCIP Clause 2.11.4.1.1.1 | 1203 | FSORS |
| tempMaxXtrlCabinet | NTCIP Clause 2.11.4.1.1.2 | 1203 | FSORS |
| tempMinSignHousing | NTCIP Clause 2.11.4.1.1.5 | 1203 | FSORS |
| tempMaxSignHousing | NTCIP Clause 2.11.4.1.1.6 | 1203 | FSORS |

Table 3: Modified Object Ranges and Required Optional Objects

Multi Tags

Each NTCIP device must support the following message formatting MULTI tags. The manufacturer may choose to support additional standard or manufacturer specific MULTI tags.

| MULTI Tag | (E) DESCRIPTION |
|---------------|---|
| f1 | Field 1-time (12 hr.) |
| f2 | Field 1-time (24 hr.) |
| f8 | Field 8-day of month |
| f9 | Field 9-month |
| f10 | Field 10-2-digit year |
| f11 | Field 11-4-digit year |
| fl (and / fl) | Flashing text on a line-by-line basis with flash rates controllable in 0.1-second increments. |
| Fo | Font |
| jl2 | Justification- line-left |
| jl3 | Justification- line-center |
| jl4 | Justification- line-right |
| jp2 | Justification- page-top |
| jp3 | Justification- page-middle |
| jp4 | Justification- page-bottom |
| mv | Moving text |
| nl | New line |
| np | New page up to 5 instances in a message (i.e., up to 6 pages/frames in a message counting first page) |
| pt | Page times controllable in 0.1-second increments |

Table 4: Required MULTI Tags

Documentation

NTCIP documentation must be provided on a CD_ROM and will contain ASCII versions of the following Management Information Base (MIB) files in Abstract Syntax Notation 1 (ASN.1) format:

- The relevant version of each official standard MIB module referenced by the device functionality.
- If the device does not support the full range of any given object within a standard MIB Module, a manufacturer specific version of the official standard MIB Module with the supported range indicated in ASN.1 format in the SYNTAX and/or DESCRIPTION fields of the associated OBJECT TYPE macro. The filename of this file must be identical to the standard MIB Module except that it will have the extension “man”.
- A MIB module in ASN.1 format containing any and all manufacturer specific objects supported by the device with accurate and meaningful DESCRIPTION fields and supported ranges indicated in the SYNTAX field of the OBJECT-TYPE macros.
- A MIB containing any other objects supported by the device.

Acceptance Testing

The vendor must provide certification of NTCIP-compliance as part of the vendor's pre-build submittal documentation. This certification must be in the form of a comprehensive test plan and completed test report as performed by either the vendor or a third-party testing agency. The testing must have been completed using industry accepted test tools such as the NTCIP Exerciser, Trevilon's NTester, Intelligent Devices' Device Tester, and/or Frontline's FTS for NTCIP. Data capture files from the FTS software during the performance of the above testing must be furnished upon request of the Engineer.

The Engineer can elect to perform additional NTCIP testing if desired. This testing must be conducted on a production DMS in the vendor's facility during the factory acceptance test. The vendor must provide a written NTCIP test procedure to the Engineer a minimum of 30 days prior to the NTCIP testing.

Interpretation Resolution

If the engineer or DMS manufacturer discovers an ambiguous statement in the standards referenced by this procurement specification, the issue must be submitted to the NTCIP DMS Working Group for resolution. If the Working group fails to respond within 90 days, the Engineer must provide an interpretation of the specification for use on the project.

As-Built Documentation

The Contractor must provide to the Engineer the following documentation of the complete installed equipment prior to testing. Sufficient documentation must be provided to reflect "as-built" conditions and to facilitate operation, maintenance, modification, and expansion of the system or any of its individual components. Manufacturer supplied documentation which covers the intent of this requirement may be used, subject to the approval of the Engineer.

Operator's Manuals

A manual containing a general description and detailed operating and installation instructions must be provided for each different type or model of equipment. Five copies of the manual must include the following information:

- A general description of the equipment including all information necessary to describe the basic use or function of the system components. This must include a general block diagram presentation of the equipment. These charts must include the nomenclature physical and electrical characteristics and functions of the auxiliary equipment, unless such information is contained elsewhere in an associated manual. In the latter case, a reference must be made to the location of the information pertaining to the auxiliary equipment.
- The theory of operation of the system components in a clear, concise manner supported by simplified schematics, logic, data flow diagrams, one-function diagrams, etc. Timing and waveform diagrams and voltage levels must be shown as required. A logical development must be used starting with a system block level and proceeding to a circuit analysis. Circuit analysis must be detailed whenever circuits are not normally found in

standard textbooks. This application of new theoretical concepts must be fully described. Where the design allows operation in a number of different modes, an operational description of each mode must be included.

- In simple, clear language, the routine of operation, from necessary preparations for placing the equipment into operation, to securing the equipment after operation. This section must contain appropriate illustrations, with the sequence of operations presented in tabular form wherever feasible.
- The manufacturer's recommended procedures and checks necessary for preventive maintenance. This must be specified for pre-operation, weekly, monthly, quarterly, semi-annual, annual and "as required" checks as necessary to assure reliable equipment operation. Specification, including tolerances, for all electrical, mechanical, and other applicable measurement, adjustments, or both, must be listed.
- Data necessary for isolation and repair of failure or malfunctions, assuming the maintenance technicians to be capable of analytical reasoning using the information provided in the submittal information. Accuracies, limits, and tolerances for all electrical, physical, or other applicable measurements must be described. General instructions must be included for disassembly, overhaul, and reassembly, including shop specifications or performance requirements.
- Detailed instructions must be given only where failure to follow special procedures would result in damage to the equipment, improper operation, danger to operating or maintenance personnel. Consumption of excessive person hours, etc. Such instructions and specifications must be included only for such maintenance as maybe accomplished by specialized technicians and engineers in a modern electromechanical shop. The instructions must describe special test set-up, components fabrication, the use of special tools, jigs, and test equipment.
- A detailed physical description of size, weight, special mounting requirements, electrical connections, and all other pertinent information necessary for proper installation and use of the equipment must be provided.
- The parts list must contain all information required to describe the characteristics of the individual parts, as required for identification. It must include a list of all equipment within a group and list all assemblies, sub-assemblies, and replacement parts of units. The tabular arrangement must be an alphanumerical order of the schematic reference symbols and must give the associated description, manufacturer's name and part number. A table of contents or some other convenient means must be provided for the purpose of identifying major components, assemblies, etc.
- Schematic diagrams must be complete and accurate as required to supplement the text material and to allow the books to be a self-contained technical information source. Maximum size of these diagrams must be limited to allow their use in close proximity to the equipment, in the classroom, etc., part reference symbols, test voltages, waveforms and other aids to understanding of the circuits function must be included on the diagrams. Test voltages, waveforms, and other aids to understanding of the circuits function may be shown on either simplified schematics or other drawings (as required in the above sections) on theory of operation or maintenance or on the schematic diagrams required for this section. The overall scope of information must not be less, however, than that stated for the schematic diagrams.

Software Manuals

The DMS vendor must provide manuals and data for the computer software system and components thereof. These must include the following:

- Computer programmer's manuals and computer user's manuals (5 copies each). Include manuals for any CPU language used by the Contractor for this project. Include instructions for performing a back-up of all software and message libraries.
- Two original copies of the computer's operating system manual and compiler and assembly language manuals and an instruction manual for translating source to object code.
- Manufacturer's documentation (including schematics) for all plug-in circuit cards used in the microcomputer chassis.
- Computer program logic in flow chart form (5 copies).
- Narrative descriptions of programs and input output formats (5 copies).
- Two copies of source programs, for master and sign controller software, must be provided on CD-ROM. An unrestricted license for software use by the Department must be provided to the Engineer.
- DMS vendor must provide the communication protocol used between the DMS master controller and the DMS sign controller for use by the Department without any restrictions.

Final Documentation

Final documentation must reflect all field changes and software modifications and must be provided before installation. Final documentation must be approved prior to final system acceptance has begun. This document must include drawings of conduit layouts, cable diagrams, wiring lists, cabinet layouts, wiring diagrams and schematics for all elements of the communications system. This must also include detailed drawings identifying by cable type, color-coded function, the routing of all conductors (pairs) in the communications system. Upon completion of the installation, the Contractor must submit these plans, maps, and/or drawings to reflect an as built condition, incorporating all changes made during installation, such as in pair identification and routing.

Spare Parts Requirements

The contractor must provide additional parts to create two (2) additional character matrixes, two (2) load modules to drive a character module, one (1) LED power supply, and one complete sign controller unit. The cost of additional parts/equipment must be considered incidental to the price for each DMS.

DMS Training

Operational and maintenance training for the entire system must be provided to designated personnel during installation, testing and debugging. This training must be provided through practical demonstrations and other related technical procedures. Training must be limited to a maximum of 15 people and must be provided at a time and location approved by the Engineer. The training must include, but not be limited to, the following:

- Hands-on operation of all sign control hardware
- Explanation of all system commands, their function and usage
- Insertion of data
- Required preventative maintenance.

- Servicing procedures
- System troubleshooting or problem identification procedures.

A minimum of 24 hours of instruction must be provided for the operational and maintenance procedures for the system. The DMS vendor must submit an agenda for the training and one complete set of training materials along with the qualification of proposed instructors to the Engineer for approval at least 30 days before the training is to begin. The Engineer will review material and approve or request changes. After approval, the vendor must provide a minimum of 5 copies of the training material that will become the property of the Department after training period is over.

The DMS vendor must record the entire training on DVDs and must provide the recordings to the Engineer for later use. The training must be conducted at District One Traffic Systems Center building, after the completion of all system integration tests. The schedule of training sessions must be established by the DMS vendor, with the approval of the Engineer.

Warranty

The equipment and parts furnished for the DMS and DMS control system must be new, of the latest model, fabricated under high quality standards.

Equipment and parts furnished for the DMS must be warranted by the manufacturer to be free of defects on assembly or fabrication and materials for a minimum of five years from the date of acceptance and must be warranted for quality of work for twelve months from the date of final acceptance. If component manufacturer's warranties are for a longer period, they must apply. Any parts or equipment found to be defective during the warranty period must, upon the concurrence of the defect by the manufacturer, be replaced free of charge.

The Engineer must be furnished with a certification stating that the equipment, parts and material furnished for the DMS and DMS control system complies with all the provisions of this special provision. If there are any items which do not comply with this special provision, then a list of those exceptions must be detailed on the certification.

All manufacturer's warranties and guarantees for the dynamic message sign system must be transferred to the Department on the date of final acceptance.

Method of Measurement. The DMS Sign Walk In Expressway must be paid for at the contract unit price as (each) which cost must include the cost of furnishing all labor, materials, documentation, warranties, tools and equipment to install, test and make the location operational with the specified DMS in this pay item.

Basis of Payment. This work must be paid for at the contract unit price (each) for DMS Sign Walk In Expressway which price must include furnishing and installing the DMS sign, documentation, warranties, spare parts, training, and diagnostic software as directed by the Engineer.

SIAS INSPECTION, AUTOMATIC SUPPRESSION SYSTEM

Description. This item must consist of scheduling a semi-annual inspection, functional test, and certification of the Automatic Suppression Alarm System located at the Traffic Systems Center.

All work must be performed by a trained and certified fire alarm technician twice during each contract year in accordance with the manufacturer's recommendations, local code, and national code. The following procedure minimum must be conducted during each inspection.

- Clean smoke detectors.
- Calibrate of smoke detectors.
- Actual alarming of detectors and manual pull stations.
- Check control panel electrical wiring for grounds and shorts.
- Check control panel battery standby and charger.
- Check alarm devices such as bells and horns.
- Check Halon storage tanks weight and pressure.
- Test interlocking equipment for shut down.
- Check other specialized components as needed.
- Submit written reports to purchaser with recommendations for corrections, additions, deletions, or other changes to the system.

Basis for Payment. This item must be paid at the contract unit price (each) for INSPECTION, AUTOMATIC SUPPRESSION SYSTEM, which price be payment in full for all work described herein and as directed by the Engineer.

SUPS UPS SYSTEM, INSPECTION

Description. The Contractor must furnish a factory sales and service company to complete an annual comprehensive UPS inspection as specified herein at the Traffic Systems Center.

Location. This work must apply to the monitoring UPS system located at 445 W. Harrison St., Oak Park, IL 60304.

Work Description. Eaton Power Ware Model #9390-100 Serial # EC515CBB07 with 80 batteries. The inspection must consist of but not be limited to the following items, which are described below:

1. Initial checks – System energized and carrying a customer's load.
 - Verify initial, as found, voltage and current on the following:
 - Rectifier input
 - Rectifier output
 - Inverter output
 - Alternate line
2. System in bypass and de-energized – Customer's load on alternate line.

Verify the following:

 - Bolted, screw and crimp connections for tightness.
 - Relays seated properly.
 - Wiring, for electrical and physical damage
 - Capacitors, for bulging and/or leaking.
 - Proper alignment of all sliding P.C. Boards
 - Plugs, for proper electrical and physical connection.

- P.C. Boards, for over-temperaturing
 - Vacuum system (if vacuum available)
3. System in bypass and energized – Customer’s load on alternate line.
- Verify the following:
- a) All alarms and indicators for proper function and operation
 - b) Measure and adjust all critical logic settings
 - c) Battery plant:
 - Measure Volts per cell
 - Visual inspection for leaks or bad cells
 - Spot check for connection torques.
 - Visual inspection of interior and intercell connections

Conduct short term (2 Minute) discharge test using the inverter as the load to evaluate battery condition. (Only with customer prior approval)

4. Final Checks – System energized and carrying customer’s load.
- Verify final voltage and current on the following:
- Rectifier input
 - Rectifier output
 - Inverter output
 - Alternate line

5. Report – The service engineer must provide a detail service report to the Engineer along with any service recommendations for additional service which they believe may be required but not covered under their service agreement.

Method of measurement. Each inspection that is completed must be recorded on vendor furnished forms, with all its corresponding deficiencies noted and the inspection report submitted to the Engineer. Any necessary repairs must be paid on an as needed basis through vendor item.

Basis of Payment. This item must be paid at the contract unit price (each) for the UPS SYSTEM, INSPECTION, which must be payment in full for the work described above.

SVB1 BUDGETARY ALLOWANCE FOR HOMELAND SECURITY GATES

Description. This item is to establish a budget account to allocate funds for materials and/or repairs for damage to Homeland Security Gates and other unexpected repairs to Surveillance equipment where costs cannot be accurately identifiable at the time of bidding. Many damaged equipment item replacements must be ordered and installed by specialty vendors since they are one-of-a-kind.

The total estimated amount of the annual expenses for services performed which must be paid under Article 9.0 is \$150,000 as indicated for Pay Item SVB1. For bidding purposes this amount must be used.

SWP1 SURVEILLANCE WATCH AND PROTECT

Description. The contractor must furnish manpower as directed by the Engineer to provide watch and protect services for contractors working on, around, or needing access to IDOT facilities.

The Contractor must be responsible for monitoring construction contractor's excavation on or around and entering Department fiber optic facilities and to help prevent damage from being done to critical Department equipment.

The Contractor must be responsible for providing access to Department Communication shelters, huts, or remote buildings for work being done by others as part of other IDOT construction contracts, overlapping ISTHA contracts that involve work on IDOT ROW, or IDOT Permit work.

The Contractor must monitor work being done by others to help prevent damage or interruption of services to critical IDOT critical fiber/network equipment.

Method of Measurement. The work must be measured on per hour basis for each instance Watch and Protect is provided.

Basis of Payment. This work must be paid for at the contract unit price (hour) for WATCH and PROTECT, which will be payment in full for manpower provided.

SPECIAL PROVISIONS FOR SURVEILLANCE SYSTEM

Special Provisions for Surveillance System will be available at the Pre-Bid Meeting and/or will be available on-line for bidder's review.

TRAFFIC SIGNAL SYSTEM ITEMS

All Traffic Signal System Non-Routine pay items must conform with the current Standard Specifications for Road and Bridge Construction, District 1 Traffic Signal Special Provisions, and the District 1 Standard Traffic Signal Design Details except as revised herein.

All equipment removed under Traffic Signal System Non-Routine pay items must be salvaged or disposed in accordant with Article 4.22 at the direction of the Engineer. All costs associated with salvaging or disposing must be included in the cost of the respective pay item.

All traffic control for Traffic Signal System Non-Routine pay items must be in accordance with Article 701 of the Standard Specifications for Road and Bridge Construction and the Traffic Control Plans submitted under Article 4.23.2. All costs associated with Traffic Control required for the performance of the work associated with the respective Traffic Signal System Non-Routine pay items must be included in the cost of the respective pay item.

TC01A – TC02B FULL ACTUATED CONTROLLER AND ATC IN CABINET

Description. All equipment must be NEMA TS 2 Type 1 unless otherwise approved by the Engineer. At the time this item is authorized, the Traffic Signal Engineer may indicate what brand of equipment is to be supplied for that authorization. Installation of controller and cabinet, including all testing and documentation, must be included in this item. The Contractor must provide five (5) hard copies (11-inch x 17-inch) of the cabinet wiring diagrams and in PDF format on electronic media as approved by the Signal Engineer for the new cabinet location. Cable logs must be furnished indicating the number of each cable, the field termination point, and all cables must be tagged with an I.D. number corresponding with the cable log. Existing items such as vehicle detection, emergency vehicle pre-emption, illuminated sign control, roadway lighting control, UPS/Battery Back-up System, PTZ camera equipment, TSP/BRT and other devices may be designated by the Engineer as to be relocated to the new controller and cabinet and is considered included in this item. Removal and delivery of any existing controller, cabinet, and all other related equipment in the cabinet not being reused is considered included in this item. The Contractor must deliver the removed equipment to the Contract Spare Parts storage location per the requirements within the contract. The salvage and/or disposal of equipment must be at the discretion of the Engineer.

Installation of the controller and testing must be included in this item. When installing the new controller into an existing system, the new controller must contain all necessary telemetry modules, modems, circuit panels and wiring harnesses. All items necessary to enable the controller to communicate/operate within an existing closed loop system must be included in this item.

Basis of Payment. This work must be paid at the contract unit price each for FULL ACTUATED CONTROLLER IN CABINET of the type specified or ADVANCED TRANSPORTATION CONTROLLER (ATC) AND CABINET of the type specified as described above, which price must be paid in full for all work as described herein and includes furnishing, installing, delivery, handling and all appurtenances necessary for a complete and operational unit as directed/approved by the Traffic Signal Engineer.

- TC01A Full Actuated Controller in Type IV Cabinet
- TC01B Full Actuated Controller in Type V Cabinet
- TC01C Full Actuated Controller in Type IV Stretched Cabinet
- TC02A Advanced Transportation Controller (ATC) and Type IV Cabinet
- TC02B Advanced Transportation Controller (ATC) and Type IV Stretched Cabinet

TC03 FULL ACTUATED CONTROLLER IN TYPE IV OR TYPE V CABINET WITH RR EQUIPMENT AND UPS

Description. The controller and cabinet furnished is to be installed at an intersection which is interconnected with a railroad gate controller cabinet. Equipment must be NEMA TS 2 Type 1 unless otherwise approved by the Engineer. At the time this item is authorized, the Traffic Signal Engineer may indicate what brand of equipment and Type IV or Type V size are to be supplied for that authorization. UPS must be provided and installed in accordance with the District 1 Traffic Signal Special Provisions. At all railroad locations which are not part of a closed loop system (stand-alone), the controller and cabinet must meet the following: The controller cabinet must contain a 56-kbps auto dial/auto answer modem or Cellular Communication System as specified by the Traffic Signal Engineer. All equipment required for dial-in/dial-out capabilities or Cellular Communications System must be included in the item. The cabinet must be provided with an outdoor network interface for the termination of the telephone service. It must be mounted to the inside of the cabinet suitable to provide access for the termination of the telephone service and must be equipped with a standard three electrode heavy duty gas tube surge arrestor. Installation of controller and cabinet, including all testing and documentation, must be included in this item. The Contractor must provide five (5) hard copies (11-inch x 17-inch) of the cabinet wiring diagrams and in PDF format on electronic media as approved by the Signal Engineer for the new cabinet location. Cable logs must be furnished indicating the number of each cable, the field termination point, and all cables must be tagged with an I.D. number corresponding with the cable log. Existing items such as vehicle detection, emergency vehicle pre-emption, illuminated sign control, roadway lighting control, PTZ camera equipment, TSP/BRT and other devices may be designated by the Engineer as to be relocated to the new controller and cabinet and is considered included in this item. Removal of any existing controller, cabinet, and all other related equipment in the cabinet is considered included in this item. The Contractor must deliver the removed equipment to the Contract Spare Parts storage location per the requirements within the contract. The salvage and/or disposal of equipment must be at the discretion of the Engineer.

Installation of the controller and testing must be included in this item. When installing the new controller into an existing system, the new controller must contain all necessary telemetry modules, modems, circuit panels and wiring harnesses. All items necessary to enable the controller to communicate/operate within an existing closed loop system must be included in this item.

Basis of Payment. This work must be paid at the contract unit price each for FULL ACTUATED CONTROLLER, IN TYPE IV or TYPE V CABINET WITH RAILROAD EQUIPMENT AND UPS as described above, which price must be paid in full for all work as described herein and includes

furnishing, installing, delivery, handling and all appurtenances necessary for a complete and operational unit as directed/approved by the Traffic Signal Engineer.

TC04 FULL ACTUATED CONTROLLER

Description. Equipment must be NEMA TS 2 Type 1 unless otherwise approved by the Engineer. At the time this item is authorized, the Traffic Signal Engineer may indicate what brand of equipment is to be supplied for that authorization. Removal of the existing controller and related items, if required, must be considered included in this item. The Contractor must deliver the existing equipment to the Contract Spare Parts storage location per the requirements within the contract. The salvage and/or disposal of equipment must be at the discretion of the Engineer.

Installation of the controller and testing must be included in this item. When installing the new controller into an existing system, the new controller must contain all necessary telemetry modules, modems, circuit panels and wiring harnesses. All items necessary to enable the controller to communicate/operate within an existing closed loop system must be included in this item.

Basis of Payment. This work must be paid at the contract unit price each for FULL ACTUATED CONTROLLER as described above, which price must be paid in full for all work as described herein and includes furnishing, installing, delivery, handling and all appurtenances necessary for a complete and operational unit as directed/approved by the Traffic Signal Engineer.

TC05 – TC06 INSTALL TRAFFIC SIGNAL CONTROLLER OR CONTROLLER AND CABINET FROM CONTRACT SPARE PARTS

Description. The replacement and/or addition of controller harnesses, conflict monitor harnesses detector harnesses, all necessary telemetry modules, modems, circuit panels and any items necessary to enable the controller to communicate/operate within an existing closed loop system as required to install the Contract Spare Parts controller and/or cabinet at a location directed by the Traffic Signal Engineer must be included in this pay item. The current controller software at time of field installation must be included in this item. The cabinet must be the type designated on the plans. The Contractor must provide five (5) hard copies (11 inch x 17 inch) of the cabinet wiring diagrams and in PDF format on electronic media as approved by the Signal Engineer for the new cabinet location. Cable logs must be furnished indicating the number of each cable, the field termination point, and all cables must be tagged with an I.D. number corresponding with the cable log. As included in this item, the Contractor must transport the Contract Spare Parts equipment to the intersection and remove and transport the existing equipment to the Contractor's location for Contract Spare Parts storage. The salvage and/or disposal of equipment must be at the discretion of the Engineer.

Existing items such as vehicle detection, emergency vehicle pre-emption, illuminated sign control, roadway lighting control, UPS/Battery Back-up System, PTZ camera equipment, TSP/BRT and other devices may be designated by the Engineer as to be relocated to the Contract Spare Parts controller and cabinet and is considered included in this item.

Basis of Payment. This work must be paid at the contract unit price each for INSTALL TRAFFIC SIGNAL CONTROLLER, OR CONTROLLER AND CABINET FROM CONTRACT SPARE PARTS as described.

above, which price must be payment in full for all described herein and includes furnishing, installing, delivery, handling and appurtenances necessary for a complete and operational unit as directed/approved by the Traffic Signal Engineer.

- TC05 INSTALL EXISTING TRAFFIC SIGNAL CONTROLLER
- TC06 INSTALL EXISTING TRAFFIC SIGNAL CONTROLLER AND CABINET

TC07 CONTROLLER AND CABINET MODIFICATION

Description. This work must consist of controller and/or cabinet modifications as directed by the Engineer to provide additional phasing, phase overlaps, pedestrian movements or any cabinet and/or controller modifications to an existing traffic signal not included under the provisions of another pay item. This work to include but not limited to installing load switches, cabinet wiring, cabinet appurtenances, UPS wiring, reprogramming the controller per plans or as directed by the Engineer. All revisions to the existing documentation or providing new documentation including but not limited to the cabinet box print and cable log must be included. Minor revisions can be marked on the existing documentation or completely new documentation provided at the discretion of the Engineer.

Basis of Payment. This work must be paid for at the contract unit price each to provide CONTROLLER AND CABINET MODIFICATION as described above, which price must be payment in full for all work as described herein and includes furnishing, installing, delivery, handling and all appurtenances necessary for a complete and operational unit as directed/approved by the Traffic Signal Engineer.

TC08 TRAFFIC SIGNAL MASTER CONTROLLER

Description. Equipment must be NEMA TS 2 Type 1 unless otherwise approved by the Engineer. The master controller may be installed in an existing controller cabinet replacing an existing master controller of the same, or different, manufacturer or at a new location. In all cases the Contractor must furnish all necessary harnesses, relays, modems, transceivers, and telephone jack to place the proposed traffic signal master controller in operation. Locations where the master controller is installed within an existing system without the local traffic signal controllers being replaced, it must be of the same manufacturer as the local controllers. The closed loop systems presently in use are manufactured by Yunex Signal and Econolite Corporation. At the time this item is authorized, the Traffic Signal Engineer will indicate which manufacturer's equipment is to be supplied for that authorization. At the completion of installing the proposed master controller the Contractor must, if applicable, remove the existing master controller, harnesses, relays, modems, and transceivers that are not used and deliver them to the Contract Spare Parts storage location per the requirements within the contract. A telephone line and modem for proper communication if not pre-existing must be paid for separately under the item "Install Telephone Line and Modem". The salvage and/or disposal of equipment must be at the discretion of the Engineer.

Basis of Payment. This work must be paid at the contract unit price each for TRAFFIC SIGNAL MASTER CONTROLLER as described above, which price must be paid in full for all work as described herein and includes furnishing, installing, delivery, handling and all appurtenances necessary for a complete and operational unit as directed/approved by the Traffic Signal Engineer.

TC09 INSTALL TELEPHONE LINE AND MODEM

Description. This work must consist of providing a phone line to a traffic signal controller cabinet to provide working remote monitoring capabilities by the IDOT Traffic Signal Engineer in the Schaumburg office. The phone line must be capable of providing regular or ISDN communication as required by the Engineer. The contractor must provide an approved phone company junction box inside the controller cabinet, a 56K band modem as recommended by the equipment supplier, and all wiring necessary to the master controller or controller to provide proper communications. Cable and conduit from the telephone service connection to the cabinet phone junction box will be paid for separately.

The contractor must accomplish this work in the following process utilizing District 1 staff:

As soon as practical or within one week after authorization, the Contractor must contact IDOT's Administrative Support Manager in the District One Business Services Section at (847) 705-4011 to request a phone line installation. A follow-up contact must include all required information pertaining to the phone installation and should be made as soon as possible or within one week after the initial request has been made. A copy of this contact must be emailed by the Contractor to the Traffic Signal Engineer. The required information to be supplied must include (but not be limited to): an E911 address for the new traffic signal controller (or nearby address); a nearby existing telephone number; what type of telephone service is needed; the name and number of the Contractor's employee for the telephone company to contact regarding site work and questions.

The usual time frame for the activation of the phone line will vary after the Business Services Section has received the Contractor's information and will depend on location and existing available facilities. It is, therefore, imperative that the phone line conduit and pull-string be installed by the Contractor as soon as possible. The contractor must provide the Administrative Support Manager with an expected installation date.

The telephone line must be installed and activated one month before the system final inspection.

All costs associated with the telephone line installation and activation (not including the Contract specified conduit installation between the point of telephone service and the traffic signal controller cabinet) must be paid for by the District One Business Services Section (i.e., this will be an IDOT phone number not a contractor phone number).

Basis of Payment. This work must be paid for at the contract unit price each and to install a working INSTALL TELEPHONE LINE AND MODEM as described above, which price must be paid in full for all work as described herein and directed/approved by the Traffic Signal Engineer.

TC10 INSTALL UPDATED SOFTWARE OR PROM SET AT EXISTING LOCAL OR MASTER CONTROLLER

Description. This item must consist of installing the latest version of software, PROM or PROM Set in an existing traffic signal local or master controller. At locations that contain coordination modules, all PROMS in the controller module, telemetry module, and coordination module must be of the same version and revision. New system interface board must be included in this item. Any modifications required for the completion of this work must be included in the cost of this item.

Basis of Payment. This work must be paid at the contract unit price each for INSTALL UPDATED SOFTWARE OR PROM SET AT EXISTING LOCAL OR MASTER CONTROLLER, as described above, which price must be paid in full for all work as described herein and includes furnishing, installing, testing, and all appurtenances necessary for a complete and operational unit as directed/approved by the Traffic Signal Engineer.

TC11 UPS SYSTEM

Description. This work must consist of furnishing and installing an uninterruptible power supply (UPS) system as specified. Refer to the Traffic Signal Special provisions for exact requirements. A concrete apron, as indicated in the District One Standard Traffic Signal Design Details, including all excavation and restoration must be included in the cost of this item. This specification sets forth the minimum requirements for a system that provides an uninterruptible power supply (UPS) for a signalized intersection.

All controller cabinet modifications and other modifications to existing equipment that are required for the installation of the UPS system components must be included in this item.

Basis of Payment. This work must be paid at the contract unit price each to install UPS SYSTEM as described above, which price must be paid in full for all work as described herein and includes furnishing, installing, delivery, handling, replacement of any incandescent EVP confirmation beacon with LED type and all appurtenances necessary for a complete and operational unit as indicated on the drawings and as directed/approved by the Traffic Signal Engineer.

TC12 RELOCATE OR INSTALL EXISTING UPS SYSTEM

Description. This item must conform with Sections 801 and 895 of the Standard Specifications for Road and Bridge Construction and the District 1 Traffic Signal Special Provisions except as revised herein. This item includes the relocation of an existing Uninterruptible Power Supply (UPS) system when not included as part of other pay item or work. This item must include removing a UPS from one intersection, transporting it to another intersection and installing it at a new location or installing an existing UPS from Contract Spare Parts. Any modifications or adjustments to the existing UPS, including new batteries must be included in this item for a complete operational UPS system.

All mounting hardware must be new and must be included in this pay item. Any modifications to mounting hardware must be included in this item. A concrete apron, as indicated in the District

One Standard Traffic Signal Design Details, including all excavation and restoration must be included in the cost of this item, as applicable.

All controller cabinet modifications and other modifications to existing equipment that are required for the installation of the UPS system components must be included in this item.

Basis of Payment. This work must be paid at the contract unit price each to RELOCATE OR INSTALL EXISTING UPS SYSTEM, as described above, which price must be paid in full for all work and material as described herein and includes furnishing, installing, delivery, handling, replacement of any incandescent EVP confirmation beacon with LED type and all appurtenances and mounting hardware necessary for a complete working unit as directed/approved by the Traffic Signal Engineer.

TC13 CELLULAR COMMUNICATION SYSTEM

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

Basis of Payment. This work must be paid at the contract unit price each for CELLULAR COMMUNICATION SYSTEM as described above, which price must be paid in full for all work as described herein and includes furnishing, installing, delivery, handling and all appurtenances necessary for a complete and operational unit as directed/approved by the Traffic Signal Engineer.

TD01 DRILL EXISTING HANDHOLE

Description. Refer to Section 879 of the Standard Specifications for Road and Bridge Construction.

Basis of Payment. This work must be paid at the contract unit price each for DRILL EXISTING HANDHOLE as described above, which price must be paid in full for all work as described herein and as directed/approved by the Traffic Signal Engineer.

TE01 – TE05 & TEC1 – TEC2 ELECTRIC CABLE

Description. When a new cable is being installed to replace an existing cable, the removal of the existing cable must be included in this item. This item must be used for cable installed in a raceway, conduit or aerial suspended.

Basis of Payment. This work will be paid at the contract unit price per foot of ELECTRIC CABLE of the type, size, and number of conductors specified, which price must be paid in full for all work as described herein and includes furnishing the material, making all electrical connections, and installing the cable complete and as directed/approved by the Traffic Signal Engineer.

The type specified will indicate whether it is shielded and the method of installation. For example: Electric Cable No. 14, 2/C Twisted, Shielded.

- TE01 Electric Cable No. 14 2/C
- TE02 Electric Cable No. 14 3/C
- TE03 Electric Cable No. 14 5/C
- TE04 Electric Cable No. 14 7/C
- TE05 Electric Cable No. 14 2/C, Twisted Shielded
- TEC1 Electric Cable in Conduit, Tracer No. 14 1/C
- TEC2 Electric Cable No. 14, 3/C, Railroad

TF01 – TF06 CONCRETE FOUNDATIONS

Description. This work must consist of furnishing and installing a concrete foundation as specified. Refer to the Traffic Signal Special provisions and District One Standard Traffic Signal Design Details for exact requirements. All excavation and restoration must be included in the cost of this item.

Basis of Payment. This work will be paid at the contract unit price per foot of depth for CONCRETE FOUNDATION of the type specified, which price must be paid in full for all necessary excavating or drilling, backfilling, disposal of unsuitable material, form work, site restoration and furnishing all materials within the limits of the foundation including anchor bolts and as directed/approved by the Traffic Signal Engineer. If rock excavation is required it will be paid in accordance with Article 109.04 of the Standard Specifications.

- TF01 Concrete Foundation, Type A
- TF02 Concrete Foundation, Type D
- TF03 Concrete Foundation, Type C
- TF04 Concrete Foundation, Type E 30-inch Diameter
- TF05 Concrete Foundation, Type E 36-inch Diameter
- TF06 Concrete Foundation, Type E 42-inch Diameter

TF07 CONCRETE FOUNDATION, REBUILD/MODIFY, TYPE D

Description. This item must consist of the partial removal of an existing Type "D" Foundation at the location on the plans or as directed by the Traffic Signal Engineer. The existing foundation must be removed to a depth of at least 2-feet below finished grade. The disposal of the concrete debris outside of the right-of-way must be included in this item. The existing conduit must remain in place and must be carefully protected. The new conduits from the double handhole must be installed, if required, as shown on the plans.

Installation. Upon completion of the above work, holes for steel dowels of the size indicated must be drilled in the remaining concrete where indicated on the drawings. The adjacent area must be excavated and formed with anchor bolts and new conduit stubs to provide a concrete foundation for a Type IV cabinet as per the current Highway Standard, "Concrete Foundation Details". The Contractor must follow the recommendations of the manufacturer, subject to approval of the Engineer. Provide a 36-inch x 48-inch x 5-inch P.C.C. apron sidewalk on the side of the access door to the controller to facilitate servicing the controller. Anchor bolts must be new and must meet all the requirements of sections 800 and 1000 of the Standard Specifications for Road and Bridge Construction.

Basis of Payment. This work must be paid at the contract unit price each for CONCRETE FOUNDATION, REBUILD/MODIFY, TYPE D, which price must be paid in full for all labor, materials, and equipment necessary to complete the work described above and as indicated on the drawings and as directed/approved by the Traffic Signal Engineer. The removal and reinstallation of the existing cabinet must be included in this pay item, as well as the pulling and reinstalling of the existing cable from conduit.

TFB1 FLASHING BEACON, POST MOUNT, 1 FACE

Description. This item must conform with sections 800 and 1000 of the Standard Specifications for Road and Bridge Construction, District 1 Traffic Signal Special Provisions, and the current Highway standard, "Details of Spanwire Mounted Signals and Flashing Beacon Installation" except as revised herein. This item must consist of installing a post mounted 12-inch L.E.D. single section red or yellow flashing beacon on a new or existing post as shown on the plans or as directed by the Traffic Signal Engineer. This item must include furnishing and installing a flasher controller in an aluminum cabinet, or integrated within the head, service installation (post mounted), 12-inch L.E.D. red or yellow signal section with a dimmer if required by the Traffic Signal Engineer, and all other equipment necessary to complete the installation.

This item must include the relocation the removal of existing post and relocation of existing signs, as applicable.

Basis of Payment. This work must be paid at the contract unit price each to install FLASHING BEACON, POST MOUNT, 1 FACE as described above, which price must be paid in full for all work and materials as described herein and includes furnishing, installing, delivery, handling and all appurtenances necessary for a complete and operational unit as indicated on the drawings and as directed/approved by the Traffic Signal Engineer.

TFB2 FLASHING BEACON, SOLAR, POST MOUNT, 1 FACE

Description. This item must conform with sections 800 and 1000 of the Standard Specifications for Road and Bridge Construction and District One Traffic Signal Special Provisions. This item must consist of furnishing and installing a 12-inch single red or yellow flashing module on a new or existing post as shown on the plans or as directed by the Traffic Signal Engineer. This item must include furnishing and installing a flasher controller that is integrated within the signal head, with discrete solar panels, LED module, battery, electronics, compact housing and capable of operating 24 hours, 7 days a week.

- The flasher unit must be installed on a standard wood or metal post. The flash pattern must be MUTCD compliant and have alternate flash patterns available. The LED module must be ITE VTCSH-STD Part-2 compliant.
- The flasher unit must operate over a temperature range of -40-degree F to 176 degree F.
- The battery must have a life span of a minimum of 5 years and be field replaceable. The battery and electronics may be located inside the solar panel housing or signal head.
- The sections of the flasher unit must be secured with tamper resistant stainless-steel hardware and, unless otherwise noted, the housing must be black in color.
- This item must include the relocation the removal of existing post and relocation of existing signs, as applicable.

Basis of Payment. This work must be paid for at the contract unit price each for FLASHING BEACON, SOLAR, POST MOUNT, 1 FACE, of the color LED as described above, which price must be paid in full for all work and materials as described herein and includes furnishing, installing, delivery, handling and all appurtenances and mounting hardware necessary for a complete and operational unit as indicated on the drawings and as directed/approved by the Traffic Signal Engineer.

TGS1 ADDITIONAL GROUNDING AND ELECTRIC SERVICE UPGRADE

Description. The Contractor must perform additional electric service and grounding upgrades as specified to the traffic signal locations as designated by the Engineer.

Work Description. The contractor is responsible for scheduling the work and for coordinating with the engineer whenever Engineer-witness functions are required. The contractors must also advise the engineer when each location is complete and must provide a written certification to that effect. The Engineer reserves the right to require a final inspection of the modification at any or all of the locations certified as complete. Should deficiencies be found upon inspection, a corrective work list will be prepared.

The traffic signal installations being modified must be always kept operational except as expressly allowed herein or otherwise permitted by the Engineer. The Contractor must be responsible for all traffic control and temporary provisions required for the work, all at no additional cost to the pay item. All cable, conduit, fittings and accessories must be new. All materials and work must be in

conformance with the requirements of applicable contract specifications and article 250 of the National Electrical Code.

The Contractor must be responsible for coordination with the Electric Utility as necessary and must be responsible for reporting any account modifications arising from the work to the Engineer in a timely manner. Although it is anticipated that all service agreements and accounts will remain as-is, if new agreements are required, the Contractor must facilitate coordination between the Electric Utility and the Engineer, with the Department to sign any appropriate new agreements. Only momentary outage of a traffic signal location undergoing modification will be allowed, and the contractor must provide generator power or make temporary service connections as necessary to assure continuity of operations as modifications are made.

The work will generally include:

- Replacement of the electric service entrance equipment and cables
- New grounding of the service
- New feeder conductors from the service disconnect to the controller cabinet.
- Cabinet grounding modifications
- Supplementary ground electrodes at handholes
- Extension of equipment ground wires to all poles, posts, handholes, etc.
- Bonding of equipment ground to all exposed metal parts
- Testing and documentation

Replace Electric Service Entrance

The work must include the removal of the existing service disconnecting means and the service conductors and must include the furnishing and installing a new pole-mounted service disconnecting means and new service conductors, based on the manner of the existing service. The new electric service disconnect, cables and the service connection must be in accordance with details included herein, and Figure L-3A, as shown in Volume 1, Article 7, unless specified otherwise by the Engineer to meet special requirements of certain locations, pedestrian traffic, etc.

Provide New System Ground of Electric Service

The work must include the installation of a new system ground, connected to the ground bar of the service disconnect, using one or more ground rod grounding electrodes, or other means approved by the Engineer. The system ground must have a resistance to earth not to exceed 10 ohms without connection to the additional electrodes established at poles or other points at the traffic signal location. The system ground resistance must be verified by a contractor test, using the fall-of potential method and witnessed and approved by the engineer, with a record of the test entered by the Contractor and signed by the Contractor and the Engineer. Should more than one electrode be required to establish a low enough resistance, additional electrodes must be connected to the grid, with re-testing. All ground electrode connections must be exothermically welded. Ground rods and grounding electrode conductors must be as specified and detailed.

The service grounded circuit conductor (which may or may not be a system neutral) must be bonded to the system ground at the service disconnect and must be isolated from ground throughout the remainder of the electrical distribution.

Extend New Conductors to Controller

A new ground terminal bar must be installed at the traffic signal control cabinet and this bar must be bonded to the cabinet enclosure. The work must include the replacement of the existing feeder and the extension of new feeder conductors from the service disconnect to the traffic signal control cabinet. The cable will be a multi-conductor jacketed cable as specified and it must include a green-insulated ground wire to bond the service ground bar to the controller cabinet ground bar. The contractor must confirm the integrity of the existing feeder conduit run and must clean the run before installing the new feeder. If the size of the conduit is demonstrated to be inadequate for the new feeder cable or if it is demonstrated as not re-usable for some other reason and no other alternative is feasible, the contractor must use a new feeder conduit run, as part of this pay item, with all cable work remaining as the Contractor's responsibility at no additional cost to the pay item.

Cabinet Grounding Modifications

The contractor must confirm the presence of a terminal bar, with suitable terminals, for the grounded circuit conductor (white wire) at the controller cabinet and must assure isolation of this bar from the cabinet enclosure and other grounded parts. If the existing bar is inadequate or is not isolated properly, the Contractor must provide a new bar or otherwise correct the installation, removing any incorrect items. Similarly, the contractor must confirm the presence of a ground bar, with suitable terminals, which is bonded to the cabinet enclosure and grounded metal parts. If the existing ground bar is inadequate or is not bonded properly, the Contractor must provide a new bar or otherwise correct the installation, removing any incorrect items, as included in this pay item.

Supplementary Ground Electrodes

A ground rod must be driven at traffic signal handholes present at each corner of a location (but not within the roadway) except for handholes within 15 feet of the service ground electrode. The ground rods must be as specified and all connections directly to the ground rods must be exothermically welded.

Extension of Equipment Ground

The contractor must extend an equipment ground conductor from the ground bar in the controller cabinet to distributed elements of the system, bonding the equipment ground conductor to all handhole frames, metal poles and other enclosures, metal conduit, etc., including any existing supplemental ground rods that may be in place. The Contractor must assure that good equipment ground continuity and a low-impedance ground return path is established throughout for all exposed metal parts of the installation.

It is not the intent of this work item to require re-cabling of the traffic signal load equipment to achieve grounding. In all cases, a green-insulated ground conductor must be used whenever possible, and only if conduit space will not accommodate an insulated conductor will a bare conductor be allowed. A common conductor may be employed for multiple load circuit cables in a given conduit, but an equipment ground conductor must be run with or must encircle each set of circuit conductors extended from the controller cabinet.

Recognizing the intent to leave existing conductors in place and operational, the contractor may choose from among identified and prioritized acceptable alternative to affect the grounding modifications:

- If an existing conduit will accommodate the installation of a ground wire, the ground wire must be installed within the conduit with the circuit conductors. Existing conductors should only be withdrawn from a conduit run to facilitate pulling of the ground wire if necessary.
- If an existing metal conduit will not accommodate the required ground wire, and if the contractor can identify end-to-end electrical continuity of the conduit, the contractor may bond to the conduit externally in an approved manner to establish ground continuity, thus using the metal conduit as the equipment ground conductor.
- If a given conduit run is demonstrated to be damaged and electrically discontinuous in the presence of the Engineer, and if no other alternative is feasible, the engineer will authorize a new conduit run, to be paid under separate pay item, with all cable installation to remain part of the grounding modification work at no additional cost to the pay item. When a new conduit is installed, an insulated ground conductor must be installed within, together with the circuit conductors, regardless of the ground continuity of the new conduit, and the new conduit must be appropriately bonded to the equipment ground.

Bonding

The Contractor must establish equipment ground bonding to the cover frame of every handhole with an approved connection. The contractor must establish equipment ground bonding at every metal pole, post or other enclosure or device, also with an approved connecting. At poles or post bases, it may be possible to install washers, lugs, and extra nuts where extra anchor bolt protrusion allows it. Otherwise, poles may be drilled and tapped and fitted with appropriate ground lugs. Connections at poles and other enclosures must be pigtailed from splices whenever more than one ground conductor is connected so that ground continuity is not dependent upon ground lug connection. Splices of ground conductors (in lieu of exothermic weld connectors) will be permitted at poles and other such connection point above grade, with splices to be made using suitable copper crimp sleeves and heat-shrink insulated caps as specified.

Testing and Documentation

As noted above, the system ground resistance to earth must be tested, in isolation from equipment ground extensions from that point. Testing must be performed by the contractor using the fall-of-potential method, with results recorded by the Contractor and witnessed by the Engineer. Ground continuity must be tested using an approved low-impedance ohmmeter, to the farthest point of each circuit extension from the controller cabinet. Results must be recorded by the contractor and witnessed by the Engineer.

Special Considerations

Temporary signal installations and other span-wire installations must be included in the scope of service and grounding modifications. For span-wire installations, the messenger wire must be employed as an equipment ground conductor and taps must be made to this wire to extend an

equipment ground connection to appropriate exposed metal parts. A service grounding electrode must be established at the electric service disconnect and a ground rod must be installed and connected at one pole per quadrant.

Method of Measurement. Each traffic signal grounding modification and electric service upgrade as performed as specified and inspection report submitted and approved by the Engineers must be counted as unit for payment.

Basis of Payment. This item must be paid at the contract unit price each for TRAFFIC SIGNAL ADDITIONAL GROUNDING AND ELECTRIC SERVICE UPGRADE, which price must be paid in full for all work as described herein and includes furnishing, installing, delivery, handling, testing, connections, bonding and all appurtenances necessary for a completely grounded system as indicated on the drawings and as directed/approved by the Traffic Signal Engineer.

TGS2 ELECTRIC SERVICE RELOCATION

Description. This item must conform with Section 805 of the Standard Specifications for Road and Bridge Construction, District 1 Traffic Signal Special Provisions and the District 1 Standard Traffic Signal Design Details, except as revised herein.

Work Description. The Contractor must be responsible for coordination with the Electric Utility as necessary and must be responsible for reporting any account modifications arising from the work to the Engineer in a timely manner. Although it is anticipated that all service agreements and accounts will remain as-is, if new agreements are required, the Contractor must facilitate coordination between the Electric Utility and the Engineer, with the Department to sign any appropriate new agreements. Only momentary outage of a traffic signal location undergoing modification will be allowed, and the contractor must provide generator power or make temporary service connections as necessary to assure continuity of operations as modifications are made.

The work will generally include relocation of the existing electric utility service and appurtenances; Coordination with the utility for the removal of utility owned wood poles; Removal/disposal of

Department owned wood poles as directed by the Traffic Signal Engineer.

The work must include the removal/disconnection of the existing service disconnecting means and the service conductors and must include relocation and installation of existing equipment at a different location as directed by the Traffic Signal Engineer. Any modifications or adjustments to the existing electric service must be included in this item. All mounting hardware including an electric weather head must be new and must be included in this pay item. Any modifications to mounting hardware must be included in this item. Additional ground rod(s) must be provided as necessary meeting resistance requirements.

Basis of Payment. This item must be paid at the contract unit price each for ELECTRIC SERVICE RELOCATION, which price must be paid in full for all work as described herein and includes furnishing, installing, delivery, handling, testing, connections, bonding and all appurtenances necessary for a complete operational system as indicated on the drawings and as directed/approved by the Traffic Signal Engineer.

TGS3 ELECTRIC SERVICE INSTALLATION, GROUND MOUNTED

Description. This item must conform with Section 805 of the Standard Specifications for Road and Bridge Construction, District 1 Traffic Signal Special Provisions and the District 1 Standard Traffic Signal Design Details, except as revised herein.

Work Description. The Contractor must be responsible for coordination with the Electric Utility as necessary and must be responsible for reporting any account modifications arising from the work to the Engineer in a timely manner. Although it is anticipated that all service agreements and accounts will remain as-is, if new agreements are required, the Contractor must facilitate coordination between the Electric Utility and the Engineer, with the Department to sign any appropriate new agreements. Only momentary outage of a traffic signal location undergoing modification will be allowed, and the contractor must provide generator power or make temporary service connections as necessary to assure continuity of operations as modifications are made.

The work will generally include installation of new ground mounted electric service and installation/coordination of meter housing/meter as directed by the Traffic Signal Engineer.

Removal and disposal of existing electric service, conduit and cable, as applicable, must be included in the cost of this item.

Basis of Payment. This item must be paid at the contract unit price each for ELECTRIC SERVICE INSTALLTION, GROUND MOUNTED, which price must be paid in full for all work as described herein and includes furnishing, installing, delivery, handling, testing, connections, bonding and all appurtenances necessary for a complete operational system as indicated on the drawings and as directed/approved by the Traffic Signal Engineer.

TL01 INDUCTIVE LOOP DETECTOR

Description. This work must consist of furnishing and/or installing a vehicle or bicycle inductive loop detector ("Amplifier"), as directed by the Traffic Signal Engineer, according to Articles/Section 1079.01 of the Standard Specifications. The bicycle inductive loop detector must differentiate bicycles from motorized vehicles.

Work Description. The inductive loop detector must be installed inside the traffic signal controller cabinet. The detector must be either card rack type or shelf-mounted type. The detector may be single-channel, two-channel, or four- channel, as directed by the Traffic Signal Engineer. Any necessary connections and/or cabinet modifications required must be including in this item.

Basis of Payment. This work will be paid for at the contract unit price each for INDUCTIVE LOOP DETECTOR, which price must be paid in full for all work as described herein and includes the necessary connections and adjustments for proper operation and as directed/approved by the Traffic Signal Engineer. If the detector unit has more than one complete detection channel, each compound detection channel will be considered as a detector for payment.

TL02 DETECTOR LOOP

Description. This item must conform with Sections 800 and 1000 of the Standard Specifications for Road and Bridge Construction, District 1 Traffic Signal Special Provisions and the District 1 Standard Traffic Signal Design Details, except as revised herein.

Asphalt Pavement

Detector loop which is to be installed in the proposed asphalt pavement must be placed in the pavement below the surface coarse. The location of each dive hole must be marked on the face of the curb or handhole with a saw cut.

Existing Asphalt Pavement

Detector loop which is to be installed in an existing asphalt pavement must be located to miss existing pavement cracks, if possible. The saw cut is to be filled with sealant to 3.0mm (one-eighth inch) below the surface of the pavement.

Concrete Pavement

Detector loop which is to be installed in concrete pavement must be placed to miss pavement joints and cracks, if possible. The saw cut is to be filled with sealant to one-eighth inch below the surface of pavement.

Loop Preparation

All detector loop saw cuts must be a minimum of one-and-one-half inches and a maximum of two inches, and the depth must be equal to the saw cut. Saw cuts across the corners are NOT allowed. The saw cut must be a minimum of five-sixteenths inches wide and cut in accordance with local and EPA dust control requirements. Detector loop(s) must not be installed in wet conditions and the saw cuts must be free of debris and residue such as dust and water which is to be achieved using compressed air, wire brushing and heat drying according to sealant manufacturer requirements. The detector wire must be held in place by the use of form wedges of sufficient diameter and strength to hold the wire one inch below the surface of the pavement. Wedges must be spaced no more than eighteen inches apart. The wire from the detector loop to the handhole must have six twists per foot and have a separate non-metallic raceway raceway from the edge of pavement to the handhole. The non-metallic raceway must be one foot into the pavement and loop under the curb and gutter. The non-metallic raceway must be placed at a thirty-inch depth.

Contractor Loop Identification

The loop detector wire must be spliced in the handhole and each lead-in wire must be labeled in the handhole using a Conduit 250W175C waterproof tag or approved equal secured to each wire with nylon ties. Each lead-in cable tag must indicate the location of the loop, loop rotation (clockwise/counterclockwise), loop lead- in direction (in or out), loop cable number, location in cabinet, and number of turns in the detector loop using waterproof ink as indicated on the District 1 Loop Detail. The Contractor must mark loop locations on as-built plans and present to the Engineer after final inspection.

Six foot round loop(s) may be substituted for six foot by six foot square loop(s) and must be paid as 24 feet of detector loop.

Detector loop measurements must include the saw cut and the length of the detector loop wire to the edge of pavement. The detector loop wire, including all necessary connections for proper

operations, from the edge of pavement to the handhole, must be included in the price of the detector loop. Non-metallic raceway (conduit, non-metallic, coilable, "loop dives"), trench and backfill and drilling of pavement or handholes must be included in detector loop quantities.

Basis of Payment. This work must be paid at the contract unit price per foot for DETECTOR LOOP as described above, which price must be paid in full for all work as described herein and as directed/approved by the Traffic Signal Engineer.

TMA1–TMA2 STEEL MAST ARM ASSEMBLY AND POLE

Description. This item must conform to the requirements of sections 877 of the Standard Specifications for Road and Bridge Construction, the District 1 Traffic Signal Special Provisions and the current Highway Standard, "Steel Mast Arm Assembly and Pole", except as revised herein.

Prior to the final acceptance of any Steel Mast Arm Assembly and Pole, Contractor must furnish to the Engineer a certified, notarized mill analysis of the material used in the Steel Mast Arm

Assembly and Pole.

This item, when applicable, must include the relocation of existing sign panels currently installed at the location.

If the proposed mast arm assembly is replacing an existing mast arm, the removal of the existing mast arm assembly must be included in this item. The Contractor must retain ownership of the existing mast arm assembly.

The mast arm must be fitted with stainless steel mesh in accordance with the Standard Specifications for Road and Bridge Construction.

Basis of Payment. This work must be paid at the contract unit price each for furnishing and installing a STEEL MAST ARM ASSEMBLY AND POLE as described above, which price must be paid in full for all work and materials as described herein and includes furnishing, installing, delivery, handling and all appurtenances and mounting hardware necessary for a complete assembly as directed/approved by the Traffic Signal Engineer.

- TMA1 Steel Mast Arm Assembly and Pole 40 ft or less
- TMA2 Steel Mast Arm Assembly and Pole 42 ft to 55 ft

TMA3 RELOCATE OR INSTALL MAST ARM ASSEMBLY AND POLE FROM CONTRACT SPARE PARTS

Description. This item must conform with sections 877 of the Standard Specifications for Road and Bridge Construction and District 1 Traffic Signal Special Provisions except as revised herein. The mast arm assembly and pole must come from Contract Spare Parts or be relocated from one foundation to another foundation at the same intersection or another intersection as indicated on the plans. All transportation costs to move the mast arm assembly and pole from Contract Spare Parts to the intersection or from intersection to intersection are included in this item. Existing holes

in the mast arm assembly and pole must be plugged as directed by the Traffic Signal Engineer. The Contractor must install stainless steel screening at the base of the mast arm in accordance with the Standard Specifications for Road and Bridge Construction. The cost of furnishing and installing screening or a new shroud must be included in this item.

Basis of Payment. This work must be paid at the contract unit price each for RELOCATE OR INSTALL EXISTING MAST ARM ASSEMBLY AND POLE FROM CONTRACT SPARE PARTS, as described above, which price must be paid in full for all work and materials as described herein and includes furnishing, installing, delivery, handling and all appurtenances and mounting hardware necessary to relocate a mast arm pole assembly or install a mast arm assembly from Contract Spare Parts as directed/approved by the Traffic Signal Engineer.

TPP1 PEDESTRIAN PUSH-BUTTON POST, GALVANIZED STEEL

Description. This work must consist of furnishing a nominal 4.5-inch diameter pedestrian push-button post and installing it on a base and concrete foundation as shown on the District One Traffic Signal detail sheets. The post diameter must be as directed by the Traffic Signal Engineer and must be coordinated with the base construction.

See Traffic Signal Post and Base, Article/Section 1077, Concrete Article/Section 1020 and IDOT District One details sheets.

The pedestrian push-button post must be installed plumb on a round base and concrete foundation according to the details shown on the plans. The contractor must apply an anti-seize post compound on all nuts and bolts prior to assembly.

The foundation must be made Class SI concrete.

Basis of Payment. This work will be paid for at the contract unit price each for PEDESTRIAN PUSH- BUTTON POST, GALVANIZED STEEL, which price must be paid in full for all work and materials as described herein and includes furnishing, installing, delivery, handling and all appurtenances and mounting hardware necessary as directed/approved by the Traffic Signal Engineer.

TPP2 PEDESTRIAN PUSH-BUTTON, LATCHING AND NON-LATCHING

Description. This item must conform with sections 888 and 1074 of the Standard Specifications for Road and Bridge Construction and District 1 Traffic Signal Special Provisions except as revised herein. The Pedestrian Push-button assembly must be one piece cast aluminum alloy with momentary LED or latching type LED display, as directed by the Traffic Signal Engineer and include pedestrian push button station, sign, and push-button extension. See District One Traffic Signal Special Provisions for Pedestrian Station and Sign Requirements.

Basis of Payment. This work must be paid at the contract unit price each for PEDESTRIAN PUSH-BUTTON, LATCHING AND NON-LATCHING as described above, which price must be paid in full for all work and material as described herein and includes furnishing, installing, delivery, handling and all appurtenances and mounting hardware necessary for a complete working unit as

directed/approved by the Traffic Signal Engineer.

TPP3 RELOCATE EXISTING PEDESTRIAN PUSH-BUTTON

Description. This work must consist of relocating an existing pedestrian push-button as specified. Refer to the Traffic Signal Special provisions for exact requirements. Mounting/extension brackets must be used to assure that the push button is accessible from a paved or concrete surface and is in full compliance with ADA. Mounting/extension brackets must not be paid for separately but must be included in the cost of the RELOCATE EXISTING PEDESTRIAN PUSH-BUTTON pay item.

Basis of Payment. This work must be paid at the contract unit price each for RELOCATE EXISTING PEDESTRIAN PUSH-BUTTON as described above, which price must be paid in full for all work and material as described herein and includes furnishing, installing, delivery, handling and all appurtenances and mounting hardware necessary for a complete working unit as directed/approved by the Traffic Signal Engineer.

TPP4 PEDESTRIAN PUSH-BUTTON, ACCESSIBLE PEDESTRIAN SIGNALS (APS) TYPE

Description. This item must consist of furnishing, removing(if applicable), and installing pedestrian push button accessible pedestrian signals (APS) type. Each APS must 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 must meet the requirements of the MUTCD and Sections 801 and 888 of the Standard Specifications, except as modified herein and include pedestrian push button station, sign, and push button extension as necessary. See District One Traffic Signal Special Provisions for Pedestrian Station and Sign Requirements.

This work must consist of furnishing and installing accessible pedestrian signals (APS). Each APS must 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 must 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 must be used to assure proper orientation and accessibility where needed. The price of the bracket and/or extension must 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 must be designed to be mounted to a post, mast arm pole or wood pole. The station must be aluminum and must 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 must be powder coated yellow with a black pushbutton and stainless-steel arrow on pushbutton.

Electrical Requirements. The APS must 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 must contain a power protection circuit consisting of both fuse and transient protection.

Audible Indications. A pushbutton locator tone must sound at each pushbutton and must be deactivated during the associated walk indication and when associated traffic signals are in flashing mode. Pushbutton locator tones must have a duration of 0.15 seconds or less and must repeat at 1-second intervals. Each actuation of the pushbutton must be accompanied by the speech message “Wait”. Locator tones must 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 must be a speech message. This speech message must sound throughout the WALK interval only. Common street name must be used and not the route number of the street unless there is no common street name. The street name used in programming must reflect the street name mast arm mounted sign panel. Locations without street name (ex. private benefit driveways, shopping plaza entrance, etc.) must use a general term “Commercial Driveway” as a street name for that leg. The speech message must be modeled after: “Street Name.’ Walk Sign is on to cross “Street Name.” For signalized intersections utilizing exclusive pedestrian phasing, the verbal message must be “Walk sign is on for all crossings”. In addition, a speech pushbutton information message must be provided by actuating the APS pushbutton during DON'T WALK interval. This verbal message must be modeled after: “Wait”. The extended press option verbal message must be: “Wait to cross 'Street Name' at 'Street Name'”.

Railroad Preemption.

At locations with railroad interconnection APS pushbutton must be capable of receiving a railroad preemption like a traffic signal controller and must be hard wired to the railroad preemption relay inside the traffic signal cabinet. A shelf mount control unit must 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 must use the speech message and must 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 must be repeated two times.

At locations with emergency vehicle preemption, NO additional speech message must be provided.

At locations with Equestrian Pushbuttons style installation the APS push buttons must use speech message only and must emit the audible message from the bottom mounted push button only.

Locations with Corner Islands or Center Medians

At locations with corner islands pushbuttons must 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 must follow the format specified herein for the main street

crossing. The speech message must 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 push-button”

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 must be an audible percussive tone. It must repeat at 8 to 10 ticks per second with a dominant frequency of 880 Hz. Percussive tone must be uniform at all stations at the intersection and must not change for different directions.

Automatic volume adjustments in response to ambient traffic sound level must be provided up to a maximum volume of 100 dBA. Locator tone and verbal messages must be no more than 5 dB louder than ambient sound. Locator tone and speech message must be programmed at same volume one must not be significantly louder than the other and must be adjusted as directed by the Engineer.

Pedestrian Pushbutton. Pedestrian pushbuttons must be at least 2 in. (50 mm) in diameter or width. The force required to activate the pushbutton must be no greater than 3.5 lb. (15.5 N).

A red LED must be located on or near the pushbutton which, when activated, acknowledges the pedestrians request to cross the street.

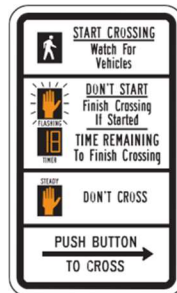
APS pushbutton systems that utilize any wireless technology including Bluetooth technology to place calls or communicate with controller will not be allow. A central master control unit must be provided and installed in the traffic signal cabinet. Push button must be connected directly to the master control unit in the traffic signal cabinet using only 2 wires. All pushbuttons must be capable of placing a pedestrian call request into the controller and must be hard wired. APS pushbuttons must be a direct replacement of existing standard push buttons and must be weather resistant with a minimum warranty of 5 years.

APS push buttons must be compatible with one another and easily replaceable on future replacements or maintenance repairs no multiple model variations will be allowed.

All APS pushbuttons must 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 must be completed once push buttons are installed in the final location. All push buttons must be programmed with the appropriate parameters and settings as directed by the Engineer. These settings must be standard for all pushbuttons and will vary based on the manufacturer. Access to pushbutton settings must be provided through an app either through wired, wireless, or Bluetooth connection. Pushbutton information, settings, and access instructions must all be provided in a weatherproof pouch and safely stored inside each traffic signal cabinet.

Contractor must 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 must be included in the cost of Accessible Pedestrian Signals and will not be paid for separately.

Signage. A sign must be located immediately above the pedestrian pushbutton and parallel to the crosswalk controlled by the pushbutton. The sign must 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, must be provided on the pushbutton.

Vibrotactile Feature. The pushbutton must pulse when depressed and must vibrate continuously throughout the WALK interval.

Basis of Payment. This work must be paid at the contract unit price each for PEDESTRIAN PUSH-BUTTON, ACCESSIBLE PEDESTRIAN SIGNALS (APS) TYPE as described above, which price must be paid in full for all work and material as described herein and includes furnishing, removing (if applicable), installation, delivery, mounting hardware, message programming, training and all appurtenances and mounting hardware necessary for a complete working unit as directed/approved by the Traffic Signal Engineer.

TSB1 TRAFFIC SIGNAL BACKPLATE, REFLECTIVE

Description. Delete 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:

Reflective sheeting must be Type ZZ according to Article 1091.03, 3-inches wide and applied in the manufacturer's preferred orientation for the maximum angularity according to the vendor's recommendation. The retro reflective sheeting must be installed under a controlled environment at the manufacturer/supplier facilities before shipment for field installation. The backplate must

be prepared and cleaned, following recommendations of the retro reflective sheeting manufacturer. Removal/disposal of the existing backplate along with installation of new backplate, where applicable, must be included in the cost of this item.

Basis of Payment. This work must be paid at the contract unit price each for TRAFFIC SIGNAL BACKPLATE, REFLECTIVE, which price must be paid in full for all work and materials as described herein and as approved by the Traffic Signal Engineer.

TSD1 LED SIGNAL DISPLAY

Description. This item must consist of installing a 12-inch LED display into an existing signal section or a new signal section. The LED display must fit into the signal housing without any modifications to the housing and meet District 1 Traffic Signal Special Provisions. Removal of the existing lens and reflector must be included in this item. The existing lens and reflector must become the Contractor's property and the unit price should reflect the salvage value of these items.

Basis of Payment. This work must be paid at the contract unit price each for LED SIGNAL DISPLAY, which price must be paid in full for supplying and installing a display as described herein and as approved by the Traffic Signal Engineer.

TSL1–TSL5 LED SIGNAL HEAD

Description. These items must conform with Section 880 of the Standard Specifications for Road and Bridge Construction, District 1 Traffic Signal Special Provisions, the current Highway Standard "Traffic Signal Mounting Details", Special Provision for Light Emitting Diode (LED) Signal Head, and District 1 Standard Traffic Signal Design Details, except as revised herein. All traffic signal sections must have twelve-inch lenses unless otherwise stated on the plans or as directed by the Traffic Signal Engineer. At locations where new signal heads are replacing existing signal heads, the removal of the existing signal heads and mounting hardware must be included in this item and the Contractor must retain ownership of the existing used signal heads.

All mounting hardware must be new and must be included in the pay item for signal head. Visor type, including louvers, must be as directed by the Traffic Signal Engineer. The pay items listed below must include either bracket mounts or mast arm mounts as required by the plans or directed by the Traffic Signal Engineer. Any modifications to mounting hardware must be included in this item.

Basis of Payment. This work must be paid at the contract unit price each for LED SIGNAL HEAD of the number of sections specified OR LED SIGNAL HEAD, OPTICALLY PROGRAMMED of the number of sections specified, which price must be paid in full for all work as described herein and as approved by the Traffic Signal Engineer. Removal, salvage, or disposal of existing heads and related mounting hardware and backplates must be included in these items.

TSL1 LED Signal Head, 3 Section
TSL2 LED Signal Head, 4 Section

- TSL3 LED Signal Head, 5 Section
- TSL4 LED Signal Head, Optically Programmed, 3 Section
- TSL5 LED Signal Head, Optically Programmed, 5 Section

TSL6 LED SIGNAL FACE, LENS COVER

Description. This work must consist of furnishing and installing a signal lens cover with the purpose of preventing snow buildup on and around a signal lens allowing for clear indication during inclement weather.

This item must fit over a 12-inch signal head lens and must include the clear lens cover, attachment collar and any clips or fasteners necessary to fit it flush. The cover must be installed in accordance with the manufacturer's instructions and in a manner that prevents dust, debris, or moisture buildup on the inside of the lens cover that could affect the signal indication visibility.

The snow resistant signal head lens cover must be warrantied, free from material and workmanship defects for a period of three years from final inspection.

Basis of Payment. This work must be paid at the contract unit price each for LED SIGNAL FACE, LENS COVER, as described above, which price must be paid in full for all work as described herein including furnishing, installing, and all mounting hardware necessary for a fully operational snow resistant signal head lens cover as approved by the Traffic Signal Engineer.

TSL7 LED SIGNAL FACE, VISOR HEATER

Description. This work must consist of furnishing and installing a heated signal visor or retrofitting an existing signal visor with a heater to prevent snow buildup on and around a signal lens allowing for clear signal indication during inclement weather.

The heater must keep a constant temperature on every point of the heating element and must not rise above the manufacturer's safe temperature levels. The heater must be made from flexible material mounted to the underside of an existing or proposed signal visor. The heater must be controlled by a temperature and humidity probe to determine if conditions for snow are present. A single probe with the LED confirmation light should be installed at the traffic signal cabinet to control the entire intersection with the confirmation light visible from the street. Power for the heater must be supplied using an extra, unused wire from the signal head. Installation of the heater must not create conditions where dust, debris, or water can enter the inside of the signal head. Any control modules necessary for the proper operation should be installed inside the cabinet for easy maintenance and its capacity should match the number of red signal head indications present at the intersection or as directed by the engineer.

The heating element must operate during typical snowing conditions below 35.6-degree F and above 75% RH. The heater must be installed such that it is de-energized when traffic signals are powered by an alternative energy source such as a generator or uninterruptible power supply (UPS).

The snow resistant heated signal visor must be warrantied, free from material and workmanship defects for a period of three years from final inspection.

Basis of Payment. This work must be paid at the contract unit price each for LED SIGNAL FACE, VISOR HEATER, as described above, which price must be paid in full for all work as described herein including furnishing, installing, and all mounting hardware necessary for proper operation as approved by the Traffic Signal Engineer.

TSL8 LED PEDESTRIAN SIGNAL HEAD, COUNTDOWN

Description. This item must conform with Section 881 of the Standard Specifications for Road and Bridge Construction, District 1 Traffic Signal Special Provisions, the current Highway Standard "Traffic Signal Mounting Details" and District 1 Standard Signal Design Details, except as revised herein. This work must consist of furnishing and installing a pedestrian countdown signal head, with light emitting diodes (LED) of the type specified in the plan. At locations where new pedestrian signal head(s) or faces are replacing an existing pedestrian signal head(s) or faces, the removal must be included in this item and the Contractor must retain the used existing pedestrian signal head(s) or faces. Existing pedestrian push button signing must be replaced with new count-down type signs (R10-3e, 9-inch x 15-inch) with associated sign station or housing at locations where existing push buttons are not being replaced.

All mounting hardware must be new and must be included in the pay item for signal head. The pay item listed below must include either pole mounts or post mounts as required by the plans or directed by the Traffic Signal Engineer. Any modifications to mounting hardware must be included in this item.

Pedestrian Countdown Signal Head, LED, must be 16-inch x 18 inch and conform fully to the District 1 Traffic Signal Special Provisions.

Basis of Payment. This item must be paid for at the contract unit price each for LED PEDESTRIAN SIGNAL HEAD, COUNTDOWN, which must be paid in full for furnishing the equipment described above including LED(s) modules, all mounting hardware, and installing them in satisfactory operating condition and as directed/approved by the Traffic Signal Engineer.

TSL9 LED SIGNAL FACE, ELONGATED VISOR

Description. This work must consist of furnishing and installing an elongated visor with the purpose of preventing signal indication visibility from opposing traffic.

This item must fit over a 12-inch signal head lens and must include the appropriate length visor with typical lengths of 12", 18", or 24" in a form of a tunnel or angled shape, attachment collar and any clips or fasteners necessary to fit it flush. The visor must be installed in accordance with the manufacturer's instructions and as directed/approved by the Traffic Signal Engineer. The length and shape required will be determined by the Traffic Signal Engineer.

The elongated visor must be warrantied, free from material and workmanship defects for a period of three years from final inspection.

Basis of Payment. This work must be paid at the contract unit price each for LED SIGNAL FACE, ELONGATED VISOR as described above, which price must be paid in full for all work as described herein including furnishing, installing, and all mounting hardware necessary for a fully

operational snow resistant signal head lens cover as approved by the Traffic Signal Engineer.

TSR1 REMOVE SIGNAL SECTION OR HEAD

Description. This item must conform with Section 895 of the Standard Specifications for Road and Bridge Construction and the District 1 Traffic Signal Special Provisions, except as revised herein.

This item must consist of removing an existing traffic signal head or section at a location shown on the plans or as directed by the Traffic Signal Engineer. The removal of an existing traffic signal head or section will be paid only when its removal or relocation is not included in another pay item. The existing signal section(s) or head(s), when removed, must become the property of the Contractor and the salvage value of the head(s) or section(s) is to be reflected in the unit bid price.

A traffic signal head with multiple faces and/or pedestrian signals mounted on the same traffic signal post, mast arm pole, or street lighting pole must be considered a single unit and must be paid at 1 each for the complete or partial removal. The existing backplate must be removed and replaced with a new, properly sized backplate as necessary, all remaining holes in the post or mast arm must be plugged as directed by the Traffic Signal Engineer and any additional hardware necessary for any remaining sections must be included in this item.

Basis of Payment. This work must be paid at the contract unit price each to REMOVE SIGNAL SECTION OR HEAD, as described above, which price must be paid in full for all work as described herein and as directed/approved by the Traffic Signal Engineer.

TSR2 RELOCATE OR INSTALL EXISTING SIGNAL SECTION OR HEAD

Description. This item must conform with Sections 801 and 895 of the Standard Specifications for Road and Bridge Construction and the District 1 Traffic Signal Special Provisions except as revised herein. This item includes the relocation of traffic signal head(s) and pedestrian signal head(s). The combination of a traffic signal head and a pedestrian signal head mounted on the same traffic signal post, mast arm pole, or street lighting pole must be considered a single unit and must be paid as one (1) each relocate signal head. This item must include removing a traffic signal head from one intersection, transporting it to another intersection and installing it at a new location or installing an existing signal head from Contract Spare Parts. Any modifications or adjustments to the existing signal head or programming of the existing signal head must be included in this item.

All mounting hardware must be new and must be included in this pay item. The pay item listed below must include either mast arm mounts, pole mounts or post mounts as required by the plans or directed by the Traffic Signal Engineer. Any modifications to mounting hardware must be included in this item.

Basis of Payment. This work must be paid at the contract unit price each to RELOCATE OR INSTALL EXISTING SIGNAL HEAD, as described above, which price must be paid in full for all work and material as described herein and includes furnishing, installing, delivery, handling and all appurtenances and mounting hardware necessary for a complete working unit as directed/approved by the Traffic Signal Engineer.

TT01 SPAN WIRE TRAFFIC SIGNAL INSTALLATION WITH ELECTRIC SERVICE AND UPS

Description. This item must conform with Section 890 of the Standard Specifications for Road and Bridge Construction, the District 1 Traffic Signal Special Provisions, and the current Highway Standard, "Temporary Traffic Signal", except as revised herein.

The span wire traffic signal installation when completed must become the property of the State of Illinois. All equipment and material must be new.

The controller must be one of the approved District 1 Closed Loop brands and the display must be menu driven. The controller and its associated equipment must be housed in an aluminum traffic signal controller cabinet Type IV or Type V, as designated on the plans or by the Traffic Signal Engineer and mounted on an enclosed wood stand with a three feet by four feet by 5 inches thick and a concrete pad in front of the cabinet door. The cabinet must contain all harnesses, load switches, flasher, conflict monitor, detector harnesses and related components required to provide the sequence of operations on the plans or as directed by the Traffic Signal Engineer.

Traffic signal heads furnished for the installation must be LED type with expanded view and have twelve-inch lenses with flat black faces and tunnel visors. Each approach to a signalized intersection must have a minimum of three (3) signal heads spaced a minimum of eight feet apart.

The Electric Service Installation and UPS, as described in the District One Traffic Signal Specification, must be included in this item.

Pedestrian signal heads and push-button detectors, if required, will be paid separately. All vehicle detection, when required, as part of a span wire signal installation, will be paid separately. When possible, the Department will provide the inductive loop detectors ("amplifiers") for the intersection from Contract Spare Parts. If necessary, the Department must authorize the installation of new amplifiers through a nonroutine work order.

The bottom of any span wire mounted signal head (or backplate if equipped) must be no lower than 17-ft and the top of the signal head must be no higher than 25-ft above the crown of the road, unless otherwise directed by the Traffic Signal Engineer.

Pavement marking, as indicated on the drawings, must be included in this item.

Basis of Payment. This work must be paid at the contract unit price each for SPAN WIRE TRAFFIC SIGNAL INSTALLATION WITH ELECTRIC SERVICE AND UPS, as described above, which price must be paid in full for all work and material as described herein and includes furnishing, installing, delivery, handling and all appurtenances and mounting hardware necessary for a complete working span wire traffic signal as approved by the Traffic Signal Engineer. Maintenance of the span wire traffic signal installation will be paid separately after the span wire signal is directed/approved for operation by the Department.

TTP1 TRAFFIC SIGNAL POST, 10 FT TO 18 FT

Description. This item must conform with sections 875 of the Standard Specifications for Road

and Bridge Construction, the District 1 Traffic Signal Special Provisions and District 1 Traffic Signal Design Details except as revised herein.

When the new post is being installed on an existing foundation to replace an existing post, the removal of the existing post must be included in this item.

Basis of Payment. This work must be paid at the contract unit price each for TRAFFIC SIGNAL POST, 10 FT TO 18 FT as described above, which price must be paid in full for all work and material as described herein and includes furnishing, installing, delivery, handling and all appurtenances and mounting hardware necessary for a complete unit as directed/approved by the Traffic Signal Engineer.

TTP2 – TTP3 REMOVE TRAFFIC SIGNAL POST AND REMOVE MAST ARM ASSEMBLY AND POLE

Description. These items consist of removing an existing traffic signal post or mast arm assembly and pole at a location shown on the plans or as directed by the Traffic Signal Engineer. The existing traffic signal post or existing mast arm assembly must become the Contractor's property and the salvage value of the item must be reflected in the unit price.

Basis of Payment. This work must be paid at the contract unit price each for the pay items listed below and as described above, which price must be paid in full for all work as described herein and as directed/approved by the Traffic Signal Engineer.

- TTP2 Remove Traffic Signal Post
- TTP3 Remove Mast Arm Assembly and Pole

TTP4 RELOCATE EXISTING TRAFFIC SIGNAL POST, 10 FT TO 18 FT

Description. This item must conform with Sections 801 and 895 of the Standard Specifications for Road and Bridge Construction and the District 1 Traffic Signal Special Provisions except as revised herein.

The traffic signal post must come from Contract Spare Parts or be relocated from one foundation to another foundation at the same intersection or another intersection as indicated on the plans. All transportation costs to move the traffic signal post from Contract Spare Parts to the intersection or from intersection to intersection are included in this item. Existing holes in the traffic signal post must be plugged as directed by the Traffic Signal Engineer. This item includes the relocation of traffic signal head(s), pedestrian signal head(s), pedestrian signal pushbuttons or any other appurtenances mounted to the existing traffic signal post. Any modifications or adjustments to the existing signal head(s), pushbutton(s), appurtenances, or programming of the existing signal head(s) must be included in this item.

All mounting hardware must be new and must be included in this pay item. Any modifications to mounting hardware must be included in this item.

Basis of Payment. This work must be paid at the contract unit price each for RELOCATE EXISTING TRAFFIC SIGNAL POST, 10 FT TO 18 FT as described above, which price must be

paid in full for all work and material as described herein and includes furnishing, installing, delivery, handling and all appurtenances and mounting hardware necessary for a complete unit as directed/approved by the Traffic Signal Engineer.

TVB1 BUDGETARY ALLOWANCE FOR MAINTAINING TRAFFIC SIGNAL SYSTEM MANAGEMENT AND COMMUNICATIONS

Description. This item is to establish a budget account to allocate funds for the payment for maintaining communications and management of traffic signal systems. This work must include but not limited to converting closed loops traffic signals and systems to the District's ATSS. Equipment and software needed to maintain the majority of the District's closed-loop traffic signal system is no longer supported or available requiring conversion to the ATSS. Needed conversion locations are not accurately or completely identifiable at the time of bidding.

This item must include integrating traffic signals onto the District's ATSS system. The total estimated amount of the annual expenses for services and materials is \$250,000 as indicated for Pay Item TVB1. For bidding purposes this amount must be used.

TVD1 – TVD3 VIDEO DETECTION SYSTEM

Description: This specification sets forth the minimum requirements for a system that monitors vehicles on a roadway via processing of video images and provides detector outputs to a traffic controller or similar device. This work must consist of furnishing and installing an Autoscope Vision, Iteris Vantage Next or an approved equal video vehicle detection system for a single intersection approach or all approaches at one signalized intersection. This item includes vision/camera sensors, processing equipment and all necessary hardware, cable, and accessories necessary to complete the installation in accordance with the manufacturer's specifications. The system must also include a 10-inch LCD in-cabinet monitor with BNC connector for video input. A multi-camera video switching unit must be provided to select video input to the monitor.

The cameras are normally installed on top of the luminaire arm. However, occasionally overhead utility wires obstruct the camera's field of view and prevent proper detector placement. When this occurs, the camera must be installed on a J-hook below the luminaire arm.

To protect the video detection cameras from electrical surges, the interface panel must be grounded as follows:

The chassis sheet metal must be tied to ground with the supplied ground wire and stud.

All shield wires should be tied to the chassis ground stud.

Terminal position three (3) of each of the camera terminations must be tied to the ground stud.

All extra/spare wires in the Autoscope MVP cable should be tied to ground.

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

The supplier of the video detection system must supervise the installation and testing of the video detection system. A factory certified representative from the supplier must be on-site during installation.

The video detection system must come with a warranty from its supplier for a minimum of two (2)

years with ongoing software support by the supplier and no-cost video sensor and supervisor software.

Basis of Payment: This item will be paid for at the contract unit price each for VIDEO DETECTION SYSTEM, COMPLETE INTERSECTION; VIDEO DETECTION SYSTEM ONE APPROACH; VIDEO DETECTION SYSTEM TWO APPROACH, which price must be paid in full for all work and material as described herein and includes furnishing, installing, delivery, handling, testing, set-up and all appurtenances and mounting hardware necessary for a complete operating detection unit at one signalized intersection as directed/approved by the Traffic Signal Engineer.

- TVD1 Video Detection System, Complete Intersection
- TVD2 Video Detection System, One Approach
- TVD3 Video Detection System, Two Approach

TWD1 – TWD3 RADAR DETECTION SYSTEM

Description. This work must consist of furnishing and installing a radar vehicle detection system as specified and/or as shown on the plan. This pay item must 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, cable and accessories required to complete the installation in accordance with the manufacturer's specifications.

The radar vehicle detection system must work under all weather conditions, including rain, freezing rain, snow, wind, dust, fog, and changes in temperature and light. It must work in an ambient temperature range of -34 to 74 degrees Celsius. It must have a max power output of 75 watts or less.

The radar vehicle detection system must be compatible with the District's approved traffic controller assemblies utilizing NEMA TS 1 or NEMA TS 2 controllers and cabinet components for full time operation. The radar vehicle detection system must provide a minimum of one interface unit that has Ethernet connectivity, surge protection, and must be capable of supporting a minimum of 4 detector units. The far back radar detection must have a detection range of 400 feet or better.

Work Description. A representative from the supplier of the radar vehicle detection system must supervise the installation and testing of the radar vehicle detection system and must be present at the traffic signal turn-on inspection. Once the radar vehicle detection system is configured, it must not need reconfiguration to maintain performance, unless the roadway configuration or the application requirements change.

The mounting location/s of the detector unit/s must be per the manufacturer's recommendations. If an extension mounting assembly is needed, it must be included in this item. All holes drilled into signal poles, mast arms, or posts must require rubber grommets to prevent chafing of wires.

The radar vehicle detection system must be warrantied, free from material and workmanship defects for a period of two (2) years from final inspection.

Basis of Payment. This work must be paid at the contract unit price each for RADAR

DETECTION SYSTEM, COMPLETE INTERSECTION; RADAR VEHICLE DETECTION SYSTEM, ONE APPROACH; RADAR VEHICLE DETECTION SYSTEM, TWO APPROACH, as described above, which price must be paid in full for all work and material as described herein and includes furnishing, installing, delivery, handling, testing, set-up and all appurtenances and installation equipment necessary for a complete operating radar vehicle detection system as directed/approved by the Traffic Signal Engineer.

- TWD1 Radar Detection System, Complete Intersection
- TWD2 Radar Detection System, One Approach
- TWD3 Radar Detection System, Two Approach

TWI1 WIRELESS INTERCONNECT SYSTEM

Description. The wireless interconnect system must be compatible with Yunex or Econolite controller closed loop systems. This item must include all materials, labor and testing to provide the completely operational closed loop system between two (2) intersections as shown on the plans. The wireless interconnect system must include the following components:

Rack or Shelf Mounted RS-232 Frequency Hopping Spread Spectrum (FHSS) Radio
Software for Radio Configuration (Configure Frequency and Hopping Patterns)
Antennas (Omni Directional or Yagi Directional)
Antenna Cables, LMR400, Low Loss. Max. 100-ft from controller cabinet to antenna e.Brackets,
Mounting Hardware, and Accessories Required for Installation
RS232 Data Cable for Connection from the radio to the local or master controller
All other components required for a fully functional wireless interconnect system.

All controller cabinet modifications and other modifications to existing equipment that are required for the installation of the wireless interconnect system components must be included in this item.

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

The proposed master controller and telemetry module must be configured for use with the wireless interconnect at a minimum rate of 9600 baud.

The wireless interconnect system must include all other components required for a complete and fully functional telemetry system and must be installed in accordance to the manufacturers recommendations.

Basis of Payment. This work must be paid at the contract unit price each for WIRELESS INTERCONNECT SYSTEM, as described above, which price must be paid in full for all work and material as described herein and includes furnishing, installing, delivery, handling, testing, set-up and all appurtenances and installation equipment necessary for a complete operating wireless interconnect system as directed/approved by the Traffic Signal Engineer.

TWI2 LAYER II NETWORK SWITCH

Description. The work must include but not be limited to installation, set-up, support and configuration of the Layer II switch to work with IDOT District One's network. Equipment must include but not be limited to:

1. Layer II Datalink switch with SFP (small form-factor pluggable) ports.
2. power supply.
3. Cat5E Cable per device to be connected.
4. Fiber jumpers. Fiber jumpers must be for single-mode, multi-mode or copper as directed by the engineer or noted on the plans.
5. DIN rail.
6. Fiber splices and terminations.
7. All appurtenances necessary to provide communication for the system. Each switch must have the number of SFP ports appropriate per location to connect all devices as noted on the plans. IDOT District One has installed Layer II switches at various locations within the District. For questions regarding these locations, please contact the Traffic Signal Engineer at 847-705-4734.

Basis of Payment. This work must be paid at the contract unit price each for LAYER II NETWORK SWITCH as described above, which price must be paid in full for all work as described herein and includes furnishing, installing, delivery, handling and all appurtenances necessary for a complete and operational unit as directed/approved by the Traffic Signal Engineer.

TWI3 LAYER III NETWORK SWITCH

Description. The work must include but not be limited to installation, set-up, support and configuration of the Layer III switch to work with IDOT District One's network. Equipment must include but not be limited to:

1. Layer III Datalink switch with SFP (small form-factor pluggable) ports.
2. Power supply (internal or external).
3. Cat5E Cable per device to be connected.
4. Fiber jumpers. Fiber jumpers must be for single-mode, multi-mode or copper as directed by the engineer or noted on the plans.
5. Under shelf mount.
6. Fiber splices and terminations.
7. All appurtenances necessary to provide communication for the system. Each switch must have the number of SFP ports appropriate per location to connect all devices as noted on the plans. IDOT District One has installed Layer III switches at various locations within the District. For questions regarding these locations, please contact the Traffic Signal Engineer at 847-705-4734.

Basis of Payment. This work must be paid at the contract unit price each for LAYER III NETWORK SWITCH as described above, which price must be paid in full for all work as described herein and includes furnishing, installing, delivery, handling and all appurtenances necessary for a complete and operational unit as directed/approved by the Traffic Signal Engineer.

TWI4 INTERSECTION GRAPHICS SETUP

Description. The work must include but not be limited to set-up, support and configuration for one intersection on a central system. Work must include, but not be limited to, remotely setting up an intersection with entry of intersection phasing, street names, detection (including local and system detectors), signal heads, push buttons, preemption (railroad and emergency vehicle), TSP/SCP, etc.

Basis of Payment. This work must be paid at the contract unit price each for INTERSECTION GRAPHICS SETUP as described above, which price must be paid in full for all work as described herein and as directed/approved by the Traffic Signal Engineer.

TWI5 RELOCATE OR INSTALL EXISTING CELL MODEM, SWITCH, PTZ, RADAR, OR VIDEO DETECTION

Description. This item must conform with the District 1 Traffic Signal Special Provisions except as revised herein. This item includes the relocation of cell modem, switch, PTZ, radar, or video detection. The combination of a cell modem, switch, PTZ, radar, or video detection mounted inside the same traffic signal cabinet or at the same intersection must be considered a single unit and must be paid as one (1) each relocate cell modem, switch, PTZ, radar, or video detection. This item must include removing cell modem, switch, PTZ, radar, or video detection from one intersection, transporting it to another intersection and installing it at a new location or installing an existing cell modem, switch, PTZ, radar, or video detection from Contract Spare Parts. Any testing, modifications, programming, and adjustments to the existing cell modem, switch, PTZ, radar, or video detection of the existing cell modem, switch, PTZ, radar, or video detection must be included in this item.

All mounting hardware must be new and must be included in this pay item. The pay item listed below must include relocation or installation from spare parts any of the above items as shown on the plans or directed by the Traffic Signal Engineer. Any modifications to mounting hardware must be included in this item.

Basis of Payment. This work must be paid at the contract unit price each to RELOCATE OR INSTALL EXISTING CELL MODEM, SWITCH, PTZ, RADAR, OR VIDEO DETECTION, as described above, which price must be paid in full for all work and material as described herein and includes furnishing, installing, delivery, handling and all appurtenances and mounting hardware necessary for a complete working unit as directed/approved by the Traffic Signal Engineer.

TWI6 RELOCATE OR INSTALL EXISTING VISOR HEATER, LENS COVER, BACKPLATE, ELONGATED VISOR, OR LED SIGNAL DISPLAY

Description. This item must conform with the District 1 Traffic Signal Special Provisions except as revised herein. This item includes the relocation of visor heater, lens cover, backplate, elongated visor, or LED signal display. The combination of a visor heater, lens cover, backplate, elongated visor, or LED signal display mounted inside the same traffic signal cabinet or at the same intersection must be considered a single unit and must be paid as one (1) each relocate visor heater, lens cover, backplate, elongated visor, or LED signal display. This item must include

removing visor heater, lens cover, backplate, elongated visor, or LED signal display from one intersection, transporting it to another intersection and installing it at a new location or installing an existing visor heater, lens cover, backplate, elongated visor, or LED signal display from Contract Spare Parts. Any testing, modifications, programming, or adjustments to the existing visor heater, lens cover, backplate, elongated visor, or LED signal display of the existing visor heater, lens cover, backplate, elongated visor, or LED signal display must be included in this item.

All mounting hardware must be new and must be included in this pay item. The pay item listed below must include relocation or installation from spare parts any of the above items as shown on the plans or directed by the Traffic Signal Engineer. Any modifications to mounting hardware must be included in this item.

Basis of Payment. This work must be paid at the contract unit price each to RELOCATE OR INSTALL EXISTING VISOR HEATER, LENS COVER, BACKPLATE, ELONGATED VISOR, OR LED SIGNAL DISPLAY, as described above, which price must be paid in full for all work and material as described herein and includes furnishing, installing, delivery, handling and all appurtenances and mounting hardware necessary for a complete working unit as directed/approved by the Traffic Signal Engineer.

TWI7 PTZ CAMERA SYSTEM COMPLETE

Description. This item must conform with Sections 801 and 895 of the Standard Specifications for Road and Bridge Construction and the District 1 Traffic Signal Special Provisions except as revised herein. This item includes the installation of pan-tilt-zoom (PTZ) camera system. This item includes furnishing and installing a remote controlled PTZ camera TKH Security Solutions PD1103Z2-E, AXIS Q6075-E, Cohu 4220HD or an approved equal system. The work includes a color camera, dome assembly, all mounting hardware, connectors, cables, power injectors, and related equipment necessary to complete the installation according to the manufacturer's specifications. Any necessary licensing will be provided separately. When the PTZ Camera is being installed the removal of the existing camera must be included in this item.

All mounting hardware must be new and must be included in this pay item. Installation must be as shown on the plans or directed by the Traffic Signal Engineer. Any modifications to mounting hardware must be included in this item. Camera will typically be installed on the pole of the combination mast arm near the top unless otherwise specified.

Basis of Payment. This work must be paid at the contract unit price each for PTZ CAMERA SYSTEM COMPLETE, as described above, which price must be paid in full for all work and material as described herein and includes furnishing, installing, delivery, handling, programming, testing, and all appurtenances and mounting hardware necessary for a complete working unit as directed/approved by the Traffic Signal Engineer.

TRAFFIC SIGNAL SPECIAL PROVISIONS

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.

SIGN SHOP DRAWING SUBMITTAL

Effective: January 22, 2013

Revised: July 1, 2015

720.02TS

Add the following paragraph to Article 720.03 of the Standard Specifications:

Shop drawings will be required, according to Article 105.04, for all Arterials/Expressways signs except standard highway signs covered in the MUTCD. Shop drawings shall be submitted to the Engineer for review and approval prior to fabrication. The shop drawings shall include dimensions, letter sizing, font type, colors and materials.

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 signaling device on the Department's highway system at any time without notification. The Contractor shall not install padlocks on traffic signal cabinets or otherwise restrict the Department's access to the cabinet or controller.
- h. Any proposed activity in the vicinity of a highway-rail grade crossing must adhere to the guidelines set forth in the current edition of the Manual on Uniform Traffic Control Devices (MUTCD) regarding work in temporary traffic control zones in the vicinity of highway-rail grade crossings which states that lane restrictions, flagging, or other operations shall not create conditions where vehicles can be queued across the railroad tracks. If the queuing of vehicles across the tracks cannot be avoided, a uniformed law enforcement officer or flagger shall be provided at the crossing to prevent vehicles from stopping on the tracks, even if automatic warning devices are in place.
- i. The Contractor shall be responsible to clear snow, ice, dirt, debris, vegetation, temporary fence, or other condition that obstructs visibility of any traffic signal display or access to traffic signal equipment.

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

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

Damage to Traffic Signal System.

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

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

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

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

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

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

Traffic Signal Inspection (TURN-ON).

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

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

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

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

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

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

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

Final Project Documentation:

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

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

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

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

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

Record Drawings.

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

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

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

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

Add the following to Article 801.16 of the Standard Specifications:

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

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

Datum to be used shall be North American 1983.

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

- File shall be named: TSXXX_YY-MM-DD.csv (i.e. TS22157_24-01-01.csv)
- Each intersection shall have its own file
- Row 1 should have the location name (i.e. IL 31 @ Klausen)
- Row 2 is blank
- Row 3 is the headers for the columns
- Row 4 starts the data
- Column A (Date) – should be in the following format: MM/DD/YYYY
- Column B (Item) – as shown in the table below
- Column C (Description) – as shown in the table below
- Column D and E (GPS Data) – should be in decimal form

Examples:

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

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

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

Restoration of Work Area.

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

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

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

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

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

The removal, disposal, and/or salvage of existing traffic signal equipment shall become the property of the Contractor 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 where measured resistance exceeds 25 ohms. Ground rods are included in the applicable concrete foundation or service installation pay item and will not be paid for separately.

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

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

- (4) Individual conductor splices in handholes shall be soldered and sealed with heat shrink. When necessary to maintain effective equipment grounding, a full cable heat shrink shall be provided over individual conductor heat shrinks.

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

OPTIMIZE TRAFFIC SIGNAL SYSTEM

Effective: May 22, 2002

Revised: November 1, 2023

800.02TS

Description.

This work shall consist of optimizing a traffic signal system.

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

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

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

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

1. Appropriate signal timings and offsets shall be developed for each intersection and appropriate cycle lengths shall be developed for the signal system. Consultant shall be present at the turn-on(s), if applicable, to implement initial timing plans.

2. Traffic counts shall be taken at all intersections after the permanent traffic signals are approved for operation by the Area Traffic Signal Maintenance and Operations Engineer. Manual turning movement counts shall be conducted from 6:30 a.m. to 9:30 a.m., 11:00 a.m. to 1:00 p.m., and 3:30 p.m. to 6:30 p.m. on a typical weekday from midday Monday to midday Friday and on a Saturday or Sunday, as directed by the Engineer, to account for special traffic generators such as shopping centers, educational institutes and special event facilities. The turning movement counts shall identify cars, and single-unit and multi-unit heavy vehicles.
3. The intersections shall be re-addressed and all system detectors reassigned as necessary according to the current standard practice of District One. System detector quantities and locations shall be assessed for optimal performance. The Department shall be notified of any proposed changes during Data Collection.
4. A Traffic Responsive Program shall be developed, which considers both volume and occupancy. A Time-Of-Day program shall be developed for use as a back-up system.
5. Proposed signal timing plan for the new or modified intersection shall be forwarded to IDOT for review prior to implementation.
6. Consultant shall conduct on-site implementation of the timings and make fine-tuning adjustments to the timings in the field to alleviate observed adverse operating conditions and to enhance operations. The consultant shall respond to IDOT comments and public complaints for a minimum period of six (6) months from date of timing plan implementation.
7. Speed and delay studies shall be conducted during each of the count periods along the system corridor in the field before and after implementation of the proposed timing plans for comparative evaluations.

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

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

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

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

The SCAT Report shall include the following elements:

| |
|---|
| Cover Page in color showing a System Map |
| Figures <ol style="list-style-type: none"> 1. System overview map showing system number, system schematic map with numbered system detectors, oversaturated movements, master location (if applicable), system phone number (if applicable), cycle lengths, and date of completion. 2. General location map in color showing signal system location in the metropolitan area. 3. Detail system location map in color showing cross street names and local controller addresses. 4. Controller sequence showing controller phase sequence diagrams. |
| Table of Contents |
| Tab 1: Final Report <ol style="list-style-type: none"> 1. Project Overview 2. System and Location Description (Project specific) 3. Methodology 4. Data Collection 5. Data Analysis and Timing Plan Development 6. Implementation <ol style="list-style-type: none"> a. Traffic Responsive Programming (Table of TRP vs. TOD Operation) with AM, Midday, and PM cycle lengths 7. Evaluation <ol style="list-style-type: none"> a. Speed and Delay runs |
| Tab 2. Turning Movement Counts <ol style="list-style-type: none"> 1. Turning Movement Counts (Showing turning movement counts in the intersection diagram for each period, including truck percentage) |
| Tab 3. Synchro Analysis <ol style="list-style-type: none"> 1. AM: Time-Space diagram in color, followed by intersection Synchro report (timing report) summarizing the implemented timings. 2. Midday: same as AM 3. PM: same as AM 4. Special weekend or off-peak traffic generators (shopping centers, educational facilities, arenas, etc.): same as AM |
| Tab 4: Speed, Delay Studies <ol style="list-style-type: none"> 1. Summary of before and after runs results in two (2) tables showing travel time and delay time. 2. Plot of the before and after runs diagram for each direction and time period. |
| Tab 5: Environmental Report <ol style="list-style-type: none"> 1. Environmental impact report including gas consumption, NO₂, HCCO, improvements. |

Basis of Payment.

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

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 shall be paid for at the contract unit price each for RE-OPTIMIZE TRAFFIC SIGNAL SYSTEM – LEVEL I or RE-OPTIMIZE TRAFFIC SIGNAL SYSTEM – LEVEL II, 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.

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 shall 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, shall 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.

ELECTRIC METER

Effective: November 1, 2023
805.02TS

Description.

This work shall consist of furnishing a ringless meter socket meeting the requirements of the power company. The meter socket shall be installed on the side of the existing traffic signal controller cabinet, opposite of the UPS side of the cabinet in accordance with the details provided in the plans at existing unmetred traffic signal locations, or as directed by the engineer.

Materials.

The meter socket shall meet the following requirements:

- CECHA Approved
- Single Position
- Number of Jaws = 4 Terminal
- Voltage rating of 600 Volts Alternating Current
- Amperage rating of 200 Continuous Ampere

Basis of Payment.

This item will be paid for at the contract unit price per each for ELECTRIC METER. The unit price shall include all equipment, materials, and labor required to furnish, and install the electric meter socket and related hardware components.

COILABLE NON-METALLIC CONDUIT

Effective: May 22, 2002
Revised: July 1, 2015
810.01TS

Description.

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

General.

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

Add the following to Article 810.03 of the Standard Specifications:

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

Add the following to Article 811.03 of the Standard Specifications:

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

Basis of Payment.

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

UNDERGROUND RACEWAYS

Effective: May 22, 2002

Revised: March 1, 2024

810.02TS

Revise Article 810.04 of the Standard Specifications to read:

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

Add the following to Article 810.04 of the Standard Specifications:

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

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

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

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

ROD AND CLEAN EXISTING CONDUIT

Effective: January 1, 2015

Revised: July 1, 2015

810.03TS

Description.

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

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

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

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

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

Basis of Payment.

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

**UNDERGROUND CONDUIT, MULTI-DUCT, 3 WAY - 22MM (2), 1.25" SDR 11 (1)
MICRODUCTS**

Effective: September 1, 2024
810.04TS

Description.

This work shall consist of furnishing, installing, splicing, connecting, and demonstrating continuity a of fiber optic conduit (duct) system of the size specified herein and as shown in the plans.

Materials

The conduit and fittings shall meet the requirements of Article 1088.01(c) of the Standard Specifications, except as modified herein. The conduit system shall consist of two 22mm outside diameter (15.4mm inside diameter) micro-ducts and one 1.66" outside diameter (1.318" inside diameter) duct contained inside a HDPE protective outer sheath with a minimum thickness of 0.05" inch as specified. The conduit system shall be designed for direct burial.

The overall conduit system shall have a nominal 2.68" O.D. with a supported bend radius of 28" inches, an unsupported bend radius of 46" inches, and a safe working load of 4,800 lbs.

The product life shall be a minimum of fifteen years after installation.

The conduit system shall be free from holes, blisters, inclusions, cracks, or other imperfections that would affect the performance or serviceability of the product.

The conduit system shall be constructed of polymeric materials, which are lightweight, flexible, corrosion resistant and nonconductive. The base material shall be clean virgin grade high-density polyethylene (HDPE), which conforms to ASTM D3350-98a, Type III, Category 5, Class B or C and Grade P- 34 per ASTM D1248-84 or equivalent.

The base HDPE material shall conform to the following minimum mechanical properties:

Description Property ASTM Standard Density D1505 0.940-0.950 g/cm³ Melt Index (E) D1238 0.10 – 0.35 g/10 Minute Environmental Stress Crack Resistance (ESCR) D1693 192.0 hrs (per ASTM D3350) Tensile @ Yield (min) D638 2500 – 3200 psi (1,700 – 2,200 N/cm²) % Elongation D638 300% Flexural Modulus (min) D790 115,000 psi (790,000 kPa) Hardness D2240 60 Shore D VICAT Softening Point D1525 248°F (120°C) Brittleness Temperature D746 -94°F (-70°C)

The ducts shall be smooth on the outside and have a co-extruded permanent layer of Silicore (or approved equivalent) to provide a permanent low friction boundary layer between the duct and the fiber optic cable for the anticipated service life of the conduit system.

The standard available duct colors shall be blue, yellow, green, brown, grey, black, and red, or other colors as approved. The ducts shall be individually colored and be sequentially numbered every two feet. The colors shall be protected from ultra-violet (UV) degradation by the incorporation of Hindered Amine Light Stabilizers (HALS) to allow for two years of outside storage UV protection. The duct material shall be compounded with antioxidant additives to prevent thermal degradation.

All ducts shall have a minimum sustained air pressure of 300 PSI, and a minimum burst pressure of 475 PSI.

The conduit system shall be equipped with an integrated 20 AWG copper wire, insulated and installed inside the duct that is designed to be used for underground utility locating purposes. Continuity of the tracer wire must be maintained at all points. Connection devices used shall be as approved by the tracer wire manufacturer, except wire nuts of any type are not acceptable and shall not be used.

The Contractor shall perform a locate or conductivity test as a part of the final documentation.

The conduit system shall be supplied on 3,500 ft. reels (or larger as equipment and installation techniques permit) in order to minimize the number of conduit splices. Fittings shall be mechanical or glued splices that preserve the smooth, seamless surface on the inside of the conduit. Fittings shall be capable of developing a minimum of 75% of the rated tensile (pull) strength of the conduit.

Installation

The conduit system shall be installed according to Section 810 of the Standard Specifications, in accordance with manufacturer's specifications, and as specified herein.

The fiber optic cable shall be air blown (jetted) into the 22mm microducts. The 1.25" duct shall remain empty or as specified in the plans.

The conduit system shall be buried 30" inches ($\pm 3"$) below final grade throughout its entire length. The conduit system shall be installed in straight runs as much as possible with a minimum number of bends according to Section 816 of the Standard Specifications. Any bend in the conduit system shall be limited to the bend radius specified herein.

The conduit system shall be sealed at all times during and after construction to eliminate the ingress of dirt and moisture. The Contractor shall utilize caps that are approved for use by the duct manufacturer.

The Contractor shall perform post installation testing on all ducts prior to installing the fiber optic cable. As a minimum, tests shall include: an air test, a foam sponge test, a plastic sphere test and a pressure test. The tracer wire shall be tested per specifications prior to any fiber optic cable being installed.

Each duct shall be tested for continuity by blowing a sponge and then a plastic sphere (approximately 80% of the inside duct diameter) from one end to the other and each duct shall be pressure tested in accordance with the manufacturer's procedures to ensure that the duct will pressurize and hold air pressure for a specific amount of time.

The Contractor shall perform acceptance testing of the ducts in accordance with the manufacturer's recommended practices. Testing, at a minimum shall demonstrate that the ducts are installed and assembled correctly, are air-tight, and have had no reduction of the interior diameter. Each duct shall be pressurized to check for leaks and other problems that would prevent the installation of fiber optic cable in the future. All testing shall be performed in the presence of the Resident Engineer.

The Contractor shall submit testing information to the Department for review and approval prior to ordering material.

A cable marking tape shall be installed above the conduit system according to Article 819.05 of the Standard Specifications. The color of the tape shall be red with large black lettering which reads "WARNING – FIBER OPTIC CABLE BELOW" or similar.

In addition to the GPS documentation requirements in the Traffic Signal General Requirements, the Contractor shall locate the conduit system every 100' feet using a GIS locating device that is accurate to the nearest foot.

The Contractor shall submit catalog cut sheets for the conduit system, splice kits, and all installation and testing documents to the Department for review prior to ordering.

Method of Measurement

This work will be measured for payment in feet in place. Measurements will be made in straight lines along the centerline of the conduit system between ends and changes in direction.

Vertical measurement of the conduit system shall be as follows:

For runs terminating at junction boxes, the vertical measurement will be made from the bottom of the trench, or horizontal raceway, to a point 18 inches beyond the center of the junction box or control cabinet.

Basis of Payment

This work will be paid for at the contract unit price per foot for **UNDERGROUND CONDUIT, MULTI-DUCT, 3 WAY - 22MM (2), 1.25" SDR 11 (1) MICRODUCTS.**

HANDHOLES

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

Description.

Add the following to Section 814 of the Standard Specifications:

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

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

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

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

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

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

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

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

Add the following to Section 814 of the Standard Specifications:

Cast-In-Place Handholes.

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

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

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

Precast Round Handholes.

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

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

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

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

FIBER OPTIC TRACER CABLE

Effective: May 22, 2002

Revised: November 1, 2023

817.02TS

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

Add the following to Article 817.03 of the Standard Specifications:

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

Revise Article 817.05 of the Standard Specifications to read:

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

TRAFFIC SIGNAL PAINTING

Effective: May 22, 2002

Revised: November 1, 2023

851.01TS

Description.

This work shall include surface preparation, powder coated finish application and packaging of new galvanized steel traffic signal mast arm poles and posts assemblies. All work associated with applying the painted finish shall be performed at the vendor's facility for the pole assembly or post or at a painting facility approved by the Engineer. Traffic signal mast arm shrouds and post bases shall also be painted the same color as the pole assemblies and posts, including pedestrian posts.

Surface Preparation.

All weld flux and other contaminates shall be mechanically removed. The traffic mast arms and post assemblies shall be degreased, cleaned, and air dried to assure all moisture is removed.

Painted Finish.

All galvanized exterior surfaces shall be coated with a urethane or triglycidyl isocyanurate (TGIC) polyester powder to a dry film thickness of 2.0 mils. Prior to application, the surface shall be mechanically etched by brush blasting (Ref. SSPC-SP7) and the zinc coated substrate preheated to 450 °F for a minimum one (1) hour. The coating shall be electrostatically applied and cured by elevating the zinc-coated substrate temperature to a minimum of 400 °F.

The finish paint color shall be one of the vendor's standard colors and shall be as selected by the local agency responsible for paint costs. The Contractor shall confirm, in writing, the color selection with the local responsible agency and provide a copy of the approval to the Engineer and a copy of the approval shall be included in the material catalog submittal.

Painting of traffic signal heads, pedestrian signal heads and controller cabinets is not included in this pay item.

Any damage to the finish after leaving the vendor's facility shall be repaired to the satisfaction of the Engineer using a method recommended by the vendor and approved by the Engineer. If while at the vendor's facility the finish is damaged, the finish shall be re-applied at no cost to the contract.

Warranty.

The Contractor shall furnish in writing to the Engineer, the paint vendor's standard warranty and certification that the paint system has been properly applied.

Packaging.

Prior to shipping, the poles and posts shall be wrapped in ultraviolet-inhibiting plastic foam or rubberized foam.

Basis of Payment.

This work shall be paid for at the contract unit price each for PAINT NEW MAST ARM AND POLE, UNDER 40 FEET (12.19 METER), PAINT NEW MAST ARM AND POLE, 40 FEET (12.19 METER) AND OVER, PAINT NEW COMBINATION MAST ARM AND POLE, UNDER 40 FEET (12.19 METER), PAINT NEW COMBINATION MAST ARM AND POLE, 40 FEET (12.19 METER) AND OVER, PAINT NEW TRAFFIC SIGNAL POST or PAINT NEW TRAFFIC SIGNAL PEDESTRIAN POST of the length specified, which shall be payment in full for painting and packaging the traffic signal mast arm poles and posts described above including all shrouds, bases and appurtenances.

FULL-ACTUATED CONTROLLER IN EXISTING CABINET

Effective: September 26, 1995

Revised: November 1, 2023

857.01TS

Description.

This work shall consist of furnishing and installing a(n) " _____ " brand traffic actuated solid state digital controller meeting the requirements of the current District One Traffic Signal Special Provisions 857.02TS FULL-ACTUATED CONTROLLER AND CABINET and 857.02TS RAILROAD, FULL-ACTUATED CONTROLLER AND CABINET. This pay item shall include furnishing and installing the controller complete including malfunction management unit, load switches and flasher relays, and all necessary connections for proper operation.

Materials.

Add the following to Article 857.02 of the Standard Specifications:

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

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

Basis of Payment.

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

FULL-ACTUATED CONTROLLER AND CABINET

Effective: January 1, 2002

Revised: 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) " _____ " 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 Centrac, Tactics, or TransSuite, the controller shall have the latest version of approved NTCIP software installed. For operation prior to integration into an ATMS, the controller shall maintain existing communications.”

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).

RAILROAD, FULL-ACTUATED CONTROLLER AND CABINET

Effective: January 1, 2002

Revised: March 1, 2024

857.03TS

Description.

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

If the intersection is part of an existing system and/or when specified in the plans, this work shall consist of furnishing and installing a(n) " _____ " brand traffic actuated solid state controller.

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

Materials.

Add the following to Article 857.02 of the Standard Specifications:

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

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

Controller shall comply with Article 1073.01 as amended herein.

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

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

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

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

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

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

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

Add the following to Article 1074.03 of the Standard Specifications:

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

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

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

Add the following to Article 1074.03 of the Standard Specifications:

- (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. (3.05mm x 4.06mm) moisture sealed container attached to door.
- (b) (15) Detector Racks – Fully wired and labeled for four (4) channels of emergency vehicle pre-emption and sixteen channels (16) of vehicular operation.
- (b) (16) Field Wiring Labels – All field wiring shall be labeled.
- (b) (17) Field Wiring Termination – Approved channel lugs required.
- (b) (18) Power Panel – Provide a nonconductive shield.
- (b) (19) Circuit Breaker – The circuit breaker shall be sized for the proposed load but shall not be rated less than 30 A.
- (b) (20) Police Door – Provide wiring and termination for plug in manual phase advance switch.
- (b) (21) Railroad Preemption Test Switch – Shall be provided from an approved vendor.

Installation.

Add the following to Article 857.03 of the Standard Specifications:

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

Basis of Payment.

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

UPGRADE EXISTING CONTROLLER TO NTCIP SPECIAL

Effective: November 1, 2023
857.04TS

Description.

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

General.

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

Basis of Payment.

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

ADVANCED TRANSPORTATION CONTROLLER AND CABINET

Effective: March 1, 2024

857.05TS

Description.

This work shall consist of furnishing and installing a traffic actuated solid state digital controller in an Advanced Transportation Controller (ATC) cabinet of the type specified, meeting the requirements of Section 857 of the Standard Specifications, and as modified herein, including Output Assembly, Input Assembly, Service Assembly, DC Power/Communications Bus, AC Clean Power Bus, Field Output Panel (FOP), and all necessary connections for proper operation. This specification describes the shelf mount versions of the ATC cabinet, which uses a NEMA-style cabinet with ATC subassemblies mounted either on a shelf or on the cabinet side walls.

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) " _____ " 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. The controller shall be equipped with a 2070 series controller module for proper operation in an ATC cabinet. 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 Centrac, Tactics, or TransSuite, the controller shall have the latest version of approved NTCIP software installed. For operation prior to integration into an ATMS, the controller shall maintain existing communications.”

Add the following to Article 1074.03 of the Standard Specifications:

(a) The cabinet shall be designed and manufactured with materials that will allow rigid mounting. The cabinet shall be base mounted only. The cabinet shall not flex on its mount. The subassemblies in the cabinet shall be removable with simple hand tools, such as a screwdriver, and without removing any other equipment. Any components over 50 V with exposed terminals shall be protected from incidental contact per NEC requirements. All equipment in the cabinet shall be clearly and permanently labeled. All marker strips shall be made of material that can be easily written on using a pencil or ballpoint pen. Marker strips shall be located immediately below the item they are to identify and must be clearly visible with the items installed. Card guides (top and bottom) shall be provided for the plug-ins. All circuit boards shall be conformal coated to protect the boards from moisture. All switches shall be guarded.

Each cabinet assembly shall be tested as a complete entity under signal load. The cabinet shall be assembled and tested by the Manufacturer or Vendor to ensure proper component integration operation.

Revise the table in Article 1074.03 (a) (1) to read:

| Type | Approx. Volume cu ft (cu m) | Police Door | Mounting | Ventilation | Remark |
|------|--------------------------------|-------------|--------------|--|---|
| I | Reserved | | | | |
| II | 5.0 (0.14) | Yes | Post Top | Filtered Air Intake and One Thermo-Statically Controlled Fan | |
| III | 11.5 (0.33) | Yes | Ground Mount | Filtered Air Intake and One Thermo-Statically Controlled Fan | For Traffic Actuated Controller. |
| IV | 29.0 (0.82) | Yes | Ground Mount | Filtered Air Intake and Two Thermo-Statically Controlled Fan | For Traffic Actuated Controller. Back Panel with Minimum 12 Load Switch Positions or ATC Cabinet. |
| V | 44.0 (1.25) | Yes | Ground Mount | Filtered Air Intake and Two Thermo-Statically Controlled Fan | For Traffic Actuated Controller. Back Panel with Minimum 12 Load Switch Positions or ATC Cabinet. |

Add the following to Article 1074.03 of the Standard Specifications:

(a) (1) Optionally, a “Type 4.5/Type IV Stretched” or “Super P Stretched” cabinet shall be provided. This cabinet has the same dimensions as a Type IV or Super P cabinet with an additional 10 in. height. Additionally, it shall include a front and rear door with double, vented overhangs for protection from water intrusion.

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

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

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

Revise Article 1074.03 (a) (3) paragraph "a" to read:

"Multiple Door-Stop. The main door on the cabinet shall be equipped with a three-point latching mechanism with nylon rollers. It shall include an automatic door stop mechanism capable of holding the door open at approximately 90°, 120°, and 180° under windy conditions. Manual placement of the mechanism shall not be required by field personnel."

Add the following to Article 1074.03 of the Standard Specifications:

(a) (3) b. The main door shall utilize stainless steel hardware. The handle shall include a vertically mounted hasp for the attachment of an optional padlock. The handle shall not extend beyond the perimeter of the main door at any time.

(a) (3) c. The lock assembly shall be positioned so that the handle does not cause any interference with the key when opening the cabinet door. All external fasteners shall be tamper-proof. The police door assembly shall be flush mounted to the main door.

(a) (3) d. The cabinet shall be supplied with a natural aluminum mill finish. Sufficient care shall be taken in handling to ensure that scratches are minimized. All surfaces shall be free from weld flash. Welds shall be smooth, neatly formed, and free from cracks, blowholes, and other irregularities. All sharp edges shall be ground smooth.

(a) (3) e. The cabinet seams shall be sealed with a tack weld on the interior of the cabinet and a double flange at the top only. Optionally, the cabinet can be supplied as a UL listed version with double flanges all the way around, and continuous welding of all seams.

(a) (3) f. All cabinets shall be supplied with a minimum of two removable shelves manufactured from 5052-H32 aluminum. Shelves shall be a minimum of 10 in. deep. The shelves shall include two (2) 1U mounting positions to install 1U rack-mounted equipment. The rack mounting holes shall be tapped for #10-32 screws.

(a) (3) g. Cabinets shall include a set of three vertical "C" channels mounted on each interior side wall of the cabinet for the purpose of mounting the cabinet components. The channels shall accommodate spring mounted nuts. All mounting rails shall extend 3-1/8 in. from the bottom of the cabinet. The sidewalls shall be supplied three channels, with the rear channel located at 8 in. from the back of the cabinet. Measured from center to center, the middle channel shall be 8-1/2 in. from the rear channel, and the front rail shall be 6 in. from the middle channel. The rear walls shall be supplied with three saw tooth rails, with the left-most rail located at 8 in. from the left side of the cabinet. Measured from center to center, the middle rail shall be located 9 in. from the left-most rail, and the right-most rail shall be 19-1/2 in. from the middle rail. The saw tooth rails on back wall shall allow shelf adjustments in 1/2 in. increments.

(a) (3) h. The lower section of the cabinet shall be equipped with a louvered air entrance. The air inlet shall be large enough to allow sufficient air flow per the rated fan capacity. Louvers shall satisfy the NEMA rod entry test for 3R ventilated enclosures. A removeable, disposable air filter shall be secured to the air entrance, as mentioned in 1074.03 (a) (2) paragraph "c".

(a) (3) i. The roof of the cabinet shall incorporate an exhaust plenum with a vent screen. Perforations in the vent screen shall be 1/8 in. x 1/2 in. rectangular slots.

(a) (3) j. Anchor bolts shall be used to properly secure the cabinet to its base. The cabinet flange for securing the anchor bolts shall not protrude outward from the bottom of the cabinet. Four (4) 3/4 in. x 18 in. long right-angle anchor bolts shall be provided with the cabinet.

(a) (3) k. 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 Article 1074.03 (a) (4) paragraph "a" to read:

"Surge Suppressor. The suppressor protecting the cabinet equipment shall consist of two stages: stage one which shall include a controller cabinet AC power protection and stage two which shall include AC circuit protection."

Revise Article 1074.03 (a) (5) paragraph "a" to read:

"Signal Flash in Absence of Subassemblies. The cabinet shall be capable of remaining in flashing operation with any of the following subassemblies removed: Input Assembly, Output Assembly, Cabinet Power Supply, and Controller."

Remove Article 1074.03 (a) (5) paragraphs "b", "c", and "d".

Replace Article 1074.03 (b) to read:

(b) ATC Cabinet Subassemblies.

(1) Output Assembly.

- a. The Output Assembly shall accommodate 3U plug-in cards and be mounted on the shelf. The shelf mounting shall include mounting flanges to allow the rack to be bolted to the shelf.
- b. The Output Assembly shall accommodate eight (8) Model 2202 High-Density Switch Pack/Flasher Units (HDSP/FU), providing a total of 48 output channels.
- c. The Output Assembly shall accommodate one (1) Model 2218 Serial Interface Unit (SIU) to provide interface and control via system SB1/SB2.
- d. The Output Assembly shall accommodate one (1) Model 2212 Cabinet Monitor Unit (CMUip).

- e. The Output Assembly shall include a hinged front panel with four (4) Circuit Breakers. The front panel shall be attached with thumb screws to allow access to the wiring. The circuit breakers shall be rated at 5 A. The breakers shall be Carling Technologies "B" series or approved equal. Each breaker shall protect two (2) HDSPs. The breakers shall be protected by a flip-up cover to protect against accidental activation.
- f. The Output Assembly shall utilize four (4) 24-pin connectors (Molex 39-28-8240) or eight (8) 12-pin connectors (Molex 39-28-8120) to interface the HDSP outputs to the Field Output Panel (FOP).
- g. All exposed AC voltage on the Output Assembly circuit boards shall be protected using a removable Lexan cover mounted on standoffs.

For a 32-channel cabinet where a second Output Assembly is used, the second Output Assembly shall meet the same requirements as the first Output Assembly, with the exception of accommodating a CMUip.

(2) Field Output Panel (FOP).

- a. The 16-Channel FOP shall be coupled with its respective 16-Channel Output Assembly to provide pluggable connectors for the signal output field terminals, flash programming, and flash transfer relays.
- b. The FOP shall house eight (8) Model 21H High-Density Flash Transfer Relays (HDFTRs) and sixteen (16) Flash Program Blocks (FPBs). The HDFTRs and FPBs shall be provided to control and select the color (red, yellow, or dark) during flashing operation.
- c. HDSP Suppressors shall be provided at the field terminals for the protection of the HDSP. These suppressors shall plug in on the back side of the FOP.
- d. Each HDFTR position shall be labeled with the number of its associated HDSP. Each FPB position shall be labeled with the number of its associated channel.
- e. The FOP shall be provided with sixteen (16) 6-position Phoenix Contact terminal block model number 1777765 plugs and 1720615 sockets. Each Field Terminal Block socket shall be labeled with the number of its associated channel. Additional labels shall be provided to clearly indicate which terminals correspond to the red, yellow, and green switch pack outputs.
- f. The FOP shall be mounted on the sawtooth rails on the back wall and shall swing down using thumbscrews to provide access to the HDSP Suppressors and the wiring for the FOP. The panel shall be angled to allow easy access to the field terminals.

- g. The FOP shall utilize eight (8) 12-pin connectors, Molex 39-28-8120, to interface the HDSP outputs to the FOP. The cables shall be long enough to allow the FOP to swing down with no interference.

For a 32-channel cabinet where a second FOP is used, the second FOP shall meet the same requirements as the first FOP.

(3) Combination Output Assembly-Field Output Panel Unit (16-Channel Loadbay).

The Output Assembly and Field Output Panel shall be optionally available as a combined unit, similar to a NEMA loadbay. This version is only available for a 16-channel configuration.

- a. The loadbay shall be mounted on the sawtooth rails at the back of the cabinet below the bottom shelf.
- b. The Output Assembly shall be mounted at the top of the loadbay.
- c. The Field Output Panel shall be mounted below the Output Assembly on an angled plate to allow easy access to the field terminals.
- d. All other requirements for the Output Assembly shall meet Article 1074.03 (b) (1).
- e. All other requirements for the Field Output Panel shall meet Article 1074.03 (b) (2).

(4) Input Assembly.

- a. The Input Assembly shall be a 3U high shelf mounted assembly providing twelve (12) slots of 22/44 pin PCB sockets for utilizing input devices such as loop detectors, AC and DC isolators, and emergency vehicle preemption (EVP) equipment.
- b. The Input Assembly shall accommodate one (1) Model 2218 Serial Interface Unit (SIU) to provide interface and control between the controller and the input devices via system SB1/SB2.
- c. The Input Assembly shall house twelve (12) 2-channel detection modules, six (6) 4-channel detection modules, or a combination of 2 & 4 channel detection modules up to 24 channels.
- d. The Input Assembly shall utilize two (2) 26-position ribbon cable connectors, TE Connectivity model 102321-6, for connections to the Field Input Panel.

(5) Field Input Panel (FIP).

- a. The 24-Channel FIP shall be coupled with the 24-Channel Input Assembly. The FIP shall provide a convenient landing point with pluggable terminal blocks for the field input wires.
- b. The FIP shall have positions for landing twenty-four (24) two-wire inputs and their associated earth ground wires. The landing points shall be pluggable terminal blocks with 10 positions for each block. The terminal blocks shall be Phoenix Contact model 1757093 or approved equivalent.
- c. Each input terminal position shall be labeled with its associated channel number.
- d. The FIP shall have positions for twelve (12) pluggable Detection Module Suppressors. The Detection Module Suppressors shall be supplied with the cabinet if required by procurement.
- e. The circuit board shall be mounted on a 1/8 in. thick aluminum plate that includes mounting slots for channel mounting. The plate shall include pressed-in PEM standoffs to mount the circuit boards.

(6) Service Assembly.

The Service Assembly shall be modular and be accessible without the use of hand tools. The Service Assembly shall house the following items:

- a. Two (2) Model 2202-HV High-Density Switch Pack/Flasher Units (HDSPs/FUs).
- b. Pluggable Cabinet Suppressor/Filter – Hesco RLS model HE1750 or approved equal.
- c. Main Contactor.
- d. Four (4) HDFU output fuses (16-channel version) or eight (8) HDFU output fuses (32-channel version).

- e. Six (6) Circuit Breakers. The circuit breakers shall be Carling Technologies “B” series or approved equal. The circuit breakers shall be protected by flip-up covers to protect against accidental activation. The circuit breakers shall be provided for the following functions:
 - 1. Main – 30 A
 - 2. Clean AC Power – 15 A
 - 3. Raw AC Power – 15 A
 - 4. Output Assembly – 15 A
 - 5. HDFU #1 – Maximum 15 A
 - 6. HDFU #2 – Maximum 15 A (optional, for 32-channel version only)
- f. GFCI duplex receptacle.
- g. Earth Ground and AC Neutral bus bars.
- h. Raw AC utility power input terminal block having five screw terminals.

(7) DC Power/Communication Bus.

- a. The DC Power/Communication Bus shall include eight (8) DB25 D-sub socket connectors, TE Connectivity model 5745886-2, to interconnect the SB1/SB2 communication ports of the assemblies and Controller. It shall include a termination circuit at the end of the connections (S8) to prevent radio frequency signal reflection.
- b. The DC Power/Communication Bus shall include eight Phoenix Contact connectors, model 1830635, to bring DC power to the Bus and distribute it to the cabinet subassemblies. The copper traces for the DC voltages shall support at least 10 Amp.
- c. The circuit board shall be protected by an aluminum cover that includes the cabinet mounting flanges.
- d. The DC Power/Communication Bus shall be mounted on the left side wall of the cabinet.

(8) AC Clean Power Bus.

The AC Clean Power Bus shall include eight (8) NEMA 5-15 receptacles to provide AC Clean Power to the ATC Cabinet Assemblies, the Controller, and Cabinet Power Supply.

(9) Switch Shield.

- a. The cabinet shall include a technician switch shield. This shield shall protect the police panel switch wiring and include technician test switches for Stop Time, Auto/Flash, and a 24 VDC Bypass Switch. This 24 VDC Bypass switch shall be a momentary push button switch that, when pressed, energizes the 24 VDC to the HDSPs during Flash Mode. The button shall be labeled "24 VDC BYPASS". This allows a technician to momentarily apply 24 VDC power to the HDSPs while in a Flash condition.
- b. The switch shield shall include a duplex receptacle with USB ports for device charging. This receptacle shall be powered by the Raw AC Power circuit breaker.

(10) Police Panel.

- a. The cabinet shall include a police panel with switches for Auto/Flash, Signals On/Off, and Auto/Manual. The Auto/Manual shall enable Manual Control Enable in the controller when in the Manual position.
- b. The cabinet shall include a hard-wired manual control cable with a 6 ft coiled cord. This cable shall enable Interval Advance in the controller when depressed.

(11) Slide-out Drawer/Shelf.

- a. A telescoping slide-out drawer shall be provided for document storage.
- b. The Slide-Out Drawer/Shelf shall be mounted underneath the shelf and include a lip or handle for pulling.
- c. The drawer shall have a hinged top cover.
- d. The drawer shall be capable of accommodating one (1) complete set of cabinet prints and manuals.
- e. The drawer shall support 50 lb (23 kg) in weight when fully extended.
- f. The drawer shall open and close smoothly.
- g. The drawer dimensions shall make maximum use of available depth offered by the controller shelf and be a minimum of 18 in. (610mm) wide.

(12) Detector Test Switch Assembly (optional).

- a. The Detector Test Switch Assembly shall allow a technician to initiate a call to the controller by actuating the detectors in the Input Assembly. This allows the detectors to be tested without a loop or pedestrian push button actuation. This assembly shall be optional and will only be included when directed by procurement.
- b. The Detector Test Switch Assembly shall include twenty-four (24) toggle switches. The switches shall be configured for On (constant call), Off (calls are only actuated through the detector) and Call (momentary call). The switches shall be C&K Components model 7107SYZQE or equivalent.
- c. The assembly shall include twenty-four (24) red LED indicators to indicate that a call has been initiated by the corresponding switch. The LED indicators shall be Avago model HLMP-C025-P0000 or equivalent.
- d. The detector switch calls shall be routed through the SIU located in the Input Assembly. The assembly shall not include a separate SIU.
- e. Multiple Detector Test Switch Assemblies may be used if multiple Input Assemblies are included in the cabinet.

Add the following to Article 1074.03 of the Standard Specifications:

(c) ATC Cabinet Plugins.

(1) Model 2202-HV High-Density Switch Pack/Flasher Unit (HDSP/FU).

- a. The HDSP/FU shall be compact, pluggable, modular PCB-based, and equipped with a DIN connector.
- b. The HDSP/FU shall be compatible with ultra-low power LED signal heads and shall have a current monitoring feature for each output of each channel.
- c. The HDSP/FU shall use real-time standardized high speed SB3 communications with the Cabinet Monitor Unit to send a complete set of RMS voltage and load current measurements.
- d. The HDSP/FU shall be 4.5 in. H x 6.5 in. D and shall be equipped with a handle, reset push button switch, six RYG LED indicators, four flasher LED indicators, one power LED indicator, and two Rx/Tx LED indicators.

- e. The HDSP/FU can function as either a switch pack (HDSP) or as a flasher unit (HDFU).
 - 1. When installed in the Output Assembly, the HDSP shall provide two RYG channels of operation (6 individual field outputs).
 - 2. When installed in the Service Assembly, the HDFU shall function as a four-output flasher.

(2) Model 2212-HV Cabinet Monitor Unit (CMUip).

- a. The Cabinet Monitor Unit (CMUip) shall be compact, pluggable and modular.
- b. The CMUip shall use real-time standardized 614.4 kbps SDLC communications with the ATC to transfer command and response data on Serial Bus #1 (SB1).
- c. The CMUip shall be capable of monitoring up to 32 physical switch pack channels (RYG) and shall have optional four virtual channels.
- d. The CMUip shall provide a Flasher Alarm feature. This alarm shall not put the cabinet into a Flash condition.
- e. The CMUip shall analyze the ATC output commands and field input status to isolate the failure source by channel and color.
- f. The CMUip configuration programming shall be provided by an interchangeable Datakey nonvolatile memory device. This rugged key shall store all CMUip configuration parameters and shall eliminate programming using jumpers, diodes, or DIP switches.
- g. The CMUip shall maintain a nonvolatile event log recording the complete intersection status as well as time stamped previous fault events, AC Line events, configuration changes, monitor resets, cabinet temperature and true RMS voltages and currents for all field inputs.
- h. The signal sequence history log stored in nonvolatile memory graphically shall display up to 30 seconds of signal status prior to the fault trigger event with 50 ms resolution to ease diagnosing of intermittent and transient faults.

(3) Model 2218 Serial Interface Unit (SIU).

- a. The Model 2218 Serial Interface Unit (SIU) shall be a compact, pluggable and modular.
- b. The SIU shall use real-time standardized 614.4 kbps SDLC communications with the ATC to transfer command and response data on Serial Bus #1 (SB1).
- c. The SIU shall be equipped with 54 programmable input/output pins, four (4) optically isolated input pins, one line sync reference input pin, and four (4) address select input pins. The optically isolated inputs shall work with either 12 VAC or 24 VDC.
- d. The SIU outputs shall be rated at 150 mA continuous sink current. Each output shall provide a 500 mA typical current limit and shall be rated to 50 V and utilize a voltage clamp for inductive transient protection.
- e. The SIU shall be equipped with a front panel LED indicator that can report the current SIU assembly address assignment of the SIU for cabinet configuration verification.
- f. The SIU shall require a nominal supply voltage of 24 VDC (+/- 2 VDC). A voltage of 16 VDC or less shall be considered loss of power, and a voltage of 18 VDC or greater shall be considered adequate for operation. The SIU shall not require more than 300 mA over the voltage range of 16 VDC to 30 VDC and the power surge shall be limited to a maximum of 1.25 A from initial application of DC power. The SIU shall not be damaged by insertion to, or removal from, powered input or output assemblies. The SIU shall operate normally for 700 ms after power loss.

(4) Model 2220 Auxiliary Display Unit (ADU).

- a. The ADU shall install in a 1U height of the rack space and shall provide a menu driven user interface to the enhanced features of the CMUip monitor, including the built-in Diagnostic Wizard.
- b. The ADU shall provide 32 channels of Red, Yellow and Green LED indicators that display full intersection status and 32 Blue fault status LED indicators to identify faulty channels.
- c. The ADU shall provide proper electrical termination to SB3.
- d. The ADU shall have a 4 line by 20-character menu driven liquid crystal display with backlight and heater.

- e. The ADU built-in Diagnostic Wizard shall automatically pinpoint faulty signals, offer trouble-shooting guidance, and automatically isolate and identify problems.
- f. The ADU shall be equipped with Event Logging displaying the CMUip time-stamped nonvolatile event log records with the complete intersection status, as well as AC Line events, monitor resets, temperature and true RMS voltages and currents.

(5) Model 2216 Cabinet Power Supply (CPS).

- a. The Model 2216 Cabinet Power Supply is a modular 19 in. rack mounted power supply device providing the DC voltages necessary for operating the ATC Cabinet. Power Factor Correction shall be provided. The PS2216-24-HV provides a regulated 24 VDC output and a regulated 48 VDC output. The PS2216-2412-HV model provides a regulated 24 VDC output, a regulated 48 VDC output, and a regulated 12 VDC output option for powering the Input Assembly devices. Unless otherwise specified, all PS2216 requirements apply to both model types.
- b. The CPS shall be 1U in height maximum and designed to mount into a 19 in. EIA rack. The maximum depth of the PS2216 shall be less than 8 in.
- c. The CPS shall be powered from AC Line provided by an AC Line cord with NEMA Type 515 plug. The input voltage range shall be 80 to 270 VAC, 45 to 65 Hz. Power Factor Correction shall be greater than 0.95.
- d. The PS2216-2412 shall provide:
 - 1. 48 VDC +/- 2 VDC at 1 A maximum
 - 2. 24 VDC +/- 2 VDC at 4 A maximum
 - 3. 12 VDC +/- 1 VDC at 5 A maximum
- e. Each DC output shall be electrically isolated from AC Mains and Earth Ground. The 24 VDC and 12 VDC outputs share a common ground.
- f. The DC Output Ripple on each output shall be less than 300 mVpp when measured at 20 MHz of bandwidth using a 12 in. twisted pair-wire terminated with a 0.1 μ f & 47 μ f capacitor.
- g. The DC outputs shall attain regulated output levels within 500 ms of applied AC Line voltage of 110 VAC nominal across the operating temperature range and at rated full load.
- h. The DC outputs shall maintain regulated output level for a minimum of 50 ms across the operating temperature range and at rated full load.

- i. All indicators shall be clear LEDs. Clear LEDs shall not depend on a reflector or diffusion as part of its design. Clear LEDs shall not appear to be ON when exposed to ambient light. The following indicators shall be provided:
 - 1. A green AC Line indicator shall illuminate to indicate Operational input voltage is proper and the AC Line fuse is intact.
 - 2. A green indicator shall illuminate to indicate the 48 VDC output is active and the fuse is intact.
 - 3. A green indicator shall illuminate to indicate the 24 VDC output is active and the fuse is intact.
 - 4. A green indicator shall illuminate to indicate the 12 VDC output is active and the fuse is intact (PS2216-2412 only).
- j. Banana style test jacks shall be provided on the front panel for each DC output and DC ground. Mating banana plug spring width shall be 0.175 in. Nominal.
- k. The output connector shall be a Phoenix Contact #1825161 and shall mate with a Phoenix Contact #1825352 or equivalent. Pin #1 shall be the right most pin when viewed from the rear of the supply.

Table 2 – Power Supply Connector Pin-Out

| Pin | Function |
|-----|---------------------------|
| 1 | +48VDC |
| 2 | 48VDC Ground** |
| 3 | +24VDC |
| 4 | +12VDC (PS2216-2412 only) |
| 5 | 24/12VDC Ground |
| 6 | Chassis Ground |

**The 48 VDC output shall be electrically isolated from the AC Line input and the 24VDC and 12 VDC outputs. The 48VDC Ground (pin #2) must be connected within the cabinet to the same AC Neutral that the Cabinet Monitor Unit (CMU) is connected to in the cabinet.

(6) MonitorKey Programming Tool.

- a. The Programming Tool provides the capability to read and write data from the CMUip Datakey device.
- b. The MonitorKey software shall be compatible with the CMUip-2212.

(7) Model 21H High-Density Flash Transfer Relay (HDFTR).

- a. The HDFTR shall be a Struthers-Dunn model 21XBXHL-48VDC or approved equal.
- b. The HDFTR shall have a hermetically sealed cover and shall be moisture proof.
- c. The HDFTR shall be filled with dry nitrogen to protect contacts from corrosion and to prevent condensation.
- d. The HDFTR shall have a cupronickel cover that is salt water resistant.
- e. The HDFTR contacts shall be rated at 10 A @ 120 VAC.
- f. The coil of the HDFTR shall be rated at 48 VDC.
- g. The HDFTR shall have an LED indicator to display contact transfer status.

(8) Main Contactor (MC).

- a. The MC shall be a combination solid-state and electromechanical relay in parallel and shall be rated at 60 A @ 120 VAC and 50 A @ 240 VAC. The coil of the MC shall be rated at 48 VDC.
- b. The MC shall be equipped with input indicator and shall have SPST- N.O. contacts.
- c. The MC shall be hermetically sealed.
- d. The MC shall be easily accessible without removing any covers or panels.
- e. The MC shall be mounted on the Service Assembly for access to the wiring and to view the LED indicator.

(9) Cabinet Suppressor-Filter.

- a. The cabinet shall be equipped with a pluggable Cabinet Suppressor-Filter mounted in the Service Assembly. The pluggable Cabinet Suppressor-Filter shall be an Asco Power SHA-1250, Hesco HE1750, or approved equivalent.
- b. The unit shall incorporate the use of warning and failure indicators and shall have a dry relay contact remote sensing circuit. The unit shall be modular and pluggable with a 12-position Beau 5412 connector.

- c. The unit shall be rated at continuous service current of 15 A and maximum clamp voltage of 390 VAC. The unit shall filter noise and spike from 10 KHz to 25 MHz and shall have a peak surge current of 48 kA.

(10) Detection Module Suppressor.

- a. The Detection Module Suppressor shall be Hesco model HE6LC-6 or Asco Power model MRA-6LC-6.
- b. The Detection Module Suppressor shall be modular and pluggable.
- c. The unit shall be epoxy encapsulated and equipped with 6-position 5.08 mm Phoenix Contact or approved equal connector.
- d. The unit shall be able to protect 6 circuits.
- e. The device operating voltage shall be 75 VAC and clamping voltage shall be 130 VDC.
- f. The device dimensions shall be 2 in. H x 7/10 in. W x 1-1/5 in. D.

(11) HDSP Protector.

- a. The HDSP Protector shall be modular and pluggable. The unit shall be a Hesco HE103C-9, Asco MPA303-9, or approved equal.
- b. The unit shall be epoxy encapsulated and equipped with 9-position 5.08 mm Phoenix Contact connector or approved equal.
- c. The unit shall be able to protect 6 circuits.
- d. The device operating voltage shall be 120 VAC and clamping voltage shall be 340 VAC.
- e. The unit dimensions shall be 2 in. H x 7/10 in. W x 2 in. D.

(d) Auxiliary Cabinet Equipment.

(1) Ventilation Fans.

- a. Two (2) thermostatically controlled fans shall be provided to ventilate the cabinet.
- b. The fans shall be equipped with ball or roller bearings and shall each have a minimum capacity of 100 cu ft of free air delivery per minute.
- c. The fans shall be protected by a finger guard.

- d. The fan circuit shall be protected at 125% of the fan motor ampacity.

(2) Heater.

A 200 W thermostatically controlled electric heater shall be provided.

(3) Thermostat.

- a. The thermostat shall be manually adjustable between 80°F and 170°F with a differential of not more than 10°F between automatic turn on and off.
- b. The manual adjustment shall be graded in 10°F increment scale.
- c. The Thermostat shall be a Bud Industries TS-15-A or approved equal.

(4) Lighting.

- a. The cabinet shall include two (2) LED light panels to illuminate the interior of the cabinet.
- b. One LED panel shall be mounted on the fan panel, and the other shall be mounted underneath the lower shelf.
- c. Both LED panels shall illuminate whenever the main cabinet door is opened.
- d. The LED panels shall be provided from an approved Vendor.

Basis of Payment.

This work will be paid for at the Contract unit price each for ADVANCED TRANSPORTATION CONTROLLER AND TYPE IV CABINET; ADVANCED TRANSPORTATION CONTROLLER AND TYPE IV STRETCHED CABINET; ADVANCED TRANSPORTATION CONTROLLER AND TYPE V CABINET; ADVANCED TRANSPORTATION CONTROLLER AND TYPE SUPER P CABINET; ADVANCED TRANSPORTATION CONTROLLER AND TYPE SUPER P STRETCHED CABINET; ADVANCED TRANSPORTATION CONTROLLER AND TYPE SUPER R CABINET; ADVANCED TRANSPORTATION CONTROLLER AND TYPE IV CABINET, SPECIAL; ADVANCED TRANSPORTATION CONTROLLER AND TYPE IV STRETCHED CABINET, SPECIAL; ADVANCED TRANSPORTATION CONTROLLER AND TYPE V CABINET, SPECIAL; ADVANCED TRANSPORTATION CONTROLLER AND TYPE SUPER P CABINET (SPECIAL); ADVANCED TRANSPORTATION CONTROLLER AND TYPE SUPER P STRETCHED CABINET (SPECIAL); ADVANCED TRANSPORTATION CONTROLLER AND TYPE SUPER R CABINET (SPECIAL).

MASTER CONTROLLER

Effective: May 22, 2002

Revised: November 1, 2023

860.01TS

General.

This work shall consist of furnishing and installing a master controller, meeting the requirements of the current District One Traffic Signal Special Provisions 857.01TS FULL-ACTUATED CONTROLLER IN EXISTING CABINET, 857.02TS FULL-ACTUATED CONTROLLER AND CABINET, and 857.03TS RAILROAD, FULL-ACTUATED CONTROLLER AND CABINET, including 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) " _____ " brand master controller.

Materials and Installation.

Revise Articles 860.02 and 860.03 of the Standard Specifications to read:

“Only controllers supplied by one of the District One approved vendors will be allowed. Only NEMA TS2 Type 1 Eagle/Yunex and Econolite closed loop systems shall be supplied. The latest approved model and software version of master controller shall be supplied.

Functional requirements in addition to those in Section 863 of the Standard Specifications include:

The system commands shall consist of, as a minimum, six (6) cycle lengths, five (5) offsets, three (3) splits, and four (4) special functions. The system commands shall also include commands for free or coordinated operation.

Traffic Responsive operation shall consist of the real time acquisition of system detector data, data validation, and the scaling of acquired volumes and occupancies in a deterministic fashion so as to cause the selection and implementation of the most suitable traffic plan.

Upon request by the Engineer, each master shall be delivered with up to three (3) complete sets of the latest edition of registered remote monitoring software with full manufacture's support. Each set shall consist of software on USB, or other suitable media approved by the Engineer, and a bound set of manuals containing loading and operating instruction. One copy of the software and support data shall be delivered to the Agency in charge of system operation, if other than IDOT. One of these two sets will be provided to the Agency Signal Maintenance Contractor for use in monitoring the system.

The Contractor shall arrange to install a cellular modem to the master controller. This shall be accomplished following the requirements contained in the current District One Traffic Signal Special Provision 892.01TS CELLULAR MODEM, as well as through the following process utilizing District One staff. An E911 address is required.

Full duplex communication between the master and its local controllers is recommended, but at this time not required. The data rate shall be 1200 baud minimum and shall be capable of speeds to 38,400 or above as technology allows. The controller, when installed in an Ethernet topology, may operate non-serial communications.

As soon as practical or within one week after the contract has been awarded, the Contractor shall contact the Traffic Signal Systems Engineer to request a SIM card. The SIM card will be provided by the Department. The Contractor shall provide the cellular modem model and International Mobile Equipment Identity (IMEI) value to the Department to complete the SIM card request.

The cellular modem shall be installed and activated one month before the system final inspection.

All costs associated with the cellular modem activation (not including installation) shall be paid for by the District One Business Services Section (i.e., this will be an IDOT phone number, not a Contractor phone number)."

Basis of Payment.

This work will be paid for at the contract unit price each for MASTER CONTROLLER or MASTER CONTROLLER (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.

REMOVE AND REPLACE BATTERIES FOR UNINTERRUPTABLE POWER SUPPLY

Effective: November 1, 2023

862.03TS

Description.

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

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

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

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

Basis of Payment.

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

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.

SPLICE FIBER IN CABINET

Effective: November 1, 2023

871.02TS

Description.

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

General.

This pay item shall include splices between existing fiber optic cables and any splices shown on the plans as a bid item. Splices shall be secured in fiber optic splice trays within fiber optic distribution enclosures. All fusion splices shall be secured on aluminum splice trays capable of accommodating the required number of fusion splices, including necessary splice holders and a compatible splice tray cover. The tray dimensions shall not exceed 7.5" x 4.1" x 0.45" and shall be mounted within the enclosure using suitable hardware that allows removal for maintenance purposes without the use of tools. All individual splice trays shall be labelled. Splice trays shall be included in the unit cost of SPLICE FIBER IN CABINET.

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

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

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

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

Basis of Payment.

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

TERMINATE FIBER IN CABINET

Effective: November 1, 2023

871.03TS

Description.

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

General.

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

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

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

Basis of Payment.

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

FIBER OPTIC INTERCONNECT CENTER, 24 PORT OR 48 PORT

Effective: November 1, 2023

871.04TS

Description.

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

General.

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

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

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

Basis of Payment.

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

ELECTRIC CABLE

Effective: May 22, 2002

Revised: July 1, 2015

873.01TS

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

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

Service cable may be single or multiple conductor cable

GROUNDING EXISTING HANDHOLE FRAME AND COVER

Effective: May 22, 2002

Revised: March 1, 2024

873.02TS

Description.

This work shall consist of all materials and labor required to bond the equipment grounding conductor to the existing handhole frame and handhole cover. All installations shall meet the requirements of the details in the "District One Standard Traffic Signal Design Details" and applicable portions of the Standard Specifications and the "Grounding of Traffic Signal Systems" section of District One Traffic Signal Special Provision 800.01TS TRAFFIC SIGNAL GENERAL REQUIREMENTS.

The equipment grounding conductor shall be bonded to the handhole frame and to the handhole cover. Two (2) 1/2 in. diameter x 1 1/4 in. long hex-head stainless steel bolts spaced 1-3/4 in. apart center-to-center shall be fully welded to the frame and to the cover to accommodate a heavy-duty UL listed grounding compression terminal. The grounding compression terminal shall be secured to the bolts with stainless steel split-lock washers and nylon-insert locknuts.

Welding preparation for the stainless-steel bolt hex-head to the frame and to the cover shall include thoroughly cleaning the contact and weldment area of all rust, dirt and contaminants. The Contractor shall assure a solid strong weld. The welds shall be smooth and thoroughly cleaned of flux and spatter. The grounding installation shall not affect the proper seating of the cover when closed.

The grounding cable shall be paid for separately.

Method of Measurement.

Units measured for payment will be counted on a per handhole basis, regardless of the type of handhole and its location.

Basis of Payment.

This work shall be paid for at the contract unit price each for GROUNDING EXISTING HANDHOLE FRAME AND COVER which shall be payment in full for grounding the handhole complete.

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.

RAILROAD INTERCONNECT CABLE

Effective: May 22, 2002

Revised: July 1, 2015

873.04TS

The cable shall meet the requirements of Section 873 of the Standard Specifications, except for the following:

Add to Article 873.02 of the Standard Specifications:

- c) The railroad interconnect cable shall be three conductor stranded #14 copper cable in a clear polyester binder, shielded with #36 AWG tinned copper braid with 85% coverage, and insulated with .016" polyethylene (black, blue, red). The jacket shall be black 0.045 PVC or polyethylene.

Add the following to Article 873.06 of the Standard Specifications:

Basis of Payment.

This work shall be paid for at the contract unit price per foot (meter) for ELECTRIC CABLE IN CONDUIT, RAILROAD, NO. 14 3C, which price shall be payment in full for furnishing, installing, and making all electrical connections in the traffic signal controller cabinet. Connections in the railroad controller cabinet shall be performed by railroad personnel.

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.

PEDESTRIAN SIGNAL POST

Effective: January 1, 2020

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 ½ 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.

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.

CAMERA MOUNTING ASSEMBLY

Effective: November 1, 2023

877.02TS

Description.

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

Materials.

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

General.

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

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

Basis of Payment.

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

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.”

REMOVE AND REPLACE ANCHOR BOLTS

Effective: January 1, 2014

Revised: July 1, 2015

878.02TS

This item shall consist of replacing anchor rods at existing concrete foundations for traffic signal posts. At locations specified on the plans for new traffic signal post installation, the Contractor shall inspect the existing post foundations prior to removing the existing traffic signal post. The Contractor shall verify that the pattern, spacing, and condition of the existing anchor bolts are acceptable for reuse with a new post. The Contractor shall replace unacceptable anchor bolts as approved by the Engineer.

Anchor bolts shall be according to Article 1006.09 and shall be hot dipped galvanized.

Installation.

Existing anchor bolts shall be cut flush with the top of concrete foundation.

The bolt circle of the new anchor bolts shall be rotated a minimum of 2.5-inches away from the existing anchor bolts. New anchor bolts shall be ¾-inch diameter with minimum 9-inch embedment into the existing concrete foundation and 3-inch threaded length above the top of foundation. New anchor bolts shall be installed using a HIT-RE 500 exposed adhesive anchoring system.

Method of Measurement.

The removal and replacement of anchor bolts will be measured for payment as per each foundation requiring anchor bolt replacement. This shall include all anchor bolts replaced, labor, equipment, and materials required for replacing anchor bolts at an existing foundation as specified herein.

Basis of Payment.

This item will be paid for at the contract unit price each for REMOVE AND REPLACE ANCHOR BOLTS.

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 signal 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.

FLASHING BEACON INSTALLATION, RELOCATION AND REMOVAL

Effective: January 1, 2007

Revised: March 1, 2024

880.02TS

This work shall consist of furnishing and installing a new flashing beacon installation, solar powered flashing beacon installation, relocation of existing flashing beacon, and/or the removal of the existing flashing beacon installation as shown on the plans and as described herein. The energy charges for the operation of the flashing beacon installation shall be paid for by the Department unless otherwise directed by the Engineer.

The installation, relocation and removal of flashing beacon installations shall be according to the applicable portions of Sections 800 and 1000 of the Standard Specifications for Road and Bridge Construction and District 1 Flashing Beacon Installation Details except as revised herein. LED signal heads shall be as modified in 880.01TS LED SIGNAL HEAD AND OPTICALLY PROGRAMMED LED SIGNAL HEAD Special Provision.

- (a) Flashing Beacon Installation. This item shall consist of installing a post mounted 12 in. (300 mm) LED single section red or yellow flashing beacon on a new or existing post as shown on the plans or as directed by the Engineer. This item shall include furnishing and installing a flasher controller in an aluminum cabinet, or integrated within the signal head, 12 in. (300 mm) LED red or yellow signal section with a dimmer if required by the Engineer, and all other hardware necessary to complete the installation.
- (b) Solar Powered Flashing Beacon Installation. This item shall consist of installation of a solar powered flashing beacon, post mounted as shown on the plans or as directed by the Engineer. This item shall consist of furnishing and installing a 12 in. (300 mm) single red or yellow flashing module on a new or existing post as shown on the plans or as directed by the Engineer. This item shall include furnishing and installing a flasher controller that is integrated within the signal head, with discrete solar panels, LED module, battery, electronics, compact housing and be capable of operating 24 hours, 7 days a week. The flasher unit shall be installed on a standard wood or metal post. The flash pattern shall be MUTCD compliant and have alternate flash patterns available. The battery shall have a life span of a minimum of five (5) years and be field replaceable. The battery and electronics may be located inside the solar panel housing or signal head. The sections of the flasher unit shall be secured with tamper resistant stainless-steel hardware. Unless otherwise noted, the housing shall be black in color.
- (c) Relocate Existing Flashing Beacon. Relocation of an existing flashing beacon installation, as shown on the plans or as directed by the Engineer, shall meet the above requirements. This work shall include the complete relocation of the existing flashing beacon installation, the backfilling of the holes created by the removal of the poles, and restoration of the surface to match the adjoining area.
- (d) Remove Existing Flashing Beacon Installation Complete. Removal of an existing flashing beacon installation shall be as shown on the plans or as directed by the Engineer and shall be according to applicable portions of Section 895 of the Standard Specifications. This work shall include a complete removal of an existing flashing beacon installation, backfilling of the holes created by the removal of the poles and restoration of the surface to match the adjoining area. The flashing beacon installation will be removed only after the permanent signal installation is accepted for maintenance, or as directed by the Engineer.

Basis of Payment.

This work shall be paid for at the Contract unit price each for FLASHING BEACON INSTALLATION; SOLAR POWERED FLASHING BEACON INSTALLATION; RELOCATE EXISTING FLASHING BEACON or REMOVE EXISTING FLASHING BEACON INSTALLATION COMPLETE. The price shall be payment in full for all labor and material necessary to complete the work described above.

LED SIGNAL FACE, LENS COVER

Effective: July 1, 2021
Revised: April 1, 2024
880.03TS

Description.

This work shall consist of furnishing and installing a signal lens cover with the purpose of preventing snow buildup on and around a signal lens allowing for clear indication during inclement weather.

This item shall fit over a 12 in. signal head lens and shall include the clear lens cover, attachment collar, and any clips or fasteners necessary to fit it flush. The cover shall be installed in accordance with the Manufacturer's instructions and in a manner that prevents dust, debris, or moisture buildup on the inside of the lens cover that could affect the signal indication visibility. Lens covers shall be installed on all red signal head indications.

The snow resistant signal head lens cover shall be warrantied for a period of three (3) years from final inspection and shall be free from material and workmanship defects.

Basis of Payment.

This work shall be paid for at the Contract unit price each for LED SIGNAL FACE, LENS COVER, the price of which shall include the cost for all work and material described herein and includes furnishing, installing, and all mounting hardware necessary for a fully operational snow resistant signal head lens cover.

LED SIGNAL FACE, VISOR HEATER

Effective: July 1, 2021
Revised: April 1, 2024
880.04TS

Description.

This work shall consist of furnishing and installing a heated signal visor or retrofitting an existing signal visor with a heater to prevent snow buildup on and around a signal lens allowing for clear signal indication during inclement weather.

The heater shall keep a constant temperature on every point of the heating element and shall not rise above the Manufacturer's safe temperature levels. The heater shall be made from flexible material mounted to the underside of an existing or proposed signal visor. The heater shall be controlled by a temperature and humidity probe to determine if conditions for snow are present. A single probe with the LED confirmation light should be installed at the traffic signal cabinet to control the entire intersection with the confirmation light visible from the street. Power for the heater shall be supplied using an extra, unused wire from the signal head. Installation of the heater shall not create conditions where dust, debris, or water can enter the inside of the signal head. Any control modules necessary for the proper operation should be installed inside the cabinet for easy maintenance, and its capacity should match the number of red signal head indications present at the intersection or as directed by the Engineer. Signal visor heaters shall be installed on all red signal head indications.

The heating element shall operate during typical snowing conditions below 35.6°F and above 75 percent relative humidity. The heater shall be installed such that it is de-energized when traffic signals are powered by an alternative energy source such as a generator or uninterruptible power supply (UPS).

Revised cabinet wiring diagrams showing the heater shall be provided.

The snow resistant heated signal visor shall be warranted for a period of three (3) years from final inspection and free from material and workmanship defects.

Basis of Payment.

This work shall be paid for at the Contract unit price each for LED SIGNAL FACE, VISOR HEATER, the price of which shall include the cost for all work and material described herein and includes furnishing, installing, and all mounting hardware necessary for proper operation.

LED MODULE REPLACEMENT

Effective: August 1, 2023

880.05TS

Description.

This work shall be in accordance with Sections 880, 881, 895, and 1078 of the Standard Specifications except as modified herein. The Contractor shall remove LED modules from an existing traffic or pedestrian signal head and furnish and install new LED modules for each indication as shown on the plans. Lens covers and visor heaters shall be removed and reinstalled if needed. In case of discrepancies between the plans and existing field conditions, the Contractor shall coordinate the correct module installation with the Traffic Signal Area Engineer. The Contractor shall recycle all LED modules at an electronics recycling facility. The LED module must be replaced in kind for whatever color, size, and movement is being replaced (Red, Yellow, Green, Any Color Arrows, Ped, Walk, Don't Walk, etc.). All LED modules shall conform to the requirements specified in the special provisions 880.01TS – LED SIGNAL HEAD AND OPTICALLY PROGRAMMED LED SIGNAL HEAD and 881.01TS – LED PEDESTRIAN SIGNAL MODULE REPLACEMENT.

Basis of Payment.

This work will be paid for at the contract unit price per each for LED SIGNAL MODULE REPLACEMENT and LED PEDESTRIAN SIGNAL MODULE REPLACEMENT. All labor and equipment required to complete this work, including removal and reinstallation of lens covers and visor heaters, shall be included in the contract unit price.

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.”

DETECTOR LOOP

Effective: May 22, 2002

Revised: March 1, 2024

886.01TS

Procedure.

A minimum of seven (7) working days prior to the Contractor cutting loops, the Contractor shall mark the proposed loop locations and contact the Area Traffic Signal Maintenance and Operations Engineer to inspect and approve the layout. When preformed detector loops are installed, the Contractor shall have them inspected and approved prior to the pouring of the Portland cement concrete surface using the same notification process as above.

Installation.

Revise Article 886.04 of the Standard Specifications to read:

“Loop detectors shall be installed according to the requirements of the “District One Standard Traffic Signal Design Details.” Saw-cuts (homeruns on preformed detector loops) from the loop to the edge of pavement shall be made perpendicular to the edge of pavement when possible in order to minimize the length of the saw-cut (homerun on preformed detector loops) unless directed otherwise by the Engineer or as shown on the plans.

The detector loop cable insulation shall be labeled with the cable specifications.

Each loop detector lead-in wire shall be labeled in the handhole using a waterproof tag secured to each wire with nylon ties.

Resistance to ground shall be a minimum of 500 mega-ohms under any conditions of weather or moisture. Inductance shall be more than 50 and less than 700 microhenries.

- (a) Type I. All loops installed in new asphalt pavement shall be installed in the binder course and not in the surface course. The edge of pavement, curb, and handhole shall be cut with a 1/4 in. (6.3 mm) deep x 4 in. (100 mm) saw cut to mark the location of each loop cable.
- (b) Loop sealant shall be two-component thixotropic chemically cured polyurethane from an approved Vendor. The sealant shall be installed 1/8 in. (3 mm) below the pavement surface. If installed above the surface, the excess shall be removed immediately.
- (c) Preformed. This work shall consist of furnishing and installing a rubberized or cross-linked polyethylene heat resistant preformed traffic signal loop in accordance with the Standard Specifications, except for the following:
 - (1) Preformed detector loops shall be installed in the sub-base under the Portland cement concrete pavement. Loop lead-ins shall be extended to a temporary protective enclosure near the proposed handhole location. The protective enclosure shall provide sufficient protection from other construction activities and may be buried for additional protection.

- (2) Handholes shall be placed next to the shoulder or back of curb when preformed detector loops enter the handhole. CNC, included in this pay item, shall be used to protect the preformed lead-ins from back of curb to the handhole.
- (3) Preformed detector loops shall be factory assembled with ends capped and sealed against moisture and other contaminants. The loop configurations and homerun lengths shall be assembled for the specific application. The loop and homerun shall be constructed using a minimum 5/8 in. (16 mm) outside diameter, minimum 3/8 in. (9.5 mm) inside diameter Class A oil resistant synthetic cord reinforced hydraulic hose with 250 psi (1,720 kPa) internal pressure rating or a similarly sized XLPE cable jacket. The hose for the loop and homerun assembly shall be one continuous piece. No joints or splices shall be allowed in the hose except where necessary to connect homeruns to the loops. This will provide maximum wire protection and loop system strength. Hose tee connections shall be heavy duty high temperature synthetic rubber. The tee shall be of proper size to attach directly to the hose, minimizing glue joints. The tee shall have the same flexible properties as the hose to ensure that the whole assembly can conform to pavement movement and shifting without cracking or breaking. For XLPE jacketed preformed loops, all splice connections shall be soldered, sealed, and tested before being sealed in a high impact glass impregnated plastic splice enclosure. The wire used shall be #16 THWN stranded copper. The number of turns in the loop shall be application specific. Homerun wire pairs shall be twisted a minimum of eight turns per foot. No wire splices will be allowed in the preformed loop assembly. The loop and homeruns shall be filled and sealed with a flexible sealant to ensure complete moisture blockage and further protect the wire. The preformed loops shall be constructed to allow a minimum of 6-1/2 ft of extra cable in the handhole.”

Method of Measurement.

Add the following to Article 886.05 of the Standard Specifications:

“Preformed detector loops will be measured along the detector loop embedded in the pavement rather than the actual length of the wire. Detector loop measurements shall include the saw cut and the length of the detector loop wire to the edge of pavement. The detector loop wire, including all necessary connections for proper operations, from the edge of pavement to the handhole, shall be included in the price of the detector loop. CNC, trench and backfill, and drilling of pavement or handholes shall be included in detector loop quantities.”

Basis of Payment.

This work shall be paid for at the contract unit price per foot (meter) for DETECTOR LOOP, TYPE I or PREFORMED DETECTOR LOOP as specified in the plans, which price shall be payment in full for furnishing and installing the detector loop and all related connections for proper operation.

DETECTOR LOOP REPLACEMENT AND/OR INSTALLATION (ROADWAY GRINDING, RESURFACING, & PATCHING OPERATIONS)

Effective: January 1, 1985

Revised: March 1, 2024

886.02TS

The following Traffic Signal Special Provisions and the "District 1 Standard Traffic Signal Design Details" supplement the requirements of the State of Illinois "Standard Specifications for Road and Bridge Construction" Sections 810, 886, 1079 and 1088.

The intent of this Special Provision is to prescribe the materials and construction methods commonly used to replace traffic signal detector loops and replace magnetic signal detectors with detector loops during roadway resurfacing, grinding and patching operations. Loop detector replacement will not require the transfer of traffic signal maintenance from the District Electrical Maintenance Contractor to this Contract's electrical contractor. Replacement of magnetic detector will require wiring revisions inside the control cabinet and therefore the transfer of maintenance will be required. All material furnished shall be new. The locations and the details of all installations shall be as indicated on the Plans or as directed by the Engineer.

The work to be provided under the Contract consists of furnishing and installing all traffic signal work as specified on the Plans and as specified herein in a manner acceptable and approved by the Engineer.

Notification of Intent to Work.

Contracts such as pavement grinding or patching which result in the destruction of traffic signal detection require a notification of intent to work and an inspection. A minimum of seven (7) working days prior to the detection removal, the Contractor shall notify the Area Traffic Signal Maintenance and Operations Engineer.

Failure to provide proper notification may require the District's Electrical Maintenance Contractor to be called to investigate complaints of inadequate traffic signal timing. All costs associated with these expenses will be paid for by the Contractor at no additional expense to the Department according to Section 109 of the Standard Specifications.

Removal, Disposal and Salvage of Existing Traffic Signal Equipment.

The removal, disposal, and salvage of existing traffic signal equipment shall be included in the cost of this item. All material and equipment removed shall become the property of the Contractor and disposed of by the Contractor outside the State's right-of-way. No additional compensation shall be provided to the Contractor for removal, disposal or salvage expense for the work in this contract.

DETECTOR LOOP REPLACEMENT.

This work shall consist of replacing existing detector loops which are destroyed during grinding, resurfacing, or patching operations.

If damage to the detector loop is unavoidable, replacement of the existing detection system will be necessary. This work shall be completed by an approved Electrical Contractor as directed by the Engineer.

Replacement of the loops shall be accomplished in the following manner: The Area Traffic Signal Maintenance and Operations Engineer shall be called to approve loop locations prior to the cutting of the pavement. The Contractor may reuse the existing coilable non-metallic conduit (CNC) located between the existing handhole and the pavement if it hasn't been damaged. CNC meeting the requirements of NEC Article 353 shall be used for detector loop raceways to the handholes. All burrs shall be removed from the edges of the existing conduit which could cause damage to the new detector loop during installation. If the existing conduit is damaged beyond repair, if it cannot be located, or if additional conduits are required for each proposed loop, the Contractor shall be required to drill through the existing pavement into the appropriate handhole and install 1 in. (25 mm) CNC. This work and the required materials shall not be paid for separately but shall be included in the pay item Detector Loop Replacement. Once suitable CNC raceways is established, the loop may be cut, installed, sealed and spliced to the twisted-shielded lead-in cable in the handhole.

All loops installed in new asphalt pavement shall be installed in the binder course and not in the surface course. The edge of pavement or the curb shall be cut with a 1/4 in. (6.3 mm) deep x 4 in. (100 mm) saw-cut to mark location of each loop lead-in.

A minimum of seven (7) working days prior to the Contractor cutting loops, the Contractor shall have the proposed loop locations marked and contact the Area Traffic Signal Maintenance and Operations Engineer to inspect and approve the layout.

Loop detectors shall be installed according to the requirements of the "District 1 Standard Traffic Signal Design Details." Saw-cuts from the loop to the edge of pavement shall be made perpendicular to the edge of pavement when possible in order to minimize the length of the saw-cut unless directed otherwise by the Engineer or as shown on the plan.

The detector loop cable insulation shall be labeled with the cable specifications.

Each loop detector lead-in wire shall be labeled in the handhole using a waterproof tag secured to each wire with nylon ties. The lead-in wire, including all necessary connections for proper operation, from the edge of pavement to the handhole, shall be included in the detector loop pay item.

Loop sealant shall be a two-component thixotropic chemically cured polyurethane. The sealant shall be installed 1/8 in. (3 mm) below the pavement surface. If installed above the surface the excess shall be removed immediately.

Round loop(s) 6 ft (1.8 m) in diameter may be substituted for 6 ft (1.8 m) x 6 ft (1.8 m) square loop(s) and shall be paid for as 24 ft (7.2 m) of detector loop.

Resistance to ground shall be a minimum of 500 mega-ohms under any conditions of weather or moisture. Inductance shall be more than 50 and less than 700 microhenries.

Heat shrink splices shall be used according to the "District 1 Standard Traffic Signal Design Details."

Detector loop replacement shall be measured along the sawed slot in the pavement containing the loop cable up to the edge of pavement, rather than the actual length of the wire in the slot. Drilling handholes, sawing the pavement, furnishing and installing CNC to the appropriate handhole, cable splicing to provide a fully operable detector loop, testing and all trench and backfill shall be included in this item.

Basis of Payment.

Detector Loop Replacement shall be paid for at the Contract unit price per foot (meter) of DETECTOR LOOP REPLACEMENT.

MAGNETIC DETECTOR REMOVAL AND DETECTOR LOOP INSTALLATION.

This work shall consist of the removal of existing magnetic detectors, magnetic detector lead-in cable and magnetic detection amplifiers and related control equipment wiring, installation of detector lead-in cable, detector loops, detector amplifiers and related equipment wiring. The detector loop, cable, and amplifier shall be installed according to the applicable portions of the Standard Specifications and the applicable portions of the Special Provision for "Detector Loop Replacement." All drilling of handholes, furnishing and installing CNC, cable splicing, trench and backfill, removal of equipment, and removing cable from conduit shall be included in this item.

Basis of Payment.

Magnetic Detector Removal and Detector Loop Installation shall be paid for at the contract unit price per foot (meter) for DETECTOR LOOP, TYPE I, per each for INDUCTIVE LOOP DETECTOR, and foot (meter) for ELECTRIC CABLE IN CONDUIT, LEAD-IN, NO. 14 1 PAIR.

RADAR VEHICLE DETECTION SYSTEM

Effective: July 1, 2015

Revised: March 1, 2024

886.03TS

Description.

This work shall consist of furnishing and installing a radar vehicle detection system as specified and/or as shown on the plan. 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, cable and accessories required to complete the installation in accordance with the manufacturer's specifications.

The radar vehicle detection system shall work under all weather conditions, including rain, freezing rain, snow, wind, dust, fog, and changes in temperature and light. It shall work in an ambient temperature range of -30°F to 165°F. It shall have a max power output of 75 W or less.

The radar vehicle detection system shall be compatible with the District's approved traffic controller assemblies utilizing NEMA TS 1 or NEMA TS 2 controllers and cabinet components for full time operation. The radar vehicle detection system shall provide a minimum of one interface unit that has Ethernet connectivity, surge protection and shall be capable of supporting a minimum of 2 detector units.

The stop bar radar vehicle detection system shall have true presence capabilities in which it can detect stopped, slow moving or turning vehicles similar to the Department's in-pavement detection. This is especially important at side streets where driveways are near the intersection. The radar shall be able to drop the call if the vehicle leaves the detection zone. A manufacture statement confirming proper operation is required along each material approval submittal. The Department will not allow substitutes for other types of detection.

The far back radar detection shall have a detection range of 400 ft or better.

A representative from the supplier of the radar vehicle detection system shall supervise the installation and testing of the radar vehicle detection system and shall be present at the traffic signal turn-on inspection. Once the radar vehicle detection system is configured, it shall not need reconfiguration to maintain performance, unless the roadway configuration or the application requirements change.

The mounting location(s) of the detector unit(s) shall be per the manufacturer's recommendations. 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.

The radar vehicle detection system shall be warrantied for a period of two (2) years from final inspection and shall be free from material and workmanship defects.

Basis of Payment.

This work shall be paid for at the Contract unit price each for RADAR VEHICLE DETECTION SYSTEM, SINGLE APPROACH, STOP BAR; RADAR VEHICLE DETECTION SYSTEM, SINGLE APPROACH, FAR BACK; RADAR VEHICLE DETECTION SYSTEM, SINGLE APPROACH, STOP BAR AND FAR BACK, the price of which shall include the cost for all of the work and material described herein and includes furnishing, installing, delivery, handling, testing, set-up and all appurtenances and mounting hardware necessary for a fully operational radar vehicle detection system.

VIDEO VEHICLE DETECTION SYSTEM

Effective: January 1, 2020

Revised: March 1, 2024

886.04TS

Description.

This work shall consist of furnishing and installing a video vehicle detection system as specified and/or as shown on 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.

The video vehicle detection system shall work under all weather conditions, including rain, freezing rain, snow, wind, dust, fog, and changes in temperature and light. It shall work in an ambient temperature range of -30°F to 165°F.

The video vehicle detection system shall be compatible with the District's approved traffic controller assemblies utilizing NEMA TS 1 or NEMA TS 2 controllers and cabinet components for full time operation. The video vehicle detection system shall provide a minimum of one interface unit that has Ethernet connectivity, surge protection and shall be capable of supporting a minimum of 2 detector units. The video vehicle detection system shall include a display and stand inside the cabinet that has a minimum 10 in. screen with a minimum 1280 x 800 resolution. The display shall be temperature rated for the cabinet environment.

The video vehicle detection system shall be one of the following systems or an approved equivalent:

- Autoscope Vision
- Iteris Vantage Next

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.

The mounting location(s) of the detector unit(s) shall be per the manufacturer's recommendations. 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.

The video detection system shall be warrantied for a period of two (2) years from final inspection and shall be free from material and workmanship defects.

Basis of Payment.

This work shall be paid for at the Contract unit price each for VIDEO VEHICLE DETECTION SYSTEM, SINGLE APPROACH, the price of which shall include the cost for all of the work and material described herein and includes furnishing, installing, delivery, handling, testing, set-up and all appurtenances and mounting hardware necessary for a fully operational video vehicle detection system.

EMERGENCY VEHICLE PRIORITY SYSTEM

Effective: May 22, 2002

Revised: July 1, 2015

887.01TS

Revise Section 887 of the Standard Specifications to read:

It shall be the Contractor's responsibility to contact the municipality or fire district to verify the brand of emergency vehicle pre-emption 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 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 signaled 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 signaled by a continuous indication.

All light operated systems shall include security and transit preemption software and operate at a uniform rate of 14.035 Hz \pm 0.002, or as otherwise required by the Engineer, and provide compatible operation with other light systems currently being operated in the District.

This item shall include any required modifications to an existing traffic signal controller as a result of the addition of the EMERGENCY VEHICLE PRIORITY SYSTEM.

Basis of Payment.

The work shall 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 included in the cost of the 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.

RELOCATE EXISTING EMERGENCY VEHICLE PRIORITY SYSTEM, DETECTOR UNIT

Effective: January 1, 2002

Revised: July 1, 2015

887.02TS

This item shall consist of relocating the existing emergency vehicle priority system, detector unit (single channel or dual channel) from its existing location to a new traffic signal post or mast arm assembly and pole, and connecting it to an emergency vehicle priority system, phasing unit. If the existing Emergency Vehicle Priority System, Detector Unit Assembly includes a Confirmation Beacon, the Confirmation Beacon shall also be relocated and connected to the Emergency Vehicle Priority System, Detector Unit and shall be included at no cost in this item.

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

Basis of Payment.

This item will be paid for at the contract unit price each for RELOCATE EXISTING EMERGENCY VEHICLE PRIORITY SYSTEM, DETECTOR UNIT.

RELOCATE EXISTING EMERGENCY VEHICLE PRIORITY SYSTEM, PHASING UNIT

Effective: January 1, 2002

Revised: July 1, 2015

887.03TS

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

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

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

Basis of Payment.

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

CONFIRMATION BEACON

Effective: January 1, 2002

Revised: July 1, 2015

887.04TS

This item shall consist of furnishing and installing a Traffic Signal Emergency Confirmation Beacon (single channel or dual channel) at the locations specified on the plans and as described as follows for intersections which have existing emergency preemption systems previously installed.

Confirmation Beacon, Single Channel - Where the light detector is used to detect a single direction of traffic, one LED lamp for only that direction shall be provided. In cases where the detector covers opposing directions of traffic and has a single output, a separate lamp for each direction shall be provided but they shall have identical indications.

Confirmation Beacon, Dual Channel - A separate LED lamp with appropriate separate indications for each direction shall be provided.

It shall be the Contractor's responsibility to verify the existing brand of emergency vehicle equipment at the intersection and the confirmation beacons must be completely compatible with all existing components. 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. No new holes may be drilled into signal poles, mast arms, or posts. The Confirmation Beacon shall be mounted to the existing light detector hardware as shown on the mounting detail in the plans. 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 signaled 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 signaled by a continuous indication.

Any modification required to the existing light detector installation to meet the requirements of the mounting detail shown in the plans shall be included in this item.

Basis of Payment.

This work will be paid for at the contract unit price per each for CONFIRMATION BEACON

OUTDOOR RATED NETWORK CABLE

Effective: November 1, 2023
887.04TS

Description.

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

Materials.

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

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

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

Basis of Payment.

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

PEDESTRIAN PUSH-BUTTON

Effective: May 22, 2002

Revised: March 1, 2024

888.01TS

Description.

Revise Article 888.01 of the Standard Specifications to read:

“This work shall consist of furnishing and installing a latching (single call) or non-latching (dual call) pedestrian push-button and a regulatory pedestrian instruction sign according to MUTCD, sign series R10-3e 9 in. x 15 in. sign with arrow(s) for a countdown pedestrian signal.”

Installation.

Add the following to Article 888.03 of the Standard Specifications:

“A mounting bracket and/or extension shall be used to assure proper orientation when two pedestrian push buttons are required for one post. 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 in order to meet mounting requirements.”

Materials.

Revise Article 1074.02(a) of the Standard Specifications to read:

“The pedestrian push-button housing shall be constructed of aluminum alloy according to ASTM B 308 6061-T6 and powder coated yellow, unless otherwise noted on the plans. The housing shall be furnished with suitable mounting hardware.”

Add the following to Article 1074.02 of the Standard Specifications:

- (e) Station. 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 (75mm) 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. The pedestrian station size without count-down pedestrian signals shall accommodate a MUTCD sign series R10-3b or R10-3d 9” x 12” sign with arrow(s).
- (f) Location. Pedestrian push-buttons and stations shall be mounted to a post, mast arm pole, or wood pole as shown on the plans and shall be fully ADA accessible from a paved or concrete surface. See the District’s Detail sheets for orientation and mounting details.

Basis of Payment.

Revise Article 888.04 of the Standard Specifications to read:

“This work will be paid for at the Contract unit price per each for PEDESTRIAN PUSH-BUTTON or PEDESTRIAN PUSH-BUTTON, NON-LATCHING.”

ACCESSIBLE PEDESTRIAN SIGNALS

Effective: April 1, 2003

Revised: August 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 message 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.

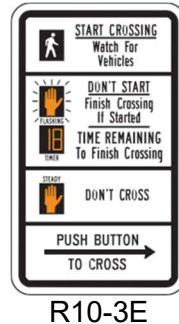
APS pushbutton systems that utilize any wireless technology including Bluetooth technology to place calls or communicate with controller will not be allow. A central master control unit shall be provided and installed in the traffic signal cabinet. Push button shall be connected directly to the master 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.



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.

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 Centrac, 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 \pm 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 -30°F (-34°C) and 120°F (48°C). 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 shall be paid for at the Contract unit price 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.

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 shall be paid for at the Contract unit price 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.

ILLUMINATED SIGN, LED

Effective: May 22, 2002

Revised: July 1, 2015

891.01TS

Revise the second paragraph of Article 1084.01(a) to read:

The exterior surface of the housing shall be acid-etched and shop painted with one coat of zinc-chromate primer and two coats of exterior enamel. The housing shall be the same color (yellow or black) to match the existing or proposed signal heads. The painting shall be according to Section 851 of the Standard Specifications.

Add the following to Article 1084.01 (b) of the Standard Specifications:

The message shall be formed by rows of LEDs. The sign face shall be 24 inches (600 mm) by 24 inches (600 mm).

Revise Article 1084.01(d) to read:

Mounting hardware shall be black polycarbonate or galvanized steel and similar to mounting Signal Head hardware and bracket specified herein and shall provide tool free access to the interior.

LED INTERNALLY ILLUMINATED STREET NAME SIGN

Effective: May 22, 2002

Revised: July 1, 2021

891.02TS

Description.

This work shall consist of furnishing and installing a LED internally illuminated street name sign.

Materials.

The illuminated street name sign shall be as follows.

(a) Description.

The LEDs shall be white in color. The LED internally illuminated street name sign shall display the designated street name clearly and legibly in the daylight hours without being energized and at night when energized. White translucent Type ZZ reflective sheeting sign faces with the street name applied in transparent green shall be installed on the street sign acrylic panels which shall be affixed to the interior of the sign enclosure. Sheeting material shall be of one continuous piece. Paneling shall not be allowed. Hinged door(s) shall be provided for easy access to perform general cleaning and maintenance operations. Illumination shall occur with LED Light Engine as specified.

(b) Environmental Requirements.

The LED lamp shall be rated for use in the ambient operating temperature range of -40 to +50°C (-40 to +122°F) for storage in the ambient temperature range of -40 to +75°C (-40 to +167°F).

(c) General Construction.

1. The LED components, power supply, and wiring harness shall be arranged as to allow for maintenance, up to and including the replacement of all three components. The LED Light Engine shall be mounted in the top and/or bottom of the sign housing and no components of the light source shall sit between the sign faces.
2. The assembly and manufacturing processes of the LED Light Engine shall be designed to ensure that all LED and electronic components are adequately supported to withstand mechanical shocks and vibrations in compliance with the specifications of the ANSI C136.31-2001 standards.

(d) Mechanical Construction.

1. The sign shall be constructed using a weatherproof, aluminum housing consisting of an extruded aluminum with the maximum sign dimensions of 30" in height, 96" in length, 10.75" in depth (including the drip edge) and shall not weight more than 110 pounds. All housing corners are continuous TIG (Tungsten Inert Gas) welded to provide a weatherproof seal.

2. The sign doors shall be continuous TIG welded along the two corners with the other two screwed together to make one side of the door removable for installation of the sign face. The door is fastened to the housing on the bottom by a full length stainless steel hinge. The sign shall also be fabricated in a way to ensure that no components fall out while a technician is opening or working inside the sign enclosure. The door shall be held secure onto a 1" wide by 5/32" thick neoprene gasket by an appropriate number of quarter-turn fasteners to form a watertight seal between the door and the housing.
 3. The sign face shall be constructed of .125" white translucent polycarbonate or acrylic. Sign legend shall be according to D1 Mast Arm Mounted Street Name Sign detail and MUTCD. The sign face legend background shall consist of translucent Type ZZ white reflective sheeting and transparent green film applied to the front of the sign face. The legend shall be framed by a white border. A logo symbol and/or name of the community may be included with approval of the Engineer.
 4. All fasteners and hardware shall be corrosion resistant stainless steel. No special tools shall be required for routine maintenance.
 5. All wiring shall be secured by insulated wire compression nuts or barrier type terminal blocks.
 6. A wire entrance junction box shall be supplied with the sign assembly. The box may be supplied mounted to the exterior or interior of the sign and shall provide a weather tight seal.
 7. A photoelectric switch shall be mounted inside control cabinet to control lighting functions for day and night display. Each sign shall be individually fused.
 8. Brackets and Mounting: LED internally illuminated street name signs will be factory drilled to accommodate mast arm two-point support assembly mounting brackets unless indicated otherwise in the plans. A 72" stainless steel safety cable shall be included and installed with each mounting bracket.
- (e) Electrical.
1. Photocell shall be rated 105-305V, turn on at 1.5 fcs. with a 3-5 second delay. A manufacturer's warranty of six (6) years shall be provided. Power consumption shall be no greater than 1 watt at 120V.
 2. The LED Light Engine shall operate from a 60 +/- 3 cycle AC line power over a voltage range of 80 to 135 Vac rms. Fluctuations in line voltage over the range of 80 to 135 Vac shall not affect luminous intensity by more than +/- 10%.
 3. Total harmonic distortion induced into the AC power line by the LED Light Engine, operated at a nominal operating voltage and at a temperature of +25°C (+77°F), shall not exceed 20%.
 4. The LED Light Engine shall cycled ON and OFF with a photocell as shown on the detail sheet and shall not exceed 120 Watts. The signs shall be installed such that they are not energized when traffic signals are powered by an alternate energy source such as a generator or uninterruptable power supply (UPS).

(f) Photometric Requirements.

1. The entire surface of the sign panel shall be evenly illuminated. The average maintained luminous intensity measured across the letters, operating under the conditions defined in Environmental Requirements and Wattage Sections shall be of a minimum value of 100 cd/m².
2. The manufacturer shall make available independent laboratory test results to verify compliance to Voltage Range and Luminous Intensity Distribution Sections.
3. LED shall have a color temperature of 5200k nominal, CRI of 80 with a life expectancy of 75,000 hrs.

(g) Quality Assurance.

The LED Light Engine shall be manufactured in accordance with a vendor quality assurance (QA) program. The production QA shall include statistically controlled routine tests to ensure minimum performance levels of the LED Light Engine build to meet this specification. QA process and test result documentations shall be kept on file for a minimum period of seven (7) years. The LED Light Engine that does not satisfy the production QA testing performance requirements shall not be labeled, advertised, or sold as conforming to these specifications. Each LED Light Engine shall be identified by a manufacturer's serial number for warranty purposes. LED Light Engines shall be replaced or repaired if they fail to function as intended due to workmanship or material defects within the first sixty (60) months from the date of acceptance. LED Light Engines that exhibit luminous intensities less than the minimum value specified in Photometric Section within the first thirty-six (36) months from the date of acceptance shall be replaced or repaired.

Installation.

The sign shall be located on a steel traffic signal mast arm no further than 8-feet from the center of the pole to the center of the sign at a height of between 16 to 18-feet above traveled pavement. Mounting hardware shall be from an approved vendor, utilizing stainless steel components.

Basis of Payment.

This work will be paid for at the contract unit price each for LED INTERNALLY ILLUMINATED STREET NAME SIGN, of the length as specified in the contract plans which shall be payment in full for furnishing and installing the LED internally illuminated street name sign, complete with circuitry and mounting hardware including photo cell, circuit breaker, fusing, relay, connections and cabling as shown on the plans for proper operation and installation.

The Illuminated street name sign cable will be paid for at the contract unit price per foot for ELECTRIC CABLE IN CONDUIT, STREET NAME SIGN, NO. 14 3C, TYPE SOOW, which price shall be payment in full for furnishing, installing and making all electrical connections necessary for proper operations.

CELLULAR MODEM

Effective: November 1, 2023

892.01TS

Description.

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

Method of Measurement.

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

Basis of Payment.

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

TERMINAL SERVER

Effective: November, 1 2023

892.02TS

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 onto the District 1 Advanced Traffic Management System Ethernet network. The Contractor shall furnish and install the required hardware at the location shown on the plans and/or as directed by the Traffic Engineer.

General.

The terminal server shall be one of the following:

- Digi PortServer TS Hcc 4 four-port serial-to-Ethernet device with 120V power supply and Digi RJ45/DB25-male-DCE-48" cable
- Control 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 District 1 Traffic Ethernet Network, and for proper communication with the signal equipment being connected to it. Except where indicated otherwise in the special provisions or plans, District 1 Traffic 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 shall be paid for at the contract unit price per each for TERMINAL SERVER. The unit price shall include all equipment; materials; licenses, programming; testing and documentation; and labor required to add a traffic signal controller to the centralized system.

POE EXTENDER

Effective: November 1, 2023
892.03TS

Description.

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

Materials.

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

Installation.

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

Basis of Payment.

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

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

LAYER II DATALINK SWITCH

Effective: November 1, 2023

Revised: September 1, 2024

892.04TS

Description.

This work shall consist of furnishing and installing a Layer II Ethernet switch used to transmit data from one traffic signal cabinet to another traffic signal cabinet containing a Layer II switch or a Layer III (Network) switch.

Materials.

The Layer II switch shall be environmentally hardened with a minimum of (2) 1Gbps SFP ports and (8) 1Gbps copper RJ45 ports. Two SFP ports shall be populated with environmentally hardened optical modules capable of transmitting the designed distance on single-mode and / or multi-mode fiber optic cable as defined in the plans. An environmentally hardened power supply with input of 120 VAC and sufficient wattage for the switch shall be provided.

The switch shall conform to the following minimum specifications:

- Forwarding Bandwidth 3.8Gbps
- Switching Bandwidth 7.6Gbps
- Forwarding rate: 5.66Mpps with 64-byte packets (Line-rate at all packet sizes)
- Egress buffer: 2 MB
- Unicast MAC addresses: 8000
- Internet Group Management Protocol (IGMP) multicast groups: 255
- Virtual LANs (VLANs): 256
- IPv4 MAC security ACEs: 384 (default Ternary Content-Addressable Memory [TCAM] template)
- Bidirectional, 128 NAT translation entries
- IPv4 routing: 2000 routes, IPv6 routing: 1750 routes
- Layer 2 switching: IEEE 802.1, 802.3, 802.3at, 802.3af standard (see Table 8), VTPv2, NTP, UDLD, CDP, LLDP, Unicast MAC filter, Resilient Ethernet Protocol (REP), Media Redundancy Protocol (MRP) Ring (IEC 62439-2)
- Security: SCP, SSH, SNMPv3, TACACS+, RADIUS Server/Client, MAC Address Notification, BPDU Guard, SPAN session
- Multicast: IGMPv1, v2, v3 Snooping, IGMP filtering, IGMP Querier

- Safety certifications:
 - UL/CSA 60950-1
 - EN 60950-1
 - CB to IEC 60950-1 (with country deviations)
 - NOM to NOM-019-SCF1 (through partners and distributors)
 - CE Marking
- Hazard location:
 - ANSI/ISA 12.12.01 (Class1, Div2 A-D)
 - EN 60079-0, -15 ATEX Certificate (Class 1, Zone2 A-D)
- EMC emissions and immunity compliance:
 - FCC 47 CFR Part 15 Class A
 - EN 55022A Class A
 - VCCI Class A
 - RoHS compliance
 - AS/NZS CISPR 22 Class A, AS/NZS CISPR 24
 - CISPR11 Class A, CISPR22 Class A
 - ICES 003 Class A
 - CE Marking
 - IEC/EN/EN61000-4-2 (Electro Static Discharge), 15kV air/8kV contact
 - IEC/EN 61000-4-3 (Radiated Immunity, 10 and 20 V/m)
 - IEC/EN 61000-4-4 (Fast Transients - 4kV power line, 4kV data line)
 - IEC/EN 61000-4-5 (Surge 2 kV/1 kV)
 - IEC/EN 61000-4-6 (Conducted Immunity, 10 V/emf)
 - IEC/EN 61000-4-8 (Power Frequency Magnetic Field Immunity)
 - IEC/EN 61000-4-9 (Pulse Magnetic Field Immunity)
 - IEC/EN 61000-4-10 (Oscillatory Magnetic Field Immunity)
 - IEC/EN 61000-4-11 (AC power Voltage Immunity)
 - IEC/EN 61000-4-29 (Voltage Dips Immunity)
 - IEC/EN 61000-6-1 (Immunity for Light Industrial Environments)
 - IEC/EN 61000-6-2 (Immunity for Industrial Environments)
 - IEC/EN 61000-6-4 Class A
 - EN 61326
- Shock and vibration:
 - IEC 60068-2-27 (Operational Shock: 30G 11ms, half sine)
 - IEC 60068-2-27 (Non-Operational Shock 55-70G, trapezoidal)
 - IEC 60068-2-6, IEC 60068-2-64, EN 61373 (Operational Vibration)
 - IEC 60068-2-6, IEC 60068-2-64, EN 61373 (Non-operational Vibration)
- Industry standards:
 - UL508
 - CSA C22.2 No. 142
 - EN 61131-2 (EMC/EMI, environmental, mechanical)
 - Substation KEMA (IEEE 1613, IEC 61850-3)
 - EN50121-3-2
 - EN50121-4
 - NEMA TS-2 (EMC, environmental, mechanical)
 - ABB Industrial IT certification
 - IP30
 - ODVA Industrial Ethernet/IP support

- Corrosive testing:
 - ISO-12944-6
 - IEC-60068-2-60
- Humidity:
 - IEC 60068-2-52 (salt fog mist, test Kb) marine environments
 - IEC 60068 -2-3
 - IEC 60068-2-30
 - Relative humidity: 5% to 95% non-condensing
- Operating temperature:
 - -40C to +70C (vented enclosure - 40 LFM Air Flow)
 - -40C to +60C (sealed enclosure – 0 LFM Air Flow)
 - -34C to +75C (fan or blower-equipped enclosure – 200 LFM Air Flow)
 - -40C to +85C (IEC 60068-2-2 Environmental Type Testing – 16 hours)
- Operational altitude: Up to 15,000 ft
- Storage temperature:
 - -40 C to +85 C (storage temperature)
 - IEC 60068-2-14
- Storage altitude: Up to 15,000 ft
- Mean time between failure: 374,052 hours (42.7 years)
- Warranty: Five-year

The Cisco IE-3100-8T2C-E Industrial Ethernet Switch and Cisco GLC-LX-SM-RGD SFP are compliant with this specification. Other manufacturers that comply with this specification are allowed.

Construction Requirements

The Layer II switch and its power supply shall be mounted to either a standard DIN rail or an equipment mounting channel in the cabinet. The power supply shall be hard-wired to the cabinet power, not plugged into one of the traffic signal cabinet power outlets.

Configuration Design Document

A configuration design document shall be submitted within 60 days after contract award. It shall be prepared by a designer with a minimum of CCNP certification – and shall include proof of currently active CCNP credentials. The document shall contain actual configuration files for each switch to be delivered under this contract.

The Layer II switch shall be configured to be compatible with the IDOT D1 field network design. High level guidance (IP Scheme / VLANs / routing protocols, etc.) will be provided by IDOT but the integration, functionality and compatibility with the existing network are the responsibility of the contractor.

The configuration design document shall meet the acceptance of the IDOT engineer. Contractor to coordinate with IDOT Electric Maintenance Contractor and Network engineer for proper set up and IP configuration.

Basis of Payment.

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

LAYER III NETWORK SWITCH

Effective: November 1, 2023

892.05TS

Description.

This work shall consist of furnishing and installing a Layer III Ethernet switch used to transmit data from one traffic signal cabinet to another traffic signal cabinet containing a Layer II switch or a Layer III (Network) switch.

Materials.

The Layer III switch shall be environmentally hardened with a minimum of 16 1Gbps SFP ports and 12 1Gbps copper RJ45 ports. All SFP ports shown on the plans shall be populated with environmentally hardened optical modules capable of transmitting the appropriate distance as shown on the plans on single-mode fiber optic cable. An environmentally hardened power supply with input of 120 VAC and sufficient wattage for the switch shall be provided.

The switch shall conform to the following minimum specifications:

- Forwarding bandwidth: 28 Gbps (line rate/non-blocking)
- Switching bandwidth: 56 Gbps (Switching bandwidth is full-duplex capacity)
- Forwarding rate: 41.67 mpps with 64 byte packets (line rate for all ports and packet sizes)
- Number of queues: 4 egress
- Unicast MAC addresses: 16,000
- IGMP multicast groups: 1000
- Number of VLANs: 1000
- IPv4 MAC security ACEs: 1000 with default TCAM template
- NAT translation: Bidirectional, 128 unique subnet NAT translation entries, which can expand to tens of thousands of translated entries if designed
- Warranty: Five-year
- Layer 2 switching: IEEE 802.1, 802.3, 802.3at, 802.3af standard, VTPv2, NTP, UDLD, CDP, LLDP, Unicast Mac filter, Flexlink, VTPv3, EtherChannel, Voice VLAN, QinQ tunneling
- Security: SCP, SSH, SNMPv3, TACACS+, RADIUS Server/Client, MAC Address Notification, BPDU Guard, Port-Security, Private VLAN, DHCP Snooping, Dynamic ARP Inspection, IP Source Guard, 802.1x, Guest VLAN, MAC Authentication Bypass, 802.1x Multi-Domain Authentication, Storm Control, Trust Boundary, Cisco TrustSec@security, FIPS 140-2, ACT2, Secure Boot, Full flexible Netflow1
- Layer 2 multicast: IGMPv1, v2, v3 Snooping, IGMP filtering, IGMP Querier

- Quality of Service (QoS): Ingress Policing, Rate-Limit, Egress Queueing/shaping, AutoQoS, Modular QoS CLI (MQC)
- Layer 2 IPv6: IPv6 Host support, HTTP over IPv6, SNMP over IPv6
- Layer 3 routing: IPv4 Static Routing
- Layer 2 switching with 1:1 static Network Address Translation (NAT)
- Utility: IEEE 1588v2 PTP Power Profile, dying gasp, GOOSE messaging, SCADA protocol classification, MODBUS TCP/IP Memory Maps, utility SmartPort macro, BFD, Ethernet OAM, IEEE 802.3ah, CFM (IEEE 802.1ag)
- Redundancy:
 - Redundancy Ethernet Protocol ring (REP)
 - Parallel Redundancy Protocol (PRP)
 - High Availability Seamless Redundancy (HSR), PTP over HSR
 - Media Redundancy Protocol (MRP) ring, MRP Auto Manager (MAM)
- IP multicast: PIM Sparse Mode (PIM-SM), PIM Dense Mode (PIM-DM), and PIM sparse-dense mode
- IP unicast routing protocols: OSPF, EIGRP, BGPv4, IS-IS, RIPv2, Policy-Based Routing (PBR), HSRP
- IPv6 routing: RIPng, OSPFv6, and EIGRPv6 support
- Security: IEEE 802.1AE MACsec (including PSK based MKA support), Cisco TrustSec®, SGT inline tagging and SGACL, Full flexible Netflow

The Cisco IE-4010-16S12P Industrial Ethernet Switch is compliant with this specification. Other manufacturers that comply with this specification are allowed.

The Layer III switch and its power supply shall be mounted to either a standard DIN rail or an equipment mounting channel in the cabinet. The power supply shall be hard-wired to the cabinet power, not plugged into one of the traffic signal cabinet power outlets.

Configuration Design Document.

A configuration design document shall be submitted within 60 days after contract award. It shall be prepared by a designer with a minimum of CCNP certification – and shall include proof of currently active CCNP credentials. The document shall contain actual configuration files for each switch to be delivered under this contract.

The Layer III switch shall be configured to be compatible with the IDOT D1 field network design. High level guidance (IP Scheme / VLANs / routing protocols, etc.) will be provided by IDOT but the integration, functionality and compatibility with the existing network are the responsibility of the contractor.

The configuration design document shall meet the acceptance of the IDOT engineer. Contractor to coordinate with IDOT Electric Maintenance Contractor and Network engineer for proper set up and IP configuration.

Basis of Payment.

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

CENTRACS LICENSE EXPANSION

Effective: November 1, 2023

892.06TS

Description.

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

General.

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

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

Basis of Payment.

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

TACTICS LICENSE EXPANSION

Effective: November 1, 2023

892.07TS

Description.

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

General.

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

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

Basis of Payment.

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

REMOTE CONTROLLED VIDEO SYSTEM

Effective: November 1, 2023

892.08TS

Description.

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

Materials.

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

- TKH Security Solutions PD1103Z2-E
- AXIS Q6075-E
- Cohu 4220HD

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

Installation.

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

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

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

Basis of Payment.

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

MODIFY EXISTING CONTROLLER CABINET

Effective: May 22, 2002

Revised: July 1, 2015

895.01TS

The work shall consist of modifying an existing controller cabinet as follows:

- (a) Uninterruptable Power Supply (UPS). The addition of uninterruptable power supply (UPS) to an existing controller cabinet could require the relocation of the existing controller cabinet items to allow for the installation of the uninterruptable power supply (UPS) components inside the existing controller cabinet as outlined under Sections 862 and 1074.04 of the Standard Specifications and the wiring of UPS alarms.
- (b) Light Emitting Diode (LED) Signal Heads, Light Emitting Diode (LED) Optically Programmed Signal Heads and Light Emitting Diode (LED) Pedestrian Signal Heads. The contractor shall verify that the existing load switches meet the requirements of Section 1074.03(b)(2) of the Standard Specifications and the recommended load requirements of the light emitting diode (LED) signal heads that are being installed at the existing traffic signal. If any of the existing load switches do not meet these requirements, they shall be replaced, as directed by the Engineer.
- (c) Light Emitting Diode (LED), Signal Head, Retrofit. The contractor shall verify that the existing load switches meet the requirements of Section 1074.03(b)(2) of the Standard Specifications and the recommended load requirements of light emitting diode (LED) traffic signal modules, pedestrian signal modules, and pedestrian countdown signal modules as specified in the plans. If any of the existing load switches do not meet these requirements, they shall be replaced, as directed by the Engineer.
- (d) This item shall include the upgrade of all non-railroad controller software to the latest version available at the time of the signal TURN-ON.

Basis of Payment.

Modifying an existing controller cabinet will be paid for at the contract unit price per each for MODIFY EXISTING CONTROLLER CABINET. This shall include all material and labor required to complete the work as described above, the removal and disposal of all items removed from the controller cabinet, as directed by the Engineer. The equipment for the Uninterruptable Power Supply (UPS) and labor to install it in the existing controller cabinet shall be included in the pay item Uninterruptable Power Supply, Special or Uninterruptable Power Supply, Ground Mounted.

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

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

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

MODIFY EXISTING TYPE "D" FOUNDATION

Effective: January 1, 2002

Modified: March 1, 2024

895.03TS

This item shall consist of the partial removal of an existing Type "D" Foundation at the location shown on the plans, or as directed by the Engineer. The existing foundation shall be removed to a depth of at least twelve (12) in. below finished grade. All concrete debris shall be disposed of outside the right-of-way. The existing conduit shall remain in place and shall be carefully protected. The new conduits from the double handhole shall be installed, if required, as shown on the plans.

The removal of the existing traffic signal controller and cabinet shall be included in this pay item, as well as the removing and reinstalling of the existing cable(s) from conduit.

Upon completion of the above work, holes for steel dowels of the size indicated shall be drilled in the remaining concrete where indicated on the drawings.

The adjacent area shall be excavated and forming with anchor bolts and new conduit stubs provided to provide a concrete foundation for a Type IV or Type V cabinet. The Contractor shall follow the recommendations of the Vendor, subject to approval of the Engineer, in forming and constructing the foundation.

Provide a three (3) ft by four (4) ft wide Portland cement concrete apron sidewalk, five (5) in. thick, on the side of the access door to the controller to facilitate servicing the controller and cabinet. For the UPS pad, 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.

Anchor bolts shall be new and shall meet all the requirements of Section 1006.09 of the Standard Specifications.

Basis of Payment.

This work shall be paid for at the contract unit price each for MODIFY EXISTING TYPE "D" FOUNDATION.

REBUILD EXISTING HANDHOLE

Effective: January 1, 2002
Revised: November 1, 2023
895.04TS

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

Handhole

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

Double Handhole

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

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

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

Basis of Payment.

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

REBUILD EXISTING HANDHOLE TO HEAVY-DUTY HANDHOLE

Effective: January 1, 2002
Revised: July 1, 2015
895.05TS

This item shall consist of partial removal of an existing concrete traffic signal handhole, reconstruction to the specifications of heavy duty handhole including new frame and cover, and bringing it to grade at location(s) shown in the plans or as directed by the Engineer. This work shall consist of removing the existing handhole frame and cover and the walls of the handhole to a depth of fifteen (15) inches below the finished grade.

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

All concrete debris shall be disposed of outside the right-of-way.

Any pavement or asphalt surface removal required to install the new concrete shall have straight and neat edges using a method approved by the Engineer. Care shall be taken to protect the existing traffic signal cable. Any cable damage shall be reported immediately and repaired as directed by the Area Traffic Signal Engineer.

All steel hooks, handhole frame, cover, and concrete shall be provided to construct a rebuilt heavy duty handhole according to applicable portions of Section 814 of the Standard Specification and as modified in 814.01TS HANDHOLES Special Provision.

Basis of Payment.

This work shall be paid for at the contract unit price each for REBUILD EXISTING HANDHOLE TO HEAVY-DUTY HANDHOLE.

RELOCATE EXISTING PEDESTRIAN PUSH-BUTTON

Effective: August 4, 2017

895.06TS

Relocation.

Revise the last paragraph of Article 895.02 of the Standard Specifications to read:

When relocating an existing pedestrian push-button, the related sign shall be removed and installed at the new location. The push-button shall be installed according to Article 888.03. Mounting / extension brackets shall be used to assure that the push button is accessible from a paved or concrete surface and is in full compliance with ADA. Mounting / extension brackets shall not be paid for separately but shall be included in the cost of the RELOCATE EXISTING PEDESTRIAN PUSH-BUTTON pay item.

TEMPORARY TRAFFIC SIGNAL TIMING (CITY OF CHICAGO)

Effective: May 15, 2024

Description: This item shall consist of coordination of and payment for work performed by the City of Chicago – Division of Electrical Operations and/ or Division of Traffic Safety related to engineering services in support of this contract. For the CDOT (Chicago Department of Transportation) maintained signals at intersections listed in this specification CDOT will perform, where necessary, traffic signal timing adjustments during construction and after construction is completed. Maintenance of the traffic signals during construction will remain CDOT responsibility.

General: It shall be the Contractor's responsibility to arrange and coordinate all required signal services for intersections listed herein with CDOT in accordance with the timeframes and procedures described herein. All work to be performed by CDOT is subject to CDOT work schedules and availability.

The following tasks are associated with SIGNAL TIMING

- (a) Contractor will contact CDOT and schedule signal timing adjustments to be performed by CDOT based on temporary signal timing plans and/or field observation in order to enhance operation of the intersection while utilized by the detour. The Contract shall contact CDOT a minimum of 4 weeks prior to the detour implementation. No extra compensation will be allowed for delays associated with late requests by the contractor. The contractor must retain records of CDOT coordination. If all required approvals are obtained by the contractor for the detour implementation, the detour implementation will not be delayed if CDOT does not respond within 4 weeks regarding payment. The CDOT contact is

Arturo Rodriguez
CDOT Superintendent of Electrical Operations
arturo.rodriquez2@cityofchicago.org
O: 312-746-4063
M: 312-617-2452

- (b) The total estimated cost for temporary signal timing and associated engineering services for the duration of the modified traffic signal condition shall include all intersections listed below. The Contractor will promptly submit payment within 30 calendar days to CDOT following receipt of the final invoice from CDOT. This payment shall be made using certified check and payment will occur at the City or it shall be paid via certified mail with receipt notification.

CEMENT, TYPE IL (BDE)

Effective: August 1, 2023

Add the following to Article 302.02 of the Standard Specifications:

“(k) Type IL Portland-Limestone Cement1001”

Revise Note 2 of Article 352.02 of the Standard Specifications to read:

“Note 2. Either Type I or Type IA portland cement or Type IL portland-limestone cement shall be used.”

Revise Note 1 of Article 404.02 of the Standard Specifications to read:

“Note 1. The cement shall be Type I portland cement or Type IL portland-limestone cement.”

Revise Article 1019.02(a) of the Standard Specifications to read:

“(a) Cement, Type I or IL1001”

COMPENSABLE DELAY COSTS (BDE)

Effective: June 2, 2017

Revised: April 1, 2019

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

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

(1) Minor Delay. A minor delay occurs when the work in conflict with the utility in an unanticipated location is completely stopped for more than two hours, but not to exceed two weeks.

(2) Major Delay. A major delay occurs when the work in conflict with the utility in an unanticipated location is completely stopped for more than two weeks.

(3) Reduced Rate of Production Delay. A reduced rate of production delay occurs when the rate of production on the work in conflict with the utility in an unanticipated location decreases by more than 25 percent and lasts longer than seven calendar days.”

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

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

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

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

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

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

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

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

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

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

(1) When adverse weather prevents work on the controlling item.

(2) When job conditions due to recent weather prevent work on the controlling item.

- (3) When conduct or lack of conduct by the Department or its consultants, representatives, officers, agents, or employees; delay by the Department in making the site available; or delay in furnishing any items required to be furnished to the Contractor by the Department prevents work on the controlling item.

- (4) When delays caused by utility or railroad adjustments prevent work on the controlling item.

- (5) When strikes, lock-outs, extraordinary delays in transportation, or inability to procure critical materials prevent work on the controlling item, as long as these delays are not due to any fault of the Contractor.

- (6) When any condition over which the Contractor has no control prevents work on the controlling item.”

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

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

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

Add the following to Section 109 of the Standard Specifications.

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

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

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

- (a) Escalated Material and/or Labor Costs. When the delay causes work, which would have otherwise been completed, to be done after material and/or labor costs have increased, such increases will be paid. Payment for escalated material costs will be limited to the increased costs substantiated by documentation furnished by the Contractor. Payment for escalated labor costs will be limited to those items in Article 109.04(b)(1) and (2), except the 35 percent and 10 percent additives will not be permitted.

- (b) Extended Project Overhead. For the duration of the delay, payment for extended project overhead will be paid as follows.
 - (1) Direct Jobsite and Offsite Overhead. Payment for documented direct jobsite overhead and documented direct offsite overhead, including onsite supervisory and administrative personnel, will be allowed according to the following table.

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

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

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

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

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

CONSTRUCTION AIR QUALITY – DIESEL RETROFIT (BDE)

Effective: June 1, 2010

Revised: 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.

DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION (BDE)

Effective: September 1, 2000

Revised: March 2, 2019

FEDERAL OBLIGATION. The Department of Transportation, as a recipient of federal financial assistance, is required to take all necessary and reasonable steps to ensure nondiscrimination in the award and administration of contracts. Consequently, the federal regulatory provisions of 49 CFR Part 26 apply to this contract concerning the utilization of disadvantaged business enterprises. For the purposes of this Special Provision, a disadvantaged business enterprise (DBE) means a business certified by the Department in accordance with the requirements of 49 CFR Part 26 and listed in the Illinois Unified Certification Program (IL UCP) DBE Directory.

STATE OBLIGATION. This Special Provision will also be used by the Department to satisfy the requirements of the Business Enterprise for Minorities, Females, and Persons with Disabilities Act, 30 ILCS 575. When this Special Provision is used to satisfy state law requirements on 100 percent state-funded contracts, the federal government has no involvement in such contracts (not a federal-aid contract) and no responsibility to oversee the implementation of this Special Provision by the Department on those contracts. DBE participation on 100 percent state-funded contracts will not be credited toward fulfilling the Department's annual overall DBE goal required by the US Department of Transportation to comply with the federal DBE program requirements.

CONTRACTOR ASSURANCE. The Contractor makes the following assurance and agrees to include the assurance in each subcontract the Contractor signs with a subcontractor.

The Contractor, subrecipient, or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The Contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of contracts funded in whole or in part with federal or state funds. Failure by the Contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate, which may include, but is not limited to:

(a) Withholding progress payments;

(b) Assessing sanctions;

(c) Liquidated damages; and/or

(d) Disqualifying the Contractor from future bidding as non-responsible.

OVERALL GOAL SET FOR THE DEPARTMENT. As a requirement of compliance with 49 CFR Part 26, the Department has set an overall goal for DBE participation in its federally assisted contracts. That goal applies to all federal-aid funds the Department will expend in its federally assisted contracts for the subject reporting fiscal year. The Department is required to make a good faith effort to achieve the overall goal. The dollar amount paid to all approved DBE companies performing work called for in this contract is eligible to be credited toward fulfillment of the Department's overall goal.

CONTRACT GOAL TO BE ACHIEVED BY THE CONTRACTOR. This contract includes a specific DBE utilization goal established by the Department. The goal has been included because the Department has determined the work of this contract has subcontracting opportunities that may be suitable for performance by DBE companies. The determination is based on an assessment of the type of work, the location of the work, and the availability of DBE companies to do a part of the work. The assessment indicates, in the absence of unlawful discrimination and in an arena of fair and open competition, DBE companies can be expected to perform **0.00%** of the work. This percentage is set as the DBE participation goal for this contract. Consequently, in addition to the other award criteria established for this contract, the Department will only award this contract to a bidder who makes a good faith effort to meet this goal of DBE participation in the performance of the work. A bidder makes a good faith effort for award consideration if either of the following is done in accordance with the procedures set for in this Special Provision:

(a) The bidder documents enough DBE participation has been obtained to meet the goal or,

(b) The bidder documents a good faith effort has been made to meet the goal, even though the effort did not succeed in obtaining enough DBE participation to meet the goal.

DBE LOCATOR REFERENCES. Bidders shall consult the IL UCP DBE Directory as a reference source for DBE-certified companies. In addition, the Department maintains a letting and item specific DBE locator information system whereby DBE companies can register their interest in providing quotes on particular bid items advertised for letting. Information concerning DBE companies willing to quote work for particular contracts may be obtained by contacting the Department's Bureau of Small Business Enterprises at telephone number (217) 785-4611, or by visiting the Department's website at:

<http://www.idot.illinois.gov/doing-business/certifications/disadvantaged-business-enterprise-certification/il-ucp-directory/index>.

BIDDING PROCEDURES. Compliance with this Special Provision is a material bidding requirement and failure of the bidder to comply will render the bid not responsive.

The bidder shall submit a DBE Utilization Plan (form SBE 2026), and a DBE Participation Statement (form SBE 2025) for each DBE company proposed for the performance of work to achieve the contract goal, with the bid. If the Utilization Plan indicates the contract goal will not be met, documentation of good faith efforts shall also be submitted. The documentation of good faith efforts must include copies of each DBE and non-DBE subcontractor quote submitted to the bidder when a non-DBE subcontractor is selected over a DBE for work on the contract. The required forms and documentation must be submitted as a single .pdf file using the "Integrated Contractor Exchange (iCX)" application within the Department's "EBids System".

The Department will not accept a Utilization Plan if it does not meet the bidding procedures set forth herein and the bid will be declared not responsive. In the event the bid is declared not responsive, the Department may elect to cause the forfeiture of the penal sum of the bidder's proposal guaranty and may deny authorization to bid the project if re-advertised for bids.

GOOD FAITH EFFORT PROCEDURES. The contract will not be awarded until the Utilization Plan is approved. All information submitted by the bidder must be complete, accurate and adequately document enough DBE participation has been obtained or document the good faith efforts of the bidder, in the event enough DBE participation has not been obtained, before the Department will commit to the performance of the contract by the bidder. The Utilization Plan will be approved by the Department if the Utilization Plan documents sufficient commercially useful DBE work to meet the contract goal or the bidder submits sufficient documentation of a good faith effort to meet the contract goal pursuant to 49 CFR Part 26, Appendix A. This means the bidder must show that all necessary and reasonable steps were taken to achieve the contract goal. Necessary and reasonable steps are those which, by their scope, intensity and appropriateness to the objective, could reasonably be expected to obtain sufficient DBE participation, even if they were not successful. The Department will consider the quality, quantity, and intensity of the kinds of efforts the bidder has made. Mere *pro forma* efforts, in other words efforts done as a matter of form, are not good faith efforts; rather, the bidder is expected to have taken genuine efforts that would be reasonably expected of a bidder actively and aggressively trying to obtain DBE participation sufficient to meet the contract goal.

- (a) The following is a list of types of action that the Department will consider as part of the evaluation of the bidder's good faith efforts to obtain participation. These listed factors are not intended to be a mandatory checklist and are not intended to be exhaustive. Other factors or efforts brought to the attention of the Department may be relevant in appropriate cases and will be considered by the Department.
 - (1) Soliciting through all reasonable and available means (e.g. attendance at pre-bid meetings, advertising and/or written notices) the interest of all certified DBE companies that have the capability to perform the work of the contract. The bidder must solicit this interest within sufficient time to allow the DBE companies to respond to the solicitation. The bidder must determine with certainty if the DBE companies are interested by taking appropriate steps to follow up initial solicitations.
 - (2) Selecting portions of the work to be performed by DBE companies in order to increase the likelihood that the DBE goals will be achieved. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate DBE participation, even when the Contractor might otherwise prefer to perform these work items with its own forces.
 - (3) Providing interested DBE companies with adequate information about the plans, specifications, and requirements of the contract in a timely manner to assist them in responding to a solicitation.

- (4) a. Negotiating in good faith with interested DBE companies. It is the bidder's responsibility to make a portion of the work available to DBE subcontractors and suppliers and to select those portions of the work or material needs consistent with the available DBE subcontractors and suppliers, so as to facilitate DBE participation. Evidence of such negotiation includes the names, addresses, and telephone numbers of DBE companies that were considered; a description of the information provided regarding the plans and specifications for the work selected for subcontracting; and evidence as to why additional agreements could not be reached for DBE companies to perform the work.
- b. A bidder using good business judgment would consider a number of factors in negotiating with subcontractors, including DBE subcontractors, and would take a firm's price and capabilities as well as contract goals into consideration. However, the fact that there may be some additional costs involved in finding and using DBE companies is not in itself sufficient reason for a bidder's failure to meet the contract DBE goal, as long as such costs are reasonable. Also the ability or desire of a bidder to perform the work of a contract with its own organization does not relieve the bidder of the responsibility to make good faith efforts. Bidders are not, however, required to accept higher quotes from DBE companies if the price difference is excessive or unreasonable. In accordance with the above Bidding Procedures, the documentation of good faith efforts must include copies of each DBE and non-DBE subcontractor quote submitted to the bidder when a non-DBE subcontractor was selected over a DBE for work on the contract.
- (5) Not rejecting DBE companies as being unqualified without sound reasons based on a thorough investigation of their capabilities. The bidder's standing within its industry, membership in specific groups, organizations, or associations and political or social affiliations (for example union vs. non-union employee status) are not legitimate causes for the rejection or non-solicitation of bids in the bidder's efforts to meet the project goal.
- (6) Making efforts to assist interested DBE companies in obtaining bonding, lines of credit, or insurance as required by the recipient or Contractor.
- (7) Making efforts to assist interested DBE companies in obtaining necessary equipment, supplies, materials, or related assistance or services.

- (8) Effectively using the services of available minority/women community organizations; minority/women contractors' groups; local, state, and federal minority/women business assistance offices; and other organizations as allowed on a case-by-case basis to provide assistance in the recruitment and placement of DBE companies.
- (b) If the Department determines the bidder has made a good faith effort to secure the work commitment of DBE companies to meet the contract goal, the Department will award the contract provided it is otherwise eligible for award. If the Department determines the bidder has failed to meet the requirements of this Special Provision or that a good faith effort has not been made, the Department will notify the responsible company official designated in the Utilization Plan that the bid is not responsive. The notification will also include a statement of reasons for the adverse determination. If the Utilization Plan is not approved because it is deficient as a technical matter, unless waived by the Department, the bidder will be notified and will be allowed no more than a five calendar day period to cure the deficiency.
- (c) The bidder may request administrative reconsideration of an adverse determination by emailing the Department at "DOT.DBE.UP@illinois.gov" within the five calendar days after the receipt of the notification of the determination. The determination shall become final if a request is not made on or before the fifth calendar day. A request may provide additional written documentation or argument concerning the issues raised in the determination statement of reasons, provided the documentation and arguments address efforts made prior to submitting the bid. The request will be reviewed by the Department's Reconsideration Officer. The Reconsideration Officer will extend an opportunity to the bidder to meet in person to consider all issues of documentation and whether the bidder made a good faith effort to meet the goal. After the review by the Reconsideration Officer, the bidder will be sent a written decision within ten working days after receipt of the request for reconsideration, explaining the basis for finding that the bidder did or did not meet the goal or make adequate good faith efforts to do so. A final decision by the Reconsideration Officer that a good faith effort was made shall approve the Utilization Plan submitted by the bidder and shall clear the contract for award. A final decision that a good faith effort was not made shall render the bid not responsive.

CALCULATING DBE PARTICIPATION. The Utilization Plan values represent work anticipated to be performed and paid for upon satisfactory completion. The Department is only able to count toward the achievement of the overall goal and the contract goal the value of payments made for the work actually performed by DBE companies. In addition, a DBE must perform a commercially useful function on the contract to be counted. A commercially useful function is generally performed when the DBE is responsible for the work and is carrying out its responsibilities by actually performing, managing, and supervising the work involved. The Department and Contractor are governed by the provisions of 49 CFR Part 26.55(c) on questions of commercially useful functions as it affects the work. Specific counting guidelines are provided in 49 CFR Part 26.55, the provisions of which govern over the summary contained herein.

- (a) DBE as the Contractor: 100 percent goal credit for that portion of the work performed by the DBE's own forces, including the cost of materials and supplies. Work that a DBE subcontracts to a non-DBE does not count toward the DBE goals.

- (b) DBE as a joint venture Contractor: 100 percent goal credit for that portion of the total dollar value of the contract equal to the distinct, clearly defined portion of the work performed by the DBE's own forces.

- (c) DBE as a subcontractor: 100 percent goal credit for the work of the subcontract performed by the DBE's own forces, including the cost of materials and supplies, excluding the purchase of materials and supplies or the lease of equipment by the DBE subcontractor from the Contractor or its affiliates. Work that a DBE subcontractor in turn subcontracts to a non-DBE does not count toward the DBE goal.

- (d) DBE as a trucker: 100 percent goal credit for trucking participation provided the DBE is responsible for the management and supervision of the entire trucking operation for which it is responsible. At least one truck owned, operated, licensed, and insured by the DBE must be used on the contract. Credit will be given for the following:
 - (1) The DBE may lease trucks from another DBE firm, including an owner-operator who is certified as a DBE. The DBE who leases trucks from another DBE receives credit for the total value of the transportation services the lessee DBE provides on the contract.

- (2) The DBE may also lease trucks from a non-DBE firm, including from an owner-operator. The DBE who leases trucks from a non-DBE is entitled to credit only for the fee or commission is receives as a result of the lease arrangement.

(e) DBE as a material supplier:

- (1) 60 percent goal credit for the cost of the materials or supplies purchased from a DBE regular dealer.
- (2) 100 percent goal credit for the cost of materials of supplies obtained from a DBE manufacturer.
- (3) 100 percent credit for the value of reasonable fees and commissions for the procurement of materials and supplies if not a DBE regular dealer or DBE manufacturer.

CONTRACT COMPLIANCE. Compliance with this Special Provision is an essential part of the contract. The Department is prohibited by federal regulations from crediting the participation of a DBE included in the Utilization Plan toward either the contract goal or the Department's overall goal until the amount to be applied toward the goals has been paid to the DBE. The following administrative procedures and remedies govern the compliance by the Contractor with the contractual obligations established by the Utilization Plan. After approval of the Utilization Plan and award of the contract, the Utilization Plan and individual DBE Participation Statements become part of the contract. If the Contractor did not succeed in obtaining enough DBE participation to achieve the advertised contract goal, and the Utilization Plan was approved and contract awarded based upon a determination of good faith, the total dollar value of DBE work calculated in the approved Utilization Plan as a percentage of the awarded contract value shall become the amended contract goal. All work indicated for performance by an approved DBE shall be performed, managed, and supervised by the DBE executing the DBE Participation Commitment Statement.

- (a) NO AMENDMENT. No amendment to the Utilization Plan may be made without prior written approval from the Department's Bureau of Small Business Enterprises. All requests for amendment to the Utilization Plan shall be emailed to the Department at DOT.DBE.UP@illinois.gov.

- (b) CHANGES TO WORK. Any deviation from the DBE condition-of-award or contract plans, specifications, or special provisions must be approved, in writing, by the Department as provided elsewhere in the Contract. The Contractor shall notify affected DBEs in writing of any changes in the scope of work which result in a reduction in the dollar amount condition-of-award to the contract. Where the revision includes work committed to a new DBE subcontractor, not previously involved in the project, then a Request for Approval of Subcontractor, Department form BC 260A or AER 260A, must be signed and submitted. If the commitment of work is in the form of additional tasks assigned to an existing subcontract, a new Request for Approval of Subcontractor will not be required. However, the Contractor must document efforts to assure the existing DBE subcontractor is capable of performing the additional work and has agreed in writing to the change.
- (c) SUBCONTRACT. The Contractor must provide copies of DBE subcontracts to the Department upon request. Subcontractors shall ensure that all lower tier subcontracts or agreements with DBEs to supply labor or materials be performed in accordance with this Special Provision.
- (d) ALTERNATIVE WORK METHODS. In addition to the above requirements for reductions in the condition of award, additional requirements apply to the two cases of Contractor-initiated work substitution proposals. Where the contract allows alternate work methods which serve to delete or create underruns in condition of award DBE work, and the Contractor selects that alternate method or, where the Contractor proposes a substitute work method or material that serves to diminish or delete work committed to a DBE and replace it with other work, then the Contractor must demonstrate one of the following:
- (1) The replacement work will be performed by the same DBE (as long as the DBE is certified in the respective item of work) in a modification of the condition of award; or
 - (2) The DBE is aware its work will be deleted or will experience underruns and has agreed in writing to the change. If this occurs, the Contractor shall substitute other work of equivalent value to a certified DBE or provide documentation of good faith efforts to do so; or
 - (3) The DBE is not capable of performing the replacement work or has declined to perform the work at a reasonable competitive price. If this occurs, the Contractor shall substitute other work of equivalent value to a certified DBE or provide documentation of good faith efforts to do so.

- (e) TERMINATION AND REPLACEMENT PROCEDURES. The Contractor shall not terminate or replace a DBE listed on the approved Utilization Plan, or perform with other forces work designated for a listed DBE except as provided in this Special Provision. The Contractor shall utilize the specific DBEs listed to perform the work and supply the materials for which each is listed unless the Contractor obtains the Department's written consent as provided in subsection (a) of this part. Unless Department consent is provided for termination of a DBE subcontractor, the Contractor shall not be entitled to any payment for work or material unless it is performed or supplied by the DBE in the Utilization Plan.

As stated above, the Contractor shall not terminate or replace a DBE subcontractor listed in the approved Utilization Plan without prior written consent. This includes, but is not limited to, instances in which the Contractor seeks to perform work originally designated for a DBE subcontractor with its own forces or those of an affiliate, a non-DBE firm, or with another DBE firm. Written consent will be granted only if the Bureau of Small Business Enterprises agrees, for reasons stated in its concurrence document, that the Contractor has good cause to terminate or replace the DBE firm. Before transmitting to the Bureau of Small Business Enterprises any request to terminate and/or substitute a DBE subcontractor, the Contractor shall give notice in writing to the DBE subcontractor, with a copy to the Bureau, of its intent to request to terminate and/or substitute, and the reason for the request. The Contractor shall give the DBE five days to respond to the Contractor's notice. The DBE so notified shall advise the Bureau and the Contractor of the reasons, if any, why it objects to the proposed termination of its subcontract and why the Bureau should not approve the Contractor's action. If required in a particular case as a matter of public necessity, the Bureau may provide a response period shorter than five days.

For purposes of this paragraph, good cause includes the following circumstances:

- (1) The listed DBE subcontractor fails or refuses to execute a written contract;
- (2) The listed DBE subcontractor fails or refuses to perform the work of its subcontract in a way consistent with normal industry standards. Provided, however, that good cause does not exist if the failure or refusal of the DBE subcontractor to perform its work on the subcontract results from the bad faith or discriminatory action of the Contractor;
- (3) The listed DBE subcontractor fails or refuses to meet the Contractor's reasonable, nondiscriminatory bond requirements;

- (4) The listed DBE subcontractor becomes bankrupt, insolvent, or exhibits credit unworthiness;
- (5) The listed DBE subcontractor is ineligible to work on public works projects because of suspension and debarment proceedings pursuant 2 CFR Parts 180, 215 and 1200 or applicable state law.
- (6) The Contractor has determined the listed DBE subcontractor is not a responsible contractor;
- (7) The listed DBE subcontractor voluntarily withdraws from the projects and provides written notice to the Contractor of its withdrawal;
- (8) The listed DBE is ineligible to receive DBE credit for the type of work required;
- (9) A DBE owner dies or becomes disabled with the result that the listed DBE subcontractor is unable to complete its work on the contract;
- (10) Other documented good cause that compels the termination of the DBE subcontractor. Provided, that good cause does not exist if the Contractor seeks to terminate a DBE it relied upon to obtain the contract so that the Contractor can self-perform the work for which the DBE contractor was engaged or so that the Contractor can substitute another DBE or non-DBE contractor after contract award.

When a DBE is terminated or fails to complete its work on the Contract for any reason, the Contractor shall make a good faith effort to find another DBE to substitute for the original DBE to perform at least the same amount of work under the contract as the terminated DBE to the extent needed to meet the established Contract goal. The good faith efforts shall be documented by the Contractor. If the Department requests documentation under this provision, the Contractor shall submit the documentation within seven days, which may be extended for an additional seven days if necessary at the request of the Contractor. The Department will provide a written determination to the Contractor stating whether or not good faith efforts have been demonstrated.

- (f) FINAL PAYMENT. After the performance of the final item of work or delivery of material by a DBE and final payment therefore to the DBE by the Contractor, but not later than 30 calendar days after payment has been made by the Department to the Contractor for such work or material, the Contractor shall submit a DBE Payment Agreement on Department form SBE 2115 to the Resident Engineer. If full and final payment has not been made to the DBE, the DBE Payment Agreement shall indicate whether a disagreement as to the payment required exists between the Contractor and the DBE or if the Contractor believes the work has not been satisfactorily completed. If the Contractor does not have the full amount of work indicated in the Utilization Plan performed by the DBE companies indicated in the Utilization Plan and after good faith efforts are reviewed, the Department may deduct from contract payments to the Contractor the amount of the goal not achieved as liquidated and ascertained damages. The Contractor may request an administrative reconsideration of any amount deducted as damages pursuant to subsection (h) of this part.
- (g) ENFORCEMENT. The Department reserves the right to withhold payment to the Contractor to enforce the provisions of this Special Provision. Final payment shall not be made on the contract until such time as the Contractor submits sufficient documentation demonstrating achievement of the goal in accordance with this Special Provision or after liquidated damages have been determined and collected.
- (h) RECONSIDERATION. Notwithstanding any other provision of the contract, including but not limited to Article 109.09 of the Standard Specifications, the Contractor may request administrative reconsideration of a decision to deduct the amount of the goal not achieved as liquidated damages. A request to reconsider shall be delivered to the Contract Compliance Section and shall be handled and considered in the same manner as set forth in paragraph (c) of "Good Faith Effort Procedures" of this Special Provision, except a final decision that a good faith effort was not made during contract performance to achieve the goal agreed to in the Utilization Plan shall be the final administrative decision of the Department. The result of the reconsideration process is not administratively appealable to the U.S. Department of Transportation.

ILLINOIS WORKS APPRENTICESHIP INITIATIVE – STATE FUNDED CONTRACTS (BDE)

Effective: June 2, 2021

Revised: April 2, 2024

Illinois Works Jobs Program Act (30 ILCS 559/20-1 et seq.). For contracts having an awarded contract value of \$500,000 or more, the Contractor shall comply with the Illinois Works Apprenticeship Initiative (30 ILCS 559/20-20 to 20-25) and all applicable administrative rules. The goal of the Illinois Apprenticeship Works Initiative is that apprentices will perform either 10% of the total labor hours actually worked in each prevailing wage classification or 10% of the estimated labor hours in each prevailing wage classification, whichever is less. Of this goal, at least 50% of the labor hours of each prevailing wage classification performed by apprentices shall be performed by graduates of the Illinois Works Pre-Apprenticeship Program, the Illinois Climate Works Pre-Apprenticeship Program, or the Highway Construction Careers Training Program.

The Contractor may seek from the Department of Commerce and Economic Opportunity (DCEO) a waiver or reduction of this goal in certain circumstances pursuant to 30 ILCS 559/20-20(b). The Contractor shall ensure compliance during the term of the contract and will be required to report on and certify its compliance. An apprentice use plan, apprentice hours, and a compliance certification shall be submitted to the Engineer on forms provided by the Department and/or DCEO.

PORTLAND CEMENT CONCRETE (BDE)

Effective: August 1, 2023

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

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

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.”

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/} | 65 (1.65) ^{1/} |
| | | 20 (0.51) ^{2/} | 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."

SUBCONTRACTOR AND DBE PAYMENT REPORTING (BDE)

Effective: April 2, 2018

Add the following to Section 109 of the Standard Specifications.

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

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

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

SUBCONTRACTOR MOBILIZATION PAYMENTS (BDE)

Effective: November 2, 2017

Revised: April 1, 2019

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

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

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

SUBMISSION OF PAYROLL RECORDS (BDE)

Effective: April 1, 2021

Revised: November 2, 2023

FEDERAL AID CONTRACTS. Revise the following section of Check Sheet #1 of the Recurring Special Provisions to read:

“STATEMENTS AND PAYROLLS

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

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

STATE CONTRACTS. Revise Item 3 of Section IV of Check Sheet #5 of the Recurring Special Provisions to read:

- "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 to the Illinois Department of Labor (IDOL) through the Illinois Prevailing Wage Portal in compliance with the State Prevailing Wage Act (820 ILCS 130). The portal can be found on the IDOL website at <https://www2.illinois.gov/idol/Laws-Rules/CONMED/Pages/Prevailing-Wage-Portal.aspx>. Payrolls shall be submitted in the format prescribed by the IDOL.

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

TRAFFIC SPOTTERS (BDE)

Effective: January 1, 2019

Revise Article 701.13 of the Standard Specifications to read:

“701.13 Flaggers and Spotters. Flaggers shall be certified by an agency approved by the Department. While on the job site, each flagger shall have in his/her possession a current driver’s license and a current flagger certification I.D. card. For non-drivers, the Illinois Identification Card issued by the Secretary of State will meet the requirement for a current driver’s license. This certification requirement may be waived by the Engineer for emergency situations that arise due to actions beyond the Contractor’s control where flagging is needed to maintain safe traffic control on a temporary basis. Spotters are defined as certified flaggers that provide support to workers by monitoring traffic.

Flaggers and spotters shall be stationed to the satisfaction of the Engineer and be equipped with a fluorescent orange, fluorescent yellow/green, or a combination of fluorescent orange and fluorescent yellow/green vest meeting the requirements of ANSI/ISEA 107-2004 or ANSI/ISEA 107-2010 for Conspicuity Class 2 garments. Flaggers shall be equipped with a stop/slow traffic control sign. Spotters shall be equipped with a loud warning device. The warning sound shall be identifiable by workers so they can take evasive action when necessary. Other types of garments may be substituted for the vest as long as the garments have a manufacturer’s tag identifying them as meeting the ANSI Class 2 requirement. The longitudinal placement of the flagger may be increased up to 100 ft (30 m) from that shown on the plans to improve the visibility of the flagger. Flaggers shall not encroach on the open lane of traffic unless traffic has been stopped. Spotters shall not encroach on the open lane of traffic, nor interact with or control the flow of traffic.

For nighttime flagging, flaggers shall be illuminated by an overhead light source providing a minimum vertical illuminance of 10 fc (108 lux) measured 1 ft (300 mm) out from the flagger’s chest. The bottom of any luminaire shall be a minimum of 10 ft (3 m) above the pavement. Luminaire(s) shall be shielded to minimize glare to approaching traffic and trespass light to adjoining properties. Nighttime flaggers shall be equipped with fluorescent orange or fluorescent orange and fluorescent yellow/green apparel meeting the requirements of ANSI/ISEA 107-2004 or ANSI/ISEA 107-2010 for Conspicuity Class 3 garments.

Flaggers and spotters shall be provided per the traffic control plan and as follows.

- (a) Two-Lane Highways. Two flaggers will be required for each separate operation where two-way traffic is maintained over one lane of pavement. Work operations controlled by flaggers shall be no more than 1 mile (1600 m) in length. Flaggers shall be in sight of each other or in direct communication at all times. Direct communication shall be obtained by using portable two-way radios or walkie-talkies.

The Engineer will determine when a side road or entrance shall be closed to traffic. A flagger will be required at each side road or entrance remaining open to traffic within the operation where two-way traffic is maintained on one lane of pavement. The flagger shall be positioned as shown on the plans or as directed by the Engineer.

- (b) Multi-Lane Highways. At all times where traffic is restricted to less than the normal number of lanes on a multilane pavement with a posted speed limit greater than 40 mph and the workers are present, but not separated from the traffic by physical barriers, a flagger or spotter shall be furnished as shown on the plans. Flaggers shall warn and direct traffic. Spotters shall monitor traffic conditions and warn workers of errant approaching vehicles or other hazardous conditions as they occur. One flagger will be required for each separate activity of an operation that requires frequent encroachment in a lane open to traffic. One spotter will be required for each separate activity with workers near the edge of the open lane or with their backs facing traffic.

Flaggers will not be required when no work is being performed, unless there is a lane closure on two-lane, two-way pavement.”

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.”

WEEKLY DBE TRUCKING REPORTS (BDE)

Effective: June 2, 2012

Revised: November 1, 2021

The Contractor shall submit a weekly report of Disadvantaged Business Enterprise (DBE) trucks hired by the Contractor or subcontractors (i.e. not owned by the Contractor or subcontractors) that are used for DBE goal credit.

The report shall be submitted to the Engineer on Department form “SBE 723” within ten business days following the reporting period. The reporting period shall be Sunday through Saturday for each week reportable trucking activities occur.

Any costs associated with providing weekly DBE trucking reports 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.

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.”

DISTRICT 1 – FORMAL CONTRACT – ELECTRICAL MAINTENANCE

Contract No. 62W79

Various Counties

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SECTION 3 – LIST OF LOCATIONS

LIGHTING SYSTEM - EQUIPMENT PAY CODE - L-1 LOCATIONS

| | | | | | | |
|----|---|------|------------------------------------|----|-----|----|
| 1 | L | 0103 | I 55 STEV SB (OB) @ | CO | | ON |
| | | A | MARTIN LUTHER KING DR | | L-1 | |
| 2 | L | 0105 | I 55 STEV SB (OB) @ | CO | | ON |
| | | B | MICHIGAN AVE | | L-1 | |
| 3 | L | 0110 | I 55 STEV SB (OB) @ | CO | | ON |
| | | C | WENTWORTH AVE | | L-1 | |
| 4 | L | 0115 | I 55 STEV SB (OB) @ | CO | | ON |
| | | D | STEWART AVE | | L-1 | |
| 5 | L | 0120 | I 55 STEV SB (OB) @ | CO | | ON |
| | | E | LOOMIS ST | | L-1 | |
| 6 | L | 0123 | I 55 STEV NB (IB) (INCL NAV LTG) @ | CO | | ON |
| | | E1 | ASHLAND AVE | | L-1 | |
| 7 | L | 0125 | I 55 STEV NB (IB) @ | CO | | ON |
| | | F | DAMEN AVE | | L-1 | |
| 8 | L | 0130 | I 55 STEV SB (OB) @ | CO | | ON |
| | | G | CALIFORNIA AVE | | L-1 | |
| 9 | L | 0133 | I 55 STEV NB (IB) @ | CO | | ON |
| | | G1 | KEDZIE AVE | | L-1 | |
| 10 | L | 0135 | I 55 STEV SB (OB) @ | CO | | ON |
| | | H | PULASKI RD | | L-1 | |
| 11 | L | 0137 | I 55 STEV SB (OB) @ | CO | | ON |

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| | | | | | | |
|----|---|------|--|----|--|------------|
| | | H1 | PULASKI RD TUNNEL | | | L-1 |
| 12 | L | 0140 | I 55 STEV SB (OB) @ I IL 50 CICERO AVE | CO | | ON L-1 |
| 13 | L | 0150 | CENTRAL AVE @ X 39TH ST PERSHING RD | CO | | OFF L-2 |
| 14 | L | 0155 | I 55 STEV NB (IB) @ J CENTRAL AVE | CO | | ON L-1 |
| 15 | L | 0160 | I 55 STEV SB (OB) @ K AUSTIN BLVD 64TH ST | CO | | ON L-1 |
| 16 | L | 0165 | I 55 STEV NB (IB) @ L IL 43 HARLEM AVE | CO | | ON L-1 |
| 17 | L | 0170 | IL 43 HARLEM AVE @ Y PORTAGE TRAIL RD | CO | | OFF L-2 |
| 18 | L | 0171 | IL 171 1ST AVE @ V 55TH ST ARCHER AVE | CO | | ON L-2 |
| 19 | L | 0173 | I 55 STEV SB (OB) (INCL NAV LTG) @ M IL 171 1ST AVE NORTH | CO | | ON L-1 |
| 20 | L | 0175 | I 55 STEV NB (IB) (INCL NAV LTG) @ N IL 171 1ST AVE SOUTH | CO | | ON L-1 |
| 21 | L | 0177 | IL 171 1ST AVE @ Z 47TH ST | CO | | ON L-2 |
| 22 | L | 0180 | I 55 STEV NB (IB) @ O 85TH AVE | CO | | ON L-1 |

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| | | | | | | |
|----|---|------|---|----|-----|-----|
| 23 | L | 0184 | I 55 STEV NB (IB) @ P 91ST AVE | CO | | ON |
| | | | | | L-1 | |
| 24 | L | 0187 | I 55 STEV NB (IB) @ R US 12 20 45 LAGRANGE RD | CO | | ON |
| | | | | | L-1 | |
| 25 | L | 0188 | I 55 STEV NB (IB) @ R1 US 12 20 45 LAGRANGE RD SB RAMP | CO | | ON |
| | | | | | L-1 | |
| 26 | L | 0190 | I 55 STEV NB (IB) @ S WOLF RD | CO | | OFF |
| | | | | | L-1 | |
| 27 | L | 0193 | I 55 STEV SB (OB) @ S1 I 294 TLWY SB TO EB JOLIET RD | CO | | ON |
| | | | | | L-1 | |
| 28 | L | 0195 | I 55 STEV NB (IB) @ T COUNTY LINE RD | CO | | ON |
| | | | | | L-1 | |
| 29 | L | 0203 | I 55 SB (OB) @ A MADISON ST | DU | | ON |
| | | | | | L-1 | |
| 30 | L | 0205 | I 55 NB (IB) @ B IL 83 KINGERY HWY SOUTH | DU | | ON |
| | | | | | L-1 | |
| 31 | L | 0210 | I 55 SB (OB) @ C IL 83 KINGERY HWY NORTH | DU | | ON |
| | | | | | L-1 | |
| 32 | L | 0215 | I 55 SB (OB) @ D CASS AVE | DU | | ON |
| | | | | | L-1 | |
| 33 | L | 0220 | I 55 NB (IB) @ E KEARNEY RD (SOUTH OF CASS) | DU | | ON |
| | | | | | L-1 | |
| 34 | L | 0225 | I 55 NB (IB) @ F LEMONT RD | DU | | OFF |
| | | | | | L-1 | |

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| | | | | | | |
|----|---|------------|---|----|-----|-----|
| 35 | L | 0230 G | I 55 SB (OB) PLUS RAMPS @ WOODWARD AVE | DU | | ON |
| | | | | | L-1 | |
| 36 | L | 0305 H | I 55 NB (IB) & I 355 TLWY RAMPS @ JOLIET RD NEAR I 355 | WI | | PAR |
| | | | | | L-1 | |
| 37 | L | 0307 H1 | I 55 NB (IB) @ INTERNATIONAL DR | WI | | OFF |
| | | | | | L-1 | |
| 38 | L | 0310 I | I 55 STEV NB (IB) @ IL 53 | WI | | OFF |
| | | | | | L-1 | |
| 39 | L | 0313 I1 | I 55 STEV NB (IB) @ IL 53 (WEST OF) | WI | | ON |
| | | | | | L-1 | |
| 40 | L | 0315 K2 | I 55 STEV NB (IB) @ NAPERVILLE RD (EAST OF) | WI | | ON |
| | | | | | L-1 | |
| 41 | L | 0316 K1 | I 55 STEV NB (IB) @ WEBER RD (EAST OF) | WI | | ON |
| | | | | | L-1 | |
| 42 | L | 0317 K | I 55 SB (OB) @ WEBER RD NORTH | WI | | ON |
| | | | | | L-1 | |
| 43 | L | 0318 J | I 55 NB (IB) @ WEBER RD (SOUTH OF) | WI | | ON |
| | | | | | L-1 | |
| 44 | L | 0321 L | I 55 SB (OB) @ IL 126 | WI | | ON |
| | | | | | L-1 | |
| 45 | L | 0328 M | I 55 STEV NB (IB) @ US 30 LINCOLN HWY | WI | | ON |
| | | | | | L-1 | |
| 46 | L | 0335 N | I 55 STEV SB (OB) @ US 52 JEFFERSON ST | WI | | OFF |
| | | | | | L-1 | |

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| | | | | | | |
|----|---|------|---|----|-----|-----|
| 47 | L | 0343 | I 55 SB (OB) @ O IL 59 BROOKFOREST AVE | WI | L-1 | OFF |
| 48 | L | 0345 | I 55 NB SOUTH OF 80 @ P I 80 | WI | L-1 | OFF |
| 49 | L | 0352 | I 55 SB @ R US 6 EAMES ST | WI | L-1 | ON |
| 50 | L | 0355 | I 55 SB @ S BLUFF RD | WI | L-1 | ON |
| 51 | L | 0360 | I 55 SB @ T ARSENAL RD FRONTAGE RD | WI | L-1 | ON |
| 52 | L | 0363 | I 55 NB @ A ARSENAL RD | WI | L-1 | ON |
| 53 | L | 0365 | I 55 NB @ U N RIVER RD WILMINGTON RD | WI | L-1 | ON |
| 54 | L | 0370 | I 55 NB @ V LORENZO RD | WI | L-1 | ON |
| 55 | L | 0375 | I 55 NB @ X IL 129 | WI | L-1 | ON |
| 56 | L | 0380 | I 55 NB @ Y IL 113 COAL CITY RD | WI | L-1 | ON |
| 57 | L | 0385 | I 55 SB @ Z REED RD | WI | L-1 | ON |
| 58 | L | 0403 | I 57 NB (IB) @ | CO | | OFF |

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| | | | | | | | |
|----|---|------|----------------|----|--|-----|-----|
| | | A | YALE AVE | | | L-1 | |
| 59 | L | 0405 | I 57 SB (OB) @ | CO | | | ON |
| | | B | RACINE AVE | | | L-1 | |
| 60 | L | 0410 | I 57 SB (OB) @ | CO | | | ON |
| | | C | 107TH PL | | | L-1 | |
| 61 | L | 0415 | I 57 NB (IB) @ | CO | | | ON |
| | | D | 112TH ST | | | L-1 | |
| 62 | L | 0420 | I 57 NB (IB) @ | CO | | | PAR |
| | | E | 120TH ST | | | L-1 | |
| 63 | L | 0425 | I 57 NB (IB) @ | CO | | | PAR |
| | | F | 127TH ST | | | L-1 | |
| 64 | L | 0430 | I 57 NB (IB) @ | CO | | | ON |
| | | G | VERMONT ST | | | L-1 | |
| 65 | L | 0435 | I 57 NB (IB) @ | CO | | | ON |
| | | H | 138TH ST | | | L-1 | |
| 66 | L | 0440 | I 57 SB (OB) @ | CO | | | ON |
| | | I | SPAULDING AVE | | | L-1 | |
| 67 | L | 0445 | I 57 NB (IB) @ | CO | | | ON |
| | | J | 147TH ST | | | L-1 | |
| 68 | L | 0450 | I 57 SB (OB) @ | CO | | | ON |
| | | K | KEDZIE AVE | | | L-1 | |
| 69 | L | 0453 | I 57 SB (OB) @ | CO | | | ON |
| | | K1 | 150TH ST | | | L-1 | |

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| | | | | | | |
|----|---|------|--|----|-----|-----|
| 70 | L | 0455 | I 57 SB (OB) @ L US 6 159TH ST | CO | | ON |
| | | | | | L-1 | |
| 71 | L | 0460 | US 6 159TH ST @ P PULASKI RD CRAWFORD AVE | CO | | OFF |
| | | | | | L-2 | |
| 72 | L | 0465 | I 57 SB (OB) @ M 163RD ST BARRY LN | CO | | ON |
| | | | | | L-1 | |
| 73 | L | 0470 | I 57 SB (OB) @ N 167TH ST WEST | CO | | ON |
| | | | | | L-1 | |
| 74 | L | 0475 | I 57 NB (IB) @ O 167TH ST EAST | CO | | ON |
| | | | | | L-1 | |
| 75 | L | 0480 | I 57 SB (OB) @ T 175TH ST | CO | | ON |
| | | | | | L-1 | |
| 76 | L | 0485 | I 57 NB @ U I 80 | CO | | ON |
| | | | | | L-1 | |
| 77 | L | 0489 | I 57 NB @ V FLOSSMOOR RD | CO | | ON |
| | | | | | L-1 | |
| 78 | L | 0492 | I 57 SB @ W VOLLMER RD | CO | | ON |
| | | | | | L-1 | |
| 79 | L | 0495 | I 57 NB @ X US 30 LINCOLN HWY | CO | | ON |
| | | | | | L-1 | |
| 80 | L | 0497 | I 57 SB @ Y SAUK TRAIL | CO | | ON |
| | | | | | L-1 | |
| 81 | L | 0499 | I 57 NB @ Z STEGER RD | CO | | ON |
| | | | | | L-1 | |

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| | | | | | | |
|----|---|------|--|----|-----|-----|
| 82 | L | 0510 | I 57 SB @ A STUENKEL RD | WI | L-1 | ON |
| 83 | L | 0515 | I 57 NB @ B DRALLE RD | WI | L-1 | ON |
| 84 | L | 0525 | I 57 NB @ M MANHATTEN MONEE RD | WI | L-1 | ON |
| 85 | L | 0535 | I 57 SB @ D BRUNS RD | WI | L-1 | ON |
| 86 | L | 0540 | I 57 SB @ E PAULING RD | WI | L-1 | ON |
| 87 | L | 0560 | I 57 SB @ Y WILMINGTON PEOTONE RD | WI | L-1 | OFF |
| 88 | L | 0603 | I 80 94 EB @ A BURNHAM AVE | CO | L-1 | ON |
| 89 | L | 0605 | I 80 94 WB @ B I 83 TORRENCE AVE | CO | L-1 | ON |
| 90 | L | 0610 | I 80 EB @ E 169TH ST | CO | L-1 | ON |
| 91 | L | 0615 | I 80 EB @ F PULASKI RD CRAWFORD AVE | CO | L-1 | ON |
| 92 | L | 0618 | I 80 EB @ F1 175TH ST | CO | L-1 | ON |
| 93 | L | 0620 | I 80 WB @ | CO | | ON |

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| | | | | | | |
|-----|---|------|----------------------|----|--|-----|
| | | G | CENTRAL AVE | | | L-1 |
| 94 | L | 0625 | I 80 EB @ | CO | | ON |
| | | H | RIDGELAND AVE | | | L-1 |
| 95 | L | 0703 | I 80 EB @ | WI | | ON |
| | | I | IL 43 HARLEM AVE | | | L-1 |
| 96 | L | 0707 | I 80 EB @ | WI | | OFF |
| | | B | 80TH AVE WEST | | | L-1 |
| 97 | L | 0713 | I 80 EB @ | WI | | ON |
| | | D | 88TH AVE WEST | | | L-1 |
| 98 | L | 0715 | I 80 EB @ | WI | | ON |
| | | F | US 45 96TH AVE | | | L-1 |
| 99 | L | 0717 | I 80 EB @ | WI | | ON |
| | | G | 104 AVE EAST | | | L-1 |
| 100 | L | 0724 | I 80 WB @ | WI | | ON |
| | | K | I 355 | | | L-1 |
| 101 | L | 0728 | I 80 EB @ | WI | | ON |
| | | N | US 30 LINCOLN HWY WB | | | L-1 |
| 102 | L | 0730 | I 80 WB @ | WI | | ON |
| | | P | BRIGGS ST | | | L-1 |
| 103 | L | 0735 | I 80 EB @ | WI | | OFF |
| | | R | RICHARD ST NORTH | | | L-1 |
| 104 | L | 0740 | I 80 EB @ | WI | | OFF |
| | | S | RICHARD ST SOUTH | | | L-1 |

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| | | | | | | |
|-----|---|------|--|----|-----|-----|
| 105 | L | 0750 | I 80 WB @ U IL 53 CHICAGO ST | WI | | ON |
| | | | | | L-1 | |
| 106 | L | 0755 | I 80 WB @ V WATER ST | WI | | ON |
| | | | | | L-1 | |
| 107 | L | 0760 | I 80 WB @ W CENTER ST EAST | WI | | ON |
| | | | | | L-1 | |
| 108 | L | 0765 | I 80 WB @ X CENTER ST WEST | WI | | ON |
| | | | | | L-1 | |
| 109 | L | 0770 | I 80 EB @ Y IL 7 LARKIN AVE | WI | | ON |
| | | | | | L-1 | |
| 110 | L | 0775 | I 80 WB @ Z HOUBOLT RD HOLLYWOOD RD | WI | | OFF |
| | | | | | L-1 | |
| 111 | L | 0803 | US 12 45 MANNHEIM RD @ A ZEMKE BLVD DEVON AVE | CO | | ON |
| | | | | | L-2 | |
| 112 | L | 0805 | US 12 45 MANNHEIM RD @ B LAWRENCE AVE | CO | | ON |
| | | | | | L-2 | |
| 113 | L | 0810 | I 190 KENN EB @ C MANNHEIM RD SB SCOTT ST | CO | | ON |
| | | | | | L-1 | |
| 114 | L | 0815 | I 190 KENN EB (IB) @ D DESPLAINES RIVER RD | CO | | ON |
| | | | | | L-1 | |
| 115 | L | 0820 | I 90 KENN EB (IB) @ D1 EAST RIVER RD | CO | | ON |
| | | | | | L-1 | |
| 116 | L | 0825 | I 90 KENN EB (IB) @ E CUMBERLAND AVE | CO | | OFF |
| | | | | | L-1 | |

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|-----|---|------|---|----|-----|-----|
| 117 | L | 0830 | I 90 KENN EB (IB) @ F ORIOLE AVE BY CANFIELD | CO | L-1 | PAR |
| 118 | L | 0835 | I 90 KENN EB (IB) @ G SAYRE AVE | CO | L-1 | ON |
| 119 | L | 0840 | I 90 KENN EB (IB) @ H MOODY AVE | CO | L-1 | ON |
| 120 | L | 0845 | I 90 KENN EB (IB) @ I EDMUNDS ST | CO | L-1 | ON |
| 121 | L | 0847 | I 90 KENN WB (OB) @ J LAWRENCE AVE | CO | L-1 | ON |
| 122 | L | 0850 | I 90 94 KENN WB (OB) @ K KEDVALE AVE | CO | L-1 | OFF |
| 123 | L | 0853 | I 90 94 KENN WB (OB) @ L KIMBALL AVE | CO | L-1 | OFF |
| 124 | L | 0855 | I 90 94 KENN EB (IB) @ M CALIFORNIA AVE | CO | L-1 | OFF |
| 125 | L | 0857 | I 90 94 KENN EB (IB) @ N LEAVITT ST | CO | L-1 | OFF |
| 126 | L | 0860 | I 90 94 KENN EB (IB) @ O CORTLAND ST | CO | L-1 | OFF |
| 127 | L | 0863 | I 90 94 KENN EB (IB) @ P BLACKHAWK ST | CO | L-1 | OFF |
| 128 | L | 0865 | I 90 94 KENN EB (IB) @ | CO | | OFF |

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|-----|---|------|------------------------|----|--|-----|-----|
| | | R | AUGUSTA BLVD | | | L-1 | |
| 129 | L | 0867 | I 90 94 KENN EB (IB) @ | CO | | | OFF |
| | | S | GRAND AVE | | | L-1 | |
| 130 | L | 0870 | I 90 94 KENN WB (OB) @ | CO | | | OFF |
| | | S1 | ONTARIO ST OHIO ST | | | L-1 | |
| 131 | L | 0875 | I 90 94 KENN EB (IB) @ | CO | | | OFF |
| | | W | HUBBARD ST | | | L-1 | |
| 132 | L | 0873 | I 90 94 KENN WB (OB) @ | CO | | | ON |
| | | S2 | ERIE ST TUNNEL | | | L-1 | |
| 133 | L | 0883 | I 90 94 KENN EB (IB) @ | CO | | | OFF |
| | | T | HUBBARD ST CAVE | | | L-1 | |
| 134 | L | 0886 | I 90 94 KENN EB (IB) @ | CO | | | OFF |
| | | U | W WASHINGTON BLVD | | | L-1 | |
| 135 | L | 0888 | I 90 94 KENN WB (OB) @ | CO | | | OFF |
| | | V | E WASHINGTON BLVD | | | L-1 | |
| 136 | L | 0890 | I 90 94 KENN WB (OB) @ | CO | | | OFF |
| | | Z | VAN BUREN ST | | | L-1 | |
| 137 | L | 0903 | I 94 RYAN EB (OB) @ | CO | | | ON |
| | | N | 97TH ST TUNNEL | | | L-1 | |
| 138 | L | 0904 | I 94 RYAN EB (OB) @ | CO | | | ON |
| | | O1 | 95TH ST CTA TUNNEL | | | L-1 | |
| 139 | L | 0905 | I 94 RYAN WB (IB) @ | CO | | | ON |
| | | O | 91ST ST | | | L-1 | |

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| | | | | | | |
|-----|---|------|--|----|----|-----|
| 140 | L | 0910 | I 94 RYAN EB (OB) @ P 83RD ST | CO | ON | L-1 |
| 141 | L | 0915 | I 94 RYAN WB (IB) @ R 74TH ST | CO | ON | L-1 |
| 142 | L | 0917 | I 90 94 RYAN EB (OB) @ R1 67TH ST MARQUETTE AVE | CO | ON | L-1 |
| 143 | L | 0920 | I 90 94 RYAN EB (OB) @ S 63RD ST | CO | ON | L-1 |
| 144 | L | 0925 | I 90 94 RYAN EB (OB) @ T 59TH ST | CO | ON | L-1 |
| 145 | L | 0927 | I 90 94 RYAN EB (OB) @ T1 55TH ST GARFIELD BLVD | CO | ON | L-1 |
| 146 | L | 0930 | I 90 94 RYAN EB (OB) @ U 47TH ST | CO | ON | L-1 |
| 147 | L | 0935 | I 90 94 RYAN EB (OB) @ V ROOT ST | CO | ON | L-1 |
| 148 | L | 0940 | I 90 94 RYAN EB (OB) @ W 35TH ST | CO | ON | L-1 |
| 149 | L | 0945 | I 90 94 RYAN EB (OB) @ X 27TH ST | CO | ON | L-1 |
| 150 | L | 0950 | I 90 94 RYAN EB (OB) @ Y NORMAL AVE | CO | ON | L-1 |
| 151 | L | 0955 | I 90 94 RYAN WB (IB) @ Z WALLACE ST | CO | ON | L-1 |

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| | | | | | | |
|-----|---|------|---|----|-----|-----|
| 152 | L | 0960 | I 90 94 RYAN EB (OB) (INCL NAV LTG) @ 21ST PL | CO | | ON |
| | | A | | | L-1 | |
| 153 | L | 0965 | I 90 94 RYAN EB (OB) @ | CO | | ON |
| | | B | 17TH ST | | L-1 | |
| 154 | L | 0970 | I 90 94 RYAN EB (OB) @ | CO | | OFF |
| | | C | MAXWELL ST | | L-1 | |
| 155 | L | 0975 | I 90 94 RYAN WB (IB) @ | CO | | OFF |
| | | D | POLK ST | | L-1 | |
| 156 | L | 9TH | CGO SAN & SHIP CANAL @ | WI | | ON |
| | | | IL 7 9TH ST | | L-4 | |
| 157 | L | 1003 | IL 394 FORD NB (IB) @ | CO | | ON |
| | | A | SAUK TRAIL | | L-1 | |
| 158 | L | 1004 | IL 394 FORD SB (OB) @ | CO | | ON |
| | | N | US 30 LINCOLN HWY | | L-1 | |
| 159 | L | 1005 | IL 394 FORD NB (IB) @ | CO | | ON |
| | | B | GLENWOOD DYER RD | | L-1 | |
| 160 | L | 1008 | IL 394 FORD NB (IB) @ | CO | | ON |
| | | D1 | THORNTON LANSING RD | | L-1 | |
| 161 | L | 1010 | I 94 FORD EB (OB) @ | CO | | ON |
| | | C | I 80 NORTH OF | | L-1 | |
| 162 | L | 1015 | I 94 FORD EB (OB) @ | CO | | ON |
| | | D | I 80 SOUTH OF | | L-1 | |
| 163 | L | 1017 | I 94 FORD EB (OB) @ | CO | | ON |

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| | | | | | | |
|-----|---|------|------------------------------|----|--|-----|
| | | E1 | 172ND ST | | | L-1 |
| 164 | L | 1020 | I 94 FORD WB (IB) @ | CO | | ON |
| | | E | 166TH ST | | | L-1 |
| 165 | L | 1025 | I 94 FORD EB (OB) @ | CO | | ON |
| | | F | 159TH ST | | | L-1 |
| 166 | L | 1030 | I 94 FORD WB (IB) @ | CO | | ON |
| | | G | MICHIGAN CITY RD LINCOLN AVE | | | L-1 |
| 167 | L | 1032 | I 94 FORD EB (OB) @ | CO | | ON |
| | | G1 | 147TH ST SIBLEY BLVD | | | L-1 |
| 168 | L | 1035 | I 94 FORD EB (OB) @ | CO | | ON |
| | | H | DOLTON AVE | | | L-1 |
| 169 | L | 1040 | I 94 FORD WB (IB) @ | CO | | ON |
| | | X | 137TH ST | | | L-1 |
| 170 | L | 1046 | I 94 FORD WB (IB) @ | CO | | ON |
| | | V | 130TH ST EAST | | | L-1 |
| 171 | L | 1047 | I 94 FORD EB (OB) @ | CO | | ON |
| | | W | 130TH ST WEST | | | L-1 |
| 172 | L | 1050 | I 94 FORD EB (OB) @ | CO | | ON |
| | | J | 119TH ST | | | L-1 |
| 173 | L | 1055 | I 94 FORD EB (OB) @ | CO | | ON |
| | | K | 111TH ST | | | L-1 |
| 174 | L | 1060 | I 94 FORD EB (OB) @ | CO | | ON |
| | | Y | 115TH ST | | | L-1 |

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| | | | | | | |
|-----|---|------|---|----|-----|-----|
| 175 | L | 1065 | I 94 FORD WB (IB) @ L 103RD ST | CO | | ON |
| | | | | | L-1 | |
| 176 | L | 1070 | I 94 FORD EB (OB) @ M INDIANA AVE | CO | | ON |
| | | | | | L-1 | |
| 177 | L | 1075 | I 94 FORD WB (IB) @ P STONY ISLAND FEEDER 106TH ST | CO | | ON |
| | | | | | L-1 | |
| 178 | L | 1080 | I 94 FORD WB (IB) @ R STONY ISLAND FEEDER 101ST ST | CO | | ON |
| | | | | | L-1 | |
| 179 | L | 1085 | I 94 FORD WB (IB) @ S STONY ISLAND FEEDER 98TH PL | CO | | ON |
| | | | | | L-1 | |
| 180 | L | 1090 | I 94 FORD WB (IB) @ T STONY ISLAND FEEDER WOODLAWN AVE | CO | | ON |
| | | | | | L-1 | |
| 181 | L | 1103 | US 41 NB JUST NORTH OF I 94 EDENS) @ T CLAVEY RD | LA | | ON |
| | | | | | L-1 | |
| 182 | L | 1203 | I 94 EDENS WB (OB) @ A KNOX AVE | CO | | OFF |
| | | | | | L-1 | |
| 183 | L | 1205 | I 94 EDENS EB (IB) @ B FOSTER AVE | CO | | OFF |
| | | | | | L-1 | |
| 184 | L | 1210 | I 94 EDENS WB (OB) @ C US 14 CALDWELL AVE PETERSON AVE | CO | | OFF |
| | | | | | L-1 | |
| 185 | L | 1215 | I 94 EDENS WB (OB) @ D PRATT AVE | CO | | OFF |
| | | | | | L-1 | |
| 186 | L | 1220 | I 94 EDENS WB (OB) @ E TOUHY AVE | CO | | OFF |
| | | | | | L-1 | |

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|-----|---|------|---|----|-----|-----|
| 187 | L | 1225 | I 94 EDENS WB (OB) @ F NILES CENTER RD | CO | L-1 | OFF |
| 188 | L | 1230 | I 94 EDENS WB (OB) @ G OAKTON RD | CO | L-1 | PAR |
| 189 | L | 1235 | I 94 EDENS WB (OB) @ H IL 58 DEMPSTER ST | CO | L-1 | OFF |
| 190 | L | 1240 | I 94 EDENS WB (OB) @ J GOLF RD | CO | L-1 | OFF |
| 191 | L | 1245 | I 94 EDENS WB (OB) @ K GLENVIEW RD | CO | L-1 | OFF |
| 192 | L | 1250 | I 94 EDENS WB (OB) @ L LAKE AVE | CO | L-1 | ON |
| 193 | L | 1255 | I 94 EDENS EB (IB) @ M WINNETKA RD | CO | L-1 | OFF |
| 194 | L | 1260 | I 94 EDENS EB (IB) @ N WILLOW RD | CO | L-1 | OFF |
| 195 | L | 1265 | I 94 EDENS EB (IB) @ O TOWER RD | CO | L-1 | PAR |
| 196 | L | 1270 | I 94 EDENSEB (IB) @ P IL 68 DUNDEE RD SOUTH OF | CO | L-1 | OFF |
| 197 | L | 1280 | I 94 EDENS EB (IB) @ S LAKE COOK RD | CO | L-1 | OFF |
| 198 | L | 1275 | I 94 EDENS EB (IB) @ R IL 68 DUNDEE RD | CO | L-1 | ON |

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| | | | | | | |
|-----|---|------|---|----|-----|-----|
| 199 | L | 1303 | I 290 IKE @ A WACKER DR | CO | L-1 | ON |
| 200 | L | 1315 | I 290 IKE @ D LOWER WACKER DR EB EXIT RAMP | CO | L-1 | ON |
| 201 | L | 1320 | I 290 IKE @ E LOWER WACKER DR WB ENT RAMP | CO | L-1 | ON |
| 202 | L | 1325 | I 290 IKE @ F CANAL ST | CO | L-1 | ON |
| 203 | L | 1330 | I 290 IKE @ G RACINE AVE | CO | L-1 | OFF |
| 204 | L | 1335 | I 290 IKE @ H LEAVITT ST | CO | L-1 | ON |
| 205 | L | 1340 | I 290 IKE @ I KEDZIE AVE | CO | L-1 | ON |
| 206 | L | 1345 | I 290 IKE @ J PULASKI AVE CRAWFORD AVE | CO | L-1 | ON |
| 207 | L | 1350 | I 290 IKE @ K IL 50 CICERO AVE | CO | L-1 | ON |
| 208 | L | 1355 | I 290 IKE @ L CENTRAL AVE | CO | L-1 | ON |
| 209 | L | 1360 | I 290 IKE @ M OAK PARK AVE | CO | L-1 | ON |

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| | | | | | | |
|-----|---|------|--|----|-----|-----|
| 210 | L | 1362 | IL 43 HARLEM AVE @ M1 JACKSON BLVD | CO | | ON |
| | | | | | L-2 | |
| 211 | L | 1365 | I 290 IKE @ N DES PLAINES AVE | CO | | ON |
| | | | | | L-1 | |
| 212 | L | 1370 | I 290 IKE @ O IL 171 1ST AVE | CO | | ON |
| | | | | | L-1 | |
| 213 | L | 1375 | I 290 IKE @ P 17TH AVE | CO | | ON |
| | | | | | L-1 | |
| 214 | L | 1380 | I 290 IKE @ R 25TH AVE | CO | | ON |
| | | | | | L-1 | |
| 215 | L | 1385 | I 290 IKE @ S WESTCHESTER BLVD | CO | | ON |
| | | | | | L-1 | |
| 216 | L | 1386 | I 290 IKE @ W US 12 20 45 MANNHEIM RD | CO | | ON |
| | | | | | L-1 | |
| 217 | L | 1387 | I 290 IKE @ X WOLF RD EXIT RAMP | CO | | ON |
| | | | | | L-1 | |
| 218 | L | 1388 | I 290 IKE @ Y ORCHARD AVE | CO | | ON |
| | | | | | L-1 | |
| 219 | L | 1390 | I 290 IKE @ T LAVERNE AVE WOLF RD | CO | | PAR |
| | | | | | L-1 | |
| 220 | L | 1391 | I 290 IKE @ Z I 88 SPLIT WEST OF | CO | | ON |
| | | | | | L-1 | |
| 221 | L | 1393 | I 290 IKE @ U ROOSEVELT RD EXIT RAMP | CO | | PAR |
| | | | | | L-1 | |

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| | | | | | | |
|-----|---|------|---|----|-----|-----|
| 222 | L | 1397 | I 290 IKE @ V ARTHUR AVE | CO | | PAR |
| | | | | | L-1 | |
| 223 | L | 1403 | I 290 @ P I 294 | DU | | OFF |
| | | | | | L-1 | |
| 224 | L | 1405 | I 290 @ W ST CHARLES RD | DU | | PAR |
| | | | | | L-1 | |
| 225 | L | 1410 | I 290 @ X IL 64 NORTH AVE | DU | | OFF |
| | | | | | L-1 | |
| 226 | L | 1415 | I 290 @ Y YORK RD | DU | | ON |
| | | | | | L-1 | |
| 227 | L | 1420 | I 290 @ A GRAND AVE | DU | | ON |
| | | | | | L-1 | |
| 228 | L | 1425 | I 290 @ B IL 83 VILLA AVE | DU | | ON |
| | | | | | L-1 | |
| 229 | L | 1430 | I 290 @ C IL 83 ELMHURST RD NORTH | DU | | ON |
| | | | | | L-1 | |
| 230 | L | 1435 | I 290 & GRAND AVE RAMP @ D IL 83 ELMHURST RD SOUTH | DU | | ON |
| | | | | | L-1 | |
| 231 | L | 1440 | I 290 @ E ADDISON RD | DU | | ON |
| | | | | | L-1 | |
| 232 | L | 1445 | I 290 @ F MILL RD | DU | | ON |
| | | | | | L-1 | |
| 233 | L | 1450 | I 290 EB @ | DU | | ON |

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|-----|---|------|---------------------------------|----|--|-----|----|
| | | G | ITASCA RD | | | L-1 | |
| 234 | L | 1455 | I 290 @ | DU | | | ON |
| | | H | I 290 IKE I 355 SPLIT & CENTRAL | | | L-1 | |
| 235 | L | 1458 | I 290 I 355 @ | DU | | | ON |
| | | I | US 20 LAKE ST | | | L-1 | |
| 236 | L | 1460 | I 290 I 355 @ | DU | | | ON |
| | | J | IL 19 IRVING PARK RD | | | L-1 | |
| 237 | L | 1468 | I 290 IL 53 @ | DU | | | ON |
| | | L | DEVON AVE | | | L-1 | |
| 238 | L | 1471 | I 290 IL 53 @ | DU | | | ON |
| | | L1 | THORNDALE AVE SOUTH OF | | | L-1 | |
| 239 | L | 1495 | I 290 I 355 @ | DU | | | ON |
| | | T | ARMY TRAIL RD | | | L-1 | |
| 240 | L | 1504 | I 290 IL 53 @ | CO | | | ON |
| | | S | BIESTERFIELD RD | | | L-1 | |
| 241 | L | 1505 | I 290 IL 53 @ | CO | | | ON |
| | | M | SCHAUMBURG RD | | | L-1 | |
| 242 | L | 1510 | I 290 IL 53 @ | CO | | | ON |
| | | N | IL 72 HIGGINS RD SOUTH OF | | | L-1 | |
| 243 | L | 1515 | I 290 IL 53 @ | CO | | | ON |
| | | O | IL 72 HIGGINS RD | | | L-1 | |
| 244 | L | 1520 | I 290 IL 53 @ | CO | | | ON |
| | | P | IL 58 GOLF RD | | | L-1 | |

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|-----|---|------|--|----|-----|----|
| 245 | L | 1525 | I 290 IL 53 @ R IL 62 ALGONQUIN RD | CO | | ON |
| | | | | | L-1 | |
| 246 | L | 1535 | I 290 IL 53 @ U EUCLID ST | CO | | ON |
| | | | | | L-1 | |
| 247 | L | 1540 | I 290 IL 53 @ V US 14 NORTHWEST HWY | CO | | ON |
| | | | | | L-1 | |
| 248 | L | 1545 | I 290 IL 53 @ W PALATINE RD | CO | | ON |
| | | | | | L-1 | |
| 249 | L | 1550 | I 290 IL 53 @ X US 12 RAND RD | CO | | ON |
| | | | | | L-1 | |
| 250 | L | 1580 | I 290 IL 53 @ Y IL 68 DUNDEE RD | CO | | ON |
| | | | | | L-1 | |
| 251 | L | 1590 | I 290 IL 53 @ Z LAKE COOK RD | CO | | ON |
| | | | | | L-1 | |

LIGHTING SYSTEM - EQUIPMENT PAY CODE - L-2 LOCATIONS

| | | | | | | |
|-----|---|------|--|----|-----|-----|
| 252 | L | 1603 | US 12 RAND RD @ AD US 12 45 LEE ST | CO | | PAR |
| | | | | | L-2 | |
| 253 | L | 1604 | US 12 RAND RD @ XC IL 68 DUNDEE RD | CO | | ON |
| | | | | | L-2 | |
| 254 | L | 1605 | US 12 RAND RD @ AR EUCLID ST | CO | | ON |
| | | | | | L-2 | |
| 255 | L | 1607 | US 12 RAND RD @ XI LAKE COOK RD | CO | | ON |
| | | | | | L-2 | |
| 256 | L | 1610 | US 14 NORTHWEST HWY @ AA BALDWIN RD | CO | | ON |
| | | | | | L-2 | |

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|-----|---|------|---|----|-----|-----|
| 257 | L | 1615 | US 14 DEMPSTER ST @ AM IL 21 MILWAUKEE AVE | CO | | ON |
| | | | | | L-2 | |
| 258 | L | 1617 | US 14 DEMPSTER ST @ XH IL 43 WAUKEGAN RD | CO | | ON |
| | | | | | L-2 | |
| 259 | L | 1625 | US 14 NORTHWEST HWY @ AE 1ST AVE CNW RR SOO RR | CO | | OFF |
| | | | | | L-2 | |
| 260 | L | 1626 | US 14 DEMPSTER ST @ XL I 294 TLWY | CO | | ON |
| | | | | | L-2 | |
| 261 | L | 1627 | I 294 TLWY @ XM BUSSE HWY | CO | | ON |
| | | | | | L-2 | |
| 262 | L | 1628 | I 294 TLWY @ XN OAKTON ST | CO | | ON |
| | | | | | L-2 | |
| 263 | L | 1629 | I 294 TLWY @ XR TOUHY AVE | CO | | ON |
| | | | | | L-2 | |
| 264 | L | 1630 | US 20 LAKE ST @ AC IL 59 SUTTON RD | CO | | ON |
| | | | | | L-2 | |
| 265 | L | 1635 | US 20 LAKE ST @ AY BLUFF CITY BLVD SHALES PKWY | CO | | ON |
| | | | | | L-2 | |
| 266 | L | 1636 | IL 390 TLWY @ RN IL 19 IRVING PARK RD | CO | | ON |
| | | | | | L-2 | |
| 267 | L | 1637 | IL 43 WAUKEGAN RD @ RB I 94 TLWY | CO | | ON |
| | | | | | L-2 | |
| 268 | L | 1640 | US 45 DESPLAINES RIVER RD @ | CO | | ON |

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|-----|---|------|-----------------------------|----|--|-----|----|
| | | AX | IL 21 MILWAUKEE AVE | | | L-2 | |
| 269 | L | 1641 | US 45 DESPLAINES RIVER RD @ | CO | | | ON |
| | | AO | IL 58 GOLF RD | | | L-2 | |
| 270 | L | 1645 | US 45 IL 21 MILWAUKEE AVE @ | CO | | | ON |
| | | AV | HINTZ RD | | | L-2 | |
| 271 | L | 1647 | US 45 IL 21 MILWAUKEE AVE @ | CO | | | ON |
| | | AK | LAKE COOK RD | | | L-2 | |
| 272 | L | 1650 | IL 59 SUTTON RD @ | CO | | | ON |
| | | AH | IL 58 GOLF RD | | | L-2 | |
| 273 | L | 1653 | IL 58 GOLF RD @ | CO | | | ON |
| | | RG | ROSELLE RD | | | L-2 | |
| 274 | L | 1655 | US 14 NORTHWEST HWY @ | CO | | | ON |
| | | AJ | IL 58 GOLF RD | | | L-2 | |
| 275 | L | 1656 | IL 58 GOLF RD @ | CO | | | ON |
| | | RH | HIGHLAND BLVD | | | L-2 | |
| 276 | L | 1657 | IL 58 GOLF RD @ | CO | | | ON |
| | | RE | IL 72 HIGGINS RD | | | L-2 | |
| 277 | L | 1658 | IL 58 GOLF RD @ | CO | | | ON |
| | | RI | GANNON DR | | | L-2 | |
| 278 | L | 1659 | IL 58 GOLF RD @ | CO | | | ON |
| | | RJ | SOUTHBRIDGE LN | | | L-2 | |
| 279 | L | 1660 | IL 59 SUTTON RD @ | CO | | | ON |
| | | AI | IL 68 DUNDEE RD | | | L-2 | |

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|-----|---|------|---|----|-----|----|
| 280 | L | 1662 | IL 59 SUTTON RD @ AW IL 72 HIGGINS RD | CO | | ON |
| | | | | | L-2 | |
| 281 | L | 1663 | IL 59 SUTTON RD @ AZ SHOE FACTORY RD | CO | | ON |
| | | | | | L-2 | |
| 282 | L | 1664 | I 90 KENN ENT EXT ALGONQUIN RD @ AF ARLINGTON HEIGHTS RD | CO | | ON |
| | | | | | L-2 | |
| 283 | L | 1667 | BARRINGTON RD @ XE CENTRAL RD STUDIO DR | CO | | ON |
| | | | | | L-2 | |
| 284 | L | 1668 | IL 72 HIGGINS RD @ XK BARRINGTON RD | CO | | ON |
| | | | | | L-2 | |
| 285 | L | 1670 | IL 62 ALGONQUIN RD @ AP PALATINE RD | CO | | ON |
| | | | | | L-2 | |
| 286 | L | 1673 | IL 72 HIGGINS RD @ RD SPRING MILL DR | CO | | ON |
| | | | | | L-2 | |
| 287 | L | 1674 | IL 72 HIGGINS RD @ RF CHURCHILL RD | CO | | ON |
| | | | | | L-2 | |
| 288 | L | 1675 | US 14 NORTHWEST HWY @ AG IL 68 DUNDEE RD | CO | | ON |
| | | | | | L-2 | |
| 289 | L | 1677 | IL 72 HIGGINS RD @ RC ROSELLE RD | CO | | ON |
| | | | | | L-2 | |
| 290 | L | 1678 | IL 72 HIGGINS RD @ XF MORNINGSIDE DR BY PLUM GROVE RD | CO | | ON |
| | | | | | L-2 | |
| 291 | L | 1680 | IL 72 HIGGINS RD @ AL TOUHY AVE LEE ST | CO | | ON |
| | | | | | L-2 | |

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|-----|---|------|--|----|-----|-----|
| 292 | L | 1683 | IL 83 ELMHURST RD @ AS PALATINE RD | CO | L-2 | ON |
| 293 | L | 1685 | BUSSE HWY @ AB OAKTON ST | CO | L-2 | ON |
| 294 | L | 1687 | PALATINE RD @ AT WHEELING RD | CO | L-2 | ON |
| 295 | L | 1690 | PALATINE RD @ AU SCHOENBECK RD | CO | L-2 | ON |
| 296 | L | 1691 | I 294 TLWY @ XD WILLOW RD | CO | L-2 | ON |
| 297 | L | 1694 | IL 72 TOUHY AVE EB @ RZ I 90 TLWY | CO | L-2 | ON |
| 298 | L | 1695 | IL 72 TOUHY AVE WEST @ RY I 90 TLWY | CO | L-2 | ON |
| 299 | L | 1696 | I 90 TLWY @ XV ELMHURST RD | CO | L-2 | ON |
| 300 | L | 1698 | I 90 TLWY @ AQ WOLF RD | CO | L-2 | ON |
| 301 | L | 1703 | US 12 20 45 LAGRANGE RD @ BA IL 171 ARCHER NE RAMP | CO | L-2 | ON |
| 302 | L | 1705 | US 12 20 45 LAGRANGE RD @ BL IL 171 ARCHER SW RAMP | CO | L-2 | OFF |
| 303 | L | 1706 | US 12 20 45 LAGRANGE RD @ BK CHICAGO SAN & SHIP CANAL | CO | L-2 | OFF |

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|-----|---|------|--|----|-----|-----|
| 304 | L | 1707 | IL 38 ROOSEVELT RD @ YA BOEGER ST | CO | L-2 | ON |
| 305 | L | 1708 | US 12 20 45 MANNHEIM RD @ YB US 38 ROOSEVELT RD | CO | L-2 | ON |
| 306 | L | 1709 | US 12 20 45 LAGRANGE RD @ BF 22ND ST CERMAK RD | CO | L-2 | ON |
| 307 | L | 1710 | US 12 45 MANNHEIM RD @ BD IL 19 IRVING PK RD | CO | L-2 | ON |
| 308 | L | 1712 | US 12 45 MANNHEIM RD @ YD ERIE ST PROVISO RR BRIDGE | CO | L-2 | ON |
| 309 | L | 1713 | US 34 OGDEN AVE @ BZ 26TH ST | CO | L-2 | ON |
| 310 | L | 1714 | US 34 OGDEN AVE @ BY IL 50 CICERO AVE SOUTH | CO | L-2 | ON |
| 311 | L | 1715 | US 34 OGDEN AVE @ BV I-294 | CO | L-2 | ON |
| 312 | L | 1716 | US 34 OGDEN AVE @ BW WOLF RD | CO | L-2 | ON |
| 313 | L | 1717 | IL 38 ROOSEVELT RD @ BB I 294 TLWY | CO | L-2 | OFF |
| 314 | L | 1718 | IL 56 @ BJ I 294 TLWY | CO | L-2 | OFF |
| 315 | L | 1730 | IL 43 HARLEM AVE @ | CO | | ON |

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|-----|---|------|----------------------------------|----|--|-----|
| | | BX | 65TH TO 71ST | | | L-2 |
| 316 | L | 1732 | IL 64 NORTH AVE @ | CO | | ON |
| | | BG | IL 171 1ST AVE | | | L-2 |
| 317 | L | 1735 | 22ND ST CERMAK RD @ | CO | | ON |
| | | BC | IL 171 1ST AVE | | | L-2 |
| 318 | L | 1760 | DAMEN AVE @ | CO | | ON |
| | | YV | WEBSTER AVE | | | L-2 |
| 319 | L | 1762 | WESTERN AVE @ | CO | | ON |
| | | YX | LOGAN BLVD | | | L-2 |
| 320 | L | 1763 | SACRAMENTO AVE @ | CO | | ON |
| | | YY | WELLINGTON AVE | | | L-2 |
| 321 | L | 1764 | KOSTNER AVE @ | CO | | ON |
| | | YZ | BERTEAU AVE | | | L-2 |
| 322 | L | 1798 | IL 64 NORTH AVE @ | CO | | ON |
| | | YW | 25TH AVE PS12 | | | L-2 |
| 323 | L | 1802 | US 12 20 45 LAGRANGE RD @ | CO | | ON |
| | | CV | 87TH ST | | | L-2 |
| 324 | L | 1803 | US 12 20 95TH ST @ | CO | | ON |
| | | CW | US 12 20 45 LAGRANGE RD 96TH AVE | | | L-2 |
| 325 | L | 1804 | US 45 LAGRANGE RD @ | CO | | ON |
| | | CX | 107TH ST | | | L-2 |
| 326 | L | 1805 | US 45 LAGRANGE RD @ | CO | | ON |
| | | CY | 111TH ST | | | L-2 |

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|-----|---|------|---|----|-----|-----|
| 327 | L | 1810 | US 12 20 95TH ST @ CB IL 43 HARLEM AVE | CO | | ON |
| | | | | | L-2 | |
| 328 | L | 1815 | US 30 LINCOLN HWY @ CP IL 43 HARLEM AVE | CO | | ON |
| | | | | | L-2 | |
| 329 | L | 1820 | US 30 LINCOLN HWY @ CR GOVERNORS HWY PULASKI CRAWFORD | CO | | ON |
| | | | | | L-2 | |
| 330 | L | 1823 | US 30 LINCOLN HWY @ CS TORRENCE AVE | CO | | ON |
| | | | | | L-2 | |
| 331 | L | 1825 | US 45 96TH AVE LAGRANGE AVE @ CE IL 83 CAL SAG RD | CO | | ON |
| | | | | | L-2 | |
| 332 | L | 1827 | IL 50 CICERO AVE @ CH 127TH ST | CO | | PAR |
| | | | | | L-2 | |
| 333 | L | 1830 | IL 1 HALSTED ST @ CK I 80 I 294 TLWY | CO | | ON |
| | | | | | L-2 | |
| 334 | L | 1835 | IL 1 HALSTED ST @ CA RIDGE RD HOMEWOOD LANSING RD | CO | | ON |
| | | | | | L-2 | |
| 335 | L | 1837 | IL 43 HARLEM AVE @ CN 143RD ST | CO | | ON |
| | | | | | L-2 | |
| 336 | L | 1845 | IL 83 KINGERY RD @ CC IL 171 ARCHER AVE NORTH | CO | | ON |
| | | | | | L-2 | |
| 337 | L | 1850 | IL 83 KINGERY RD @ CD IL 171 ARCHER AVE SOUTH | CO | | OFF |
| | | | | | L-2 | |
| 338 | L | 1860 | 111TH ST @ CF AUSTIN AVE | CO | | ON |
| | | | | | L-2 | |

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|-----|---|------|--|----|-----|-----|
| 339 | L | 1861 | 111TH ST @ CG LARAMIE AVE | CO | | ON |
| | | | | | L-2 | |
| 340 | L | 1877 | IL 83 147TH ST @ ZA SACRAMENTO AVE | CO | | ON |
| | | | | | L-2 | |
| 341 | L | 1885 | US 6 159TH ST @ CT HAMILTON AVE LEAVITT ST | CO | | ON |
| | | | | | L-2 | |
| 342 | L | 1886 | US 6 159TH ST @ CJ LINCOLN AVE CN RR BRIDGE | CO | | ON |
| | | | | | L-2 | |
| 343 | L | 1887 | US 6 159TH ST @ CL MYRTLE AVE | CO | | ON |
| | | | | | L-2 | |
| 344 | L | 1888 | US 6 159TH ST @ CM WOODBRIDGE AVE | CO | | ON |
| | | | | | L-2 | |
| 345 | L | 1903 | US 20 LAKE ST @ DW WALNUT ST | DU | | ON |
| | | | | | L-2 | |
| 346 | L | 1905 | US 34 OGDEN AVE @ DB IL 59 | DU | | ON |
| | | | | | L-2 | |
| 347 | L | 1910 | US 34 OGDEN AVE @ DA IL 83 KINGERY HWY | DU | | ON |
| | | | | | L-2 | |
| 348 | L | 1912 | IL 38 ROOSEVELT RD @ DH YORK RD | DU | | ON |
| | | | | | L-2 | |
| 349 | L | 1913 | IL 38 ROOSEVELT RD @ DU IL 83 NB RAMP | DU | | OFF |
| | | | | | L-2 | |
| 350 | L | 1914 | IL 83 KINGERY HWY @ | DU | | ON |

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| | | | | | | |
|-----|---|------|-------------------------------|----|--|-----|
| | | DV | IL 56 EB RAMP | | | L-2 |
| 351 | L | 1920 | IL 38 ROOSEVELT RD @ | DU | | ON |
| | | PF | GARYS MILL RD | | | L-2 |
| 352 | L | 1922 | IL 53 @ | DU | | ON |
| | | DS | I 88 TLWY | | | L-2 |
| 353 | L | 1925 | IL 53 @ | DU | | ON |
| | | DM | IL 56 BUTTERFIELD RD | | | L-2 |
| 354 | L | 1930 | IL 53 @ | DU | | ON |
| | | DR | BURLINGTON AVE BNSF RR BRIDGE | | | L-2 |
| 355 | L | 1931 | IL 59 @ | DU | | ON |
| | | UF | I 88 TLWY | | | L-2 |
| 356 | L | 1935 | IL 56 BUTTERFIELD RD @ | DU | | ON |
| | | DD | IL 59 | | | L-2 |
| 357 | L | 1940 | IL 56 BUTTERFIELD RD @ | DU | | ON |
| | | DJ | HIGHLAND AVE | | | L-2 |
| 358 | L | 1942 | IL 56 BUTTERFIELD RD @ | DU | | ON |
| | | DP | 22ND ST CERMAK RD | | | L-2 |
| 359 | L | 1946 | IL 83 BUSSE RD @ | DU | | ON |
| | | UZ | IL 390 THORNDALE AVE | | | L-2 |
| 360 | L | 1947 | IL 53 ROHLWING RD @ | DU | | ON |
| | | UV | IL 390 TLWY | | | L-2 |
| 361 | L | 1948 | MEACHAM MEDINAH RD @ | DU | | ON |
| | | UI | IL 390 TLWY | | | L-2 |

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| | | | | | | |
|-----|---|------|--|----|-----|-----|
| 362 | L | 1949 | US 20 LAKE ST @ P IL 390 TLWY | DU | | ON |
| | | | | | L-2 | |
| 363 | L | 1959 | IL 64 NORTH AVE @ DN IL 83 KINGERY HWY | DU | | ON |
| | | | | | L-2 | |
| 364 | L | 1960 | IL 64 NORTH AVE @ DE MAIN ST (IN LOMBARD) | DU | | ON |
| | | | | | L-2 | |
| 365 | L | 1962 | IL 64 NORTH AVE @ PY KRAMER AVE | DU | | ON |
| | | | | | L-2 | |
| 366 | L | 1963 | IL 64 NORTH AVE @ PZ ARDMORE AVE | DU | | PAR |
| | | | | | L-2 | |
| 367 | L | 1964 | IL 64 NORTH AVE @ PH SWIFT RD (WEST OF) | DU | | ON |
| | | | | | L-2 | |
| 368 | L | 1965 | IL 64 NORTH AVE @ PI GLEN ELLYN RD | DU | | ON |
| | | | | | L-2 | |
| 369 | L | 1966 | IL 64 NORTH AVE @ PJ EVERGREEN AVE | DU | | ON |
| | | | | | L-2 | |
| 370 | L | 1967 | IL 64 NORTH AVE @ PK LINDA AVE CONCORD LN | DU | | ON |
| | | | | | L-2 | |
| 371 | L | 1968 | IL 64 NORTH AVE @ PL SCHMALE RD | DU | | ON |
| | | | | | L-2 | |
| 372 | L | 1969 | IL 64 NORTH AVE @ PM GARY AVE | DU | | ON |
| | | | | | L-2 | |
| 373 | L | 1970 | IL 64 NORTH AVE @ PN KUHN RD | DU | | ON |
| | | | | | L-2 | |

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| | | | | | | |
|-----|---|------|--|----|-----|----|
| 374 | L | 1971 | IL 64 NORTH AVE @ PO MORTON RD | DU | L-2 | ON |
| 375 | L | 1972 | IL 64 NORTH AVE @ PP ST CHARLES RD | DU | L-2 | ON |
| 376 | L | 1973 | IL 64 NORTH AVE @ PR PRINCE CROSSING RD | DU | L-2 | ON |
| 377 | L | 1974 | IL 64 NORTH AVE @ PS WOODCREST DR EAST OF | DU | L-2 | ON |
| 378 | L | 1975 | IL 83 KINGERY HWY @ DL 55TH ST | DU | L-2 | ON |
| 379 | L | 1980 | IL 83 KINGERY HWY @ DI BLUFF RD | DU | L-2 | ON |
| 380 | L | 1983 | IL 83 KINGERY HWY @ DO 22ND ST CERMAK RD | DU | L-2 | ON |
| 381 | L | 1985 | IL 83 KINGERY HWY @ DT ST CHARLES RD | DU | L-2 | ON |
| 382 | L | 1990 | IL 64 NORTH AVE @ PC CONTE PKWY | DU | L-2 | ON |
| 383 | L | 1991 | IL 64 NORTH AVE @ PD POWIS RD | DU | L-2 | ON |
| 384 | L | 1992 | IL 64 NORTH AVE @ PE KAUTZ RD SMITH RD | DU | L-2 | ON |
| 385 | L | 1994 | IL 83 KINGERY @ | DU | | ON |

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|-----|---|------|-------------------------------------|----|--|-----|
| | | UU | IL 64 NORTH AVE (SOUTH OF) PS44 | | | L-2 |
| 386 | L | 1996 | IL 56 BUTTERFIELD RD @ | DU | | ON |
| | | UQ | IL 59 PS48 | | | L-2 |
| 387 | L | 1998 | IL 64 NORTH AVE (EAST OF I 290) @ | DU | | ON |
| | | D5E | HARVARD AVE SIGN | | | RM |
| 388 | L | 2002 | IL 47 @ | KA | | ON |
| | | KB | US 20 IL 72 SOUTH | | | L-2 |
| 389 | L | 2003 | US 20 @ | KA | | ON |
| | | KS | IL 47 IL 72 NORTH | | | L-2 |
| 390 | L | 2005 | US 20 WB LAKE ST @ | KA | | ON |
| | | KI | MCLEAN BLVD | | | L-2 |
| 391 | L | 2010 | US 20 EB ELGIN BYPASS @ | KA | | ON |
| | | KX | RANDALL RD | | | L-2 |
| 392 | L | 2012 | US 30 BRIARCLIFF RD @ | KA | | ON |
| | | KF | IL 31 LAKE ST | | | L-2 |
| 393 | L | 2015 | IL 47 US 30 @ | KA | | ON |
| | | KG | US 30 IL 56 | | | L-2 |
| 394 | L | 2020 | IL 31 STATE ST @ | KA | | ON |
| | | KH | BIG TIMBER RD | | | L-2 |
| 395 | L | 2025 | IL 31 STATE ST @ | KA | | ON |
| | | KJ | JERUSHA AVE | | | L-2 |
| 396 | L | 2030 | IL 31 2ND ST STATE ST @ | KA | | ON |
| | | KM | INDIAN MOUNDS RD | | | L-2 |

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|-----|---|------|--|----|-----------|----|
| 397 | L | 2035 | IL 31 STATE ST @ KL JUDSON COLLEGE ENT | KA | L-2 | ON |
| 398 | L | 2040 | IL 31 STATE ST @ KK RIVER RD JUDSON COLLEGE ENTRANCE | KA | L-2 | ON |
| 399 | L | 2045 | IL 38 LINCOLN HWY @ KO IL 47 MAIN ST | KA | L-2 | ON |
| 400 | L | 2048 | IL 47 NB @ KA I 90 TLWY WB | KA | L-2 | ON |
| 401 | L | 2050 | IL 47 @ KE BIG TIMBER RD | KA | L-2 | ON |
| 402 | L | 2055 | IL 47 @ KP PLANK RD | KA | L-2 | ON |
| 403 | L | 2060 | IL 47 @ KV GALENA BLVD | KA | L-2 | ON |
| 404 | L | 2065 | IL 56 BUTTERFIELD RD @ KR KIRK RD FARNSWORTH RD | KA | L-2 | ON |
| 405 | L | 2070 | IL 72 MAIN ST @ KT RANDALL RD | KA | L-2 | ON |
| 406 | L | 2075 | IL 56 @ KZ GALENA RD | KA | L-2 | ON |
| 407 | L | 2098 | US 30 @ K1E IL 47 (WEST OF) SIGN | KA | GEN RM | ON |
| 408 | L | 2103 | US 30 BRIARCLIFF RD @ EA US 34 OWESGO RD | KE | L-2 | ON |

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|-----|---|------|---|----|-----|----|
| 409 | L | 2105 | US 30 BASELINE RD @ EB IL 47 | KE | | ON |
| | | | | | L-2 | |
| 410 | L | 2203 | US 12 RAND RD @ LX IL 134 BIG HOLLOW RD | LA | | ON |
| | | | | | L-2 | |
| 411 | L | 2205 | IL 22 HALF DAY RD WB @ LS I 94 TLWY EB (SB) | LA | | ON |
| | | | | | L-2 | |
| 412 | L | 2207 | DEERFIELD RD @ LA BERKELEY RD ENT RAMP | LA | | ON |
| | | | | | L-2 | |
| 413 | L | 2211 | US 41 SKOKIE HWY @ LE DEERFIELD RD CENTRAL AVE | LA | | ON |
| | | | | | L-2 | |
| 414 | L | 2215 | US 41 SKOKIE HWY @ LR IL 60 KENNEDY RD | LA | | ON |
| | | | | | L-2 | |
| 415 | L | 2217 | US 41 SKOKIE HWY @ LB IL 120 BELVIDERE RD | LA | | ON |
| | | | | | L-2 | |
| 416 | L | 2220 | US 41 SKOKIE HWY @ LG IL 132 GRAND AVE | LA | | ON |
| | | | | | L-2 | |
| 417 | L | 2221 | US 41 SKOKIE HWY @ LU IL 173 ROSECRANS RD | LA | | ON |
| | | | | | L-2 | |
| 418 | L | 2222 | IL 173 ROSECRANS RD @ VG I 94 TLWY EB (IB) | LA | | ON |
| | | | | | L-2 | |
| 419 | L | 2224 | US 41 SKOKIE HWY @ LV KELLY RD | LA | | ON |
| | | | | | L-2 | |
| 420 | L | 2227 | US 41 I-94 TLWY @ | LA | | ON |

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|-----|---|------|---------------------------|----|--|-----|-----|
| | | LL | RUSSELL RD | | | L-2 | |
| 421 | L | 2230 | US 41 SKOKIE HWY @ | LA | | | ON |
| | | LD | WASHINGTON ST (EAST OF) | | | L-2 | |
| 422 | L | 2235 | IL 120 BELVIDERE RD @ | LA | | | OFF |
| | | VA | COHASSET CT | | | L-2 | |
| 423 | L | 2237 | IL 120 BELVIDERE RD @ | LA | | | ON |
| | | VC | IL 43 WAUKEGAN RD | | | L-2 | |
| 424 | L | 2239 | IL 43 WAUKEGAN RD @ | LA | | | ON |
| | | VD | LAKEHURST RD | | | L-2 | |
| 425 | L | 2243 | US 41 SKOKIE HWY @ | LA | | | ON |
| | | LP | PARK AVE | | | L-2 | |
| 426 | L | 2245 | IL 21 MILWAUKEE AVE @ | LA | | | PAR |
| | | LF | IL 120 BELVIDERE RD | | | L-2 | |
| 427 | L | 2247 | IL 21 MILWAUKEE AVE @ | LA | | | ON |
| | | LC | I 94 TLWY WB | | | L-2 | |
| 428 | L | 2250 | IL 21 MILWAUKEE AVE @ | LA | | | ON |
| | | LM | IL 137 BUCKLEY RD | | | L-2 | |
| 429 | L | 2255 | IL 43 WAUKEGAN RD @ | LA | | | ON |
| | | LN | IL 137 BUCKLEY RD | | | L-2 | |
| 430 | L | 2256 | IL 59 FOX LAKE RD @ | LA | | | ON |
| | | LK | GRASS LAKE RD | | | L-2 | |
| 431 | L | 2260 | IL 120 BELVIDERE RD @ | LA | | | ON |
| | | LH | MILL RD WILDWOOD RD | | | L-2 | |

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| | | | | | | |
|-----|---|------|---|----|-----|-----|
| 432 | L | 2265 | IL 120 BELVIDERE RD @ LO OPLAINE RD | LA | L-2 | OFF |
| 433 | L | 2267 | IL 60 TOWN LINE RD @ VE RIVERWOODS RD RIVERWOODS BLVD | LA | L-2 | ON |
| 434 | L | 2268 | IL 60 TOWN LINE RD @ VF SAUNDERS RD FIELD DR | LA | L-2 | ON |
| 435 | L | 2270 | IL 131 GREEN BAY RD @ LY IL 137 BUCKLEY RD | LA | L-2 | ON |
| 436 | L | 2274 | IL 137 BUCKLEY RD @ LJ I 94 TLWY | LA | L-2 | ON |
| 437 | L | 2275 | IL 137 SHERIDAN RD @ LW WADSWORTH RD | LA | L-2 | PAR |
| 438 | L | 2276 | IL 137 SHERIDAN RD @ LQ MARTIN LUTHER KING 22ND ST | LA | L-2 | ON |
| 439 | L | 2280 | IL 137 AMSTUTZ HWY @ B GRAND AVE MATHON DR | LA | L-2 | ON |
| 440 | L | 2285 | IL 137 AMSTUTZ HWY @ A GREENWOOD AVE | LA | L-2 | ON |
| 441 | L | 2287 | IL 83 BARRON BLVD @ VH ROLLINS RD | LA | L-2 | ON |
| 442 | L | 2290 | IL 22 MAIN ST @ LZ ELA RD WHITNEY RD | LA | L-2 | ON |
| 443 | L | 2294 | US 41 SKOKIE HWY @ VO IL 176 ROCKLAND RD PS41 | LA | L-2 | ON |

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| | | | | | | |
|-----|---|------|---|----|-----|----|
| 444 | L | 2305 | US 14 NORTHWEST HWY @ MA IL 31 | MC | L-2 | ON |
| 445 | L | 2307 | IL 31 WESTERN ALGONQUIN BYPASS @ MB IL 62 ALGONQUIN RD | MC | L-2 | ON |
| 446 | L | 2310 | US 14 NORTHWEST HWY @ MC IL 47 EASTWOOD DR | MC | L-2 | ON |
| 447 | L | 2313 | IL 31 WESTERN ALGONQUIN BYPASS @ MD MAIN ST | MC | L-2 | ON |
| 448 | L | 2315 | US 14 NORTHWEST HWY VIRGINIA ST @ MZ IL 176 TERRA COTTA AVE | MC | L-2 | ON |
| 449 | L | 2320 | US 20 GRANT HWY @ MJ MARENGO RD BECK RD UNION RD | MC | L-2 | ON |
| 450 | L | 2323 | US 20 US GRANT MEMORIAL HWY @ ML HARMONY RD | MC | L-2 | ON |
| 451 | L | 2325 | IL 23 @ MK I 90 TLWY | MC | L-2 | ON |
| 452 | L | 2330 | IL 47 EASTWOOD DR @ MS IL 176 SOUTH | MC | L-2 | ON |
| 453 | L | 2335 | IL 47 @ MN IL 176 | MC | L-2 | ON |
| 454 | L | 2402 | US 6 SOUTHWEST HWY @ WZ IL 355 TLWY SB | WI | L-2 | ON |
| 455 | L | 2404 | US 30 PLAINFIELD RD @ | WI | | ON |

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| | | | | | | |
|-----|---|------|-----------------------|----|--|-----|
| | | WA | IL 7 LARKIN AVE | | | L-2 |
| 456 | L | 2405 | IL 126 LOCKPORT RD @ | WI | | ON |
| | | WN | WALLIN DR | | | L-2 |
| 457 | L | 2410 | US 30 LINCOLN HWY @ | WI | | ON |
| | | WC | PILCHER PARK ENT | | | L-2 |
| 458 | L | 2415 | US 30 LINCOLN HWY @ | WI | | ON |
| | | WD | STEVENS ST | | | L-2 |
| 459 | L | 2420 | US 45 @ | WI | | ON |
| | | WW | US 52 JOLIET RD | | | L-2 |
| 460 | L | 2425 | IL 1 VINCENNES BLVD @ | WI | | ON |
| | | WF | UNION AVE MAIN ST | | | L-2 |
| 461 | L | 2428 | IL 7 159TH @ | WI | | ON |
| | | WY | I 355 TLWY | | | L-2 |
| 462 | L | 2430 | IL 7 RENWICK RD @ | WI | | ON |
| | | WB | IL 53 BROADWAY ST | | | L-2 |
| 463 | L | 2435 | IL 50 CICERO AVE @ | WI | | ON |
| | | WG | GOVERNORS HWY | | | L-2 |
| 464 | L | 2440 | IL 53 BROADWAY @ | WI | | ON |
| | | WH | CHANNEY AVE EJE RR | | | L-2 |
| 465 | L | 2442 | IL 53 CHICAGO ST @ | WI | | ON |
| | | HD | US 52 DORIS AVE | | | L-2 |
| 466 | L | 2448 | IL 171 ARCHER AVE @ | WI | | ON |
| | | WQ | IL 355 TLWY NB | | | L-2 |

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|-----|---|------|--|----|-----|-----|
| 467 | L | 2450 | IL 171 COLLINS ST @ WJ KRONMEYER AVE EJE RR | WI | | ON |
| | | | | | L-2 | |
| 468 | L | 2452 | IL 113 MAIN ST @ HB IL 53 FRONT IL 129 WASHINGTON | WI | | ON |
| | | | | | L-2 | |
| 469 | L | 2455 | IL 394 NB @ WK BEMES RD | WI | | ON |
| | | | | | L-2 | |
| 470 | L | 2460 | IL 394 NB @ WL BURVILLE RD FAITHORN RD | WI | | OFF |
| | | | | | L-2 | |
| 471 | L | 2465 | IL 394 NB @ WM COTTAGE GROVE AVE | WI | | ON |
| | | | | | L-2 | |
| 472 | L | 2470 | IL 394 SB @ WT ELMS COURT RD | WI | | ON |
| | | | | | L-2 | |
| 473 | L | 2475 | IL 394 NB @ WO EXCHANGE ST | WI | | ON |
| | | | | | L-2 | |
| 474 | L | 2478 | IL 394 SB @ WV IL 1 DIXIE HWY | WI | | ON |
| | | | | | L-2 | |
| 475 | L | 2480 | IL 394 NB @ WU GOODENOW RD | WI | | ON |
| | | | | | L-2 | |
| 476 | L | 2485 | IL 394 NB @ WR RICHTON RD | WI | | ON |
| | | | | | L-2 | |
| 477 | L | 2490 | IL 394 SB @ WX STEGER RD | WI | | ON |
| | | | | | L-2 | |

LIGHTING SYSTEM - EQUIPMENT PAY CODE - L-3 LOCATIONS

| | | | | | | |
|-----|---|------|------------------------------|----|--|----|
| 478 | L | 4047 | IL 38 LINCOLN HWY STATE ST @ | KA | | ON |
|-----|---|------|------------------------------|----|--|----|

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|-----|---|-------|-------------------------------|----|--|-----|----|
| | | TC-KN | 14TH ST BRICHER ROAD | | | L-3 | |
| 479 | L | 4067 | IL 64 NORTH AVE @ | KA | | | ON |
| | | TC-KW | LA FOX BURLINGTON RD | | | L-3 | |
| 480 | L | 4080 | IL 25 RIVER ST @ | KA | | | ON |
| | | TC-KQ | IL 25 WILSON AVE | | | L-3 | |
| 481 | L | 4081 | IL 25 WASHINGTON AVE @ | KA | | | ON |
| | | TC-KU | IL 25 WILSON ST | | | L-3 | |
| 482 | L | 4085 | IL 31 BATAVIA AVE @ | KA | | | ON |
| | | TC-KD | WILSON AVE | | | L-3 | |
| 483 | L | 4110 | US 30 BASELINE RD @ | KE | | | ON |
| | | TC-EC | ORCHARD RD | | | L-3 | |
| 484 | L | 4209 | IL 43 WAUKEGAN RD @ | LA | | | ON |
| | | TC-LT | WARRIOR WAY HS ENT | | | L-3 | |
| 485 | L | 4403 | IL 126 LOCKPORT RD @ | WI | | | ON |
| | | TC-HN | WALLIN DR COMBO'S ONLY | | | L-3 | |
| 486 | L | 4416 | US 30 LINCOLN HWY @ | WI | | | ON |
| | | TC-HE | RIDGEMORE RD OWENS RD | | | L-3 | |
| 487 | L | 4417 | US 30 LINCOLN HWY @ | WI | | | ON |
| | | TC-HC | WOLF RD | | | L-3 | |
| 488 | L | 4422 | US 45 96TH AVE LA GRANGE RD @ | WI | | | ON |
| | | TC-WX | 191ST ST | | | L-3 | |
| 489 | L | 4612 | TOUHY AVE @ | CO | | | ON |
| | | TC-RU | MCCORMICK BLVD | | | L-3 | |
| 490 | L | 4613 | GREEN BAY RD @ | CO | | | ON |

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|-----|---|-------|-----------------------------|----|--|-----|
| | | TC-RQ | WINNETKA AVE | | | L-3 |
| 491 | L | 4614 | GROSS POINT RD @ | CO | | ON |
| | | TC-XU | CHURCH ST | | | L-3 |
| 492 | L | 4616 | IL 21 MILWAUKEE AVE @ | CO | | ON |
| | | TC-RP | MAIN ST | | | L-3 |
| 493 | L | 4618 | DEMPSTER ST @ | CO | | ON |
| | | TC-XS | CRAWFORD AVE | | | L-3 |
| 494 | L | 4619 | DEMPSTER ST @ | CO | | ON |
| | | TC-XP | EAST PRAIRIE AVE | | | L-3 |
| 495 | L | 4620 | DEMPSTER ST @ | CO | | ON |
| | | TC-XO | ST LOUIS AVE LINCOLNWOOD DR | | | L-3 |
| 496 | L | 4621 | US 41 SKOKIE BLVD @ | CO | | ON |
| | | TC-XA | GOLF RD | | | L-3 |
| 497 | L | 4622 | US 41 SKOKIE BLVD @ | CO | | ON |
| | | TC-XB | FOSTER ST | | | L-3 |
| 498 | L | 4623 | US 41 SKOKIE BLVD @ | CO | | ON |
| | | TC-XQ | OLD ORCHARD RD | | | L-3 |
| 499 | L | 4624 | US 41 SKOKIE BLVD @ | CO | | ON |
| | | TC-XW | GROSS POINT RD | | | L-3 |
| 500 | L | 4625 | CHURCH STREET @ | CO | | ON |
| | | TC-RF | MCCORMICK BLVD | | | L-3 |
| 501 | L | 4626 | DEMPSTER STREET @ | CO | | OFF |
| | | TC-RG | MCCORMICK BLVD | | | L-3 |
| 502 | L | 4631 | US 14 NORTHWEST HWY @ | CO | | ON |

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|-----|---|-------|------------------------------|----|--|-----|
| | | TC-XZ | BENTON ST | | | L-3 |
| 503 | L | 4632 | US 14 NORTHWEST HWY @ | CO | | ON |
| | | TC-XY | PLUM GROVE RD | | | L-3 |
| 504 | L | 4633 | US 14 NW HWY @ | CO | | ON |
| | | TC-XX | SMITH ST | | | L-3 |
| 505 | L | 4643 | US 45 IL 21 MILWAUKEE AVE @ | CO | | ON |
| | | TC-XG | IL 68 DUNDEE RD | | | L-3 |
| 506 | L | 4650 | WILLOW RD @ | CO | | ON |
| | | TC-RA | CHURCHILL RD CLARKSON PARK | | | L-3 |
| 507 | L | 4651 | WILLOW ROAD @ | CO | | ON |
| | | TC-RB | WAGNER ROAD | | | L-3 |
| 508 | L | 4652 | WILLOW ROAD @ | CO | | ON |
| | | TC-RC | SUNSET RIDGE | | | L-3 |
| 509 | L | 4653 | WILLOW ROAD @ | CO | | ON |
| | | TC-RD | THREE LAKES DR FOX MEADOW DR | | | L-3 |
| 510 | L | 4666 | IL 50 CICERO AVE @ | CO | | ON |
| | | TC-XJ | TOUHY AVE | | | L-3 |
| 511 | L | 4669 | IL 72 HIGGINS RD @ | CO | | ON |
| | | TC-XT | PRAIRIE STONE PARKWAY | | | L-3 |
| 512 | L | 4671 | IL 62 ALGONQUIN RD @ | CO | | ON |
| | | TC-RL | MEACHAM RD | | | L-3 |
| 513 | L | 4718 | IL 43 HARLEM AVE @ | CO | | ON |
| | | TC-YF | DIVISION ST | | | L-3 |

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|-----|---|------|---|----|-----|-----|
| 514 | L | 4719 | IL 43 HARLEM AVE @ TC-YG AUGUSTA BLVD | CO | ON | L-3 |
| 515 | L | 4720 | IL 43 HARLEM AVE @ TC-YH CHICAGO AVE | CO | ON | L-3 |
| 516 | L | 4721 | IL 43 HARLEM AVE @ TC-YI ONTARIO ST | CO | ON | L-3 |
| 517 | L | 4722 | IL 43 HARLEM AVE @ TC-YJ LAKE ST | CO | ON | L-3 |
| 518 | L | 4723 | IL 43 HARLEM AVE @ TC-YK NORTH BLVD / SOUTH BLVD | CO | ON | L-3 |
| 519 | L | 4725 | IL 43 HARLEM AVE @ TC-YM RANDOLPH ST | CO | ON | L-3 |
| 520 | L | 4726 | IL 43 HARLEM AVE @ TC-YN WASHINGTON BLVD ST | CO | ON | L-3 |
| 521 | L | 4727 | IL 43 HARLEM AVE @ TC-YO MADISON ST | CO | ON | L-3 |
| 522 | L | 4728 | IL 43 HARLEM AVE @ TC-YP IL 38 ROOSEVELT RD | CO | OFF | L-3 |
| 523 | L | 4729 | IL 43 HARLEM AVE @ TC-YR 16TH ST | CO | ON | L-3 |
| 524 | L | 4775 | IL 38 ROOSEVELT RD @ TC-BP AUSTIN BLVD | CO | ON | L-3 |
| 525 | L | 4792 | IL 43 HARLEM AVE @ TC-YS FOSTER AVE PLACE | CO | ON | L-3 |

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| | | | | | | |
|-----|---|------|--|----|-----|----|
| 526 | L | 4794 | IL 43 HARLEM AVE @ TC-YT LAWRENCE AVE | CO | | ON |
| | | | | | L-3 | |
| 527 | L | 4796 | IL 43 HARLEM AVE @ TC-YU CULLOM AVE | CO | | ON |
| | | | | | L-3 | |
| 528 | L | 4807 | US 45 LAGRANGE RD @ TC-CI 142ND ST | CO | | ON |
| | | | | | L-3 | |
| 529 | L | 4808 | US 45 LAGRANGE RD @ TC-CO 143RD ST | CO | | ON |
| | | | | | L-3 | |
| 530 | L | 4863 | US 45 LAGRANGE RD @ TC-ZP 131ST ST | CO | | ON |
| | | | | | L-3 | |
| 531 | L | 4864 | US 45 LAGRANGE RD @ TC-ZQ SOUTHMOOR SANDBURG HS ENT | CO | | ON |
| | | | | | L-3 | |
| 532 | L | 4865 | US 45 LAGRANGE RD @ TC-ZR 135TH ST | CO | | ON |
| | | | | | L-3 | |
| 533 | L | 4866 | US 45 LAGRANGE RD @ TC-ZS 144TH PL | CO | | ON |
| | | | | | L-3 | |
| 534 | L | 4867 | US 45 LAGRANGE RD @ TC-ZT 147TH ST | CO | | ON |
| | | | | | L-3 | |
| 535 | L | 4868 | US 45 LAGRANGE RD @ TC-ZU 149TH ST | CO | | ON |
| | | | | | L-3 | |
| 536 | L | 4869 | US 45 LAGRANGE RD @ TC-ZV 151ST ST | CO | | ON |
| | | | | | L-3 | |
| 537 | L | 4870 | US 45 LAGRANGE RD @ | CO | | ON |

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|-----|---|-------|------------------------|----|--|-----|
| | | TC-ZW | 153RD ST | | | L-3 |
| 538 | L | 4871 | US 45 LAGRANGE RD @ | CO | | ON |
| | | TC-ZX | 154TH PL DARVIN ENT | | | L-3 |
| 539 | L | 4872 | US 45 LAGRANGE RD @ | CO | | ON |
| | | TC-ZY | 156TH ST LOWE'S ENT | | | L-3 |
| 540 | L | 4873 | US 45 LAGRANGE RD @ | CO | | ON |
| | | TC-ZZ | 163RD ST | | | L-3 |
| 541 | L | 4875 | IL 7 SW HWY @ | CO | | ON |
| | | TC-CQ | RIDGELAND AVE | | | L-3 |
| 542 | L | 4902 | US 20 LAKE ST @ | DU | | ON |
| | | TC-PT | BLOOMINGDALE RD | | | L-3 |
| 543 | L | 4906 | US 20 LAKE ST @ | DU | | ON |
| | | TC-UA | MARCUS DR | | | L-3 |
| 544 | L | 4907 | US 20 LAKE ST @ | DU | | ON |
| | | TC-UB | LOMBARD AVE FOXDALE RD | | | L-3 |
| 545 | L | 4908 | US 20 LAKE ST @ | DU | | ON |
| | | TC-UC | ITASCA RD | | | L-3 |
| 546 | L | 4909 | US 20 LAKE ST @ | DU | | ON |
| | | TC-UD | MILL RD | | | L-3 |
| 547 | L | 4911 | US 20 LAKE ST @ | DU | | ON |
| | | TC-UE | JOHN F KENNEDY DR | | | L-3 |
| 548 | L | 4915 | IL 38 ROOSEVELT RD @ | DU | | ON |
| | | TC-DG | LORRAINE RD | | | L-3 |

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|-----|---|------|---|----|-----|----|
| 549 | L | 4916 | IL 38 ROOSEVELT RD @ TC-DQ PRESIDENT ST | DU | | ON |
| | | | | | L-3 | |
| 550 | L | 4917 | IL 38 ROOSEVELT RD @ TC-DX NAPERVILLE RD | DU | | ON |
| | | | | | L-3 | |
| 551 | L | 4918 | IL 38 ROOSEVELT RD @ TC-DY MAIN ST (IN WHEATON) | DU | | ON |
| | | | | | L-3 | |
| 552 | L | 4919 | IL 38 ROOSEVELT RD @ TC-DZ WEST ST WARRENVILLE RD | DU | | ON |
| | | | | | L-3 | |
| 553 | L | 4921 | IL 38 ROOSEVELT RD @ TC-PQ COUNTY FARM RD | DU | | ON |
| | | | | | L-3 | |
| 554 | L | 4932 | IL 59 @ TC-UG BROOKDALE RD BRUCE LN | DU | | ON |
| | | | | | L-3 | |
| 555 | L | 4933 | IL 59 @ TC-UH NORTH AURORA RD | DU | | ON |
| | | | | | L-3 | |
| 556 | L | 4934 | IL 59 @ TC-UJ MERIDIAN PARKWAY GLACIER PARK AVE | DU | | ON |
| | | | | | L-3 | |
| 557 | L | 4944 | 22ND ST CERMAK RD @ TC-UW WINDSOR DR | DU | | ON |
| | | | | | L-3 | |
| 558 | L | 4945 | 22ND ST CERMAK RD @ TC-PA YORK RD | DU | | ON |
| | | | | | L-3 | |
| 559 | L | 4946 | HIGHLAND AVE @ TC-DK EASTGATE RD | DU | | ON |
| | | | | | L-3 | |
| 560 | L | 4948 | IL 59 @ TC-UK LIBERTY ST JEFFERSON AVE | DU | | ON |
| | | | | | L-3 | |

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|-----|---|-------|-------------------------|----|-----|----|
| 561 | L | 4949 | IL 59 @ | DU | | ON |
| | | TC-UL | WESTRIDGE CT MEIJER ENT | | L-3 | |
| 562 | L | 4950 | IL 59 @ | DU | | ON |
| | | TC-DC | NEW YORK AVE AURORA AVE | | L-3 | |
| 563 | L | 4955 | IL 64 NORTH AVE @ | DU | | ON |
| | | TC-PU | BERTEAU AVE | | L-3 | |
| 564 | L | 4956 | IL 64 NORTH AVE @ | DU | | ON |
| | | TC-PV | EMROY AVE MELROSE AVE | | L-3 | |
| 565 | L | 4957 | IL 64 NORTH AVE @ | DU | | ON |
| | | TC-PW | YORK RD | | L-3 | |
| 566 | L | 4958 | IL 64 NORTH AVE @ | DU | | ON |
| | | TC-PX | MYRTLE AVE | | L-3 | |
| 567 | L | 4993 | IL 19 IRVING PARK RD @ | DU | | ON |
| | | TC-UT | WOOD DALE RD | | L-3 | |
| 568 | L | 5220 | IL 132 GRAND AVE @ | LA | | ON |
| | | TC-LB | HUNT CLUB RD | | L-3 | |
| 569 | L | 5406 | IL 7 159TH ST @ | WI | | ON |
| | | TC-HW | S BELL RD | | L-3 | |
| 570 | L | 5407 | IL 7 159TH ST @ | WI | | ON |
| | | TC-HX | N BELL RD | | L-3 | |
| 571 | L | 5408 | IL 7 159TH ST @ | WI | | ON |
| | | TC-HY | PARKER RD | | L-3 | |
| 572 | L | 5409 | IL 7 159TH ST @ | WI | | ON |
| | | TC-HZ | CEDAR RD | | L-3 | |

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|-----|---|------|---|----|-----|-----|
| 573 | L | 5420 | IL 53 INDEPENDENCE BLVD @ TC-HG BELMONT AVE | WI | | ON |
| | | | | | L-3 | |
| 574 | L | 5421 | IL 53 INDEPENDENCE BLVD @ TC-HH MURPHY DR | WI | | ON |
| | | | | | L-3 | |
| 575 | L | 5436 | WEBER RD @ TC-WI NORMANTOWN RD | WI | | ON |
| | | | | | L-3 | |
| 576 | L | 5450 | US 6 @ TC-WY HOLLYWOOD BLVD CASINO ENT | WI | | OFF |
| | | | | | L-3 | |
| 577 | L | 5451 | I 55 SB FRONTAGE RD WB @ TC-HO US 6 EAMES ST | WI | | ON |
| | | | | | L-3 | |
| 578 | L | 5460 | US 52 JEFFERSON ST @ TC-HI RIVER RD | WI | | ON |
| | | | | | L-3 | |
| 579 | L | 5490 | US 30 LICNOLN HWY @ TC-HF EOLA RD | WI | | ON |
| | | | | | L-3 | |
| 580 | L | 5607 | US 14 MINER STREET @ TC-XE BUSSE HIGHWAY | CO | | ON |
| | | | | | L-3 | |
| 581 | L | 5608 | DES PLAINES RIVER ROAD @ TC-XF PEARSON STREET RIVER ST | CO | | ON |
| | | | | | L-3 | |
| 582 | L | 5609 | DES PLAINES RIVER ROAD @ TC-XK PERRY ST | CO | | ON |
| | | | | | L-3 | |
| 583 | L | 5610 | US 45 DES PLAINES RIVER ROAD @ TC-XC ELK BLVD | CO | | ON |
| | | | | | L-3 | |
| 584 | L | 5611 | US 12 RAND ROAD @ TC-XD US 45 DES PLAINES RIVER ROAD | CO | | ON |
| | | | | | L-3 | |

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|-----|---|---------------|---|----|-----|----|
| 585 | L | 5612 TC-XL | US 14 NORTHWEST HIGHWAY @ SUMMIT AVENUE | CO | L-3 | ON |
| 586 | L | 5613 TC-XM | NORTHWEST HIGHWAY @ MEACHAM AVENUE | CO | L-3 | ON |
| 587 | L | 5614 TC-XN | IL 43 WAUKEGAN ROAD @ HOWARD STREET | CO | L-3 | ON |
| 588 | L | 5615 TC-XR | WILLOW ROAD @ SHERMER ROAD | CO | L-3 | ON |
| 589 | L | 5616 TC-RM | PROSPECT AVENUE @ NORTHWEST HIGHWAY TOUHY AVENUE | CO | L-3 | ON |
| 590 | L | 5617 TC-RN | TOUHY AVENUE @ SUMMIT AVENUE | CO | L-3 | ON |
| 591 | L | 5618 TC-RR | TOUHY AVENUE @ BUSSE HIGHWAY | CO | L-3 | ON |
| 592 | L | 5619 TC-RJ | IL 68 DUNDEE ROAD @ NORTHGATE PARKWAY | CO | L-3 | ON |
| 593 | L | 5620 TC-RI | US 12 RAND ROAD @ WALMART ENT MT PROSPECT PLAZA ENT | CO | L-3 | ON |
| 594 | L | 5621 TC-RH | IL 72 HIGGINS ROAD @ WINTRUST ACCESS DRIVE | CO | L-3 | ON |
| 595 | L | 5622 TC-RE | IL 68 DUNDEE RD @ SKOKIE BLVD | CO | L-3 | ON |
| 596 | L | 5628 TC-XH | US 20 LAKE ST NORTH RAMP @ IL 59 | CO | L-3 | ON |
| 597 | L | 5629 TC-XI | US 20 LAKE ST SOUTH RAMP @ IL 59 | CO | L-3 | ON |
| 598 | L | 5634 | IL 68 DUNDEE RD @ | CO | | ON |

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|-----|---|-------|------------------------------|----|--|-----|----|
| | | TC-RS | N WILKE RD | | | L-3 | |
| 599 | L | 5636 | IL 68 DUNDEE RD @ | CO | | | ON |
| | | TC-RT | KENNICOTT AVE | | | L-3 | |
| 600 | L | 5638 | IL 68 DUNDEE RD @ | CO | | | ON |
| | | TC-RV | PFINGSTEN RD | | | L-3 | |
| 601 | L | 5639 | IL 68 DUNDEE RD @ | CO | | | ON |
| | | TC-RW | LANDWEHR RD | | | L-3 | |
| 602 | L | 5642 | US 14 MINER ST @ | CO | | | ON |
| | | TC-RK | DESPLAINES RIVER RD | | | L-3 | |
| 603 | L | 5649 | IL 59 SUTTON RD @ | CO | | | ON |
| | | TC-XV | IL 58 GOLF RD | | | L-3 | |
| 604 | L | 5660 | BARRINGTON RD @ | CO | | | ON |
| | | TC-RX | HASSEL RD | | | L-3 | |
| 605 | L | 5661 | I 90 TOLLWAY @ | CO | | | ON |
| | | TC-RY | BARRINTON RD | | | L-3 | |
| 606 | L | 5662 | BARRINGTON RD @ | CO | | | ON |
| | | TC-RZ | CENTRAL RD | | | L-3 | |
| 607 | L | 5665 | IL 62 ALGONQUIN RD @ | CO | | | ON |
| | | TC-AB | THOREAU DR THORNTREE LN | | | L-3 | |
| 608 | L | 5670 | US 14 NORTHWEST HWY PROSPECT | CO | | | ON |
| | | TC-AC | AVE @ MT PROSPECT RD | | | L-3 | |
| 609 | L | 5711 | US 12 20 45 MANNHEIM RD @ | CO | | | ON |
| | | TC-YC | US 20 LAKE ST | | | L-3 | |
| 610 | L | 5721 | MONTROSE AVE @ | CO | | | ON |
| | | TC-YQ | NEENAH AVE | | | L-3 | |
| 611 | L | 5737 | IL 171 @ | CO | | | ON |
| | | TC-BO | FOREST AVE RIDGEWOOD RD | | | L-3 | |
| 612 | L | 5740 | US 12 20 45 LAGRANGE RD @ | CO | | | ON |

| | | | | | | | |
|-----|---|-------|------------------------|----|--|-----|-----|
| | | TC-YD | US 34 OGDEN AVE | | | L-3 | |
| 613 | L | 5745 | US 34 OGDEN AVE @ | CO | | | ON |
| | | TC-YE | LOCUST AVE | | | L-3 | |
| 614 | L | 5750 | 26TH ST @ | CO | | | ON |
| | | TC-YA | HIGHLAND BLVD | | | L-3 | |
| 615 | L | 5751 | 26TH ST @ | CO | | | ON |
| | | TC-YB | RIDGELAND AVE | | | L-3 | |
| 616 | L | 5811 | US 12 20 95TH ST @ | CO | | | ON |
| | | TC-ZO | KILBOURNE AVE | | | L-3 | |
| 617 | L | 5821 | 159TH STREET @ | CO | | | ON |
| | | TC-ZC | AMAZON ACCESS DRIVE | | | L-3 | |
| 618 | L | 5822 | DIXIE HIGHWAY @ | CO | | | ON |
| | | TC-ZD | AMAZON ACCESS DRIVE | | | L-3 | |
| 619 | L | 5876 | IL 50 CICERO AVE @ | CO | | | OFF |
| | | TC-ZB | SOUTHWEST HWY 93RD ST | | | L-3 | |
| 620 | L | 5903 | 55TH STREET @ | DU | | | ON |
| | | TC-UI | COUNTY LINE ROAD | | | L-3 | |
| 621 | L | 5904 | IL 19 IRVING PARK RD @ | DU | | | OFF |
| | | TC-UY | YORK RD | | | L-3 | |

LIGHTING SYSTEM - EQUIPMENT PAY CODE - L-4 LOCATIONS

| | | | | | | | |
|-----|---|-------|----------------------------|----|--|-----|-----|
| 622 | L | 127TH | CAL SAG CHANNEL @ | CO | | | OFF |
| | | | 127TH ST | | | L-4 | |
| 623 | L | ASH | CAL SAG CHANNEL @ | CO | | | ON |
| | | | ASHLAND AVE | | | L-4 | |
| 624 | L | CENT | CHICAGO SAN & SHIP CANAL @ | CO | | | OFF |
| | | | CENTRAL AVE | | | L-4 | |
| 625 | L | LAG | CHICAGO SAN & SHIP CANAL @ | CO | | | OFF |
| | | | US 12 20 45 LAGRANGE RD | | | L-4 | |
| 626 | L | CICE | CAL SAG CHANNEL @ | CO | | | ON |

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|-----|---|------|---|----|--|-----|----|
| | | | IL 50 CICERO AVE | | | L-4 | |
| 627 | L | FORD | LITTLE CALUMET RIVER @ I 94 FORD | CO | | L-4 | ON |
| 628 | L | HALS | LITTLE CALUMET RIVER @ IL 1 HALSTED ST | CO | | L-4 | ON |
| 629 | L | HARL | CAL SAG CHANNEL @ IL 43 HARLEM AVE | CO | | L-4 | ON |
| 630 | L | I80 | DESPLAINES RIVER @ I 80 (ACCESS BY BOAT) | WI | | L-4 | ON |
| 631 | L | IL43 | CHICAGO SAN & SHIP CANAL @ IL 43 HARLEM AVE NB | CO | | L-4 | ON |
| 632 | L | IL83 | CAL SAG CHANNEL @ IL 83 KINGERY HWY | CO | | L-4 | ON |
| 633 | L | KEDZ | CAL SAG CHANNEL @ KEDZIE AVE | CO | | L-4 | ON |
| 634 | L | KING | CHICAGO SAN & SHIP CANAL @ IL 83 KINGERY HWY | CO | | L-4 | ON |
| 635 | L | LEM | CHICAGO SAN & SHIP CANAL @ LEMONT RD STATE ST | CO | | L-4 | ON |
| 636 | L | STEV | DESPLAINES RIVER @ I 55 NB | WI | | L-4 | ON |
| 637 | L | SWH | CAL SAG CHANNEL @ IL 7 SOUTHWEST HWY | CO | | L-4 | ON |
| 638 | L | US45 | CAL SAG CHANNEL @ US 45 96TH AVE | CO | | L-4 | ON |
| 639 | L | WEST | CAL SAG CHANNEL @ WESTERN AVE | CO | | L-4 | ON |
| 640 | L | WSR | CHICAGO SAN & SHIP CANAL @ WILLOW SPRINGS RD | CO | | L-4 | ON |

PUMP STATION SYSTEM - EQUIPMENT PAYCODE - P-1 LOCATIONS

| | | | | | | |
|---|----|----|---|----|-----|-----|
| 1 | PS | 02 | I 94 EDENS @ WINNETKA RD | CO | P-1 | ON |
| 2 | PS | 03 | I 94 EDENS @ CALDWELL PETERSON | CO | P-1 | ON |
| 3 | PS | 04 | I 290 IKE EXPY @ 1ST AVE (EAST OF) | CO | P-1 | OFF |

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|----|----|----|---|----|-----|-----|
| 4 | PS | 05 | I 290 IKE EXPY @ DESPLAINES AVE | CO | P-1 | ON |
| 5 | PS | 07 | I 290 IKE EXPY @ FRANKLIN ST | CO | P-1 | ON |
| 6 | PS | 08 | US 14 NW HWY @ US 12 45 MANNHEIM (EAST OF) | CO | P-1 | OFF |
| 7 | PS | 09 | US 45 MANNHEIM RD @ US 20 LAKE ST | CO | P-1 | ON |
| 8 | PS | 10 | US 14 DEMPSTER @ IL 21 MILWAUKEE AVE | CO | P-1 | ON |
| 9 | PS | 11 | IL 50 CICERO AVE @ 158TH ST | CO | P-1 | ON |
| 10 | PS | 12 | IL 64 NORTH AVE @ 25TH AVE (WEST OF) | CO | P-1 | ON |
| 11 | PS | 13 | US 41 SKOKIE BLVD @ OAKTON ST (SOUTH OF) | CO | P-1 | ON |
| 12 | PS | 14 | WOOD ASHLAND @ 138TH | CO | P-1 | OFF |
| 13 | PS | 15 | 79TH ST @ KEDZIE AVE | CO | P-1 | ON |
| 14 | PS | 16 | IL 72 HIGGINS RD @ US 12 45 (EAST OF) | CO | P-1 | ON |
| 15 | PS | 17 | IL 58 GOLF RD @ | CO | | ON |

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| | | | | | | |
|----|----|----|---|----|-----|----|
| | | | US 45 RIVER RD | | P-1 | |
| 16 | PS | 18 | US 6 159TH ST @ PARK AVE | CO | P-1 | ON |
| 17 | PS | 19 | US 6 159TH ST @ IL 50 CICERO AVE | CO | P-1 | ON |
| 18 | PS | 20 | I 290 IKE EXPY @ WOLF RD (WEST OF) | CO | P-1 | ON |
| 19 | PS | 21 | I 94 RYAN @ 72ND ST | CO | P-1 | ON |
| 20 | PS | 22 | I 90 94 KENN @ FULTON AVE | CO | P-1 | ON |
| 21 | PS | 23 | I 90 94 KENN @ ROSCOE ST | CO | P-1 | ON |
| 22 | PS | 24 | I 190 KENN @ MANNHEIM RD (EAST OF) | CO | P-1 | ON |
| 23 | PS | 25 | US 12 20 95TH ST @ IL 43 HARLEM AVE | CO | P-1 | ON |
| 24 | PS | 26 | I 90 94 RYAN @ ROOSEVELT RD | CO | P-1 | ON |
| 25 | PS | 27 | I 94 FORD @ 110TH ST (DOTY) | CO | P-1 | ON |
| 26 | PS | 28 | IL 50 CICERO AVE @ US 34 OGDEN AVE | CO | P-1 | ON |

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|----|----|----|--|----|-----|----|
| 27 | PS | 29 | I 90 94 RYAN @ WALLACE ST | CO | P-1 | ON |
| 28 | PS | 30 | I 55 STEV @ HOMAN AVE | CO | P-1 | ON |
| 29 | PS | 31 | 111TH ST @ CENTRAL AVE | CO | P-1 | ON |
| 30 | PS | 32 | IL 64 NORTH AVE @ 1ST AVE | CO | P-1 | ON |
| 31 | PS | 33 | PALATINE RD @ IL 21 MILWAUKEE AVE | CO | P-1 | ON |
| 32 | PS | 34 | I 290 IKE @ EMROY AVE | DU | P-1 | ON |
| 33 | PS | 35 | I 57 @ 127TH ST | CO | P-1 | ON |
| 34 | PS | 36 | IL 43 HARLEM AVE @ 176TH ST | CO | P-1 | ON |
| 35 | PS | 37 | US 41 SKOKIE HWY @ IL 176 ROCKLAND RD | LA | P-1 | ON |
| 36 | PS | 39 | IL 60 KENNEDY RD @ US 41 SKOKIE (WEST OF) | LA | P-1 | ON |
| 37 | PS | 40 | US 45 LAKE AVE @ IL 60 TOWNE LINE (NORTH OF) | LA | P-1 | ON |
| 38 | PS | 41 | US 41 SKOKIE HWY @ IL 176 ROCKLAND (NORTH OF) | LA | P-1 | ON |

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|----|----|----|---|----|-----|----|
| 39 | PS | 42 | IL 47 @ IL 72 | KA | P-1 | ON |
| 40 | PS | 43 | US 41 SKOKIE HWY @ IL 132 GRAND AVE (NORTH OF) | LA | P-1 | ON |
| 41 | PS | 44 | IL 83 KINGERY HWY @ IL 64 NORTH AVE (SOUTH OF) | DU | P-1 | ON |
| 42 | PS | 46 | US 41 SKOKIE HWY @ CLAVEY RD | LA | P-1 | ON |
| 43 | PS | 47 | IL 59 @ NORTH AURORA AVE | DU | P-1 | ON |
| 44 | PS | 48 | IL 56 BUTTERFIELD RD @ IL 59 (WEST OF) | DU | P-1 | ON |
| 45 | PS | 50 | IL 22 HALF DAY RD @ US 41 SKOKIE HWY | LA | P-1 | ON |
| 46 | PS | 51 | 127TH ST @ PULASKI RD (EAST OF) | CO | P-1 | ON |
| 47 | PS | 52 | IL 59 @ IL 126 | WI | P-1 | ON |

SURVEILLANCE SYSTEM - EQUIPMENT - LOCATIONS

| | | | | | | |
|---|---|------|--|----|-----|----|
| 1 | S | 62A | DMS PORTABLE SIGN A @ 62ND ST | CO | S-3 | ON |
| 2 | S | 62B | DMS PORTABLE SIGN B @ 62ND ST | CO | S-3 | ON |
| 3 | S | 1000 | I 55 STEV NE IB @ MARTIN LUTHER KING MLK DR | CO | S-2 | ON |
| 4 | S | 1005 | I 55 STEV SW OB @ MARTIN LUTHER KING MLK DR | CO | S-2 | ON |
| 5 | S | 1007 | I 55 STEV OB @ MARTIN LUTHER KING DR | CO | S-3 | ON |
| 6 | S | 1010 | I 55 STEV SW OB @ STATE ST | CO | S-2 | ON |
| 7 | S | 1015 | I 55 STEV NE IB @ | CO | | ON |

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|----|---|------|--|----|-----|----|
| | | | 26TH ST & WENTWORTH | | S-2 | |
| 8 | S | 1020 | I 55 STEV SW OB @ 26TH ST & WENTWORTH | CO | S-2 | ON |
| 9 | S | 1025 | I 55 STEV NE IB @ W WENTWORTH AVE | CO | S-2 | ON |
| 10 | S | 1030 | I 55 STEV SW OB @ W WENTWORTH AVE | CO | S-2 | ON |
| 11 | S | 1035 | I 55 STEV SW OB @ I 90 94 RYAN INTER | CO | S-2 | ON |
| 12 | S | 1040 | I 55 STEV NE IB @ I 90 94 RYAN INTER | CO | S-2 | ON |
| 13 | S | 1045 | I 55 STEV SW OB @ I 90 94 RYAN INTER | CO | S-2 | ON |
| 14 | S | 1047 | I 55 STEV NE IB @ I 90 94 RYAN CROSS CON | CO | S-2 | ON |
| 15 | S | 1050 | I 55 STEV NE IB @ I 90 94 RYAN I 55 INTER | CO | S-2 | ON |
| 16 | S | 1055 | I 55 STEV NE IB @ ARCHER AVE & MARY ST | CO | S-2 | ON |
| 17 | S | 1060 | I 55 STEV NE IB @ LOCK ST | CO | S-2 | ON |
| 18 | S | 1065 | I 55 STEV NE IB @ WOOD ST | CO | S-2 | ON |
| 19 | S | 1075 | I 55 STEV NE IB @ | CO | | ON |

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| | | | | | | |
|----|---|------|--|----|-----|----|
| | | | HOYNE AVE | | S-2 | |
| 20 | S | 1080 | I 55 STEV NE IB @ PENN RR | CO | S-2 | ON |
| 21 | S | 1100 | I 55 STEV NE IB @ KEDZIE & CALIFORNIA AVE | CO | S-2 | ON |
| 22 | S | 1105 | I 55 STEV NE IB @ KEDZIE & CALIFORNIA AVE | CO | S-2 | ON |
| 23 | S | 1110 | I 55 STEV NE IB @ KEDZIE & CALIFORNIA AVE | CO | S-2 | ON |
| 24 | S | 1112 | I 55 STEV MEDIAN @ CALIFORNIA AVE (WEST OF) | CO | S-3 | ON |
| 25 | S | 1115 | I 55 STEV SW OB @ PULASKI RD ATSF RR (EAST) | CO | S-2 | ON |
| 26 | S | 1120 | I 55 STEV SW OB @ PULASKI RD | CO | S-2 | ON |
| 27 | S | 1122 | I 55 @ CENTRAL (1 MILE WEST OF) | CO | S-3 | ON |
| 28 | S | 1123 | I 55 @ KEDZIE (.25 MILES WEST OF) | CO | S-3 | ON |
| 29 | S | 1125 | I 55 STEV NE IB @ PULASKI RD | CO | S-2 | ON |
| 30 | S | 1130 | I 55 STEV SW OB @ IL 50 CICERO AVE | CO | S-2 | ON |
| 31 | S | 1135 | I 55 STEV SW OB @ | CO | | ON |

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| | | | | | | |
|----|---|------|---|----|-----|----|
| | | | IL 50 CICERO AVE | | S-2 | |
| 32 | S | 1140 | I 55 STEV SW OB @ IL 50 CICERO AVE OB EXIT | CO | S-2 | ON |
| 33 | S | 1150 | I 55 STEV NE IB @ IL 50 CICERO AVE IB RS | CO | S-2 | ON |
| 34 | S | 1160 | I 55 STEV NE IB @ IL 50 CICERO AVE | CO | S-2 | ON |
| 35 | S | 1165 | I 55 STEV SW OB @ CENTRAL AVE | CO | S-2 | ON |
| 36 | S | 1170 | I 55 STEV NE IB @ CENTRAL AVE | CO | S-2 | ON |
| 37 | S | 1175 | I 55 STEV NE IB @ CENTRAL AVE IL 43 HARLEM | CO | S-2 | ON |
| 38 | S | 1180 | I 55 STEV NE IB @ 60TH IB RS | CO | S-2 | ON |
| 39 | S | 1185 | I 55 STEV SW OB @ CENTRAL AVE IL 43 HARLEM | CO | S-2 | ON |
| 40 | S | 1190 | I 55 STEV SW OB @ CENTRAL AVE IL 43 HARLEM | CO | S-2 | ON |
| 41 | S | 1195 | I 55 STEV SW OB @ IL 43 HARLEM AVE | CO | S-2 | ON |
| 42 | S | 1205 | I 55 STEV NE IB @ IL 43 HARLEM AVE | CO | S-2 | ON |

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| | | | | | | |
|----|---|------|---|----|-----|----|
| 43 | S | 1210 | I 55 STEV SW OB @ IL 43 HARLEM AVE | CO | S-2 | ON |
| 44 | S | 1215 | I 55 STEV NE IB @ IL 43 HARLEM AVE | CO | S-2 | ON |
| 45 | S | 1220 | I 55 STEV SW OB @ 75TH WEST | CO | S-2 | ON |
| 46 | S | 1225 | I 55 STEV SW OB @ LAWNDALE NW QUAD | CO | S-2 | ON |
| 47 | S | 1235 | I 55 STEV NE IB @ LAWNDALE AVE IB | CO | S-2 | ON |
| 48 | S | 1240 | I 55 STEV SW OB @ LAWNDALE | CO | S-2 | ON |
| 49 | S | 1245 | I 55 STEV NE IB @ LAWNDALE EXIT | CO | S-2 | ON |
| 50 | S | 1250 | I 55 STEV NE IB @ B&O RR 83RD (WEST) | CO | S-2 | ON |
| 51 | S | 1255 | I 55 STEV NE IB @ 86TH W | CO | S-2 | ON |
| 52 | S | 1260 | I 55 STEV NE IB @ 88TH W | CO | S-2 | ON |
| 53 | S | 1262 | I 55 STEV IB @ 1ST AVE (WEST) | CO | S-3 | ON |
| 54 | S | 1265 | I 55 STEV NE IB @ 91ST W | CO | S-2 | ON |

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| | | | | | | |
|----|---|------|--|----|-----|-----|
| 55 | S | 1270 | I 55 STEV SW OB @ 97TH W | CO | S-2 | ON |
| 56 | S | 1275 | I 55 STEV SW OB @ US 12 20 45 LAGRANGE RD | CO | S-2 | ON |
| 57 | S | 1280 | I 55 STEV SW OB @ US 12 20 45 LAGRANGE RD | CO | S-2 | ON |
| 58 | S | 1282 | US 12 20 45 LAGRANGE NB @ 87TH ST | CO | S-3 | ON |
| 59 | S | 1283 | US 12 20 45 LAGRANGE SB @ I 55 NE | CO | S-3 | ON |
| 60 | S | 1285 | I 55 STEV NE IB @ US 12 20 45 LAGRANGE RD | CO | S-2 | ON |
| 61 | S | 1290 | I 55 STEV NE IB @ US 12 20 45 LAGRANGE RD SW | CO | S-2 | ON |
| 62 | S | 1295 | I 55 STEV SW OB @ WILLOW SPRINGS RD (EAST) | CO | S-2 | ON |
| 63 | S | 1300 | I 55 STEV SW OB @ WILLOW SPRINGS RD OB (EAST) | CO | S-2 | ON |
| 64 | S | 1305 | I 55 STEV SW OB @ I 294 | CO | S-2 | OFF |
| 65 | S | 1310 | I 55 STEV NE IB @ 109TH ST | CO | S-2 | OFF |
| 66 | S | 1315 | I 55 STEV SW OB @ | CO | | ON |

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| | | | I 294 TLWY | | S-2 |
|----|---|------|--|----|-----|
| 67 | S | 1320 | I 55 STEV SW OB @ JOLIET RD | CO | OFF |
| | | | | | S-2 |
| 68 | S | 1325 | I 55 STEV SW OB @ COUNTY LINE RD (EAST) | CO | ON |
| | | | | | S-2 |
| 69 | S | 1330 | I 55 STEV SW OB @ COUNTY LINE RD (WEST) | DU | ON |
| | | | | | S-2 |
| 70 | S | 1332 | I 55 STEV IB @ COUNTY LINE RD (WEST) | DU | ON |
| | | | | | S-3 |
| 71 | S | 1335 | I 55 STEV SW OB @ COUNTY LINE RD (1.0 MILE WEST) | DU | ON |
| | | | | | S-2 |
| 72 | S | 1340 | I 55 STEV SW OB @ MADISON ST | DU | ON |
| | | | | | S-2 |
| 73 | S | 1345 | I 55 STEV NE IB @ IL 83 (EAST) | DU | ON |
| | | | | | S-2 |
| 74 | S | 1350 | I 55 STEV NE IB @ IL 83 (WEST) | DU | ON |
| | | | | | S-2 |
| 75 | S | 1355 | I 55 STEV SW OB @ CLARENDON HILLS RD | DU | ON |
| | | | | | S-2 |
| 76 | S | 1360 | I 55 STEV NE IB @ CLARENDON HILLS RD (0.5 MILE WEST | DU | ON |
| | | | | | S-2 |
| 77 | S | 1365 | I 55 STEV NE IB @ CASS AVE (EAST) | DU | ON |
| | | | | | S-2 |

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|----|---|------|--|----|-----|-----|
| 78 | S | 1370 | I 55 STEV NE IB @ CASS AVE (WEST) | DU | S-2 | ON |
| 79 | S | 1375 | I 55 STEV NE IB @ CASS AVE (1.0 MILE WEST) | DU | S-2 | ON |
| 80 | S | 1380 | I 55 STEV SW OB @ LEMONT RD (0.5 MILE EAST) | DU | S-2 | ON |
| 81 | S | 1385 | I 55 STEV NE IB @ LEMONT RD (EAST) | DU | S-2 | OFF |
| 82 | S | 1390 | I 55 STEV NE IB @ LEMONT RD (WEST) | DU | S-2 | OFF |
| 83 | S | 1395 | I 55 STEV NE IB @ LEMONT RD (0.5 MILE WEST) | DU | S-2 | ON |
| 84 | S | 1400 | I 55 STEV NE IB @ WOODWARD AVE | DU | S-2 | ON |
| 85 | S | 1401 | I 55 NE IB @ I 355 TLWY (WOODWARD) | WI | S-2 | ON |
| 86 | S | 1402 | I 55 SW OB @ I 355 TLWY NB | WI | S-2 | ON |
| 87 | S | 1403 | I 55 SW OB @ I 355 TLWY (WEST OF WOODWARD) | WI | S-2 | ON |
| 88 | S | 1404 | I 55 NE IB @ I 355 TLWY NB | WI | S-2 | ON |
| 89 | S | 1405 | I 55 SW OB @ I 355 TLWY NB | WI | S-2 | ON |

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| | | | | | | |
|-----|---|------|---|----|-----|-----|
| 90 | S | 1406 | I 55 SW OB @ I 355 TLWY SB | WI | S-2 | ON |
| 91 | S | 1407 | I 55 SW OB @ I 355 TLWY JOLIET RD | WI | S-2 | ON |
| 92 | S | 1408 | I 55 SW OB @ I 355 TLWY | WI | S-2 | ON |
| 93 | S | 1425 | I 55 SW OB @ JOLIET RD EXIT | WI | S-2 | ON |
| 94 | S | 1427 | I 55 SW OB @ I 355 TLWY ENT | WI | S-2 | ON |
| 95 | S | 1430 | I 55 SW OB @ JOLIET RD (0.5 MILE WEST) | WI | S-2 | OFF |
| 96 | S | 1435 | I 55 NE IB @ UPTON RD (WEST) | WI | S-2 | ON |
| 97 | S | 1440 | I 55 SW OB @ IL 53 (0.5 MILE EAST) | WI | S-2 | ON |
| 98 | S | 1445 | I 55 NE IB @ IL 53 (EAST) | WI | S-2 | OFF |
| 99 | S | 1450 | I 55 NE IB @ IL 53 (WEST) | WI | S-2 | ON |
| 100 | S | 1455 | I 55 NE IB @ SCHMIDT RD (EAST) | WI | S-2 | ON |
| 101 | S | 1460 | I 55 SW OB @ | WI | | ON |

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| | | | | | | |
|-----|---|------|---|----|-----|-----|
| | | | SCHMIDT RD (WEST) WEIGH STATI | | S-2 | |
| 102 | S | 1465 | I 55 NE IB @ NAPERVILLE RD (0.5 MILE E) WEIG | WI | S-2 | ON |
| 103 | S | 1470 | I 55 NE IB @ NAPERVILLE RD (WEST) | WI | S-2 | ON |
| 104 | S | 1475 | I 55 SW OB @ WEBER RD (0.5 MILE NORTH) | WI | S-2 | OFF |
| 105 | S | 1480 | I 55 SW OB @ WEBER RD EXIT | WI | S-2 | OFF |
| 106 | S | 1485 | I 55 SW OB @ WEBER RD NORTH (AIS) | WI | S-2 | OFF |
| 107 | S | 1490 | I 55 SW OB @ WEBER RD (SOUTH) | WI | S-2 | OFF |
| 108 | S | 1495 | I 55 SW OB @ WEBER RD (0.5 MILE SOUTH) | WI | S-2 | OFF |
| 109 | S | 1500 | I 55 SW OB @ WEBER RD (1.0 MILE NORTH) | WI | S-2 | OFF |
| 110 | S | 1505 | I 55 NE IB @ WEBER RD (0.5 MILE SOUTH OF) | WI | S-2 | OFF |
| 111 | S | 1510 | I 55 SW OB @ IL 126 EXIT | WI | S-2 | OFF |
| 112 | S | 1515 | I 55 SW OB @ IL 126 | WI | S-2 | OFF |

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|-----|---|------|--|----|-----|-----|
| 113 | S | 1520 | I 55 NE IB @ IL 126 (0.25 MILE SOUTH) | WI | S-2 | OFF |
| 114 | S | 1525 | I 55 NE IB @ IL 126 (0.5 MILE SOUTH) | WI | S-2 | OFF |
| 115 | S | 1530 | I 55 SW OB @ LOCKPORT RD (0.5 MILE NORTH) | WI | S-2 | OFF |
| 116 | S | 1535 | I 55 SW OB @ LOCKPORT RD (NORTH) | WI | S-2 | OFF |
| 117 | S | 1540 | I 55 SW OB @ LOCKPORT RD (SOUTH) | WI | S-2 | OFF |
| 118 | S | 1545 | I 55 NE IB @ RENEWICK RD (NORTH) | WI | S-2 | OFF |
| 119 | S | 1550 | I 55 NE IB @ US 30 (0.5 MILE NORTH) | WI | S-2 | OFF |
| 120 | S | 1555 | I 55 SW OB @ US 30 (NORTH) | WI | S-2 | OFF |
| 121 | S | 1560 | I 55 SW OB @ US 30 (SOUTH) | WI | S-2 | OFF |
| 122 | S | 1565 | I 55 SW OB @ US 30 (0.5 MILE SOUTH) | WI | S-2 | OFF |
| 123 | S | 1570 | I 55 NE @ CATON FARM | WI | S-3 | ON |
| 124 | S | 1571 | I 55 SB @ HARRIS DR | WI | S-3 | ON |

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|-----|---|------|--|----|-----|-----|
| 125 | S | 1572 | I 55 SW OB @ CATON FARM RD (0.5 MILE NORTH) | WI | S-2 | OFF |
| 126 | S | 1575 | I 55 NE IB @ CATON FARM RD | WI | S-2 | OFF |
| 127 | S | 1580 | I 55 NE IB @ CATON FARM (0.5 MILE SOUTH) | WI | S-2 | OFF |
| 128 | S | 1585 | I 55 SW OB @ US 52 (0.5 MILE NORTH) | WI | S-2 | OFF |
| 129 | S | 1590 | I 55 NE IB @ US 52 (0.5 MILE NORTH) | WI | S-2 | OFF |
| 130 | S | 1595 | I 55 NE IB @ BLACK RD | WI | S-2 | OFF |
| 131 | S | 1600 | I 55 SW OB @ US 52 (0.5 MILE NORTH) | WI | S-2 | OFF |
| 132 | S | 1605 | I 55 NB @ US 6 | WI | S-3 | ON |
| 133 | S | 1606 | I 55 SB @ SUMMIT RD | WI | S-3 | ON |
| 134 | S | 1608 | I 55 SW OB @ US 52 (NORTH) | WI | S-2 | OFF |
| 135 | S | 1610 | I 55 SW OB @ US 52 (SOUTH) | WI | S-2 | OFF |
| 136 | S | 1615 | I 55 NE IB @ | WI | | OFF |

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| | | | | | | |
|-----|---|------|---|----|-----|-----|
| | | | IL 59 (0.5 MILE NORTH) | | S-2 | |
| 137 | S | 1620 | I 55 SW OB @ IL 59 (NORTH) | WI | S-2 | OFF |
| 138 | S | 1625 | I 55 SW OB @ IL 59 (SOUTH) | WI | S-2 | OFF |
| 139 | S | 1630 | I 55 SW OB @ I 80 (0.5 MILE NORTH) | WI | S-2 | OFF |
| 140 | S | 1635 | I 55 SW OB @ I 80 (NORTH) | WI | S-2 | OFF |
| 141 | S | 1640 | I 55 SW OB @ I 80 (SOUTH) | WI | S-2 | OFF |
| 142 | S | 1645 | I 55 SW OB @ I 80 (0.5 MILE SOUTH) | WI | S-2 | ON |
| 143 | S | 1650 | I 55 SW OB @ I 80 (1.0 MILE SOUTH) | WI | S-2 | ON |
| 144 | S | 1655 | I 55 SW OB @ CANAL RD | WI | S-2 | ON |
| 145 | S | 1660 | I 55 SW OB @ US 6 (NORTH) | WI | S-2 | ON |
| 146 | S | 1665 | I 55 SW OB @ US 6 (SOUTH) | WI | S-2 | ON |
| 147 | S | 1670 | I 55 SW OB @ AMOCO RD | WI | S-2 | OFF |

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| | | | | | | |
|-----|---|------|--|----|-----|----|
| 148 | S | 1675 | I 55 SW OB @ BLUFF RD (1.0 MILE NORTH) | WI | S-2 | ON |
| 149 | S | 1680 | I 55 SW OB @ BLUFF RD (0.5 MILE NORTH) | WI | S-2 | ON |
| 150 | S | 1685 | I 55 SW OB @ BLUFF RD (NORTH) | WI | S-2 | ON |
| 151 | S | 1690 | I 55 SW OB @ BLUFF RD (NORTH) | WI | S-2 | ON |
| 152 | S | 1695 | I 55 SW OB @ DESPLAINES RIVER (NORTH) | WI | S-2 | ON |
| 153 | S | 1700 | I 55 SW OB @ ARSENAL RD (NORTH OF) | WI | S-2 | ON |
| 154 | S | 1705 | I 55 SW OB @ ARSENAL RD | WI | S-2 | ON |
| 155 | S | 1710 | I 55 SW OB @ ARSENAL RD (SOUTH OF) | WI | S-2 | ON |
| 156 | S | 1715 | I 55 SW OB @ ARSENAL RD (0.5 MILE SOUTH OF) | WI | S-2 | ON |
| 157 | S | 1720 | I 55 NE IB @ ARSENAL RD (1.0 MILE SOUTH OF) | WI | S-2 | ON |
| 158 | S | 1723 | I 55 NE IB @ BLODGETT RD (0.25 MILE EAST) | WI | S-2 | ON |
| 159 | S | 1725 | I 55 SW OB @ BLODGETT RD (0.5 MILE WEST) | WI | S-2 | ON |

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|-----|---|------|--|----|-----|-----|
| 160 | S | 1730 | I 55 SW OB @ RIVER RD (1.0 MILE EAST) | WI | S-2 | ON |
| 161 | S | 1735 | I 55 SW OB @ RIVER RD (0.5 MILE EAST) | WI | S-2 | ON |
| 162 | S | 1740 | I 55 SW OB @ RIVER RD | WI | S-2 | ON |
| 163 | S | 1745 | I 55 SW OB @ LORENZO RD (EAST) | WI | S-2 | ON |
| 164 | S | 1750 | I 55 SW OB @ LORENZO RD (WEST) | WI | S-2 | ON |
| 165 | S | 1755 | I 55 SW OB @ LORENZO RD (0.5 MILE WEST) | WI | S-2 | ON |
| 166 | S | 2000 | I 57 SB OB @ C&W RR (0.5 MILE S OF WENTWORTH) | CO | S-2 | ON |
| 167 | S | 2005 | I 57 NB IB @ IL 1 HALSTED ST | CO | S-1 | ON |
| 168 | S | 2015 | I 57 SB OB @ IL 1 HALSTED ST | CO | S-2 | OFF |
| 169 | S | 2020 | I 57 NB IB @ 100TH ST | CO | S-2 | OFF |
| 170 | S | 2025 | I 57 NB IB @ 104TH ST | CO | S-2 | OFF |
| 171 | S | 2030 | I 57 SB OB @ | CO | | OFF |

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| | | | | | | | |
|-----|---|------|---------------------------------|----|--|-----|-----|
| | | | 107TH ST | | | S-2 | |
| 172 | S | 2035 | I 57 NB IB ENT @ 111TH ST | CO | | S-2 | OFF |
| 173 | S | 2040 | I 57 SB OB EXT @ 111TH ST | CO | | S-2 | OFF |
| 174 | S | 2050 | I 57 SB OB ENT @ 111TH ST | CO | | S-2 | OFF |
| 175 | S | 2052 | I 57 NB IB @ 119TH ST | CO | | S-3 | ON |
| 176 | S | 2055 | I 57 NB IB ENT 1 @ 119TH ST | CO | | S-2 | ON |
| 177 | S | 2060 | I 57 NB IB EXT @ 119TH ST | CO | | S-2 | OFF |
| 178 | S | 2065 | I 57 NB IB ENT 3 @ 119TH ST | CO | | S-2 | OFF |
| 179 | S | 2075 | I 57 NB IB ENT @ 127TH ST | CO | | S-2 | OFF |
| 180 | S | 2080 | I 57 SB OB EXT @ 127TH ST | CO | | S-2 | ON |
| 181 | S | 2085 | I 57 NB IB EXT @ 127TH ST | CO | | S-2 | OFF |
| 182 | S | 2095 | I 57 NB IB @ CAL SAG CHANNEL | CO | | S-2 | OFF |

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|-----|---|------|---|----|-----|-----|
| 183 | S | 2100 | I 57 NB IB @ CALUMET RIVER (SOUTH OF) | CO | S-2 | OFF |
| 184 | S | 2105 | I 57 NB IB @ IHB RR THORNTON RD | CO | S-2 | OFF |
| 185 | S | 2110 | I 57 NB IB @ IHB RR (NORTH OF SEELEY) | CO | S-2 | OFF |
| 186 | S | 2115 | I 57 SB OB @ IL 83 SIBLEY (0.5 MILE SOUTH) | CO | S-2 | OFF |
| 187 | S | 2120 | I 57 SB OB @ IL 83 147TH ST SIBLEY BLVD | CO | S-2 | OFF |
| 188 | S | 2125 | I 57 NB IB @ IL 83 147TH ST SIBLEY BLVD | CO | S-2 | OFF |
| 189 | S | 2135 | I 57 NB IB @ I 294 TLWY | CO | S-2 | ON |
| 190 | S | 2140 | I 57 SB OB @ KEDZIE AVE (NORTH) | CO | S-2 | ON |
| 191 | S | 2145 | I 57 SB OB EXT @ 155TH ST | CO | S-2 | OFF |
| 192 | S | 2155 | I 57 SB OB @ US 6 159TH ST | CO | S-2 | OFF |
| 193 | S | 2160 | I 57 NB IB @ US 6 159TH ST (NE QUAD) | CO | S-2 | OFF |
| 194 | S | 2165 | I 57 SB OB @ US 6 159TH ST | CO | S-2 | OFF |

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|-----|---|------|--|----|-----|-----|
| 195 | S | 2170 | I 57 NB IB @ US 6 159TH ST (SE QUAD) | CO | S-2 | OFF |
| 196 | S | 2175 | I 57 SB OB @ 163RD ST (NORTH OF) | CO | S-2 | OFF |
| 197 | S | 2177 | I 57 NB IB @ 163RD ST | CO | S-3 | OFF |
| 198 | S | 2180 | I 57 SB OB @ 167TH ST (NW QUAD) | CO | S-2 | OFF |
| 199 | S | 2190 | I 57 SB OB @ 167TH ST (SW QUAD) | CO | S-2 | OFF |
| 200 | S | 2195 | I 57 NB IB @ 167TH ST | CO | S-2 | OFF |
| 201 | S | 2205 | I 57 NB IB @ 167TH ST | CO | S-2 | OFF |
| 202 | S | 2210 | I 57 SB OB @ CICERO AVE (WEST) | CO | S-2 | OFF |
| 203 | S | 2215 | I 57 SB OB @ CICERO AVE (0.5 MILE WEST) | CO | S-2 | OFF |
| 204 | S | 2220 | I 57 NB IB @ I 80 INTERCHANGE (NE QUAD) | CO | S-2 | OFF |
| 205 | S | 2225 | I 57 NB IB @ I 80 INTERCHANGE (NW QUAD) | CO | S-2 | OFF |
| 206 | S | 2230 | I 57 SB OB @ I 80 INTERCHANGE (.1 MILE NO OF) | CO | S-2 | OFF |

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| | | | | | | |
|-----|---|------|---|----|-----|-----|
| 207 | S | 2235 | I 57 NB IB @ I 80 INTERCHANGE (.1 MILE SO OF) | CO | S-2 | OFF |
| 208 | S | 2240 | I 57 SB OB @ I 80 INTERCHANGE (.2 MILES SO OF) | CO | S-2 | OFF |
| 209 | S | 2245 | I 57 SB OB @ I 80 INTERCHANGE (.4 MILE SO OF) | CO | S-2 | OFF |
| 210 | S | 2265 | I 57 NB IB @ I 80 183RD ST (SOUTH) | CO | S-3 | ON |
| 211 | S | 3000 | I 190 NW OB @ O'HARE AIRPORT PARKING LOT C | CO | S-2 | ON |
| 212 | S | 3005 | I 190 KENN NW OB @ US 12 45 MANNHEIM RD | CO | S-2 | ON |
| 213 | S | 3007 | I 190 KENN NW OB @ US 12 45 MANNHEIM RD | CO | S-2 | ON |
| 214 | S | 3010 | I 190 KENN NW OB @ US 12 45 MANNHEIM RD | CO | S-2 | ON |
| 215 | S | 3015 | I 190 SE IB @ US 12 45 MANNHEIM RD | CO | S-2 | ON |
| 216 | S | 3020 | I 190 SE IB @ US 12 45 MANNHEIM RD | CO | S-2 | ON |
| 217 | S | 3025 | I 90 KENN NW OB @ I 90 TOLL PLAZA | CO | S-2 | ON |

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|-----|---|------|---|----|-----|-----|
| 218 | S | 3030 | I 90 KENN NW OB @ I 90 TOLL PLAZA | CO | S-2 | ON |
| 219 | S | 3035 | I 90 KENN SE IB @ I 90 TOLL PLAZA | CO | S-2 | ON |
| 220 | S | 3040 | I 90 KENN SE IB @ I 90 TOLL PLAZA | CO | S-2 | ON |
| 221 | S | 3045 | I 90 KENN NW OB @ DES PLAINES RIVER RD | CO | S-2 | ON |
| 222 | S | 3050 | I 90 KENN NW OB @ DES PLAINES RIVER RD | CO | S-2 | ON |
| 223 | S | 3055 | I 90 KENN SE IB @ DES PLAINES RIVER RD | CO | S-2 | ON |
| 224 | S | 3060 | I 90 KENN SE IB @ DES PLAINES RIVER RD | CO | S-2 | ON |
| 225 | S | 3065 | I 90 KENN SE IB @ EAST RIVER RD | CO | S-2 | ON |
| 226 | S | 3067 | I 90 KENN SE IB @ EAST RIVER RD | CO | S-2 | OFF |
| 227 | S | 3070 | I 90 KENN SE IB @ CUMBERLAND SB EXIT | CO | S-2 | ON |
| 228 | S | 3075 | I 90 KENN NW OB @ CUMBERLAND AVE EXIT | CO | S-1 | OFF |
| 229 | S | 3080 | I 90 KENN NW OB @ CUMBERLAND AVE ENT | CO | S-1 | OFF |

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| | | | | | | |
|-----|---|------|---|----|-----|-----|
| 230 | S | 3085 | I 90 KENN SE IB @ CUMBERLAND AVE ENT | CO | S-1 | ON |
| 231 | S | 3090 | I 90 KENN NW OB @ CANFIELD AVE | CO | S-2 | OFF |
| 232 | S | 3095 | I 90 KENN SE IB @ CANFIELD AVE ENT | CO | S-1 | ON |
| 233 | S | 3096 | I 90 KENN IB @ CANFIELD AVE | CO | S-3 | ON |
| 234 | S | 3100 | I 90 KENN NW OB @ IL 43 HARLEM AVE | CO | S-2 | ON |
| 235 | S | 3105 | I 90 KENN NW OB @ IL 43 HARLEM AVE | CO | S-1 | OFF |
| 236 | S | 3110 | I 90 KENN SE IB @ IL 43 HARLEM AVE | CO | S-1 | ON |
| 237 | S | 3115 | I 90 KENN SE IB @ IL 43 HARLEM AVE | CO | S-2 | ON |
| 238 | S | 3120 | I 90 KENN NW OB @ IL 43 HARLEM AVE | CO | S-2 | ON |
| 239 | S | 3125 | I 90 KENN SE IB @ IL 43 HARLEM AVE | CO | S-1 | ON |
| 240 | S | 3130 | I 90 KENN NW OB @ SAYRE AVE | CO | S-2 | ON |
| 241 | S | 3135 | I 90 KENN SE IB @ | CO | | ON |

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| | | | | | | | |
|-----|---|------|--------------------------------------|----|--|-----|----|
| | | | SAYRE AVE | | | S-1 | |
| 242 | S | 3140 | I 90 KENN NW OB @ NAGLE AVE | CO | | S-1 | ON |
| 243 | S | 3145 | I 90 KENN SE IB @ NAGLE AVE | CO | | S-2 | ON |
| 244 | S | 3150 | I 90 KENN NW OB @ BRYN MAWR AVE | CO | | S-2 | ON |
| 245 | S | 3155 | I 90 KENN SE IB @ BRYN MAWR AVE | CO | | S-1 | ON |
| 246 | S | 3160 | I 90 KENN SE IB @ MEADE AVE | CO | | S-2 | ON |
| 247 | S | 3165 | I 90 KENN NW OB @ FOSTER AVE | CO | | S-1 | ON |
| 248 | S | 3170 | I 90 KENN NW OB @ FOSTER AVE | CO | | S-2 | ON |
| 249 | S | 3175 | I 90 KENN SE IB @ FOSTER AVE | CO | | S-1 | ON |
| 250 | S | 3176 | I 90 KENN IB @ FOSTER AVE | CO | | S-3 | ON |
| 251 | S | 3180 | I 90 KENN NW OB @ CENTRAL AVE | CO | | S-2 | ON |
| 252 | S | 3185 | I 90 KENN SE IB @ CENTRAL AVE ENT | CO | | S-1 | ON |

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| | | | | | | |
|-----|---|------|---------------------------------------|----|-----|-----|
| 253 | S | 3190 | I 90 KENN SE IB @ CENTRAL AVE | CO | S-2 | ON |
| 254 | S | 3195 | I 90 KENN SE IB @ MILWAUKEE AVE | CO | S-2 | OFF |
| 255 | S | 3200 | I 90 KENN NW OB @ LAWRENCE AVE | CO | S-2 | ON |
| 256 | S | 3205 | I 90 KENN NW OB @ LAWRENCE AVE | CO | S-2 | ON |
| 257 | S | 3210 | I 90 KENN NW OB @ LAWRENCE AVE | CO | S-1 | ON |
| 258 | S | 3215 | I 90 KENN SE IB @ LAWRENCE AVE | CO | S-1 | ON |
| 259 | S | 3220 | I 90 KENN SE IB @ LAWRENCE AVE | CO | S-2 | ON |
| 260 | S | 3230 | I 90 KENN SE IB @ IL 50 CICERO AVE | CO | S-2 | ON |
| 261 | S | 3232 | I 90 KENN SE IB @ MONTROSE AVE | CO | S-2 | ON |
| 262 | S | 3235 | I 90 94 KENN NW OB @ MONTROSE AVE | CO | S-2 | OFF |
| 263 | S | 3238 | I 90 94 KENN SE IB @ MONTROSE AVE | CO | S-2 | OFF |
| 264 | S | 3240 | I 90 94 KENN SE IB @ MONTROSE AVE | CO | S-1 | OFF |

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| | | | | | | |
|-----|---|------|--|----|-----|-----|
| 265 | S | 3245 | I 90 94 KENN NW OB @ KEELER AVE | CO | S-1 | ON |
| 266 | S | 3250 | I 90 94 KENN NW OB @ KOSTNER AVE | CO | S-2 | ON |
| 267 | S | 3253 | I 90 94 KENN NW OB @ KEELER AVE | CO | S-2 | ON |
| 268 | S | 3255 | I 90 94 KENN SE IB @ KEELER AVE | CO | S-2 | ON |
| 269 | S | 3260 | I 90 94 KENN NW OB @ PULASKI RD | CO | S-2 | ON |
| 270 | S | 3270 | I 90 94 KENN SE IB @ PULASKI RD | CO | S-1 | OFF |
| 271 | S | 3275 | I 90 94 KENN SE IB @ IL 19 IRVING PARK RD | CO | S-1 | OFF |
| 272 | S | 3281 | I 90 94 KENN IB @ PULASKI RD | CO | S-3 | OFF |
| 273 | S | 3290 | I 90 94 KENN NW OB @ ADDISON RD | CO | S-2 | ON |
| 274 | S | 3295 | I 90 94 KENN NW OB @ ADDISON RD | CO | S-2 | ON |
| 275 | S | 3300 | I 90 KENN MEDIAN @ ADDISON RD | CO | S-2 | OFF |

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| | | | | | | |
|-----|---|------|---|----|-----|-----|
| 276 | S | 3310 | I 90 94 KENN SE IB @ AVONDALE AVE | CO | S-1 | ON |
| 277 | S | 3315 | I 90 94 KENN NW OB @ KIMBALL AVE | CO | S-2 | ON |
| 278 | S | 3320 | I 90 94 KENN NW OB @ KIMBALL AVE | CO | S-1 | ON |
| 279 | S | 3325 | I 90 94 KENN SE IB @ KIMBALL AVE | CO | S-1 | ON |
| 280 | S | 3330 | I 90 94 KENN SE IB @ KIMBALL AVE | CO | S-2 | ON |
| 281 | S | 3331 | I 90 94 KENN IB @ KIMBALL AVE | CO | S-3 | OFF |
| 282 | S | 3335 | I 90 94 KENN NW OB @ BELMONT AVE | CO | S-2 | ON |
| 283 | S | 3340 | I 90 94 KENN SE IB @ KEDZIE AVE | CO | S-1 | OFF |
| 284 | S | 3345 | I 90 94 KENN NW OB @ SACRAMENTO BLVD | CO | S-2 | ON |
| 285 | S | 3350 | I 90 94 KENN NW OB @ CALIFORNIA AVE | CO | S-1 | ON |
| 286 | S | 3365 | I 90 94 KENN SE IB @ SACRAMENTO BLVD | CO | S-1 | ON |
| 287 | S | 3375 | I 90 94 KENN SE IB @ CALIFORNIA AVE | CO | S-2 | ON |

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| | | | | | | |
|-----|---|------|---------------------------------------|----|-----|-----|
| 288 | S | 3380 | I 90 94 KENN NW OB @ DIVERSEY AVE | CO | S-2 | OFF |
| 289 | S | 3385 | I 90 94 KENN SE IB @ DIVERSEY AVE | CO | S-1 | ON |
| 290 | S | 3390 | I 90 94 KENN NW OB @ FULLERTON AVE | CO | S-1 | ON |
| 291 | S | 3395 | I 90 94 KENN SE IB @ FULLERTON AVE | CO | S-2 | ON |
| 292 | S | 3400 | I 90 94 KENN NW OB @ FULLERTON AVE | CO | S-2 | ON |
| 293 | S | 3405 | I 90 94 KENN SE IB @ FULLERTON AVE | CO | S-1 | ON |
| 294 | S | 3410 | I 90 94 KENN NW OB @ WEBSTER AVE | CO | S-2 | ON |
| 295 | S | 3415 | I 90 94 KENN SE IB @ WEBSTER AVE | CO | S-1 | ON |
| 296 | S | 3416 | I 90 94 KENN OB @ WEBSTER | CO | S-3 | OFF |
| 297 | S | 3417 | I 90 94 KENN OB @ DAMEN AVE | CO | S-3 | ON |
| 298 | S | 3420 | I 90 94 KENN OB ENT @ ARMITAGE AVE | CO | S-1 | OFF |
| 299 | S | 3425 | I 90 94 KENN IB EXIT @ | CO | | ON |

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| | | | ARMITAGE AVE | | S-2 | |
|-----|---|------|---|----|-----|-----|
| 300 | S | 3430 | I 90 94 KENN OB EXIT @ ARMITAGE AVE | CO | | OFF |
| | | | | | S-2 | |
| 301 | S | 3435 | I 90 94 KENN IB ENT @ ARMITAGE AVE | CO | | ON |
| | | | | | S-1 | |
| 302 | S | 3440 | I 90 94 KENN NW OB @ NORTH AVE | CO | | OFF |
| | | | | | S-2 | |
| 303 | S | 3445 | I 90 94 KENN NW OB @ IL 64 NORTH AVE | CO | | ON |
| | | | | | S-1 | |
| 304 | S | 3450 | I 90 94 KENN SE IB @ IL 64 NORTH AVE | CO | | OFF |
| | | | | | S-1 | |
| 305 | S | 3455 | I 90 94 KENN SE IB @ NORTH AVE | CO | | ON |
| | | | | | S-2 | |
| 306 | S | 3460 | I 90 94 KENN NW OB @ DIVISION ST | CO | | ON |
| | | | | | S-1 | |
| 307 | S | 3462 | I 90 94 KENN NW OB @ DIVISION ST | CO | | OFF |
| | | | | | S-2 | |
| 308 | S | 3465 | I 90 94 KENN SE IB @ DIVISION ST | CO | | ON |
| | | | | | S-1 | |
| 309 | S | 3470 | I 90 94 KENN SE IB @ DIVISION ST | CO | | ON |
| | | | | | S-2 | |
| 310 | S | 3475 | I 90 94 KENN NW OB @ AUGUSTA BLVD | CO | | ON |
| | | | | | S-2 | |

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| | | | | | | |
|-----|---|------|--|----|-----|-----|
| 311 | S | 3480 | I 90 94 KENN SE IB @ AUGUSTA BLVD | CO | S-1 | ON |
| 312 | S | 3482 | I 90 94 KENN IB @ AUGUSTA BLVD | CO | S-3 | OFF |
| 313 | S | 3485 | I 90 94 KENN NW OB @ OGDEN AVE | CO | S-1 | OFF |
| 314 | S | 3490 | I 90 94 KENN SE IB @ CHICAGO AVE | CO | S-2 | ON |
| 315 | S | 3495 | I 90 94 KENN NW OB @ OHIO ST | CO | S-2 | ON |
| 316 | S | 3500 | I 90 94 KENN NW OB @ OHIO ST | CO | S-2 | ON |
| 317 | S | 3505 | I 90 94 KENN SE IB @ OHIO ST | CO | S-2 | ON |
| 318 | S | 3510 | I 90 94 KENN SE IB @ OHIO ST FEEDER | CO | S-2 | ON |
| 319 | S | 3515 | I 90 94 KENN SE IB @ OHIO ST FEEDER | CO | S-2 | ON |
| 320 | S | 3520 | I 90 94 KENN SE IB @ GREEN ST | CO | S-2 | OFF |
| 321 | S | 3525 | I 90 94 KENN SE IB @ LAKE ST ENT | CO | S-1 | ON |
| 322 | S | 3530 | I 90 94 KENN SE IB @ LAKE ST | CO | S-2 | OFF |

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| | | | | | | |
|-----|---|------|---|----|-----|-----|
| 323 | S | 3540 | I 90 94 KENN SE IB @ RANDOLPH ST | CO | S-2 | OFF |
| 324 | S | 3545 | I 90 94 KENN NW OB @ RANDOLPH ST | CO | S-2 | OFF |
| 325 | S | 3558 | I 90 94 KENN SE IB @ WASHINGTON BLVD | CO | S-2 | OFF |
| 326 | S | 3560 | I 90 94 KENN SE IB @ WASHINGTON BLVD | CO | S-2 | OFF |
| 327 | S | 3565 | I 90 94 KENN NW OB @ WASHINGTON BLVD | CO | S-1 | OFF |
| 328 | S | 3580 | I 90 94 KENN SE IB @ MADISON AVE | CO | S-2 | OFF |
| 329 | S | 3585 | I 90 94 KENN NW OB @ MADISON AVE | CO | S-2 | ON |
| 330 | S | 3595 | I 90 94 KENN NW OB @ MONROE ST | CO | S-1 | OFF |
| 331 | S | 3610 | I 90 94 KENN SE IB @ MONROE ST | CO | S-2 | OFF |
| 332 | S | 3615 | I 90 94 KENN SE IB @ MONROE ST | CO | S-2 | OFF |
| 333 | S | 3620 | I 90 94 KENN SE IB @ ADAMS ST | CO | S-2 | OFF |
| 334 | S | 3630 | I 90 94 KENN NW OB @ | CO | | OFF |

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| | | | ADAMS ST | | S-2 | |
|-----|---|------|---|----|-----|-----|
| 335 | S | 3640 | I 90 94 KENN NW OB @ CIRCLE INT IKE IB @ HALSTED | CO | S-2 | OFF |
| 336 | S | 3645 | I 90 94 KENN SE IB @ CIRCLE INT RYAN IB @ HARRISON | CO | S-2 | ON |
| 337 | S | 3650 | I 90 94 KENN NW OB @ CIRCLE INT IKE OB @ HALSTED | CO | S-2 | ON |
| 338 | S | 3655 | I 90 94 KENN SE IB @ I 290 CIRCLE INTERCHANGE | CO | S-2 | OFF |
| 339 | S | 3660 | I 90 94 KENN NW OB @ I 290 CIRCLE INTERCHANGE | CO | S-2 | OFF |
| 340 | S | 3665 | I 90 94 KENN IB VAN B @ I 290 CIRCLE INTERCHANGE | CO | S-2 | OFF |
| 341 | S | 3670 | I 90 94 KENN NW OB @ I 290 CIRCLE INTERCHANGE | CO | S-2 | OFF |
| 342 | S | 3675 | I 90 94 KENN NW OB @ I 290 CIRCLE INTERCHANGE | CO | S-2 | OFF |
| 343 | S | 4000 | I 94 EDENS SB IB @ WILSON AVE | CO | S-2 | ON |
| 344 | S | 4005 | I 94 EDENS NB OB @ WILSON AVE | CO | S-2 | ON |
| 345 | S | 4010 | I 94 EDENS SB IB @ WILSON AVE | CO | S-1 | ON |

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| | | | | | | |
|-----|---|------|---|----|-----|----|
| 346 | S | 4015 | I 94 EDENS NB OB @ WILSON AVE | CO | S-1 | ON |
| 347 | S | 4016 | I 94 EDENS NB OB MEDIAN @ WILSON AVE | CO | S-2 | ON |
| 348 | S | 4018 | I 94 EDENS SB IB @ WILSON AVE | CO | S-2 | ON |
| 349 | S | 4020 | I 94 EDENS SB IB @ ELSTON AVE | CO | S-1 | ON |
| 350 | S | 4025 | I 94 EDENS NB OB @ FOSTER AVE | CO | S-1 | ON |
| 351 | S | 4030 | I 94 EDENS SB IB @ IL 50 CICERO AVE | CO | S-2 | ON |
| 352 | S | 4035 | I 94 EDENS NB OB @ PETERSON AVE | CO | S-2 | ON |
| 353 | S | 4040 | I 94 EDENS SB IB @ PETERSON AVE | CO | S-1 | ON |
| 354 | S | 4045 | I 94 EDENS NB OB @ PETERSON AVE | CO | S-1 | ON |
| 355 | S | 4050 | I 94 EDENS SB IB @ PETERSON AVE | CO | S-1 | ON |
| 356 | S | 4055 | I 94 EDENS NB OB @ DEVON AVE | CO | S-2 | ON |
| 357 | S | 4060 | I 94 EDENS NB OB @ PRATT AVE | CO | S-2 | ON |

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| | | | | | | |
|-----|---|------|---------------------------------------|----|-----|-----|
| 358 | S | 4065 | I 94 EDENS SB IB @ TOUHY AVE | CO | S-1 | ON |
| 359 | S | 4070 | I 94 EDENS NB OB @ TOUHY AVE | CO | S-1 | ON |
| 360 | S | 4072 | TOUHY AVE WB OB @ I 94 EDENS | CO | S-3 | ON |
| 361 | S | 4073 | TOUHY AVE EB IB @ I 94 EDENS | CO | S-3 | ON |
| 362 | S | 4075 | I 94 EDENS SB IB @ TOUHY AVE | CO | S-1 | ON |
| 363 | S | 4080 | I 94 EDENS NB OB @ TOUHY AVE | CO | S-1 | ON |
| 364 | S | 4085 | I 94 EDENS NB OB @ NILES CENTER RD | CO | S-1 | ON |
| 365 | S | 4086 | I 94 EDENS IB @ NILES CENTER RD | CO | S-3 | OFF |
| 366 | S | 4090 | I 94 EDENS SB IB @ OAKTON ST | CO | S-2 | ON |
| 367 | S | 4095 | I 94 EDENS SB IB @ LINCOLN AVE | CO | S-2 | ON |
| 368 | S | 4100 | I 94 EDENS OB @ DEMPSTER ST | CO | S-1 | ON |
| 369 | S | 4105 | I 94 EDENS SB IB @ | CO | | ON |

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| | | | | | | | |
|-----|---|------|---|----|--|-----|----|
| | | | DEMPSTER ST | | | S-1 | |
| 370 | S | 4110 | I 94 EDENS NB OB @ DEMPSTER ST | CO | | S-1 | ON |
| 371 | S | 4115 | I 94 EDENS SB IB @ DEMPSTER ST | CO | | S-1 | ON |
| 372 | S | 4120 | I 94 EDENS SB IB @ CHURCH ST | CO | | S-2 | ON |
| 373 | S | 4125 | I 94 EDENS NB OB @ GOLF RD | CO | | S-2 | ON |
| 374 | S | 4130 | I 94 EDENS NB OB @ OLD ORCHARD | CO | | S-2 | ON |
| 375 | S | 4135 | I 94 EDENS SB IB @ OLD ORCHARD | CO | | S-2 | ON |
| 376 | S | 4140 | I 94 EDENS SB IB @ GLENVIEW AVE | CO | | S-2 | ON |
| 377 | S | 4145 | I 94 EDENS NB OB @ LAKE AVE | CO | | S-2 | ON |
| 378 | S | 4150 | I 94 EDENS SB IB @ LAKE AVE | CO | | S-2 | ON |
| 379 | S | 4155 | I 94 EDENS SB IB @ LAKE AVE | CO | | S-2 | ON |
| 380 | S | 4160 | I 94 EDENS NB OB @ US 41 SKOKIE BLVD | CO | | S-2 | ON |

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| | | | | | | |
|-----|---|------|---|----|-----|-----|
| 381 | S | 4165 | I 94 EDENS SB IB @ US 41 SKOKIE BLVD | CO | | ON |
| | | | | | S-2 | |
| 382 | S | 4170 | I 94 EDENS NB OB @ WINNETKA RD | CO | | ON |
| | | | | | S-2 | |
| 383 | S | 4175 | I 94 EDENS OB @ WILLOW | CO | | ON |
| | | | | | S-2 | |
| 384 | S | 4180 | I 94 EDENS OB @ WILLOW RD | CO | | ON |
| | | | | | S-2 | |
| 385 | S | 4185 | I 94 EDENS SB IB @ WILLOW RD | CO | | ON |
| | | | | | S-2 | |
| 386 | S | 4190 | I 94 EDENS SB IB @ WILLOW RD | CO | | ON |
| | | | | | S-2 | |
| 387 | S | 4195 | I 94 EDENS SB IB @ TOWER RD (0.5 MILE SOUTH) | CO | | ON |
| | | | | | S-2 | |
| 388 | S | 4200 | I 94 EDENS NB OB @ TOWER RD | CO | | ON |
| | | | | | S-2 | |
| 389 | S | 4205 | I 94 EDENS SB IB @ TOWER RD | CO | | ON |
| | | | | | S-2 | |
| 390 | S | 4206 | I 94 EDENS SB @ TOWER RD | CO | | OFF |
| | | | | | S-3 | |
| 391 | S | 4210 | I 94 EDENS SB IB @ TOWER RD (0.5 MILE NORTH) | CO | | ON |
| | | | | | S-2 | |
| 392 | S | 4215 | I 94 EDENS SB IB @ IL 68 DUNDEE (0.5 MILE SOUTH) | CO | | ON |
| | | | | | S-2 | |

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| | | | | | | |
|-----|---|------|---|----|-----|----|
| 393 | S | 4220 | I 94 EDENS NB OB @ IL 68 DUNDEE RD | CO | | ON |
| | | | | | S-2 | |
| 394 | S | 4225 | I 94 EDENS SB IB @ IL 68 DUNDEE RD | CO | | ON |
| | | | | | S-2 | |
| 395 | S | 4230 | I 94 EDENS SB IB @ IL 68 DUNDEE RD | CO | | ON |
| | | | | | S-2 | |
| 396 | S | 4235 | I 94 EDENS SB IB @ I 294 TLWY | CO | | ON |
| | | | | | S-2 | |
| 397 | S | 4240 | I 94 EDENS SB IB @ LAKE COOK RD | CO | | ON |
| | | | | | S-2 | |
| 398 | S | 4245 | US 41 SKOKIE HWY SB IB @ LAKE COOK RD | LA | | ON |
| | | | | | S-2 | |
| 399 | S | 4250 | US 41 SKOKIE HWY SB IB @ LAKE COOK RD (0.5 MILE NORTH) | LA | | ON |
| | | | | | S-2 | |
| 400 | S | 4255 | US 41 SKOKIE HWY NB OB @ BOB O LINK GOLF CLUB | LA | | ON |
| | | | | | S-2 | |
| 401 | S | 4260 | US 41 SKOKIE HWY SB IB @ CHANTILLY BLVD | LA | | ON |
| | | | | | S-2 | |
| 402 | S | 4265 | US 41 SKOKIE HWY NB OB @ CLAVEY RD | LA | | ON |
| | | | | | S-2 | |
| 403 | S | 5005 | I 94 RYAN SB OB @ 97TH ST | CO | | ON |
| | | | | | S-2 | |
| 404 | S | 5010 | I 94 RYAN SB OB @ | CO | | ON |

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| | | | | | | | |
|-----|---|------|--|----|--|-----|----|
| | | | 97TH ST | | | S-2 | |
| 405 | S | 5015 | I 94 RYAN NB IB @ 95TH ST ENT | CO | | S-1 | ON |
| 406 | S | 5020 | I 94 RYAN SB OB @ 95TH ST EXIT | CO | | S-2 | ON |
| 407 | S | 5030 | I 94 RYAN NB IB @ 87TH ST OR 90TH ST EXIT | CO | | S-2 | ON |
| 408 | S | 5035 | I 94 RYAN SB OB @ 87TH ST ENT | CO | | S-1 | ON |
| 409 | S | 5040 | I 94 RYAN NB IB @ 87TH ST ENT | CO | | S-1 | ON |
| 410 | S | 5045 | I 94 RYAN SB OB @ 87TH ST ENT | CO | | S-2 | ON |
| 411 | S | 5052 | I 94 RYAN SB @ 83RD ST | CO | | S-3 | ON |
| 412 | S | 5053 | I 94 RYAN NB @ 83RD ST | CO | | S-3 | ON |
| 413 | S | 5055 | I 94 RYAN NB IB @ 83RD ST ENT | CO | | S-1 | ON |
| 414 | S | 5060 | I 94 RYAN SB OB @ 83RD ST EXIT | CO | | S-2 | ON |
| 415 | S | 5065 | I 94 RYAN NB IB @ 79TH ST EXIT | CO | | S-2 | ON |

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| | | | | | | |
|-----|---|------|-------------------------------------|----|-----|----|
| 416 | S | 5070 | I 94 RYAN NB IB @ 79TH ST ENT | CO | S-1 | ON |
| 417 | S | 5075 | I 94 RYAN SB OB @ 79TH ST ENT | CO | S-1 | ON |
| 418 | S | 5080 | I 94 RYAN NB IB @ 79TH ST EXIT | CO | S-2 | ON |
| 419 | S | 5085 | I 94 RYAN SB OB @ 76TH ST ENT | CO | S-2 | ON |
| 420 | S | 5090 | I 94 RYAN SB OB @ 76TH ST CD ENT | CO | S-2 | ON |
| 421 | S | 5095 | I 94 RYAN SB OB @ 75TH ST EXIT | CO | S-2 | ON |
| 422 | S | 5100 | I 94 RYAN NB IB @ 75TH ST EXIT | CO | S-2 | ON |
| 423 | S | 5105 | I 94 RYAN NB IB @ 75TH ST ENT | CO | S-1 | ON |
| 424 | S | 5110 | I 94 RYAN SB OB @ 75TH ST EXIT | CO | S-2 | ON |
| 425 | S | 5115 | I 94 RYAN NB IB @ 71ST ST ENT | CO | S-1 | ON |
| 426 | S | 5120 | I 94 RYAN SB OB @ 71ST ST ENT | CO | S-1 | ON |
| 427 | S | 5122 | I 94 RYAN NB IB @ 67TH ST EXIT | CO | S-2 | ON |

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| | | | | | | |
|-----|---|------|--|----|-----|----|
| 428 | S | 5125 | I 94 RYAN SB OB @ 67TH ST ENT | CO | S-1 | ON |
| 429 | S | 5135 | I 94 RYAN SB OB @ 65TH ST SKYWAY EXIT | CO | S-2 | ON |
| 430 | S | 5140 | I 94 RYAN NB IB @ 65TH ST SKYWAY ENT | CO | S-2 | ON |
| 431 | S | 5145 | I 94 RYAN NB IB @ 63RD ST ENT | CO | S-1 | ON |
| 432 | S | 5150 | I 94 RYAN SB OB @ 63RD ST EXIT | CO | S-2 | ON |
| 433 | S | 5155 | I 90 94 RYAN NB @ 59TH ST EXIT | CO | S-2 | ON |
| 434 | S | 5160 | I 90 94 RYAN SB OB @ 59TH ST ENT | CO | S-1 | ON |
| 435 | S | 5165 | I 94 RYAN SB OB @ 59TH ST | CO | S-2 | ON |
| 436 | S | 5170 | I 90 94 RYAN NB @ 59TH ST | CO | S-2 | ON |
| 437 | S | 5186 | I 90 94 RYAN NB @ 57TH ST LOCALS | CO | S-3 | ON |
| 438 | S | 5188 | I 90 94 RYAN NB @ 57TH ST | CO | S-3 | ON |
| 439 | S | 5195 | I 90 94 RYAN SB OB @ | CO | | ON |

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| | | | | | | | |
|-----|---|------|-------------------------------------|----|--|-----|----|
| | | | 55TH ST ENT | | | S-1 | |
| 440 | S | 5196 | I 90 94 RYAN SB @ 55TH ST LOCALS | CO | | S-3 | ON |
| 441 | S | 5197 | I 90 94 RYAN SB @ 55TH ST | CO | | S-3 | ON |
| 442 | S | 5210 | I 90 94 RYAN NB IB @ 55TH ST ENT | CO | | S-1 | ON |
| 443 | S | 5220 | I 94 RYAN SB OB @ 53RD ST | CO | | S-2 | ON |
| 444 | S | 5225 | I 90 94 RYAN SB OB @ 47TH ST ENT | CO | | S-1 | ON |
| 445 | S | 5230 | I 94 RYAN NB IB @ 47TH ST EXIT | CO | | S-2 | ON |
| 446 | S | 5235 | I 90 94 RYAN NB IB @ 47TH ST ENT | CO | | S-1 | ON |
| 447 | S | 5240 | I 94 RYAN SB OB @ 47TH ST EXIT | CO | | S-2 | ON |
| 448 | S | 5245 | I 94 RYAN NB IB @ 43RD ST EXIT | CO | | S-2 | ON |
| 449 | S | 5250 | I 90 94 RYAN SB OB @ 43RD ST ENT | CO | | S-1 | ON |
| 450 | S | 5255 | I 90 94 RYAN NB IB @ 43RD ST ENT | CO | | S-1 | ON |
| 451 | S | 5260 | I 94 RYAN SB OB @ | CO | | | ON |

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| | | | 43RD ST EXIT | | S-2 | |
|-----|---|------|-------------------------------------|----|-----|----|
| 452 | S | 5265 | I 94 RYAN NB IB @ 39TH ST EXIT | CO | S-2 | ON |
| 453 | S | 5290 | I 90 94 RYAN SB OB @ 39TH ST ENT | CO | S-1 | ON |
| 454 | S | 5292 | I 90 94 RYAN SB @ 39TH ST LOCALS | CO | S-3 | ON |
| 455 | S | 5293 | I 90 94 RYAN SB @ 39TH ST | CO | S-3 | ON |
| 456 | S | 5295 | I 90 94 RYAN NB @ 39TH ST EXIT | CO | S-2 | ON |
| 457 | S | 5296 | I 90 94 RYAN NB @ 37TH ST LOCALS | CO | S-3 | ON |
| 458 | S | 5298 | I 90 94 RYAN NB @ 37TH ST | CO | S-3 | ON |
| 459 | S | 5300 | I 90 94 RYAN SB @ 35TH ST | CO | S-2 | ON |
| 460 | S | 5305 | I 90 94 RYAN NB @ 35TH ST | CO | S-2 | ON |
| 461 | S | 5310 | I 90 94 RYAN SB @ 35TH ST | CO | S-2 | ON |
| 462 | S | 5315 | I 90 94 RYAN SB @ 33RD ST | CO | S-2 | ON |

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| | | | | | | |
|-----|---|------|---|----|-----|----|
| 463 | S | 5320 | I 90 94 RYAN NB @ 33RD ST | CO | S-2 | ON |
| 464 | S | 5325 | I 90 94 RYAN SB @ 31ST ST | CO | S-2 | ON |
| 465 | S | 5330 | I 90 94 RYAN NB @ 31ST ST | CO | S-2 | ON |
| 466 | S | 5335 | I 90 94 RYAN NB IB @ 29TH ST | CO | S-2 | ON |
| 467 | S | 5340 | I 90 94 RYAN SB OB @ 29TH ST | CO | S-2 | ON |
| 468 | S | 5345 | I 90 94 RYAN NB IB @ 29TH ST | CO | S-2 | ON |
| 469 | S | 5350 | I 90 94 RYAN NB IB @ 29TH ST | CO | S-2 | ON |
| 470 | S | 5355 | I 90 94 RYAN SB OB @ 26TH ST & PRINCETON AVE | CO | S-2 | ON |
| 471 | S | 5360 | I 90 94 RYAN NB IB @ FORD AVE | CO | S-2 | ON |
| 472 | S | 5365 | I 90 94 RYAN NB IB @ FORD AVE | CO | S-2 | ON |
| 473 | S | 5370 | I 90 94 RYAN NB IB @ 22ND ST & EMERALD AVE | CO | S-2 | ON |
| 474 | S | 5375 | I 90 94 RYAN SB OB @ | CO | | ON |

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| | | | | | | |
|-----|---|------|---|----|-----|-----|
| | | | 22ND ST & EMERALD AVE | | S-2 | |
| 475 | S | 5377 | I 90 94 RYAN @ S BRANCH OF CHICAGO RIVER | CO | | ON |
| | | | | | S-3 | |
| 476 | S | 5380 | I 90 94 RYAN SB OB @ 16TH ST & UNION AVE | CO | | OFF |
| | | | | | S-2 | |
| 477 | S | 5385 | I 90 94 RYAN SB OB @ ROOSEVELT RD | CO | | OFF |
| | | | | | S-1 | |
| 478 | S | 5390 | I 90 94 RYAN NB IB @ ROOSEVELT ENT | CO | | OFF |
| | | | | | S-1 | |
| 479 | S | 5393 | I 90 94 RYAN NB IB @ TAYLOR | CO | | OFF |
| | | | | | S-2 | |
| 480 | S | 5395 | I 90 94 RYAN NB IB @ ROOSEVELT RD | CO | | OFF |
| | | | | | S-2 | |
| 481 | S | 5400 | I 90 94 RYAN SB OB @ TAYLOR | CO | | OFF |
| | | | | | S-2 | |
| 482 | S | 5405 | I 90 94 RYAN NB IB @ TAYLOR | CO | | OFF |
| | | | | | S-1 | |
| 483 | S | 5406 | I 90 94 RYAN @ ROOSEVELT RD | CO | | OFF |
| | | | | | S-3 | |
| 484 | S | 5407 | I 90 94 RYAN MEDIAN @ TAYLOR ST | CO | | OFF |
| | | | | | S-3 | |
| 485 | S | 5410 | I 90 94 RYAN SB OB @ POLK ST | CO | | OFF |
| | | | | | S-2 | |

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| | | | | | | |
|-----|---|------|---|----|-----|----|
| 486 | S | 6000 | I 94 FORD SB OB @ I 94 I 80 INTERCHANGE (EAST) | CO | S-2 | ON |
| 487 | S | 6005 | I 94 FORD NB IB @ I 94 I 80 INTERCHANGE (EAST) | CO | S-2 | ON |
| 488 | S | 6010 | I 94 FORD NB IB @ TORRENCE SLIP TO I 80 WB | CO | S-2 | ON |
| 489 | S | 6015 | I 94 FORD NB IB @ I 94 I 80 INTERCHANGE (EAST) | CO | S-2 | ON |
| 490 | S | 6035 | I 94 FORD NB IB @ 171ST ST | CO | S-2 | ON |
| 491 | S | 6040 | I 94 FORD NB IB @ 163RD ST | CO | S-2 | ON |
| 492 | S | 6045 | I 94 FORD NB IB @ US 6 159TH ST | CO | S-2 | ON |
| 493 | S | 6050 | I 94 FORD NB IB @ US 6 159TH ST | CO | S-2 | ON |
| 494 | S | 6055 | I 94 FORD NB IB @ US 6 159TH ST | CO | S-2 | ON |
| 495 | S | 6060 | I 94 FORD SB OB @ US 6 159TH ST | CO | S-2 | ON |
| 496 | S | 6065 | I 94 FORD SB OB @ US 6 159TH ST | CO | S-2 | ON |
| 497 | S | 6070 | I 94 FORD SB OB @ PENN CENTRAL RR | CO | S-2 | ON |

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| | | | | | | |
|-----|---|------|---|----|-----|----|
| 498 | S | 6075 | I 94 FORD SB OB @ PULASKI RD | CO | S-2 | ON |
| 499 | S | 6080 | I 94 FORD NB IB @ IL 83 147TH ST SIBLEY BLVD | CO | S-2 | ON |
| 500 | S | 6085 | I 94 FORD NB IB @ IL 83 147TH ST SIBLEY BLVD | CO | S-2 | ON |
| 501 | S | 6090 | I 94 FORD SB OB @ IL 83 147TH ST SIBLEY BLVD | CO | S-2 | ON |
| 502 | S | 6095 | I 94 FORD SB OB @ IL 83 147TH ST SIBLEY BLVD | CO | S-2 | ON |
| 503 | S | 6100 | I 94 FORD SB OB @ IL 83 147TH ST SIBLEY BLVD | CO | S-2 | ON |
| 504 | S | 6103 | I 94 FORD IB @ 145TH ST | CO | S-3 | ON |
| 505 | S | 6104 | I 94 FORD OB @ 145TH ST | CO | S-3 | ON |
| 506 | S | 6105 | I 94 FORD NB IB @ DOLTON ST | CO | S-2 | ON |
| 507 | S | 6110 | I 94 FORD NB IB @ DOLTON ST | CO | S-2 | ON |
| 508 | S | 6120 | I 94 FORD SB OB @ DOLTON ST | CO | S-2 | ON |
| 509 | S | 6125 | I 94 FORD SB OB @ | CO | | ON |

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| | | | B & O RR (NORTH) | | | S-2 |
|-----|---|------|-------------------------------|----|-----|-----|
| 510 | S | 6130 | I 94 FORD NB IB @ 138TH ST | CO | | ON |
| | | | | | S-2 | |
| 511 | S | 6135 | I 94 FORD SB OB @ 138TH ST | CO | | ON |
| | | | | | S-2 | |
| 512 | S | 6140 | I 94 FORD NB IB @ 133RD ST | CO | | ON |
| | | | | | S-2 | |
| 513 | S | 6145 | I 94 FORD NB IB @ 130TH ST | CO | | ON |
| | | | | | S-2 | |
| 514 | S | 6150 | I 94 FORD NB IB @ 130TH ST | CO | | ON |
| | | | | | S-2 | |
| 515 | S | 6155 | I 94 FORD SB OB @ 130TH ST | CO | | ON |
| | | | | | S-2 | |
| 516 | S | 6160 | I 94 FORD SB OB @ 130TH ST | CO | | ON |
| | | | | | S-2 | |
| 517 | S | 6165 | I 94 FORD SB OB @ 128TH ST | CO | | ON |
| | | | | | S-2 | |
| 518 | S | 6170 | I 94 FORD SB OB @ 124TH ST | CO | | ON |
| | | | | | S-2 | |
| 519 | S | 6175 | I 94 FORD SB OB @ 125TH ST | CO | | ON |
| | | | | | S-2 | |
| 520 | S | 6177 | I 94 FORD SB @ 119TH ST | CO | | ON |
| | | | | | S-3 | |

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| | | | | | | |
|-----|---|------|--|----|-----|----|
| 521 | S | 6178 | I 94 FORD NB @ 124TH ST | CO | S-3 | ON |
| 522 | S | 6180 | I 94 FORD NB IB @ 115TH ST | CO | S-2 | ON |
| 523 | S | 6185 | I 94 FORD NB IB @ 115TH ST | CO | S-2 | ON |
| 524 | S | 6190 | I 94 FORD SB OB @ 115TH ST | CO | S-2 | ON |
| 525 | S | 6195 | I 94 FORD SB OB @ 115TH ST | CO | S-2 | ON |
| 526 | S | 6200 | I 94 FORD NB IB @ 111TH ST | CO | S-2 | ON |
| 527 | S | 6205 | I 94 FORD NB IB @ 111TH ST | CO | S-2 | ON |
| 528 | S | 6210 | I 94 FORD SB OB @ 111TH ST | CO | S-2 | ON |
| 529 | S | 6215 | I 94 FORD SB OB @ 111TH ST | CO | S-2 | ON |
| 530 | S | 6220 | I 94 FORD SB OB @ 107TH ST STONY ISLAND ENT | CO | S-2 | ON |
| 531 | S | 6225 | I 94 FORD SB OB @ 107TH MEDIAN | CO | S-2 | ON |
| 532 | S | 6230 | I 94 FORD NB IB @ 103RD ST MEDIAN | CO | S-2 | ON |

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| | | | | | | |
|-----|---|------|---|----|-----|----|
| 533 | S | 6232 | I 94 FORD BS OB @ 103 RD ST (.25 MILES SOUTH OF) | CO | S-2 | ON |
| 534 | S | 6235 | I 94 FORD NB IB @ ELLIS AVE STONY ISLAND ENT | CO | S-2 | ON |
| 535 | S | 6240 | I 94 FORD SB OB @ ELLIS AVE STONY ISLAND EXIT | CO | S-2 | ON |
| 536 | S | 6245 | I 94 FORD SB OB @ RHODES ST | CO | S-2 | ON |
| 537 | S | 6250 | I 94 FORD SB OB @ MICHIGAN AVE | CO | S-2 | ON |
| 538 | S | 6255 | I 94 FORD NB IB @ 99TH PL WABASH ENT | CO | S-1 | ON |
| 539 | S | 7000 | I 80 WB @ INDIANA STATE LINE | CO | S-2 | ON |
| 540 | S | 7001 | I 80 WB @ STATE LINE | CO | S-3 | ON |
| 541 | S | 7005 | I 80 EB @ WENTWORTH (WEST) | CO | S-2 | ON |
| 542 | S | 7010 | I 80 EB @ BURNHAM (WEST) | CO | S-2 | ON |
| 543 | S | 7015 | I 80 EB @ RAILROAD AVE (WEST) | CO | S-2 | ON |
| 544 | S | 7020 | I 80 WB @ | CO | | ON |

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| | | TORRENCE AVE | | S-2 | |
|-----|---|--------------|---|-----|-----|
| 545 | S | 7025 | I 80 EB @ I 80 I 94 IL 394 | CO | ON |
| | | | | | S-2 |
| 546 | S | 7030 | I 80 WB @ I 80 I 94 IL 394 | CO | ON |
| | | | | | S-2 |
| 547 | S | 8000 | I 290 IKE EB IB @ FRANKLIN ST | CO | ON |
| | | | | | S-2 |
| 548 | S | 8002 | I 290 IKE IB @ OLD POST OFFICE (EAST) | CO | ON |
| | | | | | S-3 |
| 549 | S | 8010 | I 290 IKE WB OB @ MORGAN (NEAR SANGAMON) | CO | ON |
| | | | | | S-2 |
| 550 | S | 8015 | I 290 IKE WB OB @ RACINE AVE | CO | ON |
| | | | | | S-2 |
| 551 | S | 8020 | I 290 IKE EB IB @ RACINE ENT | CO | ON |
| | | | | | S-2 |
| 552 | S | 8025 | I 290 IKE WB OB @ RACINE AVE | CO | ON |
| | | | | | S-2 |
| 553 | S | 8030 | I 290 IKE EB IB @ RACINE AVE | CO | ON |
| | | | | | S-2 |
| 554 | S | 8035 | I 290 IKE WB OB @ ASHLAND AVE | CO | ON |
| | | | | | S-2 |
| 555 | S | 8040 | I 290 IKE EB IB @ ASHLAND AVE | CO | ON |
| | | | | | S-1 |

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| | | | | | | |
|-----|---|------|--|----|-----|----|
| 556 | S | 8045 | I 290 IKE WB OB ENT @ DAMEN AVE & PAULINA | CO | S-2 | ON |
| 557 | S | 8050 | I 290 IKE EB IB @ DAMEN AVE & PAULINA | CO | S-2 | ON |
| 558 | S | 8055 | I 290 IKE WB OB EXT @ DAMEN AVE & PAULINA | CO | S-2 | ON |
| 559 | S | 8060 | I 290 IKE WB OB ENT @ DAMEN AVE & PAULINA | CO | S-1 | ON |
| 560 | S | 8065 | I 290 IKE EB IB ENT @ DAMEN AVE & PAULINA | CO | S-2 | ON |
| 561 | S | 8070 | I 290 IKE EB IB EXT @ DAMEN AVE & PAULINA | CO | S-2 | ON |
| 562 | S | 8072 | I 290 IKE IB @ DAMEN AVE | CO | S-3 | ON |
| 563 | S | 8075 | I 290 IKE WB OB @ OAKLEY AVE | CO | S-2 | ON |
| 564 | S | 8080 | I 290 IKE EB IB @ OAKLEY AVE | CO | S-2 | ON |
| 565 | S | 8085 | I 290 IKE WB OB @ WESTERN AVE | CO | S-1 | ON |
| 566 | S | 8090 | I 290 IKE WB OB @ WESTERN AVE | CO | S-2 | ON |
| 567 | S | 8095 | I 290 IKE EB IB @ CALIFORNIA AVE | CO | S-1 | ON |

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| | | | | | | |
|-----|---|------|--|----|-----|-----|
| 568 | S | 8100 | I 290 IKE EB IB @ SACRAMENTO BLVD | CO | S-2 | ON |
| 569 | S | 8105 | I 290 IKE WB OB @ SACRAMENTO BLVD | CO | S-1 | ON |
| 570 | S | 8110 | I 290 IKE EB IB @ HOMAN AVE | CO | S-1 | ON |
| 571 | S | 8115 | I 290 IKE WB OB @ HOMAN AVE | CO | S-2 | ON |
| 572 | S | 8120 | I 290 IKE EB IB @ INDEPENDENCE BLVD | CO | S-1 | ON |
| 573 | S | 8125 | I 290 IKE EB IB @ INDEPENDENCE BLVD | CO | S-2 | OFF |
| 574 | S | 8130 | I 290 IKE WB OB @ INDEPENDENCE BLVD | CO | S-2 | ON |
| 575 | S | 8135 | I 290 IKE WB OB @ INDEPENDENCE BLVD | CO | S-1 | ON |
| 576 | S | 8140 | I 290 IKE EB IB @ KOSTNER AVE | CO | S-1 | ON |
| 577 | S | 8145 | I 290 IKE WB OB @ KOSTNER AVE | CO | S-2 | ON |
| 578 | S | 8150 | I 290 IKE EB IB @ IL 50 CICERO AVE | CO | S-2 | ON |
| 579 | S | 8155 | I 290 IKE WB OB @ | CO | | ON |

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| | | | | | | | |
|-----|---|------|---------------------------------------|----|--|-----|----|
| | | | IL 50 CICERO AVE | | | S-2 | |
| 580 | S | 8160 | I 290 IKE WB OB @ IL 50 CICERO AVE | CO | | S-1 | ON |
| 581 | S | 8165 | I 290 IKE EB IB @ LARAMIE AVE | CO | | S-1 | ON |
| 582 | S | 8170 | I 290 IKE WB OB @ LARAMIE AVE | CO | | S-2 | ON |
| 583 | S | 8175 | I 290 IKE EB IB @ CENTRAL AVE | CO | | S-1 | ON |
| 584 | S | 8180 | I 290 IKE EB IB @ CENTRAL AVE | CO | | S-2 | ON |
| 585 | S | 8185 | I 290 IKE EB IB @ CENTRAL AVE | CO | | S-2 | ON |
| 586 | S | 8190 | I 290 IKE WB OB @ CENTRAL AVE | CO | | S-2 | ON |
| 587 | S | 8195 | I 290 IKE WB OB @ CENTRAL AVE | CO | | S-1 | ON |
| 588 | S | 8200 | I 290 IKE EB IB @ AUSTIN BLVD | CO | | S-2 | ON |
| 589 | S | 8205 | I 290 IKE WB OB @ AUSTIN BLVD | CO | | S-2 | ON |
| 590 | S | 8210 | I 290 IKE WB OB @ AUSTIN BLVD | CO | | S-1 | ON |

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| | | | | | | |
|-----|---|------|--|----|-----|----|
| 591 | S | 8215 | I 290 IKE EB IB @ EAST AVE | CO | S-2 | ON |
| 592 | S | 8220 | I 290 IKE WB OB @ EAST AVE | CO | S-2 | ON |
| 593 | S | 8225 | I 290 IKE MEDIAN @ EAST AVE | CO | S-2 | ON |
| 594 | S | 8230 | I 290 IKE EB IB @ IL 43 HARLEM AVE | CO | S-1 | ON |
| 595 | S | 8235 | I 290 IKE WB OB @ IL 43 HARLEM AVE | CO | S-2 | ON |
| 596 | S | 8240 | I 290 IKE WB OB @ IL 43 HARLEM AVE | CO | S-1 | ON |
| 597 | S | 8245 | I 290 IKE EB IB @ DES PLAINES AVE | CO | S-2 | ON |
| 598 | S | 8250 | I 290 IKE WB OB @ DES PLAINES AVE | CO | S-2 | ON |
| 599 | S | 8255 | I 290 IKE WB OB @ DES PLAINES AVE | CO | S-1 | ON |
| 600 | S | 8260 | I 290 IKE EB IB @ DES PLAINES RIVER | CO | S-2 | ON |
| 601 | S | 8265 | I 290 IKE EB IB @ IL 171 1ST AVE | CO | S-1 | ON |
| 602 | S | 8270 | I 290 IKE WB OB @ IL 171 1ST AVE | CO | S-2 | ON |

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| | | | | | | |
|-----|---|------|-------------------------------------|----|-----|----|
| 603 | S | 8275 | I 290 IKE WB OB @ IL 171 1ST AVE | CO | S-2 | ON |
| 604 | S | 8280 | I 290 IKE WB OB @ IL 171 1ST AVE | CO | S-1 | ON |
| 605 | S | 8285 | I 290 IKE EB IB @ 9TH AVE | CO | S-1 | ON |
| 606 | S | 8290 | I 290 IKE WB OB @ 9TH AVE | CO | S-2 | ON |
| 607 | S | 8295 | I 290 IKE EB IB @ 17TH AVE | CO | S-1 | ON |
| 608 | S | 8300 | I 290 IKE EB IB @ 17TH AVE | CO | S-2 | ON |
| 609 | S | 8305 | I 290 IKE WB OB @ 17TH AVE | CO | S-2 | ON |
| 610 | S | 8310 | I 290 IKE WB OB @ 17TH AVE | CO | S-1 | ON |
| 611 | S | 8315 | I 290 IKE EB IB @ 25TH AVE | CO | S-1 | ON |
| 612 | S | 8320 | I 290 IKE EB IB @ 25TH AVE | CO | S-1 | ON |
| 613 | S | 8325 | I 290 IKE WB OB @ 25TH AVE | CO | S-2 | ON |
| 614 | S | 8335 | I 290 IKE EB IB @ | CO | | ON |

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| | | | ADDISON CREEK | | S-2 | |
|-----|---|------|--|----|-----|-----|
| 615 | S | 8340 | I 290 IKE WB OB @ ADDISON CREEK | CO | S-1 | ON |
| 616 | S | 8345 | I 290 IKE EB IB @ MANNHEIM RD SE | CO | S-1 | ON |
| 617 | S | 8350 | I 290 IKE EB IB @ MANNHEIM RD SW | CO | S-1 | ON |
| 618 | S | 8360 | I 290 IKE WB OB @ MANNHEIM RD | CO | S-2 | ON |
| 619 | S | 8370 | I 290 IKE WB OB @ MANNHEIM RD NW | CO | S-1 | ON |
| 620 | S | 8375 | I 290 IKE EB IB @ HILLSIDE CAR MAX ENT | CO | S-1 | ON |
| 621 | S | 8380 | I 290 IKE WB OB @ HILLSIDE AVE WOLF RD EXIT | CO | S-2 | ON |
| 622 | S | 9000 | I 290 IKE EB IB @ WOLF RD | CO | S-2 | ON |
| 623 | S | 9005 | I 290 IKE MEDIAN @ WOLF RD | CO | S-2 | ON |
| 624 | S | 9010 | I 290 EB IB @ BUTTERFIELD RD | CO | S-2 | ON |
| 625 | S | 9015 | I 290 EB IB @ I 294 TLWY | CO | S-2 | OFF |

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| | | | | | | |
|-----|---|------|----------------------------------|----|-----|-----|
| 626 | S | 9020 | I 290 WB OB @ I 294 TLWY | CO | | OFF |
| | | | | | S-2 | |
| 627 | S | 9025 | I 290 EB IB @ MAPLE AVE | CO | | OFF |
| | | | | | S-2 | |
| 628 | S | 9030 | I 290 EB IB @ ST CHARLES RD | DU | | OFF |
| | | | | | S-1 | |
| 629 | S | 9035 | I 290 EB IB @ ST CHARLES RD | DU | | OFF |
| | | | | | S-1 | |
| 630 | S | 9040 | I 290 WB OB @ ST CHARLES RD | DU | | OFF |
| | | | | | S-1 | |
| 631 | S | 9045 | I 290 WB OB @ ST CHARLES RD | DU | | OFF |
| | | | | | S-1 | |
| 632 | S | 9050 | I 290 EB IB @ CN RR C & NW RR | DU | | OFF |
| | | | | | S-2 | |
| 633 | S | 9055 | I 290 EB IB @ IL 64 NORTH AVE | DU | | OFF |
| | | | | | S-1 | |
| 634 | S | 9060 | I 290 WB OB @ IL 64 NORTH AVE | DU | | OFF |
| | | | | | S-2 | |
| 635 | S | 9065 | I 290 EB IB @ IL 64 NORTH AVE | DU | | OFF |
| | | | | | S-2 | |
| 636 | S | 9070 | I 290 WB OB @ IL 64 NORTH AVE | DU | | ON |
| | | | | | S-2 | |
| 637 | S | 9075 | I 290 EB IB @ IL 64 NORTH AVE | DU | | OFF |
| | | | | | S-1 | |

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| | | | | | | |
|-----|---|------|------------------------------------|----|-----|----|
| 638 | S | 9080 | I 290 WB OB @ IL 64 NORTH AVE | DU | S-2 | ON |
| 639 | S | 9085 | I 290 EB IB @ EMROY AVE | DU | S-2 | ON |
| 640 | S | 9090 | I 290 WB OB @ YORK RD & LAKE ST | DU | S-2 | ON |
| 641 | S | 9095 | I 290 EB IB @ YORK RD & LAKE ST | DU | S-2 | ON |
| 642 | S | 9100 | I 290 WB OB @ YORK RD & LAKE ST | DU | S-2 | ON |
| 643 | S | 9105 | I 290 EB IB @ YORK RD & LAKE ST | DU | S-2 | ON |
| 644 | S | 9110 | I 290 WB OB @ YORK RD & LAKE ST | DU | S-2 | ON |
| 645 | S | 9115 | I 290 WB OB @ CHURCH RD | DU | S-2 | ON |
| 646 | S | 9120 | I 290 EB IB @ GRAND AVE | DU | S-2 | ON |
| 647 | S | 9125 | I 290 EB IB @ IL 83 KINGERY HWY | DU | S-2 | ON |
| 648 | S | 9130 | I 290 WB OB @ IL 83 KINGERY HWY | DU | S-1 | ON |
| 649 | S | 9132 | IL 83 KINGERY NB @ | DU | | ON |

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| | | | I 290 | | S-3 |
|-----|---|------|--|----|-----|
| 650 | S | 9133 | IL 83 KINGERY SB @ I 290 | DU | ON |
| 651 | S | 9135 | I 290 EB IB @ IL 83 KINGERY HWY | DU | ON |
| 652 | S | 9140 | I 290 WB OB @ IL 83 KINGERY HWY | DU | ON |
| 653 | S | 9145 | I 290 WB OB @ WOOD DALE RD | DU | ON |
| 654 | S | 9150 | I 290 WB OB @ WOOD DALE RD (WEST) | DU | ON |
| 655 | S | 9155 | I 290 WB OB @ ADDISON RD | DU | ON |
| 656 | S | 9160 | I 290 EB IB @ ADDISON RD (WEST) | DU | ON |
| 657 | S | 9165 | I 290 WB OB @ MILL RD | DU | ON |
| 658 | S | 9167 | I 290 OB @ MILL RD | DU | ON |
| 659 | S | 9168 | I 290 IB @ MILL RD | DU | ON |
| 660 | S | 9170 | I 290 IL 53 EB IB @ ITASCA RD | DU | ON |

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| | | | | | | |
|-----|---|------|--|----|-----|----|
| 661 | S | 9175 | I 290 IL 53 EB IB @ NORDIC RD | DU | S-2 | ON |
| 662 | S | 9180 | I 290 IL 53 EB IB @ NORDIC RD | DU | S-2 | ON |
| 663 | S | 9190 | I 290 IL 53 EB IB @ IL 19 IRVING PARK RD (NORTH) | DU | S-2 | ON |
| 664 | S | 9195 | I 290 IL 53 WB OB @ THORNDALE (0.5 MILE SOUTH OF) | DU | S-2 | ON |
| 665 | S | 9200 | I 290 IL 53 EB IB @ THORNDALE (SOUTH OF) | DU | S-2 | ON |
| 666 | S | 9205 | I 290 IL 53 OB @ THORNDALE (SOUTH OF) | DU | S-2 | ON |
| 667 | S | 9210 | I 290 IL 53 IB @ THORNDALE NE QUAD | DU | S-2 | ON |
| 668 | S | 9215 | I 290 IL 53 EB IB @ THORNDALE NW QUAD | DU | S-2 | ON |
| 669 | S | 9225 | I 290 IL 53 OB @ DEVON AVE | DU | S-2 | ON |
| 670 | S | 9230 | I 290 IL 53 OB @ DEVON AVE (NORTH) | CO | S-2 | ON |
| 671 | S | 9235 | I 290 IL 53 EB IB @ BIESTERFIELD RD | CO | S-2 | ON |
| 672 | S | 9240 | I 290 IL 53 OB ENT @ | CO | | ON |

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| | | | | | | |
|-----|---|-------|--|----|-----|----|
| | | | BIESTERFIELD RD | | S-2 | |
| 673 | S | 9245 | I 290 IL 53 EB IB @ BIESTERFIELD RD (NORTH) | CO | S-2 | ON |
| 674 | S | 9250 | I 290 IL 53 EB IB @ WGN RADIO STATION TOWER | CO | S-2 | ON |
| 675 | S | 9252 | I 290 IB @ BIESTERFIELD RD (NORTH) | DU | S-3 | ON |
| 676 | S | 9255 | I 290 IL 53 EB IB @ IL 72 HIGGINS RD (1.5 MILE SOUTH | CO | S-2 | ON |
| 677 | S | 9260 | I 290 IL 53 EB IB @ IL 72 HIGGINS RD (1.0 MILE SOUTH | CO | S-2 | ON |
| 678 | S | 9270 | I 290 IL 53 OB @ IL 72 HIGGINS RD | CO | S-2 | ON |
| 679 | S | 9275 | I 290 IL 53 EB IB @ IL 72 HIGGINS RD | CO | S-2 | ON |
| 680 | S | 9285 | I 290 IL 53 OB @ WOODFIELD DR | CO | S-2 | ON |
| 681 | S | 9295 | I 290 IL 53 OB @ I 90 TLWY | CO | S-2 | ON |
| 682 | S | 9300 | I 290 IL 53 EB IB @ I 90 TLWY | CO | S-2 | ON |
| 683 | S | 10000 | I 290 IL 53 OB @ I 90 TLWY | CO | S-2 | ON |

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|-----|---|-------|--|----|-----|----|
| 684 | S | 10003 | I 290 IL 53 EB IB @ I 90 TLWY | CO | S-2 | ON |
| 685 | S | 10005 | IL 53 NB OB @ IL 62 ALGONQUIN RD | CO | S-2 | ON |
| 686 | S | 10010 | IL 53 SB IB @ IL 62 ALGONQUIN RD | CO | S-2 | ON |
| 687 | S | 10015 | IL 53 SB IB @ ALGONQUIN RD (0.5 MILE NORTH) | CO | S-2 | ON |
| 688 | S | 10020 | IL 53 SB IB @ KIRCHOFF RD | CO | S-2 | ON |
| 689 | S | 10025 | IL 53 NB OB @ KIRCHOFF RD | CO | S-2 | ON |
| 690 | S | 10029 | I 290 IL 53 EXIT @ INDUSTRIAL AVE | CO | S-3 | ON |
| 691 | S | 10030 | IL 53 NB OB @ INDUSTRIAL AVE | CO | S-2 | ON |
| 692 | S | 10035 | IL 53 NB OB @ EUCLID ST | CO | S-2 | ON |
| 693 | S | 10040 | IL 53 SB IB @ EUCLID ST | CO | S-2 | ON |
| 694 | S | 10045 | IL 53 SB IB @ EUCLID ST | CO | S-2 | ON |
| 695 | S | 10047 | IL 53 NB OB @ EUCLID ST | CO | S-2 | ON |

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|-----|---|-------|--------------------------------------|----|-----|----|
| 696 | S | 10050 | IL 53 NB OB @ US 14 NORTHWEST HWY | CO | S-2 | ON |
| 697 | S | 10055 | IL 53 SB IB @ US 14 NORTHWEST HWY | CO | S-2 | ON |
| 698 | S | 10060 | IL 53 NB OB @ PALATINE RD | CO | S-2 | ON |
| 699 | S | 10065 | IL 53 NB OB @ PALATINE RD | CO | S-2 | ON |
| 700 | S | 10070 | IL 53 SB IB @ PALATINE RD | CO | S-2 | ON |
| 701 | S | 10075 | IL 53 SB IB @ PALATINE RD | CO | S-2 | ON |
| 702 | S | 10080 | IL 53 NB OB @ ANDERSON DR | CO | S-2 | ON |
| 703 | S | 10085 | IL 53 NB OB @ US 12 RAND RD | CO | S-2 | ON |
| 704 | S | 10090 | IL 53 SB IB @ US 12 RAND RD | CO | S-2 | ON |
| 705 | S | 10095 | IL 53 NB OB @ IL 68 DUNDEE RD | CO | S-2 | ON |
| 706 | S | 10100 | IL 53 NB OB @ IL 68 DUNDEE RD | CO | S-2 | ON |
| 707 | S | 10105 | IL 53 SB IB @ | CO | | ON |

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|-----|---|-------|--|----|-----|-----|
| | | | IL 68 DUNDEE RD | | S-2 | |
| 708 | S | 10110 | IL 53 SB IB @ IL 68 DUNDEE RD | CO | S-2 | ON |
| 709 | S | 10115 | IL 53 NB OB @ LAKE COOK RD (0.5 MILE SOUTH) | CO | S-2 | ON |
| 710 | S | 11000 | I 355 TLWY SB IB @ SCHICK RD | DU | S-2 | ON |
| 711 | S | 11005 | I 355 TLWY NB OB @ US 20 LAKE ST | DU | S-2 | ON |
| 712 | S | 11010 | I 355 TLWY SB IB @ US 20 LAKE ST | DU | S-2 | ON |
| 713 | S | 11015 | I 355 TLWY SB IB @ US 20 LAKE ST | DU | S-2 | ON |
| 714 | S | 11017 | I 290 @ ARMY TRAIL RD | DU | S-3 | ON |
| 715 | S | 11020 | I 355 TLWY SB IB @ KINGS POINT DR | DU | S-2 | ON |
| 716 | S | 12000 | LAKE SHORE DR NB OB @ MARQUETTE RD (SOUTH) | CO | S-2 | OFF |
| 717 | S | 12005 | LAKE SHORE DR SB IB @ MARQUETTE RD (SOUTH) | CO | S-2 | OFF |
| 718 | S | 12010 | LAKE SHORE DR NB OB @ HAYES DR | CO | S-2 | OFF |

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|-----|---|-------|---|----|-----|-----|
| 719 | S | 12015 | LAKE SHORE DR SB IB @ 59TH ST (SOUTH) | CO | S-2 | OFF |
| 720 | S | 12020 | LAKE SHORE DR NB OB @ 59TH ST (SOUTH) | CO | S-2 | OFF |
| 721 | S | 12025 | LAKE SHORE DR SB IB @ 53RD ST (SOUTH) | CO | S-2 | ON |
| 722 | S | 12030 | LAKE SHORE DR NB OB @ 48TH ST (SOUTH) | CO | S-2 | ON |
| 723 | S | 12035 | LAKE SHORE DR SB IB @ 47TH ST (SOUTH) | CO | S-2 | ON |
| 724 | S | 12040 | LAKE SHORE DR NB OB @ 47TH ST (SOUTH) | CO | S-2 | ON |
| 725 | S | 12045 | LAKE SHORE DR SB IB @ 43RD ST (SOUTH) | CO | S-2 | ON |
| 726 | S | 12050 | LAKE SHORE DR NB OB @ OAKWOOD BLVD (SOUTH) | CO | S-2 | ON |
| 727 | S | 12055 | LAKE SHORE DR SB IB @ OAKWOOD BLVD (SOUTH) | CO | S-2 | ON |
| 728 | S | 12060 | LAKE SHORE DR NB OB @ OAKWOOD BLVD (NORTH) | CO | S-2 | ON |
| 729 | S | 12065 | LAKE SHORE DR SB IB @ 35TH ST (SOUTH) | CO | S-2 | ON |
| 730 | S | 12070 | LAKE SHORE DR NB OB @ 31ST ST (SOUTH) | CO | S-2 | ON |

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|-----|---|-------|--|----|-----|-----|
| 731 | S | 12075 | LAKE SHORE DR SB IB @ 31ST ST (NORTH) | CO | S-2 | ON |
| 732 | S | 12080 | LAKE SHORE DR NB OB @ 31ST ST (SOUTH OF) | CO | S-2 | ON |
| 733 | S | 12085 | LAKE SHORE DR SB IB @ 31ST ST (NORTH OF) | CO | S-2 | ON |
| 734 | S | 12090 | LAKE SHORE DR NB OB @ 25TH ST | CO | S-2 | ON |
| 735 | S | 12095 | LAKE SHORE DR SB IB @ 23RD ST | CO | S-2 | ON |
| 736 | S | 12100 | LAKE SHORE DR NB OB @ 23RD ST (NORTH) | CO | S-2 | ON |
| 737 | S | 12105 | LAKE SHORE DR NB OB @ 23RD ST (NORTH OF CAB 21) | CO | S-2 | ON |
| 738 | S | 12106 | LAKE SHORE DR SB IB @ 18TH ST | CO | S-2 | ON |
| 739 | S | 12107 | LAKE SHORE DR NB OB @ 18TH ST | CO | S-2 | ON |
| 740 | S | 12110 | LAKE SHORE DR NB OB @ MCFETRIDGE DR (SOUTH) | CO | S-2 | ON |
| 741 | S | 12115 | LAKE SHORE DR SB IB @ BALBO AVE (SOUTH) | CO | S-2 | OFF |
| 742 | S | 12120 | LAKE SHORE DR NB OB @ | CO | | ON |

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|-----|---|-------|--|----|--|-----|-----|
| | | | JACKSON BLVD | | | S-2 | |
| 743 | S | 13025 | LAKE SHORE DR SB IB @ RANDOLPH ST | CO | | S-2 | ON |
| 744 | S | 13030 | LAKE SHORE DR NB OB @ RANDOLPH ST | CO | | S-2 | ON |
| 745 | S | 13035 | LAKE SHORE DR SB IB @ RANDOLPH ST | CO | | S-2 | ON |
| 746 | S | 13040 | LAKE SHORE DR NB OB @ RANDOLPH ST | CO | | S-2 | ON |
| 747 | S | 13045 | LAKE SHORE DR SB IB @ WACKER DR | CO | | S-2 | ON |
| 748 | S | 13050 | LAKE SHORE DR NB OB @ ILLINOIS EXIT | CO | | S-2 | OFF |
| 749 | S | 13055 | LAKE SHORE DR SB IB @ GRAND AVE | CO | | S-2 | ON |
| 750 | S | 13060 | LAKE SHORE DR NB OB @ WACKER DR | CO | | S-2 | ON |
| 751 | S | 13065 | LAKE SHORE DR SB IB @ ERIE ST | CO | | S-2 | ON |
| 752 | S | 13070 | LAKE SHORE DR NB OB @ CHICAGO AVE (SOUTH) | CO | | S-2 | ON |
| 753 | S | 13075 | LAKE SHORE DR SB IB @ CHICAGO AVE | CO | | S-2 | ON |

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|-----|---|-------|---|----|-----|-----|
| 754 | S | 13080 | LAKE SHORE DR NB OB @ CHICAGO AVE | CO | S-2 | ON |
| 755 | S | 13085 | LAKE SHORE DR SB IB @ CHESTNUT ST | CO | S-2 | ON |
| 756 | S | 13090 | LAKE SHORE DR NB OB @ CHESTNUT ST | CO | S-2 | ON |
| 757 | S | 13095 | LAKE SHORE DR SB IB @ MICHIGAN AVE | CO | S-2 | ON |
| 758 | S | 13100 | LAKE SHORE DR NB OB @ MICHIGAN AVE | CO | S-2 | ON |
| 759 | S | 13105 | LAKE SHORE DR SB IB @ MICHIGAN AVE | CO | S-2 | ON |
| 760 | S | 13110 | LAKE SHORE DR NB OB @ DIVISION ST | CO | S-2 | OFF |
| 761 | S | 13115 | LAKE SHORE DR SB IB @ DIVISION ST | CO | S-2 | ON |
| 762 | S | 13120 | LAKE SHORE DR NB OB @ DIVISION ST | CO | S-2 | ON |
| 763 | S | 13125 | LAKE SHORE DR SB IB @ | CO | | OFF |

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|-----|---|-------|--|----|-----|-----|
| | | | NORTH AVE | | S-2 | |
| 764 | S | 13130 | LAKE SHORE DR NB OB @ NORTH AVE | CO | S-2 | OFF |
| 765 | S | 13135 | LAKE SHORE DR SB IB @ NORTH AVE | CO | S-2 | OFF |
| 766 | S | 13140 | LAKE SHORE DR NB OB @ NORTH AVE | CO | S-2 | OFF |
| 767 | S | 13145 | LAKE SHORE DR SB IB @ NORTH AVE | CO | S-2 | OFF |
| 768 | S | 13150 | LAKE SHORE DR NB OB @ ARMITAGE AVE | CO | S-2 | OFF |
| 769 | S | 13155 | LAKE SHORE DR SB IB @ FULLERTON PARKWAY | CO | S-2 | OFF |
| 770 | S | 13160 | LAKE SHORE DR NB OB @ FULLERTON PARKWAY | CO | S-2 | OFF |
| 771 | S | 13165 | LAKE SHORE DR SB IB @ FULLERTON PARKWAY | CO | S-2 | OFF |
| 772 | S | 13170 | LAKE SHORE DR NB OB @ DIVERSEY AVE | CO | S-2 | OFF |
| 773 | S | 13175 | LAKE SHORE DR SB IB @ | CO | | OFF |

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| | | | | | | |
|-----|---|-------|---|----|-----|-----|
| | | | DIVERSEY AVE | | S-2 | |
| 774 | S | 13180 | LAKE SHORE DR NB OB @ BELMONT AVE | CO | S-2 | OFF |
| 775 | S | 13185 | LAKE SHORE DR SB IB @ BELMONT AVE | CO | S-2 | OFF |
| 776 | S | 13190 | LAKE SHORE DR NB OB @ BELMONT AVE | CO | S-2 | OFF |
| 777 | S | 13195 | LAKE SHORE DR SB IB @ BELMONT AVE | CO | S-2 | OFF |
| 778 | S | 13200 | LAKE SHORE DR NB OB @ BELMONT AVE | CO | S-2 | OFF |
| 779 | S | 13205 | LAKE SHORE DR SB IB @ ADDISON ST | CO | S-2 | OFF |
| 780 | S | 13210 | LAKE SHORE DR NB OB @ ADDISON ST | CO | S-2 | OFF |
| 781 | S | 13215 | LAKE SHORE DR SB IB @ IL 19 IRVING PARK RD | CO | S-2 | OFF |
| 782 | S | 13220 | LAKE SHORE DR NB OB @ IL 19 IRVING PARK RD | CO | S-2 | OFF |
| 783 | S | 13225 | LAKE SHORE DR SB IB @ IL 19 IRVING PARK RD | CO | S-2 | OFF |
| 784 | S | 13230 | LAKE SHORE DR NB OB @ IL 19 IRVING PARK RD | CO | S-2 | OFF |

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|-----|---|-------|--|----|-----|-----|
| 785 | S | 13235 | LAKE SHORE DR SB IB @ MONTROSE AVE | CO | S-2 | OFF |
| 786 | S | 13240 | LAKE SHORE DR NB OB @ MONTROSE AVE | CO | S-2 | OFF |
| 787 | S | 13245 | LAKE SHORE DR SB IB @ WILSON AVE | CO | S-2 | OFF |
| 788 | S | 13250 | LAKE SHORE DR NB OB @ WILSON AVE | CO | S-2 | OFF |
| 789 | S | 13255 | LAKE SHORE DR SB IB @ WILSON AVE | CO | S-2 | OFF |
| 790 | S | 13260 | LAKE SHORE DR NB OB @ LAWRENCE AVE | CO | S-2 | OFF |
| 791 | S | 13265 | LAKE SHORE DR SB IB @ LAWRENCE AVE | CO | S-2 | OFF |
| 792 | S | 13270 | LAKE SHORE DR NB OB @ LAWRENCE AVE | CO | S-2 | OFF |
| 793 | S | 13275 | LAKE SHORE DR SB IB @ FOSTER AVE | CO | S-2 | ON |
| 794 | S | 13280 | LAKE SHORE DR NB OB @ FOSTER AVE | CO | S-2 | ON |
| 795 | S | 13285 | LAKE SHORE DR SB IB @ FOSTER AVE | CO | S-2 | ON |
| 796 | S | 13290 | LAKE SHORE DR NB OB @ BRYN MAWR AVE | CO | S-2 | ON |

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|-----|---|-------|---|----|-----|----|
| 797 | S | 13295 | LAKE SHORE DR SB IB @ BRYN MAWR AVE | CO | S-2 | ON |
| 798 | S | 13297 | LAKE SHORE DR NB OB @ BRYN MAWR AVE | CO | S-2 | ON |
| 799 | S | 15000 | I 80 EB @ I 294 TLWY | CO | S-2 | ON |
| 800 | S | 15005 | I 80 EB @ KEDZIE AVE | CO | S-2 | ON |
| 801 | S | 15010 | I 80 WB @ KEDZIE AVE (0.5 MILE WEST) | CO | S-2 | ON |
| 802 | S | 15015 | I 80 EB @ CRAWFORD AVE | CO | S-2 | ON |
| 803 | S | 15020 | I 80 EB @ IL 50 CICERO AVE (0.5 MILE EAST | CO | S-2 | ON |
| 804 | S | 15025 | I 80 EB @ IL 50 CICERO AVE | CO | S-2 | ON |
| 805 | S | 15030 | I 80 WB @ I 57 (EAST) | CO | S-2 | ON |
| 806 | S | 15035 | I 80 WB @ I 57 (WEST) | CO | S-2 | ON |
| 807 | S | 15040 | I 80 WB @ CENTRAL AVE | CO | S-2 | ON |
| 808 | S | 15045 | I 80 EB @ 183RD ST | CO | S-2 | ON |

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|-----|---|-------|---|----|-----|-----|
| 809 | S | 15050 | I 80 EB @ RIDGELAND AVE | CO | S-2 | ON |
| 810 | S | 15055 | I 80 WB @ OAK PARK AVE | CO | S-2 | ON |
| 811 | S | 15060 | I 80 EB @ IL 43 HARLEM AVE (EAST) | CO | S-2 | ON |
| 812 | S | 15065 | I 80 EB @ IL 43 HARLEM AVE (WEST) | WI | S-2 | ON |
| 813 | S | 15067 | I 80 WB @ HARLEM AVE | CO | S-2 | ON |
| 814 | S | 15070 | I 80 WB @ 76TH ST | WI | S-2 | OFF |
| 815 | S | 15075 | I 80 EB @ 80TH AVE | WI | S-2 | OFF |
| 816 | S | 15080 | I 80 WB @ 187TH ST | WI | S-2 | ON |
| 817 | S | 15085 | I 80 WB @ METRA RR BRIDGE (EAST) | WI | S-2 | ON |
| 818 | S | 15090 | I 80 WB @ METRA RR BRIDGE (WEST) | WI | S-2 | ON |
| 819 | S | 15095 | I 80 EB @ US 45 LAGRANGE RD (EAST) | WI | S-2 | ON |

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|-----|---|-------|--|----|-----|----|
| 820 | S | 15100 | I 80 EB @ US 45 LAGRANGE RD (WEST) | WI | S-2 | ON |
| 821 | S | 15105 | I 80 EB @ LAGRANGE RD (0.5 MILE WEST) | WI | S-2 | ON |
| 822 | S | 15107 | I 80 EB @ US 45 LAGRANGE RD (WEST) | WI | S-3 | ON |
| 823 | S | 15110 | I 80 EB @ LAGRANGE RD (1.0 MILE WEST) | WI | S-2 | ON |
| 824 | S | 15115 | I 80 EB @ WOLF RD (0.5 MILE EAST) | WI | S-2 | ON |
| 825 | S | 15120 | I 80 EB @ WOLF RD (WEST) | WI | S-2 | ON |
| 826 | S | 15121 | I 80 WB @ WOLF RD (WEST) | WI | S-3 | ON |
| 827 | S | 15125 | I 80 EB @ WOLF RD (0.5 MILE WEST) | WI | S-2 | ON |
| 828 | S | 15130 | I 80 EB @ MAPLE (0.5 MILE EAST) | WI | S-2 | ON |
| 829 | S | 15135 | I 80 WB @ MAPLE RD | WI | S-2 | ON |
| 830 | S | 15140 | I 80 EB @ NORFOLK SOUTHERN RR | WI | S-2 | ON |
| 831 | S | 15145 | I 80 EB @ PARKER RD (EAST) | WI | S-2 | ON |

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|-----|---|-------|---|----|-----|-----|
| 832 | S | 15150 | I 80 EB @ PARKER RD (0.5 MILE WEST) | WI | S-2 | ON |
| 833 | S | 15155 | I 80 EB @ I 355 EAST | WI | S-2 | ON |
| 834 | S | 15160 | I 80 EB @ I 355 | WI | S-2 | ON |
| 835 | S | 15165 | I 80 EB @ I 355 WEST (CEDAR RD) | WI | S-2 | ON |
| 836 | S | 15170 | I 80 EB @ I 355 (0.5 MILE WEST) | WI | S-2 | ON |
| 837 | S | 15175 | I 80 EB @ FRANCIS RD (0.5 MILE EAST) | WI | S-2 | ON |
| 838 | S | 15180 | I 80 EB @ FRANCIS RD | WI | S-2 | ON |
| 839 | S | 15210 | I 80 EB @ CHERRY HILL RD (WEST) | WI | S-3 | ON |
| 840 | S | 15211 | I 80 (WB) @ CHERRY HILL | WI | S-3 | ON |
| 841 | S | 15215 | I 80 EB @ SHEPLEY RD | WI | S-3 | OFF |
| 842 | S | 15217 | I 80 WB @ LARKIN AVE (WB) | WI | S-3 | ON |

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|-----|---|-------|---|----|-----|----|
| 843 | S | 15218 | I 80 EB @ LARKIN AVE (EB 3/4 MILE WEST OF) | WI | S-3 | ON |
| 844 | S | 15298 | I 80 WB @ GOUGAR RD (EAST OF) | WI | S-2 | ON |
| 845 | S | 15299 | I 80 EB @ CHERRY HILL RD (.2 MILE EAST OF) | WI | S-2 | ON |
| 846 | S | 15300 | I 80 WB @ CHERRY HILL RD | WI | S-2 | ON |
| 847 | S | 15301 | I 80 EB @ BRIGGS ST (.25 MILES EAST OF) | WI | S-2 | ON |
| 848 | S | 15302 | I 80 WB @ BRIGGS ST | WI | S-2 | ON |
| 849 | S | 15303 | I 80 EB @ BRIGGS ST (WEST OF) | WI | S-2 | ON |
| 850 | S | 15304 | I 80 WB @ NEW RICHARDS ST (.25 MILES EAST) | WI | S-2 | ON |
| 851 | S | 15306 | I 80 EB @ NEW RICHARDS ST (.1 MILES EAST) | WI | S-2 | ON |
| 852 | S | 15307 | I 80 WB @ IL 52 | WI | S-2 | ON |
| 853 | S | 15308 | I 80 WB @ IL 52 (WEST OF) | WI | S-2 | ON |
| 854 | S | 15309 | I 80 EB @ CENTER ST | WI | S-2 | ON |

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|-----|---|-------|---|----|-----|----|
| 855 | S | 15310 | I 80 EB @ WHEELER AVE (WEST OF) | WI | S-2 | ON |
| 856 | S | 15311 | I 80 WB @ MIDLAND AVE (WEST OF) | WI | S-2 | ON |
| 857 | S | 15312 | I 80 EB @ LARKIN AVE | WI | S-2 | ON |
| 858 | S | 15314 | I 80 WB @ HOUBOLT RD (1.5 MILES EAST OF) | WI | S-2 | ON |
| 859 | S | 15321 | I 80 EB @ I 55 (EAST OF) | WI | S-2 | ON |
| 860 | S | 15342 | I 80 EB @ ASHLEY RD (NORTH EAST OF) | LS | S-2 | ON |
| 861 | S | 15343 | I 80 EB @ 28TH RD | LS | S-2 | ON |
| 862 | S | 15344 | I 80 WB @ 29TH RD | LS | S-2 | ON |
| 863 | S | 15345 | I 80 EB @ LASALLE RD (EAST OF) | GR | S-2 | ON |
| 864 | S | 15346 | I 80 WB @ NETTLE CREEK RD (EAST OF) | GR | S-2 | ON |
| 865 | S | 15347 | I 80 WB @ SENECA RD (EAST OF) | GR | S-2 | ON |
| 866 | S | 15348 | I 80 EB @ | GR | | ON |

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|-----|---|-------|---|----|-----|----|
| | | | SENECA RD (.25 MILES EAST OF) | | S-2 | |
| 867 | S | 15349 | I 80 WB @ NETTLE SCHOOL RD (EAST OF) | GR | S-2 | ON |
| 868 | S | 15350 | I 80 EB @ 4000 W RD (EAST OF) | GR | S-2 | ON |
| 869 | S | 15351 | I 80 WB @ SARATOGA RD (EAST OF) | GR | S-2 | ON |
| 870 | S | 15352 | I 80 WB @ NETTLE CREEK RD (EAST OF) | GR | S-2 | ON |
| 871 | S | 15353 | I 80 IB @ IL 47 (WEST OF) | GR | S-2 | ON |
| 872 | S | 15354 | I 80 OB @ ASHLEY RD (WEST OF) | GR | S-2 | ON |
| 873 | S | 15355 | I 80 EB @ E 28TH RD (EAST OF) | GR | S-2 | ON |
| 874 | S | 15356 | I 80 IB @ BRISBIN RD (EAST OF) | GR | S-2 | ON |
| 875 | S | 15358 | I 80 OB @ COUNTY RD 3000 (WEST OF) | GR | S-2 | ON |
| 876 | S | 15359 | I 80 EB @ REST AREA IB | GR | S-2 | ON |
| 877 | S | 15960 | I 80 EB @ ASHTON RD | GR | S-2 | ON |

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|-----|---|-------|---|----|-----|-----|
| 878 | S | 15961 | I 80 EB @ MINOOKA RD (SOUTH WEST OF) | GR | S-2 | ON |
| 879 | S | 15962 | I 80 EB @ MINOOKA RD (NORTH EAST OF) | GR | S-2 | ON |
| 880 | S | 15963 | I 80 WB @ RIDGE RD (WEST OF) | GR | S-2 | ON |
| 881 | S | 15964 | I 80 EB @ RIDGE RD (EAST OF) | GR | S-2 | ON |
| 882 | S | 15965 | I 80 WB @ SHEPLEY RD (SOUTH WEST OF) | WI | S-2 | OFF |
| 883 | S | 15966 | I 80 EB @ SHEPLEY RD (NORTH OF) | WI | S-2 | OFF |
| 884 | S | 15967 | I 80 WB @ SHEPLEY RD (NORTH WEST OF) | WI | S-2 | OFF |
| 885 | S | 15968 | I 80 EB @ RIVER RD (WEST OF) | WI | S-2 | OFF |
| 886 | S | 15970 | I 80 EB @ RIVER RD (EAST OF) | WI | S-2 | ON |
| 887 | S | 15971 | I 80 WB @ I 55 (WEST OF) | WI | S-2 | ON |
| 888 | S | 15973 | I 80 WB @ I 55 (EAST OF 1/4 MILE) | WI | S-2 | ON |
| 889 | S | 15974 | I 80 EB @ HOULBOLT RD (WEST OF) | WI | S-2 | ON |

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|-----|---|-------|---|----|-----|----|
| 890 | S | 15975 | I 80 WB @ HOULBOLT RD (EAST OF) | WI | S-2 | ON |
| 891 | S | 15977 | I 80 EB @ HOULBOLT RD (EAST OF 1/4 MILE) | WI | S-2 | ON |
| 892 | S | 15978 | I 80 WB @ HOULBOLT RD (EAST OF 1/2 MILE) | WI | S-2 | ON |
| 893 | S | 15979 | I 80 EB @ LARKIN AVE (1/2 MILE WEST OF) | WI | S-2 | ON |
| 894 | S | 16000 | IL 394 SB OB @ I 80 94 SW QUAD IL 39 | CO | S-2 | ON |
| 895 | S | 16005 | IL 394 NB IB @ I 80 94 SE QUAD IL 39 | CO | S-2 | ON |
| 896 | S | 16010 | IL 394 NB IB @ THORTON LANSING RD (SOUTH) | CO | S-2 | ON |
| 897 | S | 16015 | IL 394 NB @ 186TH ST | CO | S-3 | ON |
| 898 | S | 15706 | IL 394 NB IB @ 186TH ST | CO | S-2 | ON |
| 899 | S | 20000 | US 12 IL 59 @ IL 134 LONG LAKE BIG HOLLOW RD | LA | S-2 | ON |
| 900 | S | 20005 | IL 59 SUTTON RD @ US 20 LAKE ST | CO | S-2 | ON |
| 901 | S | 20010 | I 90 94 KENN @ | CO | | ON |

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|-----|---|-------|---|----|--|-----|----|
| | | | 51ST ST | | | S-2 | |
| 902 | S | 20015 | I 90 94 KENN @ 51ST ST | CO | | S-2 | ON |
| 903 | S | 20020 | US 6 159TH ST @ PULASKI RD CRAWFORD AVE | CO | | S-2 | ON |
| 904 | S | 20025 | IL 53 @ 75TH | DU | | S-2 | ON |
| 905 | S | 20030 | IL 64 NORTH AVE @ IL 59 SUTTON RD | DU | | S-2 | ON |
| 906 | S | 20035 | IL 31 IL 56 LINCOLNWAY ST @ IL 56 STATE ST | KA | | S-2 | ON |
| 907 | S | 20040 | US 45 @ IL 176 | LA | | S-2 | ON |
| 908 | S | 20045 | IL 22 HALF DAY RD @ IL 83 | LA | | S-2 | ON |
| 909 | S | 20050 | IL 31 @ US 14 NORTHWEST HWY | MC | | S-2 | ON |
| 910 | S | 20055 | US 45 LAGRANGE RD @ LA PORTE ROAD (SOUTH OF) | WI | | S-2 | ON |
| 911 | S | 20060 | IL 38 ROOSEVELT RD @ FINLEY RD (WEST) | DU | | S-2 | ON |
| 912 | S | 20065 | IL 131 GREEN BAY RD @ 20TH ST (SOUTH) | LA | | S-2 | ON |

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|-----|---|-------|--|----|-----|----|
| 913 | S | 20070 | IL 43 HARLEM AVE @ TECHNY RD | CO | | ON |
| | | | | | S-2 | |
| 914 | S | 20075 | IL 68 DUNDEE RD @ PORTWINE RD | CO | | ON |
| | | | | | S-2 | |
| 915 | S | 20080 | PEPLOW RD @ RAMM RD (NORTH) | KA | | ON |
| | | | | | S-2 | |
| 916 | S | 20085 | IL 58 GOLF RD @ BIRCH AVE | CO | | ON |
| | | | | | S-2 | |
| 917 | S | 20090 | IL 50 CICERO AVE @ 99TH ST (SOUTH) | CO | | ON |
| | | | | | S-2 | |
| 918 | S | 20095 | IL 83 KINGERY HWY @ 55TH ST (NORTH) | DU | | ON |
| | | | | | S-2 | |
| 919 | S | 20100 | IL 59 @ HILLCREST DR (SOUTH) | LA | | ON |
| | | | | | S-2 | |
| 920 | S | 20105 | INDEPENDENCE RD @ TAYLOR ST (NORTH) | WI | | ON |
| | | | | | S-2 | |
| 921 | S | 20110 | IL 7 SOUTHWEST HWY @ 131ST ST | CO | | ON |
| | | | | | S-2 | |
| 922 | S | 20115 | US 14 NORTHWEST HWY @ CHATHAM PL (WEST) | CO | | ON |
| | | | | | S-2 | |
| 923 | S | 20120 | DEVON AVE @ ARLINGTON HEIGHTS RD (EAST) | CO | | ON |
| | | | | | S-2 | |
| 924 | S | 20125 | WOOD DALE AVE @ MARK ST (SOUTH) | DU | | ON |
| | | | | | S-2 | |

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|-----|---|-------|--|----|-----|----|
| 925 | S | 20130 | GALLIGAN RD @ FREEMAN RD (SOUTH) | KA | S-2 | ON |
| 926 | S | 20135 | WILSON AVE @ MARSHALL BLVD (NORTH) | LA | S-2 | ON |
| 927 | S | 20140 | IL 176 PARK AVE @ BLUE SPRUCE LN (EAST) | LA | S-2 | ON |
| 928 | S | 20145 | IL 126 PLAINFIELD RD @ 143RD ST (NORTH) | WI | S-2 | ON |
| 929 | S | 20150 | US 14 @ DEEP CUT RD (SE) | MC | S-2 | ON |
| 930 | S | 20155 | CAMPTON HILLS RD @ LYNN DR (EAST) | KA | S-2 | ON |
| 931 | S | 20160 | KEDZIE AVE @ TOUHY AVE (SOUTH) | CO | S-2 | ON |
| 932 | S | 20165 | IL 72 HIGGINS @ I 294 TLWY (EAST) | CO | S-2 | ON |
| 933 | S | 20170 | LAKE ST @ WEST ST (WEST) | LA | S-2 | ON |
| 934 | S | 20175 | 7TH ST @ PEPPERMILL RD (WEST) | WI | S-2 | ON |
| 935 | S | 20180 | MANHATTEN RD @ ELWOOD (1.0 MILE NORTH) | WI | S-2 | ON |
| 936 | S | 20185 | I 57 @ | WI | | ON |

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|-----|---|-------|---|----|-----|-----|
| | | | KENNEDY RD (EAST) | | S-2 | |
| 937 | S | 20190 | PEOTONE BEECHER RD @ KEDZIE AVE (WEST) | WI | S-2 | ON |
| 938 | S | 20195 | I 80 @ SHEPLEY RD HOLT RD (NORTH) | WI | S-2 | OFF |
| 939 | S | 20196 | I 80 @ CHERRY HILL RD | WI | S-2 | ON |
| 940 | S | 20200 | I 55 @ IL 113 (SOUTH) | WI | S-2 | ON |
| 941 | S | 20205 | IL 83 147TH ST SIBLEY BLVD @ MINERVA AVE (WEST) | CO | S-2 | ON |
| 942 | S | 20210 | COSSITT AVE @ SUNSET AVE (EAST) | CO | S-2 | ON |
| 943 | S | 20215 | US 12 45 MANNHEIM RD @ ROADWAY SHIPPING TERMINAL ENT | CO | S-2 | ON |
| 944 | S | 20220 | IL 59 @ 75TH ST (SOUTH) | DU | S-2 | ON |
| 945 | S | 20300 | I 55 NB @ LORENZO RD | WI | S-2 | ON |
| 946 | S | 20301 | I 55 SB @ MURPHY RD (SOUTH OF) | WI | S-2 | ON |
| 947 | S | 20302 | I 55 NB @ KAVANAUGH RD (.5 MILE NORTH) | WI | S-2 | ON |

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|-----|---|-------|--|----|-----|----|
| 948 | S | 20303 | I 55 SB @ KAVANAUGH RD (SOUTH OF) | WI | | ON |
| | | | | | S-2 | |
| 949 | S | 20304 | I 55 NB @ COAL CITY RD (NORTH OF) | WI | | ON |
| | | | | | S-2 | |
| 950 | S | 20305 | I 55 SB @ COAL CITY RD (.25 MILES SOUTH) | WI | | ON |
| | | | | | S-2 | |
| 951 | S | 20306 | I 55 NB @ KENNEDY RD (.5 MILES NORTH OF) | WI | | ON |
| | | | | | S-2 | |
| 952 | S | 20307 | I 80 WB @ MINOOKA RD (.5 MILES WEST OF) | GR | | ON |
| | | | | | S-2 | |
| 953 | S | 22015 | I 290 @ IL 83 KINGERY HWY | DU | | ON |
| | | | | | S-2 | |
| 954 | S | 22050 | GRAND AVE EB IB @ 77TH AVE | CO | | ON |
| | | | | | S-3 | |
| 955 | S | 22100 | US 41 SKOKIE HWY OB @ WEST PARK AVE (SOUTH) | LA | | ON |
| | | | | | S-3 | |
| 956 | S | 22150 | STONY ISLAND AVE SB OB @ 98TH PL | CO | | ON |
| | | | | | S-3 | |
| 957 | S | 22200 | US 6 159TH ST EB IB @ CRAWFORD AVE | CO | | ON |
| | | | | | S-3 | |
| 958 | S | 22250 | US 6 159TH ST WB OB @ DIXIE HWY (WEST) | CO | | ON |
| | | | | | S-3 | |
| 959 | S | 22300 | US 41 SKOKIE HWY OB @ | LA | | ON |

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| | | | | | | |
|-----|---|-------|--|----|-----|-----|
| | | | IL 22 HALF DAY RD (SOUTH) | | S-3 | |
| 960 | S | 22350 | US 45 MANNHEIM RD NB @ I 290 IKE (SOUTH) | CO | S-3 | ON |
| 961 | S | 22400 | US 45 MANNHEIM RD SB @ I 290 IKE (NORTH) | CO | S-3 | ON |
| 962 | S | 22450 | I 190 @ MANNHEIM RD SB | CO | S-2 | ON |
| 963 | S | 22455 | US 12 45 MANNHEIM RD NB @ LAWRENCE AVE (SOUTH OF) | CO | S-3 | ON |
| 964 | S | 23100 | I 55 @ IL 129 | WI | S-2 | ON |
| 965 | S | 23200 | I 57 @ US 30 (NORTH) | WI | S-2 | ON |
| 966 | S | 23300 | I 57 @ PEOTONE WILMINGTON EXIT | WI | S-2 | ON |
| 967 | S | A | BLDG A REVLAC @ I 90 94 KENN 950 W ONTARIO | CO | S-4 | OFF |
| 968 | S | BF02 | I 90 94 FORD @ STONY ISLAND | CO | S-5 | ON |
| 969 | S | BF05 | I 94 FORD SB OB @ 147TH SB ENT | CO | S-5 | ON |
| 970 | S | BF0B | I 94 FORD @ MICHIGAN AVE TOWER MMN2 | CO | S-5 | ON |
| 971 | S | BF0D | I 94 FORD @ | CO | | ON |

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| | | | M L KING DR TOWER MCD3 | | S-5 | |
|-----|---|-------|--|----|-----|-----|
| 972 | S | BF11 | I 94 FORD @ 170TH ST TOWER E1IJ3 | CO | | ON |
| | | | | | S-5 | |
| 973 | S | BF01A | I 90 94 FORD IB CAB T @ ELLIS AVE | CO | | ON |
| | | | | | S-5 | |
| 974 | S | BF02A | I 90 94 FORD IB CAB L @ 103RD | CO | | ON |
| | | | | | S-5 | |
| 975 | S | BF02B | I 90 94 FORD CAB R @ STONY ISLAND NB EXIT @ 103RD | CO | | ON |
| | | | | | S-5 | |
| 976 | S | BF02C | I 90 94 FORD IB CAB P @ STONY ISLAND SB EXIT | CO | | ON |
| | | | | | S-5 | |
| 977 | S | BF02D | I 90 94 FORD CAB S @ STONY ISLAND @ 98TH ST | CO | | ON |
| | | | | | S-5 | |
| 978 | S | BF11A | I 94 FORD @ I 80 WB @ I 94 NB TOWER CGH1 | CO | | ON |
| | | | | | S-5 | |
| 979 | S | BF11B | I 94 FORD @ I 94 WEST OF IL 394 TOWER CIJ3 | CO | | ON |
| | | | | | S-5 | |
| 980 | S | BF11C | I 94 FORD @ I 80 (SOUTH OF) TOWER D1CD | CO | | ON |
| | | | | | S-5 | |
| 981 | S | BOY1 | BIESTERFIELD BRIDGE OFFICE CAM @ 1101 BIESTERFIELD RD ELK GROVE | CO | | ON |
| | | | | | S-5 | |
| 982 | S | C | BLDG C REVLAC @ I 90 94 KENN 2735 GEORGE ST | CO | | OFF |
| | | | | | S-4 | |

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|-----|---|-------|--|----|-----|-----|
| 983 | S | D | BLDG D REVLAC @ I 90 94 KENN 3002 N FRANCISCO | CO | S-4 | OFF |
| 984 | S | DR01 | I 90 94 RYAN @ ARCHER AVE | CO | S-5 | ON |
| 985 | S | DR02 | I 90 94 RYAN @ I 55 STEV | CO | S-5 | ON |
| 986 | S | DR0A | I 94 RYAN @ POLK ST TOWER DCD1 | CO | S-5 | OFF |
| 987 | S | DR11 | I 94 RYAN @ 96TH ST TOWER OAB1 | CO | S-5 | ON |
| 988 | S | DR01A | I 90 94 RYAN @ ARCHER AVE | CO | S-5 | ON |
| 989 | S | DR02B | I 90 94 RYAN @ 28TH PL | CO | S-5 | OFF |
| 990 | S | DR03C | I 90 94 RYAN @ 35TH ST TOWER WAB2 | CO | S-5 | ON |
| 991 | S | DR04C | I 90 94 RYAN @ 45TH ST TOWER VMN2 | CO | S-5 | ON |
| 992 | S | DR05B | I 90 94 RYAN @ 50TH ST TOWER UIJ3 | CO | S-5 | ON |
| 993 | S | DR06B | I 90 94 RYAN @ 58TH ST TOWER TGH2 | CO | S-5 | ON |
| 994 | S | DR07A | I 94 RYAN @ 63RD ST TOWER SAB1 | CO | S-5 | ON |

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|------|---|-------|--|----|-----|-----|
| 995 | S | DR07C | I 94 RYAN @ 67TH ST TOWER RIGH2 | CO | S-5 | ON |
| 996 | S | DR08A | I 94 RYAN @ 72ND ST TOWER RKL3 | CO | S-5 | ON |
| 997 | S | DR09A | I 94 RYAN @ 81ST ST TOWER POP3 | CO | S-5 | ON |
| 998 | S | DR09C | I 94 RYAN @ 86TH ST TOWER PEF5 | CO | S-5 | ON |
| 999 | S | DR10A | I 94 RYAN @ 90TH ST TOWER OKL3 | CO | S-5 | ON |
| 1000 | S | DRMY | DAN RYAN MAINT YD CAM @ 6543 S WENTWORTH AVE | CO | S-5 | ON |
| 1001 | S | E | BLDG E REVLAC @ I 90 94 KENN 4755 WILSON | CO | S-4 | OFF |
| 1002 | S | ED00 | I 90 94 EDENS NW SPLIT CAM @ 4755 WILSON BLDG E | CO | S-5 | OFF |
| 1003 | S | ED01 | I 94 EDENS CAM @ FOSTER TOWER BLDG | CO | S-5 | OFF |
| 1004 | S | ED0A | I 94 EDENS CAM @ LAWRENCE AVE | CO | S-5 | ON |
| 1005 | S | FR01 | US 41 @ WEST PARK TOWER LPAB2 | LA | S-5 | ON |
| 1006 | S | FS00 | I 57 @ | CO | | ON |

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|------|---|------|--|----|-----|-----|
| | | | PERRY 98TH ST | | S-5 | |
| 1007 | S | FS01 | I 57 @ HALSTED ST (SOUTH OF) H57A HUT | CO | S-5 | OFF |
| 1008 | S | FS02 | I 57 @ 104TH ST | CO | S-5 | OFF |
| 1009 | S | FS03 | I 57 @ 110TH ST | CO | S-5 | OFF |
| 1010 | S | FS04 | I 57 @ 121ST ST | CO | S-5 | OFF |
| 1011 | S | FS05 | I 57 @ 125TH ST (SOUTH OF) | CO | S-5 | OFF |
| 1012 | S | FS06 | I 57 @ CHARLES DR (NORTH OF 138TH ST) | CO | S-5 | OFF |
| 1013 | S | FS07 | I 57 @ 141ST ST CAB I26 | CO | S-5 | OFF |
| 1014 | S | FS08 | I 57 @ SIBLEY ONTO I 57 | CO | S-5 | OFF |
| 1015 | S | FS09 | I 57 @ KEDZIE (NORTH OF) CAB K27 | CO | S-5 | ON |
| 1016 | S | FS0A | I 57 @ WENTWORTH AVE TOWER AGH2 | CO | S-5 | OFF |
| 1017 | S | FS10 | I 57 @ 159TH US 6 CAB L33 | CO | S-5 | OFF |

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|------|---|-------|--|----|-----|-----|
| 1018 | S | FS11 | I 57 @ CRAWFORD PULASKI (SOUTH OF) CAB | CO | S-5 | OFF |
| 1019 | S | FS12 | I 57 @ 167TH ST (SOUTHWEST OF) CAB N43 | CO | S-5 | OFF |
| 1020 | S | FS13 | I 57 @ 175TH ST (SOUTH OF) 57B HUT | CO | S-5 | ON |
| 1021 | S | FS01A | I 57 @ 100TH ST | CO | S-5 | OFF |
| 1022 | S | FS02A | I 57 @ 107TH ST THROOP | CO | S-5 | OFF |
| 1023 | S | FS03A | I 57 @ 114TH ST | CO | S-5 | OFF |
| 1024 | S | FS03B | I 57 @ 116TH ST (SOUTH OF) DMS29 | CO | S-5 | ON |
| 1025 | S | FS05A | I 57 @ 128TH ST OAK ST CAB G18 | CO | S-5 | OFF |
| 1026 | S | FS05B | I 57 @ BROADWAY (NORTH OF) CAB G20 | CO | S-5 | OFF |
| 1027 | S | FS06A | I 57 @ THORNTON RD (SOUTH OF) CAB H21 | CO | S-5 | OFF |
| 1028 | S | FS07A | I 57 @ NORRIS OAKLEY CAB I23 | CO | S-5 | OFF |
| 1029 | S | FS08A | I 57 @ SIBLEY (SW OF) CAB J25 | CO | S-5 | OFF |

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|------|---|-------|---|----|-----|-----|
| 1030 | S | FS08B | I 57 @ I 294 TRI STATE TLWY CAB J32 | CO | S-5 | ON |
| 1031 | S | FS09A | I 57 @ 155TH CAB K29 | CO | S-5 | OFF |
| 1032 | S | FS10A | I 57 @ 159TH US 6 CAB L33 | CO | S-5 | OFF |
| 1033 | S | FS10B | I 57 NB @ 163RD DMS44 | CO | S-5 | ON |
| 1034 | S | FS11A | I 57 @ 167TH CAB N39 | CO | S-5 | OFF |
| 1035 | S | FS12A | I 57 @ CICERO AVE CAB T45 | CO | S-5 | OFF |
| 1036 | S | FS12B | I 57 @ 173RD CAB T47 | CO | S-5 | OFF |
| 1037 | S | FS13A | I 57 @ I 80 (NORTH OF) CAB T46 | CO | S-5 | OFF |
| 1038 | S | H80 | I 80 HUT @ IL 394 | CO | S-6 | ON |
| 1039 | S | H94 | I 90 94 RYAN HUT @ STATE ST 66TH ST | CO | S-6 | ON |
| 1040 | S | H55A | I 55 STEV HUT @ I 55 @ 24TH PL & WALLACE | CO | S-6 | ON |
| 1041 | S | H55B | I 55 STEV HUT @ | CO | | ON |

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| | | | 25TH PL & NORMAL AVE | | | S-6 |
|------|---|-------|--|----|-----|-----|
| 1042 | S | H57A | I 57 HUT @ PARNELL AVE | CO | | ON |
| | | | | | S-6 | |
| 1043 | S | H57B | I 57 HUTS (2) @ I 80 | CO | | ON |
| | | | | | S-6 | |
| 1044 | S | H290A | I 290 HUT @ I 90 94 @ HALSTED ST CHICAGO | CO | | OFF |
| | | | | | S-6 | |
| 1045 | S | H55WS | I 55 STEV HUT @ WEIGH STATION (EAST OF) | WI | | ON |
| | | | | | S-6 | |
| 1046 | S | HQ01 | ROSELLE RD CAM HQ1 @ CENTRAL IDOT MATERIALS BLDG | CO | | ON |
| | | | | | S-5 | |
| 1047 | S | HQ02 | ROSELLE RD CAM HQ2 @ CENTRAL IDOT MATERIALS BLDG | CO | | ON |
| | | | | | S-5 | |
| 1048 | S | HRR | I 190 @ RIVER ROAD | CO | | ON |
| | | | | | S-6 | |
| 1049 | S | IE01 | I 94 EDENS IB GATE IE01 @ LAWRENCE AVE (SOUTH OF) | CO | | OFF |
| | | | | | S-4 | |
| 1050 | S | IE02 | I 94 EDENS IB GATE IE02 @ LAWRENCE AVE (SOUTH OF) | CO | | OFF |
| | | | | | S-4 | |
| 1051 | S | IE03 | I 94 EDENS IB GATE IE03 @ LAWRENCE AVE (SOUTH OF) | CO | | OFF |
| | | | | | S-4 | |
| 1052 | S | IE04 | I 94 EDENS IB GATE IE04 @ LAWRENCE AVE (SOUTH OF) | CO | | OFF |
| | | | | | S-4 | |

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|------|---|------|--|----|-----|-----|
| 1053 | S | IE05 | I 94 EDENS IB GATE IE05 @ LAWRENCE AVE (SOUTH OF) | CO | S-4 | OFF |
| 1054 | S | IE06 | I 94 EDENS IB GATE IE06 @ LAWRENCE AVE (SOUTH OF) | CO | S-4 | OFF |
| 1055 | S | IE07 | I 94 EDENS IB GATE IE07 @ LAWRENCE AVE (SOUTH OF) | CO | S-4 | OFF |
| 1056 | S | IE08 | I 94 EDENS IB GATE IE08 @ WILSON AVE (NORTH OF) | CO | S-4 | OFF |
| 1057 | S | IE09 | I 94 EDENS IB GATE IE09 @ WILSON AVE (NORTH OF) | CO | S-4 | OFF |
| 1058 | S | IE10 | I 94 EDENS IB GATE IE10 @ WILSON AVE (NORTH OF) | CO | S-4 | OFF |
| 1059 | S | IE11 | I 94 EDENS IB GATE IE11 @ WILSON AVE (NORTH OF) | CO | S-4 | OFF |
| 1060 | S | IE12 | I 94 EDENS IB GATE IE12 @ WILSON AVE (SOUTH OF) | CO | S-4 | OFF |
| 1061 | S | IE13 | I 94 EDENS IB GATE IE13 @ WILSON AVE (SOUTH OF) | CO | S-4 | OFF |
| 1062 | S | IE14 | I 94 EDENS IB GATE IE14 @ WILSON AVE (SOUTH OF) | CO | S-4 | OFF |
| 1063 | S | IE15 | I 94 EDENS IB GATE IE15 @ WILSON AVE (SOUTH OF) | CO | S-4 | OFF |
| 1064 | S | IE17 | I 80 @ | CO | | ON |

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| | | | US 45 (WEST OF) | | S-5 | |
|------|---|------|---|----|-----|-----|
| 1065 | S | IE18 | I 80 @ 104TH AVE | CO | S-5 | ON |
| 1066 | S | IE19 | I 80 @ WOLF RD | CO | S-5 | ON |
| 1067 | S | IE20 | I 80 @ 116TH ST I 80 WEIGH STATION | WI | S-5 | ON |
| 1068 | S | IE21 | I 80 @ 187TH ST | WI | S-5 | ON |
| 1069 | S | IE22 | I 80 @ PARKER RD | WI | S-5 | ON |
| 1070 | S | IE23 | I 80 @ I 355 TLWY (EAST OF) | WI | S-5 | ON |
| 1071 | S | IE24 | I 80 @ FRANCIS RD | WI | S-5 | ON |
| 1072 | S | IE25 | I 80 @ US 30 (EAST OF) TOWER NKL2 | WI | S-5 | OFF |
| 1073 | S | IE27 | I 80 WB @ CHERRY HILL WB CAMERA | WI | S-5 | ON |
| 1074 | S | IE32 | I 80 @ LARKIN AVE (EAST OF) | WI | S-5 | ON |
| 1075 | S | IE34 | I 80 @ HOUBOLT RD (1 MILE EAST OF) | WI | S-5 | ON |

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| | | | | | | |
|------|---|-------|---|----|-----|-----|
| 1076 | S | IE35 | I 80 @ HOUBOLT RD (.5 MILES EAST OF) | WI | S-5 | OFF |
| 1077 | S | IE39 | I 80 @ SHEPLEY RD | WI | S-5 | OFF |
| 1078 | S | IE14A | I 80 @ HARLEM AVE | WI | S-5 | ON |
| 1079 | S | IE15A | I 80 @ 80TH AVE | WI | S-5 | OFF |
| 1080 | S | IE23A | I 80 @ I 355 MICHAEL LN (WEST OF) | WI | S-5 | ON |
| 1081 | S | IE25A | I 80 @ US 30 TOWER NQR1 | WI | S-5 | OFF |
| 1082 | S | IE25B | I 80 @ US 30 TOWER NIJ2 | WI | S-5 | OFF |
| 1083 | S | IE27A | I 80 EB @ CHERRY HILL EB CAMERA | WI | S-5 | ON |
| 1084 | S | IE35A | I 80 @ HOUBOLT RD (.5 MILES WEST OF) | WI | S-5 | OFF |
| 1085 | S | IEAS1 | I 94 EDENS IB AUX SIGN IEAS1 @ LAWRENCE AVE (NORTH OF) | CO | S-4 | OFF |
| 1086 | S | IEAS2 | I 94 EDENS IB AUX SIGN IEAS2 @ LAWRENCE AVE (SOUTH OF) | CO | S-4 | OFF |
| 1087 | S | IEB1 | I 94 EDENS IB BARRIER IEB1 @ WILSON AVE (NORTH OF) | CO | S-4 | OFF |

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| | | | | | | |
|------|---|--------|--|----|-----|-----|
| 1088 | S | IECC1 | I 94 EDENS IB OPS CAM IECC1 @ LAWRENCE AVE (SOUTH OF) | CO | S-4 | OFF |
| 1089 | S | IECC2 | I 94 EDENS IB OPS CAM IECC2 @ LAWRENCE AVE (SOUTH OF) | CO | S-4 | OFF |
| 1090 | S | IECC3 | I 94 EDENS IB OPS CAM IECC3 @ LAWRENCE AVE (SOUTH OF) | CO | S-4 | OFF |
| 1091 | S | IECC4 | I 94 EDENS IB OPS CAM IECC4 @ LAWRENCE AVE (SOUTH OF) | CO | S-4 | OFF |
| 1092 | S | IECC5 | I 94 EDENS IB OPS CAM IECC5 @ WILSON AVE (SOUTH OF) | CO | S-4 | OFF |
| 1093 | S | IECC6 | I 94 EDENS IB OPS CAM IECC6 @ WILSON AVE (SOUTH OF) | CO | S-4 | OFF |
| 1094 | S | IECC7 | I 94 EDENS OPS CAM IECC7 @ LAWRENCE AVE | CO | S-4 | OFF |
| 1095 | S | IECC9 | I 94 EDENS OPS CAM IECC9 @ FOSTER AVE | CO | S-4 | OFF |
| 1096 | S | IECM12 | I 94 EDENS IB MESSAGE SIGN @ LAWRENCE AVE (SOUTH OF) | CO | S-4 | OFF |
| 1097 | S | IECM13 | I 94 EDENS IB MESSAGE SIGN @ FOSTER AVE | CO | S-4 | OFF |
| 1098 | S | IEG1 | I 94 EDENS IB GORE SIGN IEG1 @ WILSON AVE (NORTH OF) | CO | S-4 | OFF |
| 1099 | S | IER1 | I 94 EDENS IB PANEL IER1 @ | CO | | OFF |

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| | | | | | | | |
|------|---|------|---|----|--|-----|-----|
| | | | FOSTER AVE | | | S-4 | |
| 1100 | S | IER2 | I 94 EDENS IB PANEL IER2 @ WILSON AVE (NORTH OF) | CO | | S-4 | OFF |
| 1101 | S | IER3 | I 94 EDENS IB PANEL IER3 @ LAWRENCE AVE (SOUTH OF) | CO | | S-4 | OFF |
| 1102 | S | IEV1 | I 94 EDENS IB CHEVRON IEV1 @ LAWRENCE AVE (SOUTH OF) | CO | | S-4 | OFF |
| 1103 | S | IEV2 | I 94 EDENS IB CHEVRON IEV2 @ LAWRENCE AVE (SOUTH OF) | CO | | S-4 | OFF |
| 1104 | S | IEV3 | I 94 EDENS IB CHEVRON IEV3 @ LAWRENCE AVE (SOUTH OF) | CO | | S-4 | OFF |
| 1105 | S | IEX1 | I 94 EDENS IB X SIGN IEX1 @ WILSON AVE (SOUTH OF) | CO | | S-4 | OFF |
| 1106 | S | IK01 | I 290 IKE @ PAULINA ST (UPPER) CAB G9 | CO | | S-5 | ON |
| 1107 | S | IK03 | I 290 IKE @ SACRAMENTO CAB I19 | CO | | S-5 | ON |
| 1108 | S | IK04 | I 290 IKE @ INDEPENDENCE (UPPER CAMERA) CAB | CO | | S-5 | ON |
| 1109 | S | IK08 | I 290 IKE TSC @ TSC BLDG CAM & EQUIP | CO | | S-5 | ON |
| 1110 | S | IK0A | CHICAGO RIVER SE BRIDGE HOUSE @ I 290 IKE IB @ CHICAGO RIVER | CO | | S-5 | OFF |

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| | | | | | | |
|------|---|------|--|----|-----|-----|
| 1111 | S | IK0B | CHICAGO RIVER SE BRIDGE HOUSE @ I 290 IKE IB @ CHICAGO RIVER WEST C | CO | S-5 | OFF |
| 1112 | S | IK0C | CHICAGO RIVER NW BRIDGE HOUSE @ I 290 IKE OB @ CHICAGO RIVER LOWER | CO | S-5 | OFF |
| 1113 | S | IK0D | CHICAGO RIVER NW BRIDGE HOUSE @ I 290 IKE OB @ CHICAGO RIVER UPPER | CO | S-5 | OFF |
| 1114 | S | IK0E | I 290 IKE OB @ JEFFERSON ST EAST CAM SIGN TRUSS | CO | S-5 | OFF |
| 1115 | S | IK0F | I 290 IKE OB @ JEFFERSON ST WEST CAM SIGN TRUSS | CO | S-5 | OFF |
| 1116 | S | IK0G | I 290 IKE OB @ PS 5 @ 701 W VAN BUREN NORTH CAM | CO | S-5 | OFF |
| 1117 | S | IK0H | I 290 IKE OB @ PS 5 @ 701 W VAN BUREN SOUTH CAM | CO | S-5 | OFF |
| 1118 | S | IK0I | I 290 IKE WB (AT HUT) CAM IK0I @ I 90 94 HALSTED ST | CO | S-5 | OFF |
| 1119 | S | IK0J | I 290 IKE HALSTED EAST CAM IK0J @ I 90 94 HALSTED | CO | S-5 | ON |
| 1120 | S | IK0K | I 290 IKE UIC (ROOF) CAM 2 @ 601 S MORGAN ST CHICAGO | CO | S-5 | ON |
| 1121 | S | IK0L | I 290 IKE UIC (ROOF) CAM 3 @ 601 S MORGAN ST CHICAGO | CO | S-5 | ON |
| 1122 | S | IK0M | I 290 IKE UIC (ROOF) CAM 1 @ 601 S MORGAN ST CHICAGO | CO | S-5 | ON |

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| | | | | | | |
|------|---|-------|--|----|-----|-----|
| 1123 | S | IK10 | I 290 IKE @ 1ST AVE | CO | S-5 | ON |
| 1124 | S | IK11 | I 290 IKE @ 25TH AVE CAB R58 | CO | S-5 | ON |
| 1125 | S | IK15 | I 290 IKE @ ST CHARLES RD TOWER WAB1 | CO | S-5 | OFF |
| 1126 | S | IK17 | I 290 IKE @ NORTH AVE TOWER XEF1 | CO | S-5 | OFF |
| 1127 | S | IK18 | I 290 IKE @ YORK RD TOWER YCD1 | DU | S-5 | ON |
| 1128 | S | IK19 | I 290 IKE @ GRAND AVE TOWER AGH1 | CO | S-5 | ON |
| 1129 | S | IK01A | I 290 IKE @ PAULINA ST (LOWER) CAB G9 | CO | S-5 | ON |
| 1130 | S | IK21 | I 290 IKE @ ADDISON RD MEDIAN CAB E109 | CO | S-5 | ON |
| 1131 | S | IK22 | I 290 @ MILL RD | DU | S-5 | ON |
| 1132 | S | IK26 | I 290 IL 53 @ BIESTERFIELD NB EXIT (SOUTH OF) C | CO | S-5 | ON |
| 1133 | S | IK27 | I 290 IL 53 @ BIESTERFIELD NB (NORTH OF) CAB M | CO | S-5 | ON |
| 1134 | S | IK29 | I 290 IKE IL 53 @ | CO | | ON |

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| | | | | | | |
|------|---|-------|--|----|-----|----|
| | | | HIGGINS SB EXT RAMP TOWER OAB2 | | S-5 | |
| 1135 | S | IK30 | I 290 IKE @ I 90 IL 53 TOWER PUV2 | CO | S-5 | ON |
| 1136 | S | IK04A | I 290 IKE @ INDEPENDENCE (LOWER CAM) CAB J27 | CO | S-5 | ON |
| 1137 | S | IK09A | I 290 IKE @ DESPLAINES AVE CAB N53 | CO | S-5 | ON |
| 1138 | S | IK13A | I 290 IKE @ MANNHEIM RD | CO | S-5 | ON |
| 1139 | S | IK13B | I 290 IKE @ MANNHEIM RD | CO | S-5 | ON |
| 1140 | S | IK14A | I 290 IKE CAM IK14A @ HILLSIDE TOWER & HUT | CO | S-5 | ON |
| 1141 | S | IK14B | I 290 IKE CAM IK14B @ HILLSIDE TOWER & HUT | CO | S-5 | ON |
| 1142 | S | IK14C | I 290 IKE CAM IK14C @ HILLSIDE TOWER & HUT | CO | S-5 | ON |
| 1143 | S | IK14D | I 290 IKE @ WOLF RD TOWER YKL1 | CO | S-5 | ON |
| 1144 | S | IK14E | I 290 IKE @ BUTTERFIELD RD TOWER ZAB3 | CO | S-5 | ON |
| 1145 | S | IK14F | I 290 IKE @ I 88 I 290 SPLIT | CO | S-5 | ON |

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| | | | | | | |
|------|---|-------|---|----|-----|----|
| 1146 | S | IK22A | I 290 IB @ MILL RD | DU | | ON |
| | | | | | S-5 | |
| 1147 | S | IK23A | I 290 I 355 NORDIC RD CAM IK23A @ NORDIC TOWER & HUT | DU | | ON |
| | | | | | S-5 | |
| 1148 | S | IK23B | I 290 I 355 NORDIC RD CAM IK23B @ NORDIC TOWER & HUT | DU | | ON |
| | | | | | S-5 | |
| 1149 | S | IK25A | I 290 IKE @ IL 390 (NORTH OF) | DU | | ON |
| | | | | | S-5 | |
| 1150 | S | IK25B | I 290 IKE @ DEVON AVE CAB 121 | CO | | ON |
| | | | | | S-5 | |
| 1151 | S | IK25C | I 290 IKE @ IL 390 (SOUTH OF) | DU | | ON |
| | | | | | S-5 | |
| 1152 | S | IK26A | I 290 IKE @ BIESTERFIELD RD (SOUTH OF) CAB 12 | CO | | ON |
| | | | | | S-5 | |
| 1153 | S | IK27A | I 290 IKE @ BIESTERFIELD NB (NORTH OF) CAB M | CO | | ON |
| | | | | | S-5 | |
| 1154 | S | IK28A | I 290 IKE IL 53 @ SCHAUMBURG RD TOWER MAB1 | CO | | ON |
| | | | | | S-5 | |
| 1155 | S | IK28B | I 290 IKE @ IL 72 HIGGINS SB ENT RAMP CAB O132 | CO | | ON |
| | | | | | S-5 | |
| 1156 | S | IK29A | I 290 IKE @ IL 72 HIGGINS NB ENT RAMP CAB O127 | CO | | ON |
| | | | | | S-5 | |
| 1157 | S | IK29B | I 290 IKE IL 53 @ WOODFIELD DR TOWER OCD3 | CO | | ON |
| | | | | | S-5 | |

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| | | | | | | |
|------|---|--------|---|----|-----|----|
| 1158 | S | IK29C | I 290 IKE @ WOODFIELD DR ENT RAMP CAB 129 | CO | | ON |
| | | | | | S-5 | |
| 1159 | S | IK29D | I 290 IKE IL 53 @ GOLF RD TOWER PMN1 | CO | | ON |
| | | | | | S-5 | |
| 1160 | S | IK30A | I 290 IKE @ I 90 IL 53 TOWER RAB4 | CO | | ON |
| | | | | | S-5 | |
| 1161 | S | IK30B | I 290 IKE IL 53 @ IL 62 ALGONQUIN RD TOWER RAB1 | CO | | ON |
| | | | | | S-5 | |
| 1162 | S | IKIBAS | I 290 IKE IB RAMP GATE IKIBAS @ ASHLAND AVE | CO | | ON |
| | | | | | S-7 | |
| 1163 | S | IKIBCA | I 290 IKE IB RAMP GATE IKIBCA @ CALIFORNIA AVE | CO | | ON |
| | | | | | S-7 | |
| 1164 | S | IKIBCE | I 290 IKE IB RAMP GATE IKIBCE @ CENTRAL AVE | CO | | ON |
| | | | | | S-7 | |
| 1165 | S | IKIBDA | I 290 IKE IB RAMP GATE IKIBDA @ DAMEN AVE | CO | | ON |
| | | | | | S-7 | |
| 1166 | S | IKIBHO | I 290 IKE IB RAMP GATE IKIBHO @ HOMAN AVE | CO | | ON |
| | | | | | S-7 | |
| 1167 | S | IKIBIN | I 290 IKE IB RAMP GATE IKIBIN @ INDEPENDENCE AVE | CO | | ON |
| | | | | | S-7 | |
| 1168 | S | IKIBKO | I 290 IKE IB RAMP GATE IKIBKO @ KOSTNER AVE | CO | | ON |
| | | | | | S-7 | |
| 1169 | S | IKIBLA | I 290 IKE IB RAMP GATE IKIBLA @ | CO | | ON |

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| | | | | | | | |
|------|---|--------|--|----|--|-----|-----|
| | | | LARAMIE AVE | | | S-7 | |
| 1170 | S | IKIBOA | I 290 IKE IB RAMP GATE IKIBOA @ OAKLEY AVE | CO | | S-7 | ON |
| 1171 | S | IL58A | IL 58 GOLF RD @ ROSELLE RD | CO | | S-5 | ON |
| 1172 | S | IL59A | IL 59 @ I 88 TLWY TOWER UFC2D2 | DU | | S-5 | ON |
| 1173 | S | IL59B | IL 59 @ I 88 TLWY TOWER UFC1D1 | DU | | S-5 | ON |
| 1174 | S | IL59D | IL 59 CAM @ NORTH AURORA RD | DU | | S-5 | ON |
| 1175 | S | IL72A | IL 72 HIGGINS RD @ MEACHAM RD | CO | | S-5 | ON |
| 1176 | S | IL72B | IL 72 HIGGINS RD @ ROSELLE RD | CO | | S-5 | ON |
| 1177 | S | IS01 | I 90 94 KENN IB GATE IS01 @ SACRAMENTO AVE (NORTH OF) | CO | | S-4 | OFF |
| 1178 | S | IS02 | I 90 94 KENN IB GATE IS02 @ SACRAMENTO AVE (NORTH OF) | CO | | S-4 | OFF |
| 1179 | S | IS03 | I 90 94 KENN IB GATE IS03 @ SACRAMENTO AVE (NORTH OF) | CO | | S-4 | OFF |
| 1180 | S | IS04 | I 90 94 KENN IB GATE IS04 @ SACRAMENTO AVE (NORTH OF) | CO | | S-4 | OFF |

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| | | | | | | |
|------|---|------|--|----|-----|-----|
| 1181 | S | IS05 | I 90 94 KENN IB GATE IS05 @ SACRAMENTO AVE (NORTH OF) | CO | S-4 | OFF |
| 1182 | S | IS06 | I 90 94 KENN IB GATE IS06 @ SACRAMENTO AVE (NORTH OF) | CO | S-4 | OFF |
| 1183 | S | IS07 | I 90 94 KENN IB GATE IS07 @ SACRAMENTO AVE (NORTH OF) | CO | S-4 | OFF |
| 1184 | S | IS08 | I 90 94 KENN IB GATE IS08 @ SACRAMENTO AVE (NORTH OF) | CO | S-4 | OFF |
| 1185 | S | IS09 | I 90 94 KENN IB GATE IS09 @ SACRAMENTO AVE (NORTH OF) | CO | S-4 | OFF |
| 1186 | S | IS10 | I 90 94 KENN IB GATE IS10 @ SACRAMENTO AVE (NORTH OF) | CO | S-4 | OFF |
| 1187 | S | IS11 | I 90 94 KENN IB GATE IS11 @ KEDZIE AVE (SOUTH OF) | CO | S-4 | OFF |
| 1188 | S | IS12 | I 90 94 KENN IB GATE IS12 @ KEDZIE AVE (SOUTH OF) | CO | S-4 | OFF |
| 1189 | S | IS13 | I 90 94 KENN IB GATE IS13 @ KEDZIE AVE (SOUTH OF) | CO | S-4 | OFF |
| 1190 | S | IS14 | I 90 94 KENN IB GATE IS14 @ KEDZIE AVE (SOUTH OF) | CO | S-4 | OFF |
| 1191 | S | IS15 | I 90 94 KENN IB GATE IS15 @ KEDZIE AVE (SOUTH OF) | CO | S-4 | OFF |
| 1192 | S | IS16 | I 90 94 KENN IB GATE IS16 @ KEDZIE AVE (SOUTH OF) | CO | S-4 | OFF |

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| | | | | | | |
|------|---|-------|---|----|-----|-----|
| 1193 | S | IS17 | I 90 94 KENN IB GATE IS17 @ KEDZIE AVE (SOUTH OF) | CO | S-4 | OFF |
| 1194 | S | IS18 | I 90 94 KENN IB GATE IS18 @ KEDZIE AVE (SOUTH OF) | CO | S-4 | OFF |
| 1195 | S | IS19 | I 90 94 KENN IB GATE IS19 @ KEDZIE AVE (SOUTH OF) | CO | S-4 | OFF |
| 1196 | S | IS20 | I 90 94 KENN IB GATE IS20 @ KEDZIE AVE (SOUTH OF) | CO | S-4 | OFF |
| 1197 | S | IS21 | I 90 94 KENN IB GATE IS21 @ KEDZIE AVE (SOUTH OF) | CO | S-4 | OFF |
| 1198 | S | IS22 | I 90 94 KENN IB GATE IS22 @ KEDZIE AVE (SOUTH OF) | CO | S-4 | OFF |
| 1199 | S | IS23 | I 90 94 KENN IB GATE IS23 @ KEDZIE AVE (SOUTH OF) | CO | S-4 | OFF |
| 1200 | S | IS24 | I 90 94 KENN IB GATE IS24 @ KEDZIE AVE (SOUTH OF) | CO | S-4 | OFF |
| 1201 | S | ISAS1 | I 90 94 KENN IB AUX SIGN ISAS1 @ KEDZIE AVE (SOUTH OF) | CO | S-4 | OFF |
| 1202 | S | ISAS2 | I 90 94 KENN IB AUX SIGN ISAS2 @ KEDZIE AVE (SOUTH OF) | CO | S-4 | OFF |
| 1203 | S | ISB1 | I 90 94 KENN IB BARRIER ISB1 @ SACRAMENTO AVE (NORTH OF) | CO | S-4 | OFF |
| 1204 | S | ISCC1 | I 90 94 KENN IB OPS CAM ISCC1 @ | CO | | OFF |

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| | | | | | | |
|------|---|--------|---|----|-----|-----|
| | | | SACRAMENTO AVE (NORTH OF) | | S-4 | |
| 1205 | S | ISCC2 | I 90 94 KENN IB OPS CAM ISCC2 @ SACRAMENTO AVE (NORTH OF) | CO | S-4 | OFF |
| 1206 | S | ISCC4 | I 90 94 KENN IB OPS CAM ISCC4 @ SACRAMENTO AVE (NORTH OF) | CO | S-4 | OFF |
| 1207 | S | ISCC5 | I 90 94 KENN IB OPS CAM ISCC5 @ SACRAMENTO AVE NORTH ON BARRIER | CO | S-4 | OFF |
| 1208 | S | ISCC6 | I 90 94 KENN IB OPS CAM ISCC6 @ SACRAMENTO AVE (NORTH OF) | CO | S-4 | OFF |
| 1209 | S | ISCC7 | I 90 94 KENN IB OPS CAM ISCC7 @ SACRAMENTO AVE (NORTH OF) | CO | S-4 | OFF |
| 1210 | S | ISCC8 | I 90 94 KENN IB OPS CAM ISCC8 @ SACRAMENTO AVE (NORTH OF) | CO | S-4 | OFF |
| 1211 | S | ISCC9 | I 90 94 KENN OPS CAM ISCC9 @ KEDZIE AVE | CO | S-4 | OFF |
| 1212 | S | ISCC10 | I 90 94 KENN OPS CAM ISCC10 @ AVONDALE AVE | CO | S-4 | OFF |
| 1213 | S | ISCM10 | I 90 94 KENN IB MESSAGE SIGN @ SACRAMENTO AVE | CO | S-4 | OFF |
| 1214 | S | ISCM11 | I 90 94 KENN IB MESSAGE SIGN @ KIMBALL AVE | CO | S-4 | OFF |
| 1215 | S | ISG1 | I 90 94 KENN IB GORE SIGN ISG1 @ KEDZIE AVE (SOUTH OF) | CO | S-4 | OFF |

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| | | | | | | |
|------|---|------|---|----|-----|-----|
| 1216 | S | ISR1 | I 90 94 KENN IB PANEL ISR1 @ KEDZIE AVE (SOUTH OF) | CO | S-4 | OFF |
| 1217 | S | ISR2 | I 90 94 KENN IB PANEL ISR2 @ KEDZIE AVE (SOUTH OF) | CO | S-4 | OFF |
| 1218 | S | ISR3 | I 90 94 KENN IB PANEL ISR3 @ KEDZIE AVE (SOUTH OF) | CO | S-4 | OFF |
| 1219 | S | ISV1 | I 90 94 KENN IB CHEVRON ISV1 @ KEDZIE AVE (SOUTH OF) | CO | S-4 | OFF |
| 1220 | S | ISV2 | I 90 94 KENN IB CHEVRON ISV2 @ KEDZIE AVE (SOUTH OF) | CO | S-4 | OFF |
| 1221 | S | ISV3 | I 90 94 KENN IB CHEVRON ISV3 @ KEDZIE AVE (SOUTH OF) | CO | S-4 | OFF |
| 1222 | S | ISX1 | I 90 94 KENN IB X SIGN ISX1 @ KEDZIE AVE (SOUTH OF) | CO | S-4 | OFF |
| 1223 | S | IW01 | I 90 KENN IB GATE IW01 @ MONTROSE AVE (NORTH OF) | CO | S-4 | OFF |
| 1224 | S | IW02 | I 90 KENN IB GATE IW02 @ MONTROSE AVE (NORTH OF) | CO | S-4 | OFF |
| 1225 | S | IW03 | I 90 KENN IB GATE IW03 @ MONTROSE AVE (NORTH OF) | CO | S-4 | OFF |
| 1226 | S | IW04 | I 90 KENN IB GATE IW04 @ MONTROSE AVE (NORTH OF) | CO | S-4 | OFF |
| 1227 | S | IW05 | I 90 KENN IB GATE IW05 @ MONTROSE AVE (NORTH OF) | CO | S-4 | OFF |

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|------|---|------|---|----|-----|-----|
| 1228 | S | IW06 | I 90 KENN IB GATE IW06 @ MONTROSE AVE (NORTH OF) | CO | S-4 | OFF |
| 1229 | S | IW07 | I 90 KENN IB GATE IW07 @ MONTROSE AVE (NORTH OF) | CO | S-4 | OFF |
| 1230 | S | IW08 | I 90 KENN IB GATE IW08 @ MONTROSE AVE (NORTH OF) | CO | S-4 | OFF |
| 1231 | S | IW09 | I 90 KENN IB GATE IW09 @ MONTROSE AVE (NORTH OF) | CO | S-4 | OFF |
| 1232 | S | IW10 | I 90 KENN IB GATE IW10 @ MONTROSE AVE (NORTH OF) | CO | S-4 | OFF |
| 1233 | S | IW11 | I 90 KENN IB GATE IW11 @ MONTROSE AVE (NORTH OF) | CO | S-4 | OFF |
| 1234 | S | IW12 | I 90 KENN IB GATE IW12 @ MONTROSE AVE (NORTH OF) | CO | S-4 | OFF |
| 1235 | S | IW13 | I 90 KENN IB GATE IW13 @ MONTROSE AVE | CO | S-4 | OFF |
| 1236 | S | IW14 | I 90 KENN IB GATE IW14 @ MONTROSE AVE | CO | S-4 | OFF |
| 1237 | S | IW15 | I 90 KENN IB GATE IW15 @ MONTROSE AVE (SOUTH OF) | CO | S-4 | OFF |
| 1238 | S | IW16 | I 90 KENN IB GATE IW16 @ MONTROSE AVE (SOUTH OF) | CO | S-4 | OFF |
| 1239 | S | IW17 | I 90 KENN IB GATE IW17 @ | CO | | OFF |

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| | | | | | | | |
|------|---|-------|---|----|--|-----|-----|
| | | | MONTROSE AVE (SOUTH OF) | | | S-4 | |
| 1240 | S | IW18 | I 90 KENN IB GATE IW18 @ MONTROSE AVE (SOUTH OF) | CO | | S-4 | OFF |
| 1241 | S | IW19 | I 90 KENN IB GATE IW19 @ MONTROSE AVE (SOUTH OF) | CO | | S-4 | OFF |
| 1242 | S | IW20 | I 90 KENN IB GATE IW20 @ MONTROSE AVE (SOUTH OF) | CO | | S-4 | OFF |
| 1243 | S | IWAS1 | I 90 KENN IB AUX SIGN IWAS1 @ CICERO AVE (WEST OF) | CO | | S-4 | OFF |
| 1244 | S | IWAS2 | I 90 KENN IB AUX SIGN IWAS2 @ CICERO AVE | CO | | S-4 | OFF |
| 1245 | S | IWB1 | I 90 KENN IB BARRIER IWB1 @ MONTROSE AVE (NORTH OF) | CO | | S-4 | OFF |
| 1246 | S | IWCC1 | I 90 KENN IB OPS CAM IWCC1 @ CICERO AVE | CO | | S-4 | OFF |
| 1247 | S | IWCC2 | I 90 KENN IB OPS CAM IWCC2 @ CICERO AVE (SOUTH OF) | CO | | S-4 | OFF |
| 1248 | S | IWCC3 | I 90 KENN IB OPS CAM IWCC3 @ MONTROSE AVE (NORTH OF) | CO | | S-4 | OFF |
| 1249 | S | IWCC5 | I 90 KENN IB OPS CAM IWCC5 @ MONTROSE AVE (NORTH OF) | CO | | S-4 | OFF |
| 1250 | S | IWCC6 | I 90 KENN IB OPS CAM IWCC6 @ MONTROSE AVE (SOUTH OF) | CO | | S-4 | OFF |

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|------|---|--------|--|----|-----|-----|
| 1251 | S | IWCC7 | I 90 KENN IB OPS CAM IWCC7 @ MONTROSE AVE (SOUTH OF) | CO | S-4 | OFF |
| 1252 | S | IWCC8 | I 90 94 KENN OPS CAM IWCC8 @ LAWRENCE | CO | S-4 | OFF |
| 1253 | S | IWCC10 | I 90 94 KENN OPS CAM IWCC10 @ CICERO AVE | CO | S-4 | OFF |
| 1254 | S | IWCM14 | I 90 KENN IB MESSAGE SIGN @ LAWRENCE AVE (SOUTH OF) | CO | S-4 | OFF |
| 1255 | S | IWCM15 | I 90 KENN IB MESSAGE SIGN @ MONTROSE AVE (NORTH OF) | CO | S-4 | OFF |
| 1256 | S | IWG1 | I 90 KENN IB GORE SIGN IWG1 @ MONTROSE AVE (NORTH OF) | CO | S-4 | OFF |
| 1257 | S | IWR1 | I 90 KENN IB PANEL IWR1 @ LAWRENCE AVE (SOUTH OF) | CO | S-4 | OFF |
| 1258 | S | IWR2 | I 90 KENN IB PANEL IWR2 @ MONTROSE AVE (NORTH OF) | CO | S-4 | OFF |
| 1259 | S | IWR3 | I 90 KENN IB PANEL IWR3 @ MONTROSE AVE (NORTH OF) | CO | S-4 | OFF |
| 1260 | S | IWV1 | I 90 KENN IB CHEVRON IWV1 @ MONTROSE AVE (NORTH OF) | CO | S-4 | OFF |
| 1261 | S | IWV2 | I 90 KENN IB CHEVRON IWV2 @ MONTROSE AVE (NORTH OF) | CO | S-4 | OFF |
| 1262 | S | IWV3 | I 90 KENN IB CHEVRON IWV3 @ | CO | | OFF |

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|------|---|------|--|----|-----|-----|
| | | | MONTROSE AVE (NORTH OF) | | S-4 | |
| 1263 | S | IWV4 | I 90 KENN IB CHEVRON IWV4 @ MONTROSE AVE (NORTH OF) | CO | S-4 | OFF |
| 1264 | S | IWV5 | I 90 KENN IB CHEVRON IWV5 @ MONTROSE AVE (SOUTH OF) | CO | S-4 | OFF |
| 1265 | S | IWX1 | I 90 KENN IB X SIGN IWX1 @ MONTROSE AVE (NORTH OF) | CO | S-4 | OFF |
| 1266 | S | KE01 | I 90 94 KENN @ GRAND AVE GENERAL | CO | S-5 | ON |
| 1267 | S | KE03 | I 90 94 KENN @ WEBSTER AVE UNDERPASS | CO | S-5 | OFF |
| 1268 | S | KE04 | I 90 94 KENN @ FULLERTON NORTH AIS UNDERPASS | CO | S-5 | ON |
| 1269 | S | KE05 | I 90 94 KENN @ DIVERSEY UNDERPASS | CO | S-5 | ON |
| 1270 | S | KE06 | I 90 94 KENN @ KIMBALL UNDERPASS | CO | S-5 | OFF |
| 1271 | S | KE07 | I 90 94 KENN @ IRVING PARK RD UNDERPASS | CO | S-5 | OFF |
| 1272 | S | KE08 | I 90 94 KENN @ LAWRENCE AVE | CO | S-5 | ON |
| 1273 | S | KE09 | I 90 94 KENN @ BRYN MAWR CAB H99 | CO | S-5 | ON |

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|------|---|-------|--|----|-----|-----|
| 1274 | S | KE0A | I 90 94 KENN @ JACKSON (SOUTH OF) PS05 | CO | S-5 | OFF |
| 1275 | S | KE0B | I 90 94 KENN @ HUBBARDS CAVE GENERAL | CO | S-5 | ON |
| 1276 | S | KE0C | I 90 94 KENN @ HUBBARDS CAVE UNDERPASS | CO | S-5 | ON |
| 1277 | S | KE0D | I 90 94 KENN @ HUBBARDS CAVE UNDERPASS | CO | S-5 | ON |
| 1278 | S | KE0E | I 90 94 KENN @ HUBBARDS CAVE GENERAL | CO | S-5 | ON |
| 1279 | S | KE0F | I 90 94 KENN @ HUBBARDS CAVE GENERAL | CO | S-5 | ON |
| 1280 | S | KE11 | I 90 KENN @ HARLEM AVE | CO | S-5 | ON |
| 1281 | S | KE12 | I 90 KENN @ CANFIELD AVE | CO | S-5 | ON |
| 1282 | S | KE13 | I 90 KENN @ CUMBERLAND AVE | CO | S-5 | ON |
| 1283 | S | KE14 | I 90 KENN @ I 190 I 90 MERGE | CO | S-5 | ON |
| 1284 | S | KE15 | I 90 KENN CAB C @ MANNHEIM RD (EAST OF) BY PS24 | CO | S-5 | ON |
| 1285 | S | KE01A | I 90 94 KENN CAM KE01A @ 950 W ONTARIO BLDG A | CO | S-5 | ON |

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|------|---|-------|---|----|-----|-----|
| 1286 | S | KE01B | I 90 94 KENN @ OHIO ST | CO | S-5 | ON |
| 1287 | S | KE03A | I 90 94 KENN @ WEBSTER DAMEN AVE GENERAL | CO | S-5 | OFF |
| 1288 | S | KE03B | I 90 94 KENN @ DAMEN AVE UNDERPASS | CO | S-5 | OFF |
| 1289 | S | KE04A | I 90 94 KENN @ FULLERTON UNDERPASS | CO | S-5 | ON |
| 1290 | S | KE04B | I 90 94 KENN @ FULLERTON SOUTH AIS UNDERPASS | CO | S-5 | ON |
| 1291 | S | KE04C | I 90 94 KENN @ WESTERN UNDERPASS | CO | S-5 | ON |
| 1292 | S | KE04D | I 90 94 KENN @ LOGAN WESTERN GENERAL | CO | S-5 | ON |
| 1293 | S | KE04E | I 90 94 KENN @ LOGAN BLVD UNDERPASS | CO | S-5 | ON |
| 1294 | S | KE05A | I 90 94 KENN @ CALIFORNIA DIVERSEY GENERAL | CO | S-5 | ON |
| 1295 | S | KE05B | I 90 94 KENN @ CALIFORNIA UNDERPASS | CO | S-5 | ON |
| 1296 | S | KE05C | I 90 94 KENN CAM KE05C @ SACRAMENTO (SE OF) BLDG D | CO | S-5 | ON |
| 1297 | S | KE05D | I 90 94 KENN @ SACRAMENTO UNDERPASS | CO | S-5 | ON |

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|------|---|--------|---|----|-----|-----|
| 1298 | S | KE06A | I 90 94 KENN @ KIMBALL (NORTH WEST OF) GENERAL | CO | S-5 | OFF |
| 1299 | S | KE06C | I 90 94 KENN @ AVONDALE AVE | CO | S-5 | ON |
| 1300 | S | KE07A | I 90 94 KENN @ KEELER IRVING PK GENERAL | CO | S-5 | OFF |
| 1301 | S | KE07B | I 90 94 KENN @ KEELER AVE UNDERPASS | CO | S-5 | OFF |
| 1302 | S | KE07C | I 90 94 KENN @ KOSTNER AVE UNDERPASS | CO | S-5 | OFF |
| 1303 | S | KE07D | I 90 94 KENN @ KOSTNER (NW OF) GENERAL | CO | S-5 | OFF |
| 1304 | S | KE13A | I 90 KENN @ EAST RIVER RD | CO | S-5 | ON |
| 1305 | S | KE13B | I 90 KENN @ CUMBERLAND AVE | CO | S-5 | ON |
| 1306 | S | KE14B | I 90 KENN @ DESPLAINES RIVER RD | CO | S-5 | ON |
| 1307 | S | KEFOS | I 90 94 KENN @ FOSTER AVE AIS CAB CMS18 | CO | S-5 | ON |
| 1308 | S | KEIBAD | I 90 94 KENN IB RAMP GATE KEIBAD @ ADDISON ST | CO | S-7 | ON |
| 1309 | S | KEIBAR | I 90 94 KENN IB RAMP GATE KEIBAR @ | CO | | ON |

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|------|---|---------|--|----|--|-----|----|
| | | | ARMITAGE AVE | | | S-7 | |
| 1310 | S | KEIBAU | I 90 94 KENN IB RAMP GATE KEIBAU @ AUGUSTA BLVD | CO | | S-7 | ON |
| 1311 | S | KEIBCE | I 90 KENN IB RAMP GATE KEIBCE @ CENTRAL AVE | CO | | S-7 | ON |
| 1312 | S | KEIBCN | I 90 KENN IB RAMP GATE KEIBCN @ CANFIELD AVE | CO | | S-7 | ON |
| 1313 | S | KEIBCU | I 90 KENN IB RAMP GATE KEIBCU @ CUMBERLAND AVE | CO | | S-7 | ON |
| 1314 | S | KEIBD1 | I 90 94 KENN IB RAMP GATE KEIBD1 @ DIVISION ST | CO | | S-7 | ON |
| 1315 | S | KEIBDV | I 90 94 KENN IB RAMP GATE KEIBDV @ DIVERSEY AVE | CO | | S-7 | ON |
| 1316 | S | KEIBFO | I 90 KENN IB RAMP GATE KEIBFO @ FOSTER AVE | CO | | S-7 | ON |
| 1317 | S | KEIBFU | I 90 94 KENN IB RAMP GATE KEIBFU @ FULLERTON AVE | CO | | S-7 | ON |
| 1318 | S | KEIBHAN | I 90 KENN IB RAMP GATE KEIBHAN @ HARLEM AVE NB | CO | | S-7 | ON |
| 1319 | S | KEIBHAS | I 90 KENN IB RAMP GATE KEIBHAS @ HARLEM AVE SB | CO | | S-7 | ON |
| 1320 | S | KEIBIR | I 90 94 KENN IB RAMP GATE KEIBIR @ IRVING PARK RD | CO | | S-7 | ON |

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| | | | | | | |
|------|---|--------|---|----|-----|-----|
| 1321 | S | KEIBKE | I 90 94 KENN IB RAMP GATE KEIBKE @ KEDZIE AVE | CO | | ON |
| | | | | | S-7 | |
| 1322 | S | KEIBKI | I 90 94 KENN IB RAMP GATE KEIBKI @ KIMBALL AVE B | CO | | ON |
| | | | | | S-7 | |
| 1323 | S | KEIBMO | I 90 KENN IB RAMP GATE KEIBMO @ MONTROSE AVE | CO | | ON |
| | | | | | S-7 | |
| 1324 | S | KEIBNA | I 90 KENN IB RAMP GATE KEIBNA @ NAGLE AVE | CO | | ON |
| | | | | | S-7 | |
| 1325 | S | KEIBNO | I 90 94 KENN IB RAMP GATE KEIBNO @ NORTH AVE | CO | | ON |
| | | | | | S-7 | |
| 1326 | S | KEIBPU | I 90 94 KENN IB RAMP GATE KEIBPU @ PULASKI RD | CO | | ON |
| | | | | | S-7 | |
| 1327 | S | KEIBSA | I 90 KENN IB RAMP GATE KEIBSA @ SAYRE AVE | CO | | ON |
| | | | | | S-7 | |
| 1328 | S | KEIBWE | I 90 94 KENN IB RAMP GATE KEIBWE @ WEBSTER AVE | CO | | ON |
| | | | | | S-7 | |
| 1329 | S | KEOBAD | I 90 94 KENN OB RAMP GATE KEOBAD @ ADDISON ST | CO | | ON |
| | | | | | S-7 | |
| 1330 | S | KEOBAR | I 90 94 KENN OB RAMP GATE KEOBAR @ ARMITAGE AVE | CO | | ON |
| | | | | | S-7 | |
| 1331 | S | KEOBKA | I 90 94 KENN OB RAMP GATE KEOBKA @ CALIFORNIA AVE | CO | | ON |
| | | | | | S-7 | |
| 1332 | S | KEOBCU | I 90 KENN OB RAMP GATE KEOBCU @ CUMBERLAND AVE | CO | | OFF |
| | | | | | S-7 | |

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| | | | | | | |
|------|---|--------|---|----|-----|-----|
| 1333 | S | KEOBDI | I 90 94 KENN OB RAMP GATE KEOBDI @ DIVISION ST | CO | S-7 | ON |
| 1334 | S | KEOBFO | I 90 KENN OB RAMP GATE KEOBFO @ FOSTER AVE | CO | S-7 | ON |
| 1335 | S | KEOBFU | I 90 94 KENN OB RAMP GATE KEOBFU @ FULLERTON AVE | CO | S-7 | ON |
| 1336 | S | KEOBHA | I 90 KENN OB RAMP GATE @ HARLEM AVE | CO | S-7 | OFF |
| 1337 | S | KEOBKI | I 90 94 KENN OB RAMP GATE KEOBKI @ KIMBALL AVE | CO | S-7 | ON |
| 1338 | S | KEOBNA | I 90 KENN OB RAMP GATE KEOBNA @ NAGLE AVE | CO | S-7 | ON |
| 1339 | S | KEOBNO | I 90 94 KENN OB RAMP GATE KEOBNO @ NORTH AVE | CO | S-7 | ON |
| 1340 | S | KEOBOG | I 90 94 KENN OB RAMP GATE KEOBOG @ OGDEN AVE | CO | S-7 | ON |
| 1341 | S | KI01 | I 80 94 @ WILDWOOD DR TOWER BGH7 | CO | S-5 | ON |
| 1342 | S | KI02 | I 80 94 @ PAXTON AVE TOWER DCD4 | CO | S-5 | ON |
| 1343 | S | KI0A | I 80 94 @ STATE LINE TOWER AGH9 | CO | S-5 | ON |
| 1344 | S | KI0B | I 80 94 @ | CO | | ON |

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|------|---|-------|--|----|-----|-----|
| | | | WILLIAM ST TOWER AGH2 | | S-5 | |
| 1345 | S | KI01A | I 80 94 @ TORRENCE STATE LINE TOWER BGH1 | CO | S-5 | ON |
| 1346 | S | NS01 | I 355 TLWY SB @ LAKE ST CAB I4 | DU | S-5 | ON |
| 1347 | S | NS02 | I 355 TLWY SB @ ARMY TRAIL RD | DU | S-5 | ON |
| 1348 | S | NS01A | I 355 TLWY @ ARMY TRAIL RD (NORTH OF) | DU | S-5 | ON |
| 1349 | S | NSMY | NORTH SIDE MAINTENANCE YARD @ 4051 N HARLEM CHICAGO | CO | S-5 | ON |
| 1350 | S | OM01 | I 90 94 KENN OB GATE OM01 @ GRAND AVE (SOUTH OF) | CO | S-4 | OFF |
| 1351 | S | OM02 | I 90 94 KENN OB GATE OM02 @ GRAND AVE (SOUTH OF) | CO | S-4 | OFF |
| 1352 | S | OM03 | I 90 94 KENN OB GATE OM03 @ GRAND AVE (SOUTH OF) | CO | S-4 | OFF |
| 1353 | S | OM04 | I 90 94 KENN OB GATE OM04 @ GRAND AVE (SOUTH OF) | CO | S-4 | OFF |
| 1354 | S | OM05 | I 90 94 KENN OB GATE OM05 @ GRAND AVE (SOUTH OF) | CO | S-4 | OFF |
| 1355 | S | OM06 | I 90 94 KENN OB GATE OM06 @ GRAND AVE (SOUTH OF) | CO | S-4 | OFF |
| 1356 | S | OM07 | I 90 94 KENN OB GATE OM07 @ | CO | | OFF |

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|------|---|------|---|----|-----|-----|
| | | | GRAND AVE (SOUTH OF) | | S-4 | |
| 1357 | S | OM08 | I 90 94 KENN OB GATE OM08 @ GRAND AVE (SOUTH OF) | CO | S-4 | OFF |
| 1358 | S | OM09 | I 90 94 KENN OB GATE OM09 @ GRAND AVE (SOUTH OF) | CO | S-4 | OFF |
| 1359 | S | OM10 | I 90 94 KENN OB GATE OM10 @ GRAND AVE (SOUTH OF) | CO | S-4 | OFF |
| 1360 | S | OM11 | I 90 94 KENN OB GATE OM11 @ GRAND AVE (SOUTH OF) | CO | S-4 | OFF |
| 1361 | S | OM12 | I 90 94 KENN OB GATE OM12 @ GRAND AVE (SOUTH OF) | CO | S-4 | OFF |
| 1362 | S | OM13 | I 90 94 KENN OB GATE OM13 @ GRAND AVE (SOUTH OF) | CO | S-4 | OFF |
| 1363 | S | OM14 | I 90 94 KENN OB GATE OM14 @ GRAND AVE (SOUTH OF) | CO | S-4 | OFF |
| 1364 | S | OM15 | I 90 94 KENN OB GATE OM15 @ GRAND AVE (SOUTH OF) | CO | S-4 | OFF |
| 1365 | S | OM16 | I 90 94 KENN OB GATE OM16 @ GRAND AVE (SOUTH OF) | CO | S-4 | OFF |
| 1366 | S | OM17 | I 90 94 KENN OB GATE OM17 @ GRAND AVE (SOUTH OF) | CO | S-4 | OFF |
| 1367 | S | OM18 | I 90 94 KENN OB GATE OM18 @ GRAND AVE (SOUTH OF) | CO | S-4 | OFF |

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|------|---|-------|---|----|-----|-----|
| 1368 | S | OM19 | I 90 94 KENN OB GATE OM19 @ GRAND AVE (SOUTH OF) | CO | S-4 | OFF |
| 1369 | S | OM20 | I 90 94 KENN OB GATE OM20 @ GRAND AVE (SOUTH OF) | CO | S-4 | OFF |
| 1370 | S | OM21 | I 90 94 KENN OB GATE OM21 @ GRAND AVE (SOUTH OF) | CO | S-4 | OFF |
| 1371 | S | OMAS1 | I 90 94 KENN OB AUX SIGN OMAS1 @ GRAND AVE (SOUTH OF) | CO | S-4 | OFF |
| 1372 | S | OMAS2 | I 90 94 KENN OB AUX SIGN OMAS2 @ GRAND AVE (SOUTH OF) | CO | S-4 | OFF |
| 1373 | S | OMB1 | I 90 94 KENN OB BARRIER OMB1 @ GRAND AVE (NORTH OF) | CO | S-4 | OFF |
| 1374 | S | OMCC1 | I 90 94 KENN OB OPS CAM OMCC1 @ GRAND AVE (NORTH OF) | CO | S-4 | OFF |
| 1375 | S | OMCC2 | I 90 94 KENN OB OPS CAM OMCC2 @ GRAND AVE (NORTH OF) | CO | S-4 | OFF |
| 1376 | S | OMCC3 | I 90 94 KENN OB OPS CAM OMCC3 @ OGDEN AVE (SOUTH OF) | CO | S-4 | OFF |
| 1377 | S | OMCC4 | I 90 94 KENN OB OPS CAM OMCC4 @ GRAND AVE (NORTH OF) | CO | S-4 | OFF |
| 1378 | S | OMCC5 | I 90 94 KENN OB OPS CAM OMCC5 @ OGDEN AVE SOUTH ON BARRIER | CO | S-4 | OFF |
| 1379 | S | OMCC6 | I 90 94 KENN OB OPS CAM OMCC6 @ OGDEN AVE SOUTH ON BARRIER | CO | S-4 | OFF |

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|------|---|--------|--|----|-----|-----|
| 1380 | S | OMCC7 | I 90 94 KENN OB OPS CAM OMCC7 @ OGDEN AVE (SOUTH OF) | CO | S-4 | OFF |
| 1381 | S | OMCC8 | I 90 94 KENN OPS CAM OMCC8 @ WAYMAN ST | CO | S-4 | OFF |
| 1382 | S | OMCC9 | I 90 94 KENN OPS CAM OMCC9 @ GREEN ST | CO | S-4 | OFF |
| 1383 | S | OMCC10 | I 90 94 KENN OPS CAM OMCC10 @ GRAND AVE (WEST) | CO | S-4 | OFF |
| 1384 | S | OMCC11 | I 90 94 KENN OPS CAM OMCC11 @ OHIO ST (WEST) | CO | S-4 | OFF |
| 1385 | S | OMCM1 | I 90 94 KENN OB MESSAGE SIGN @ FULTON ST (NW OF) | CO | S-4 | OFF |
| 1386 | S | OMCM2 | I 90 94 KENN OB MESSAGE SIGN @ GREEN ST (SE OF) | CO | S-4 | OFF |
| 1387 | S | OMCM6 | I 90 94 KENN OB MESSAGE SIGN @ GRAND AVE (SE OF) | CO | S-4 | OFF |
| 1388 | S | OMCM7 | I 90 94 KENN OB MESSAGE SIGN @ OHIO ST (NE OF) | CO | S-4 | OFF |
| 1389 | S | OMG1 | I 90 94 KENN OB GORE SIGN OMG1 @ OGDEN AVE (SOUTH OF) | CO | S-4 | OFF |
| 1390 | S | OMR1 | I 90 94 KENN OB PANEL OMR1 @ GRAND AVE (NORTH OF) | CO | S-4 | OFF |
| 1391 | S | OMV1 | I 90 94 KENN OB CHEVRON OMV1 @ | CO | | OFF |

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|------|---|------|--|----|-----|-----|
| | | | GRAND AVE (SOUTH OF) | | S-4 | |
| 1392 | S | OMV2 | I 90 94 KENN OB CHEVRON OMV2 @ GRAND AVE (SOUTH OF) | CO | S-4 | OFF |
| 1393 | S | OMV3 | I 90 94 KENN OB CHEVRON OMV3 @ GRAND AVE (SOUTH OF) | CO | S-4 | OFF |
| 1394 | S | OMV4 | I 90 94 KENN OB CHEVRON @ OGDEN (NORTH OF) | CO | S-4 | OFF |
| 1395 | S | OMX1 | I 90 94 KENN OB X SIGN OMX1 @ GRAND AVE (NORTH OF) | CO | S-4 | OFF |
| 1396 | S | OO01 | I 90 94 KENN OB GATE OO01 @ MILWAUKEE AVE (EAST OF) | CO | S-4 | OFF |
| 1397 | S | OO02 | I 90 94 KENN OB GATE OO02 @ MILWAUKEE AVE | CO | S-4 | OFF |
| 1398 | S | OO03 | I 90 94 KENN OB GATE OO03 @ MILWAUKEE AVE (WEST OF) | CO | S-4 | OFF |
| 1399 | S | OO04 | I 90 94 KENN OB GATE OO04 @ MILWAUKEE AVE (WEST OF) | CO | S-4 | OFF |
| 1400 | S | OO05 | I 90 94 KENN OB GATE OO05 @ MILWAUKEE AVE (WEST OF) | CO | S-4 | OFF |
| 1401 | S | OO06 | I 90 94 KENN OB GATE OO06 @ MILWAUKEE AVE (WEST OF) | CO | S-4 | OFF |
| 1402 | S | OO07 | I 90 94 KENN OB GATE OO07 @ MILWAUKEE AVE (WEST OF) | CO | S-4 | OFF |

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|------|---|-------|---|----|-----|-----|
| 1403 | S | OO08 | I 90 94 KENN OB GATE OO08 @ MILWAUKEE AVE (WEST OF) | CO | S-4 | OFF |
| 1404 | S | OO09 | I 90 94 KENN OB GATE OO09 @ MILWAUKEE AVE (WEST OF) | CO | S-4 | OFF |
| 1405 | S | OO10 | I 90 94 KENN OB GATE OO10 @ MILWAUKEE AVE (WEST OF) | CO | S-4 | OFF |
| 1406 | S | OO11 | I 90 94 KENN OB GATE OO11 @ MILWAUKEE AVE (WEST OF) | CO | S-4 | OFF |
| 1407 | S | OO12 | I 90 94 KENN OB GATE OO12 @ MILWAUKEE AVE (WEST OF) | CO | S-4 | OFF |
| 1408 | S | OO13 | I 90 94 KENN OB GATE OO13 @ MILWAUKEE AVE (WEST OF) | CO | S-4 | OFF |
| 1409 | S | OO14 | I 90 94 KENN OB GATE OO14 @ MILWAUKEE AVE (WEST OF) | CO | S-4 | OFF |
| 1410 | S | OO15 | I 90 94 KENN OB GATE OO15 @ MILWAUKEE AVE (WEST OF) | CO | S-4 | OFF |
| 1411 | S | OO16 | I 90 94 KENN OB GATE OO16 @ MILWAUKEE AVE (WEST OF) | CO | S-4 | OFF |
| 1412 | S | OOAS1 | I 90 94 KENN OB AUX SIGN OOAS1 @ MILWAUKEE AVE (EAST OF) | CO | S-4 | OFF |
| 1413 | S | OOAS2 | I 90 94 KENN OB AUX SIGN OOAS2 @ MILWAUKEE AVE (EAST OF) | CO | S-4 | OFF |
| 1414 | S | OOAS3 | I 90 94 KENN OB AUX SIGN OOAS3 @ MILWAUKEE AVE (EAST OF) | CO | S-4 | OFF |

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|------|---|--------|--|----|-----|-----|
| 1415 | S | OOB1 | I 90 94 KENN OB BARRIER OOB1 @ MILWAUKEE AVE (WEST OF) | CO | S-4 | OFF |
| 1416 | S | OOCC1 | I 90 94 KENN OB OPS CAM OOCC1 @ MILWAUKEE AVE (WEST OF) | CO | S-4 | OFF |
| 1417 | S | OOCC2 | I 90 94 KENN OB OPS CAM OOCC2 @ MILWAUKEE AVE (WEST OF) | CO | S-4 | OFF |
| 1418 | S | OOCC3 | I 90 94 KENN OB OPS CAM OOCC3 @ MILWAUKEE AVE (EAST OF) | CO | S-4 | OFF |
| 1419 | S | OOCC4 | I 90 94 KENN OB OPS CAM OOCC4 @ MILWAUKEE AVE EAST ON BARRIER | CO | S-4 | OFF |
| 1420 | S | OOCC5 | I 90 94 KENN OB OPS CAM OOCC5 @ MILWAUKEE AVE (EAST OF) | CO | S-4 | OFF |
| 1421 | S | OOCC6 | I 90 94 KENN OB OPS CAM OOCC6 @ MILWAUKEE AVE (EAST OF) | CO | S-4 | OFF |
| 1422 | S | OOCC7 | I 90 94 KENN OB ONTARIO FEEDER @ HALSTED ST OPS CAM OOCC7 | CO | S-4 | OFF |
| 1423 | S | OOCC8 | I 90 94 KENN OB ONTARIO FEEDER @ OHIO ST OPS CAM OOCC8 | CO | S-4 | OFF |
| 1424 | S | OOCC10 | I 90 94 KENN OPS CAM OOCC10 @ CHICAGO RIVER | CO | S-4 | OFF |
| 1425 | S | OOCCM3 | I 90 94 KENN OB MESSAGE SIGN @ I 90 94 KENN SPLIT | CO | S-4 | OFF |
| 1426 | S | OOCCM4 | I 90 94 KENN OB MESSAGE SIGN @ | CO | | OFF |

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|------|---|-------|---|----|-----|-----|
| | | | I 90 94 KENN SPLIT (EAST OF) | | S-4 | |
| 1427 | S | OOCM5 | I 90 94 KENN OB MESSAGE SIGN @ ONTARIO CHICAGO RIVER | CO | S-4 | OFF |
| 1428 | S | OOG1 | I 90 94 KENN OB GORE SIGN OOG1 @ MILWAUKEE AVE (WEST OF) | CO | S-4 | OFF |
| 1429 | S | OOR1 | I 90 94 KENN OB PANEL OOR1 @ MILWAUKEE AVE (EAST OF) | CO | S-4 | OFF |
| 1430 | S | OOR2 | I 90 94 KENN OB PANEL OOR2 @ MILWAUKEE AVE (EAST OF) | CO | S-4 | OFF |
| 1431 | S | OOR3 | I 90 94 KENN OB PANEL OOR3 @ MILWAUKEE AVE (EAST OF) | CO | S-4 | OFF |
| 1432 | S | OOR4 | I 90 94 KENN OB PANEL OOR4 @ MILWAUKEE AVE (EAST OF) | CO | S-4 | OFF |
| 1433 | S | OOV1 | I 90 94 KENN OB CHEVRON OOV1 @ MILWAUKEE AVE | CO | S-4 | OFF |
| 1434 | S | OOV2 | I 90 94 KENN OB CHEVRON OOV2 @ MILWAUKEE AVE | CO | S-4 | OFF |
| 1435 | S | OOV3 | I 90 94 KENN OB CHEVRON OOV3 @ MILWAUKEE AVE (WEST OF) | CO | S-4 | OFF |
| 1436 | S | OOX1 | I 90 94 KENN OB X SIGN OOX1 @ MILWAUKEE AVE (WEST OF) | CO | S-4 | OFF |
| 1437 | S | OS01 | I 90 94 KENN OB GATE OS01 @ LOGAN BLVD (NORTH OF) | CO | S-4 | OFF |

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|------|---|------|--|----|-----|-----|
| 1438 | S | OS02 | I 90 94 KENN OB GATE OS02 @ LOGAN BLVD (NORTH OF) | CO | S-4 | OFF |
| 1439 | S | OS03 | I 90 94 KENN OB GATE OS03 @ LOGAN BLVD (NORTH OF) | CO | S-4 | OFF |
| 1440 | S | OS04 | I 90 94 KENN OB GATE OS04 @ LOGAN BLVD (NORTH OF) | CO | S-4 | OFF |
| 1441 | S | OS05 | I 90 94 KENN OB GATE OS05 @ LOGAN BLVD (NORTH OF) | CO | S-4 | OFF |
| 1442 | S | OS06 | I 90 94 KENN OB GATE OS06 @ LOGAN BLVD (NORTH OF) | CO | S-4 | OFF |
| 1443 | S | OS07 | I 90 94 KENN OB GATE OS07 @ LOGAN BLVD (NORTH OF) | CO | S-4 | OFF |
| 1444 | S | OS08 | I 90 94 KENN OB GATE OS08 @ LOGAN BLVD (NORTH OF) | CO | S-4 | OFF |
| 1445 | S | OS09 | I 90 94 KENN OB GATE OS09 @ LOGAN BLVD (NORTH OF) | CO | S-4 | OFF |
| 1446 | S | OS10 | I 90 94 KENN OB GATE OS10 @ LOGAN BLVD (NORTH OF) | CO | S-4 | OFF |
| 1447 | S | OS11 | I 90 94 KENN OB GATE OS11 @ LOGAN BLVD (NORTH OF) | CO | S-4 | OFF |
| 1448 | S | OS12 | I 90 94 KENN OB GATE OS12 @ LOGAN BLVD (NORTH OF) | CO | S-4 | OFF |
| 1449 | S | OS13 | I 90 94 KENN OB GATE OS13 @ LOGAN BLVD (NORTH OF) | CO | S-4 | OFF |

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|------|---|-------|--|----|-----|-----|
| 1450 | S | OS14 | I 90 94 KENN OB GATE OS14 @ LOGAN BLVD (NORTH OF) | CO | S-4 | OFF |
| 1451 | S | OS15 | I 90 94 KENN OB GATE OS15 @ LOGAN BLVD (NORTH OF) | CO | S-4 | OFF |
| 1452 | S | OS16 | I 90 94 KENN OB GATE OS16 @ LOGAN BLVD (NORTH OF) | CO | S-4 | OFF |
| 1453 | S | OS17 | I 90 94 KENN OB GATE OS17 @ LOGAN BLVD (NORTH OF) | CO | S-4 | OFF |
| 1454 | S | OS18 | I 90 94 KENN OB GATE OS18 @ LOGAN BLVD (NORTH OF) | CO | S-4 | OFF |
| 1455 | S | OS19 | I 90 94 KENN OB GATE OS19 @ LOGAN BLVD (NORTH OF) | CO | S-4 | OFF |
| 1456 | S | OS20 | I 90 94 KENN OB GATE OS20 @ LOGAN BLVD (NORTH OF) | CO | S-4 | OFF |
| 1457 | S | OS21 | I 90 94 KENN OB GATE OS21 @ LOGAN BLVD (NORTH OF) | CO | S-4 | OFF |
| 1458 | S | OSAS1 | I 90 94 KENN OB AUX SIGN OSAS1 @ LOGAN BLVD (NORTH OF) | CO | S-4 | OFF |
| 1459 | S | OSAS2 | I 90 94 KENN OB AUX SIGN OSAS2 @ LOGAN BLVD (NORTH OF) | CO | S-4 | OFF |
| 1460 | S | OSB1 | I 90 94 KENN OB BARRIER OSB1 @ DIVERSEY AVE (SOUTH OF) | CO | S-4 | OFF |
| 1461 | S | OSCC1 | I 90 94 KENN OB OPS CAM OSCC1 @ DIVERSEY AVE (SOUTH OF) | CO | S-4 | OFF |

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|------|---|-------|--|----|-----|-----|
| 1462 | S | OSCC2 | I 90 94 KENN OB OPS CAM OSCC2 @ DIVERSEY AVE (SOUTH OF) | CO | S-4 | OFF |
| 1463 | S | OSCC3 | I 90 94 KENN OB OPS CAM OSCC3 @ DIVERSEY AVE (SOUTH OF) | CO | S-4 | OFF |
| 1464 | S | OSCC4 | I 90 94 KENN OB OPS CAM OSCC4 @ DIVERSEY AVE (SOUTH OF) | CO | S-4 | OFF |
| 1465 | S | OSCC5 | I 90 94 KENN OB OPS CAM OSCC5 @ DIVERSEY AVE SOUTH ON BARRIER | CO | S-4 | OFF |
| 1466 | S | OSCC6 | I 90 94 KENN OB OPS CAM OSCC6 @ DIVERSEY AVE SOUTH ON BARRIER | CO | S-4 | OFF |
| 1467 | S | OSCC8 | I 90 94 KENN OPS CAM OSCC8 @ LOGAN BLVD | CO | S-4 | OFF |
| 1468 | S | OSCC9 | I 90 94 KENN OPS CAM OSCC9 @ FULLERTON AVE | CO | S-4 | OFF |
| 1469 | S | OSCM8 | I 90 94 KENN OB MESSAGE SIGN @ FULLERTON AVE | CO | S-4 | OFF |
| 1470 | S | OSCM9 | I 90 94 KENN OB MESSAGE SIGN @ DIVERSEY AVE (SOUTH OF) | CO | S-4 | OFF |
| 1471 | S | OSG1 | I 90 94 KENN OB GORE SIGN OSG1 @ LOGAN BLVD (NORTH OF) | CO | S-4 | OFF |
| 1472 | S | OSR1 | I 90 94 KENN OB PANEL OSR1 @ DIVERSEY AVE (SOUTH OF) | CO | S-4 | OFF |
| 1473 | S | OSR2 | I 90 94 KENN OB PANEL OSR2 @ | CO | | OFF |

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|------|---|------|--|----|-----|-----|
| | | | DIVERSEY AVE (SOUTH OF) | | S-4 | |
| 1474 | S | OSV1 | I 90 94 KENN OB CHEVRON OSV1 @ LOGAN BLVD (NORTH OF) | CO | S-4 | OFF |
| 1475 | S | OSV2 | I 90 94 KENN OB CHEVRON OSV2 @ LOGAN BLVD (NORTH OF) | CO | S-4 | OFF |
| 1476 | S | OSV3 | I 90 94 KENN OB CHEVRON OSV3 @ LOGAN BLVD (NORTH OF) | CO | S-4 | OFF |
| 1477 | S | OSX1 | I 90 94 KENN OB X SIGN OSX1 @ DIVERSEY AVE (SOUTH OF) | CO | S-4 | OFF |
| 1478 | S | PS23 | I 90 94 KENN @ ROSCOE ADDISON PS23 | CO | S-5 | ON |
| 1479 | S | PS44 | IL 83 KINGERY HWY @ NORTH AVE (SOUTH OF) PS 44 | DU | S-5 | ON |
| 1480 | S | ST00 | LAKE SHORE DR @ 25TH ST | CO | S-5 | ON |
| 1481 | S | ST01 | I 55 STEV @ CANAL ST (WEST OF) | CO | S-5 | ON |
| 1482 | S | ST04 | I 55 STEV @ CALIFORNIA (WEST OF) DMS5 | CO | S-5 | ON |
| 1483 | S | ST06 | I 55 STEV @ CICERO (EAST OF) CAB 13 | CO | S-5 | ON |
| 1484 | S | ST07 | I 55 STEV @ CENTRAL (EAST OF) CAB 26 | CO | S-5 | ON |

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|------|---|-------|--|----|-----|----|
| 1485 | S | ST08 | I 55 STEV @ CENTRAL (WEST OF) CAB 32 | CO | S-5 | ON |
| 1486 | S | ST09 | I 55 STEV @ HARLEM AVE (EAST OF) CAB 21 | CO | S-5 | ON |
| 1487 | S | ST00A | I 55 STEV @ MLK ML KING DR | CO | S-5 | ON |
| 1488 | S | ST10 | I 55 STEV @ HARLEM AVE CAB 23 | CO | S-5 | ON |
| 1489 | S | ST11 | I 55 STEV @ 1ST AVE (EAST OF) CAB 38 | CO | S-5 | ON |
| 1490 | S | ST12 | I 55 STEV @ 1ST AVE (WEST OF) CAB 42 | CO | S-5 | ON |
| 1491 | S | ST13 | I 55 STEV @ EAST AVE (EAST OF) DMS23 | CO | S-5 | ON |
| 1492 | S | ST14 | I 55 STEV @ LAGRANGE RD (EAST OF) CAB R43 | CO | S-5 | ON |
| 1493 | S | ST15 | I 55 STEV @ WILLOW SPRINGS RD CAB R49A | CO | S-5 | ON |
| 1494 | S | ST16 | I 55 STEV @ WOLF RD | CO | S-5 | ON |
| 1495 | S | ST17 | I 55 STEV @ COUNTY LINE (EAST OF) | CO | S-5 | ON |
| 1496 | S | ST18 | I 55 STEV @ COUNTY LINE (WEST OF) | DU | S-5 | ON |

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|------|---|-------|--|----|-----|-----|
| 1497 | S | ST19 | I 55 STEV @ IL 83 | DU | | ON |
| | | | | | S-5 | |
| 1498 | S | ST01A | I 55 STEV @ I 90 94 KENN | CO | | ON |
| | | | | | S-5 | |
| 1499 | S | ST01B | I 55 STEV @ I 90 94 RYAN | CO | | ON |
| | | | | | S-5 | |
| 1500 | S | ST01C | I 55 STEV @ HALSTED ST (EAST OF) | CO | | ON |
| | | | | | S-5 | |
| 1501 | S | ST20 | I 55 STEV @ PORTSMOUTH DR | DU | | ON |
| | | | | | S-5 | |
| 1502 | S | ST22 | I 55 STEV @ LEMONT RD (EAST OF) | DU | | ON |
| | | | | | S-5 | |
| 1503 | S | ST23 | I 55 STEV @ LEMONT RD | DU | | OFF |
| | | | | | S-5 | |
| 1504 | S | ST24 | I 55 STEV @ I 355 | DU | | ON |
| | | | | | S-5 | |
| 1505 | S | ST25 | I 55 STEV @ IL 53 & JOLIET RD (BETWEEN) | WI | | OFF |
| | | | | | S-5 | |
| 1506 | S | ST26 | I 55 STEV @ IL 53 | WI | | OFF |
| | | | | | S-5 | |
| 1507 | S | ST27 | I 55 STEV @ SCHMIDT RD (EAST OF) | WI | | OFF |
| | | | | | S-5 | |
| 1508 | S | ST28 | I 55 IB @ | WI | | OFF |

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|------|---|------|---|----|-----|-----|
| | | | WEBER RD (3/4 MILE EAST OF) | | S-5 | |
| 1509 | S | ST29 | I 55 STEV @ WINDHAM PKWY | WI | S-5 | ON |
| 1510 | S | ST30 | I 55 STEV @ WEBER RD | WI | S-5 | OFF |
| 1511 | S | ST31 | I 55 STEV @ WEBER RD & 113TH (BETWEEN) | WI | S-5 | ON |
| 1512 | S | ST32 | I 55 STEV @ IL 126 (NORTH OF) | WI | S-5 | ON |
| 1513 | S | ST34 | I 55 STEV @ LOCKPORT ST | WI | S-5 | ON |
| 1514 | S | ST35 | I 55 STEV @ 159TH (SOUTH OF) | WI | S-5 | ON |
| 1515 | S | ST36 | I 55 STEV @ US 30 (NORTH OF) | WI | S-5 | ON |
| 1516 | S | ST37 | I 55 STEV @ US 30 & CATON FARM (BETWEEN) | WI | S-5 | ON |
| 1517 | S | ST38 | I 55 STEV @ CATON FARM RD (SOUTH OF) | WI | S-5 | ON |
| 1518 | S | ST39 | I 55 STEV @ BLACK RD (SOUTH OF) | WI | S-5 | ON |
| 1519 | S | ST40 | I 55 STEV @ JEFFERSON (NORTH OF) | WI | S-5 | ON |

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| | | | | | | |
|------|---|-------|--|----|-----|-----|
| 1520 | S | ST42 | I 55 STEV @ SEIL RD | WI | S-5 | OFF |
| 1521 | S | ST43 | I 55 STEV @ I 80 NEQ | WI | S-5 | ON |
| 1522 | S | ST44 | I 55 STEV @ I 55 MAINTENANCE YARD (NEAR) | WI | S-5 | ON |
| 1523 | S | ST45 | I 55 STEV @ US 6 | WI | S-5 | ON |
| 1524 | S | ST46 | I 55 STEV @ BLUFF RD SB EXT RAMP | WI | S-5 | ON |
| 1525 | S | ST47 | I 55 STEV @ DESPLAINES RIVER (NORTH OF) | WI | S-5 | ON |
| 1526 | S | ST48 | I 55 STEV IB NAV LTG LSTEV @ DESPLAINES RIV (SOUTH OF) NB | WI | S-5 | ON |
| 1527 | S | ST50 | I 55 STEV @ ARSENAL RD IB ENT TOWER AEF1 | WI | S-5 | ON |
| 1528 | S | ST51 | I 55 STEV @ DESPLAINES RIVER RD SB | WI | S-5 | ON |
| 1529 | S | ST52 | I 55 STEV @ LORENZO RD SB | WI | S-5 | ON |
| 1530 | S | ST06A | I 55 STEV @ CICERO EXIT RAMP CAB 15 | CO | S-5 | ON |
| 1531 | S | ST10A | I 55 STEV @ 1ST AVE (EAST OF) CAB 27 | CO | S-5 | ON |

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|------|---|-------|--|----|-----|-----|
| 1532 | S | ST11A | I 55 STEV @ 1ST AVE (WEST OF) CAB 40 | CO | S-5 | ON |
| 1533 | S | ST12A | I 55 STEV @ 1ST AVE (WEST OF) CAB 44 | CO | S-5 | ON |
| 1534 | S | ST14A | I 55 STEV @ LAGRANGE RD (NW QUAD) CAB R47 | CO | S-5 | ON |
| 1535 | S | ST14B | I 55 STEV @ LAGRANGE RD (SW QUAD) CAB R54 | CO | S-5 | ON |
| 1536 | S | ST16A | I 55 STEV @ I 294 TLWY (WEST OF) | CO | S-5 | ON |
| 1537 | S | ST18A | I 55 STEV @ MADISON ST | DU | S-5 | ON |
| 1538 | S | ST20A | I 55 STEV @ CASS AVE | DU | S-5 | ON |
| 1539 | S | ST23A | I 55 STEV @ I 355 & LEMONT (BETWEEN) | DU | S-5 | ON |
| 1540 | S | ST24A | I 55 STEV @ JOLIET RD | WI | S-5 | OFF |
| 1541 | S | ST30A | I 55 STEV @ WEBER RD NWQ | WI | S-5 | OFF |
| 1542 | S | ST32A | I 55 STEV @ IL 126 (SOUTH OF) | WI | S-5 | ON |
| 1543 | S | ST35A | I 55 STEV @ | WI | | ON |

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|------|---|---------|--|----|-----|-----|
| | | | DAN IRELAND | | S-5 | |
| 1544 | S | ST36A | I 55 STEV @ US 30 (SOUTH OF) | WI | S-5 | ON |
| 1545 | S | ST37A | I 55 STEV @ CATON FARM RD | WI | S-5 | ON |
| 1546 | S | ST40A | I 55 STEV @ JEFFERSON (SOUTH OF) | WI | S-5 | OFF |
| 1547 | S | ST43A | I 55 STEV @ I 80 SEQ | WI | S-5 | ON |
| 1548 | S | ST47A | I 55 STEV OB NAV LTG LSTEV @ DESPLAINES BRIDGE (UNDER SB) | WI | S-5 | ON |
| 1549 | S | ST47B | I 55 STEV @ DESPLAINES BRIDGE (UNDER NB) | WI | S-5 | ON |
| 1550 | S | ST48A | I 55 STEV @ ARSENAL RD OB ENT TOWER TCD1 | WI | S-5 | ON |
| 1551 | S | ST55CAM | I 55 STEV @ WEIGH STATION (IB SOUTH OF) | WI | S-5 | ON |
| 1552 | S | THIL | HILLSIDE TOWER & HUTS (3) @ I 294 I 88 @ 5250 W HARRISON ST | CO | S-6 | ON |
| 1553 | S | TNOR | NORDIC TOWER @ I 290 I 355 TLWY @ NORDIC RD | DU | S-6 | ON |
| 1554 | S | TPLA | PLATO TOWER @ IL 47 @ MCDONALD RD | KA | S-6 | ON |

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|------|---|-------|--|----|-----|----|
| 1555 | S | TRODY | RODENBURG MAINTENANCE YARD TOWER @ 1480 RODENBURG RD | CO | S-5 | ON |
| 1556 | S | TSC | TSC - HARRISON ST @ GUNDERSON AVE | CO | S-6 | ON |
| 1557 | S | TSCH | SCHAUMBURG TOWER & HUT @ IDOT MAT LAB ROSELLE @ CENTRAL | CO | S-6 | ON |
| 1558 | S | TSTA | STATE LINE TOWER & HUT @ I 80 @ IND STATE LINE | CO | S-6 | ON |
| 1559 | S | TWDY | WOODSTOCK YARD TOWER @ 11916 CATALPA LANE | MC | S-6 | ON |
| 1560 | S | US45A | US 45 MANNHEIM RD NB @ IL 72 HIGGINS RD | CO | S-5 | ON |
| 1561 | S | US45B | US 45 MANNHEIM RD NB @ ZEMKE BLVD | CO | S-5 | ON |
| 1562 | S | US45C | US 45 MANNHEIM RD NB @ LAWRENCE AVE | CO | S-5 | ON |
| 1563 | S | US45D | US 45 MANNHEIM RD NB @ MONTROSE AVE | CO | S-5 | ON |
| 1564 | S | US45E | US 45 MANNHEIM RD NB @ IL 19 IRVING PARK RD | CO | S-5 | ON |
| 1565 | S | Z1A | I 290 CABINET IN SH290A HUT @ I 90 94 KENN @ HALSTED | CO | S-6 | ON |

Traffic Signals

| | | | | | | |
|----|----|----|---|----|------|----|
| 1 | TS | 5 | I 55 STEV IB EXIT RAMP @ IL 43 HARLEM AVE | CO | T-1A | ON |
| 2 | TS | 10 | I 55 STEV @ CENTRAL AVE | CO | T-1A | ON |
| 3 | TS | 15 | I 55 STEV OB EXIT RAMP @ IL 43 HARLEM AVE | CO | T-1A | ON |
| 4 | TS | 19 | US 6 @ GOUGAR RD | WI | T-1A | ON |
| 5 | TS | 20 | I 57 ASHLAND AVE MARSHFIELD AVE @ 119TH ST | CO | T-1A | ON |
| 6 | TS | 22 | 131ST ST @ KEDZIE AVE | CO | T-1A | ON |
| 7 | TS | 25 | I 57 E RAMP MARSHFIELD AVE @ 127TH ST | CO | T-1A | ON |
| 8 | TS | 30 | I 57 W RAMP @ IL 83 147TH ST | CO | T-1A | ON |
| 9 | TS | 31 | I 57 E RAMP @ IL 83 SIBLEY BLVD 147TH ST | CO | T-1A | ON |
| 10 | TS | 35 | I 57 W RAMP PAULINA ST @ 127TH ST | CO | T-1A | ON |
| 11 | TS | 45 | DIXIE HWY @ I 80 I 294 TLWY | CO | T-1A | ON |
| 12 | TS | 48 | 171ST ST @ | CO | | ON |

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|----|----|----|---|----|--|------|-----|
| | | | DIXIE HWY | | | T-1A | |
| 13 | TS | 50 | I 80 @ KEDZIE AVE | CO | | T-1A | ON |
| 14 | TS | 60 | I 94 EDENS SPUR N RAMP BROOKSIDE @ IL 43 WAUKEGAN RD | CO | | T-1A | ON |
| 15 | TS | 61 | I 94 EDENS SPUR S RAMP @ IL 43 WAUKEGAN RD | CO | | T-1A | ON |
| 16 | TS | 65 | I 94 EDENS ESTES AVE @ IL 50 CICERO AVE | CO | | T-1A | ON |
| 17 | TS | 75 | I 290 IKE S FRONTAGE RD HARRISON @ US 12 20 45 MANNHEIM RD | CO | | T-1A | ON |
| 18 | TS | 77 | I 290 IKE RAMP F @ US 12 20 45 MANNHEIM RD | CO | | T-1A | ON |
| 19 | TS | 78 | US 12 20 45 MANNHEIM RD @ GLADYS AVE | CO | | T-1B | ON |
| 20 | TS | 80 | I 290 IKE RAMP B & G @ US 12 20 45 MANNHEIM RD | CO | | T-1A | ON |
| 21 | TS | 85 | I 290 IKE @ IL 43 HARLEM AVE | CO | | T-1A | ON |
| 22 | TS | 90 | I 290 IKE IL 53 E FRONTAGE RD @ IL 58 GOLF RD | CO | | T-1A | OFF |
| 23 | TS | 91 | I 290 IKE IL 53 W FRONTAGE MCCONNOR @ IL 58 GOLF RD | CO | | T-1A | ON |

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|----|----|-----|---|----|------|-----|
| 24 | TS | 95 | I 290 IKE IL 53 W FRONTAGE RD @ IL 72 HIGGINS RD | CO | T-1A | OFF |
| 25 | TS | 96 | I 290 IKE IL 53 E FRONTAGE RD @ IL 72 HIGGINS RD | CO | T-1A | OFF |
| 26 | TS | 100 | I 290 IKE @ IL 171 1ST AVE | CO | T-1A | ON |
| 27 | TS | 105 | I 290 IKE @ 17TH AVE | CO | T-1A | ON |
| 28 | TS | 110 | I 290 IKE @ AUSTIN BLVD | CO | T-1A | ON |
| 29 | TS | 115 | I 290 IKE HARRISON ST @ DESPLAINES AVE | CO | T-1A | ON |
| 30 | TS | 125 | IL 50 IL 83 CICERO @ IL 83 128TH ST | CO | T-1A | ON |
| 31 | TS | 130 | I 294 TLWY E RAMP @ CERMAK RD 22ND ST | CO | T-1A | ON |
| 32 | TS | 135 | I 294 TLWY W RAMP @ CERMAK RD 22ND ST | DU | T-1A | ON |
| 33 | TS | 140 | I 294 TLWY E RAMP @ WILLOW RD | CO | T-1A | ON |
| 34 | TS | 145 | I 294 TLWY W RAMP @ WILLOW RD | CO | T-1A | ON |
| 35 | TS | 150 | US 6 159TH ST @ US 45 96TH AVE LA GRANGE RAMP | CO | T-1A | ON |

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| | | | | | | |
|----|----|-----|--|----|------|-----|
| 36 | TS | 153 | US 6 SOUTHWEST HWY @ 179TH ST BROOK HILL DR | CO | | ON |
| | | | | | T-1A | |
| 37 | TS | 155 | US 6 159TH ST @ IL 1 HALSTED ST | CO | | ON |
| | | | | | T-1A | |
| 38 | TS | 156 | 179TH ST @ WOLF RD | CO | | ON |
| | | | | | T-1A | |
| 39 | TS | 157 | WOLF RD @ 183RD ST ORLAND PKWY | WI | | ON |
| | | | | | T-1A | |
| 40 | TS | 158 | IL 7 WOLF RD @ 151ST ST | CO | | ON |
| | | | | | T-1A | |
| 41 | TS | 159 | IL 7 WOLF RD @ 153RD ST | CO | | ON |
| | | | | | T-1A | |
| 42 | TS | 160 | US 6 159TH ST @ IL 7 WOLF RD NORTH JCT | CO | | ON |
| | | | | | T-1A | |
| 43 | TS | 161 | US 6 WOLF RD @ US 6 173RD ST SOUTH JCT | CO | | ON |
| | | | | | T-1A | |
| 44 | TS | 162 | US 6 WOLF RD @ BROOKHILL DR | CO | | ON |
| | | | | | T-1A | |
| 45 | TS | 163 | IL 7 159TH ST @ WILL COOK RD | CO | | OFF |
| | | | | | T-1A | |
| 46 | TS | 164 | IL 7 159TH ST @ 113TH CT | CO | | OFF |
| | | | | | T-1A | |
| 47 | TS | 165 | US 6 159TH ST @ IL 43 HARLEM AVE | CO | | ON |
| | | | | | T-1A | |

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| | | | | | | |
|----|----|-----|---|----|------|-----|
| 48 | TS | 170 | US 6 159TH ST @ IL 50 CICERO AVE | CO | T-1A | ON |
| 49 | TS | 175 | US 6 RIVER OAKS DR 159TH ST @ IL 83 TORRENCE AVE | CO | T-1A | OFF |
| 50 | TS | 180 | US 6 159TH ST @ 76TH AVE | CO | T-1A | ON |
| 51 | TS | 185 | US 6 159TH ST @ 80TH AVE | CO | T-1A | ON |
| 52 | TS | 190 | US 6 159TH ST @ 94TH AVE | CO | T-1A | ON |
| 53 | TS | 195 | US 6 IL 83 TORRENCE AVE @ 170TH ST | CO | T-1A | ON |
| 54 | TS | 196 | IL 38 LINCOLN HWY @ IL 47 MAIN ST | KA | T-1A | ON |
| 55 | TS | 197 | IL 47 @ IL 64 | KA | T-1A | ON |
| 56 | TS | 198 | IL 38 @ MEREDITH PL | KA | T-1A | ON |
| 57 | TS | 200 | US 6 159TH ST @ CARSE AVE | CO | T-1A | ON |
| 58 | TS | 205 | US 6 159TH ST @ CENTRAL AVE | CO | T-1A | OFF |
| 59 | TS | 210 | US 6 159TH ST @ | CO | | ON |

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|----|----|-----|---|----|--|-------------|
| | | | COTTAGE GROVE AVE | | | T-1A |
| 60 | TS | 215 | US 6 159TH ST @ CRAWFORD AVE PULASKI RD | CO | | ON T-1A |
| 61 | TS | 220 | US 6 159TH ST @ DIXIE HWY | CO | | OFF T-1A |
| 62 | TS | 221 | IL 72 @ STATE GETZELMAN | KA | | ON T-1A |
| 63 | TS | 222 | US 6 159TH ST @ ACCESS DR AMAZON | CO | | ON T-1A |
| 64 | TS | 224 | DIXIE HWY @ ACCESS DR AMAZON | CO | | ON T-1A |
| 65 | TS | 225 | US 6 159TH ST @ ELLIS AVE | CO | | OFF T-1A |
| 66 | TS | 230 | US 6 RIVER OAKS DR 159TH ST @ GREENWOOD RD | CO | | ON T-1A |
| 67 | TS | 235 | US 6 159TH ST @ 71ST CT | CO | | ON T-1A |
| 68 | TS | 240 | US 6 159TH ST @ 84TH AVE | CO | | ON T-1A |
| 69 | TS | 245 | US 6 159TH ST @ KEDZIE AVE | CO | | ON T-1A |
| 70 | TS | 255 | US 6 159TH ST @ OAK PARK AVE | CO | | ON T-1A |

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|----|----|-----|---|----|------|-----|
| 71 | TS | 265 | US 6 RIVER OAKS DR 159TH ST @ PARK AVE GOLF COURSE ENT | CO | | OFF |
| | | | | | T-1A | |
| 72 | TS | 270 | US 6 RIVER OAKS DR 159TH ST @ PAXTON AVE | CO | | OFF |
| | | | | | T-1A | |
| 73 | TS | 275 | US 6 159TH ST @ RIDGELAND AVE | CO | | ON |
| | | | | | T-1A | |
| 74 | TS | 280 | US 6 RIVER OAKS DR 159TH ST @ RING RD | CO | | ON |
| | | | | | T-1A | |
| 75 | TS | 285 | US 6 159TH ST @ SCHOOL ST | CO | | OFF |
| | | | | | T-1A | |
| 76 | TS | 290 | US 6 159TH ST @ SOUTH PARK AVE CHICAGO RD | CO | | OFF |
| | | | | | T-1A | |
| 77 | TS | 293 | US 6 159TH ST 162ND ST @ WAUSAU AVE | CO | | OFF |
| | | | | | T-1A | |
| 78 | TS | 295 | US 6 159TH ST @ STATE ST INDIANA AVE | CO | | OFF |
| | | | | | T-1A | |
| 79 | TS | 300 | US 6 159TH ST @ THORNTON BLUE ISLAND RD | CO | | OFF |
| | | | | | T-1A | |
| 80 | TS | 305 | US 6 162ND ST @ VAN DAM RD | CO | | ON |
| | | | | | T-1A | |
| 81 | TS | 310 | US 6 159TH ST 162ND @ VINCENNES AVE VAN DRUNEN | CO | | ON |
| | | | | | T-1A | |
| 82 | TS | 315 | US 6 159TH ST @ WOOD ST | CO | | OFF |
| | | | | | T-1A | |

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|----|----|-----|---|----|------|-----|
| 83 | TS | 320 | US 6 159TH ST @ WOODLAWN EAST AVE | CO | T-1A | ON |
| 84 | TS | 325 | US 6 159TH ST @ LARAMIE AVE | CO | T-1A | ON |
| 85 | TS | 326 | US 14 DEMPSTER ST @ IL 21 MILWAUKEE AVE | CO | T-1A | OFF |
| 86 | TS | 330 | US 6 159TH ST @ 88TH AVE | CO | T-1A | ON |
| 87 | TS | 345 | US 6 IL 83 TORRENCE AVE @ RIVER OAKS SOUTH ENT 6 DENNY'S ENT | CO | T-1A | OFF |
| 88 | TS | 350 | US 6 IL 83 TORRENCE AVE @ RIVER OAKS SOUTH ENT 5 SAM CLUB ENT | CO | T-1A | ON |
| 89 | TS | 355 | US 6 IL 83 TORRENCE AVE @ RIVER OAKS SOUTH ENT 4 SONIC ENT | CO | T-1A | ON |
| 90 | TS | 365 | US 12 RAND RD @ US 45 DESPLAINES RIVER RD | CO | T-1A | ON |
| 91 | TS | 370 | RAND RD @ ELK BLVD | CO | T-1A | ON |
| 92 | TS | 375 | US 12 RAND RD @ IL 58 GOLF RD | CO | T-1A | ON |
| 93 | TS | 380 | US 12 RAND RD @ IL 83 ELMHURST FOUNDRY KESINGTON RD | CO | T-1A | ON |
| 94 | TS | 385 | US 12 RAND RD @ | CO | | ON |

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|-----|----|-----|---|----|------|-----|
| | | | BALDWIN RD WILLIAMS DR | | T-1A | |
| 95 | TS | 390 | US 12 RAND RD @ CAMP MCDONALD RD | CO | T-1A | ON |
| 96 | TS | 392 | US 12 RAND RD @ SCHOENBECK RD | CO | T-1A | ON |
| 97 | TS | 395 | US 12 RAND RD @ EUCLID AVE | CO | T-1A | ON |
| 98 | TS | 400 | US 12 RAND RD @ HINTZ RD GREENWOOD AVE | CO | T-1A | ON |
| 99 | TS | 405 | US 12 RAND RD @ KENNICOTT DR | CO | T-1A | ON |
| 100 | TS | 410 | US 12 RAND RD @ LAKE COOK RD | CO | T-1A | ON |
| 101 | TS | 415 | US 12 RAND RD @ DRYDEN AVE | CO | T-1A | ON |
| 102 | TS | 419 | US 12 RAND RD @ OLIVE | CO | T-1A | ON |
| 103 | TS | 420 | US 12 RAND RD @ THOMAS AVE WILLOW RD | CO | T-1A | ON |
| 104 | TS | 421 | US 12 RAND RD @ BEVERLY LN | CO | T-1A | ON |
| 105 | TS | 425 | US 12 RAND RD @ WOLF RD | CO | T-1A | ON |
| 106 | TS | 427 | I 294 TLWY RAMP B @ | CO | | OFF |

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| | | | | | | | |
|-----|----|-----|---|----|--|------|--|
| | | | US 12 20 95TH ST | | | T-1A | |
| 107 | TS | 430 | US 12 20 95TH ST @ US 12 20 45 LAGRANGE RD | CO | | ON | |
| | | | | | | T-1A | |
| 108 | TS | 435 | US 12 20 95TH ST @ IL 50 CICERO AVE | CO | | ON | |
| | | | | | | T-1A | |
| 109 | TS | 438 | US 12 20 95TH ST @ MUSEUM DR 50TH CT | CO | | ON | |
| | | | | | | T-1A | |
| 110 | TS | 440 | US 12 20 95TH ST @ 52ND AVE | CO | | OFF | |
| | | | | | | T-1A | |
| 111 | TS | 445 | US 12 20 95TH ST @ 54TH AVE | CO | | OFF | |
| | | | | | | T-1A | |
| 112 | TS | 450 | US 12 20 95TH ST @ 78TH AVE | CO | | OFF | |
| | | | | | | T-1A | |
| 113 | TS | 452 | US 30 LINCOLN HWY @ GOUGAR RD | WI | | ON | |
| | | | | | | T-1A | |
| 114 | TS | 460 | US 12 20 95TH ST @ CAMPBELL AVE | CO | | OFF | |
| | | | | | | T-1A | |
| 115 | TS | 465 | US 12 20 95TH ST @ CENTRAL AVE | CO | | ON | |
| | | | | | | T-1A | |
| 116 | TS | 470 | US 12 20 95TH ST @ CHICAGO RIDGE MALL DR ENT B | CO | | OFF | |
| | | | | | | T-1A | |
| 117 | TS | 475 | US 12 20 95TH ST @ COOK AVE | CO | | OFF | |
| | | | | | | T-1A | |

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|-----|----|-----|--|----|------|-----|
| 118 | TS | 480 | US 12 20 95TH ST @ PULASKI RD CRAWFORD AVE | CO | T-1A | OFF |
| 119 | TS | 481 | US 12 20 95TH ST @ KEELER AVE | CO | T-1A | OFF |
| 120 | TS | 485 | US 12 20 95TH ST @ KEDZIE AVE | CO | T-1A | OFF |
| 121 | TS | 490 | US 12 20 95TH ST @ KOSTNER AVE | CO | T-1A | OFF |
| 122 | TS | 492 | US 12 20 95TH ST @ KILBOURN AVE | CO | T-1A | ON |
| 123 | TS | 495 | US 12 20 95TH ST @ AMAZON FRESH HOME DEPOT ENT | CO | T-1A | OFF |
| 124 | TS | 500 | US 12 20 95TH ST @ MILLARD AVE | CO | T-1A | OFF |
| 125 | TS | 502 | US 20 LAKE ST @ NAPERVILLE RD ELIZABETH DR | CO | T-1A | ON |
| 126 | TS | 503 | US 20 LAKE ST @ LAMBERT LANE | CO | T-1A | ON |
| 127 | TS | 505 | US 12 20 95TH ST @ CHI RDG MALL ENT A NASHVILLE AVE | CO | T-1A | OFF |
| 128 | TS | 510 | US 12 20 95TH ST @ OAK PARK AVE | CO | T-1A | OFF |
| 129 | TS | 515 | US 12 20 95TH ST @ MELVINA AVE | CO | T-1A | ON |

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|-----|----|-----|---|----|------|-----|
| 130 | TS | 520 | US 12 20 95TH ST @ RIDGELAND AVE | CO | T-1A | OFF |
| 131 | TS | 525 | US 12 20 95TH ST @ ROBERTS RD | CO | T-1A | ON |
| 132 | TS | 530 | US 12 20 95TH ST @ SOUTHWEST HWY | CO | T-1A | OFF |
| 133 | TS | 535 | US 12 20 95TH ST @ WESTERN AVE | CO | T-1A | ON |
| 134 | TS | 537 | WESTERN AVE @ 92ND PL | CO | T-1A | ON |
| 135 | TS | 540 | US 12 20 95TH ST @ HOMAN AVE | CO | T-1A | OFF |
| 136 | TS | 545 | IL 83 KINGERY HWY @ THIRD AVE OAK MEADOWS DR | DU | T-1A | ON |
| 137 | TS | 550 | IL 83 KINGERY HWY @ 22ND ST | DU | T-1A | ON |
| 138 | TS | 557 | IL 134 BIG HOLLOW RD @ WILSON RD | LA | T-1A | ON |
| 139 | TS | 558 | US 12 IL 59 @ HARTIGAN RD HOME DEPOT ENT | LA | T-1A | ON |
| 140 | TS | 559 | US 12 IL 59 @ IL 134 BIG HOLLOW RD | LA | T-1A | ON |
| 141 | TS | 565 | IL 83 KINGERY HWY @ | DU | | ON |

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| | | | | | |
|-----|----|-----|--|----|------------|
| | | | 63RD ST | | T-1A |
| 142 | TS | 570 | IL 83 @ 75TH ST | DU | ON T-1A |
| 143 | TS | 580 | IL 83 @ BLUFF RD | DU | ON T-1A |
| 144 | TS | 585 | IL 83 KINGERY HWY @ CENTRAL AVE S FRONTAGE RD | DU | ON T-1A |
| 145 | TS | 587 | IL 83 KINGERY HWY @ 91ST ST | DU | ON T-1A |
| 146 | TS | 590 | IL 83 BUSSE RD @ FOSTER AVE | DU | ON T-1A |
| 147 | TS | 595 | IL 83 KINGERY HWY @ GROVE AVE SHERWOOD DR | DU | ON T-1A |
| 148 | TS | 600 | IL 83 BUSSE RD @ HILLSIDE DR | DU | ON T-1A |
| 149 | TS | 605 | IL 83 KINGERY HWY @ ELMHURST CROSSING SC ENT | DU | ON T-1A |
| 150 | TS | 610 | IL 83 BUSSE RD @ MARK ST | DU | ON T-1A |
| 151 | TS | 615 | IL 83 @ MIDWAY RD | DU | ON T-1A |
| 152 | TS | 620 | IL 83 @ HODGES RD OAKBROOK CENTER ENT | DU | ON T-1A |

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| | | | | | | |
|-----|----|-----|--|----|------|-----|
| 153 | TS | 625 | IL 83 @ 16TH ST | DU | | ON |
| | | | | | T-1A | |
| 154 | TS | 630 | IL 83 KINGERY HWY @ ELMHURST CHICAGO STONE ACCESS RD | DU | | ON |
| | | | | | T-1A | |
| 155 | TS | 635 | IL 83 @ PLAINFIELD RD | DU | | ON |
| | | | | | T-1A | |
| 156 | TS | 637 | IL 83 @ 72ND CT | DU | | ON |
| | | | | | T-1A | |
| 157 | TS | 640 | IL 83 KINGERY HWY @ RIVERSIDE DR | DU | | ON |
| | | | | | T-1A | |
| 158 | TS | 645 | IL 83 KINGERY HWY @ ST CHARLES RD | DU | | ON |
| | | | | | T-1A | |
| 159 | TS | 661 | IL 83 BUSSE RD @ IL 390 TLWY WB FRONTAGE THORNDALE | DU | | ON |
| | | | | | T-1A | |
| 160 | TS | 662 | IL 83 BUSSE RD @ IL 390 TLWY EB FRONTAGE THORNDALE | DU | | ON |
| | | | | | T-1A | |
| 161 | TS | 665 | IL 25 DUNDEE AVE KENNEDY DR @ I 90 TLWY | KA | | ON |
| | | | | | T-1A | |
| 162 | TS | 670 | IL 25 LIBERTY ST @ VILLA ST | KA | | ON |
| | | | | | T-1A | |
| 163 | TS | 675 | US 20 ELGIN BYPASS @ IL 31 STATE ST | KA | | OFF |
| | | | | | T-1A | |
| 164 | TS | 677 | US 20 @ NESLER RD | KA | | ON |
| | | | | | T-1A | |

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|-----|----|-----|--|----|------|----|
| 165 | TS | 682 | US 20 ELGIN BYPASS @ MCLEAN BLVD | KA | T-1A | ON |
| 166 | TS | 688 | US 30 @ TREASURE DR GASTVILLE ST | KE | T-1A | ON |
| 167 | TS | 693 | US 20 @ PLANK RD COOMBS RD | KA | T-1A | ON |
| 168 | TS | 695 | US 30 OGDEN FALLS BLVD @ US 34 OGDEN AVE | KE | T-1A | ON |
| 169 | TS | 696 | US 34 OGDEN AVE @ US 30 LINCOLN HWY HILL AVE | KE | T-1A | ON |
| 170 | TS | 698 | US 34 OGDEN AVE @ FARNSWORTH RD HAFENRICHTER RD | KE | T-1A | ON |
| 171 | TS | 700 | US 30 BASELINE RD @ US 30 IL 47 | KA | T-1A | ON |
| 172 | TS | 703 | IL 47 MAIN ST @ KESLINGER RD | KA | T-1A | ON |
| 173 | TS | 707 | IL 47 @ MAIN ST (KANEVILLE) | KA | T-1A | ON |
| 174 | TS | 710 | US 30 @ IL 31 SOUTH RAMP | KA | T-1A | ON |
| 175 | TS | 715 | US 30 @ BRIARCLIFF RD | KE | T-1A | ON |
| 176 | TS | 717 | IL 59 @ | LA | | ON |

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| | | | MONAVILLE RD | | T-1A | |
|-----|----|-----|--|----|------|-----|
| 177 | TS | 720 | US 30 @ DOUGLAS RD | KE | | ON |
| | | | | | T-1A | |
| 178 | TS | 722 | US 30 @ 5TH ST | KE | | ON |
| | | | | | T-1A | |
| 179 | TS | 725 | US 30 IL 47 @ JERICHO RD | KA | | ON |
| | | | | | T-1A | |
| 180 | TS | 727 | US 30 @ GRIFFEN DR | KA | | ON |
| | | | | | T-1A | |
| 181 | TS | 728 | US 30 @ GORDON RD | KA | | ON |
| | | | | | T-1A | |
| 182 | TS | 730 | US 30 BASELINE RD @ ORCHARD RD | KA | | OFF |
| | | | | | T-1A | |
| 183 | TS | 731 | US 30 @ GOODWIN DR | KE | | ON |
| | | | | | T-1A | |
| 184 | TS | 732 | HILL AVE @ GOODWIN DR | KE | | ON |
| | | | | | T-1A | |
| 185 | TS | 733 | US 30 US 34 @ COMMERCIAL DRIVE MENARDS ENT | KE | | ON |
| | | | | | T-1A | |
| 186 | TS | 735 | IL 31 IL 56 LINCOLNWAY ST @ I 88 TLWY IL 56 | KA | | ON |
| | | | | | T-1A | |
| 187 | TS | 737 | IL 31 @ OAK ST | KA | | ON |
| | | | | | T-1A | |

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|-----|----|-----|--|----|------|----|
| 188 | TS | 740 | IL 19 CHICAGO ST @ IL 25 LIBERTY ST | KA | T-1A | ON |
| 189 | TS | 741 | IL 19 CHICAGO ST @ SHALES PKWY | CO | T-1A | ON |
| 190 | TS | 742 | IL 19 CHICAGO ST @ POPLAR CREEK | CO | T-1A | ON |
| 191 | TS | 743 | IL 19 CHICAGO ST @ ROHRSEN RD LITTLETON TRAIL | CO | T-1A | ON |
| 192 | TS | 744 | IL 19 IRVING PARK RD @ SCHAUMBURG RD | CO | T-1A | ON |
| 193 | TS | 745 | IL 25 RIVER RD @ IL 58 LIBERTY ST | KA | T-1A | ON |
| 194 | TS | 747 | IL 58 SUMMIT ST @ SHALES PKWY COUNTRYFIELD LN | CO | T-1A | ON |
| 195 | TS | 750 | IL 25 RIVER ST @ IL 25 WILSON ST | KA | T-1A | ON |
| 196 | TS | 755 | IL 38 STATE ST @ IL 25 BENNETT ST | KA | T-1A | ON |
| 197 | TS | 760 | IL 25 ELGIN RD @ IL 62 ALGONQUIN RD | KA | T-1A | ON |
| 198 | TS | 765 | IL 25 DUNDEE AVE @ IL 68 BARRINTON AVE | KA | T-1A | ON |
| 199 | TS | 770 | IL 25 DUNDEE AVE @ IL 72 HIGGINS RD | KA | T-1A | ON |

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|-----|----|-----|---|----|------|-----|
| 200 | TS | 775 | IL 25 KENNEDY DR @ BRANDT DR | KA | T-1A | ON |
| 201 | TS | 776 | US 20 @ IL 47 IL 72 SOUTH INT | KA | T-1A | ON |
| 202 | TS | 777 | US 20 @ IL 47 IL 72 NORTH INT | KA | T-1A | ON |
| 203 | TS | 785 | IL 25 WASHINGTON ST @ WILSON AVE | KA | T-1A | ON |
| 204 | TS | 793 | IL 25 @ SULLIVAN RD | KA | T-1A | ON |
| 205 | TS | 795 | IL 31 BATAVIA AVENUE @ THIRD ST | KA | T-1A | OFF |
| 206 | TS | 805 | IL 38 STATE ST @ IL 31 1ST STREET | KA | T-1A | OFF |
| 207 | TS | 810 | IL 31 STATE ST 8TH ST @ TOLLGATE RD AIRPORT DR | KA | T-1A | OFF |
| 208 | TS | 814 | IL 25 BROADWAY @ ILLINOIS AVE | KA | T-1A | ON |
| 209 | TS | 815 | IL 31 STATE ST @ BIG TIMBER RD | KA | T-1A | ON |
| 210 | TS | 820 | IL 31 STATE ST @ RIVER RD DAVIS RD | KA | T-1A | ON |
| 211 | TS | 830 | IL 31 STATE ST @ MIDDLE RD | KA | T-1A | OFF |

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|-----|----|-----|--|----|------|----|
| 212 | TS | 833 | IL 31 @ WATKINS US 30 NORTH RAMP | KA | T-1A | ON |
| 213 | TS | 835 | IL 31 @ WEBSTER ST AUCUTT RD | KA | T-1A | ON |
| 214 | TS | 837 | IL 31 @ CATERPILLAR ENTRANCE | KE | T-1A | ON |
| 215 | TS | 845 | IL 38 STATE ST @ EAST SIDE DR | KA | T-1A | ON |
| 216 | TS | 854 | IL 31 LA FOX RD @ BOWES RD | KA | T-1A | ON |
| 217 | TS | 856 | IL 38 LINCOLN HWY STATE ST @ 14TH ST BRICHER RD | KA | T-1A | ON |
| 218 | TS | 857 | IL 38 @ PECK RD | KA | T-1A | ON |
| 219 | TS | 858 | IL 38 LINCOLN HWY @ WILLIAMSBURG AVE | KA | T-1A | ON |
| 220 | TS | 859 | IL 38 @ LAFOX ST | KA | T-1A | ON |
| 221 | TS | 860 | US 30 IL 47 @ CROSS ST | KA | T-1A | ON |
| 222 | TS | 861 | US 30 @ MUNICIPAL DRIVE | KA | T-1A | ON |
| 223 | TS | 862 | US 30 @ | KA | | ON |

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| | | | DUGAN RD | | T-1A |
|-----|----|-----|---|----|-------------|
| 224 | TS | 865 | IL 47 @ GALENA BLVD | KA | ON T-1A |
| 225 | TS | 868 | IL 47 @ BLISS RD WHEELER RD | KA | ON T-1A |
| 226 | TS | 869 | IL 47 @ WAUBONSEE DR | KA | ON T-1A |
| 227 | TS | 870 | IL 64 MAIN ST @ KIRK RD | KA | OFF T-1A |
| 228 | TS | 871 | IL 47 @ WAUBONSEE DR OLD OAKS N ENT | KA | ON T-1A |
| 229 | TS | 872 | IL 56 @ GALENA BLVD EAST RAMP | KA | ON T-1A |
| 230 | TS | 873 | IL 56 @ GALENA BLVD WEST RAMP | KA | ON T-1A |
| 231 | TS | 877 | IL 64 MAIN ST @ PECK RD | KA | ON T-1A |
| 232 | TS | 878 | IL 64 NORTH AVE @ LA FOX RD BURLINGTON RD | KA | ON T-1A |
| 233 | TS | 880 | IL 68 PENNY AVE @ IL 72 MAIN ST HIGGINS RD | KA | ON T-1A |
| 234 | TS | 883 | IL 68 DUNDEE RD BARRINGTON AVE @ GOLFVIEW LN | KA | ON T-1A |

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|-----|----|-----|---|----|------|-----|
| 235 | TS | 885 | IL 72 MAIN ST @ RIVER ST | KA | T-1A | ON |
| 236 | TS | 888 | IL 53 ROHLWING RD @ IL 390 TLWY WB FRONTAGE NORTH | DU | T-1A | ON |
| 237 | TS | 889 | IL 53 ROHLWING RD @ IL 390 TLWY EB FRONTAGE SOUTH | DU | T-1A | ON |
| 238 | TS | 890 | IL 72 MAIN ST @ VAN BUREN ST | KA | T-1A | ON |
| 239 | TS | 895 | IL 72 MAIN ST @ 1ST ST | KA | T-1A | ON |
| 240 | TS | 900 | IL 72 MAIN ST @ 2ND ST | KA | T-1A | ON |
| 241 | TS | 902 | IL 72 HIGGINS RD @ REINKING RD | KA | T-1A | OFF |
| 242 | TS | 903 | IL 72 @ CHRISTINA DR | KA | T-1A | ON |
| 243 | TS | 904 | IL 72 @ RICHARD J BROWN BLVD -W OF REINKING | KA | T-1A | OFF |
| 244 | TS | 905 | IL 72 MAIN ST @ ROCK RD | KA | T-1A | ON |
| 245 | TS | 906 | LAKE ST @ 15TH AVE SUPERIOR ST | CO | T-1A | ON |
| 246 | TS | 924 | IL 1 MAIN ST DIXIE HWY @ CRETE MONEE RD NEW MONEE RD | WI | T-1A | ON |

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| | | | | | | |
|-----|----|-----|---|----|------|-----|
| 247 | TS | 925 | IL 176 ROCKLAND RD @ I 94 TLWY WEST RAMP | LA | T-1A | ON |
| 248 | TS | 930 | IL 176 ROCKLAND RD @ I 94 TLWY EAST RAMP LAMBS FARM | LA | T-1A | ON |
| 249 | TS | 935 | IL 137 BUCKLEY RD @ I 94 TLWY WEST RAMP | LA | T-1A | ON |
| 250 | TS | 936 | IL 137 BUCKLEY RD @ I 94 TLWY EAST RAMP | LA | T-1A | ON |
| 251 | TS | 940 | US 12 RAND @ IL 22 MAIN ST | LA | T-1A | ON |
| 252 | TS | 941 | IL 22 MAIN ST @ VILLAGE SQ NORTH LAKE COMMONS ENT | LA | T-1A | ON |
| 253 | TS | 945 | US 12 RAND RD @ GRAND AVE | LA | T-1A | ON |
| 254 | TS | 950 | US 12 RAND RD @ OLD RAND RD NORTH RAVINIA TERRACE | LA | T-1A | OFF |
| 255 | TS | 955 | US 12 RAND RD @ QUENTIN RD | LA | T-1A | ON |
| 256 | TS | 957 | US 12 @ QUENTIN COLLECTION SC ENT | LA | T-1A | ON |
| 257 | TS | 960 | US 12 RAND RD @ OLD RAND RD LAKE SHORE DR | LA | T-1A | ON |
| 258 | TS | 965 | US 12 RAND RD @ | LA | | ON |

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|-----|----|------|--|----|------|----|
| | | | LONG GROVE RD | | T-1A | |
| 259 | TS | 966 | IL 53 @ LONG GROVE RD | LA | T-1A | ON |
| 260 | TS | 967 | US 12 RAND RD @ OLD RAND RD SOUTH | LA | T-1A | ON |
| 261 | TS | 969 | US 12 RAND RD @ DEER PARK BLVD | LA | T-1A | ON |
| 262 | TS | 975 | US 12 RAND RD @ CUBA RD | LA | T-1A | ON |
| 263 | TS | 982 | HIGHLAND AVE @ EASTGATE AVE | DU | T-1A | ON |
| 264 | TS | 990 | IL 53 ROHLWING RD @ NORDIC RD BLOOMINGDALE RD | DU | T-1A | ON |
| 265 | TS | 992 | IL 53 ROHLWING RD @ SPRING LAKE DR MEDINAH DR | DU | T-1A | ON |
| 266 | TS | 995 | IL 53 ROHLWING RD @ ARDMORE AVE | DU | T-1A | ON |
| 267 | TS | 1000 | IL 31 @ IL 72 | KA | T-1A | ON |
| 268 | TS | 1007 | 123RD ST MCCARTHY RD @ WILL COOK RD | CO | T-1A | ON |
| 269 | TS | 1008 | 123RD ST MCCARTHY RD @ WALKER RD | CO | T-1A | ON |

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|-----|----|------|---|----|------|-----|
| 270 | TS | 1009 | 123RD ST MCCARTHY RD @ BELL RD | CO | T-1A | ON |
| 271 | TS | 1010 | US 12 20 45 MANNHEIM RD @ US 20 LAKE ST | CO | T-1A | ON |
| 272 | TS | 1011 | 123 RD ST MCCARTHY RD @ WOLF RD | CO | T-1A | OFF |
| 273 | TS | 1015 | US 12 20 45 MANNHEIM RD @ IL 38 ROOSEVELT RD | CO | T-1A | ON |
| 274 | TS | 1020 | US 12 20 45 MANNHEIM RD @ WASHINGTON BLVD | CO | T-1A | ON |
| 275 | TS | 1022 | US 20 LAKE ST NORTH RAMP @ IL 59 | CO | T-1A | OFF |
| 276 | TS | 1023 | US 20 LAKE ST SOUTH RAMP @ IL 59 | CO | T-1A | OFF |
| 277 | TS | 1025 | US 12 20 45 LAGRANGE RD @ 31ST ST | CO | T-1A | ON |
| 278 | TS | 1030 | US 12 20 45 LAGRANGE RD @ 47TH ST | CO | T-1A | ON |
| 279 | TS | 1035 | US 12 20 45 LAGRANGE RD @ 55TH ST | CO | T-1A | OFF |
| 280 | TS | 1040 | US 12 20 45 LAGRANGE RD @ 67TH ST | CO | T-1A | ON |
| 281 | TS | 1043 | US 12 20 45 LAGRANGE RD @ 63RD ST | CO | T-1A | ON |

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|-----|----|------|--|----|------|----|
| 282 | TS | 1045 | US 12 20 45 LAGRANGE RD @ 87TH ST | CO | T-1A | ON |
| 283 | TS | 1050 | US 12 20 45 LAGRANGE RD @ CERMAK RD | CO | T-1A | ON |
| 284 | TS | 1055 | US 12 20 45 LAGRANGE RD @ COUNTRYSIDE PLAZA ENT | CO | T-1A | ON |
| 285 | TS | 1060 | US 12 20 45 LAGRANGE RD @ US 66 HIST JOLIET RD | CO | T-1A | ON |
| 286 | TS | 1065 | US 12 20 45 LAGRANGE RD @ PLAINFIELD RD | CO | T-1A | ON |
| 287 | TS | 1070 | US 12 20 45 MANNHEIM RD @ RANDOLPH ST | CO | T-1A | ON |
| 288 | TS | 1075 | US 12 20 45 MANNHEIM RD @ ST CHARLES RD | CO | T-1A | ON |
| 289 | TS | 1080 | US 12 20 45 MANNHEIM RD @ MADISON ST | CO | T-1A | ON |
| 290 | TS | 1084 | IL 113 MAIN ST @ IL 129 WASHINGTON ST | WI | T-1A | ON |
| 291 | TS | 1090 | US 12 45 ELK BLVD @ US 45 DESPLAINES RIVER RD | CO | T-1A | ON |
| 292 | TS | 1095 | US 12 45 MANNHEIM RD @ IL 19 IRVING PARK RD | CO | T-1A | ON |
| 293 | TS | 1100 | US 12 45 MANNHEIM RD @ | CO | | ON |

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|-----|----|------|--|----|--|------|-----|
| | | | IL 72 HIGGINS RD | | | T-1A | |
| 294 | TS | 1102 | IL 72 HIGGINS RD @ WILLOW CREEK HEALTH CLUB | CO | | T-1A | OFF |
| 295 | TS | 1104 | IL 72 HIGGINS RD LEE ST @ I 90 NW RAMP | CO | | T-1A | ON |
| 296 | TS | 1105 | US 12 45 MANNHEIM RD @ ARMITAGE AVE | CO | | T-1A | ON |
| 297 | TS | 1106 | IL 72 HIGGINS RD LEE ST @ I 90 SE RAMP | CO | | T-1A | ON |
| 298 | TS | 1110 | US 12 45 MANNHEIM RD @ FULLERTON AVE | CO | | T-1A | ON |
| 299 | TS | 1114 | US 12 45 MANNHEIM RD @ WRIGHTWOOD AVE | CO | | T-1A | ON |
| 300 | TS | 1115 | US 12 45 MANNHEIM RD @ MELROSE CROSSING N ENT | CO | | T-1A | ON |
| 301 | TS | 1116 | IL 59 S NELTOR BLVD @ GARYS MILL ROAD | DU | | T-1A | OFF |
| 302 | TS | 1120 | US 12 45 MANNHEIM RD @ MELROSE CROSSING S ENT | CO | | T-1A | ON |
| 303 | TS | 1125 | US 12 45 MANNHEIM RD @ LAWRENCE AVE | CO | | T-1A | ON |
| 304 | TS | 1130 | US 12 45 LEE ST @ OAKTON ST | CO | | T-1A | OFF |

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|-----|----|------|--|----|------|----|
| 305 | TS | 1135 | US 12 45 MANNHEIM RD @ TOUHY AVE | CO | | ON |
| | | | | | T-1A | |
| 306 | TS | 1137 | US 12 45 MANNHEIM RD @ LUNT AVE | CO | | ON |
| | | | | | T-1A | |
| 307 | TS | 1140 | US 12 45 MANNHEIM RD @ UNITED PKWY | CO | | ON |
| | | | | | T-1A | |
| 308 | TS | 1145 | US 12 45 MANNHEIM RD @ MONTROSE | CO | | ON |
| | | | | | T-1A | |
| 309 | TS | 1150 | US 12 IL 53 RAND RD @ IL 53 HICKS RD | CO | | ON |
| | | | | | T-1A | |
| 310 | TS | 1155 | US 12 IL 53 RAND RD @ IL 53 IL 68 DUNDEE RD | CO | | ON |
| | | | | | T-1A | |
| 311 | TS | 1157 | IL 68 DUNDEE RD @ LYNDA DR ACCESS DR | CO | | ON |
| | | | | | T-1A | |
| 312 | TS | 1160 | US 12 IL 53 RAND RD @ OLD HICKS RD COACH RD | CO | | ON |
| | | | | | T-1A | |
| 313 | TS | 1165 | US 14 IL 58 DEMPSTER ST @ US 14 IL 43 WAUKEGAN RD | CO | | ON |
| | | | | | T-1A | |
| 314 | TS | 1170 | US 14 NORTHWEST HWY @ US 14 BALDWIN RD @ COLFAX | CO | | ON |
| | | | | | T-1A | |
| 315 | TS | 1172 | US 14 NORTHWEST HWY @ STERLING AVE | CO | | ON |
| | | | | | T-1A | |
| 316 | TS | 1175 | US 14 CALDWELL AVE @ US 14 IL 43 WAUKEGAN RD | CO | | ON |
| | | | | | T-1A | |

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|-----|----|------|---|----|------|----|
| 317 | TS | 1180 | US 14 NORTHWEST HWY @ IL 53 EAST RAMP | CO | T-1A | ON |
| 318 | TS | 1185 | US 14 NORTHWEST HWY @ IL 53 WEST RAMP | CO | T-1A | ON |
| 319 | TS | 1190 | US 14 NORTHWEST HWY @ BENTON ST | CO | T-1A | ON |
| 320 | TS | 1200 | US 14 DEMPSTER ST @ CUMBERLAND AVE | CO | T-1A | ON |
| 321 | TS | 1205 | US 14 DEMPSTER ST @ DEE RD | CO | T-1A | ON |
| 322 | TS | 1210 | US 14 DEMPSTER ST @ GREENWOOD AVE | CO | T-1A | ON |
| 323 | TS | 1213 | US 14 DEMPSTER ST @ WESTERN AVE | CO | T-1A | ON |
| 324 | TS | 1215 | US 14 CALDWELL AVE @ GROSS POINT RD | CO | T-1A | ON |
| 325 | TS | 1220 | US 14 DEMPSTER ST @ HARLEM AVE | CO | T-1A | ON |
| 326 | TS | 1225 | US 14 NORTHWEST HWY @ HICKS RD SOUTH JCT | CO | T-1A | ON |
| 327 | TS | 1230 | US 14 CALDWELL AVE @ HOWARD ST | CO | T-1A | ON |
| 328 | TS | 1235 | US 14 NORTHWEST HWY @ | CO | | ON |

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|-----|----|------|---|----|--|------|-----|
| | | | HICKS PL LINCOLN ST | | | T-1A | |
| 329 | TS | 1236 | US 14 NORTHWEST HWY @ ALGONQUIN RD | MC | | T-1A | ON |
| 330 | TS | 1237 | US 14 NORTHWEST HWY @ LINCOLN AVE | MC | | T-1A | ON |
| 331 | TS | 1238 | US 14 NORTHWEST HWY @ FOXMOOR RD | MC | | T-1A | ON |
| 332 | TS | 1240 | US 14 DEMPSTER ST @ LUTHER LN | CO | | T-1A | ON |
| 333 | TS | 1245 | US 14 NORTHWEST HWY @ MAIN ST COUNTY LINE RD | CO | | T-1A | ON |
| 334 | TS | 1250 | US 14 NORTHWEST HWY @ US POST OFFICE | CO | | T-1A | ON |
| 335 | TS | 1255 | US 14 NORTHWEST HWY PROSPECT AVE @ MT PROSPECT RD | CO | | T-1A | ON |
| 336 | TS | 1260 | US 14 CALDWELL AVE @ OAKTON ST | CO | | T-1A | OFF |
| 337 | TS | 1265 | US 14 DEMPSTER ST @ OZARK | CO | | T-1A | ON |
| 338 | TS | 1270 | US 14 NORTHWEST HWY @ PALATINE RD | CO | | T-1A | ON |
| 339 | TS | 1275 | US 14 DEMPSTER ST @ POTTER RD | CO | | T-1A | ON |

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|-----|----|------|--|----|------|-----|
| 340 | TS | 1280 | US 14 BALDWIN RD @ QUENTIN RD | CO | T-1A | ON |
| 341 | TS | 1285 | US 14 DEMPSTER ST @ RAND RD | CO | T-1A | ON |
| 342 | TS | 1290 | US 14 NORTHWEST HWY @ ROHLWING RD | CO | T-1A | ON |
| 343 | TS | 1295 | US 14 DEMPSTER ST @ SHERMER RD | CO | T-1A | ON |
| 344 | TS | 1300 | US 14 NORTHWEST HWY @ SMITH RD | CO | T-1A | ON |
| 345 | TS | 1305 | US 14 CALDWELL AVE @ TOUHY AVE | CO | T-1A | OFF |
| 346 | TS | 1310 | US 14 NORTHWEST HWY @ WILKE RD | CO | T-1A | ON |
| 347 | TS | 1315 | US 14 NORTHWEST HWY @ PLUM GROVE RD | CO | T-1A | ON |
| 348 | TS | 1320 | US 20 LAKE ST @ BLUFF CITY RD SHALES PKWY | CO | T-1A | ON |
| 349 | TS | 1325 | US 20 LAKE ST @ OAK ST | CO | T-1A | ON |
| 350 | TS | 1330 | US 20 LAKE ST @ PARK AVE | CO | T-1A | ON |
| 351 | TS | 1335 | US 20 LAKE ST @ 44TH ST | CO | T-1A | ON |

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|-----|----|------|---|----|------|-----|
| 352 | TS | 1338 | I 294 TLWY RAMP @ US 20 LAKE ST | CO | T-1A | OFF |
| 353 | TS | 1340 | US 30 LINCOLN HWY @ US 30 IL 83 GLENWOOD DYER RD | CO | T-1A | ON |
| 354 | TS | 1345 | US 30 LINCOLN HWY @ IL 1 CHICAGO RD | CO | T-1A | OFF |
| 355 | TS | 1350 | US 30 LINCOLN HWY @ IL 43 HARLEM AVE | CO | T-1A | ON |
| 356 | TS | 1355 | US 30 LINCOLN HWY @ IL 50 CICERO AVE | CO | T-1A | OFF |
| 357 | TS | 1357 | IL 50 CICERO AVE @ 207TH ST | CO | T-1A | ON |
| 358 | TS | 1358 | IL 50 CICERO AVE @ MORNING GLORY DR VILLAGE COMMONS | CO | T-1A | ON |
| 359 | TS | 1360 | US 30 LINCOLN HWY @ COTTAGE GROVE AVE | CO | T-1A | ON |
| 360 | TS | 1365 | US 30 LINCOLN HWY @ DIVISION ST | CO | T-1A | OFF |
| 361 | TS | 1370 | US 30 LINCOLN HWY @ FORD MOTOR PLANT ENT | CO | T-1A | ON |
| 362 | TS | 1375 | US 30 LINCOLN HWY @ GOVERNORS HWY CRAWFORD AV PULASKI R | CO | T-1A | ON |
| 363 | TS | 1376 | GOVERNORS HWY @ 212TH PL | CO | T-1A | ON |

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|-----|----|------|---|----|------|-----|
| 364 | TS | 1380 | US 30 LINCOLN HWY @ HALSTED AVE | CO | T-1A | OFF |
| 365 | TS | 1385 | US 30 LINCOLN HWY @ MAIN ST | CO | T-1A | ON |
| 366 | TS | 1390 | US 30 LINCOLN HWY @ OLYMPIAN WAY | CO | T-1A | ON |
| 367 | TS | 1395 | US 30 LINCOLN HWY @ ORCHARD | CO | T-1A | ON |
| 368 | TS | 1400 | US 30 LINCOLN HWY @ RIDGELAND AVE | CO | T-1A | ON |
| 369 | TS | 1405 | US 30 IL 83 LINCOLN HWY @ SAUK TRAIL | CO | T-1A | ON |
| 370 | TS | 1410 | US 30 LINCOLN HWY @ STATE ST | CO | T-1A | ON |
| 371 | TS | 1414 | US 30 LINCOLN HWY @ CENTER AVE | CO | T-1A | ON |
| 372 | TS | 1415 | US 30 LINCOLN HWY @ TORRENCE AVE | CO | T-1A | ON |
| 373 | TS | 1420 | US 30 LINCOLN HWY @ WESTERN AVE | CO | T-1A | ON |
| 374 | TS | 1425 | US 30 LINCOLN HWY @ WOODLAWN AVE | CO | T-1A | ON |
| 375 | TS | 1430 | US 30 LINCOLN HWY @ | CO | | OFF |

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|-----|----|------|--|----|--|------|-----|
| | | | LINDENWOOD DR | | | T-1A | |
| 376 | TS | 1435 | US 30 LINCOLN HWY @ ASHLAND AVE | CO | | T-1A | OFF |
| 377 | TS | 1437 | US 30 LINCOLN HWY @ TRANSPORTATION DR | CO | | T-1A | ON |
| 378 | TS | 1440 | US 30 LINCOLN HWY @ BROOKWOOD DR | CO | | T-1A | ON |
| 379 | TS | 1445 | US 30 LINCOLN HWY @ HILLTOP AVE | CO | | T-1A | OFF |
| 380 | TS | 1450 | US 30 LINCOLN HWY @ KOSTNER AVE | CO | | T-1A | OFF |
| 381 | TS | 1455 | US 34 OGDEN AVE @ IL 43 HARLEM AVE | CO | | T-1A | ON |
| 382 | TS | 1460 | US 34 OGDEN AVE @ 39TH ST MILLER RD | CO | | T-1A | ON |
| 383 | TS | 1465 | US 34 OGDEN AVE @ GILBERT AVE | CO | | T-1A | ON |
| 384 | TS | 1470 | US 34 OGDEN AVE @ JOLIET AVE | CO | | T-1A | ON |
| 385 | TS | 1480 | US 34 OGDEN AVE @ WOLF RD | CO | | T-1A | OFF |
| 386 | TS | 1482 | US 34 OGDEN AVE @ I 294 NB ENT. RAMP | CO | | T-1A | OFF |

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|-----|----|------|---|----|------|-----|
| 387 | TS | 1485 | US 41 IL 50 CICERO AVE @ US 41 LINCOLN AVE | CO | T-1A | ON |
| 388 | TS | 1495 | US 41 SKOKIE BLVD @ CHURCH ST | CO | T-1A | ON |
| 389 | TS | 1500 | US 41 LINCOLN AVE @ CRAWFORD AVE | CO | T-1A | ON |
| 390 | TS | 1503 | TOUHY AVE @ ST LOUIS | CO | T-1A | ON |
| 391 | TS | 1505 | US 41 LINCOLN AVE @ DEVON AVE | CO | T-1A | ON |
| 392 | TS | 1510 | US 41 SKOKIE BLVD @ EAST LAKE | CO | T-1A | OFF |
| 393 | TS | 1515 | US 41 SKOKIE BLVD @ EDENS PLAZA | CO | T-1A | OFF |
| 394 | TS | 1520 | US 41 SKOKIE BLVD @ EMERSON | CO | T-1A | ON |
| 395 | TS | 1525 | US 41 SKOKIE BLVD @ GOLF RD | CO | T-1A | OFF |
| 396 | TS | 1530 | US 41 SKOKIE BLVD @ GROSS POINT RD | CO | T-1A | ON |
| 397 | TS | 1535 | US 41 SKOKIE BLVD @ HIBBARD RD | CO | T-1A | OFF |
| 398 | TS | 1540 | US 41 SKOKIE BLVD @ HOWARD ST | CO | T-1A | ON |

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|-----|----|------|---|----|------|----|
| 399 | TS | 1545 | US 41 LINCOLN AVE @ KOSTNER AVE | CO | T-1A | ON |
| 400 | TS | 1555 | US 41 SKOKIE BLVD @ FOSTER ST | CO | T-1A | ON |
| 401 | TS | 1560 | US 41 SKOKIE BLVD @ MAIN ST | CO | T-1A | ON |
| 402 | TS | 1565 | US 41 SKOKIE BLVD @ NEW GLENVIEW RD | CO | T-1A | ON |
| 403 | TS | 1570 | US 41 SKOKIE BLVD @ NILES CENTER RD | CO | T-1A | ON |
| 404 | TS | 1574 | NILES CENTER RD @ FARGO | CO | T-1A | ON |
| 405 | TS | 1575 | US 41 SKOKIE BLVD @ OAKTON ST | CO | T-1A | ON |
| 406 | TS | 1577 | US 41 SKOKIE BLVD @ SEARLE PKWY | CO | T-1A | ON |
| 407 | TS | 1580 | US 41 SKOKIE BLVD @ OLD GLENVIEW RD | CO | T-1A | ON |
| 408 | TS | 1590 | US 41 SKOKIE BLVD @ OLD ORCHARD RD | CO | T-1A | ON |
| 409 | TS | 1595 | US 41 SKOKIE BLVD @ OLD ORCHARD SHOPPING CENTER NORTH E | CO | T-1A | ON |
| 410 | TS | 1600 | US 41 SKOKIE BLVD @ | CO | | ON |

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|-----|----|------|---|----|--|------------|
| | | | OLD ORCHARD SHOPPING CENTER CENTER | | | T-1A |
| 411 | TS | 1605 | US 41 SKOKIE BLVD @ OLD ORCHARD SHOPPING CENTER SOUTH E | CO | | ON T-1A |
| 412 | TS | 1610 | US 41 LINCOLN AVE @ PRATT AVE | CO | | ON T-1A |
| 413 | TS | 1613 | CRAWFORD AVE @ PRATT AVE | CO | | ON T-1A |
| 414 | TS | 1615 | US 41 LINCOLN AVE @ TOUHY AVE | CO | | ON T-1A |
| 415 | TS | 1617 | TOUHY AVE @ KILBOURN AVE | CO | | ON T-1A |
| 416 | TS | 1620 | US 41 SKOKIE BLVD @ WILMETTE AVE | CO | | ON T-1A |
| 417 | TS | 1625 | US 45 DESPLAINES RIVER RD @ IL 58 GOLF RD | CO | | ON T-1A |
| 418 | TS | 1626 | US 45 DESPLAINES RIVER RD @ NAZARETH WAY HOLY FAMILY ENT | CO | | ON T-1A |
| 419 | TS | 1630 | US 45 LAGRANGE RD @ 107TH ST | CO | | ON T-1A |
| 420 | TS | 1631 | 111TH ST @ 84TH AVE | CO | | ON T-1A |
| 421 | TS | 1632 | 111TH ST @ KEAN AVE | CO | | ON T-1A |

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|-----|----|------|---|----|------|-----|
| 422 | TS | 1633 | 107TH ST @ 104TH AVE | CO | T-1A | ON |
| 423 | TS | 1634 | 104TH AVE FLAVIN RD @ 95TH ST | CO | T-1A | ON |
| 424 | TS | 1635 | US 45 LAGRANGE RD @ 111TH ST | CO | T-1A | ON |
| 425 | TS | 1640 | US 45 LA GRANGE RD @ 131ST ST | CO | T-1A | ON |
| 426 | TS | 1641 | US 45 LAGRANGE RD @ CREEK RD | CO | T-1A | ON |
| 427 | TS | 1645 | US 45 LA GRANGE RD @ 135TH ST | CO | T-1A | ON |
| 428 | TS | 1650 | US 45 LAGRANGE RD @ 143RD ST | CO | T-1A | OFF |
| 429 | TS | 1651 | US 45 LA GRANGE RD @ 142ND ST | CO | T-1A | ON |
| 430 | TS | 1655 | US 45 LA GRANGE RD @ 147TH ST | CO | T-1A | ON |
| 431 | TS | 1660 | US 45 LA GRANGE RD @ 149TH ST | CO | T-1A | OFF |
| 432 | TS | 1664 | US 45 LA GRANGE RD @ 154TH PL DARVIN ENT | CO | T-1A | ON |
| 433 | TS | 1665 | US 45 LA GRANGE RD @ 151ST ST | CO | T-1A | ON |

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|-----|----|------|---|----|------|-----|
| 434 | TS | 1668 | US 45 LAGRANGE RD @ 156TH ST LOWES ENT | CO | T-1A | ON |
| 435 | TS | 1670 | US 45 LA GRANGE RD @ 153RD ST | CO | T-1A | ON |
| 436 | TS | 1675 | US 45 DESPLAINES RIVER RD @ CENTRAL RD | CO | T-1A | OFF |
| 437 | TS | 1676 | CENTRAL RD @ EAST RIVER RD | CO | T-1A | ON |
| 438 | TS | 1677 | CENTRAL RD @ CIRCLE DR OAKTON COMM COLLEGE ENT | CO | T-1A | ON |
| 439 | TS | 1680 | US 45 DESPLAINES RIVER RD @ EUCLID AVE | CO | T-1A | OFF |
| 440 | TS | 1685 | US 45 DESPLAINES RIVER RD @ KENSINGTON FOUNDRY | CO | T-1A | ON |
| 441 | TS | 1690 | US 45 LAGRANGE RD @ MCCARTHY RD 123 RD ST | CO | T-1A | ON |
| 442 | TS | 1695 | US 45 DESPLAINES RIVER RD @ OLD WILLOW RD SEMINOL LN | CO | T-1A | ON |
| 443 | TS | 1700 | US 45 LA GRANGE RD @ 167TH ST | CO | T-1A | OFF |
| 444 | TS | 1701 | US 45 LA GRANGE RD @ 163RD ST | CO | T-1A | ON |
| 445 | TS | 1705 | US 45 LA GRANGE RD @ | CO | | ON |

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|-----|----|------|--|----|--|------------|
| | | | LAKEVIEW PLAZA DR | | | T-1A |
| 446 | TS | 1710 | US 45 LAGRANGE RD @ SOUTHMOOR SANDBURG HS ENT | CO | | ON T-1A |
| 447 | TS | 1712 | US 45 DESPLAINES RIVER RD @ CAMP MCDONALD RD | CO | | ON T-1A |
| 448 | TS | 1715 | US 45 IL 21 MILWAUKEE AVE @ IL 68 DUNDEE | CO | | ON T-1A |
| 449 | TS | 1720 | US 45 IL 21 MILWAUKEE AVE @ HINTZ RD | CO | | ON T-1A |
| 450 | TS | 1724 | US 45 IL 21 MILWAUKEE AVE @ LAKE COOK RD SOUTH RAMP B & C | CO | | ON T-1A |
| 451 | TS | 1726 | US 45 IL 21 MILWAUKEE AVE @ LAKE COOK RD NORTH RAMP A & D | CO | | ON T-1A |
| 452 | TS | 1730 | US 45 IL 21 MILWAUKEE AVE @ WOLF RD | CO | | ON T-1A |
| 453 | TS | 1735 | US 45 IL 21 MILWAUKEE AVE @ APPLE DR | CO | | ON T-1A |
| 454 | TS | 1740 | US 45 IL 21 MILWAUKEE AVE @ PALATINE NORTH RAMP | CO | | ON T-1A |
| 455 | TS | 1745 | US 45 IL 21 MILWAUKEE AVE @ PALATINE SOUTH RAMP | CO | | ON T-1A |
| 456 | TS | 1750 | US 45 LA GRANGE RD @ 144TH PL | CO | | ON T-1A |

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| | | | | | | |
|-----|----|------|---|----|------|-----|
| 457 | TS | 1755 | IL 1 HALSTED ST @ IL 1 CUTOFF PARKSIDE AVE | CO | T-1A | ON |
| 458 | TS | 1760 | IL 1 HALSTED ST @ IL 1 VINCENNES | CO | T-1A | ON |
| 459 | TS | 1765 | IL 83 SIBLEY 147TH ST @ IL 1 HALSTED | CO | T-1A | OFF |
| 460 | TS | 1770 | IL 1 CHICAGO RD @ 15TH ST | CO | T-1A | ON |
| 461 | TS | 1775 | IL 1 CHICAGO RD @ 16TH ST | CO | T-1A | ON |
| 462 | TS | 1780 | IL 1 CHICAGO RD @ 26TH ST | CO | T-1A | ON |
| 463 | TS | 1785 | IL 1 HALSTED @ 123RD | CO | T-1A | ON |
| 464 | TS | 1790 | IL 1 HALSTED @ 127TH ST | CO | T-1A | ON |
| 465 | TS | 1795 | IL 1 HALSTED ST @ 138TH ST | CO | T-1A | OFF |
| 466 | TS | 1800 | IL 1 HALSTED @ 149TH ST | CO | T-1A | ON |
| 467 | TS | 1805 | IL 1 HALSTED ST @ 152ND | CO | T-1A | ON |
| 468 | TS | 1810 | IL 1 HALSTED @ 157TH ST | CO | T-1A | ON |

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| | | | | | | |
|-----|----|------|--|----|------|-----|
| 469 | TS | 1815 | IL 1 HALSTED ST @ 163RD | CO | T-1A | OFF |
| 470 | TS | 1820 | IL 1 HALSTED ST @ 167TH | CO | T-1A | OFF |
| 471 | TS | 1825 | IL 1 HALSTED ST @ 171ST ST 172ND ST | CO | T-1A | OFF |
| 472 | TS | 1827 | IL 1 HALSTED ST @ 174TH ST | CO | T-1A | ON |
| 473 | TS | 1830 | IL 1 HALSTED ST @ 183RD ST ARQUILLA DR | CO | T-1A | ON |
| 474 | TS | 1835 | IL 1 HALSTED @ HOLBROOK RD | CO | T-1A | ON |
| 475 | TS | 1840 | IL 1 HALSTED ST @ 187TH ST | CO | T-1A | ON |
| 476 | TS | 1845 | IL 1 HALSTED ST CUT OFF @ IL 1 CHICAGO RD | CO | T-1A | ON |
| 477 | TS | 1850 | IL 1 HALSTED @ JOE ORR RD | CO | T-1A | ON |
| 478 | TS | 1855 | IL 1 HALSTED ST @ RIDGE RD | CO | T-1A | ON |
| 479 | TS | 1860 | IL 1 CHICAGO @ SAUK TRAIL RD | CO | T-1A | ON |
| 480 | TS | 1865 | IL 1 CHICAGO @ | CO | | ON |

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| | | | STEGER RD | | | T-1A |
|-----|----|------|--|----|--|-------------|
| 481 | TS | 1870 | IL 1 HALSTED @ VOLLMER RD | CO | | ON T-1A |
| 482 | TS | 1875 | IL 1 HALSTED ST @ MAPLE AVE 3 | CO | | ON T-1A |
| 483 | TS | 1880 | IL 1 HALSTED ST @ 175TH ST | CO | | ON T-1A |
| 484 | TS | 1885 | IL 1 CHICAGO RD @ DIXIE HWY | CO | | ON T-1A |
| 485 | TS | 1890 | IL 7 SOUTHWEST HWY @ IL 43 HARLEM AVE | CO | | ON T-1A |
| 486 | TS | 1895 | IL 7 SOUTHWEST HWY @ IL 83 CAL SAG 80TH AVE | CO | | ON T-1A |
| 487 | TS | 1899 | 80TH AVE @ 123RD MCCARTHY | CO | | ON T-1A |
| 488 | TS | 1900 | IL 7 SOUTHWEST HWY @ 111TH ST | CO | | ON T-1A |
| 489 | TS | 1903 | IL 7 SOUTHWEST HWY @ 117TH ST | CO | | ON T-1A |
| 490 | TS | 1904 | IL 7 SOUTHWEST HWY @ METRA TRAIN STATION 114TH PL | CO | | ON T-1A |
| 491 | TS | 1905 | IL 7 SOUTHWEST HWY @ 131ST ST | CO | | OFF T-1A |

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|-----|----|------|---|----|------|-----|
| 492 | TS | 1910 | IL 7 SOUTHWEST HWY @ 135TH ST | CO | T-1A | OFF |
| 493 | TS | 1911 | 131ST ST @ 76TH AVE | CO | T-1A | ON |
| 494 | TS | 1913 | 131ST ST @ 86TH AVE | CO | T-1A | ON |
| 495 | TS | 1915 | IL 7 SOUTHWEST HWY @ 143RD ST UNION AVE | CO | T-1A | ON |
| 496 | TS | 1920 | IL 7 143RD ST @ WEST AVE 100TH AVE | CO | T-1A | ON |
| 497 | TS | 1925 | IL 19 IRVING PARK RD @ IL 43 HARLEM AVE | CO | T-1A | ON |
| 498 | TS | 1930 | IL 19 IRVING PARK RD @ IL 59 NEW SUTTON RD | CO | T-1A | OFF |
| 499 | TS | 1932 | IL 19 IRVING PARK RD @ MADISON ST | CO | T-1A | OFF |
| 500 | TS | 1935 | IL 19 IRVING PARK RD @ BARTLETT RD | CO | T-1A | OFF |
| 501 | TS | 1937 | IL 59 @ GULF KEYS | CO | T-1A | OFF |
| 502 | TS | 1940 | IL 171 CUMBERLAND AVE @ IL 19 IRVING PARK RD | CO | T-1A | ON |
| 503 | TS | 1945 | IL 19 IRVING PARK RD @ DESPLAINES RIVER RD | CO | T-1A | ON |

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|-----|----|------|--|----|------|-----|
| 504 | TS | 1948 | DESPLAINES RIVER RD @ IVANHOE | CO | T-1A | ON |
| 505 | TS | 1950 | IL 19 IRVING PARK RD @ FOREST PRESERVE DR | CO | T-1A | ON |
| 506 | TS | 1953 | IL 19 IRVING PARK RD @ JUDD AVE | CO | T-1A | ON |
| 507 | TS | 1955 | IL 19 IRVING PARK RD @ ORIOLE | CO | T-1A | ON |
| 508 | TS | 1957 | IL 19 IRVING PARK RD @ SEYMOUR AVE | CO | T-1A | ON |
| 509 | TS | 1960 | IL 19 IRVING PARK RD @ RUBY 25TH | CO | T-1A | ON |
| 510 | TS | 1965 | IL 19 IRVING PARK RD @ SPRINGINSGUTH | CO | T-1A | ON |
| 511 | TS | 1970 | IL 19 IRVING PARK RD @ WESLEY TERRACE | CO | T-1A | ON |
| 512 | TS | 1975 | IL 19 IRVING PARK RD @ WISE RD | CO | T-1A | OFF |
| 513 | TS | 1976 | IL 19 IRVING PARK RD @ MERCURY | CO | T-1A | OFF |
| 514 | TS | 1980 | IL 19 IRVING PARK RD @ SUNNYDALE | CO | T-1A | ON |
| 515 | TS | 1985 | IL 19 IRVING PARK RD @ | CO | | ON |

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| | | | EAST AVE | | | T-1A |
|-----|----|------|--|----|--|------|
| 516 | TS | 1987 | IL 19 IRVING PARK RD @ TAFT OHARE CARGO ACCESS RD | CO | | OFF |
| | | | | | | T-1A |
| 517 | TS | 1989 | IL 19 IRVING PARK RD @ ACCESS RD | DU | | OFF |
| | | | | | | T-1A |
| 518 | TS | 1990 | IL 21 MILWAUKEE AVE @ IL 43 HARLEM AVE | CO | | ON |
| | | | | | | T-1A |
| 519 | TS | 1995 | IL 21 MILWAUKEE AVE @ IL 58 GOLF RD | CO | | ON |
| | | | | | | T-1A |
| 520 | TS | 2000 | IL 21 MILWAUKEE AVE @ BALLARD | CO | | ON |
| | | | | | | T-1A |
| 521 | TS | 2005 | IL 21 MILWAUKEE AVE @ CENTRAL RD | CO | | ON |
| | | | | | | T-1A |
| 522 | TS | 2010 | IL 21 MILWAUKEE AVE @ DEARLOVE RD GLENVIEW RD | CO | | OFF |
| | | | | | | T-1A |
| 523 | TS | 2015 | IL 21 MILWAUKEE AVE @ GREENWOOD AVE | CO | | ON |
| | | | | | | T-1A |
| 524 | TS | 2020 | IL 21 MILWAUKEE AVE @ HOWARD ST | CO | | ON |
| | | | | | | T-1A |
| 525 | TS | 2025 | IL 21 MILWAUKEE AVE @ MAIN ST | CO | | ON |
| | | | | | | T-1A |
| 526 | TS | 2030 | IL 21 MILWAUKEE AVE @ MARYLAND ST CHURCH ST | CO | | ON |
| | | | | | | T-1A |

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| | | | | | | |
|-----|----|------|--|----|------|----|
| 527 | TS | 2035 | IL 21 MILWAUKEE AVE @ OAK MILL MALL | CO | T-1A | ON |
| 528 | TS | 2040 | IL 21 MILWAUKEE AVE @ OAKTON ST | CO | T-1A | ON |
| 529 | TS | 2045 | IL 21 MILWAUKEE AVE @ SANDERS RD MONTE CARLO PLAZA ENT | CO | T-1A | ON |
| 530 | TS | 2050 | IL 21 MILWAUKEE AVE @ EUCLID WEST LAKE | CO | T-1A | ON |
| 531 | TS | 2055 | IL 21 MILWAUKEE AVE @ CASTILLIAN CT ZENITH DR | CO | T-1A | ON |
| 532 | TS | 2060 | IL 21 MILWAUKEE AVE @ GOLF MILL CENTER DR | CO | T-1A | ON |
| 533 | TS | 2065 | IL 21 MILWAUKEE AVE @ GOLF MILL NORTH DR | CO | T-1A | ON |
| 534 | TS | 2070 | IL 38 ROOSEVELT RD @ HAMILTON AVE HARRISON ST | CO | T-1A | ON |
| 535 | TS | 2075 | IL 38 ROOSEVELT RD @ WOLF RD | CO | T-1A | ON |
| 536 | TS | 2077 | IL 38 ROOSEVELT RD @ FENCL LN HIGHRIDGE PKWY | CO | T-1A | ON |
| 537 | TS | 2080 | IL 43 HARLEM AVE @ IL 43 OAKTON ST | CO | T-1A | ON |
| 538 | TS | 2085 | IL 43 WAUKEGAN RD @ IL 43 OAKTON ST | CO | T-1A | ON |

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| | | | | | | |
|-----|----|------|---|----|------|-----|
| 539 | TS | 2087 | OAKTON ST @ NILES CIVIC CENTER PLAZA | CO | T-1A | ON |
| 540 | TS | 2090 | IL 43 IL 58 WAUKEGAN RD @ IL 58 GOLF RD | CO | T-1A | ON |
| 541 | TS | 2095 | IL 43 HARLEM AVE @ IL 64 NORTH AVE | CO | T-1A | ON |
| 542 | TS | 2100 | IL 43 WAUKEGAN RD @ IL 68 DUNDEE RD | CO | T-1A | ON |
| 543 | TS | 2105 | IL 43 HARLEM AVE @ IL 83 COLLEGE DR 119TH ST | CO | T-1A | ON |
| 544 | TS | 2110 | IL 43 HARLEM AVE @ 16TH ST | CO | T-1A | ON |
| 545 | TS | 2115 | IL 43 HARLEM AVE @ 23RD ST | CO | T-1A | ON |
| 546 | TS | 2120 | IL 43 HARLEM AVE @ 25TH ST | CO | T-1A | OFF |
| 547 | TS | 2125 | IL 43 HARLEM AVE @ 26TH ST | CO | T-1A | ON |
| 548 | TS | 2130 | IL 43 HARLEM AVE @ 39TH ST PERSHING RD | CO | T-1A | ON |
| 549 | TS | 2135 | IL 43 HARLEM AVE @ 47TH ST 46TH ST | CO | T-1A | ON |
| 550 | TS | 2140 | IL 43 HARLEM AVE @ | CO | | ON |

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| | | | 57TH ST | | | T-1A |
|-----|----|------|--|----|--|-------------|
| 551 | TS | 2145 | IL 43 HARLEM AVE @ 60TH ST | CO | | ON T-1A |
| 552 | TS | 2150 | IL 43 HARLEM AVE @ 63RD ST | CO | | ON T-1A |
| 553 | TS | 2155 | IL 43 HARLEM AVE @ 63RD ST CUTOFF | CO | | ON T-1A |
| 554 | TS | 2160 | IL 43 HARLEM AVE @ 65TH ST | CO | | ON T-1A |
| 555 | TS | 2165 | IL 43 HARLEM AVE @ 71ST ST | CO | | OFF T-1A |
| 556 | TS | 2170 | IL 43 HARLEM AVE @ 75TH ST | CO | | OFF T-1A |
| 557 | TS | 2175 | IL 43 HARLEM AVE @ 79TH ST | CO | | ON T-1A |
| 558 | TS | 2180 | IL 43 HARLEM AVE @ 83RD ST | CO | | ON T-1A |
| 559 | TS | 2185 | IL 43 HARLEM AVE @ 87TH ST | CO | | ON T-1A |
| 560 | TS | 2190 | IL 43 HARLEM AVE @ 88TH ST SOUTHFIELD SHOP CNTR ENT | CO | | ON T-1A |
| 561 | TS | 2195 | IL 43 HARLEM AVE @ 90TH ST CAMBRIDGE ST | CO | | ON T-1A |

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| | | | | | | |
|-----|----|------|--|----|------|----|
| 562 | TS | 2200 | IL 43 HARLEM AVE @ 99TH ST | CO | T-1A | ON |
| 563 | TS | 2205 | IL 43 HARLEM AVE @ 103RD ST | CO | T-1A | ON |
| 564 | TS | 2210 | IL 43 HARLEM AVE @ 111TH ST | CO | T-1A | ON |
| 565 | TS | 2215 | IL 43 HARLEM AVE @ 115TH ST | CO | T-1A | ON |
| 566 | TS | 2220 | IL 43 HARLEM AVE @ 123RD ST | CO | T-1A | ON |
| 567 | TS | 2225 | IL 43 HARLEM AVE @ 127TH ST | CO | T-1A | ON |
| 568 | TS | 2226 | IL 171 ARCHER AVE @ 127TH ST JANE AVE | CO | T-1A | ON |
| 569 | TS | 2227 | IL 43 HARLEM AVE @ ISHNALA DR | CO | T-1A | ON |
| 570 | TS | 2230 | IL 43 HARLEM AVE @ 131ST ST | CO | T-1A | ON |
| 571 | TS | 2235 | IL 43 HARLEM AVE @ 135TH ST | CO | T-1A | ON |
| 572 | TS | 2240 | IL 43 HARLEM AVE @ 151ST ST | CO | T-1A | ON |
| 573 | TS | 2245 | IL 43 HARLEM AVE @ 175TH ST | CO | T-1A | ON |

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| | | | | | | |
|-----|----|------|--|----|------|-----|
| 574 | TS | 2250 | IL 43 HARLEM AVE @ 157TH ST | CO | T-1A | ON |
| 575 | TS | 2255 | IL 43 HARLEM AVE @ 183RD ST | CO | T-1A | ON |
| 576 | TS | 2256 | 183RD ST @ OAK PARK AVE | CO | T-1A | ON |
| 577 | TS | 2260 | IL 43 HARLEM AVE @ ARCHER AVE 55TH ST | CO | T-1A | OFF |
| 578 | TS | 2265 | IL 43 HARLEM AVE @ ARMITAGE AVE | CO | T-1A | ON |
| 579 | TS | 2270 | IL 43 HARLEM AVE @ AUGUSTA ST | CO | T-1A | ON |
| 580 | TS | 2275 | IL 43 HARLEM AVE @ BLOOMINGDALE AVE | CO | T-1A | ON |
| 581 | TS | 2280 | IL 43 HARLEM AVE @ 22ND ST CERMAK RD | CO | T-1A | ON |
| 582 | TS | 2285 | IL 43 WAUKEGAN RD @ CHESTNUT AVE | CO | T-1A | ON |
| 583 | TS | 2290 | IL 43 HARLEM AVE @ CHICAGO AVE | CO | T-1A | ON |
| 584 | TS | 2295 | IL 43 HARLEM AVE @ DIVISON ST | CO | T-1A | ON |
| 585 | TS | 2300 | IL 43 WAUKEGAN RD @ | CO | | ON |

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| | | | LAKE AVE | | T-1A |
|-----|----|------|---|----|-------------|
| 586 | TS | 2305 | IL 43 HARLEM AVE @ FOREST PRESERVE DR | CO | ON T-1A |
| 587 | TS | 2310 | IL 43 HARLEM AVE @ FOSTER AVE FOSTER PL | CO | ON T-1A |
| 588 | TS | 2315 | IL 43 HARLEM AVE @ GARFIELD ST HARRISON ST | CO | ON T-1A |
| 589 | TS | 2325 | IL 43 HARLEM AVE @ LAWRENCE AVE | CO | ON T-1A |
| 590 | TS | 2330 | IL 43 HARLEM AVE @ HOWARD | CO | ON T-1A |
| 591 | TS | 2335 | IL 43 HARLEM AVE @ 92ND PL STANFORD DR | CO | ON T-1A |
| 592 | TS | 2340 | IL 43 HARLEM AVE @ 84TH ST | CO | ON T-1A |
| 593 | TS | 2345 | IL 43 HARLEM AVE @ 77TH ST | CO | ON T-1A |
| 594 | TS | 2350 | IL 43 HARLEM AVE @ JACKSON BLVD | CO | ON T-1A |
| 595 | TS | 2355 | IL 43 HARLEM AVE @ 41ST ST JOLIET RD | CO | ON T-1A |
| 596 | TS | 2360 | IL 43 HARLEM AVE @ LAKE ST | CO | OFF T-1A |

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|-----|----|------|--|----|------|-----|
| 597 | TS | 2362 | LAKE ST @ BONNIE BRAE | CO | | ON |
| | | | | | T-1A | |
| 598 | TS | 2367 | IL 43 WAUKEGAN RD @ OAKMONT AVE | LA | | OFF |
| | | | | | T-1A | |
| 599 | TS | 2370 | IL 43 HARLEM AVE @ MADISON ST | CO | | OFF |
| | | | | | T-1A | |
| 600 | TS | 2375 | IL 43 HARLEM AVE @ MONTROSE AVE AGATITE | CO | | ON |
| | | | | | T-1A | |
| 601 | TS | 2377 | IL 43 HARLEM AVE @ MONTROSE AVE | CO | | ON |
| | | | | | T-1A | |
| 602 | TS | 2380 | IL 43 HARLEM AVE @ NORTH BLVD / SOUTH BLVD | CO | | ON |
| | | | | | T-1A | |
| 603 | TS | 2385 | IL 43 HARLEM AVE @ ONTARIO ST | CO | | ON |
| | | | | | T-1A | |
| 604 | TS | 2390 | IL 43 HARLEM AVE @ RANDOLPH ST | CO | | ON |
| | | | | | T-1A | |
| 605 | TS | 2395 | IL 43 HARLEM AVE @ RIVERSIDE DR LONGCOMMON RD | CO | | ON |
| | | | | | T-1A | |
| 606 | TS | 2400 | IL 43 HARLEM AVE @ ROOSEVELT RD | CO | | OFF |
| | | | | | T-1A | |
| 607 | TS | 2401 | ROOSEVELT RD @ LATHROP AVE | CO | | ON |
| | | | | | T-1A | |
| 608 | TS | 2406 | IL 43 WAUKEGAN RD @ FOUNDERS RD | CO | | ON |
| | | | | | T-1A | |

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|-----|----|------|---|----|------|-----|
| 609 | TS | 2410 | IL 43 HARLEM AVE @ TOUHY AVE | CO | T-1A | ON |
| 610 | TS | 2411 | IL 43 HARLEM AVE @ PIONEER PARK JOSWIAK PARK | CO | T-1A | ON |
| 611 | TS | 2415 | IL 43 HARLEM AVE @ WASHINGTON BLVD ST | CO | T-1A | ON |
| 612 | TS | 2420 | IL 43 HARLEM AVE @ WHEELER DR | CO | T-1A | ON |
| 613 | TS | 2425 | IL 43 WAUKEGAN AVE @ WILLOW RD | CO | T-1A | ON |
| 614 | TS | 2430 | IL 43 HARLEM AVE @ WILSON AVE | CO | T-1A | ON |
| 615 | TS | 2435 | IL 43 WAUKEGAN RD @ WINNETKA RD | CO | T-1A | ON |
| 616 | TS | 2443 | IL 50 CICERO AVE @ 34TH ST | CO | T-1A | ON |
| 617 | TS | 2445 | IL 50 CICERO AVE @ 31ST ST | CO | T-1A | ON |
| 618 | TS | 2450 | IL 50 CICERO AVE @ 39TH ST PERSHING RD | CO | T-1A | OFF |
| 619 | TS | 2451 | IL 50 CICERO AVE @ BURBANK STATION | CO | T-1A | ON |
| 620 | TS | 2455 | IL 50 CICERO AVE @ 65TH ST | CO | T-1A | ON |

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|-----|----|------|--|----|------|-----|
| 621 | TS | 2456 | IL 50 CICERO AVE @ 66TH ST | CO | T-1A | ON |
| 622 | TS | 2460 | IL 50 CICERO AVE @ 67TH ST MARQUETTE RD | CO | T-1A | OFF |
| 623 | TS | 2465 | IL 50 CICERO AVE @ 73RD ST STATE RD | CO | T-1A | ON |
| 624 | TS | 2470 | IL 50 CICERO AVE @ 79TH ST | CO | T-1A | ON |
| 625 | TS | 2475 | IL 50 CICERO AVE @ 83RD ST | CO | T-1A | ON |
| 626 | TS | 2480 | IL 50 CICERO AVE @ 87TH ST | CO | T-1A | ON |
| 627 | TS | 2485 | IL 50 CICERO AVE @ 94TH ST | CO | T-1A | ON |
| 628 | TS | 2490 | IL 50 CICERO AVE @ 99TH ST | CO | T-1A | ON |
| 629 | TS | 2495 | IL 50 CICERO AVE @ 103RD ST | CO | T-1A | ON |
| 630 | TS | 2500 | IL 50 CICERO AVE @ 107TH ST | CO | T-1A | ON |
| 631 | TS | 2505 | IL 50 CICERO AVE @ 110TH ST | CO | T-1A | ON |
| 632 | TS | 2510 | IL 50 CICERO AVE @ | CO | | ON |

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|-----|----|------|--|----|--|------------|
| | | | 111TH ST | | | T-1A |
| 633 | TS | 2512 | 111TH ST @ JODAN DR LARAMIE AVE | CO | | ON T-1A |
| 634 | TS | 2515 | IL 50 CICERO AVE @ 113TH ST | CO | | ON T-1A |
| 635 | TS | 2520 | IL 50 CICERO AVE @ 115TH ST | CO | | ON T-1A |
| 636 | TS | 2525 | IL 50 CICERO AVE @ FAMILY DOLLAR JEWEL OSCO ENT | CO | | ON T-1A |
| 637 | TS | 2530 | IL 50 CICERO AVE @ 91ST ST | CO | | ON T-1A |
| 638 | TS | 2535 | IL 50 CICERO AVE @ 76TH ST FORD CITY SOUTH | CO | | ON T-1A |
| 639 | TS | 2540 | IL 50 CICERO AVE @ 88TH ST | CO | | ON T-1A |
| 640 | TS | 2545 | IL 50 CICERO AVE @ 74TH PL FORD CITY NORTH | CO | | ON T-1A |
| 641 | TS | 2550 | IL 50 CICERO AVE @ 72ND ST | CO | | ON T-1A |
| 642 | TS | 2555 | IL 50 CICERO AVE @ 122ND ST | CO | | ON T-1A |
| 643 | TS | 2560 | IL 50 CICERO AVE @ 123RD ST | CO | | ON T-1A |

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|-----|----|------|--|----|------|-----|
| 644 | TS | 2565 | IL 50 IL 83 CICERO AVE @ IL 83 127TH ST | CO | T-1A | ON |
| 645 | TS | 2566 | IL 83 127TH ST @ I 294 TLWY EAST RAMP | CO | T-1A | ON |
| 646 | TS | 2567 | IL 83 127TH ST @ I 294 TLWY WEST RAMP | CO | T-1A | ON |
| 647 | TS | 2570 | IL 50 CICERO AVE @ 151ST ST | CO | T-1A | ON |
| 648 | TS | 2575 | IL 50 CICERO AVE @ 155TH ST | CO | T-1A | ON |
| 649 | TS | 2580 | IL 50 CICERO AVE @ 167TH ST | CO | T-1A | ON |
| 650 | TS | 2585 | IL 50 CICERO AVE @ 183RD ST | CO | T-1A | ON |
| 651 | TS | 2590 | IL 50 CICERO AVE @ DEVON AVE | CO | T-1A | ON |
| 652 | TS | 2595 | IL 50 CICERO AVE @ FIELDCREST DR 166TH | CO | T-1A | ON |
| 653 | TS | 2600 | IL 50 CICERO AVE @ FLOSSMOOR RD | CO | T-1A | OFF |
| 654 | TS | 2605 | IL 50 CICERO AVE @ PRATT AVE | CO | T-1A | ON |
| 655 | TS | 2610 | IL 50 CICERO AVE @ ROOSEVELT RD | CO | T-1A | ON |

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|-----|----|------|---|----|------|-----|
| 656 | TS | 2620 | IL 50 CICERO AVE @ SOUTHWEST HWY | CO | T-1A | OFF |
| 657 | TS | 2625 | IL 50 CICERO AVE @ TOUHY AVE | CO | T-1A | ON |
| 658 | TS | 2630 | IL 50 CICERO AVE @ MATTESON TOWNCENTER MALL | CO | T-1A | OFF |
| 659 | TS | 2635 | IL 50 CICERO AVE @ VOLLMER RD | CO | T-1A | OFF |
| 660 | TS | 2640 | IL 50 IL 83 CICERO AVE @ IL 83 147TH SIBLEY BLVD | CO | T-1A | ON |
| 661 | TS | 2645 | IL 50 IL 83 CICERO AVE @ CAL SAG RD | CO | T-1A | OFF |
| 662 | TS | 2649 | IL 50 IL 83 CICERO AVE @ RIVERCREST DR MALL ENT | CO | T-1A | OFF |
| 663 | TS | 2650 | IL 50 IL 83 CICERO AVE @ 135TH ST | CO | T-1A | OFF |
| 664 | TS | 2655 | IL 50 IL 83 CICERO AVE @ MIDLOTHIAN TURNPIKE | CO | T-1A | OFF |
| 665 | TS | 2660 | IL 53 IL 68 DUNDEE RD @ WEST FRONTAGE RD | CO | T-1A | ON |
| 666 | TS | 2665 | IL 53 EAST RAMP @ IL 62 ALGONQUIN RD | CO | T-1A | ON |
| 667 | TS | 2670 | IL 53 WEST RAMP @ | CO | | ON |

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|-----|----|------|---|----|--|------|-----|
| | | | IL 62 ALGONQUIN RD | | | T-1A | |
| 668 | TS | 2677 | IL 53 HICKS RD @ LAKE COOK RD | CO | | T-1A | ON |
| 669 | TS | 2685 | IL 53 IL 68 DUNDEE RD @ BALDWIN | CO | | T-1A | ON |
| 670 | TS | 2687 | IL 68 DUNDEE RD @ PARK PLACE PLAZA | CO | | T-1A | ON |
| 671 | TS | 2690 | IL 56 BUTTERFIELD RD @ IL 56 WASHINGTON BLVD | CO | | T-1B | ON |
| 672 | TS | 2693 | IL 56 BUTTERFIELD RD @ DARMSTADT RD | CO | | T-1A | ON |
| 673 | TS | 2700 | IL 59 SUTTON RD @ IL 58 GOLF RD | CO | | T-1A | OFF |
| 674 | TS | 2705 | IL 58 GOLF RD @ IL 62 ALGONQUIN RD | CO | | T-1A | ON |
| 675 | TS | 2707 | IL 62 ALGONQUIN RD @ LOWES ENT | CO | | T-1A | ON |
| 676 | TS | 2708 | IL 62 ALGONQUIN RD @ MARKET PLACE | CO | | T-1A | ON |
| 677 | TS | 2710 | IL 58 GOLF RD @ IL 72 HIGGINS RD | CO | | T-1A | OFF |
| 678 | TS | 2715 | IL 58 GOLF RD @ IL 83 ELMHURST RD | CO | | T-1A | ON |

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|-----|----|------|--|----|------|-----|
| 679 | TS | 2720 | IL 58 GOLF RD @ ARLINGTON HEIGHTS RD | CO | T-1A | ON |
| 680 | TS | 2725 | IL 58 GOLF RD @ BARRINGTON RD | CO | T-1A | ON |
| 681 | TS | 2730 | IL 58 GOLF RD @ BARTLETT RD | CO | T-1A | ON |
| 682 | TS | 2735 | IL 58 DEMPSTER ST @ BRONX AVE | CO | T-1A | OFF |
| 683 | TS | 2740 | IL 58 GOLF RD @ BUSSE RD | CO | T-1A | ON |
| 684 | TS | 2745 | IL 58 DEMPSTER ST @ CTA SKOKIE SWIFT | CO | T-1A | OFF |
| 685 | TS | 2750 | IL 58 GOLF RD @ DEE RD | CO | T-1A | ON |
| 686 | TS | 2755 | IL 58 GOLF RD @ EAST RIVER RD BENDER RD | CO | T-1A | ON |
| 687 | TS | 2760 | IL 58 GOLF RD @ GANNON DR | CO | T-1A | ON |
| 688 | TS | 2765 | IL 58 GOLF RD @ GOEBBERT RD | CO | T-1A | ON |
| 689 | TS | 2767 | IL 58 GOLF RD @ INTERNATIONAL PLAZA ENT | CO | T-1A | ON |
| 690 | TS | 2770 | IL 58 GOLF RD @ GALLAGHER WAY | CO | T-1A | ON |

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|-----|----|------|---|----|------|-----|
| 691 | TS | 2775 | IL 58 GOLF RD @ GREENWOOD AVE | CO | T-1A | ON |
| 692 | TS | 2780 | IL 58 GOLF RD @ HARLEM AVE | CO | T-1A | ON |
| 693 | TS | 2785 | IL 58 GOLF RD @ 6TH AVE | CO | T-1A | ON |
| 694 | TS | 2790 | IL 58 GOLF RD @ HIGHLAND BLVD | CO | T-1A | ON |
| 695 | TS | 2795 | IL 58 GOLF RD @ JONES SALEM DR | CO | T-1A | ON |
| 696 | TS | 2800 | IL 58 GOLF RD @ KRAFT FOODS | CO | T-1A | ON |
| 697 | TS | 2805 | IL 58 DEMPSTER ST @ LOCKWOOD AVE | CO | T-1A | OFF |
| 698 | TS | 2810 | IL 58 GOLF RD @ MEACHAM RD | CO | T-1A | OFF |
| 699 | TS | 2815 | IL 58 GOLF RD @ WILKE RD | CO | T-1A | ON |
| 700 | TS | 2817 | IL 58 GOLF RD @ CONTINENTAL TOWERS WALMART | CO | T-1A | ON |
| 700 | TS | 2820 | IL 58 DEMPSTER @ NILES CENTER RD (SKOKIE BLD US 41) | CO | T-1A | OFF |
| 701 | TS | 2825 | IL 58 GOLF RD @ | CO | | ON |

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| | | | OAKTON COMMUNITY COLLEGE DR | | T-1A |
|-----|----|------|---|----|------|
| 702 | TS | 2830 | IL 58 GOLF RD @ PLUM GROVE RD | CO | OFF |
| | | | | | T-1A |
| 703 | TS | 2835 | IL 58 GOLF RD @ POTTER RD | CO | ON |
| | | | | | T-1A |
| 704 | TS | 2840 | IL 58 GOLF RD @ ROSELLE RD | CO | OFF |
| | | | | | T-1A |
| 705 | TS | 2845 | IL 58 GOLF RD @ SHERMER RD | CO | ON |
| | | | | | T-1A |
| 706 | TS | 2850 | IL 58 GOLF RD @ WASHINGTON ST | CO | ON |
| | | | | | T-1A |
| 707 | TS | 2855 | IL 58 GOLF RD @ WESTERN AVE | CO | ON |
| | | | | | T-1A |
| 708 | TS | 2860 | IL 58 GOLF RD @ RING RD APOLLO DR | CO | ON |
| | | | | | T-1A |
| 709 | TS | 2865 | IL 58 GOLF RD @ WOLF RD SEEGER RD | CO | ON |
| | | | | | T-1A |
| 710 | TS | 2870 | IL 58 GOLF RD @ MOON LAKE BLVD WALNUT LN | CO | ON |
| | | | | | T-1A |
| 711 | TS | 2875 | IL 58 GOLF RD @ MEIER RD | CO | ON |
| | | | | | T-1A |
| 712 | TS | 2880 | IL 58 GOLF RD @ VALLEY LAKE | CO | ON |
| | | | | | T-1A |

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| | | | | | | |
|-----|----|------|---|----|------|-----|
| 713 | TS | 2885 | IL 58 GOLF RD @ FOUR FLAGS SHOPPING CENTER | CO | | ON |
| | | | | | T-1A | |
| 714 | TS | 2890 | IL 68 59 HAWTHORNE RD SUTTON RD @ IL 68 DUNDEE RD | CO | | ON |
| | | | | | T-1A | |
| 715 | TS | 2892 | IL 59 SUTTON RD @ BARTLETT RD | CO | | ON |
| | | | | | T-1A | |
| 716 | TS | 2895 | IL 59 SUTTON RD @ IL 72 HIGGINS RD | CO | | OFF |
| | | | | | T-1A | |
| 717 | TS | 2897 | IL 59 NEW SUTTON RD @ PENNY RD | CO | | ON |
| | | | | | T-1A | |
| 718 | TS | 2899 | IL 59 @ ARBORETUM BLVD | CO | | OFF |
| | | | | | T-1A | |
| 719 | TS | 2900 | IL 59 HAWTHORNE RD @ HOUGH ST BARRINGTON RD | CO | | ON |
| | | | | | T-1A | |
| 720 | TS | 2905 | IL 59 HOUGH ST @ HILLSIDE AVE | CO | | ON |
| | | | | | T-1A | |
| 721 | TS | 2910 | IL 59 SUTTON RD @ SCHAUMBURG RD | CO | | OFF |
| | | | | | T-1A | |
| 722 | TS | 2915 | IL 59 IL 68 SUTTON RD DUNDEE RD @ IL 62 ALGONQUIN RD IL 68 DUNDEE RD | CO | | ON |
| | | | | | T-1A | |
| 723 | TS | 2920 | IL 62 68 ALGONQUIN RD DUNDEE RD @ IL 68 DUNDEE RD BRINKER RD | CO | | ON |
| | | | | | T-1A | |
| 724 | TS | 2922 | IL 62 ALGONQUIN RD @ PALATINE RD | CO | | ON |
| | | | | | T-1A | |

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| | | | | | | |
|-----|----|------|---|----|------|----|
| 725 | TS | 2925 | IL 62 ALGONQUIN RD @ IL 83 ELMHURST RD | CO | T-1A | ON |
| 726 | TS | 2930 | IL 62 ALGONQUIN RD @ ARBOR DR | CO | T-1A | ON |
| 727 | TS | 2935 | IL 62 ALGONQUIN RD @ ARLINGTON HEIGHTS RD | CO | T-1A | ON |
| 728 | TS | 2936 | IL 62 ALGONQUIN RD @ RESERVE DR | CO | T-1A | ON |
| 729 | TS | 2938 | I 90 N RAMP A ELK GROVE TWP DR @ ARLINGTON HEIGHTS RD | CO | T-1A | ON |
| 730 | TS | 2939 | I 90 SOUTH RAMP G CEMETARY LANE @ ARLINGTON HEIGHTS RD | CO | T-1A | ON |
| 731 | TS | 2940 | IL 62 ALGONQUIN RD @ BARRINGTON RD | CO | T-1A | ON |
| 732 | TS | 2945 | IL 62 ALGONQUIN RD @ BUSSE RD | CO | T-1A | ON |
| 733 | TS | 2950 | IL 62 ALGONQUIN RD @ DEMPSTER ST | CO | T-1A | ON |
| 734 | TS | 2955 | IL 62 ALGONQUIN RD @ ELA RD | CO | T-1A | ON |
| 735 | TS | 2957 | IL 62 ALGONQUIN RD @ WINSTON | CO | T-1A | ON |
| 736 | TS | 2960 | IL 62 ALGONQUIN RD @ | CO | | ON |

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| | | | HUNTINGTON BLVD | | T-1A |
|-----|----|------|--|----|------|
| 737 | TS | 2965 | IL 62 ALGONQUIN RD @ GOEBBERT RD | CO | OFF |
| | | | | | T-1A |
| 738 | TS | 2966 | IL 62 ALGONQUIN RD @ TONNE DR | CO | ON |
| | | | | | T-1A |
| 739 | TS | 2967 | IL 62 ALGONQUIN RD @ MEIJER DR | CO | ON |
| | | | | | T-1A |
| 740 | TS | 2970 | IL 62 ALGONQUIN RD @ HARPER COLLEGE | CO | OFF |
| | | | | | T-1A |
| 741 | TS | 2975 | IL 62 ALGONQUIN RD @ LINNEMAN RD | CO | ON |
| | | | | | T-1A |
| 742 | TS | 2980 | IL 62 ALGONQUIN RD @ MAGNOLIA COMMERCE RD | CO | ON |
| | | | | | T-1A |
| 743 | TS | 2985 | IL 62 ALGONQUIN RD @ NEW WILKE RD | CO | ON |
| | | | | | T-1A |
| 744 | TS | 2990 | IL 62 ALGONQUIN RD @ ROSELLE RD | CO | OFF |
| | | | | | T-1A |
| 745 | TS | 2995 | IL 64 NORTH AVE @ IL 171 1ST AVE | CO | ON |
| | | | | | T-1A |
| 746 | TS | 2997 | IL 171 1ST AVE @ STRIEBY DR | CO | ON |
| | | | | | T-1A |
| 747 | TS | 3000 | IL 64 NORTH AVE @ 5TH AVE | CO | ON |
| | | | | | T-1A |

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| | | | | | | |
|-----|----|------|---|----|------|-----|
| 748 | TS | 3005 | IL 64 NORTH AVE @ 7TH AVE | CO | T-1A | ON |
| 749 | TS | 3010 | IL 64 NORTH AVE @ 9TH AVE | CO | T-1A | ON |
| 750 | TS | 3015 | IL 64 NORTH AVE @ 19TH AVE BROADWAY | CO | T-1A | ON |
| 751 | TS | 3020 | IL 64 NORTH AVE @ 25TH AVE | CO | T-1A | OFF |
| 752 | TS | 3025 | IL 64 NORTH AVE @ 76TH AVE LATHROP AVE | CO | T-1A | ON |
| 753 | TS | 3030 | IL 64 NORTH AVE @ AUSTIN BLVD AVE | CO | T-1A | ON |
| 754 | TS | 3035 | IL 64 NORTH AVE @ CORNELL AVE 35TH | CO | T-1A | ON |
| 755 | TS | 3040 | IL 64 NORTH AVE @ GEORGE ST | CO | T-1A | ON |
| 756 | TS | 3045 | IL 64 NORTH AVE @ HAWTHORNE 32ND | CO | T-1A | ON |
| 757 | TS | 3050 | IL 64 NORTH AVE @ INDIAN BOUNDARY RD RUBY | CO | T-1A | OFF |
| 758 | TS | 3055 | IL 64 NORTH AVE @ NARRAGANSETT AVE EDMER AVE | CO | T-1A | ON |
| 759 | TS | 3060 | IL 64 NORTH AVE @ NATOMA AVE COLUMBIAN AVE | CO | T-1A | ON |

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| | | | | | | |
|-----|----|------|---|----|------|-----|
| 760 | TS | 3065 | IL 64 NORTH AVE @ NORTHWEST AVE | CO | T-1A | OFF |
| 761 | TS | 3067 | US 20 @ RAILROAD AVE | CO | T-1A | OFF |
| 762 | TS | 3070 | IL 64 NORTH AVE @ OAK PARK AVE | CO | T-1A | ON |
| 763 | TS | 3075 | IL 64 NORTH AVE @ RAILROAD AVE | CO | T-1A | OFF |
| 764 | TS | 3080 | IL 64 NORTH AVE @ RIDGELAND AVE MOBILE AVE | CO | T-1A | ON |
| 765 | TS | 3083 | IL 64 NORTH AVE @ ROY ST | CO | T-1A | ON |
| 766 | TS | 3085 | IL 64 NORTH AVE @ THATCHER AVE | CO | T-1A | ON |
| 767 | TS | 3090 | IL 64 NORTH AVE @ WOLF RD | CO | T-1A | ON |
| 768 | TS | 3095 | IL 68 DUNDEE RD @ IL 83 ELMHURST RD | CO | T-1A | ON |
| 769 | TS | 3100 | IL 68 DUNDEE RD @ ARLINGTON HEIGHTS RD | CO | T-1A | ON |
| 770 | TS | 3105 | IL 68 DUNDEE RD @ BARRINGTON RD | CO | T-1A | ON |
| 771 | TS | 3108 | IL 68 DUNDEE RD @ | CO | | ON |

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| | | | GROVE AVE | | T-1A |
|-----|----|------|--|----|------------|
| 772 | TS | 3110 | IL 68 DUNDEE RD @ BUFFALO GROVE RD | CO | ON T-1A |
| 773 | TS | 3112 | IL 68 DUNDEE RD @ BUFFALO GROVE HS ENT | CO | ON T-1A |
| 774 | TS | 3115 | IL 68 DUNDEE RD @ CHARLEMAGNE TORRE PINES | CO | ON T-1A |
| 775 | TS | 3120 | IL 68 DUNDEE RD @ HICKS RD | CO | ON T-1A |
| 776 | TS | 3122 | IL 68 DUNDEE RD @ DENISE DR DEERGROVE | CO | ON T-1A |
| 777 | TS | 3125 | IL 68 DUNDEE RD @ HUEHL RD | CO | ON T-1A |
| 778 | TS | 3130 | IL 68 DUNDEE RD @ KENNICOTT AVE | CO | ON T-1A |
| 779 | TS | 3135 | IL 68 DUNDEE RD @ LANDWEHR RD | CO | ON T-1A |
| 780 | TS | 3137 | IL 68 DUNDEE RD @ ANTHONY TRAIL | CO | ON T-1A |
| 781 | TS | 3140 | IL 68 DUNDEE RD @ MIDWAY RD | CO | ON T-1A |
| 782 | TS | 3145 | IL 68 DUNDEE RD @ OLD MCHENRY WHEELING RD | CO | ON T-1A |

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| | | | | | | |
|-----|----|------|---------------------------------------|----|------|-----|
| 783 | TS | 3150 | IL 68 DUNDEE RD @ RIDGE AVE | CO | T-1A | ON |
| 784 | TS | 3155 | IL 68 DUNDEE RD @ GOLFVIEW TERRACE | CO | T-1A | ON |
| 785 | TS | 3160 | IL 68 DUNDEE RD @ PFINGSTEN RD | CO | T-1A | ON |
| 786 | TS | 3165 | IL 68 DUNDEE RD @ QUENTIN RD | CO | T-1A | ON |
| 787 | TS | 3168 | IL 68 DUNDEE RD @ STERLING AVE | CO | T-1A | ON |
| 788 | TS | 3170 | IL 68 DUNDEE RD @ SANDERS RD | CO | T-1A | ON |
| 789 | TS | 3175 | IL 68 DUNDEE RD @ SCHOENBECK RD | CO | T-1A | ON |
| 790 | TS | 3180 | IL 68 DUNDEE RD @ SHERMER RD | CO | T-1A | ON |
| 791 | TS | 3185 | IL 68 DUNDEE RD @ SKOKIE BLVD | CO | T-1A | ON |
| 792 | TS | 3190 | IL 68 DUNDEE RD @ SMITH RD | CO | T-1A | OFF |
| 793 | TS | 3195 | IL 68 DUNDEE RD @ WESTERN AVE | CO | T-1A | ON |
| 794 | TS | 3200 | IL 68 DUNDEE RD @ WOLF RD | CO | T-1A | ON |

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|-----|----|------|---|----|------|-----|
| 795 | TS | 3201 | IL 58 SUMMIT ST @ SHADY OAKS DR | CO | T-1A | ON |
| 796 | TS | 3204 | IL 68 DUNDEE RD @ PORTWINE RD | CO | T-1A | ON |
| 797 | TS | 3205 | IL 68 DUNDEE RD @ N WILKE RD EAST FRONTAGE RD | CO | T-1A | ON |
| 798 | TS | 3210 | IL 68 DUNDEE RD @ WEIDNER RD CROFTON LN | CO | T-1A | ON |
| 799 | TS | 3213 | IL 68 DUNDEE RD @ BUFFALO GROVE FIRE HOUSE ENT | CO | T-1A | ON |
| 800 | TS | 3215 | IL 72 HIGGINS RD @ LANDMEIER RD | CO | T-1A | ON |
| 801 | TS | 3220 | IL 72 HIGGINS RD @ MALL DR | CO | T-1A | OFF |
| 802 | TS | 3225 | IL 72 HIGGINS RD @ MARTINGALE RD | CO | T-1A | OFF |
| 803 | TS | 3230 | IL 72 HIGGINS RD @ MEACHAM RD | CO | T-1A | OFF |
| 804 | TS | 3235 | IL 72 TOUHY AVE @ MT PROSPECT RD | CO | T-1A | ON |
| 805 | TS | 3240 | IL 72 HIGGINS RD @ OAKTON ST WEST | CO | T-1A | ON |
| 806 | TS | 3245 | IL 72 HIGGINS RD @ PLUM GROVE RD | CO | T-1A | OFF |

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|-----|----|------|---|----|------|-----|
| 807 | TS | 3250 | IL 72 HIGGINS RD @ ROSELLE RD | CO | T-1A | OFF |
| 808 | TS | 3251 | IL 72 HIGGINS RD @ ASH ST | CO | T-1A | OFF |
| 809 | TS | 3255 | IL 72 HIGGINS RD @ SALEM DR | CO | T-1A | ON |
| 810 | TS | 3260 | IL 72 TOUHY AVE @ WOLF RD | CO | T-1A | ON |
| 811 | TS | 3262 | IL 72 HIGGINS RD @ I 90 TLWY WB EXT RAMP | CO | T-1A | ON |
| 812 | TS | 3265 | IL 72 HIGGINS RD @ OHARE PLAZA ENT 2 | CO | T-1A | ON |
| 813 | TS | 3270 | IL 72 TOUHY AVE @ IL 72 LEE ST | CO | T-1A | ON |
| 814 | TS | 3275 | IL 72 HIGGINS RD @ IL 72 IL 83 OAKTON EAST | CO | T-1A | ON |
| 815 | TS | 3280 | BUSSE HWY @ OAKTON ST DEE RD | CO | T-1A | ON |
| 816 | TS | 3285 | IL 72 HIGGINS RD @ ARLINGTON HEIGHTS RD | CO | T-1A | ON |
| 817 | TS | 3290 | IL 72 HIGGINS RD @ BARRINGTON RD | CO | T-1A | OFF |
| 818 | TS | 3295 | IL 72 HIGGINS RD @ | CO | | OFF |

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| | | | BARTLETT RD | | T-1A |
|-----|----|------|---|----|-------------|
| 819 | TS | 3297 | IL 72 HIGGINS RD @ ARBORETUM BLVD | CO | OFF T-1A |
| 820 | TS | 3300 | IL 72 HIGGINS RD @ CANFIELD RD | CO | ON T-1A |
| 821 | TS | 3305 | IL 72 HIGGINS RD @ IL 171 CUMBERLAND | CO | ON T-1A |
| 822 | TS | 3307 | IL 72 HIGGINS RD @ MARRIOTT HOTEL ENT | CO | ON T-1A |
| 823 | TS | 3310 | IL 72 HIGGINS RD @ DEE EAST RIVER RD | CO | OFF T-1A |
| 824 | TS | 3315 | IL 72 HIGGINS RD TOUHY AVE @ ELMHURST RD | CO | ON T-1A |
| 825 | TS | 3318 | ELMHURST RD @ LANDMEIER RD | CO | ON T-1A |
| 826 | TS | 3319 | ELMHURST RD @ I 90 DDI | CO | ON T-1A |
| 827 | TS | 3320 | IL 72 HIGGINS RD @ PATTON DR | CO | ON T-1B |
| 828 | TS | 3325 | IL 72 HIGGINS RD @ GANNON DR | CO | OFF T-1A |
| 829 | TS | 3330 | IL 72 HIGGINS RD @ GOVERNORS LN MOON LAKE BLVD | CO | ON T-1A |

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|-----|----|------|---|----|------|-----|
| 830 | TS | 3335 | IL 72 HIGGINS RD @ KING ST INNOVATION DR | CO | T-1A | ON |
| 831 | TS | 3340 | IL 72 HIGGINS RD @ BEVERLY RD | CO | T-1A | OFF |
| 832 | TS | 3345 | IL 83 TORRENCE AVE @ IL 83 GLENWOOD DYER RD | CO | T-1A | ON |
| 833 | TS | 3350 | IL 83 ELMHURST RD @ IL 83 OAKTON ST | CO | T-1A | ON |
| 834 | TS | 3355 | IL 83 ELMHURST RD @ IL 83 OLD MCHENRY | CO | T-1A | ON |
| 835 | TS | 3360 | IL 83 CAL SAG RD @ 104TH AVE | CO | T-1A | ON |
| 836 | TS | 3365 | IL 83 IL 171 KINGERY HWY @ IL 171 ARCHER AVE 107TH ST GRANT RD | CO | T-1A | ON |
| 837 | TS | 3370 | IL 83 IL 171 S CAL SAG SOUTH @ 111TH ST | CO | T-1A | OFF |
| 838 | TS | 3375 | IL 83 CAL SAG RD @ 127TH ST | CO | T-1A | ON |
| 839 | TS | 3380 | IL 83 TORRENCE AVE @ 186TH ST | CO | T-1A | ON |
| 840 | TS | 3385 | IL 83 SIBLEY BLVD 147TH ST @ VINCENNES RD BROADWAY AVE | CO | T-1A | ON |
| 841 | TS | 3390 | IL 83 ELMHURST RD @ CAMP MCDONALD RD | CO | T-1A | ON |

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|-----|----|------|--|----|------|-----|
| 842 | TS | 3395 | IL 83 SIBLEY BLVD 147TH ST @ DR ML KING DR CHICAGO RD | CO | T-1A | OFF |
| 843 | TS | 3400 | IL 83 SIBLEY BLVD 147TH ST @ CRAWFORD AVE PULASKI RD | CO | T-1A | ON |
| 844 | TS | 3405 | IL 83 ELMHURST RD @ DEMPSTER ST THACKER ST | CO | T-1A | ON |
| 845 | TS | 3410 | IL 83 BUSSE RD @ DEVON AVE | CO | T-1A | ON |
| 846 | TS | 3415 | IL 83 SIBLEY 147TH ST WESTERN AVE @ DIXIE HWY | CO | T-1A | ON |
| 847 | TS | 3420 | IL 83 ELMHURST RD @ EUCLID AVE | CO | T-1A | ON |
| 848 | TS | 3425 | IL 83 BUSSE RD @ GREENLEAF AVE | CO | T-1A | ON |
| 849 | TS | 3430 | IL 83 ELMHURST RD @ HINTZ RD | CO | T-1A | ON |
| 850 | TS | 3435 | IL 83 SIBLEY BLVD 147TH ST @ HOMAN AVE | CO | T-1A | ON |
| 851 | TS | 3440 | IL 83 SIBLEY BLVD 147TH ST @ INDIANA AVE | CO | T-1A | OFF |
| 852 | TS | 3445 | IL 83 SIBLEY BLVD 147TH ST @ KEELER AVE | CO | T-1A | ON |
| 853 | TS | 3450 | IL 83 SIBLEY BLVD 147TH ST @ | CO | | ON |

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| | | | KEDZIE AVE | | T-1A |
|-----|----|------|--|----|------|
| 854 | TS | 3455 | IL 83 SIBLEY BLVD 147TH ST @ KILBOURN AVE | CO | ON |
| | | | | | T-1A |
| 855 | TS | 3460 | IL 83 BUSSE RD @ LANDMEIER RD | CO | ON |
| | | | | | T-1A |
| 856 | TS | 3465 | IL 83 SIBLEY BLVD 147TH ST @ LASALLE ST MARKHAM DR | CO | OFF |
| | | | | | T-1A |
| 857 | TS | 3470 | IL 83 SIBLEY BLVD 147TH ST @ LOOMIS ST | CO | OFF |
| | | | | | T-1A |
| 858 | TS | 3475 | IL 83 SIBLEY BLVD 147TH ST @ MICHIGAN CITY RD LINCOLN AVE | CO | OFF |
| | | | | | T-1A |
| 859 | TS | 3480 | IL 83 TORRENCE AVE @ MICHIGAN CITY RD | CO | ON |
| | | | | | T-1A |
| 860 | TS | 3485 | IL 83 ELMHURST RD @ PALATINE RD | CO | ON |
| | | | | | T-1A |
| 861 | TS | 3490 | IL 83 BUSSE RD @ PRATT BLVD | CO | ON |
| | | | | | T-1A |
| 862 | TS | 3495 | IL 83 TORRENCE AVE @ RIDGE RD | CO | ON |
| | | | | | T-1A |
| 863 | TS | 3500 | IL 83 ELMHURST RD @ RANDHURST SHOPPING CENTER | CO | ON |
| | | | | | T-1A |
| 864 | TS | 3502 | KENSINGTON RD @ RANDHURST MALL PERIMETER DRIVE | CO | ON |
| | | | | | T-1A |

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| | | | | | | |
|-----|----|------|--|----|------|-----|
| 865 | TS | 3505 | IL 83 CAL SAG RD @ RIDGELAND AVE | CO | T-1A | ON |
| 866 | TS | 3510 | IL 83 SIBLEY BLVD 147TH ST @ ROBEY AVE | CO | T-1A | OFF |
| 867 | TS | 3515 | IL 83 TORRENCE AVE @ THORNTON LANSING RD | CO | T-1A | ON |
| 868 | TS | 3519 | THORTON LANSING RD @ STONY ISLAND VOLLBRECHT RD | CO | T-1A | ON |
| 869 | TS | 3520 | IL 83 SIBLEY BLVD 147TH ST @ WOOD ST | CO | T-1A | OFF |
| 870 | TS | 3525 | IL 83 SIBLEY BLVD 147TH ST @ WALLACE ST | CO | T-1A | OFF |
| 871 | TS | 3530 | IL 83 CAL SAG RD @ 119TH ST | CO | T-1A | ON |
| 872 | TS | 3532 | IL 83 CAL SAG RD @ 76TH AVE | CO | T-1A | ON |
| 873 | TS | 3535 | IL 83 ELMHURST RD @ HUNTINGTON COMMONS | CO | T-1A | ON |
| 874 | TS | 3540 | IL 83 ELMHURST RD @ WILLOW RD | CO | T-1A | ON |
| 875 | TS | 3545 | IL 171 ARCHER AVE @ 63RD ST | CO | T-1A | ON |
| 876 | TS | 3550 | IL 171 1ST AVE FRONTAGE @ JOLIET RD | CO | T-1A | ON |

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| | | | | | | |
|-----|----|------|--|----|------|-----|
| 877 | TS | 3555 | IL 171 ARCHER AVE @ 55TH ST | CO | T-1A | ON |
| 878 | TS | 3557 | IL 171 ARCHER AVE @ 59TH ST | CO | T-1A | ON |
| 879 | TS | 3560 | IL 171 ARCHER AVE @ ROBERTS RD | CO | T-1A | ON |
| 880 | TS | 3565 | IL 171 ARCHER AVE @ STATE ST | CO | T-1A | ON |
| 881 | TS | 3566 | IL 171 ARCHER AVE @ 135TH ST | CO | T-1A | ON |
| 882 | TS | 3567 | IL 171 ARCHER AVE @ TARGET HOME GOODS ENT | CO | T-1A | ON |
| 883 | TS | 3570 | IL 171 ARCHER AVE @ WILLOW SPRINGS RD | CO | T-1A | ON |
| 884 | TS | 3572 | IL 171 ARCHER AVE @ NOLTON | CO | T-1A | ON |
| 885 | TS | 3573 | WILLOW SPRINGS RD @ GERMAN CHURCH RD | CO | T-1A | OFF |
| 886 | TS | 3575 | IL 171 1ST AVE EAST RAMPS @ 47TH ST | CO | T-1A | ON |
| 887 | TS | 3580 | IL 394 CALUMET EXPY @ STEGER RD 231ST ST | CO | T-1A | ON |
| 888 | TS | 3585 | IL 171 1ST AVE @ | CO | | ON |

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| | | | 26TH ST | | T-1A |
|-----|----|------|---|----|------------|
| 889 | TS | 3590 | IL 171 1ST AVE @ 31ST ST | CO | ON T-1A |
| 890 | TS | 3595 | IL 171 1ST AVE @ 31ST ST CUTOFF GOLFOVIEW | CO | ON T-1A |
| 891 | TS | 3600 | IL 171 1ST AVE @ CERMAK RD | CO | ON T-1A |
| 892 | TS | 3605 | IL 171 1ST AVE @ CERMAK CUT OFF | CO | ON T-1A |
| 893 | TS | 3610 | IL 171 1ST AVE @ CHICAGO AVE | CO | ON T-1A |
| 894 | TS | 3615 | IL 171 1ST AVE @ DESPLAINES RIVER RD | CO | ON T-1A |
| 895 | TS | 3620 | IL 171 1ST AVE @ FOREST AVE RIDGEWOOD RD | CO | ON T-1A |
| 896 | TS | 3625 | IL 171 1ST AVE @ FULLERTON AVE | CO | ON T-1A |
| 897 | TS | 3630 | IL 171 1ST AVE @ LAKE ST | CO | ON T-1A |
| 898 | TS | 3635 | IL 171 1ST AVE @ 13TH ST LOYOLA MEDICINE ENT | CO | ON T-1A |
| 899 | TS | 3640 | IL 171 1ST AVE @ MADISON ST | CO | ON T-1A |

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| | | | | | | |
|-----|----|------|---|----|------|----|
| 900 | TS | 3645 | IL 171 1ST AVE @ MAYBROOK DR | CO | T-1A | ON |
| 901 | TS | 3650 | IL 171 1ST AVE @ ROOSEVELT RD | CO | T-1A | ON |
| 902 | TS | 3656 | IL 171 1ST AVE @ WARREN ST | CO | T-1A | ON |
| 903 | TS | 3660 | IL 171 1ST AVE @ THATCHER RD CUT OFF | CO | T-1A | ON |
| 904 | TS | 3665 | IL 171 1ST AVE @ VAN BUREN ST COM ED ENT | CO | T-1A | ON |
| 905 | TS | 3670 | IL 171 1ST AVE @ WASHINGTON BLVD | CO | T-1A | ON |
| 906 | TS | 3675 | IL 171 1ST AVE @ 17TH ST LOYOLA HOSPITAL ENT | CO | T-1A | ON |
| 907 | TS | 3680 | 5TH AVE @ DESPLAINES RIVER RD | CO | T-1A | ON |
| 908 | TS | 3685 | 5TH AVE @ TRITON COLLEGE NORTH ENTRANCE | CO | T-1A | ON |
| 909 | TS | 3690 | 5TH AVE @ TRITON COLLEGE SOUTH ENTRANCE | CO | T-1A | ON |
| 910 | TS | 3691 | 31ST ST @ PRAIRIE AVE | CO | T-1A | ON |
| 911 | TS | 3693 | 30TH ST @ MAPLE AVE | CO | T-1A | ON |

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| | | | | | | |
|-----|----|------|------------------------------------|----|------|-----|
| 912 | TS | 3695 | 31ST ST @ 17TH AVE MAPLE | CO | T-1A | ON |
| 913 | TS | 3700 | 22ND ST CERMAK RD @ 17TH AVE | CO | T-1A | OFF |
| 914 | TS | 3701 | 22ND ST CERMAK RD @ 12TH AVE | CO | T-1A | ON |
| 915 | TS | 3705 | 17TH AVE @ ROOSEVELT RD | CO | T-1A | OFF |
| 916 | TS | 3715 | 25TH ST @ LAKE ST | CO | T-1A | ON |
| 917 | TS | 3720 | 25TH AVE @ LEXINGTON DR | CO | T-1A | ON |
| 918 | TS | 3725 | ROOSEVELT RD @ 25TH AVE | CO | T-1A | OFF |
| 919 | TS | 3735 | 26TH ST @ DESPLAINES AVE | CO | T-1A | ON |
| 920 | TS | 3740 | 26TH ST @ EAST END AVE | CO | T-1A | ON |
| 921 | TS | 3745 | 26TH ST @ HIGHLAND BLVD | CO | T-1A | ON |
| 922 | TS | 3750 | 26TH ST @ NORTH RIVERSIDE PLAZA | CO | T-1A | ON |
| 923 | TS | 3755 | 26TH ST @ | CO | | ON |

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|-----|----|------|---|----|--|------|-----|
| | | | RIDGELAND AVE | | | T-1A | |
| 924 | TS | 3760 | 31ST ST @ DESPLAINES AVE | CO | | T-1A | ON |
| 925 | TS | 3765 | 31ST ST @ GOLFVIEW AVE CUTOFF IL 171 1ST AVE | CO | | T-1A | ON |
| 926 | TS | 3770 | 31ST ST @ KEMMAN AVE GRAND BLVD | CO | | T-1A | ON |
| 927 | TS | 3775 | 31ST ST @ WOLF RD | CO | | T-1A | ON |
| 928 | TS | 3780 | 39TH ST PERSHING RD @ CENTRAL AVE | CO | | T-1A | OFF |
| 929 | TS | 3785 | 39TH ST PERSHING RD @ LARAMIE AVE | CO | | T-1A | OFF |
| 930 | TS | 3790 | 39TH ST PERSHING RD @ OAK PARK AVE | CO | | T-1A | ON |
| 931 | TS | 3795 | 39TH ST PERSHING RD @ RIDGELAND AVE | CO | | T-1A | ON |
| 932 | TS | 3800 | 39TH ST PERSHING RD @ AUSTIN BLVD | CO | | T-1A | OFF |
| 933 | TS | 3805 | CENTRAL AVE @ 47TH ST | CO | | T-1A | ON |
| 934 | TS | 3810 | 47TH ST @ JOLIET RD | CO | | T-1A | ON |

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| | | | | | | |
|-----|----|------|--------------------------------|----|------|-----|
| 935 | TS | 3815 | 47TH ST @ LAWNDALE | CO | T-1A | ON |
| 936 | TS | 3820 | 47TH ST @ PLAINFIELD RD | CO | T-1A | ON |
| 937 | TS | 3825 | 47TH ST @ WOLF RD | CO | T-1A | OFF |
| 938 | TS | 3830 | 55TH ST @ BRAINARD AVE | CO | T-1A | OFF |
| 939 | TS | 3835 | CENTER AVE @ ARCHER AVE | CO | T-1A | ON |
| 940 | TS | 3840 | 55TH ST @ COUNTY LINE RD | DU | T-1A | ON |
| 941 | TS | 3845 | 55TH ST @ EAST AVE | CO | T-1A | OFF |
| 942 | TS | 3850 | 55TH ST @ JOLIET RD | CO | T-1A | ON |
| 943 | TS | 3855 | 55TH ST @ PLAINFIELD RD | CO | T-1A | OFF |
| 944 | TS | 3860 | 55TH ST @ WILLOW SPRINGS RD | CO | T-1A | OFF |
| 945 | TS | 3865 | 55TH ST @ WOLF RD | CO | T-1A | OFF |
| 946 | TS | 3870 | 55TH ST @ LAUREL AVE | CO | T-1A | OFF |

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| | | | | | | |
|-----|----|------|--|----|------|----|
| 947 | TS | 3875 | 79TH ST @ AUSTIN AVE | CO | T-1A | ON |
| 948 | TS | 3880 | 79TH ST @ CENTRAL AVE | CO | T-1A | ON |
| 949 | TS | 3885 | 79TH ST @ NARRAGANSETT AVE | CO | T-1A | ON |
| 950 | TS | 3890 | 79TH ST @ ROBERTS RD | CO | T-1A | ON |
| 951 | TS | 3893 | 79TH ST @ WILLOW SPRINGS RD | CO | T-1A | ON |
| 952 | TS | 3895 | 79TH ST @ SAYRE AVE | CO | T-1A | ON |
| 953 | TS | 3900 | 79TH ST @ STATE RD | CO | T-1A | ON |
| 954 | TS | 3910 | 87TH ST @ KEDZIE AVE | CO | T-1A | ON |
| 955 | TS | 3915 | 87TH ST @ KOSTNER AVE | CO | T-1A | ON |
| 956 | TS | 3920 | CRAWFORD AVE PULASKI RD @ SOUTHWEST HWY COLUMBUS 87TH | CO | T-1A | ON |
| 957 | TS | 3925 | PULASKI RD CRAWFORD AVE @ 103RD ST | CO | T-1A | ON |
| 958 | TS | 3930 | 103RD ST @ | CO | | ON |

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| | | | KEDZIE | | T-1A |
|-----|----|------|--|----|-------------|
| 959 | TS | 3935 | SOUTHWEST HWY @ 103RD ST VIRGINIA AVE | CO | ON T-1A |
| 960 | TS | 3936 | CRAWFORD AVE PULASKI RD @ 123RD ST | CO | ON T-1A |
| 961 | TS | 3940 | 111TH ST @ 86TH AVE | CO | ON T-1A |
| 962 | TS | 3942 | 111TH ST @ POSSUM DR COLLEGE PKWY | CO | ON T-1A |
| 963 | TS | 3945 | 111TH ST @ CENTRAL AVE | CO | ON T-1A |
| 964 | TS | 3950 | 111TH ST @ RIDGELAND AVE | CO | ON T-1A |
| 965 | TS | 3955 | 111TH ST @ ROBERTS RD | CO | ON T-1A |
| 966 | TS | 3960 | CRAWFORD AVE PULASKI RD @ 115TH ST | CO | ON T-1A |
| 967 | TS | 3965 | 115TH ST @ KEDZIE AVE | CO | ON T-1A |
| 968 | TS | 3970 | 119TH ST @ VINCENNES AVE RD | CO | ON T-1A |
| 969 | TS | 3972 | 119TH @ PAGE ST | CO | OFF T-1B |

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| | | | | | | |
|-----|----|------|---------------------------------------|----|------|-----|
| 970 | TS | 3975 | 127TH ST @ 76TH AVE | CO | T-1A | ON |
| 971 | TS | 3980 | 127TH ST @ ASHLAND AVE | CO | T-1A | ON |
| 972 | TS | 3985 | 127TH ST @ CENTRAL AVE | CO | T-1A | ON |
| 973 | TS | 3990 | CRAWFORD AVE PULASKI RD @ 127TH ST | CO | T-1A | ON |
| 974 | TS | 3995 | KEDZIE AVE @ 127TH ST | CO | T-1A | ON |
| 975 | TS | 4000 | 127TH ST @ RIDGELAND AVE | CO | T-1A | ON |
| 976 | TS | 4005 | 127TH ST @ THROOP ST | CO | T-1A | OFF |
| 977 | TS | 4010 | 127TH ST @ WOOD ST | CO | T-1A | ON |
| 978 | TS | 4015 | 127TH ST @ BISHOP ST | CO | T-1A | ON |
| 979 | TS | 4030 | 135TH ST @ LONG AVE | CO | T-1A | ON |
| 980 | TS | 4035 | 135TH ST @ RIDGELAND AVE | CO | T-1A | ON |
| 981 | TS | 4040 | 135TH ST @ CENTRAL AVE | CO | T-1B | ON |

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| | | | | | | |
|-----|----|------|--|----|------|-----|
| 982 | TS | 4045 | 138TH ST @ ASHLAND WOOD | CO | T-1A | OFF |
| 983 | TS | 4050 | 142ND ST MAIN ST @ DR ML KING DR CHICAGO RD | CO | T-1A | ON |
| 984 | TS | 4055 | 142ND ST MAIN @ INDIANA | CO | T-1A | ON |
| 985 | TS | 4060 | 142ND ST MAIN ST @ LINCOLN AVE | CO | T-1A | ON |
| 986 | TS | 4075 | 147TH ST @ CENTRAL AVE | CO | T-1A | ON |
| 987 | TS | 4076 | 147TH ST @ RIDGELAND AVE | CO | T-1A | ON |
| 988 | TS | 4080 | 154TH ST @ CHICAGO SOUTH PARK | CO | T-1A | ON |
| 989 | TS | 4085 | 167TH ST @ WOOD ST | CO | T-1A | ON |
| 990 | TS | 4090 | DIXIE HWY @ GOVERNORS HWY 175TH ST | CO | T-1A | ON |
| 991 | TS | 4092 | GOVERNORS HWY @ CHEKER SQUARE METRA PARKING ENT | CO | T-1A | ON |
| 992 | TS | 4095 | PULASKI RD CRAWFORD AVE @ 183RD ST | CO | T-1A | OFF |
| 993 | TS | 4108 | 183RD ST @ | CO | | ON |

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| | | | | | | | |
|------|----|------|--|----|--|------|----|
| | | | RIDGELAND AVE | | | T-1A | |
| 994 | TS | 4110 | 183RD ST @ RIEGAL RD | CO | | T-1A | ON |
| 995 | TS | 4115 | IL 171 CUMBERLAND AVE @ ADDISON | CO | | T-1A | ON |
| 996 | TS | 4120 | ALGONQUIN RD @ MT PROSPECT RD | CO | | T-1A | ON |
| 997 | TS | 4125 | ALGONQUIN RD RIVERSIDE DR @ OAKTON ST | CO | | T-1A | ON |
| 998 | TS | 4130 | ALGONQUIN RD @ WOLF RD | CO | | T-1A | ON |
| 999 | TS | 4135 | ASHLAND AVE @ BROADWAY ST | CO | | T-1A | ON |
| 1000 | TS | 4140 | ASHLAND AVE @ VERMONT AVE | CO | | T-1A | ON |
| 1001 | TS | 4145 | BALLARD RD @ DEE RD | CO | | T-1A | ON |
| 1002 | TS | 4146 | BALLARD RD @ NESSET DR | CO | | T-1A | ON |
| 1003 | TS | 4150 | BALLARD RD @ GREENWOOD | CO | | T-1A | ON |
| 1004 | TS | 4155 | BALLARD RD @ POTTER | CO | | T-1A | ON |

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|------|----|------|---|----|------|-----|
| 1005 | TS | 4160 | BALLARD RD @ RAND RD | CO | T-1A | ON |
| 1006 | TS | 4165 | BARRINGTON RD @ BOURBON PKWY WEATHERSFIELD WAY | CO | T-1A | ON |
| 1007 | TS | 4170 | BARRINGTON RD @ BODE RD | CO | T-1A | ON |
| 1008 | TS | 4175 | BARRINGTON RD @ HASSELL RD | CO | T-1A | OFF |
| 1009 | TS | 4176 | BARRINGTON RD @ CENTRAL RD | CO | T-1A | OFF |
| 1010 | TS | 4178 | I 90 TOLLWAY @ BARRINGTON RD | CO | T-1A | OFF |
| 1011 | TS | 4180 | BARRINGTON RD @ SCHAUMBURG RD | CO | T-1A | ON |
| 1012 | TS | 4182 | BARRINGTON RD @ HOLMES WAY | CO | T-1A | OFF |
| 1013 | TS | 4185 | BARRINGTON RD @ MUNDHANK RD | CO | T-1A | OFF |
| 1014 | TS | 4188 | BARRINGTON RD @ TENNIS CLUB LN LAKEWOOD BLVD | CO | T-1A | OFF |
| 1015 | TS | 4190 | BELMONT AVE @ 80TH AVE PACIFIC AVE | CO | T-1A | ON |
| 1016 | TS | 4200 | IL 171 CUMBERLAND AVE @ BELMONT | CO | T-1A | ON |

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|------|----|------|---|----|------|-----|
| 1017 | TS | 4203 | IL 171 CUMBERLAND AVE @ THATCHER WOODS SHOPPING CNTR | CO | T-1A | ON |
| 1018 | TS | 4204 | BELMONT AVE @ PLAINFIELD AVE | CO | T-1A | ON |
| 1019 | TS | 4205 | BELMONT AVE @ DESPLAINES RIVER RD | CO | T-1A | ON |
| 1020 | TS | 4207 | ROBINSON RD @ DESPLAINES RIVER RD | CO | T-1A | OFF |
| 1021 | TS | 4210 | BELMONT AVE @ FOREST PRESERVE DR | CO | T-1A | ON |
| 1022 | TS | 4215 | BELMONT AVE @ 77TH AVE OVERHILL AVE | CO | T-1A | ON |
| 1023 | TS | 4220 | BRAINARD AVE @ BURNHAM AVE | CO | T-1A | ON |
| 1024 | TS | 4225 | JOE ORR RD @ CHICAGO RD BROADWAY | CO | T-1A | ON |
| 1025 | TS | 4230 | BURNHAM AVE @ 170TH ST | CO | T-1A | ON |
| 1026 | TS | 4235 | BURNHAM AVE @ RIDGE RD | CO | T-1A | ON |
| 1027 | TS | 4240 | BURNHAM AVE @ RIVER OAKS DR | CO | T-1A | ON |
| 1028 | TS | 4245 | BUSSE RD @ | CO | | ON |

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|------|----|------|--|----|--|------|-----|
| | | | POTTER RD | | | T-1A | |
| 1029 | TS | 4250 | BUSSE RD @ DEMPSTER ST | CO | | T-1A | ON |
| 1030 | TS | 4255 | CANFIELD @ DEVON | CO | | T-1A | ON |
| 1031 | TS | 4260 | CANFIELD @ TALCOTT | CO | | T-1A | ON |
| 1032 | TS | 4270 | CRAWFORD AVE PULASKI RD @ 111TH ST | CO | | T-1A | ON |
| 1033 | TS | 4280 | IL 43 HARLEM AVE @ 143RD ST | CO | | T-1A | ON |
| 1034 | TS | 4285 | IL 43 HARLEM AVE @ FOSTER AVE SHOPPING CENTER ENT | CO | | T-1A | ON |
| 1035 | TS | 4290 | US 30 PLAINFIELD RD @ LARKIN AVE | WI | | T-1A | ON |
| 1036 | TS | 4295 | IL 7 LARKIN AVE @ IL 7 THEODORE AVE | WI | | T-1A | OFF |
| 1037 | TS | 4305 | IL 25 KENNEDY DR @ GOLFVIEW LN MALL DR | KA | | T-1A | ON |
| 1038 | TS | 4310 | IL 25 KENNEDY DR @ KINGS RD | KA | | T-1A | ON |
| 1039 | TS | 4315 | IL 25 KENNEDY DR @ BESINGER DR | KA | | T-1A | ON |

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|------|----|------|--|----|------|----|
| 1040 | TS | 4320 | IL 25 KENNEDY DR @ HELM RD | KA | | ON |
| | | | | | T-1A | |
| 1041 | TS | 4325 | IL 25 KENNEDY DR @ ROBIN RD | KA | | ON |
| | | | | | T-1A | |
| 1042 | TS | 4330 | IL 31 STATE ST @ NATIONWIDE LOANS ENT SKF ENT | KA | | ON |
| | | | | | T-1A | |
| 1043 | TS | 4375 | JOE ORR RD @ ASHLAND AVE | CO | | ON |
| | | | | | T-1A | |
| 1044 | TS | 4390 | IL 25 KENNEDY DR @ LAKE MARION RD HAZARD RD | KA | | ON |
| | | | | | T-1A | |
| 1045 | TS | 4410 | BURNHAM AVE @ MEMORIAL DR 152ND ST | CO | | ON |
| | | | | | T-1A | |
| 1046 | TS | 4415 | BURNHAM AVE @ 156TH ST | CO | | ON |
| | | | | | T-1A | |
| 1047 | TS | 4425 | BURNHAM AVE @ MICHIGAN CITY RD | CO | | ON |
| | | | | | T-1A | |
| 1048 | TS | 4430 | BURNHAM AVE @ 154TH ST PULASKI RD | CO | | ON |
| | | | | | T-1A | |
| 1049 | TS | 4435 | SIBLEY BLVD @ BURNHAM RD | CO | | ON |
| | | | | | T-1A | |
| 1050 | TS | 4457 | IL 25 @ BARTLETT RD W MIDDLE ST | KA | | ON |
| | | | | | T-1A | |
| 1051 | TS | 4458 | IL 25 @ KENYON RD | KA | | ON |
| | | | | | T-1A | |

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|------|----|------|---|----|------|-----|
| 1052 | TS | 4595 | US 20 LAKE ST @ FAIRFIELD WAY | DU | | ON |
| | | | | | T-1A | |
| 1053 | TS | 4600 | US 20 LAKE ST @ BLOOMINGDALE RD | DU | | OFF |
| | | | | | T-1A | |
| 1054 | TS | 4605 | US 20 LAKE ST @ CIRCLE AVE | DU | | ON |
| | | | | | T-1A | |
| 1055 | TS | 4610 | US 20 LAKE ST @ SPRINGBROOK CENTER ENT | DU | | ON |
| | | | | | T-1A | |
| 1056 | TS | 4640 | IL 31 LINCOLN HWY @ MAIN ST | KA | | ON |
| | | | | | T-1A | |
| 1057 | TS | 4642 | IL 31 LINCOLNWAY ST @ MOOSEHEART RD | KA | | ON |
| | | | | | T-1A | |
| 1058 | TS | 4645 | IL 31 BATAVIA AVE @ WILSON AVE | KA | | ON |
| | | | | | T-1A | |
| 1059 | TS | 4660 | IL 59 @ BARTLETT RD W | CO | | OFF |
| | | | | | T-1A | |
| 1060 | TS | 4670 | IL 59 @ STEARNS RD | DU | | OFF |
| | | | | | T-1A | |
| 1061 | TS | 4685 | US 14 NORTHWEST HWY @ BERRY RD | LA | | ON |
| | | | | | T-1A | |
| 1062 | TS | 4690 | US 14 NORTHWEST HWY @ WESTERN AVE OLD NW HWY AERIAL IND | LA | | ON |
| | | | | | T-1A | |
| 1063 | TS | 4695 | US 14 NORTHWEST HWY @ | CO | | ON |

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| | | | EASTERN AVE HILLSIDE AVE | | T-1A |
|------|----|------|---|----|------------|
| 1064 | TS | 4696 | US 14 NORTHWEST HWY @ BARRINGTON METRA ACCESS | LA | ON T-1A |
| 1065 | TS | 4700 | US 14 NORTHWEST HWY @ HART RD | LA | ON T-1A |
| 1066 | TS | 4705 | IL 83 MAIN ST @ LAKE ST | LA | ON T-1A |
| 1067 | TS | 4710 | IL 83 MAIN ST (IN ANTIOCH) @ NORTH AVE | LA | ON T-1A |
| 1068 | TS | 4712 | IL 83 MAIN ST @ ORCHARD ST | LA | ON T-1A |
| 1069 | TS | 4715 | IL 43 HARLEM AVE @ FORREST VIEW TERMINAL DRIVE | CO | ON T-1A |
| 1070 | TS | 4725 | IL 50 CICERO AVE @ 37TH ST CITCO OIL | CO | ON T-1A |
| 1071 | TS | 4730 | LARKIN AVE @ HILLCREST SC ENT | WI | ON T-1A |
| 1072 | TS | 4735 | CENTRAL AVE @ 51ST ST | CO | ON T-1A |
| 1073 | TS | 4740 | CENTRAL RD @ DEE RD | CO | ON T-1A |
| 1074 | TS | 4742 | CENTRAL RD @ DEARLOVE RD MEADOW LN | CO | ON T-1A |
| 1075 | TS | 4745 | CENTRAL RD @ | CO | ON |

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| | | | GREENWOOD RD | | T-1A |
|------|----|------|--|----|------------|
| 1076 | TS | 4755 | CENTRAL CARPENTER @ PRATT AVE | CO | ON T-1A |
| 1077 | TS | 4760 | ROOSEVELT RD @ CENTRAL AVE | CO | ON T-1A |
| 1078 | TS | 4765 | CENTRAL RD @ WOLF RD | CO | ON T-1A |
| 1079 | TS | 4775 | 22ND ST CERMAK RD @ 57TH AVE | CO | ON T-1A |
| 1080 | TS | 4780 | 22ND ST CERMAK RD @ 58TH AVE | CO | ON T-1A |
| 1081 | TS | 4785 | 22ND ST CERMAK RD @ AUSTIN BLVD | CO | ON T-1A |
| 1082 | TS | 4790 | 22ND ST CERMAK RD @ CENTRAL | CO | ON T-1A |
| 1083 | TS | 4795 | 22ND ST CERMAK RD @ CERMAK PLAZA NORTH ENTRANCE | CO | ON T-1A |
| 1084 | TS | 4800 | 22ND ST CERMAK RD @ DESPLAINES RIVER RD | CO | ON T-1A |
| 1085 | TS | 4805 | 22ND ST CERMAK RD @ EAST RD | CO | ON T-1A |
| 1086 | TS | 4810 | 22ND ST CERMAK RD @ HOME AVE | CO | ON T-1A |

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|------|----|------|---|----|------|----|
| 1087 | TS | 4815 | 22ND ST CERMAK RD @ LOMBARD AVE | CO | T-1A | ON |
| 1088 | TS | 4820 | 22ND ST CERMAK RD @ NORTH RIVERSIDE PLAZA WEST | CO | T-1A | ON |
| 1089 | TS | 4825 | 22ND ST CERMAK RD @ NORTH RIVERSIDE PLAZA EAST | CO | T-1A | ON |
| 1090 | TS | 4830 | 22ND ST CERMAK RD @ OAK PARK AVE | CO | T-1A | ON |
| 1091 | TS | 4835 | 22ND ST CERMAK RD @ RIDGELAND AVE | CO | T-1A | ON |
| 1092 | TS | 4840 | 22ND ST CERMAK RD @ RIVERSIDE DR WESLEY AVE | CO | T-1A | ON |
| 1093 | TS | 4845 | 22ND ST CERMAK RD @ WOLF RD | CO | T-1A | ON |
| 1094 | TS | 4850 | 22ND ST CERMAK RD @ WESTBROOK | CO | T-1A | ON |
| 1095 | TS | 4851 | 22ND ST CERMAK RD @ ENTERPRISE DRIVE | CO | T-1A | ON |
| 1096 | TS | 4855 | CHICAGO RD @ INDIANWOOD DRIVE | CO | T-1A | ON |
| 1097 | TS | 4861 | CHICAGO HEIGHTS GLENWOOD RD @ HOLBROOK RD | CO | T-1A | ON |
| 1098 | TS | 4870 | CHURCH ST @ NILES CENTER RD | CO | T-1A | ON |

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|------|----|------|--|----|------|-----|
| 1099 | TS | 4875 | CHURCH ST @ MCCORMICK BLVD | CO | T-1A | ON |
| 1100 | TS | 4885 | PULASKI RD CRAWFORD AVE @ 99TH ST | CO | T-1A | ON |
| 1101 | TS | 4890 | CRAWFORD AVE PULASKI RD @ 119TH ST | CO | T-1A | ON |
| 1102 | TS | 4892 | CRAWFORD AVE PULASKI RD @ 120TH ST JEWEL ALDI ENT | CO | T-1A | ON |
| 1103 | TS | 4900 | PULASKI RD CRAWFORD AVE @ 167TH ST | CO | T-1A | ON |
| 1104 | TS | 4905 | PULASKI RD CRAWFORD AVE @ 175TH ST | CO | T-1A | ON |
| 1105 | TS | 4907 | PULASKI RD CRAWFORD AVE @ 178TH PL CAMBRIDGE DR | CO | T-1A | ON |
| 1106 | TS | 4910 | CRAWFORD AVE @ DEVON AVE | CO | T-1A | ON |
| 1107 | TS | 4915 | CRAWFORD AVE @ GOLF RD SIMPSON | CO | T-1A | ON |
| 1108 | TS | 4920 | CRAWFORD AVE @ HARRISON OLD ORCHARD | CO | T-1A | ON |
| 1109 | TS | 4930 | CRAWFORD AVE @ VOLLMER RD | CO | T-1A | ON |
| 1110 | TS | 4935 | PULASKI RD CRAWFORD AVE @ | CO | | OFF |

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| | | | FLOSSMOOR RD | | T-1A |
|------|----|------|---|----|------------|
| 1111 | TS | 4940 | 87TH ST @ CALIFORNIA AVE | CO | ON T-1A |
| 1112 | TS | 4943 | CRAWFORD AVE @ 203RD ST | CO | ON T-1A |
| 1113 | TS | 4945 | CRAWFORD AV PULASKI RD GOVNRS HWY @ GOVERNORS HWY | CO | ON T-1A |
| 1114 | TS | 4950 | CRAWFORD AVE HUNTER @ WILMETTE | CO | ON T-1A |
| 1115 | TS | 4955 | CUMBERLAND AVE @ DEVON | CO | ON T-1A |
| 1116 | TS | 4960 | IL 171 CUMBERLAND AVE @ FOREST PRESERVE DR | CO | ON T-1A |
| 1117 | TS | 4965 | IL 171 CUMBERLAND AVE @ LAWRENCE | CO | ON T-1A |
| 1118 | TS | 4970 | IL 171 CUMBERLAND AVE @ MONTROSE | CO | ON T-1A |
| 1119 | TS | 4985 | DESPLAINES RIVER RD @ GRAND AVE | CO | ON T-1A |
| 1120 | TS | 4990 | DESPLAINES RIVER RD @ LAWRENCE AVE | CO | ON T-1A |
| 1121 | TS | 4995 | OAKTON ST @ DESPLAINES RIVER RD | CO | ON T-1A |

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|------|----|------|--|----|------|-----|
| 1122 | TS | 5000 | ROOSEVELT RD @ DESPLAINES AVE | CO | T-1A | ON |
| 1123 | TS | 5005 | DESPLAINES RIVER RD @ TOUHY AVE | CO | T-1A | ON |
| 1124 | TS | 5010 | DESPLAINES RIVER RD @ FULLERTON AVE | CO | T-1A | ON |
| 1125 | TS | 5015 | DEMPSTER ST @ CRAWFORD AVENUE | CO | T-1A | ON |
| 1126 | TS | 5017 | DEMPSTER ST @ HAMLIN AVE | CO | T-1A | ON |
| 1127 | TS | 5020 | DEMPSTER ST @ EAST PRAIRIE RD | CO | T-1A | OFF |
| 1128 | TS | 5025 | DEMPSTER ST @ ST LOUIS AVE LINCOLNWOOD DR | CO | T-1A | OFF |
| 1129 | TS | 5030 | DEMPSTER ST @ KEELER AVE | CO | T-1A | ON |
| 1130 | TS | 5035 | DEMPSTER ST @ MCCORMICK BLVD | CO | T-1A | OFF |
| 1131 | TS | 5040 | DEVON AVE @ DEE RD | CO | T-1A | OFF |
| 1132 | TS | 5045 | DEVON AVE @ MCCORMICK BLVD | CO | T-1A | ON |
| 1133 | TS | 5047 | US 41 LINCOLN AVE @ FIRE STATION ENT | CO | T-1A | ON |

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|------|----|------|---|----|------|-----|
| 1134 | TS | 5050 | DIXIE HWY @ 167TH ST | CO | T-1A | ON |
| 1135 | TS | 5055 | DIXIE HWY @ HOLBROOK RD | CO | T-1A | ON |
| 1136 | TS | 5060 | DIXIE HWY @ JOE ORR RD | CO | T-1A | ON |
| 1137 | TS | 5065 | JOLIET RD HIST RT 66 @ EAST AVE | CO | T-1A | OFF |
| 1138 | TS | 5066 | JOLIET RD @ QUARRY MALL ENT | CO | T-1A | OFF |
| 1139 | TS | 5067 | JOLIET RD @ QUARRY MALL ENT HARLEY DAVIDSON ENT | CO | T-1A | ON |
| 1140 | TS | 5070 | PLAINFIELD RD @ EAST AVE | CO | T-1A | ON |
| 1141 | TS | 5075 | EAST END AVE @ SAUK TRAIL | CO | T-1A | ON |
| 1142 | TS | 5080 | ELMHURST RD @ DEVON AVE | CO | T-1A | ON |
| 1143 | TS | 5090 | EUCLID AVE @ WOLF RD | CO | T-1A | ON |
| 1144 | TS | 5095 | FOREST PRESERVE DRIVE @ MONTROSE AVE | CO | T-1A | ON |
| 1145 | TS | 5100 | FOREST PRESERVE DRIVE @ | CO | | ON |

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|------|----|------|---|----|--|------|-----|
| | | | OAK PARK AVE | | | T-1A | |
| 1146 | TS | 5105 | WESTERN AVE @ FLOSSMOOR RD | CO | | T-1A | ON |
| 1147 | TS | 5110 | FRANKLIN AVE @ WOLF RD | CO | | T-1A | OFF |
| 1148 | TS | 5115 | FULLERTON AVE @ THATCHER AVE | CO | | T-1A | ON |
| 1149 | TS | 5120 | FOUNDRY KENSINGTON @ WOLF RD | CO | | T-1A | ON |
| 1150 | TS | 5125 | GLENWOOD DYER RD @ COTTAGE GROVE AVE | CO | | T-1A | ON |
| 1151 | TS | 5127 | IL 394 EAST RAMP @ GLENWOOD DYER RD | CO | | T-1B | OFF |
| 1152 | TS | 5128 | IL 394 WEST RAMP @ GLENWOOD DYER RD | CO | | T-1B | OFF |
| | TS | 5130 | GLENWOOD DYER RD @ MAIN ST GLENWOOD LANSING RD | CO | | T-1A | ON |
| 1153 | TS | 5135 | GLENVIEW RD @ GREENWOOD RD | CO | | T-1A | ON |
| 1154 | TS | 5140 | GOLF RD SIMPSON @ CENTRAL PARK AVE | CO | | T-1A | ON |
| 1155 | TS | 5145 | EMERSON ST GOLF RD @ EAST PRAIRIE MCDANIEL | CO | | T-1A | ON |

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|------|----|------|--|----|------|----|
| 1156 | TS | 5150 | GOLF RD @ GROSS POINT RD | CO | T-1A | ON |
| 1157 | TS | 5151 | GOLF RD @ KNOX AVE | CO | T-1A | ON |
| 1158 | TS | 5152 | GROSS POINT RD @ KENTON | CO | T-1A | ON |
| 1159 | TS | 5155 | GOLF RD @ HARMS RD CENTRAL AVE | CO | T-1A | ON |
| 1160 | TS | 5157 | GOLF RD @ WOODS DR | CO | T-1A | ON |
| 1161 | TS | 5160 | GOLF RD @ LAVERGNE AVE | CO | T-1A | ON |
| 1162 | TS | 5165 | GOLF RD @ LAWLER AVE | CO | T-1A | ON |
| 1163 | TS | 5170 | EMERSON ST GOLF RD @ MCCORMICK BLVD | CO | T-1A | ON |
| 1164 | TS | 5175 | GOLF RD @ GLENVIEW COUNTRY CLUB | CO | T-1A | ON |
| 1165 | TS | 5180 | GOVERNORS HWY @ FLOSSMOOR RD | CO | T-1A | ON |
| 1166 | TS | 5185 | GOVERNORS HWY @ KEDZIE AVE | CO | T-1A | ON |
| 1167 | TS | 5195 | GOVERNORS HWY @ POPLAR | CO | T-1A | ON |

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|------|----|------|---|----|------|-----|
| 1168 | TS | 5200 | GOVERNORS HWY @ VOLLMER RD | CO | T-1A | ON |
| 1169 | TS | 5205 | GRAND AVE @ OAK STRUCKMAN | CO | T-1A | ON |
| 1170 | TS | 5210 | GRAND AVE @ MT PROSPECT COUNTY LINE | CO | T-1A | OFF |
| 1171 | TS | 5211 | GRAND AVE @ NORTHWEST AVE | CO | T-1A | OFF |
| 1172 | TS | 5215 | IL 171 1ST AVE THATCHER @ GRAND | CO | T-1A | ON |
| 1173 | TS | 5220 | GRAND AVE @ WOLF RD | CO | T-1A | ON |
| 1174 | TS | 5235 | GREENWOOD RD @ LAKE AVE | CO | T-1A | ON |
| 1175 | TS | 5240 | GROSS POINT RD @ CHURCH ST | CO | T-1A | ON |
| 1176 | TS | 5245 | GROSS POINT RD @ HARRISON ST OLD ORCHARD | CO | T-1A | OFF |
| 1177 | TS | 5250 | GROSS POINT RD @ LARAMIE CAROL | CO | T-1A | ON |
| 1178 | TS | 5255 | GROSS POINT RD @ OAKTON CENTRAL | CO | T-1A | OFF |
| 1179 | TS | 5260 | GROSS POINT RD @ | CO | | OFF |

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|------|----|------|---|----|--|------|-----|
| | | | TOUHY AVE | | | T-1A | |
| 1180 | TS | 5270 | GUNNISON ST @ NAGLE AVE | CO | | T-1A | ON |
| 1181 | TS | 5275 | GUNNISON ST @ OAK PARK AVE NEWCASTLE AVE | CO | | T-1A | ON |
| 1182 | TS | 5285 | GROSS POINT RD HARTS RD @ MILWAUKEE AVE | CO | | T-1A | OFF |
| 1183 | TS | 5295 | HICKS RD @ CUNNINGHAM | CO | | T-1A | ON |
| 1184 | TS | 5300 | HICKS RD @ EUCLID | CO | | T-1A | ON |
| 1185 | TS | 5305 | HICKS RD @ ILLINOIS INDUSTRIAL | CO | | T-1A | ON |
| 1186 | TS | 5315 | HICKS RD @ CARPENTER | CO | | T-1A | ON |
| 1187 | TS | 5320 | HIBBARD @ LAKE AVE | CO | | T-1A | OFF |
| 1188 | TS | 5325 | HOWARD ST @ US 41 LINCOLN | CO | | T-1A | ON |
| 1189 | TS | 5330 | HOWARD ST @ GROSS POINT RD MENARD | CO | | T-1A | ON |
| 1190 | TS | 5335 | HOWARD ST @ LEHIGH | CO | | T-1A | ON |

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|------|----|------|---|----|------|----|
| 1191 | TS | 5340 | MCCORMICK BLVD @ HOWARD ST | CO | T-1A | ON |
| 1192 | TS | 5345 | INDIANA @ 137TH | CO | T-1A | ON |
| 1193 | TS | 5350 | INDIANA @ 138TH | CO | T-1A | ON |
| 1194 | TS | 5355 | JOLIET RD @ BRAINARD AVE | CO | T-1A | ON |
| 1195 | TS | 5360 | JOLIET RD @ LAWNDALE | CO | T-1A | ON |
| 1196 | TS | 5365 | JOLIET RD @ WILLOW SPRINGS RD | CO | T-1A | ON |
| 1197 | TS | 5370 | JOLIET RD @ WOLF RD | CO | T-1A | ON |
| 1198 | TS | 5375 | JOLIET RD @ UNIVERSAL OIL PRODUCTS ENT | CO | T-1A | ON |
| 1199 | TS | 5380 | KEDZIE AVE @ 119TH OAKHILL CEMETERY | CO | T-1A | ON |
| 1200 | TS | 5385 | KEDZIE AVE @ 123RD ST | CO | T-1A | ON |
| 1201 | TS | 5390 | KENSINGTON @ WHEELING RD | CO | T-1A | ON |
| 1202 | TS | 5395 | KIRCHOFF RD @ WILKE RD | CO | T-1A | ON |

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|------|----|------|--|----|------|-----|
| 1203 | TS | 5425 | LAKE COOK RD @ QUENTIN RD | CO | T-1A | ON |
| 1204 | TS | 5430 | COUNTY LINE RD LAKE COOK RD @ SHERIDAN RD | CO | T-1A | ON |
| 1205 | TS | 5435 | LAWRENCE AVE @ DEE EAST RIVER RD | CO | T-1A | ON |
| 1206 | TS | 5440 | LAWRENCE AVE @ FORSTER | CO | T-1A | ON |
| 1207 | TS | 5445 | LEE ST @ TOUHY AVE | CO | T-1A | ON |
| 1208 | TS | 5448 | OAKTON ST @ RIVER DR | CO | T-1A | OFF |
| 1209 | TS | 5450 | LEHIGH AVE @ OAKTON | CO | T-1A | ON |
| 1210 | TS | 5455 | LEHIGH AVE @ TOUHY AVE | CO | T-1A | ON |
| 1211 | TS | 5460 | MADISON ST @ JACKSON BLVD | CO | T-1A | ON |
| 1212 | TS | 5465 | MCCORMICK BLVD @ MAIN ST (SKOKIE) | CO | T-1A | ON |
| 1213 | TS | 5475 | MCCORMICK BLVD @ PRATT | CO | T-1A | ON |
| 1214 | TS | 5477 | MCCORMICK BLVD @ NORTHEAST PKWY | CO | T-1A | ON |

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|------|----|------|--|----|------|-----|
| 1215 | TS | 5480 | TOUHY @ MCCORMICK BLVD | CO | T-1A | ON |
| 1216 | TS | 5483 | TOUHY AVE @ KEDZIE AVE | CO | T-1A | ON |
| 1217 | TS | 5485 | MCCORMICK BLVD @ OAKTON ST | CO | T-1A | ON |
| 1218 | TS | 5490 | MILWAUKEE AVE @ TOUHY AVE | CO | T-1A | ON |
| 1219 | TS | 5495 | IL 21 MILWAUKEE AVE @ IL 43 WAUKEGAN RD | CO | T-1A | ON |
| 1220 | TS | 5500 | MONTROSE AVE @ NARRAGANSETT AVE | CO | T-1A | ON |
| 1221 | TS | 5505 | NORTHWEST HWY @ OAKTON ST | CO | T-1A | ON |
| 1222 | TS | 5510 | NORTHWEST HWY @ POTTER RD | CO | T-1A | ON |
| 1223 | TS | 5515 | OAK PARK AVE @ 31ST ST | CO | T-1A | OFF |
| 1224 | TS | 5520 | US 34 OGDEN AVE @ OAK PARK AVE | CO | T-1A | OFF |
| 1225 | TS | 5525 | ROOSEVELT RD @ OAK PARK AVE | CO | T-1A | ON |
| 1226 | TS | 5535 | OAKTON ST @ | CO | | ON |

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| | | | FLORENCE | | T-1A |
|------|----|------|--|----|-------------|
| 1227 | TS | 5540 | OAKTON ST @ GREENWOOD AVE | CO | ON T-1A |
| 1228 | TS | 5545 | OAKTON ST @ MT PROSPECT | CO | ON T-1A |
| 1229 | TS | 5550 | OAKTON ST @ WOLF RD | CO | ON T-1A |
| 1230 | TS | 5555 | US 34 OGDEN AVE @ 31ST ST | CO | ON T-1A |
| 1231 | TS | 5556 | US 34 OGDEN AVE @ 25TH PL 26TH ST | CO | ON T-1A |
| 1232 | TS | 5557 | IL 50 CICERO AVE @ CONNECTOR RAMP ENT | CO | ON T-1A |
| 1233 | TS | 5558 | US 34 OGDEN AVE @ CONNECTOR RAMP ENT | CO | ON T-1A |
| 1234 | TS | 5565 | US 34 OGDEN AVE @ AUSTIN BLVD | CO | OFF T-1A |
| 1235 | TS | 5570 | US 34 OGDEN AVE @ CLARENCE AVE | CO | ON T-1A |
| 1236 | TS | 5575 | US 34 OGDEN AVE @ CLINTON AVE | CO | ON T-1A |
| 1237 | TS | 5580 | US 34 OGDEN AVE @ EAST AVE | CO | ON T-1A |

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|------|----|------|-------------------------------------|----|------|-----|
| 1238 | TS | 5590 | US 34 OGDEN AVE @ HOME AVE | CO | T-1A | ON |
| 1239 | TS | 5595 | US 34 OGDEN AVE @ RIDGELAND 34TH | CO | T-1A | ON |
| 1240 | TS | 5600 | OLD PLUM GROVE RD @ MEACHAM RD | CO | T-1A | ON |
| 1241 | TS | 5605 | PALATINE RD @ KENNICOTT DR | CO | T-1A | ON |
| 1242 | TS | 5610 | PALATINE RD @ QUENTIN RD | CO | T-1A | ON |
| 1243 | TS | 5620 | PALATINE RD @ SCHOENBECK RD | CO | T-1A | ON |
| 1244 | TS | 5625 | PALATINE RD @ WHEELING RD | CO | T-1A | ON |
| 1245 | TS | 5630 | PALATINE RD @ WINDSOR DRIVE | CO | T-1A | ON |
| 1246 | TS | 5640 | PALATINE RD @ WOLF RD | CO | T-1A | OFF |
| 1247 | TS | 5645 | PALATINE RD @ ELA RD | CO | T-1A | ON |
| 1248 | TS | 5652 | PALATINE RD @ HUNTINGTON BLVD | CO | T-1A | ON |
| 1249 | TS | 5655 | PFINGSTEN RD @ WILLOW RD | CO | T-1A | ON |

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|------|----|------|---------------------------------------|----|------|-----|
| 1250 | TS | 5670 | COLFAX AVE @ QUENTIN RD | CO | T-1A | ON |
| 1251 | TS | 5675 | RIDGELAND AVE @ 96TH ST | CO | T-1A | ON |
| 1252 | TS | 5680 | RIDGELAND AVE @ 98TH ST | CO | T-1A | ON |
| 1253 | TS | 5690 | RIDGELAND AVE @ COMMONS SC ENT | CO | T-1A | ON |
| 1254 | TS | 5695 | RIDGE RD @ ASHLAND AVE RIEGEL RD | CO | T-1A | ON |
| 1255 | TS | 5710 | RIEGEL RD CHICAGO RD @ HOLBROOK RD | CO | T-1A | ON |
| 1256 | TS | 5715 | IL 53 ROHLWING RD @ DEVON AVE | CO | T-1A | ON |
| 1257 | TS | 5720 | ROOSEVELT RD @ 5TH AVE | CO | T-1A | ON |
| 1258 | TS | 5725 | ROOSEVELT RD @ 9TH AVE | CO | T-1A | ON |
| 1259 | TS | 5730 | IL 38 ROOSEVELT RD @ AUSTIN BLVD | CO | T-1A | OFF |
| 1260 | TS | 5735 | ROOSEVELT RD @ EAST AVE | CO | T-1A | ON |
| 1261 | TS | 5740 | ROOSEVELT RD @ | CO | | OFF |

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|------|----|------|---|----|--|------------|
| | | | LARAMIE AVE | | | T-1A |
| 1262 | TS | 5745 | ROOSEVELT RD @ MAYFIELD AVE 59TH AVE | CO | | ON T-1A |
| 1263 | TS | 5750 | ROOSEVELT RD @ RIDGELAND AVE | CO | | ON T-1A |
| 1264 | TS | 5755 | SAUK TRAIL @ STATE RD | CO | | ON T-1A |
| 1265 | TS | 5760 | SAUK TRAIL @ TORRENCE | CO | | ON T-1A |
| 1266 | TS | 5770 | SHERMER RD @ WILLOW RD | CO | | ON T-1A |
| 1267 | TS | 5780 | STATE RD @ CENTRAL 80TH ST | CO | | ON T-1A |
| 1268 | TS | 5785 | STATE ST @ ILLINOIS ST | CO | | ON T-1A |
| 1269 | TS | 5790 | STEGER RD @ STATE ST | CO | | ON T-1A |
| 1270 | TS | 5795 | ST CHARLES RD @ TAFT AVE | CO | | ON T-1A |
| 1271 | TS | 5800 | ST CHARLES RD @ WOLF RD | CO | | ON T-1A |
| 1272 | TS | 5810 | TALCOTT @ DEE RD | CO | | ON T-1A |

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| | | | | | | |
|------|----|------|---|----|------|-----|
| 1273 | TS | 5812 | US 14 DIVISION ST @ HARVARD FORD ENT TRACTOR SUPPLY ENT | MC | T-1A | ON |
| 1274 | TS | 5815 | TALCOTT @ TOUHY | CO | T-1A | OFF |
| 1275 | TS | 5820 | TORRENCE AVE @ STATE ST | CO | T-1A | ON |
| 1276 | TS | 5825 | TOUHY AVE @ CRAWFORD AVE | CO | T-1A | ON |
| 1277 | TS | 5830 | TOUHY AVE @ DEE RD | CO | T-1A | ON |
| 1278 | TS | 5835 | TOUHY AVE @ KOSTNER AVE | CO | T-1A | ON |
| 1279 | TS | 5840 | TOUHY AVE @ MOBILE | CO | T-1A | ON |
| 1280 | TS | 5841 | TOUHY AVE @ MEADE AVE | CO | T-1A | ON |
| 1281 | TS | 5843 | TOUHY AVE @ MELVINA | CO | T-1A | ON |
| 1282 | TS | 5845 | TOUHY AVE @ RIVERSIDE | CO | T-1A | OFF |
| 1283 | TS | 5850 | WASHINGTON BLVD RANDOLPH ST @ LATHROP AVE | CO | T-1A | ON |
| 1284 | TS | 5855 | WESTERN AVE @ 91ST ST | CO | T-1A | ON |

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|------|----|------|--------------------------------|----|------|-----|
| 1285 | TS | 5860 | WESTERN AVE @ 98TH ST | CO | T-1A | ON |
| 1286 | TS | 5865 | WESTERN AVE @ 99TH ST | CO | T-1A | ON |
| 1287 | TS | 5870 | WESTERN AVE @ 119TH ST | CO | T-1A | ON |
| 1288 | TS | 5875 | WESTERN AVE @ 123RD ST | CO | T-1A | ON |
| 1289 | TS | 5880 | 139TH ST @ WESTERN AVE | CO | T-1A | ON |
| 1290 | TS | 5885 | WESTERN AVE @ MONEE | CO | T-1A | ON |
| 1291 | TS | 5890 | WESTERN AVE @ STEGER RD | CO | T-1A | ON |
| 1292 | TS | 5895 | WESTERN AVE @ VOLLMER RD | CO | T-1A | OFF |
| 1293 | TS | 5900 | WESTERN AVE @ ILLINOIS 16TH | CO | T-1A | ON |
| 1294 | TS | 5915 | WILLOW RD @ GREENWOOD AVE | CO | T-1A | ON |
| 1295 | TS | 5920 | WILLOW RD @ LANDWEHR RD | CO | T-1A | ON |
| 1296 | TS | 5925 | WILLOW RD @ | CO | | ON |

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| | | | SANDERS RD | | T-1A |
|------|----|------|---|----|------|
| 1297 | TS | 5927 | WILLOW RD @ PROTECTION PKWY WATERVIEW DR | CO | ON |
| | | | | | T-1A |
| 1298 | TS | 5930 | WILLOW RD @ OLD WILLOW RD | CO | OFF |
| | | | | | T-1A |
| 1299 | TS | 5931 | WILLOW RD @ RAVINE WAY | CO | ON |
| | | | | | T-1A |
| 1300 | TS | 5932 | WILLOW RD @ PATRIOT BLVD | CO | ON |
| | | | | | T-1A |
| 1301 | TS | 5933 | WILLOW RD @ WESTLEIGH DR FOUNDERS DR | CO | ON |
| | | | | | T-1A |
| 1302 | TS | 5935 | PLAINFIELD RD @ WILLOW SPRINGS RD | CO | ON |
| | | | | | T-1A |
| 1303 | TS | 5940 | WIRETON RD VERMONT AVE @ FRANCISCO AVE | CO | ON |
| | | | | | T-1A |
| 1304 | TS | 5944 | WOLF RD @ EDWARD RD | CO | OFF |
| | | | | | T-1A |
| 1305 | TS | 5945 | WOLF RD @ CAMP MCDONALD RD | CO | OFF |
| | | | | | T-1A |
| 1306 | TS | 5950 | WOLF RD @ WILLOW RD OLD WILLOW RD | CO | OFF |
| | | | | | T-1A |
| 1307 | TS | 5955 | WOLF RD @ HOWARD AVE | CO | ON |
| | | | | | T-1A |

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|------|----|------|---|----|------|-----|
| 1308 | TS | 5963 | US 20 LAKE ST @ WOLF RD | CO | | ON |
| | | | | | T-1A | |
| 1309 | TS | 5965 | 171ST ST @ WOOD ST | CO | | ON |
| | | | | | T-1A | |
| 1310 | TS | 5975 | I 55 STEV NORTH FRONTAGE @ CASS AVE | DU | | ON |
| | | | | | T-1A | |
| 1311 | TS | 5985 | I 290 IKE RAMPS K & O @ US 20 LAKE ST | DU | | ON |
| | | | | | T-1A | |
| 1312 | TS | 5990 | I 290 IKE @ YORK ST N RMP CRESTVIEW AVE | DU | | OFF |
| | | | | | T-1A | |
| 1313 | TS | 5995 | I 290 IKE @ US 20 YORK ST S RAMP LAKE ST | DU | | ON |
| | | | | | T-1A | |
| 1314 | TS | 6015 | US 20 LAKE ST @ IL 83 W RAMPS K & M | DU | | ON |
| | | | | | T-1A | |
| 1315 | TS | 5706 | US 20 LAKE ST @ ADDISON RD | DU | | ON |
| | | | | | T-1A | |
| 1316 | TS | 6025 | US 20 LAKE ST @ CHURCH RD | DU | | ON |
| | | | | | T-1A | |
| 1317 | TS | 6030 | US 20 LAKE ST @ GARY AVE | DU | | OFF |
| | | | | | T-1A | |
| 1318 | TS | 6035 | US 20 LAKE ST @ GLEN ELLYN RD | DU | | ON |
| | | | | | T-1A | |
| 1319 | TS | 6037 | US 20 LAKE ST @ EUCLID AVE LAKEVIEW DR | DU | | ON |
| | | | | | T-1A | |

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|------|----|------|--|----|------|----|
| 1320 | TS | 6040 | US 20 LAKE ST @ IL 83 KINGERY HWY RAMPS GRAND AVE | DU | T-1A | ON |
| 1321 | TS | 6043 | US 20 LAKE ST @ GREENBRIAR DR | DU | T-1A | ON |
| 1322 | TS | 6045 | US 20 LAKE ST @ MEDINAH RD | DU | T-1A | ON |
| 1323 | TS | 6046 | US 34 OGDEN AVE @ COMMONS DR | DU | T-1A | ON |
| 1324 | TS | 6047 | US 34 OGDEN AVE @ 75TH ST | DU | T-1A | ON |
| 1325 | TS | 6048 | US 34 OGDEN AVE @ LONG GROVE DR | DU | T-1A | ON |
| 1326 | TS | 6049 | US 34 OGDEN AVE @ EOLA RD | DU | T-1A | ON |
| 1327 | TS | 6050 | US 34 OGDEN AVE @ MONTGOMERY RD | DU | T-1A | ON |
| 1328 | TS | 6051 | US 34 OGDEN AVE @ FRONTENAC ST | DU | T-1A | ON |
| 1329 | TS | 6052 | US 34 OGDEN AVE @ RUSH COPLEY HOSPITAL ENT | KA | T-1A | ON |
| 1330 | TS | 6053 | US 34 OGDEN AVE @ WATERFORD DR RIDGE RD | KA | T-1A | ON |
| 1331 | TS | 6060 | US 20 LAKE ST @ | DU | | ON |

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|------|----|------|---|----|--|-------------|
| | | | IL 53 ROHLWING RD | | | T-1A |
| 1332 | TS | 6061 | IL 53 ROHLWING RD @ MALL ENT | DU | | ON T-1A |
| 1333 | TS | 6062 | IL 53 ROHLWING RD @ WOODLAND AVE | DU | | ON T-1A |
| 1334 | TS | 6065 | US 20 LAKE ST @ SPRINGFIELD DR | DU | | ON T-1A |
| 1335 | TS | 6070 | US 20 LAKE ST @ VILLA AVE WOOD DALE RD | DU | | ON T-1A |
| 1336 | TS | 6075 | US 20 LAKE ST @ WALNUT ST | DU | | ON T-1A |
| 1337 | TS | 6077 | US 20 LAKE ST @ NORTH AVE | CO | | ON T-1A |
| 1338 | TS | 6080 | US 20 LAKE ST @ WEST AVE | DU | | ON T-1A |
| 1339 | TS | 6085 | US 20 LAKE ST @ ROSEDALE AVE | DU | | ON T-1A |
| 1340 | TS | 6089 | IL 59 @ MCCOY FOX RIVER COMMONS | DU | | OFF T-1A |
| 1341 | TS | 6090 | IL 59 @ US 34 OGDEN AVE | DU | | OFF T-1A |
| 1342 | TS | 6092 | IL 59 @ 87TH ST WHITE EAGLE DR | DU | | ON T-1A |

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|------|----|------|---|----|------|----|
| 1343 | TS | 6095 | US 34 OGDEN AVE @ CASS AVE | DU | T-1A | ON |
| 1344 | TS | 6100 | US 34 OGDEN AVE @ PASQUINELLI DR MIDDAUGH DR | DU | T-1A | ON |
| 1345 | TS | 6110 | US 34 OGDEN AVE @ IL 83 WEST RAMPS A & B | DU | T-1A | ON |
| 1346 | TS | 6115 | US 34 OGDEN AVE @ IL 83 EAST RAMPS C & D | DU | T-1A | ON |
| 1347 | TS | 6116 | US 34 OGDEN AVE @ SALT CREEK LN OAK ST | DU | T-1A | ON |
| 1348 | TS | 6118 | US 34 OGDEN AVE @ YORK RD | DU | T-1A | ON |
| 1349 | TS | 6120 | US 34 OGDEN AVE @ CROSS ST | DU | T-1A | ON |
| 1350 | TS | 6125 | US 34 OGDEN AVE @ BELMONT RD FINLEY RD | DU | T-1A | ON |
| 1351 | TS | 6130 | US 34 OGDEN AVE @ MADISON ST | DU | T-1A | ON |
| 1352 | TS | 6135 | US 34 OGDEN AVE @ OAKWOOD RD | DU | T-1A | ON |
| 1353 | TS | 6140 | IL 19 IRVING PARK RD @ MARSHALL RD | DU | T-1A | ON |
| 1354 | TS | 6145 | IL 19 IRVING PARK RD @ MEDINAH RD | DU | T-1A | ON |

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| | | | | | | |
|------|----|------|---|----|------|----|
| 1355 | TS | 6155 | IL 19 IRVING PARK RD @ IL 53 ROHLWING RD | DU | T-1A | ON |
| 1356 | TS | 6156 | IL 53 ROHLWING RD @ BRYN MAWR AVE | DU | T-1A | ON |
| 1357 | TS | 6157 | IL 53 ROHLWING RD @ THORNDALE AVE | DU | T-1A | ON |
| 1358 | TS | 6158 | IL 53 ROHLWING RD @ NORWOOD AVE | DU | T-1A | ON |
| 1359 | TS | 6160 | IL 19 IRVING PARK RD @ SPRUCE AVE | DU | T-1A | ON |
| 1360 | TS | 6163 | IL 19 IRVING PK RD @ CATALPA AVE | DU | T-1A | ON |
| 1361 | TS | 6164 | IL 19 IRVING PARK RD @ BLOOMINGDALE RD | DU | T-1A | ON |
| 1362 | TS | 6165 | IL 19 IRVING PARK RD @ WALNUT ST | DU | T-1A | ON |
| 1363 | TS | 6170 | IL 19 IRVING PARK RD @ PROSPECT AVE | DU | T-1A | ON |
| 1364 | TS | 6175 | IL 38 ROOSEVELT RD @ FABYAN PKWY WASHINGTON ST | DU | T-1A | ON |
| 1365 | TS | 6180 | IL 38 ROOSEVELT RD @ JOLIET RD | DU | T-1A | ON |
| 1366 | TS | 6185 | IL 38 ROOSEVELT RD @ | DU | | ON |

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| | | | KRESS RD | | T-1A |
|------|----|------|--|----|-------------|
| 1367 | TS | 6190 | IL 38 ROOSEVELT RD @ WESTMORE-MEYERS RD | DU | OFF T-1A |
| 1368 | TS | 6195 | IL 38 ROOSEVELT RD @ SUMMIT AVE | DU | OFF T-1A |
| 1369 | TS | 6198 | IL 38 ROOSEVELT RD @ VILLA AVE | DU | OFF T-1A |
| 1370 | TS | 6200 | IL 38 ROOSEVELT RD @ WINFIELD RD | DU | ON T-1A |
| 1371 | TS | 6205 | IL 59 @ IL 38 N RAMP DAYTON AVE | DU | OFF T-1A |
| 1372 | TS | 6206 | IL 59 @ IL 38 S RAMP ROOSEVELT BROWNING | DU | OFF T-1A |
| 1373 | TS | 6210 | IL 38 ROOSEVELT RD @ PETE'S FRESH MARKET ENT | DU | OFF T-1A |
| 1374 | TS | 6215 | IL 53 ROHLWING RD COLUMBINE AVE @ IL 64 NORTH AVE | DU | OFF T-1A |
| 1375 | TS | 6220 | IL 53 @ 75TH ST | DU | ON T-1A |
| 1376 | TS | 6225 | IL 53 @ HOBSON RD | DU | ON T-1A |
| 1377 | TS | 6230 | IL 53 @ PARK BLVD GINKGO WAY | DU | ON T-1A |

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|------|----|------|--|----|------|-----|
| 1378 | TS | 6235 | IL 53 COLUMBINE AVE @ ST CHARLES RD | DU | T-1A | OFF |
| 1379 | TS | 6237 | IL 53 COLUMBINE AVE @ MADISON ST | DU | T-1A | ON |
| 1380 | TS | 6240 | IL 53 @ SUMMERHILL DR BELL TECH ENT | DU | T-1A | ON |
| 1381 | TS | 6245 | IL 53 @ 83RD ST | DU | T-1A | ON |
| 1382 | TS | 6250 | IL 53 LINCOLN AVE @ 59TH ST FOUR LAKES AVE | DU | T-1A | ON |
| 1383 | TS | 6255 | IL 53 @ WOODRIDGE DR SEVEN BRIDGES ENT | DU | T-1A | ON |
| 1384 | TS | 6256 | IL 53 @ HIGH TRAIL SEVEN BRIDGES ENT | DU | T-1A | ON |
| 1385 | TS | 6260 | IL 56 BUTTERFIELD RD @ IL 59 | DU | T-1A | OFF |
| 1386 | TS | 6265 | IL 56 BUTTERFIELD RD @ 22ND ST | DU | T-1A | ON |
| 1387 | TS | 6270 | IL 56 BUTTERFIELD RD @ BATAVIA RD | DU | T-1A | ON |
| 1388 | TS | 6275 | IL 56 BUTTERFIELD RD @ FINLEY RD | DU | T-1A | ON |
| 1389 | TS | 6280 | I 88 N RAMP IL 56 BUTTERFIELD RD @ HIGHLAND AVE | DU | T-1A | ON |

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| | | | | | | |
|------|----|------|---|----|------|----|
| 1390 | TS | 6290 | IL 56 BUTTERFIELD RD @ LAMBERT AVE | DU | T-1A | ON |
| 1391 | TS | 6293 | IL 56 BUTTERFIELD RD @ FOUNTAIN SQUARE RD | DU | T-1A | ON |
| 1392 | TS | 6295 | IL 56 BUTTERFIELD RD @ MEYERS RD | DU | T-1A | ON |
| 1393 | TS | 6300 | IL 56 BUTTERFIELD RD @ MIDWEST RD SUMMIT AVE | DU | T-1A | ON |
| 1394 | TS | 6305 | IL 56 BUTTERFIELD RD @ PARK BLVD | DU | T-1A | ON |
| 1395 | TS | 6310 | IL 56 BUTTERFIELD RD @ FAIRFIELD AVE | DU | T-1A | ON |
| 1396 | TS | 6315 | IL 56 BUTTERFIELD RD @ NAPERVILLE RD | DU | T-1A | ON |
| 1397 | TS | 6320 | IL 56 BUTTERFIELD RD @ WINFIELD RD | DU | T-1A | ON |
| 1398 | TS | 6325 | IL 56 BUTTERFIELD RD @ EOLA RD | DU | T-1A | ON |
| 1399 | TS | 6330 | IL 56 BUTTERFIELD RD @ HERRICK RD WEISBROOK RD | DU | T-1A | ON |
| 1400 | TS | 6335 | IL 56 BUTTERFIELD RD @ ORCHARD RD | DU | T-1A | ON |
| 1401 | TS | 6340 | IL 56 BUTTERFIELD RD @ RAIDER LN GLENBARD SOUTH HS ENT | DU | T-1A | ON |

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|------|----|------|---|----|------|-----|
| 1402 | TS | 6345 | IL 56 BUTTERFIELD RD @ TRANS AM PLAZA | DU | T-1A | ON |
| 1403 | TS | 6350 | IL 56 BUTTERFIELD RD @ WOODCREEK DR LLOYD AVE | DU | T-1A | ON |
| 1404 | TS | 6352 | IL 56 BUTTERFIELD RD @ ESPLANADE RD HOME DEPOT ENT | DU | T-1A | ON |
| 1405 | TS | 6355 | IL 64 NORTH AVE @ IL 59 | DU | T-1A | OFF |
| 1406 | TS | 6360 | IL 59 @ 75TH ST | DU | T-1A | OFF |
| 1407 | TS | 6362 | IL 59 @ BEEBE DR COSTCO ENT | DU | T-1A | OFF |
| 1408 | TS | 6365 | IL 59 @ ARMY TRAIL RD | DU | T-1A | OFF |
| 1409 | TS | 6366 | IL 59 @ SMITH RD | DU | T-1B | OFF |
| 1410 | TS | 6370 | IL 59 @ BATAVIA RD | DU | T-1A | OFF |
| 1411 | TS | 6377 | IL 59 @ STRUCKMAN BLVD | DU | T-1A | OFF |
| 1412 | TS | 6378 | IL 59 @ APPLE VALLEY DR HOME DEPOT ENT | DU | T-1A | OFF |
| 1413 | TS | 6379 | IL 59 @ | DU | | OFF |

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| | | | WOODLAND HILLS PKWY | | | T-1A |
|------|----|------|--|----|--|------|
| 1414 | TS | 6380 | IL 59 @ NORTH AURORA RD | DU | | OFF |
| | | | | | | T-1A |
| 1415 | TS | 6385 | IL 59 DIVISION ST @ CATON FARM RD | WI | | ON |
| | | | | | | T-1A |
| 1416 | TS | 6390 | IL 59 @ FOREST AVE | DU | | OFF |
| | | | | | | T-1A |
| 1417 | TS | 6395 | IL 59 @ CONTINENTAL DR MEADOW DR | DU | | OFF |
| | | | | | | T-1A |
| 1418 | TS | 6400 | IL 64 NORTH AVE @ IL 83 KINGERY HWY | DU | | ON |
| | | | | | | T-1A |
| 1419 | TS | 6405 | IL 64 NORTH AVE @ ADDISON RD | DU | | ON |
| | | | | | | T-1A |
| 1420 | TS | 6410 | IL 64 NORTH AVE @ ARDMORE AVE | DU | | ON |
| | | | | | | T-1A |
| 1421 | TS | 6415 | IL 64 NORTH AVE @ BERTEAU AVE | DU | | ON |
| | | | | | | T-1A |
| 1422 | TS | 6420 | IL 64 NORTH AVE @ BLOOMINGDALE RD | DU | | ON |
| | | | | | | T-1A |
| 1423 | TS | 6425 | IL 64 NORTH AVE @ COUNTY FARM RD | DU | | OFF |
| | | | | | | T-1A |
| 1424 | TS | 6430 | IL 64 NORTH AVE @ EMROY AVE MELROSE AVE | DU | | ON |
| | | | | | | T-1A |

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|------|----|------|--|----|------|----|
| 1425 | TS | 6435 | IL 64 NORTH AVE @ GARY AVE | DU | T-1A | ON |
| 1426 | TS | 6440 | IL 64 NORTH AVE @ GRACE ST | DU | T-1A | ON |
| 1427 | TS | 6445 | IL 64 NORTH AVE @ KUHN RD | DU | T-1A | ON |
| 1428 | TS | 6446 | IL 64 NORTH AVE @ BENNETT DR WINDSOR PARK DR | DU | T-1A | ON |
| 1429 | TS | 6450 | IL 64 NORTH AVE @ MAIN ST GLEN ELLYN RD | DU | T-1A | ON |
| 1430 | TS | 6455 | IL 64 NORTH AVE @ MAIN ST | DU | T-1A | ON |
| 1431 | TS | 6456 | IL 64 NORTH AVE @ LOMBARD RD | DU | T-1A | ON |
| 1432 | TS | 6460 | IL 64 NORTH AVE @ MYRTLE AVE | DU | T-1A | ON |
| 1433 | TS | 6465 | IL 64 NORTH AVE @ SCHMALE RD | DU | T-1A | ON |
| 1434 | TS | 6470 | IL 64 NORTH AVE @ MICHIGAN AVE NORTH PARK PLAZA ENT | DU | T-1A | ON |
| 1435 | TS | 6475 | IL 64 NORTH AVE @ SWIFT RD | DU | T-1A | ON |
| 1436 | TS | 6480 | IL 64 NORTH AVE @ VILLA AVE | DU | T-1A | ON |

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|------|----|------|--|----|------|----|
| 1437 | TS | 6490 | IL 64 NORTH AVE @ WEST AVE | DU | | ON |
| | | | | | T-1A | |
| 1438 | TS | 6495 | IL 64 NORTH AVE @ WESTWOOD AVE LINCOLN AVE | DU | | ON |
| | | | | | T-1A | |
| 1439 | TS | 6500 | IL 64 NORTH AVE @ YORK ST | DU | | ON |
| | | | | | T-1A | |
| 1440 | TS | 6505 | IL 64 NORTH AVE @ SHOPPES OF ELMHURST ENT | DU | | ON |
| | | | | | T-1A | |
| 1441 | TS | 6510 | US 12 IL 59 @ IL 120 BELVIDERE RD | LA | | ON |
| | | | | | T-1A | |
| 1442 | TS | 6511 | US 12 IL 59 @ OLD BELVIDERE RD VOLO VILLAGE | LA | | ON |
| | | | | | T-1A | |
| 1443 | TS | 6512 | US 12 IL 59 @ SULLIVAN LAKE RD MOLIDOR RD | LA | | ON |
| | | | | | T-1A | |
| 1444 | TS | 6515 | US 12 IL 59 EAST RAMP @ IL 176 | LA | | ON |
| | | | | | T-1A | |
| 1445 | TS | 6516 | US 12 IL 59 WEST RAMP @ IL 176 | LA | | ON |
| | | | | | T-1A | |
| 1446 | TS | 6517 | IL 176 LIBERTY ST @ WAUCONDA CROSSING | LA | | ON |
| | | | | | T-1A | |
| 1447 | TS | 6206 | US 12 IL 59 @ BONNER RD | LA | | ON |
| | | | | | T-1A | |
| 1448 | TS | 6525 | US 14 NORTHWEST HWY @ | LA | | ON |

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|------|----|------|---|----|------|-----|
| | | | IL 59 HOUGH ST | | T-1A | |
| 1449 | TS | 6530 | US 14 NORTHWEST HWY @ KELSEY RD PLUM TREE RD | LA | T-1A | ON |
| 1450 | TS | 6531 | IL 22 @ KELSEY | LA | T-1A | ON |
| 1451 | TS | 6532 | US 14 NORTHWEST HWY @ PEPPER RD | LA | T-1A | ON |
| 1452 | TS | 6535 | US 41 SKOKIE HWY @ IL 21 RIVERSIDE DR | LA | T-1A | ON |
| 1453 | TS | 6540 | US 41 SKOKIE HWY SKOKIE VALLEY RD @ IL 22 HALF DAY RD | LA | T-1A | ON |
| 1454 | TS | 6543 | US 41 SKOKIE HWY N RMP @ IL 22 HALF DAY RD | LA | T-1A | ON |
| 1455 | TS | 6545 | US 41 SKOKIE HWY @ IL 60 KENNEDY RD | LA | T-1A | ON |
| 1456 | TS | 6550 | US 41 SKOKIE HWY @ IL 132 GRAND AVE | LA | T-1A | ON |
| 1457 | TS | 6551 | IL 132 GRAND AVE @ 1ST ST | LA | T-1A | OFF |
| 1458 | TS | 6555 | US 41 SKOKIE HWY @ IL 137 BUCKLEY | LA | T-1A | ON |
| 1459 | TS | 6560 | US 41 @ IL 173 | LA | T-1A | ON |

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|------|----|------|---|----|------|----|
| 1460 | TS | 6565 | US 41 SKOKIE HWY @ 22ND ST MLK KING DR | LA | T-1A | ON |
| 1461 | TS | 6567 | US 41 @ AMHURST PKWY | LA | T-1A | ON |
| 1462 | TS | 6568 | IL 173 @ I 94 OFF RAMP | LA | T-1A | ON |
| 1463 | TS | 6569 | IL 173 @ I 94 TLWY ON RAMP | LA | T-1A | ON |
| 1464 | TS | 6570 | US 41 SKOKIE HWY @ DELANY RD | LA | T-1A | ON |
| 1465 | TS | 6575 | US 41 SKOKIE VALLEY RD @ OLD ELM RD | LA | T-1A | ON |
| 1466 | TS | 6580 | US 41 @ WADSWORTH RD | LA | T-1A | ON |
| 1467 | TS | 6585 | US 41 SKOKIE VALLEY RD SKOKIE HWY @ WESTLEIGH RD | LA | T-1A | ON |
| 1468 | TS | 6590 | US 41 SKOKIE HWY SKOKIE VALLEY RD @ PARK AVE WEST | LA | T-1A | ON |
| 1469 | TS | 6594 | US 45 IL 21 MILWAUKEE AVE @ OLD HALF DAY RD | LA | T-1A | ON |
| 1470 | TS | 6595 | US 45 IL 21 MILWAUKEE AVE @ US 45 OLDE HALF DAY RD | LA | T-1A | ON |
| 1471 | TS | 6598 | US 45 @ PORT CLINTON RD | LA | T-1A | ON |

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|------|----|------|--|----|------|-----|
| 1472 | TS | 6600 | US 45 IL 21 MILWAUKEE AVE @ IL 22 HALF DAY RD | LA | T-1A | ON |
| 1473 | TS | 6605 | US 45 @ IL 60 | LA | T-1A | ON |
| 1474 | TS | 6610 | US 45 IL 83 @ US 45 IL 83 LAKE ST | LA | T-1A | ON |
| 1475 | TS | 6612 | US 45 @ IL 83 E RAMPS B & D | CO | T-1A | ON |
| 1476 | TS | 6613 | US 45 @ IL 83 W RAMPS A&C | CO | T-1A | ON |
| 1477 | TS | 6615 | US 45 @ IL 132 GRAND AVE | LA | T-1A | ON |
| 1478 | TS | 6617 | US 45 @ STEARNS SCHOOL RD SAND LAKE RD | LA | T-1A | ON |
| 1479 | TS | 6618 | US 45 @ DADA DR GRANT AVE | LA | T-1A | ON |
| 1480 | TS | 6620 | US 45 @ IL 173 | LA | T-1A | ON |
| 1481 | TS | 6622 | IL 173 ROSECRANS RD @ GREGORY DR | LA | T-1A | ON |
| 1482 | TS | 6625 | US 45 LAKE @ IL 176 MAPLE | LA | T-1A | OFF |
| 1483 | TS | 6630 | US 45 IL 21 MILWAUKEE AVE @ APTAKISIC RD | LA | T-1A | ON |

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|------|----|------|---|----|------|----|
| 1484 | TS | 6635 | US 45 @ BRAE LOCH RD | LA | T-1A | ON |
| 1485 | TS | 6640 | US 45 @ BUTTERFIELD RD | LA | T-1A | ON |
| 1486 | TS | 6641 | US 45 @ OAKWOOD RD | LA | T-1A | ON |
| 1487 | TS | 6645 | US 45 @ CENTER ST DEERPATH RD | LA | T-1A | ON |
| 1488 | TS | 6650 | US 45 IL 21 MILWAUKEE AVE @ DEERFIELD RD | LA | T-1A | ON |
| 1489 | TS | 6655 | US 45 @ DEERPATH RD | LA | T-1A | ON |
| 1490 | TS | 6657 | US 45 @ RANNEY AVE COMMUTER LOT ENT | LA | T-1A | ON |
| 1491 | TS | 6658 | US 45 @ BUFFALO GROVE RD FAIRWAY DR | LA | T-1A | ON |
| 1492 | TS | 6660 | US 45 IL 21 MILWAUKEE AVE @ INVERRARY LN | LA | T-1A | ON |
| 1493 | TS | 6665 | US 45 IL 21 MILWAUKEE AVE @ KNIGHTSBRIDGE PKWY | LA | T-1A | ON |
| 1494 | TS | 6670 | US 45 @ GRASS LAKE RD MILLBURN RD | LA | T-1A | ON |

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|------|----|------|--|----|------|-----|
| 1495 | TS | 6675 | US 45 @ PETERSON RD | LA | T-1A | ON |
| 1496 | TS | 6680 | US 45 IL 21 MILWAUKEE AVE @ BUSCH PKWY CHICORY LN | LA | T-1A | ON |
| 1497 | TS | 6685 | US 45 @ WASHINGTON ST | LA | T-1A | ON |
| 1498 | TS | 6690 | US 45 @ ROLLINS RD CTY A20 | LA | T-1B | ON |
| 1499 | TS | 6695 | US 45 IL 21 MILWAUKEE AVE @ MARRIOTT DR | LA | T-1A | ON |
| 1500 | TS | 6698 | US 45 IL 21 MILWAUKEE AVE @ AUDUBON WAY PARKWAY DR | LA | T-1A | ON |
| 1501 | TS | 6700 | IL 21 MILWAUKEE AVE @ IL 60 TOWNLINE RD | LA | T-1A | ON |
| 1502 | TS | 6702 | IL 60 TOWNLINE RD @ RIVERTREE CT ENT MELLODY FARM ENT | LA | T-1A | ON |
| 1503 | TS | 6705 | IL 21 RIVERSIDE DR @ IL 132 GRAND AVE | LA | T-1A | OFF |
| 1504 | TS | 6708 | IL 21 MILWAUKEE AVE @ CASEY RD | LA | T-1A | ON |
| 1505 | TS | 6710 | IL 21 MILWAUKEE AVE @ IL 137 BUCKLEY RD | LA | T-1A | ON |
| 1506 | TS | 6715 | IL 21 MILWAUKEE AVE @ IL 176 PARK AVE | LA | T-1A | ON |

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|------|----|------|--|----|------|----|
| 1507 | TS | 6718 | IL 21 MILWAUKEE AVE @ HOLLISTER DR | LA | T-1A | ON |
| 1508 | TS | 6720 | IL 21 MILWAUKEE AVE @ HAWTHORN MALL ENT MELLODY FARM ENT | LA | T-1A | ON |
| 1509 | TS | 6725 | IL 21 MILWAUKEE AVE @ RING DR HAWTHORN MALL ENT | LA | T-1A | ON |
| 1510 | TS | 6730 | IL 21 MILWAUKEE AVE @ WASHINGTON ST | LA | T-1A | ON |
| 1511 | TS | 6732 | IL 21 MILWAUKEE AVE @ SIX FLAGS TEAM ENTRANCE | LA | T-1A | ON |
| 1512 | TS | 6735 | IL 22 @ IL 43 | LA | T-1A | ON |
| 1513 | TS | 6740 | IL 22 @ IL 59 | LA | T-1A | ON |
| 1514 | TS | 6742 | IL 22 @ OLD BARRINGTON RD | LA | T-1A | ON |
| 1515 | TS | 6745 | IL 22 @ IL 83 | LA | T-1A | ON |
| 1516 | TS | 6750 | MAIN ST @ CHURCH ST | LA | T-1A | ON |
| 1517 | TS | 6751 | IL 22 MAIN ST @ BUESCHING RD | LA | T-1A | ON |
| 1518 | TS | 6753 | MIDLOTHIAN RD @ | LA | | ON |

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|------|----|------|--|----|------|-----|
| | | | OAKWOOD RD LAKEWOOD LN | | T-1A | |
| 1519 | TS | 6757 | IL 22 MAIN ST @ OLD RAND RD | LA | T-1A | ON |
| 1520 | TS | 6758 | IL 22 MAIN ST @ MAIN ST EAST | LA | T-1A | ON |
| 1521 | TS | 6759 | IL 22 MAIN ST @ MAIN ST WEST | LA | T-1A | ON |
| 1522 | TS | 6760 | IL 22 HALF DAY RD EAST OF @ OLDE HALF DAY RD BARCLAY BLVD | LA | T-1A | ON |
| 1523 | TS | 6765 | IL 22 @ QUENTIN RD | LA | T-1A | ON |
| 1524 | TS | 6767 | IL 22 LAKE ZURICH RD @ CORPORATE DR KEMPER INSURANCE ENT | LA | T-1A | ON |
| 1525 | TS | 6770 | IL 22 HALF DAY RD @ RIVERWOODS RD | LA | T-1A | ON |
| 1526 | TS | 6775 | IL 22 MAIN ST @ ELA RD WHITNEY RD | LA | T-1A | ON |
| 1527 | TS | 6780 | IL 22 HALF DAY RD WEST OF @ BARCLAY BLVD/OLDE HALF DAY | LA | T-1A | OFF |
| 1528 | TS | 6785 | IL 22 MAIN ST @ OLD MILL GROVE RD OAKWOOD RD | LA | T-1A | ON |
| 1529 | TS | 6790 | IL 22 HALF DAY RD @ WESTMINSTER WAY HEWITT DR | LA | T-1A | ON |

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|------|----|------|---|----|------|----|
| 1530 | TS | 6795 | IL 43 WAUKEGAN RD @ IL 60 KENNEDY RD | LA | T-1A | ON |
| 1531 | TS | 6800 | IL 43 WAUKEGAN RD @ IL 137 BUCKLEY RD | LA | T-1A | ON |
| 1532 | TS | 6805 | IL 43 WAUKEGAN RD @ IL 176 ROCKLAND RD | LA | T-1A | ON |
| 1533 | TS | 6806 | IL 43 WAUKEGAN RD @ WESTMORELAND RD MIDDLE FORK DR | LA | T-1A | ON |
| 1534 | TS | 6810 | IL 43 WAUKEGAN RD @ 22ND ST MARTIN L KING DR | LA | T-1A | ON |
| 1535 | TS | 6815 | IL 43 WAUKEGAN RD @ ABBOTT LABS GATE 1 | LA | T-1A | ON |
| 1536 | TS | 6820 | IL 43 WAUKEGAN RD @ ABBOTT LABS GATE 2 | LA | T-1A | ON |
| 1537 | TS | 6830 | IL 43 WAUKEGAN RD @ FOSTER AVE | LA | T-1A | ON |
| 1538 | TS | 6835 | IL 53 @ IL 83 MCHENRY RD | LA | T-1A | ON |
| 1539 | TS | 6837 | IL 83 @ ROBERT PARKER COFFIN RD | LA | T-1A | ON |
| 1540 | TS | 6838 | IL 53 @ MENARDS YARD ENT | LA | T-1A | ON |
| 1541 | TS | 6839 | IL 53 @ OLD MCHENRY RD FREMONT WAY | LA | T-1A | ON |

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|------|----|------|--|----|------|-----|
| 1542 | TS | 6840 | IL 59 @ IL 132 GRAND AVE | LA | T-1A | ON |
| 1543 | TS | 6841 | IL 173 @ LAKE AVE | LA | T-1A | ON |
| 1544 | TS | 6843 | IL 173 @ TIFFANY RD | LA | T-1A | ON |
| 1545 | TS | 6845 | IL 59 @ IL 173 | LA | T-1A | ON |
| 1546 | TS | 6847 | IL 173 @ WALMART ENT | LA | T-1A | ON |
| 1547 | TS | 6850 | IL 59 GRAND AVE @ GRAND AVE WASHINGTON ST | LA | T-1A | OFF |
| 1548 | TS | 6855 | IL 59 @ GRASS LAKE RD | LA | T-1A | ON |
| 1549 | TS | 6857 | IL 59 @ BEACH GROVE RD | LA | T-1A | ON |
| 1550 | TS | 6860 | IL 59 @ MILLER RD | LA | T-1A | ON |
| 1551 | TS | 6865 | IL 60 TOWNLINE RD @ BUTTERFIELD RD | LA | T-1A | ON |
| 1552 | TS | 6870 | IL 60 TOWNLINE RD @ DEERPATH DR | LA | T-1A | OFF |
| 1553 | TS | 6875 | IL 60 TOWNLINE RD @ | LA | | OFF |

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| | | | LAKEVIEW PKWY | | T-1A |
|------|----|------|---|----|------|
| 1554 | TS | 6880 | IL 60 TOWNLINE RD @ FAIRWAY DR RING DR HAWTHORN MALL EN | LA | OFF |
| 1555 | TS | 6885 | IL 60 TOWNLINE RD @ HAWTHORN MALL ENT 4 | LA | ON |
| 1556 | TS | 6890 | IL 60 TOWNLINE RD @ HAWTHORN MALL HAWTHORN HILLS SQ ENT | LA | ON |
| 1557 | TS | 6895 | IL 60 @ ST MARY'S RD | LA | ON |
| 1558 | TS | 6900 | IL 60 TOWNLINE RD @ ASPEN DR | LA | ON |
| 1559 | TS | 6905 | IL 60 @ OAK CREEK PLAZA | LA | ON |
| 1560 | TS | 6906 | IL 120 BELVIDERE RD @ CEDAR LAKE RD | LA | ON |
| 1561 | TS | 6908 | IL 60 @ CEDAR LAKE RD | LA | ON |
| 1562 | TS | 6909 | IL 60 @ PETERSON RD | LA | ON |
| 1563 | TS | 6910 | IL 60 IL 83 @ SCHANK NORTH JCT | LA | ON |
| 1564 | TS | 6911 | IL 60 @ KESSLER DR CONNECTOR TARGET | LA | ON |

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| | | | | | | |
|------|----|------|--|----|------|-----|
| 1565 | TS | 6912 | IL 60 @ FAIRFIELD RD | LA | T-1A | ON |
| 1566 | TS | 6913 | IL 60 @ FREMONT CENTER RD | LA | T-1A | ON |
| 1567 | TS | 6914 | IL 60 @ WILSON RD | LA | T-1A | ON |
| 1568 | TS | 6915 | IL 60 IL 83 @ IL 176 | LA | T-1A | ON |
| 1569 | TS | 6916 | IL 176 @ HAWLEY ST EAST | LA | T-1A | ON |
| 1570 | TS | 6917 | IL 176 @ HAWLEY ST | LA | T-1A | ON |
| 1571 | TS | 6920 | IL 60 IL 83 @ DIAMOND LAKE RD | LA | T-1A | ON |
| 1572 | TS | 6925 | IL 60 IL 83 @ MIDLOTHIAN | LA | T-1B | ON |
| 1573 | TS | 6930 | IL 60 IL 83 @ HAWLEY ST | LA | T-1A | ON |
| 1574 | TS | 6935 | IL 60 IL 83 @ WILLOW SPRINGS RD SOUTH JCT | LA | T-1A | ON |
| 1575 | TS | 6940 | IL 83 BUCKLEY RD @ IL 120 BELVIDERE RD | LA | T-1A | OFF |
| 1576 | TS | 6943 | IL 120 BELVIDERE RD @ ATKINSON RD | LA | T-1B | ON |

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|------|----|------|---|----|------|-----|
| 1577 | TS | 6945 | IL 83 MILWAUKEE AVE @ IL 132 GRAND AVE | LA | T-1A | ON |
| 1578 | TS | 6948 | IL 83 @ MONAVILLE RD | LA | T-1A | ON |
| 1579 | TS | 6949 | IL 83 @ ENGLE DR WALMART ENT | LA | T-1A | ON |
| 1580 | TS | 6950 | IL 83 MAIN ST @ IL 173 | LA | T-1A | ON |
| 1581 | TS | 6955 | IL 83 @ APTAKISIC RD | LA | T-1A | OFF |
| 1582 | TS | 6957 | IL 83 @ HILLTOP RD | LA | T-1A | ON |
| 1583 | TS | 6960 | IL 83 MCHENRY RD @ ARLINGTON HEIGHTS RD | LA | T-1A | OFF |
| 1584 | TS | 6965 | IL 83 MCHENRY RD @ DEERFIELD PKWY CHECKER DR | LA | T-1A | ON |
| 1585 | TS | 6970 | IL 83 MILWAUKEE AVE @ GRASS LAKE RD | LA | T-1A | ON |
| 1586 | TS | 6975 | IL 83 MCHENRY RD @ BUFFALO GROVE RD | LA | T-1A | ON |
| 1587 | TS | 6980 | IL 83 IVANHOE RD @ IL 137 BUCKLEY RD | LA | T-1B | OFF |
| 1588 | TS | 6982 | IL 83 IVANHOE RD @ | LA | | ON |

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| | | | PETERSON RD | | T-1A |
|------|----|------|--|----|-------------|
| 1589 | TS | 6985 | IL 83 MCHENRY RD @ THE GROVE SC ENT | LA | ON T-1A |
| 1590 | TS | 6990 | IL 83 @ GILMER RD OAKWOOD RD | LA | ON T-1A |
| 1591 | TS | 6992 | IL 83 @ WESTMORELAND DR | LA | ON T-1A |
| 1592 | TS | 6995 | IL 120 BELVIDERE RD @ IL 134 MAIN ST | LA | ON T-1A |
| 1593 | TS | 7000 | IL 120 BELVIDERE RD @ HAINSVILLE RD | LA | ON T-1A |
| 1594 | TS | 7005 | IL 120 BELVIDERE RD @ KNIGHT AVE | LA | ON T-1A |
| 1595 | TS | 7010 | IL 120 BELVIDERE RD @ OPLAINE RD | LA | OFF T-1A |
| 1596 | TS | 7015 | IL 131 GREEN BAY RD @ IL 137 BUCKLEY | LA | ON T-1A |
| 1597 | TS | 7018 | IL 131 GREEN BAY RD @ CAVIN RD | LA | ON T-1A |
| 1598 | TS | 7020 | IL 131 GREEN BAY RD @ IL 176 ROCKLAND RD SCRANTON AVE | LA | ON T-1A |
| 1599 | TS | 7026 | IL 131 GREEN BAY RD @ KENOSHA RD | LA | ON T-1A |

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| | | | | | | |
|------|----|------|--|----|------|-----|
| 1600 | TS | 7030 | IL 131 GREEN BAY RD @ WADSWORTH RD | LA | T-1A | ON |
| 1601 | TS | 7035 | IL 131 GREEN BAY RD @ WASHINGTON ST | LA | T-1A | ON |
| 1602 | TS | 7040 | IL 131 GREEN BAY RD @ YORKHOUSE RD | LA | T-1A | ON |
| 1603 | TS | 7045 | IL 131 GREEN BAY RD @ 10TH ST | LA | T-1A | ON |
| 1604 | TS | 7048 | IL 173 ROSECRANS RD @ HUNT CLUB RD | LA | T-1A | ON |
| 1605 | TS | 7049 | IL 131 GREEN BAY RD @ 21ST ST | LA | T-1A | ON |
| 1606 | TS | 7050 | IL 131 GREEN BAY RD @ IL 173 | LA | T-1A | ON |
| 1607 | TS | 7053 | IL 173 @ KENOSHA RD | LA | T-1A | ON |
| 1608 | TS | 7054 | IL 131 GREEN BAY RD @ RUSSELL RD | LA | T-1A | ON |
| 1609 | TS | 7055 | IL 132 GRAND AVE @ SIX FLAGS DR LAWSON BLVD | LA | T-1A | OFF |
| 1610 | TS | 7060 | IL 132 GRAND AVE @ HUNT CLUB RD | LA | T-1A | OFF |
| 1611 | TS | 7062 | IL 132 GRAND AVE @ BROOKSIDE DR | LA | T-1A | ON |

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|------|----|------|---|----|------|-----|
| 1612 | TS | 7065 | IL 132 GRAND AVE @ OPLAINE RD | LA | T-1A | OFF |
| 1613 | TS | 7070 | IL 132 GRAND AVE @ SAND LAKE RD | LA | T-1A | OFF |
| 1614 | TS | 7075 | IL 132 GRAND AVE @ GRANADA BLVD LINDENHURST DR | LA | T-1A | OFF |
| 1615 | TS | 7078 | IL 132 GRAND AVE @ FAIRFIELD RD | LA | T-1A | ON |
| 1616 | TS | 7080 | IL 132 GRAND AVE @ DEEP LAKE RD | LA | T-1A | ON |
| 1617 | TS | 7081 | IL 132 GRAND AVE @ MUNN RD | LA | T-1A | OFF |
| 1618 | TS | 7085 | IL 132 GRAND AVE @ DILLEYS RD | LA | T-1A | OFF |
| 1619 | TS | 7090 | IL 134 @ FAIRFIELD RD | LA | T-1A | ON |
| 1620 | TS | 7094 | IL 137 BUCKLEY RD PETERSON RD @ BUTTERFIELD SQUARE ENT | LA | T-1A | ON |
| 1621 | TS | 7095 | IL 137 BUCKLEY RD PETERSON RD @ BUTTERFIELD RD | LA | T-1A | ON |
| 1622 | TS | 7100 | IL 137 BUCKLEY RD @ MERIDIAN DR GEORGIA RD | LA | T-1A | ON |
| 1623 | TS | 7105 | IL 137 BUCKLEY RD @ | LA | | ON |

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|------|----|------|--|----|--|------------|
| | | | OPLAINE RD | | | T-1A |
| 1624 | TS | 7110 | IL 137 BUCKLEY RD @ ST MARYS RD | LA | | ON T-1A |
| 1625 | TS | 7115 | IL 137 BUCKLEY RD @ GREAT LAKES DR | LA | | ON T-1A |
| 1626 | TS | 7120 | IL 137 BUCKLEY RD @ MISSISSIPPI ST | LA | | ON T-1A |
| 1627 | TS | 7125 | IL 137 BUCKLEY RD @ ABBOTT NO ENTRANCE GATE 3 | LA | | ON T-1A |
| 1628 | TS | 7129 | IL 173 @ SAVAGE RD DEERCREST DR | LA | | ON T-1A |
| 1629 | TS | 7130 | IL 173 @ DEEP LAKE RD | LA | | ON T-1A |
| 1630 | TS | 7132 | IL 173 @ DELANY RD | LA | | ON T-1A |
| 1631 | TS | 7133 | IL 173 @ KILBOURNE RD | LA | | ON T-1B |
| 1632 | TS | 7135 | IL 176 STATE RD @ DARRELL RD | LA | | ON T-1A |
| 1633 | TS | 7137 | IL 176 STATE RD @ WESTRIDGE DR | LA | | ON T-1A |
| 1634 | TS | 7139 | IL 176 STATE RD @ BEECH ST EASTWAY DR | LA | | ON T-1A |

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|------|----|------|---|----|------|-----|
| 1635 | TS | 7140 | IL 176 @ FAIRFIELD RD | LA | T-1A | ON |
| 1636 | TS | 7142 | IL 176 @ GILMER | LA | T-1A | ON |
| 1637 | TS | 7145 | IL 176 @ MIDLOTHIAN RD | LA | T-1A | ON |
| 1638 | TS | 7150 | IL 176 @ OLD RAND RD MAIN ST IN WAUCONDA | LA | T-1A | ON |
| 1639 | TS | 7152 | IL 176 LIBERTY ST @ LARKDALE DR | LA | T-1A | ON |
| 1640 | TS | 7155 | IL 176 LIBERTY STREET @ BROWN ST | LA | T-1A | ON |
| 1641 | TS | 7160 | IL 137 BUCKLEY RD @ LEWIS AVE | LA | T-1A | ON |
| 1642 | TS | 7170 | IL 137 BUCKLEY RD @ ILLINOIS ST | LA | T-1A | ON |
| 1643 | TS | 7175 | IL 137 BUCKLEY RD @ RAY ST | LA | T-1A | ON |
| 1644 | TS | 7185 | COUNTY LINE RD LAKE COOK @ HART RD | CO | T-1A | OFF |
| 1645 | TS | 7190 | IL 137 SHERIDAN RD HIAWATHA TRL @ BEACH RD | LA | T-1A | OFF |
| 1646 | TS | 7195 | IL 137 SHERIDAN RD @ WADSWORTH RD | LA | T-1A | OFF |

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|------|----|------|--|----|------|----|
| 1647 | TS | 7200 | IL 137 SHERIDAN RD HIAWATHA TRL @ YORK HOUSE RD | LA | | ON |
| | | | | | T-1A | |
| 1648 | TS | 7210 | US 12 @ IL 31 | MC | | ON |
| | | | | | T-1A | |
| 1649 | TS | 7215 | US 12 @ IL 173 | MC | | ON |
| | | | | | T-1A | |
| 1650 | TS | 7217 | IL 173 KENOSHA RD @ WILMOT RD | MC | | ON |
| | | | | | T-1A | |
| 1651 | TS | 7220 | US 12 @ FOX LAKE RD | MC | | ON |
| | | | | | T-1A | |
| 1652 | TS | 7223 | US 12 @ WILMOT RD JOHNSBURG RD | MC | | ON |
| | | | | | T-1A | |
| 1653 | TS | 7225 | US 12 @ WINN RD SPRING GROVE RD | MC | | ON |
| | | | | | T-1A | |
| 1654 | TS | 7230 | US 14 NORTHWEST HWY @ IL 22 | MC | | ON |
| | | | | | T-1A | |
| 1655 | TS | 7233 | US 14 @ RIDGEFIELD RD | MC | | ON |
| | | | | | T-1A | |
| 1656 | TS | 7235 | US 14 @ IL 47 EASTWOOD DR | MC | | ON |
| | | | | | T-1A | |
| 1657 | TS | 7236 | US 14 @ LAKE AVE | MC | | ON |
| | | | | | T-1A | |
| 1658 | TS | 7237 | US 14 @ | MC | | ON |

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|------|----|------|--|----|------|----|
| | | | LAKE SHORE AVE FRONTAGE RD | | T-1A | |
| 1659 | TS | 7238 | US 14 @ DEAN ST | MC | T-1A | ON |
| 1660 | TS | 7239 | US 14 @ DOTY RD | MC | T-1A | ON |
| 1661 | TS | 7240 | US 14 DIVISION ST @ IL 173 BRINK ST | MC | T-1A | ON |
| 1662 | TS | 7241 | US 14 @ LAKE SHORE DR | MC | T-1A | ON |
| 1663 | TS | 7245 | US 14 NORTHWEST HWY @ MAIN ST | MC | T-1A | ON |
| 1664 | TS | 7246 | US 14 NORTHWEST HWY @ MAIN ST | MC | T-1A | ON |
| 1665 | TS | 7248 | US 14 NORTHWEST HWY @ CARY SQUARE SC ENT | MC | T-1A | ON |
| 1666 | TS | 7260 | US 14 NORTHWEST HWY @ THREE OAKS RD | MC | T-1A | ON |
| | TS | 7270 | US 14 DIVISION ST @ IL 173 DIGGINS ST AYER ST | MC | T-1A | ON |
| 1667 | TS | 7275 | US 14 NORTHWEST HWY @ 1ST ST | MC | T-1A | ON |
| 1668 | TS | 7280 | IL 62 ALGONQUIN RD @ IL 31 MAIN ST | MC | T-1A | ON |

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|------|----|------|--|----|------|----|
| 1669 | TS | 7281 | IL 62 ALGONQUIN RD @ IL 31 NB RAMPS A & B | MC | T-1A | ON |
| 1670 | TS | 7282 | IL 62 ALGONQUIN RD @ IL 31 SB RAMPS C & D | MC | T-1A | ON |
| 1671 | TS | 7285 | IL 31 FRONT ST @ IL 120 WEST JCT | MC | T-1A | ON |
| 1672 | TS | 7288 | IL 31 @ PRIME PKWY ALBANY ST | MC | T-1A | ON |
| 1673 | TS | 7289 | IL 31 @ SHAMROCK LN | MC | T-1A | ON |
| 1674 | TS | 7290 | IL 31 NORTH RICHMOND @ IL 120 ELM E JCT | MC | T-1A | ON |
| 1675 | TS | 7295 | IL 31 @ IL 176 TERRA COTTA AVE | MC | T-1A | ON |
| 1676 | TS | 7296 | IL 176 @ VALLEY VIEW DR | MC | T-1A | ON |
| 1677 | TS | 7298 | IL 176 @ SMITH RD | MC | T-1A | ON |
| 1678 | TS | 7300 | IL 31 @ BULL VALLEY RD | MC | T-1A | ON |
| 1679 | TS | 7305 | IL 31 @ CRYSTAL LAKE AVE | MC | T-1A | ON |
| 1680 | TS | 7310 | IL 31 RICHMOND RD @ JOHNSBURG RD | MC | T-1A | ON |

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|------|----|------|--|----|------|----|
| 1681 | TS | 7311 | IL 31 RICHMOND RD @ RUNNING BROOK FARM BLVD | MC | T-1A | ON |
| 1682 | TS | 7313 | IL 31 @ RINGWOOD RD | MC | T-1B | ON |
| 1683 | TS | 7315 | IL 31 @ THREE OAKS RD | MC | T-1A | ON |
| 1684 | TS | 7320 | IL 47 @ ALGONQUIN RD | MC | T-1A | ON |
| 1685 | TS | 7322 | IL 47 @ REED RD | MC | T-1A | ON |
| 1686 | TS | 7323 | IL 47 @ MCCONNELL RD | MC | T-1A | ON |
| 1687 | TS | 7324 | IL 47 @ HUNTLEY CROSSING DR | KA | T-1A | ON |
| 1688 | TS | 7325 | IL 47 EASTWOOD AVE @ LAKE AVE | MC | T-1A | ON |
| 1689 | TS | 7328 | IL 47 @ REGENCY PKWY | KA | T-1A | ON |
| 1690 | TS | 7329 | IL 47 @ KREUTZER RD | MC | T-1A | ON |
| 1691 | TS | 7330 | IL 47 @ MAIN ST (IN HUNTLEY) | MC | T-1A | ON |
| 1692 | TS | 7331 | IL 47 @ | KA | | ON |

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|------|----|------|---|----|------|----|
| | | | FREEMAN RD JIM DHAMER RD | | T-1A | |
| 1693 | TS | 7332 | IL 47 @ DEL WEBB BLVD OAK CREEK PKWY | KA | T-1A | ON |
| 1694 | TS | 7333 | IL 47 @ PLANK RD | KA | T-1A | ON |
| 1695 | TS | 7335 | IL 120 @ CHAPEL HILL RD | MC | T-1A | ON |
| 1696 | TS | 7336 | IL 47 NORTH RAMP @ I 90 TLWY | KA | T-1A | ON |
| 1697 | TS | 7337 | IL 47 SOUTH RAMP @ I 90 TLWY | KA | T-1A | ON |
| 1698 | TS | 7339 | IL 47 @ BIG TIMBER RD | KA | T-1A | ON |
| 1699 | TS | 7340 | IL 120 @ RIVER RD | MC | T-1A | ON |
| 1700 | TS | 7342 | IL 120 @ THOMPSON RD | MC | T-1A | ON |
| 1701 | TS | 7345 | IL 120 @ WONDER LAKE RD | MC | T-1A | ON |
| 1702 | TS | 7349 | I 55 @ WEBER RD DDI | WI | T-1A | ON |
| 1703 | TS | 7350 | WEBER RD @ NORMANTOWN RD | WI | T-1A | ON |

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|------|----|------|--|----|------|-----|
| 1704 | TS | 7375 | IL 50 @ CORNING AVE | WI | T-1A | ON |
| 1705 | TS | 7385 | I 80 RAMP @ NEW RICHARDS ST SOUTH RAMP | WI | T-1A | OFF |
| 1706 | TS | 7386 | US 52 NORTH ST @ MANHATTAN RD FOXFORD DR | WI | T-1A | ON |
| 1707 | TS | 7387 | US 52 MANHATTAN RD @ LARAWAY RD | WI | T-1A | ON |
| 1708 | TS | 7388 | BRIGGS ST @ NEW LENOX RD | WI | T-1B | ON |
| 1709 | TS | 7390 | I 80 @ RICHARDS ST NORTH RAMP | WI | T-1A | OFF |
| 1710 | TS | 7393 | I 80 RAMPS WESTBOUND @ BRIGGS ST | WI | T-1B | OFF |
| 1711 | TS | 7394 | I 80 RAMPS EASTBOUND @ BRIGGS ST | WI | T-1A | OFF |
| 1712 | TS | 7395 | US 30 LINCOLN HWY @ I 80 EAST RAMP OLD HICKORY RD | WI | T-1A | ON |
| 1713 | TS | 7400 | US 30 LINCOLN HWY @ I 80 | WI | T-1A | ON |
| 1714 | TS | 7405 | US 6 CHANNAHON RD @ IL 7 LARKIN AVE | WI | T-1A | ON |
| 1715 | TS | 7410 | US 6 @ WALNUT ST DRAPER AVE | WI | T-1A | ON |

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|------|----|------|---|----|------|-----|
| 1716 | TS | 7411 | US 45 LAGRANGE RD @ LINCOLN WAY LN ALSIP NURSERY ENT | WI | T-1A | ON |
| 1717 | TS | 7412 | US 45 LAGRANGE RD @ LARAWAY RD | WI | T-1A | ON |
| 1718 | TS | 7413 | US 45 LAGRANGE RD @ NEBRASKA AVE | WI | T-1A | ON |
| 1719 | TS | 7414 | US 45 LAGRANGE RD @ OLD FRANKFORT WAY | WI | T-1A | ON |
| 1720 | TS | 7415 | US 30 NORTH ST LINCOLN HWY @ US 45 LAGRANGE RD | WI | T-1A | ON |
| 1721 | TS | 7416 | US 30 LINCOLN HWY @ ELSNER RD | WI | T-1A | ON |
| 1722 | TS | 7417 | US 45 LAGRANGE RD @ 183RD ST | CO | T-1A | ON |
| 1723 | TS | 7418 | US 30 LINCOLN HWY @ PFIEFFER DR | WI | T-1A | OFF |
| 1724 | TS | 7420 | US 30 LINCOLN HWY PLAINFIELD RD @ IL 7 THEODORE RD | WI | T-1A | ON |
| 1725 | TS | 7425 | US 30 @ IL 59 COMMERCIAL DR | WI | T-1A | ON |
| 1726 | TS | 7426 | IL 59 @ FORT BEGGS ST | WI | T-1A | ON |
| 1727 | TS | 7430 | US 30 LINCOLN HWY PLAINFIELD RD @ | WI | | ON |

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|------|----|------|--|----|--|------------|
| | | | CANTON FARM RD GAYLORD RD | | | T-1A |
| 1728 | TS | 7431 | US 6 SOUTHWEST HWY @ I 355 WEST RAMPS | WI | | ON T-1A |
| 1729 | TS | 7432 | US 6 SOUTHWEST HWY @ I 355 EAST RAMPS | WI | | ON T-1A |
| 1730 | TS | 7433 | US 6 SOUTHWEST HWY @ CEDAR RD | WI | | ON T-1A |
| 1731 | TS | 7434 | US 6 @ SILVER CROSS BLVD HOSPITAL ENT | WI | | ON T-1A |
| 1732 | TS | 7435 | US 30 LINCOLN HWY MAPLE ST @ CEDAR RD | WI | | ON T-1A |
| 1733 | TS | 7436 | US 6 SOUTHWEST HWY @ PARKER RD | WI | | ON T-1A |
| 1734 | TS | 7437 | US 30 LINCOLN HWY @ PRAIRIE DR | WI | | ON T-1A |
| 1735 | TS | 7439 | US 30 LINCOLN HWY @ WILLIAMS ST | WI | | ON T-1A |
| 1736 | TS | 7440 | US 30 LINCOLN HWY @ NELSON RD | WI | | ON T-1A |
| 1737 | TS | 7442 | US 30 LINCOLN HWY @ MARLEY RD | WI | | ON T-1A |
| 1738 | TS | 7445 | US 30 LINCOLN HWY @ WALNUT ST | WI | | ON T-1A |

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|------|----|------|---|----|------|----|
| 1739 | TS | 7450 | US 30 LINCOLN HWY @ WASHINGTON ST | WI | T-1A | ON |
| 1740 | TS | 7455 | US 30 LINCOLN HWY MAPLE ST @ VINE ST EAST SOUTH JUNCTION | WI | T-1A | ON |
| 1741 | TS | 7460 | US 30 LINCOLN HWY CASS ST @ BRIGGS ST | WI | T-1A | ON |
| 1742 | TS | 7465 | US 30 LINCOLN HWY MAPLE ST @ VINE ST WEST NORTH JUNCTION | WI | T-1A | ON |
| 1743 | TS | 7470 | US 30 PLAINFIELD RD @ RENWICK RD BROWN ST | WI | T-1A | ON |
| 1744 | TS | 7471 | IL 59 @ ST MARYS RD | WI | T-1A | ON |
| 1745 | TS | 7472 | US 30 LINCOLN HWY @ LILY CACHE RD | WI | T-1A | ON |
| 1746 | TS | 7473 | IL 59 @ FRASER RD | WI | T-1A | ON |
| 1747 | TS | 7474 | US 66 IL 59 DIVISION ST @ RENWICK RD | WI | T-1A | ON |
| 1748 | TS | 7475 | US 30 LINCOLN HWY @ WOLF RD | WI | T-1A | ON |
| 1749 | TS | 7476 | US 30 LINCOLN HWY @ LOCUST ST | WI | T-1A | ON |
| 1750 | TS | 7477 | 187TH ST @ WOLF RD | WI | T-1A | ON |

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|------|----|------|--|----|------|-----|
| 1751 | TS | 7478 | US 30 LINCOLN HWY @ OWENS RD RIDGEMORE RD | WI | T-1A | ON |
| 1752 | TS | 7479 | US 30 LINCOLN HWY @ JOLIET HWY | WI | T-1A | ON |
| 1753 | TS | 7480 | US 45 MANNHEIM RD @ 191ST ST | WI | T-1A | ON |
| 1754 | TS | 7481 | US 45 LAGRANGE RD @ HICKORY CREEK MARKET PL ENT | WI | T-1A | ON |
| 1755 | TS | 7482 | I 80 SOUTH RAMP @ US 45 96TH AVE | WI | T-1A | ON |
| 1756 | TS | 7483 | I 80 RAMP B @ US 45 96TH AVE | WI | T-1A | ON |
| 1757 | TS | 7485 | US 45 MANNHEIM RD @ 195TH ST WILLOW LN | WI | T-1A | ON |
| 1758 | TS | 7490 | US 52 DORIS AVE @ IL 53 CHICAGO ST | WI | T-1A | ON |
| 1759 | TS | 7492 | IL 59 @ SCHOOL ST | WI | T-1A | ON |
| 1760 | TS | 7493 | IL 59 @ SEIL RD | WI | T-1A | OFF |
| 1761 | TS | 7495 | US 52 JEFFERSON ST @ IL 59 BROOK FOREST COTTAGE | WI | T-1A | OFF |
| 1762 | TS | 7496 | US 52 @ | WI | | ON |

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|------|----|------|---|----|--|-------------|
| | | | BROOKSHORE DR | | | T-1A |
| 1763 | TS | 7497 | US 52 JEFFERSON ST @ RIVER RD | WI | | ON T-1A |
| 1764 | TS | 7500 | IL 1 MAIN ST @ EXCHANGE ST | WI | | ON T-1A |
| 1765 | TS | 7503 | IL 1 DIXIE HWY @ CHURCH RD | WI | | ON T-1A |
| 1766 | TS | 7504 | IL 1 DIXIE HWY @ CHESTNUT LN LINDEN DR | WI | | ON T-1A |
| 1767 | TS | 7505 | IL 1 DIXIE HWY @ CO HWY 24 INDIANA AVE | WI | | ON T-1A |
| 1768 | TS | 7510 | IL 7 IL 53 BROADWAY ST @ IL 7 RENWICK RD | WI | | ON T-1A |
| 1769 | TS | 7511 | IL 7 159TH ST @ GOUGAR RD | WI | | ON T-1A |
| 1770 | TS | 7514 | IL 7 159TH ST @ S BELL RD | WI | | ON T-1A |
| 1771 | TS | 7515 | IL 7 IL 53 BROADWAY ST @ IL 7 THEODORE ST GENSTAR LN | WI | | OFF T-1A |
| 1772 | TS | 7516 | IL 171 STATE ST @ DIVISION ST | WI | | ON T-1A |
| 1773 | TS | 7517 | IL 171 STATE ST @ IL 7 9TH ST | WI | | ON T-1A |

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|------|----|------|------------------------------------|----|------|-----|
| 1774 | TS | 7518 | IL 171 STATE ST @ 2ND ST | WI | T-1A | ON |
| 1775 | TS | 7519 | IL 171 STATE ST @ 10TH ST | WI | T-1A | ON |
| 1776 | TS | 7520 | IL 7 159TH ST @ N BELL RD | WI | T-1A | ON |
| 1777 | TS | 7521 | IL 7 9TH ST @ 7TH ST | WI | T-1A | OFF |
| 1778 | TS | 7522 | IL 7 9TH ST @ MADISON ST | WI | T-1A | ON |
| 1779 | TS | 7523 | IL 7 9TH ST @ HAMILTON AVE | WI | T-1A | ON |
| 1780 | TS | 7524 | IL 7 9TH ST @ READ ST LOCH LANE | WI | T-1A | ON |
| 1781 | TS | 7525 | IL 7 159TH ST @ CEDAR RD | WI | T-1A | ON |
| 1782 | TS | 7526 | IL 7 159TH @ FARRELL RD | WI | T-1A | ON |
| 1783 | TS | 7529 | IL 7 159TH ST @ ADELMANN DR | WI | T-1A | ON |
| 1784 | TS | 7530 | IL 7 LARKIN AVE @ MOEN AVE | WI | T-1A | ON |
| 1785 | TS | 7532 | IL 7 LARKIN AVE @ MEADOW AVE | WI | T-1A | ON |

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|------|----|------|---|----|------|----|
| 1786 | TS | 7535 | IL 7 THEODORE ST @ ARBOR LN | WI | T-1A | ON |
| 1787 | TS | 7540 | IL 7 LARKIN AVE @ NORTH RIDGE PLAZA ENT | WI | T-1A | ON |
| 1788 | TS | 7543 | IL 7 9TH ST @ THORNTON ST | WI | T-1A | ON |
| 1789 | TS | 7544 | I 57 EAST RAMP @ STUENKEL RD | WI | T-1A | ON |
| 1790 | TS | 7545 | IL 7 IL 53 BROADWAY ST @ DIVISION ST | WI | T-1A | ON |
| 1791 | TS | 7546 | I 57 WEST RAMP @ STUENKEL RD | WI | T-1A | ON |
| 1792 | TS | 7548 | IL 50 CICERO AVE @ UNIVERSITY PKWY STUENKEL RD | WI | T-1A | ON |
| 1793 | TS | 7549 | IL 171 STATE ST @ 13TH ST METRA STATION | WI | T-1A | ON |
| 1794 | TS | 7550 | IL 50 CICERO AVE @ GOVERNORS HWY | WI | T-1A | ON |
| 1795 | TS | 7551 | IL 50 CICERO AVE @ STEGER RD | CO | T-1A | ON |
| 1796 | TS | 7552 | IL 50 WALNUT ST @ COURT ST | WI | T-1A | ON |
| 1797 | TS | 7553 | I 57 @ | WI | | ON |

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|------|----|------|---|----|------|----|
| | | | MANHATTAN MONEE RD EAST RAMP | | T-1A | |
| 1798 | TS | 7554 | I 57 @ MANHATTAN MONEE RD WEST RAMP | WI | | ON |
| | | | | | T-1A | |
| 1799 | TS | 7555 | IL 53 BALTIMORE ST @ IL 102 WATER ST | WI | | ON |
| | | | | | T-1A | |
| 1800 | TS | 7560 | IL 53 @ AIRPORT RD | WI | | ON |
| | | | | | T-1A | |
| 1801 | TS | 7563 | IL 53 @ MATERIAL RD | WI | | ON |
| | | | | | T-1A | |
| 1802 | TS | 7565 | IL 53 @ JOLIET RD | WI | | ON |
| | | | | | T-1A | |
| 1803 | TS | 7567 | JOLIET RD @ BLUFF RD | WI | | ON |
| | | | | | T-1A | |
| 1804 | TS | 7570 | IL 53 CHICAGO ST @ LARAWAY RD | WI | | ON |
| | | | | | T-1A | |
| 1805 | TS | 7575 | IL 53 @ NORMANTOWN RD DEVONWOOD DR | WI | | ON |
| | | | | | T-1A | |
| 1806 | TS | 7577 | IL 59 DIVISION ST @ VERMETTE CIR | WI | | ON |
| | | | | | T-1A | |
| 1807 | TS | 7578 | IL 59 @ WALMART ENT | WI | | ON |
| | | | | | T-1A | |
| 1808 | TS | 7580 | IL 53 @ KANKAKEE RIVER WILMINGTON PEOTONE R | WI | | ON |
| | | | | | T-1A | |

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| | | | | | | |
|------|----|------|--|----|------|----|
| 1809 | TS | 7581 | IL 53 @ NORTH RIVER RD | WI | T-1A | ON |
| 1810 | TS | 7582 | IL 53 @ SOUTH ARSENAL RD | WI | T-1A | ON |
| 1811 | TS | 7583 | IL 126 @ ESSINGTON RD | WI | T-1B | ON |
| 1812 | TS | 7585 | US 30 IL 59 DIVISION ST @ IL 126 MAIN ST | WI | T-1A | ON |
| 1813 | TS | 7586 | US 30 IL 59 DIVISION ST @ NAPERVILLE RD | WI | T-1A | ON |
| 1814 | TS | 7587 | IL 59 @ MEIJER ENTRANCE | WI | T-1A | ON |
| 1815 | TS | 7588 | US 30 IL 59 DIVISION ST @ US 30 143RD ST | WI | T-1A | ON |
| 1816 | TS | 7590 | IL 59 @ BLACK RD | WI | T-1A | ON |
| 1817 | TS | 7592 | IL 59 @ INDUSTRIAL DR | WI | T-1A | ON |
| 1818 | TS | 7593 | IL 59 @ VERTIN BLVD TARGET ENT | WI | T-1A | ON |
| 1819 | TS | 7595 | IL 59 DIVISION ST @ THEODORE ST RD | WI | T-1A | ON |
| 1820 | TS | 7600 | IL 102 WATER ST @ EAST KAHLER RD WEST KAHLER RD | WI | T-1A | ON |

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|------|----|------|--|----|------|-----|
| 1821 | TS | 7603 | IL 171 ARCHER AVE STATE ST @ 151ST ST | WI | | ON |
| | | | | | T-1A | |
| 1822 | TS | 7605 | IL 171 ARCHER AVE @ 143RD ST | WI | | ON |
| | | | | | T-1A | |
| 1823 | TS | 7607 | IL 171 ARCHER AVE @ SMITH RD | WI | | ON |
| | | | | | T-1A | |
| 1824 | TS | 7608 | IL 171 ARCHER AVE @ I 355 SB RAMP A | WI | | ON |
| | | | | | T-1A | |
| 1825 | TS | 7609 | IL 171 ARCHER AVE @ I 355 NB RAMP D | WI | | ON |
| | | | | | T-1A | |
| 1826 | TS | 7610 | IL 171 COLLINS ST @ WOODRUFF RD | WI | | ON |
| | | | | | T-1A | |
| 1827 | TS | 7615 | IL 394 CALUMET EXPY @ EXCHANGE ST | WI | | ON |
| | | | | | T-1A | |
| 1828 | TS | 7616 | IL 394 CALUMET EXPY IL 1 HALSTED ST @ GOODENOW RD | WI | | ON |
| | | | | | T-1A | |
| 1829 | TS | 7618 | IL 394 CALUMET EXPY @ RICHTON RD | WI | | ON |
| | | | | | T-1A | |
| 1830 | TS | 7619 | IL 394 CALUMET EXPY @ IL 1 DIXIE HWY VILLAGE WOODS DR | WI | | ON |
| | | | | | T-1A | |
| 1831 | TS | 7626 | IL 7 159TH ST SW HWY @ PARKER RD | WI | | ON |
| | | | | | T-1A | |
| 1832 | TS | 7635 | IL 19 IRVING PARK RD @ RODENBURG RD | CO | | OFF |
| | | | | | T-1A | |

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|------|----|------|---|----|------|-----|
| 1833 | TS | 7637 | IL 19 IRVING PARK RD @ WRIGHT BLVD | CO | | ON |
| | | | | | T-1A | |
| 1834 | TS | 7645 | IL 43 HARLEM AVE @ GRAND AVE FULLERTON AVE | CO | | ON |
| | | | | | T-1A | |
| 1835 | TS | 7655 | IL 62 ALGONQUIN RD @ LEXINGTON DR | CO | | ON |
| | | | | | T-1A | |
| 1836 | TS | 7695 | US 20 LAKE ST @ BEAR FLAG DR ONTARIOVILLE | DU | | ON |
| | | | | | T-1A | |
| 1837 | TS | 7736 | IL 176 @ NISH RD | MC | | ON |
| | | | | | T-1A | |
| 1838 | TS | 7740 | IL 176 STATE RD @ RIVER RD | MC | | ON |
| | | | | | T-1A | |
| 1839 | TS | 7741 | IL 176 STATE RD @ NEWPORT CT | MC | | ON |
| | | | | | T-1A | |
| 1840 | TS | 7795 | IL 62 ALGONQUIN RD @ EASTGATE DR | MC | | ON |
| | | | | | T-1A | |
| 1841 | TS | 7797 | IL 31 W ALGONQUIN BYPASS MAIN ST @ HUNTINGTON DR MAIN ST | MC | | ON |
| | | | | | T-1A | |
| 1842 | TS | 7800 | IL 56 BUTTERFIELD RD @ MACARTHUR DR MYRTLY AVE | DU | | ON |
| | | | | | T-1A | |
| 1843 | TS | 7815 | IL 176 @ ST MARYS RD | LA | | ON |
| | | | | | T-1A | |
| 1844 | TS | 7820 | IL 131 GREEN BAY RD @ IL 120 BELVIDERE RD | LA | | OFF |
| | | | | | T-1A | |

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|------|----|------|--|----|------|-----|
| 1845 | TS | 7825 | IL 83 @ ROLLINS RD | LA | T-1A | ON |
| 1846 | TS | 7830 | IL 53 LINCOLN AVE @ MAPLE AVE | DU | T-1A | ON |
| 1847 | TS | 7835 | IL 53 @ IL 56 BUTTERFIELD RD | DU | T-1A | ON |
| 1848 | TS | 7850 | IL 53 ROHLWING RD @ ARMY TRAIL RD BLVD | DU | T-1A | ON |
| 1849 | TS | 7851 | IL 53 ROHLWING RD @ MITCHELL CT | DU | T-1A | ON |
| 1850 | TS | 7855 | US 34 OGDEN AVE @ MAIN ST | DU | T-1A | ON |
| 1851 | TS | 7859 | IL 53 @ HONEYTREE DR | WI | T-1A | ON |
| 1852 | TS | 7860 | BARRINGTON RD @ TOWER DR | CO | T-1A | OFF |
| 1853 | TS | 7866 | IL 53 @ ENTERPRISE DR | WI | T-1A | ON |
| 1854 | TS | 7870 | US 20 LAKE ST @ BARTELS RD ARLINGTON DR | DU | T-1A | OFF |
| 1855 | TS | 7875 | US 20 LAKE ST @ BRYN MAWR AVE | DU | T-1A | OFF |
| 1856 | TS | 7885 | IL 62 ALGONQUIN RD @ | CO | | OFF |

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| | | | QUENTIN RD | | T-1A |
|------|----|------|---|----|------|
| 1857 | TS | 7947 | IL 43 HARLEM AVE @ 34TH ST STANLEY BURLINGTON | CO | OFF |
| 1858 | TS | 7950 | IL 43 HARLEM AVE @ 32ND ST W ADDISON RD | CO | ON |
| 1859 | TS | 7991 | IL 25 @ LONGMEADOW PKWY | KA | ON |
| 1860 | TS | 7994 | IL 31 @ LONGMEADOW PKWY | KA | ON |
| 1861 | TS | 7996 | IL 31 MAIN ST @ EDGEWOOD DR | MC | ON |
| 1862 | TS | 7997 | IL 62 @ LONGMEADOW PKWY | KA | ON |
| 1863 | TS | 7998 | IL 31 ALGONQUIN BYPASS @ MAIN ST QUARRY ACCESS | MC | ON |
| 1864 | TS | 8125 | IL 83 EAST RAMP @ 55TH ST | DU | ON |
| 1865 | TS | 8126 | IL 83 WEST RAMP @ 55TH ST | DU | ON |
| 1866 | TS | 8225 | IL 38 ROOSEVELT RD @ COUNTY FARM RD | DU | ON |
| 1867 | TS | 8325 | 15TH ST @ HIGHLAND BLVD | DU | ON |

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|------|----|------|---|----|------|-----|
| 1868 | TS | 8370 | US 34 OGDEN AVE @ FAIRVIEW AVE | DU | | ON |
| | | | | | T-1A | |
| 1869 | TS | 8375 | 22ND ST @ MIDWEST RD | DU | | ON |
| | | | | | T-1A | |
| 1870 | TS | 8377 | 22ND ST @ MACARTHUR DR SHOPS OF OAK BROOK | DU | | ON |
| | | | | | T-1A | |
| 1871 | TS | 8770 | 111TH ST @ OKETO AVE | CO | | ON |
| | | | | | T-1B | |
| 1872 | TS | 8780 | IL 58 GOLF RD @ WOODFIELD MALL CTR ENT ROOSEVELT BL | CO | | ON |
| | | | | | T-1A | |
| 1873 | TS | 8785 | IL 58 GOLF RD @ WOODFIELD MALL W ENT | CO | | ON |
| | | | | | T-1A | |
| 1874 | TS | 8790 | IL 58 GOLF RD @ WOODFIELD MALL E ENT HYATT HARTLEY | CO | | ON |
| | | | | | T-1A | |
| 1875 | TS | 8795 | IL 137 SHERIDAN RD @ 9TH ST | LA | | ON |
| | | | | | T-1A | |
| 1876 | TS | 8800 | IL 64 NORTH AVE @ WINSTON PLAZA ENT | CO | | ON |
| | | | | | T-1A | |
| 1877 | TS | 8830 | US 34 OGDEN AVE @ WASHINGTON ST | DU | | ON |
| | | | | | T-1A | |
| 1878 | TS | 8850 | IL 59 @ JAMES ST | DU | | OFF |
| | | | | | T-1A | |
| 1879 | TS | 8853 | IL 59 @ HAWTHORN LN | DU | | OFF |
| | | | | | T-1A | |

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|------|----|------|---|----|------|-----|
| 1880 | TS | 8855 | IL 59 @ WASHINGTON ST | DU | T-1A | OFF |
| 1881 | TS | 8860 | IL 59 @ MAIN ST | DU | T-1A | OFF |
| 1882 | TS | 8905 | GOLF RD @ LAMON AVE | CO | T-1A | ON |
| 1883 | TS | 8910 | IL 43 HARLEM AVE @ 167TH ST | CO | T-1A | ON |
| 1884 | TS | 8920 | IL 43 HARLEM AVE @ 171ST ST | CO | T-1A | ON |
| 1885 | TS | 8935 | IL 43 HARLEM AVE @ 163RD ST BREMENTOWN | CO | T-1A | ON |
| 1886 | TS | 8940 | IL 19 IRVING PARK RD @ PARK BLVD | CO | T-1A | ON |
| 1887 | TS | 8970 | IL 53 @ 22ND ST | DU | T-1A | ON |
| 1888 | TS | 8975 | IL 31 @ ILLINOIS ST | KA | T-1A | ON |
| 1889 | TS | 8980 | IL 64 MAIN ST @ DUNHAM RD | KA | T-1A | ON |
| 1890 | TS | 8990 | IL 25 5TH AVE @ IL 64 NORTH AVE | KA | T-1A | ON |
| 1891 | TS | 8992 | IL 64 MAIN ST @ | KA | | ON |

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| | | | OAK ST | | T-1A |
|------|----|------|--|----|-------------|
| 1892 | TS | 8995 | IL 25 5TH AVE @ ILLINOIS ST | KA | ON T-1A |
| 1893 | TS | 9000 | IL 64 MAIN ST @ TYLER RD | KA | ON T-1A |
| 1894 | TS | 9010 | IL 64 MAIN ST @ IL 31 WEST 2ND AVE | KA | ON T-1A |
| 1895 | TS | 9015 | IL 64 MAIN ST @ WEST 3RD ST | KA | ON T-1A |
| 1896 | TS | 9016 | IL 64 MAIN ST @ 7TH ST | KA | ON T-1A |
| 1897 | TS | 9017 | IL 64 MAIN ST @ 15TH ST | KA | ON T-1A |
| 1898 | TS | 9020 | IL 64 MAIN ST @ 7TH AVE | KA | ON T-1A |
| 1899 | TS | 9022 | IL 38 ROOSEVELT RD @ KAUTZ RD | DU | ON T-1A |
| 1900 | TS | 9023 | IL 64 NORTH AVE @ KAUTZ RD SMITH RD | KA | ON T-1A |
| 1901 | TS | 9024 | IL 64 MAIN ST @ PHEASANT RUN ENT | KA | OFF T-1A |
| 1902 | TS | 9035 | IL 19 IRVING PARK RD @ ROSELLE RD | DU | ON T-1A |

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| | | | | | | |
|------|----|------|--|----|------|-----|
| 1903 | TS | 9037 | IL 19 IRVING PARK RD @ LAWRENCE AVE | DU | T-1A | ON |
| 1904 | TS | 9040 | IL 19 IRVING PARK RD @ PARK ST | DU | T-1A | ON |
| 1905 | TS | 9047 | IL 38 @ MEIJER ENT | KA | T-1A | ON |
| 1906 | TS | 9065 | IL 64 MAIN ST @ 1ST AVE RIVERSIDE AVE | KA | T-1A | ON |
| 1907 | TS | 9070 | IL 64 MAIN ST @ 1ST STREET | KA | T-1A | ON |
| 1908 | TS | 9085 | IL 72 HIGGINS RD @ DEVON AVE | CO | T-1A | OFF |
| 1909 | TS | 9087 | IL 72 HIGGINS RD @ WINTRUST BANK ACCESS RD | CO | T-1A | OFF |
| 1910 | TS | 9090 | IL 72 HIGGINS RD @ SCOTT ST | CO | T-1A | ON |
| 1911 | TS | 9100 | IL 19 IRVING PARK RD @ MAPLE AVE | DU | T-1A | ON |
| 1912 | TS | 9105 | IL 53 INDEPENDENCE BLVD @ 135TH ST ROMEO RD | WI | T-1A | ON |
| 1913 | TS | 9115 | IL 53 INDEPENDENCE BLVD @ BELMONT AVE | WI | T-1A | ON |
| 1914 | TS | 9120 | IL 53 INDEPENDENCE BLVD @ MURPHY DR | WI | T-1A | ON |

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|------|----|------|--|----|------|-----|
| 1915 | TS | 9125 | NEW AVE @ 135TH ST ROMEO RD | WI | T-1A | ON |
| 1916 | TS | 9130 | IL 53 INDEPENDENCE BLVD @ TAYLOR RD | WI | T-1A | ON |
| 1917 | TS | 9135 | IL 1 HALSTED ST @ 134TH ST | CO | T-1A | OFF |
| 1918 | TS | 9140 | IL 1 HALSTED ST @ 144TH ST | CO | T-1A | OFF |
| 1919 | TS | 9150 | IL 83 SIBLEY BLVD 147TH ST @ I 294 RAMP N | CO | T-1A | ON |
| 1920 | TS | 9152 | I 294 TLWY WEST RAMP (X) @ IL 83 147TH ST | CO | T-1A | ON |
| 1921 | TS | 9155 | IL 83 147TH ST @ CLEVELAND AVE | CO | T-1A | ON |
| 1922 | TS | 9160 | IL 83 SIBLEY BLVD 147TH ST @ HARRISON ST | CO | T-1A | ON |
| 1923 | TS | 9185 | CUMBERLAND AVE @ TALCOTT AVE | CO | T-1A | ON |
| 1924 | TS | 9190 | IL 171 CUMBERLAND AVE @ TOUHY AVE | CO | T-1A | ON |
| 1925 | TS | 9205 | GREENWOOD AVE @ TALCOTT AVE | CO | T-1A | ON |
| 1926 | TS | 9215 | NORTHWEST HWY @ | CO | | ON |

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|------|----|------|--|----|--|------|----|
| | | | MEACHAM AVE | | | T-1A | |
| 1927 | TS | 9220 | NORTHWEST HWY @ WASHINGTON ST | CO | | T-1A | ON |
| 1928 | TS | 9222 | TOUHY AVE @ SUMMIT | CO | | T-1A | ON |
| 1929 | TS | 9235 | BUSSE HWY @ GREENWOOD AVE | CO | | T-1A | ON |
| 1930 | TS | 9240 | BUSSE HWY @ MEACHAM TOUHY PARK RIDGE | CO | | T-1A | ON |
| 1931 | TS | 9245 | COURTLAND @ DEVON AVE | CO | | T-1A | ON |
| 1932 | TS | 9247 | US 14 NORTHWEST HWY @ SUMMIT | CO | | T-1A | ON |
| 1933 | TS | 9250 | US 14 NORTHWEST HWY @ PROSPECT AVE PARK RIDGE | CO | | T-1A | ON |
| 1934 | TS | 9255 | TOUHY AVE @ WASHINGTON ST | CO | | T-1A | ON |
| 1935 | TS | 9295 | WESTERN AVE @ 26TH ST | CO | | T-1A | ON |
| 1936 | TS | 9300 | WESTERN AVE @ NORTH ST BEACON BLVD | CO | | T-1A | ON |
| 1937 | TS | 9335 | PULASKI RD CRAWFORD AVE @ 107TH ST | CO | | T-1A | ON |

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|------|----|------|--|----|------|-----|
| 1938 | TS | 9360 | 22ND ST CERMAK RD @ MID CITY BANK N RIVERSIDE | CO | | ON |
| | | | | | T-1A | |
| 1939 | TS | 9375 | IL 131 GREEN BAY RD @ 14TH ST | LA | | ON |
| | | | | | T-1A | |
| 1940 | TS | 9380 | IL 131 GREEN BAY RD @ 22ND ST MLK MARTIN LUTHER KING DR | LA | | ON |
| | | | | | T-1A | |
| 1941 | TS | 9390 | IL 131 GREEN BAY RD @ SARATOGA ST | LA | | ON |
| | | | | | T-1A | |
| 1942 | TS | 9407 | IL 137 SHERIDAN RD @ 10TH ST | LA | | ON |
| | | | | | T-1A | |
| 1943 | TS | 9415 | IL 137 SHERIDAN RD @ 14TH ST | LA | | ON |
| | | | | | T-1A | |
| 1944 | TS | 9420 | IL 137 SHERIDAN RD @ 16TH ST | LA | | ON |
| | | | | | T-1A | |
| 1945 | TS | 9425 | IL 137 SHERIDAN RD @ 18TH ST | LA | | ON |
| | | | | | T-1A | |
| 1946 | TS | 9450 | IL 59 @ DIEHL RD | DU | | OFF |
| | | | | | T-1A | |
| 1947 | TS | 9455 | IL 59 @ BROOKDALE RD BRUCE LN | DU | | OFF |
| | | | | | T-1A | |
| 1948 | TS | 9472 | IL 59 @ I 88 TLWY N & S RAMPS | DU | | OFF |
| | | | | | T-1A | |
| 1949 | TS | 9495 | US 34 OGDEN @ IROQUOIS | DU | | ON |
| | | | | | T-1A | |

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|------|----|------|--|----|------|-----|
| 1950 | TS | 9605 | US 34 OGDEN @ NAPER BLVD NAPERVILLE RD | DU | | ON |
| | | | | | T-1A | |
| 1951 | TS | 9625 | IL 83 ELMHURST RD @ LONNQUIST | CO | | ON |
| | | | | | T-1A | |
| 1952 | TS | 9630 | US 14 NORTHWEST HWY @ IL 83 ELMHURST RD MAIN ST | CO | | ON |
| | | | | | T-1A | |
| 1953 | TS | 9640 | US 14 NORTHWEST HWY @ EMERSON ST | CO | | ON |
| | | | | | T-1A | |
| 1954 | TS | 9645 | US 12 RAND RD @ BUSINESS CENTER | CO | | ON |
| | | | | | T-1A | |
| 1955 | TS | 9652 | US 12 RAND RD @ MT PROSPECT POINTE WALMART | CO | | OFF |
| | | | | | T-1A | |
| 1956 | TS | 9653 | BUSSE RD @ CENTRAL RD | CO | | ON |
| | | | | | T-1A | |
| 1957 | TS | 9654 | CENTRAL RD @ BOSCH | CO | | ON |
| | | | | | T-1A | |
| 1958 | TS | 9660 | IL 83 ELMHURST RD MAIN ST @ CENTRAL RD | CO | | ON |
| | | | | | T-1A | |
| 1959 | TS | 9665 | IL 83 ELMHURST RD @ COUNCIL TRAIL | CO | | ON |
| | | | | | T-1A | |
| 1960 | TS | 9670 | IL 83 ELMHURST RD @ LINCOLN ST | CO | | ON |
| | | | | | T-1A | |
| 1961 | TS | 9690 | US 14 NORTHWEST HWY @ | CO | | ON |

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| | | | CENTRAL RD | | T-1A |
|------|----|------|--|----|------------|
| 1962 | TS | 9700 | IL 31 @ KNELL RD | KA | ON T-1A |
| 1963 | TS | 9701 | I 55 NB EXIT SB ENT RAMPS @ BLUFF RD | WI | ON T-1A |
| 1964 | TS | 9702 | I 55 SB EXIT NB ENT RAMPS @ BLUFF RD | WI | ON T-1A |
| 1965 | TS | 9711 | ARSENAL RD @ EXXON MOBIL MAIN GATE | WI | ON T-1A |
| 1966 | TS | 9712 | ARSENAL RD @ MOBIL GATE 2 ENT | WI | ON T-1A |
| 1967 | TS | 9714 | ARSENAL RD @ ELWOOD INTNL PORT RD BASELINE RD | WI | ON T-1A |
| 1968 | TS | 9715 | ARSENAL RD @ EXXON MOBIL GATE 5 | WI | ON T-1A |
| 1969 | TS | 9717 | ARSENAL RD @ I 55 SW FRONTAGE RD | WI | ON T-1A |
| 1970 | TS | 9727 | 143RD ST @ OAK PARK JUSTAMERE RD | CO | ON T-1A |
| 1971 | TS | 9885 | IL 83 MCHENRY RD @ PAULINE AVE TOWNPLACE PKWY | LA | ON T-1A |
| 1972 | TS | 9950 | US 6 159TH ST @ OAK FOREST HOSPITAL ENT | CO | ON T-1A |

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|------|----|-------|--|----|------|----|
| 1973 | TS | 10125 | IL 43 HARLEM AVE @ HARLEM IRVING PLAZA | CO | | ON |
| | | | | | T-1A | |
| 1974 | TS | 10555 | US 34 OGDEN AVE @ WHEATON NAPERVILLE RD | DU | | ON |
| | | | | | T-1A | |
| 1975 | TS | 10595 | IL 43 WAUKEGAN RD @ THREE LAKES DR | CO | | ON |
| | | | | | T-1A | |
| 1976 | TS | 10597 | IL 43 WAUKEGAN RD @ GOLF GATE SHOPPING ACCESS | CO | | ON |
| | | | | | T-1A | |
| 1977 | TS | 10635 | US 6 159TH ST @ CENTRAL PARK AVE | CO | | ON |
| | | | | | T-1A | |
| 1978 | TS | 10640 | US 6 159TH ST @ RICHMOND | CO | | ON |
| | | | | | T-1A | |
| 1979 | TS | 10665 | IL 43 WAUKEGAN RD @ DEERPATH RD | LA | | ON |
| | | | | | T-1A | |
| 1980 | TS | 10670 | IL 43 WAUKEGAN RD @ EVERETT RD | LA | | ON |
| | | | | | T-1A | |
| 1981 | TS | 10675 | IL 43 WAUKEGAN RD @ WESTLEIGH RD | LA | | ON |
| | | | | | T-1A | |
| 1982 | TS | 10676 | IL 43 WAUKEGAN RD @ GLOUCESTER CROSSING | LA | | ON |
| | | | | | T-1A | |
| 1983 | TS | 10750 | IL 7 SOUTHWEST HWY @ DUFFY AVE | CO | | ON |
| | | | | | T-1A | |
| 1984 | TS | 10822 | COUNTY LINE RD LAKE COOK RD @ GREEN BAY RD | LA | | ON |
| | | | | | T-1A | |

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| | | | | | | |
|------|----|-------|--|----|------|----|
| 1985 | TS | 10877 | LAWRENCE AVE @ OCTAVIA AVE | CO | T-1A | ON |
| 1986 | TS | 10880 | IL 43 WAUKEGAN RD @ DEWES ST | CO | T-1A | ON |
| 1987 | TS | 10900 | IL 43 WAUKEGAN RD @ CARILLON SQUARE ENT | CO | T-1A | ON |
| 1988 | TS | 10905 | IL 43 WAUKEGAN RD @ GLENVIEW RD | CO | T-1A | ON |
| 1989 | TS | 10910 | US 34 OGDEN AVE @ WARWICK AVE | DU | T-1A | ON |
| 1990 | TS | 10915 | IL 64 NORTH AVE @ JEWEL FOODS PLANT ENT | CO | T-1A | ON |
| 1991 | TS | 10920 | IL 43 WAUKEGAN RD @ GROVE ST | CO | T-1A | ON |
| 1992 | TS | 10945 | IL 38 STATE ST @ GLENGARRY DR | KA | T-1A | ON |
| 1993 | TS | 10950 | IL 38 STATE ST @ 3RD ST | KA | T-1A | ON |
| 1994 | TS | 10952 | IL 38 LINCOLN HWY @ 7TH ST | KA | T-1A | ON |
| 1995 | TS | 10955 | IL 38 LINCOLN HWY @ ANDERSON BLVD | KA | T-1A | ON |
| 1996 | TS | 10970 | US 12 45 MANNHEIM RD @ | CO | | ON |

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| | | | BELMONT AVE | | T-1A |
|------|----|-------|---|----|------|
| 1997 | TS | 10975 | BELMONT AVE PACIFIC AVE @ 25TH AVE | CO | ON |
| | | | | | T-1A |
| 1998 | TS | 11015 | US 12 45 MANNHEIM RD @ GRAND AVE | CO | ON |
| | | | | | T-1A |
| 1999 | TS | 11030 | US 12 45 MANNHEIM RD @ SEYMOUR AVE | CO | ON |
| | | | | | T-1A |
| 2000 | TS | 11035 | US 12 45 MANNHEIM RD @ WAVELAND AVE | CO | ON |
| | | | | | T-1A |
| 2001 | TS | 11040 | DES PLAINES RIVER RD @ KING | CO | ON |
| | | | | | T-1A |
| 2002 | TS | 11045 | US 45 LAGRANGE RD @ COLORADO AVE | WI | ON |
| | | | | | T-1A |
| 2003 | TS | 11047 | US 45 LAGRANGE RD @ MARKET ST MARIANOS ENT | WI | ON |
| | | | | | T-1A |
| 2004 | TS | 11060 | GRAND AVE @ 73RD AVE | CO | ON |
| | | | | | T-1A |
| 2005 | TS | 11074 | BELMONT AVE @ ORIOLE AVE 76TH AVE | CO | ON |
| | | | | | T-1A |
| 2006 | TS | 11080 | 55TH ST @ ELECTRO MOTIVE DRIVE | CO | OFF |
| | | | | | T-1A |
| 2007 | TS | 11083 | IL 59 @ DUKE PKWY EVERTON DR | DU | OFF |
| | | | | | T-1A |
| 2008 | TS | 11085 | IL 59 @ | DU | OFF |

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| | | | FERRY RD | | T-1A |
|------|----|-------|---|----|-------------|
| 2009 | TS | 11086 | 55TH ST @ SERGO DR | CO | OFF T-1A |
| 2010 | TS | 11105 | US 20 LAKE ST @ SWIFT RD | DU | ON T-1A |
| 2011 | TS | 11115 | IL 43 WAUKEGAN RD @ BANNOCKBURN OFFICE PLAZA | LA | OFF T-1A |
| 2012 | TS | 11125 | MADISON ST @ JOLIET RD I 55 FRONTAGE RD | DU | ON T-1A |
| 2013 | TS | 11130 | IL 59 SUTTON RD @ SHOE FACTORY RD | CO | OFF T-1A |
| 2014 | TS | 11133 | IL 72 HIGGINS RD @ SHOE FACTORY RD GREENSPOINT PKWY | CO | ON T-1A |
| 2015 | TS | 11135 | IL 53 @ 1ST ST | WI | ON T-1A |
| 2016 | TS | 11140 | I 55 SB RAMP @ IL 113 COAL CITY RD | WI | ON T-1B |
| 2017 | TS | 11141 | IL 53 BALTIMORE RD @ STRIPMINE RD | WI | ON T-1A |
| 2018 | TS | 11142 | IL 53 @ COAL CITY RD | WI | ON T-1A |
| 2019 | TS | 11146 | IL 129 @ COAL CITY RD | WI | ON T-1A |

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|------|----|-------|---|----|------|-----|
| 2020 | TS | 11161 | TOUHY AVE @ NORTHPOINT PLAZA CIRCUIT CITY | CO | | ON |
| | | | | | T-1A | |
| 2021 | TS | 11170 | IL 58 GOLF RD @ MICHAEL MANOR | CO | | ON |
| | | | | | T-1A | |
| 2022 | TS | 11175 | US 12 45 MANNHEIM RD @ DEVON AVE ZEMKE | CO | | ON |
| | | | | | T-1A | |
| 2023 | TS | 11180 | IL 38 ROOSEVELT RD @ FAIRFIELD AVE | DU | | OFF |
| | | | | | T-1A | |
| 2024 | TS | 11185 | DEVON AVE @ KENTON AVE LEMONT AVE | CO | | OFF |
| | | | | | T-1A | |
| 2025 | TS | 11190 | US 30 LINCOLN HWY @ MATTESON SHOPPING CENTER | CO | | ON |
| | | | | | T-1A | |
| 2026 | TS | 11210 | IL 58 GOLF RD @ MILWAUKEE PLAZA | CO | | ON |
| | | | | | T-1A | |
| 2027 | TS | 11245 | US 12 45 LEE ST @ US 12 45 MANNHEIM RD | CO | | OFF |
| | | | | | T-1A | |
| 2028 | TS | 11250 | TOUHY AVE @ CENTRAL AVE | CO | | ON |
| | | | | | T-1A | |
| 2029 | TS | 11260 | HOWARD ST @ IL 43 WAUKEGAN RD | CO | | ON |
| | | | | | T-1A | |
| 2030 | TS | 11270 | US 20 LAKE ST @ BARTLETT RD | CO | | ON |
| | | | | | T-1A | |
| 2031 | TS | 11280 | IL 59 HOUGH ST @ MAIN ST COUNTY LINE RD | CO | | ON |
| | | | | | T-1A | |

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|------|----|-------|--|----|------|-----|
| 2032 | TS | 11282 | MAIN ST COUNTY LINE RD @ APPLEBEE ST | CO | T-1A | ON |
| 2033 | TS | 11285 | BARRINGTON RD @ PALATINE RD | CO | T-1A | ON |
| 2034 | TS | 11290 | US 12 RAND RD @ IL 53 W RAMP | CO | T-1A | ON |
| 2035 | TS | 11295 | US 12 RAND RD @ IL 53 E RAMP WILKE RD | CO | T-1A | ON |
| 2036 | TS | 11303 | WEST LAKE AVE @ GREENWOOD RD | CO | T-1A | ON |
| 2037 | TS | 11305 | PFINGSTEN RD @ WEST LAKE AVE | CO | T-1A | ON |
| 2038 | TS | 11310 | IL 72 HIGGINS RD OAKTON ST @ IL 83 BUSSE RD | CO | T-1A | ON |
| 2039 | TS | 11315 | 144TH ST @ CHICAGO RD DOCTOR M.L.K. JR DR | CO | T-1A | ON |
| 2040 | TS | 11320 | ARLINGTON HEIGHTS RD @ NORTHWEST POINT BLVD | CO | T-1A | ON |
| 2041 | TS | 11325 | IL 43 HARLEM AVE @ 161ST ST | CO | T-1A | ON |
| 2042 | TS | 11330 | US 6 159TH ST @ PARK CENTER DR | CO | T-1A | ON |
| 2043 | TS | 11345 | US 30 LINCOLN HWY @ | CO | | OFF |

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|------|----|-------|--|----|--|-------------|
| | | | MATTESON AVE HOLIDAY PLAZA DR | | | T-1A |
| 2044 | TS | 11350 | US 6 IL 83 TORRENCE AVE @ LANDINGS SHOPPING CENTER ENT | CO | | ON T-1A |
| 2045 | TS | 11355 | MARGARET ST @ WILLIAMS ST | CO | | ON T-1A |
| 2046 | TS | 11356 | MARGARET @ SCHWAB ST | CO | | ON T-1A |
| 2047 | TS | 11360 | WILLIAMS ST @ ELEANOR ST | CO | | ON T-1A |
| 2048 | TS | 11365 | 142ND ST @ WOODLAWN AVE | CO | | ON T-1A |
| 2049 | TS | 11370 | LINCOLN AVE @ WOODLAWN AVE | CO | | ON T-1A |
| 2050 | TS | 11390 | IL 64 NORTH AVE @ MENARDS ENT GLENDALE SQUARE SC ENT | DU | | ON T-1A |
| 2051 | TS | 11410 | IL 56 BUTTERFIELD RD @ DOWNERS DR | DU | | ON T-1A |
| 2052 | TS | 11415 | IL 38 ROOSEVELT RD @ COMMERICAL | DU | | OFF T-1A |
| 2053 | TS | 11420 | US 34 OGDEN AVE @ SARATOGA AVE | DU | | ON T-1A |
| 2054 | TS | 11425 | US 34 OGDEN AVE @ MAIN ST | DU | | ON T-1A |

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|------|----|-------|---|----|------|-----|
| 2055 | TS | 11430 | AVALON @ LINCOLN AVE | CO | | ON |
| | | | | | T-1A | |
| 2056 | TS | 11460 | IL 83 SIBLEY BLVD 147TH ST @ WOODLAWN AVE | CO | | OFF |
| | | | | | T-1A | |
| 2057 | TS | 11465 | IL 83 SIBLEY BLVD 147TH ST @ GREENWOOD RD | CO | | OFF |
| | | | | | T-1A | |
| 2058 | TS | 11470 | IL 83 SIBLEY BLVD 147TH ST @ ENGLE PL | CO | | OFF |
| | | | | | T-1A | |
| 2059 | TS | 11475 | IL 83 SIBLEY BLVD 147TH ST @ COTTAGE GROVE AVE | CO | | OFF |
| | | | | | T-1A | |
| 2060 | TS | 11480 | 154TH ST @ COTTAGE GROVE AVE | CO | | ON |
| | | | | | T-1A | |
| 2061 | TS | 11481 | IL 31 @ LOVEDALE LN | KA | | ON |
| | | | | | T-1A | |
| 2062 | TS | 11482 | IL 31 IL 56 LINCOLNWAY ST @ AIRPORT RD | KA | | ON |
| | | | | | T-1A | |
| 2063 | TS | 11483 | IL 31 @ IL 56 STATE ST | KA | | ON |
| | | | | | T-1A | |
| 2064 | TS | 11484 | IL 56 @ HART RD MITCHELL RD | KA | | ON |
| | | | | | T-1A | |
| 2065 | TS | 11485 | IL 56 BUTTERFIELD RD @ KIRK RD FARNSWORTH AVE | KA | | ON |
| | | | | | T-1A | |
| 2066 | TS | 11486 | IL 56 BUTTERFIELD RD @ CHURCH ST | KA | | ON |
| | | | | | T-1A | |

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|------|----|-------|--|----|------|-----|
| 2067 | TS | 11488 | IL 56 BUTTERFIELD RD @ RADDANT RD | KA | T-1A | ON |
| 2068 | TS | 11505 | I 390 EB THORNDALE EB @ HAMILTON LAKES DR CLOVER RIDGE LN | DU | T-1A | ON |
| 2069 | TS | 11580 | IL 62 ALGONQUIN RD @ HARRISON ST | MC | T-1A | ON |
| 2070 | TS | 11605 | IL 22 HALF DAY RD @ ELM RD OXFORD DR | LA | T-1A | ON |
| 2071 | TS | 11615 | IL 21 MILWAUKEE AVE @ HAWTHORN HILLS SQ RIVERTREE CT ENT | LA | T-1A | ON |
| 2072 | TS | 11625 | IL 53 @ UNIVERSITY PKWY | WI | T-1A | ON |
| 2073 | TS | 11630 | US 45 LAGRANGE RD @ ST FRANCES RD | WI | T-1A | ON |
| 2074 | TS | 11633 | US 30 LINCOLN HWY @ 80TH AVE | WI | T-1A | OFF |
| 2075 | TS | 11634 | US 30 LINCOLN HWY @ FRANKFORT SQUARE HUNTERWOODS DR | WI | T-1A | ON |
| 2076 | TS | 11635 | IL 171 ARCHER AVE @ 65TH ST | CO | T-1A | ON |
| 2077 | TS | 11640 | US 12 20 95TH ST @ KEAN AVE | CO | T-1A | ON |

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|------|----|-------|---|----|------|----|
| 2078 | TS | 11645 | IL 50 CICERO AVE @ 23RD ST | CO | | ON |
| | | | | | T-1A | |
| 2079 | TS | 11655 | IL 53 LINCOLN AVE @ MAIN ST | DU | | ON |
| | | | | | T-1A | |
| 2080 | TS | 11660 | IL 53 LINCOLN AVE @ SHORT ST | DU | | ON |
| | | | | | T-1A | |
| 2081 | TS | 11662 | IL 53 @ I 88 NORTH RAMP | DU | | ON |
| | | | | | T-1A | |
| 2082 | TS | 11665 | IL 53 LINCOLN AVE @ WARRENVILLE RD | DU | | ON |
| | | | | | T-1A | |
| 2083 | TS | 11670 | IL 53 LINCOLN AVE @ BURLINGTON AVE | DU | | ON |
| | | | | | T-1A | |
| 2084 | TS | 11675 | US 34 OGDEN AVE @ BLACKHAWK DR | DU | | ON |
| | | | | | T-1A | |
| 2085 | TS | 11680 | US 34 OGDEN AVE @ IL 53 NORTH RAMP SOUTHPORT AVE | DU | | ON |
| | | | | | T-1A | |
| 2086 | TS | 11685 | US 34 OGDEN AVE @ IL 53 SOUTH RAMP | DU | | ON |
| | | | | | T-1A | |
| 2087 | TS | 11690 | IL 68 DUNDEE RD @ NORTHGATE | CO | | ON |
| | | | | | T-1A | |
| 2088 | TS | 11692 | IL 68 DUNDEE RD @ COMMUNITY BLVD | CO | | ON |
| | | | | | T-1A | |
| 2089 | TS | 11695 | US 14 NORTHWEST HWY @ ELM ST | CO | | ON |
| | | | | | T-1A | |

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| | | | | | | |
|------|----|-------|--|----|------|----|
| 2090 | TS | 11700 | IL 60 TOWNLINE RD @ RIVERWOODS DR RIVERWOODS BLVD | LA | T-1A | ON |
| 2091 | TS | 11701 | IL 60 TOWNLINE RD @ GRAINGER PKWY | LA | T-1A | ON |
| 2092 | TS | 11705 | IL 60 @ I 94 TLWY E RAMP NB EXT | LA | T-1A | ON |
| 2093 | TS | 11706 | IL 60 @ I 94 TLWY W RAMP SB EXT | LA | T-1A | ON |
| 2094 | TS | 11707 | IL 60 TOWNLINE RD @ CONWAY FARMS DR FIELD CT | LA | T-1A | ON |
| 2095 | TS | 11708 | IL 60 TOWNLINE RD @ ACADEMY RD | LA | T-1A | ON |
| 2096 | TS | 11710 | US 6 159TH ST @ ARROYO DR | CO | T-1A | ON |
| 2097 | TS | 11715 | WESTERN AVE @ SAUK TRAIL | CO | T-1A | ON |
| 2098 | TS | 11716 | WESTERN AVE @ MAIN ST PARK FOREST | CO | T-1A | ON |
| 2099 | TS | 11720 | IL 50 CICERO AVE @ 175TH ST | CO | T-1A | ON |
| 2100 | TS | 11723 | 183RD ST @ CENTRAL AVE | CO | T-1B | ON |
| 2101 | TS | 11725 | DIXIE HWY @ | CO | | ON |

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| | | | FLOSSMOOR RD | | T-1A |
|------|----|-------|---|----|------|
| 2102 | TS | 11730 | HICKS RD @ NORTHRUP | CO | ON |
| | | | | | T-1A |
| 2103 | TS | 11735 | HICKS RD @ HELEN | CO | ON |
| | | | | | T-1A |
| 2104 | TS | 11745 | IL 394 BISHOP FORD FRWY @ SAUK TRAIL | CO | ON |
| | | | | | T-1A |
| 2105 | TS | 11750 | US 6 159TH ST @ PARK AVE | CO | OFF |
| | | | | | T-1A |
| 2106 | TS | 11755 | ASHLAND AVE WOOD ST @ THORNTON RD | CO | OFF |
| | | | | | T-1A |
| 2107 | TS | 11760 | US 12 20 95TH ST @ 76TH AVE | CO | OFF |
| | | | | | T-1A |
| 2108 | TS | 11765 | US 12 20 95TH ST @ 88TH AVE CORK AVE | CO | ON |
| | | | | | T-1A |
| 2109 | TS | 11770 | SOUTHWEST HWY @ RIDGELAND AVE | CO | ON |
| | | | | | T-1A |
| 2110 | TS | 11785 | US 12 20 95TH ST @ CALIFORNIA AVE | CO | OFF |
| | | | | | T-1A |
| 2111 | TS | 11790 | US 12 20 95TH ST @ UTICA AVE | CO | OFF |
| | | | | | T-1A |
| 2112 | TS | 11795 | US 12 20 95TH ST @ MARIANO ENT | CO | OFF |
| | | | | | T-1A |

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|------|----|-------|--|----|------|----|
| 2113 | TS | 11800 | CERMAK RD 22ND ST @ 1ST AVE CUT OFF | CO | | ON |
| | | | | | T-1A | |
| 2114 | TS | 11805 | IL 171 1ST AVE @ 47TH ST W RAMP | CO | | ON |
| | | | | | T-1A | |
| 2115 | TS | 11810 | IL 171 1ST AVE FRONTAGE @ RAMPS B & B1 | CO | | ON |
| | | | | | T-1A | |
| 2116 | TS | 11815 | IL 171 ARCHER AVE @ 123RD ST MCCARTHY RD | CO | | ON |
| | | | | | T-1A | |
| 2117 | TS | 11825 | US 34 OGDEN AVE @ SCHWARTZ AVE | DU | | ON |
| | | | | | T-1A | |
| 2118 | TS | 11830 | US 34 OGDEN AVE @ YACKLEY AVE | DU | | ON |
| | | | | | T-1A | |
| 2119 | TS | 11835 | US 34 OGDEN AVE @ INDIANA AVE WESTERN AVE | DU | | ON |
| | | | | | T-1A | |
| 2120 | TS | 11840 | US 34 OGDEN AVE @ OLD TAVERN RD | DU | | ON |
| | | | | | T-1A | |
| 2121 | TS | 11853 | KEDZIE AVE @ 94TH ST | CO | | ON |
| | | | | | T-1A | |
| 2122 | TS | 11860 | IL 68 DUNDEE RD @ ELA RD MARIE DR | CO | | ON |
| | | | | | T-1A | |
| 2123 | TS | 11861 | US 14 NORTHWEST HWY @ IL 68 DUNDEE RD EAST RAMP | CO | | ON |
| | | | | | T-1A | |
| 2124 | TS | 11862 | US 14 NORTHWEST HWY @ IL 68 DUNDEE RD WEST RAMP | CO | | ON |
| | | | | | T-1A | |

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|------|----|-------|--|----|------|----|
| 2125 | TS | 11865 | MAIN ST GLENWOOD LANSING RD @ GLENWOOD DYER RD | CO | | ON |
| | | | | | T-1A | |
| 2126 | TS | 11870 | IL 72 HIGGINS RD LEE RAMP @ LEE ST OFFICE COMPLEX ENT | CO | | ON |
| | | | | | T-1A | |
| 2127 | TS | 11875 | US 41 NB ON/OFF RAMPS @ CLAVEY RD | LA | | ON |
| | | | | | T-1A | |
| 2128 | TS | 11877 | US 41 SB ON/OFF RAMPS @ SKOKIE VALLEY RD | LA | | ON |
| | | | | | T-1A | |
| 2129 | TS | 11880 | IL 176 STATE RD @ ROBERTS RD MIDWAY DR | MC | | ON |
| | | | | | T-1A | |
| 2130 | TS | 11885 | IL 31 RICHMOND @ PEARL ST | MC | | ON |
| | | | | | T-1A | |
| 2131 | TS | 11890 | IL 31 FRONT @ LILLIAN GROVE AVE | MC | | ON |
| | | | | | T-1A | |
| 2132 | TS | 11895 | IL 31 @ MCCULLOM LAKE RD | MC | | ON |
| | | | | | T-1A | |
| 2133 | TS | 11896 | IL 31 @ DIAMOND DR | MC | | ON |
| | | | | | T-1A | |
| 2134 | TS | 11897 | IL 31 @ BLAKE RD | MC | | ON |
| | | | | | T-1A | |
| 2135 | TS | 11900 | IL 120 @ RINGWOOD CURRANT RD | MC | | ON |
| | | | | | T-1A | |
| 2136 | TS | 11905 | IL 120 @ | MC | | ON |

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| | | | | | | |
|------|----|-------|---|----|--|------------|
| | | | MEADOW RD | | | T-1A |
| 2137 | TS | 11910 | IL 120 @ INDUSTRIAL DR OAK AVE | MC | | ON T-1A |
| 2138 | TS | 11915 | IL 120 ELM ST @ CRYSTAL LAKE AVE | MC | | ON T-1A |
| 2139 | TS | 11920 | IL 120 ELM ST @ GREEN ST | MC | | ON T-1A |
| 2140 | TS | 11925 | IL 120 @ RIVERSIDE DR | MC | | ON T-1A |
| 2141 | TS | 11930 | IL 120 BELVIDERE RD @ HUNT CLUB RD | LA | | ON T-1A |
| 2142 | TS | 11935 | IL 22 @ TELEGRAPH | LA | | ON T-1A |
| 2143 | TS | 11937 | IL 22 HALF DAY RD @ DEERFIELD BANNOCKBURN FIRE STA | LA | | ON T-1A |
| 2144 | TS | 11940 | IL 59 @ WILSON RD RIDGE RD | LA | | ON T-1A |
| 2145 | TS | 11945 | US 12 @ STATE PARK RD EAST ST | LA | | ON T-1A |
| 2146 | TS | 11950 | US 52 IL 53 CHICAGO ST @ PATTERSON RD | WI | | ON T-1A |
| 2147 | TS | 11955 | US 30 IL 59 DIVISION ST @ LOCKPORT ST | WI | | ON T-1A |

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|------|----|-------|--|----|------|-----|
| 2148 | TS | 11965 | IL 64 NORTH AVE @ POLK PLAZA SHOPPING CTR | CO | | ON |
| | | | | | T-1A | |
| 2149 | TS | 11970 | IL 59 @ 83RD ST MONTGOMERY RD | DU | | ON |
| | | | | | T-1A | |
| 2150 | TS | 11975 | IL 25 RIVER RD @ IL 56 STATE ST | KA | | ON |
| | | | | | T-1A | |
| 2151 | TS | 11978 | IL 25 AURORA AVE @ INDIAN TRAIL RD | KA | | ON |
| | | | | | T-1A | |
| 2152 | TS | 11980 | IL 25 @ GRANT ST | KA | | ON |
| | | | | | T-1B | |
| 2153 | TS | 11985 | US 14 NORTHWEST HWY @ HICKS RD N JCT | CO | | ON |
| | | | | | T-1A | |
| 2154 | TS | 12000 | US 6 IL 83 TORRENCE AVE @ 173RD ST BERNICE RD | CO | | OFF |
| | | | | | T-1A | |
| 2155 | TS | 12005 | HICKS RD @ SELLSTROM DR OLD HICKS RD | CO | | ON |
| | | | | | T-1A | |
| 2156 | TS | 12010 | IL 58 DEMPSTER ST @ GROSS POINT RD | CO | | OFF |
| | | | | | T-1A | |
| 2157 | TS | 12015 | IL 56 BUTTERFIELD RD @ TAFT AVE | CO | | ON |
| | | | | | T-1A | |
| 2158 | TS | 12020 | IL 59 @ JOLIET ST | DU | | OFF |
| | | | | | T-1A | |
| 2159 | TS | 12021 | IL 59 @ MACK RD | DU | | OFF |
| | | | | | T-1A | |

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|------|----|-------|---------------------------------------|----|------|-----|
| 2160 | TS | 12025 | LAWRENCE AVE @ 25TH AVE RUBY | CO | | ON |
| | | | | | T-1A | |
| 2161 | TS | 12035 | PULASKI RD CRAWFORD AVE @ 93RD ST | CO | | ON |
| | | | | | T-1A | |
| 2162 | TS | 12045 | IL 19 IRVING PARK RD @ YORK RD | DU | | OFF |
| | | | | | T-1A | |
| 2163 | TS | 12065 | IL 19 IRVING PARK RD @ CHURCH RD | DU | | ON |
| | | | | | T-1A | |
| 2164 | TS | 12070 | IL 64 NORTH AVE @ POWIS RD | DU | | ON |
| | | | | | T-1A | |
| 2165 | TS | 12075 | IL 72 HIGGINS RD @ HUNTINGTON BLVD | CO | | OFF |
| | | | | | T-1A | |
| 2166 | TS | 12090 | TOUHY AVE @ BARCLAY PLACE ENT | CO | | ON |
| | | | | | T-1A | |
| 2167 | TS | 12091 | IL 25 STEARNS @ IL 25 DUNHAM | KA | | ON |
| | | | | | T-1A | |
| 2168 | TS | 12092 | IL 25 STEARNS @ GILBERT ST | KA | | ON |
| | | | | | T-1A | |
| 2169 | TS | 12093 | IL 25 STEARNS @ STEARNS RD | KA | | ON |
| | | | | | T-1A | |
| 2170 | TS | 12094 | IL 31 @ MCLEAN BLVD | KA | | ON |
| | | | | | T-1A | |
| 2171 | TS | 12100 | STATE ST @ | CO | | ON |

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| | | | TAFT | | | T-1A |
|------|----|-------|---|----|--|-------------|
| 2172 | TS | 12101 | STATE ST @ 168TH ST | CO | | ON T-1A |
| 2173 | TS | 12102 | STATE ST @ ARMORY DR | CO | | ON T-1A |
| 2174 | TS | 12105 | 142ND ST DOLTON AVE @ COTTAGE GROVE AVE | CO | | ON T-1A |
| 2175 | TS | 12115 | IL 1 HALSTED ST @ PARK PLACE PLAZA ENT | CO | | ON T-1A |
| 2176 | TS | 12120 | IL 21 MILWAUKEE AVE @ ROCKLAND RD | LA | | ON T-1A |
| 2177 | TS | 12125 | IL 83 BUSSE RD @ HOWARD ST | CO | | ON T-1A |
| 2178 | TS | 12135 | 111TH ST @ KOSTNER AVE | CO | | ON T-1A |
| 2179 | TS | 12140 | IL 59 @ LIBERTY ST JEFFERSON | DU | | OFF T-1A |
| 2180 | TS | 12145 | IL 137 SHERIDAN RD @ 7TH MAIN ST IN WINTHROP HAR | LA | | ON T-1A |
| 2181 | TS | 12155 | IL 53 IL 68 DUNDEE RD @ IL 53 WEST RAMP | CO | | ON T-1A |
| 2182 | TS | 12160 | IL 53 IL 68 DUNDEE RD @ IL 53 EAST RAMP | CO | | ON T-1A |

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| | | | | | | |
|------|----|-------|---|----|------|----|
| 2183 | TS | 12165 | 27TH ST @ LAKE ST | CO | | ON |
| | | | | | T-1A | |
| 2184 | TS | 12170 | IL 62 ALGONQUIN RD @ ALGONQUIN TOWN CENTER | MC | | ON |
| | | | | | T-1A | |
| 2185 | TS | 12175 | US 12 RAND RD @ WINSLOWE DR PARK PL | CO | | ON |
| | | | | | T-1A | |
| 2186 | TS | 12215 | IL 83 @ 67TH ST | DU | | ON |
| | | | | | T-1A | |
| 2187 | TS | 12220 | IL 171 ARCHER AVE @ 66TH PL | CO | | ON |
| | | | | | T-1A | |
| 2188 | TS | 12250 | IL 64 NORTH AVE @ I 355 TLWY E RMP | DU | | ON |
| | | | | | T-1A | |
| 2189 | TS | 12255 | IL 64 NORTH AVE @ I 355 TLWY W RMP | DU | | ON |
| | | | | | T-1A | |
| 2190 | TS | 12259 | US 6 @ E FRONTAGE RD BRADLEY ST DILLON DR | WI | | ON |
| | | | | | T-1A | |
| 2191 | TS | 12260 | I 55 STEV @ US 6 EAST RAMP | WI | | ON |
| | | | | | T-1A | |
| 2192 | TS | 12261 | I 55 STEV FRONTAGE RD WB @ US 6 | WI | | ON |
| | | | | | T-1A | |
| 2193 | TS | 12265 | I 55 STEV @ US 6 WEST RAMP | WI | | ON |
| | | | | | T-1A | |
| 2194 | TS | 12266 | US 6 @ TRYON ST | WI | | ON |
| | | | | | T-1A | |

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| | | | | | | |
|------|----|-------|---|----|------|----|
| 2195 | TS | 12267 | US 6 @ BLUFF RD NAVAJO DR | WI | | ON |
| | | | | | T-1A | |
| 2196 | TS | 12268 | US 6 @ ROBERTS AVE STEVE RITTOF DR | WI | | ON |
| | | | | | T-1A | |
| 2197 | TS | 12269 | US 6 EAMES ST @ BELL RD | WI | | ON |
| | | | | | T-1A | |
| 2198 | TS | 12271 | US 6 @ MCKINLEY WOODS RD | WI | | ON |
| | | | | | T-1A | |
| 2199 | TS | 12275 | SKOKIE VALLEY RD WASHINGTON AVE @ IL 176 ROCKLAND RD | LA | | ON |
| | | | | | T-1A | |
| 2200 | TS | 12277 | IL 43 WAUKEGAN RD @ KNOLLWOOD RD NORTH SHORE DR | LA | | ON |
| | | | | | T-1A | |
| 2201 | TS | 12280 | SHAGBARK RD WASHINGTON AVE @ IL 176 ROCKLAND RD | LA | | ON |
| | | | | | T-1A | |
| 2202 | TS | 12285 | US 12 RAND RD @ WHITNEY RD PAULUS PARK ENT | LA | | ON |
| | | | | | T-1A | |
| 2203 | TS | 12286 | US 12 RAND RD @ HONEY LAKE RD | LA | | ON |
| | | | | | T-1A | |
| 2204 | TS | 12290 | US 12 @ EAGLE POINT RD SAYTON RD | LA | | ON |
| | | | | | T-1A | |
| 2205 | TS | 12295 | US 12 RAND RD @ ELA RD | LA | | ON |
| | | | | | T-1A | |
| 2206 | TS | 12297 | US 12 RAND RD @ | LA | | ON |

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| | | | JUNE TERRACE | | T-1A |
|------|----|-------|---|----|------|
| 2207 | TS | 12305 | US 45 @ IL 120 BELVIDERE RD | LA | ON |
| | | | | | T-1A |
| 2208 | TS | 12310 | IL 59 @ AUDREY AVE AURORA MARKETPLACE ENT | DU | OFF |
| | | | | | T-1A |
| 2209 | TS | 12315 | IL 83 BARRON BLVD @ WASHINGTON ST | LA | ON |
| | | | | | T-1A |
| 2210 | TS | 12317 | IL 83 BARRON BLVD @ BRIGHTON LN KNIGHT WAY | LA | ON |
| | | | | | T-1A |
| 2211 | TS | 12320 | IL 38 ROOSEVELT RD @ FINLEY RD | DU | OFF |
| | | | | | T-1A |
| 2212 | TS | 12325 | IL 38 ROOSEVELT RD @ MAIN ST (IN LOMBARD) | DU | OFF |
| | | | | | T-1A |
| 2213 | TS | 12330 | US 45 @ WINCHESTER RD | LA | ON |
| | | | | | T-1A |
| 2214 | TS | 12335 | US 20 LAKE ST @ I 355 TLWY E RAMP | DU | ON |
| | | | | | T-1A |
| 2215 | TS | 12340 | US 20 LAKE ST @ I 355 TLWY W RAMP | DU | ON |
| | | | | | T-1A |
| 2216 | TS | 12360 | US 34 OGDEN AVE @ TRADE ST | DU | OFF |
| | | | | | T-1A |
| 2217 | TS | 12373 | IL 64 NORTH AVE @ ATLANTIC DR | DU | ON |
| | | | | | T-1A |

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|------|----|-------|---|----|------|-----|
| 2218 | TS | 12375 | IL 64 NORTH AVE @ PRINCE CROSSING RD | DU | | ON |
| | | | | | T-1A | |
| 2219 | TS | 12376 | IL 64 NORTH AVE @ FAIR OAKS RD | DU | | ON |
| | | | | | T-1A | |
| 2220 | TS | 12377 | IL 64 NORTH AVE @ TERESA LN MENARDS ENT | DU | | ON |
| | | | | | T-1A | |
| 2221 | TS | 12380 | IL 22 @ I 94 TLWY E RAMP | LA | | ON |
| | | | | | T-1A | |
| 2222 | TS | 12385 | IL 22 HALF DAY RD @ I 94 TLWY W RAMP | LA | | ON |
| | | | | | T-1A | |
| 2223 | TS | 12390 | IL 22 HALF DAY RD @ RIDGE RD EAST | LA | | ON |
| | | | | | T-1A | |
| 2224 | TS | 12391 | IL 22 HALF DAY RD @ TENNYSON LN RIDGE RD WEST | LA | | ON |
| | | | | | T-1A | |
| 2225 | TS | 12400 | IL 50 CICERO AVE @ SOUTHWICK DR | CO | | OFF |
| | | | | | T-1A | |
| 2226 | TS | 12403 | IL 50 CICERO AVE @ PROMENADE WAY PROMENADE ENT | CO | | ON |
| | | | | | T-1A | |
| 2227 | TS | 12404 | IL 50 CICERO AVE @ N GATEWAY DRIVE | CO | | ON |
| | | | | | T-1A | |
| 2228 | TS | 12420 | US 34 OGDEN AVE @ I 355 TLWY E RAMP | DU | | ON |
| | | | | | T-1A | |
| 2229 | TS | 12421 | US 34 OGDEN AVE @ I 355 TLWY W RAMP | DU | | ON |
| | | | | | T-1A | |

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|------|----|-------|--|----|------|-----|
| 2230 | TS | 12424 | IL 38 ROOSEVELT RD @ BAKER HILL DR | DU | T-1A | OFF |
| 2231 | TS | 12425 | IL 38 ROOSEVELT RD @ I 355 TLWY E RAMP | DU | T-1A | OFF |
| 2232 | TS | 12426 | IL 38 ROOSEVELT RD @ I 355 TLWY W RAMP | DU | T-1A | OFF |
| 2233 | TS | 12430 | ARMY TRAIL RD @ I 355 EAST RAMP NB | DU | T-1A | ON |
| 2234 | TS | 12431 | ARMY TRAIL RD @ I 355 WEST RAMP SB | DU | T-1A | ON |
| 2235 | TS | 12500 | US 20 LAKE ST @ ITASCA RD | DU | T-1A | ON |
| 2236 | TS | 12505 | US 20 LAKE ST @ LOMBARD AVE FOXDALE RD | DU | T-1A | ON |
| 2237 | TS | 12510 | US 20 LAKE ST @ MILL RD | DU | T-1A | ON |
| 2238 | TS | 12513 | US 20 LAKE ST @ MARCUS DR | DU | T-1A | ON |
| 2239 | TS | 12515 | US 20 LAKE ST @ JOHN F KENNEDY DR | DU | T-1A | ON |
| 2240 | TS | 12520 | IL 53 ROHLWING RD @ FULLERTON AVE COLLINS AVE | DU | T-1A | ON |
| 2241 | TS | 12530 | IL 43 HARLEM AVE @ | CO | | ON |

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| | | | 100TH PL | | | T-1A |
|------|----|-------|--|----|--|-------------|
| 2242 | TS | 12535 | ARLINGTON HEIGHTS RD @ WHITE OAK ST | CO | | ON T-1A |
| 2243 | TS | 12540 | ARLINGTON HEIGHTS RD @ CENTRAL RD | CO | | ON T-1A |
| 2244 | TS | 12550 | ARLINGTON HEIGHTS RD @ SIGWALT ST | CO | | ON T-1A |
| 2245 | TS | 12555 | US 14 NORTHWEST HWY @ ARLINGTON HTS RD | CO | | ON T-1A |
| 2246 | TS | 12560 | ARLINGTON HEIGHTS RD @ MINER ST | CO | | ON T-1A |
| 2247 | TS | 12565 | ARLINGTON HEIGHTS RD @ EUCLID AVE | CO | | OFF T-1A |
| 2248 | TS | 12585 | ARLINGTON HEIGHTS RD @ LILLIAN AVE | CO | | ON T-1A |
| 2249 | TS | 12590 | ARLINGTON HEIGHTS RD @ PALATINE RD | CO | | ON T-1A |
| 2250 | TS | 12595 | US 12 RAND RD @ ARLINGTON HEIGHTS RD | CO | | ON T-1A |
| 2251 | TS | 12600 | ARLINGTON HEIGHTS RD @ NORTH POINT SC ENT | CO | | ON T-1A |
| 2252 | TS | 12615 | CENTRAL RD @ KIRCHOFF RD | CO | | ON T-1A |

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|------|----|-------|--|----|------|-----|
| 2253 | TS | 12620 | CENTRAL RD @ ARTHUR AVE | CO | T-1A | ON |
| 2254 | TS | 12625 | US 12 RAND RD @ SOUTHPOINT CENTER ENT | CO | T-1A | ON |
| 2255 | TS | 12630 | US 12 RAND RD @ PALATINE RD | CO | T-1A | ON |
| 2256 | TS | 12635 | US 12 RAND RD @ NORTHPOINT CENTER ENT | CO | T-1A | ON |
| 2257 | TS | 12640 | US 12 RAND RD @ ARLINGTON PLAZA ENT | CO | T-1A | ON |
| 2258 | TS | 12660 | US 14 NORTHWEST HWY @ EUCLID AVE | CO | T-1A | ON |
| 2259 | TS | 12665 | US 14 NORTHWEST HWY @ ARTHUR AVE | CO | T-1A | ON |
| 2260 | TS | 12670 | US 14 NORTHWEST HWY @ KENSINGTON RD DOUGLAS AVE | CO | T-1A | ON |
| 2261 | TS | 12675 | US 14 NORTHWEST HWY @ EVERGREEN AVE | CO | T-1A | OFF |
| 2262 | TS | 12680 | US 14 NORTHWEST HWY @ DUNTON AVE | CO | T-1A | OFF |
| 2263 | TS | 12685 | US 14 NORTHWEST HWY @ VAIL AVE | CO | T-1A | ON |
| 2264 | TS | 12690 | US 14 NORTHWEST HWY @ WALNUT AVE RIDGE AVE | CO | T-1A | ON |

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|------|----|-------|--|----|------|-----|
| 2265 | TS | 12700 | US 12 RAND RD @ ANNEX ENT | CO | T-1A | ON |
| 2266 | TS | 12770 | IL 50 CICERO AVE @ 22ND ST CERMAK RD | CO | T-1A | ON |
| 2267 | TS | 12775 | 22ND ST CERMAK RD @ 49TH AVE | CO | T-1A | ON |
| 2268 | TS | 12780 | 22ND ST CERMAK RD @ 50TH AVE | CO | T-1A | ON |
| 2269 | TS | 12785 | 22ND ST CERMAK RD @ LARAMIE AVE | CO | T-1A | ON |
| 2270 | TS | 12790 | 22ND ST CERMAK RD @ 54TH AVE | CO | T-1A | ON |
| 2271 | TS | 12795 | IL 50 CICERO AVE @ 16TH ST | CO | T-1A | ON |
| 2272 | TS | 12825 | IL 50 CICERO AVE @ 19TH ST | CO | T-1A | ON |
| 2273 | TS | 12830 | IL 50 CICERO AVE @ 29TH ST | CO | T-1A | ON |
| 2274 | TS | 12915 | IL 43 WAUKEGAN RD @ MCDONALDS ENT CADWELLS CR | LA | T-1A | OFF |
| 2275 | TS | 12920 | IL 43 WAUKEGAN RD @ KATES RD | LA | T-1A | OFF |
| 2276 | TS | 12925 | IL 43 WAUKEGAN RD @ | LA | | OFF |

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| | | | LONGFELLOW AVE OSTERMAN AVE | | T-1A |
|------|----|-------|---|----|-------------|
| 2277 | TS | 12930 | IL 43 WAUKEGAN RD @ DEERFIELD COMMONS BLVD | LA | OFF T-1A |
| 2278 | TS | 12935 | IL 43 WAUKEGAN RD @ DEERFIELD RD | LA | OFF T-1A |
| 2279 | TS | 12937 | IL 43 WAUKEGAN RD @ DEERFIELD FIRE STATION | LA | ON T-1A |
| 2280 | TS | 12940 | IL 43 WAUKEGAN RD @ HAZEL AVE ELDER LN | LA | OFF T-1A |
| 2281 | TS | 12945 | IL 43 WAUKEGAN RD @ GREENWOOD AVE | LA | OFF T-1A |
| 2282 | TS | 12950 | IL 43 WAUKEGAN RD @ WARRIOR WAY HS ENT | LA | OFF T-1A |
| 2283 | TS | 12952 | IL 43 WAUKEGAN RD @ NORTH AVE | LA | OFF T-1A |
| 2284 | TS | 12966 | IL 43 WAUKEGAN RD @ CHESTNUT RD DEERBROOK SC ENT | CO | ON T-1A |
| 2285 | TS | 12985 | TOUHY AVE @ MAPLE ST | CO | OFF T-1A |
| 2286 | TS | 12995 | OAKTON ST @ WEBSTER LN | CO | ON T-1A |
| 2287 | TS | 13000 | US 12 45 LEE ST @ ALGONQUIN RD | CO | OFF T-1A |

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|------|----|-------|--|----|------|-----|
| 2288 | TS | 13003 | US 12 45 LEE ST MANNHEIM @ FOREST AVE | CO | T-1A | OFF |
| 2289 | TS | 13005 | ALGONQUIN RD @ SEYMOUR AVE KOLPIN DR | CO | T-1A | OFF |
| 2290 | TS | 13020 | IL 58 GOLF RD @ MT PROSPECT RD | CO | T-1A | ON |
| 2291 | TS | 13022 | IL 58 GOLF RD @ MARIANOS ENT | CO | T-1A | ON |
| 2292 | TS | 13025 | US 12 45 LEE ST MANNHEIM RD @ PRAIRIE AVE | CO | T-1A | ON |
| 2293 | TS | 13026 | US 12 45 LEE ST MANNHEIM @ THACKER ST | CO | T-1A | ON |
| 2294 | TS | 13027 | US 12 45 GRACELAND @ THACKER ST | CO | T-1A | ON |
| 2295 | TS | 13035 | US 12 45 LEE ST @ US 14 MINER ST ELLINWOOD ST | CO | T-1A | ON |
| 2296 | TS | 13040 | US 14 MINER ST @ PEARSON ST | CO | T-1A | ON |
| 2297 | TS | 13050 | US 12 45 GRACELAND @ PRAIRIE AVE | CO | T-1A | ON |
| 2298 | TS | 13055 | US 12 45 GRACELAND JEFFERSON @ US 14 MINER ST | CO | T-1A | ON |
| 2299 | TS | 13065 | US 12 45 MANNHEIM RD @ PROSPECT AVE | CO | T-1A | ON |

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| | | | | | | |
|------|----|-------|---|----|------|----|
| 2300 | TS | 13070 | DES PLAINES RIVER RD @ PERRY ST | CO | T-1A | ON |
| 2301 | TS | 13071 | US 12 45 LEE ST @ PERRY ST | CO | T-1A | ON |
| 2302 | TS | 13072 | DES PLAINES RIVER RD @ PEARSON | CO | T-1A | ON |
| 2303 | TS | 13075 | US 14 MINER ST @ DESPLAINES RIVER RD | CO | T-1A | ON |
| 2304 | TS | 13078 | US 14 MINER ST @ BUSSE HWY | CO | T-1A | ON |
| 2305 | TS | 13080 | US 14 NORTHWEST HWY @ STATE ST | CO | T-1A | ON |
| 2306 | TS | 13083 | US 14 NW HWY @ BROADWAY | CO | T-1A | ON |
| 2307 | TS | 13085 | US 12 RAND RD @ 3RD AVE | CO | T-1A | ON |
| 2308 | TS | 13090 | 144TH ST @ INDIANA | CO | T-1A | ON |
| 2309 | TS | 13140 | IL 72 HIGGINS RD @ LIVELY BLVD | CO | T-1A | ON |
| 2310 | TS | 13145 | IL 53 ROHLWING RD @ NERGE RD | CO | T-1A | ON |
| 2311 | TS | 13150 | IL 53 ROHLWING RD @ | CO | | ON |

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|------|----|-------|--|----|------|----|
| | | | IL 53 BIESTERFIELD RD | | T-1A | |
| 2312 | TS | 13202 | LARKIN AVE FOOTHILL RD @ AIRLITE ST | KA | T-1A | ON |
| 2313 | TS | 13205 | IL 31 STATE ST @ WALNUT AVE NATIONAL ST | KA | T-1A | ON |
| 2314 | TS | 13210 | IL 31 STATE ST @ HIGHLAND AVE | KA | T-1A | ON |
| 2315 | TS | 13215 | IL 31 STATE ST @ CHICAGO ST | KA | T-1A | ON |
| 2316 | TS | 13220 | IL 31 STATE ST @ KIMBALL ST LAWRENCE AVE | KA | T-1A | ON |
| 2317 | TS | 13225 | IL 31 STATE ST @ WING ST | KA | T-1A | ON |
| 2318 | TS | 13265 | IL 25 DUNDEE AVE LIBERTY ST @ CONGDON AVE | KA | T-1A | ON |
| 2319 | TS | 13270 | IL 25 DUNDEE AVE @ LUDA ST | KA | T-1A | ON |
| 2320 | TS | 13275 | IL 25 DUNDEE AVE @ PAGE AVE | KA | T-1A | ON |
| 2321 | TS | 13285 | IL 58 SUMMIT ST @ HIAWATHA DR | CO | T-1A | ON |
| 2322 | TS | 13286 | IL 58 SUMMIT ST @ WAVERLY DR | CO | T-1A | ON |

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|------|----|-------|--|----|------|-----|
| 2323 | TS | 13290 | IL 25 BLUFF CITY RD @ IL 25 LIBERTY | KA | T-1A | ON |
| 2324 | TS | 13295 | IL 25 BLUFF CITY RD @ IL 25 ST CHARLES RD | KA | T-1A | ON |
| 2325 | TS | 13404 | IL 72 MAIN ST @ TYRRELL RD | KA | T-1A | OFF |
| 2326 | TS | 13412 | IL 72 @ BIG TIMBER RD | KA | T-1A | ON |
| 2327 | TS | 13414 | IL 72 HIGGINS RD MAIN ST @ GALVIN DR | KA | T-1A | ON |
| 2328 | TS | 13440 | IL 19 CHICAGO ST @ WILLARD AVE | CO | T-1A | ON |
| 2329 | TS | 13470 | WOLF RD @ THACKER ST | CO | T-1A | ON |
| 2330 | TS | 13685 | DESPLAINES AVE @ JACKSON BLVD | CO | T-1A | ON |
| 2331 | TS | 13687 | DESPLAINES AVE @ CTA | CO | T-1A | ON |
| 2332 | TS | 13700 | ROOSEVELT RD @ CIRCLE AVE | CO | T-1A | ON |
| 2333 | TS | 13739 | IL 83 BARRON BLVD @ LIBRARY LN | LA | T-1A | ON |
| 2334 | TS | 13740 | IL 83 @ CENTER AVE | LA | T-1A | ON |

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|------|----|-------|---|----|------|-----|
| 2335 | TS | 13741 | IL 83 BARRON RD @ FREDERICK RD | LA | T-1A | ON |
| 2336 | TS | 13742 | IL 120 BELVIDERE RD @ LAKE ST | LA | T-1A | ON |
| 2337 | TS | 13745 | IL 19 IRVING PARK RD @ BARRINGTON RD | CO | T-1A | OFF |
| 2338 | TS | 13746 | IL 120 BELVIDERE RD @ ALLEGHENY RD | LA | T-1A | ON |
| 2339 | TS | 13750 | IL 19 IRVING PARK RD @ MENARDS ENT AUTO ZONE ENT | CO | T-1A | OFF |
| 2340 | TS | 13755 | IL 19 IRVING PARK RD @ KINGSBURY DR | CO | T-1A | ON |
| 2341 | TS | 13756 | IL 19 IRVING PARK RD @ WESTVIEW PLAZA | CO | T-1A | OFF |
| 2342 | TS | 13760 | US 20 LAKE ST @ CHURCH ST METRA LOT ENT | CO | T-1A | ON |
| 2343 | TS | 13762 | US 20 LAKE ST @ CENTER AVE | CO | T-1A | ON |
| 2344 | TS | 13765 | US 20 LAKE ST @ BARRINGTON RD COUNTY FARM RD | CO | T-1A | OFF |
| 2345 | TS | 13770 | US 20 LAKE ST @ GREENBROOK BLVD | DU | T-1A | ON |
| 2346 | TS | 13775 | BARRINGTON RD @ | CO | | OFF |

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| | | | WALNUT AVE | | T-1A |
|------|----|-------|--|----|-------------|
| 2347 | TS | 13785 | 150TH ST @ DIXIE HWY | CO | OFF T-1A |
| 2348 | TS | 13790 | 154TH ST @ DIXIE HWY | CO | OFF T-1A |
| 2349 | TS | 13795 | 150TH ST @ WOOD ST | CO | OFF T-1A |
| 2350 | TS | 13800 | WOOD ST @ 154TH ST | CO | OFF T-1A |
| 2351 | TS | 13805 | 155TH ST DREESEN ST @ WOOD ST | CO | OFF T-1A |
| 2352 | TS | 13810 | WOOD ST @ 156TH ST ALD TAYLOR WAY | CO | OFF T-1A |
| 2353 | TS | 13815 | WOOD ST @ 158TH ST | CO | OFF T-1A |
| 2354 | TS | 13830 | 157TH ST CENTER AVE @ PARK AVE | CO | ON T-1A |
| 2355 | TS | 13835 | 150TH ST @ MORGAN | CO | ON T-1A |
| 2356 | TS | 13845 | GREEN BAY RD @ KENILWORTH AVE PARK DR | CO | ON T-1A |
| 2357 | TS | 13855 | US 34 OGDEN AVE @ BRAINARD AVE | CO | ON T-1A |

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| | | | | | | |
|------|----|-------|---|----|------|----|
| 2358 | TS | 13860 | US 34 OGDEN AVE @ WAIOLA AVE | CO | T-1A | ON |
| 2359 | TS | 13865 | US 34 OGDEN AVE @ KENSINGTON AVE | CO | T-1A | ON |
| 2360 | TS | 13870 | US 34 OGDEN AVE @ EAST AVE EBERLY AVE | CO | T-1A | ON |
| 2361 | TS | 13871 | US 34 OGDEN AVE @ DU BOIS BLVD | CO | T-1A | ON |
| 2362 | TS | 13872 | US 34 OGDEN AVE @ MAPLE AVE | CO | T-1A | ON |
| 2363 | TS | 13873 | US 34 OGDEN AVE @ PRAIRIE AVE | CO | T-1A | ON |
| 2364 | TS | 13880 | US 12 20 45 LAGRANGE RD @ HARRIS AVE | CO | T-1A | ON |
| 2365 | TS | 13885 | US 12 20 45 LAGRANGE RD @ COSSITT AVE | CO | T-1A | ON |
| 2366 | TS | 13890 | 47TH ST @ WILLOW SPRINGS RD GILBERT AVE | CO | T-1A | ON |
| 2367 | TS | 13895 | 47TH ST @ EDGEWOOD AVE | CO | T-1A | ON |
| 2368 | TS | 13900 | 47TH ST @ BRAINARD AVE | CO | T-1A | ON |
| 2369 | TS | 13905 | US 12 20 45 LAGRANGE RD @ BURLINGTON AVE HILLGROVE AVE | CO | T-1A | ON |

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|------|----|-------|--|----|------|----|
| 2370 | TS | 13910 | US 12 20 45 LAGRANGE RD @ US 34 OGDEN AVE | CO | T-1A | ON |
| 2371 | TS | 13912 | US 34 OGDEN AVE @ LOCUST AVE PARK ENT | CO | T-1A | ON |
| 2372 | TS | 13915 | US 12 20 45 LAGRANGE RD @ HARDING AVE | CO | T-1A | ON |
| 2373 | TS | 13920 | US 12 20 45 LAGRANGE RD @ HOMESTEAD RD | CO | T-1A | ON |
| 2374 | TS | 13923 | 31ST ST @ BRAINARD AVE | CO | T-1A | ON |
| 2375 | TS | 13925 | 31ST ST @ FOREST RD | CO | T-1A | ON |
| 2376 | TS | 13930 | 31ST ST @ BETWEEN RAYMOND AVE HARRISON AVE | CO | T-1A | ON |
| 2377 | TS | 13940 | IL 83 TORRENCE AVE @ 178TH ST | CO | T-1A | ON |
| 2378 | TS | 13942 | US 6 IL 83 TORRENCE AVE @ I 80 94 | CO | T-1A | ON |
| 2379 | TS | 13985 | IL 21 MILWAUKEE AVE @ WINCHESTER RD | LA | T-1A | ON |
| 2380 | TS | 13990 | IL 21 MILWAUKEE AVE @ COOK AVE | LA | T-1A | ON |
| 2381 | TS | 13995 | IL 21 MILWAUKEE AVE @ | LA | | ON |

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| | | | | | | |
|------|----|-------|---|----|--|------------|
| | | | CHURCH ST | | | T-1A |
| 2382 | TS | 14005 | IL 21 MILWAUKEE AVE @ VALLEY PARK DR | LA | | ON T-1A |
| 2383 | TS | 14007 | IL 21 MILWAUKEE AVE @ CONDELL DR | LA | | ON T-1A |
| 2384 | TS | 14013 | IL 21 MILWAUKEE AVE @ ARTAIUS PKWY LOWES ENT | LA | | ON T-1A |
| 2385 | TS | 14015 | IL 21 MILWAUKEE AVE @ RED TOP DR GREENTREE PKWY | LA | | ON T-1A |
| 2386 | TS | 14016 | IL 21 MILWAUKEE AVE @ LIBERTYVILLE FIRE DEPT ENT | LA | | ON T-1A |
| 2387 | TS | 14017 | IL 21 MILWAUKEE AVE @ GOLF RD | LA | | ON T-1A |
| 2388 | TS | 14018 | IL 21 MILWAUKEE AVE @ GREGGS PKWY ARTAIUS PKWY | LA | | ON T-1A |
| 2389 | TS | 14020 | IL 176 @ BUTTERFIELD RD | LA | | ON T-1A |
| 2390 | TS | 14025 | IL 176 PARK AVE @ GARFIELD AVE BRAINERD AVE | LA | | ON T-1A |
| 2391 | TS | 14030 | IL 176 PARK AVE @ DAWES ST | LA | | ON T-1A |
| 2392 | TS | 14035 | IL 176 PARK AVE @ 4TH AVE FOURTH ST | LA | | ON T-1A |

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|------|----|-------|--------------------------------------|----|------|-----|
| 2393 | TS | 14062 | IL 38 ROOSEVELT RD @ MARIANO ENT | DU | | OFF |
| | | | | | T-1A | |
| 2394 | TS | 14065 | IL 38 ROOSEVELT RD @ HIGHLAND AVE | DU | | OFF |
| | | | | | T-1A | |
| 2395 | TS | 14155 | US 34 OGDEN AVE @ IL 171 1ST AVE | CO | | OFF |
| | | | | | T-1A | |
| 2396 | TS | 14157 | US 34 OGDEN AVE @ LAWNDALE AVE | CO | | ON |
| | | | | | T-1A | |
| 2397 | TS | 14160 | IL 171 1ST AVE @ PLAINFIELD RD | CO | | ON |
| | | | | | T-1A | |
| 2398 | TS | 14165 | IL 171 1ST AVE @ 44TH PL 1ST AVE | CO | | ON |
| | | | | | T-1A | |
| 2399 | TS | 14170 | US 34 OGDEN AVE @ PLAINFIELD RD | CO | | OFF |
| | | | | | T-1A | |
| 2400 | TS | 14175 | US 34 OGDEN AVE @ CUSTER AVE | CO | | ON |
| | | | | | T-1A | |
| 2401 | TS | 14183 | 5TH AVE @ MAIN ST ST CHARLES RD | CO | | ON |
| | | | | | T-1A | |
| 2402 | TS | 14190 | 5TH AVE @ WASHINGTON BLVD | CO | | ON |
| | | | | | T-1A | |
| 2403 | TS | 14195 | 5TH AVE @ MADISON ST | CO | | ON |
| | | | | | T-1A | |
| 2404 | TS | 14200 | 5TH AVE @ LAKE ST | CO | | ON |
| | | | | | T-1A | |

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|------|----|-------|--|----|------|-----|
| 2405 | TS | 14205 | 5TH AVE @ CHICAGO | CO | T-1A | ON |
| 2406 | TS | 14215 | 17TH AVE @ MADISON ST | CO | T-1A | ON |
| 2407 | TS | 14220 | 9TH AVE @ LAKE ST | CO | T-1A | ON |
| 2408 | TS | 14245 | 9TH AVE @ CHICAGO AVE | CO | T-1A | ON |
| 2409 | TS | 14255 | 19TH AVE @ LAKE ST | CO | T-1A | ON |
| 2410 | TS | 14265 | IL 64 NORTH AVE @ 15TH AVE | CO | T-1A | ON |
| 2411 | TS | 14270 | GOLF RD @ OVERLOOK DR | CO | T-1A | ON |
| 2412 | TS | 14275 | IL 43 IL 58 WAUKEGAN RD @ EMERSON ST | CO | T-1A | ON |
| 2413 | TS | 14280 | IL 43 IL 58 WAUKEGAN RD @ BECKWITH RD | CO | T-1A | ON |
| 2414 | TS | 14285 | IL 58 DEMPSTER ST @ PRAIRIE VIEW DR PARK DR | CO | T-1A | ON |
| 2415 | TS | 14290 | IL 58 DEMPSTER ST @ LEHIGH AVE | CO | T-1A | OFF |
| 2416 | TS | 14295 | IL 58 DEMPSTER ST @ | CO | | OFF |

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| | | | FERRIS AVE | | T-1A |
|------|----|-------|------------------------------------|----|-------------|
| 2417 | TS | 14300 | IL 58 DEMPSTER ST @ FERNALD AVE | CO | OFF T-1A |
| 2418 | TS | 14305 | IL 58 DEMPSTER ST @ AUSTIN AVE | CO | ON T-1A |
| 2419 | TS | 14310 | IL 58 DEMPSTER ST @ MENARD AVE | CO | OFF T-1A |
| 2420 | TS | 14315 | IL 58 DEMPSTER ST @ CENTRAL AVE | CO | OFF T-1A |
| 2421 | TS | 14325 | OAKTON ST @ AUSTIN AVE | CO | ON T-1A |
| 2422 | TS | 14330 | OAKTON ST @ MENARD AVE | CO | OFF T-1A |
| 2423 | TS | 14340 | US 45 @ DIAMOND LAKE RD | LA | ON T-1A |
| 2424 | TS | 14345 | US 45 LAKE @ DIVISION | LA | ON T-1A |
| 2425 | TS | 14350 | US 45 LAKE @ HAWLEY ST | LA | ON T-1A |
| 2426 | TS | 14355 | MIDLOTHIAN RD @ HAWLEY ST | LA | ON T-1A |
| 2427 | TS | 14370 | US 45 @ ALLANSON RD | LA | ON T-1A |

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|------|----|-------|--|----|------|-----|
| 2428 | TS | 14372 | US 45 @ COURTLAND ST | LA | T-1A | ON |
| 2429 | TS | 14375 | IL 171 CUMBERLAND AVE @ FOSTER | CO | T-1A | ON |
| 2430 | TS | 14395 | IL 43 HARLEM AVE @ CULLOM AVE | CO | T-1A | ON |
| 2431 | TS | 14400 | IL 43 WAUKEGAN RD @ WALTERS AVE | CO | T-1A | ON |
| 2432 | TS | 14402 | IL 43 WAUKEGAN RD @ VOLTZ RD | CO | T-1A | OFF |
| 2433 | TS | 14430 | IL 43 WAUKEGAN RD @ SHERMER RD | CO | T-1A | ON |
| 2434 | TS | 14460 | WILLOW RD @ CENTRAL SOUTH HAPP | CO | T-1A | ON |
| 2435 | TS | 14465 | WILLOW RD @ NORTHFIELD RD OLD WILLOW RD | CO | T-1A | ON |
| 2436 | TS | 14466 | WILLOW RD @ CLARKSON PARK CHURCHILL ST | CO | T-1A | ON |
| 2437 | TS | 14470 | WILLOW RD @ WAGNER RD | CO | T-1A | ON |
| 2438 | TS | 14475 | WILLOW RD @ SUNSET RIDGE | CO | T-1A | ON |
| 2439 | TS | 14480 | IL 43 WAUKEGAN RD @ CHRISTIAN HERITAGE WESTLEIGH DR | CO | T-1A | ON |

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|------|----|-------|---------------------------------------|----|------|----|
| 2440 | TS | 14485 | WINNETKA RD @ HIBBARD | CO | T-1A | ON |
| 2441 | TS | 14491 | 22ND ST @ OAK BROOK CENTER EAST | DU | T-1A | ON |
| 2442 | TS | 14492 | 22ND ST @ OAK BROOK CENTER WEST | DU | T-1A | ON |
| 2443 | TS | 14493 | 22ND ST @ SPRING RD | DU | T-1A | ON |
| 2444 | TS | 14494 | 22ND ST @ MCDONALD DRIVE | DU | T-1A | ON |
| 2445 | TS | 14495 | 22ND ST @ YORK RD | DU | T-1A | ON |
| 2446 | TS | 14496 | 22ND ST @ JORIE BLVD ENTERPRISE DR | DU | T-1A | ON |
| 2447 | TS | 14497 | 22ND ST @ WINDSOR DR | DU | T-1A | ON |
| 2448 | TS | 14715 | PALATINE RD @ SMITH | CO | T-1A | ON |
| 2449 | TS | 14720 | PALATINE RD @ BROCKWAY | CO | T-1A | ON |
| 2450 | TS | 14725 | PALATINE RD @ PLUM GROVE RD | CO | T-1A | ON |
| 2451 | TS | 14730 | HICKS RD @ | CO | | ON |

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|------|----|-------|--|----|--|------|-----|
| | | | FIRST BANK DR PALATINE MALL | | | T-1A | |
| 2452 | TS | 14741 | IL 62 ALGONQUIN RD @ CARRIAGE WAY ESSEX WAY | CO | | T-1A | ON |
| 2453 | TS | 14744 | IL 62 ALGONQUIN RD @ WEBER RD OLD WILKE | CO | | T-1A | ON |
| 2454 | TS | 14750 | IL 62 ALGONQUIN RD @ HAMMOND DR | CO | | T-1A | ON |
| 2455 | TS | 14755 | IL 62 ALGONQUIN RD @ COMMUNICATIONS DR VILLAGE TREE | CO | | T-1A | ON |
| 2456 | TS | 14760 | IL 62 ALGONQUIN RD @ MOTOROLA W DR PLUM GROVE RD | CO | | T-1A | OFF |
| 2457 | TS | 14765 | IL 62 ALGONQUIN RD @ THOREAU DR THORNTREE LN | CO | | T-1A | ON |
| 2458 | TS | 14770 | I 290 EAST FRONTAGE @ WOODFIELD RD | CO | | T-1A | ON |
| 2459 | TS | 14775 | I 290 WEST FRONTAGE @ WOODFIELD RD | CO | | T-1A | ON |
| 2460 | TS | 14780 | IL 62 ALGONQUIN RD @ MEACHAM RD | CO | | T-1A | ON |
| 2461 | TS | 14820 | NILES CENTER RD @ HOWARD ST | CO | | T-1A | ON |
| 2462 | TS | 14835 | TOUHY AVE @ NILES CENTER RD CARPENTER | CO | | T-1A | ON |

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|------|----|-------|---|----|------|-----|
| 2463 | TS | 14840 | TOUHY AVE @ LARAMIE AVE | CO | T-1A | ON |
| 2464 | TS | 14845 | TOUHY AVE @ LECLAIRE | CO | T-1A | ON |
| 2465 | TS | 14855 | US 12 45 MANNHEIM RD @ HIRSCH SOFFEL AVE | CO | T-1A | ON |
| 2466 | TS | 14861 | IL 171 ARCHER AVE @ DERBY RD | CO | T-1A | ON |
| 2467 | TS | 14863 | 123RD ST MCCARTHY RD @ DERBY RD | CO | T-1A | ON |
| 2468 | TS | 14865 | IL 72 @ LOCUST DR | KA | T-1A | ON |
| 2469 | TS | 14867 | IL 72 @ TARTANS DR | KA | T-1A | ON |
| 2470 | TS | 14875 | IL 72 MAIN ST @ 5TH ST | KA | T-1A | ON |
| 2471 | TS | 14880 | IL 31 @ HILLSIDE SPRING HILL ENT D | KA | T-1A | ON |
| 2472 | TS | 14885 | IL 31 @ SPRUCE DR ALDI ENT | KA | T-1A | OFF |
| 2473 | TS | 14890 | IL 31 WESTERN AVE @ HUNTLEY RD | KA | T-1A | OFF |
| 2474 | TS | 14900 | IL 31 @ WILLOW RD STROM DR | KA | T-1A | OFF |

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| | | | | | | |
|------|----|-------|--|----|------|----|
| 2475 | TS | 14904 | IL 43 WAUKEGAN RD @ PULASKI DR | LA | T-1A | ON |
| 2476 | TS | 14905 | IL 43 WAUKEGAN RD @ LAKEHURST RD | LA | T-1A | ON |
| 2477 | TS | 14910 | IL 43 WAUKEGAN RD @ FOUNTAIN SQUARE PL | LA | T-1A | ON |
| 2478 | TS | 14915 | IL 43 WAUKEGAN RD @ NORTHPOINT BLVD | LA | T-1A | ON |
| 2479 | TS | 14916 | IL 43 WAUKEGAN RD @ BUR WOOD DR (BURWOOD) | LA | T-1A | ON |
| 2480 | TS | 14917 | IL 43 WAUKEGAN RD @ LAKESIDE DR BAXTER ENT | LA | T-1A | ON |
| 2481 | TS | 14925 | IL 120 BELVIDERE RD @ GREENLEAF ST NORTH RAMP | LA | T-1A | ON |
| 2482 | TS | 14930 | GREENLEAF SOUTH RAMP @ IL 120 EB RAMP | LA | T-1A | ON |
| 2483 | TS | 14940 | IL 120 BELVIDERE RD @ LEWIS AVE | LA | T-1A | ON |
| 2484 | TS | 14945 | BELVIDERE RD @ GLEN ROCK AVE | LA | T-1A | ON |
| 2485 | TS | 14950 | BELVIDERE RD @ JACKSON AVE | LA | T-1A | ON |
| 2486 | TS | 14955 | BELVIDERE RD @ | LA | | ON |

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| | | | MCALISTER AVE | | T-1A | |
|------|----|-------|--|----|------|-----|
| 2487 | TS | 14960 | IL 120 BELVIDERE RD @ COUNTY ST MARTIN LUTHER | LA | T-1A | ON |
| 2488 | TS | 14965 | BELVIDERE RD @ GENESEE ST | LA | T-1A | ON |
| 2489 | TS | 14970 | BELVIDERE RD @ KELLER AVE | LA | T-1A | ON |
| 2490 | TS | 14972 | BELVIDERE RD @ PIONEER CT LAKE PLAZA | LA | T-1A | ON |
| 2491 | TS | 14974 | BELVIDERE RD @ BELVIDERE MALL EAST ENT | LA | T-1A | ON |
| 2492 | TS | 14980 | GRAND AVE @ BALDWIN AVE | LA | T-1A | ON |
| 2493 | TS | 14985 | GRAND AVE @ MCAREE AVE | LA | T-1A | OFF |
| 2494 | TS | 14990 | GRAND AVE @ GENESEE ST | LA | T-1A | OFF |
| 2495 | TS | 14995 | GRAND AVE @ COUNTY ST | LA | T-1A | OFF |
| 2496 | TS | 15000 | GRAND AVE @ WEST ST | LA | T-1A | OFF |
| 2497 | TS | 15005 | GRAND AVE @ JACKSON AVE | LA | T-1A | OFF |

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|------|----|-------|--|----|------|-----|
| 2498 | TS | 15010 | GRAND AVE @ BUTRICK ST | LA | T-1A | OFF |
| 2499 | TS | 15015 | GRAND AVE @ LEWIS AVE | LA | T-1A | OFF |
| 2500 | TS | 15020 | IL 131 GREEN BAY RD @ IL 132 GRAND AVE | LA | T-1A | ON |
| 2501 | TS | 15022 | IL 131 GREEN BAY RD @ BROOKSIDE AVE | LA | T-1A | ON |
| 2502 | TS | 15025 | IL 131 GREEN BAY RD @ SUNSET AVE | LA | T-1A | ON |
| 2503 | TS | 15030 | IL 137 GENESEE ST SHERIDAN RD @ SOUTH AVE | LA | T-1A | ON |
| 2504 | TS | 15035 | SHERIDAN RD @ BELVIDERE RD | LA | T-1A | ON |
| 2505 | TS | 15050 | SHERIDAN RD @ GRAND AVE | LA | T-1A | OFF |
| 2506 | TS | 15060 | IL 137 SHERIDAN RD @ GREENWOOD AVE | LA | T-1A | ON |
| 2507 | TS | 15065 | IL 137 SHERIDAN RD @ MIRAFLORES AVE | LA | T-1A | ON |
| 2508 | TS | 15080 | IL 47 SEMINARY AVE @ RUSSEL CT | MC | T-1A | ON |
| 2509 | TS | 15085 | IL 47 EASTWOOD AVE @ COUNTRY CLUB RD | MC | T-1B | ON |

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|------|----|-------|---|----|------|----|
| 2510 | TS | 15086 | IL 120 GREENWOOD RD @ FLEMING RD | MC | T-1A | ON |
| 2511 | TS | 15087 | IL 47 ESTWOOD DR @ IRVING AVE JUDD ST | MC | T-1A | ON |
| 2512 | TS | 15088 | IL 47 EASTWOOD DR @ IL 120 MCHENRY AVE | MC | T-1A | ON |
| 2513 | TS | 15089 | IL 120 MCHENRY AVE @ RAFFEL RD | MC | T-1A | ON |
| 2514 | TS | 15090 | IL 19 IRVING PK @ ADDISON RD | DU | T-1A | ON |
| 2515 | TS | 15100 | IL 19 IRVING PK RD @ WOOD DALE RD | DU | T-1A | ON |
| 2516 | TS | 15105 | US 12 45 MANNHEIM RD @ DORCHESTER BALMORAL | CO | T-1A | ON |
| 2517 | TS | 15110 | IL 38 ROOSEVELT RD @ WESTCHESTER BLVD | CO | T-1A | ON |
| 2518 | TS | 15115 | 22ND ST CERMAK RD @ MAYFAIR | CO | T-1A | ON |
| 2519 | TS | 15120 | US 12 20 45 MANNHEIM RD @ CANTERBURY RD | CO | T-1A | ON |
| 2520 | TS | 15131 | IL 137 SHERIDAN RD AMSTUTZ EXPY @ GENESEE ST | LA | T-1A | ON |
| 2521 | TS | 15175 | IL 56 BUTTERFIELD RD @ | DU | | ON |

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| | | | | | | |
|------|----|-------|---|----|--|-------------|
| | | | BRADFORD DR | | | T-1A |
| 2522 | TS | 15178 | IL 56 BUTTERFIELD RD @ LEASK LANE | DU | | ON T-1A |
| 2523 | TS | 15230 | IL 38 ROOSEVELT RD @ LORRAINE RD | DU | | OFF T-1A |
| 2524 | TS | 15235 | IL 38 ROOSEVELT RD @ PRESIDENT ST | DU | | OFF T-1A |
| 2525 | TS | 15240 | IL 38 ROOSEVELT RD @ NAPERVILLE RD | DU | | OFF T-1A |
| 2526 | TS | 15245 | IL 38 ROOSEVELT RD @ MAIN ST (IN WHEATON) | DU | | OFF T-1A |
| 2527 | TS | 15250 | IL 38 ROOSEVELT RD @ WEST ST WARRENVILLE RD | DU | | OFF T-1A |
| 2528 | TS | 15255 | IL 38 ROOSEVELT ROAD @ CARLTON | DU | | OFF T-1A |
| 2529 | TS | 15260 | IL 38 ROOSEVELT RD @ ADARE DR SADDLE RD | DU | | ON T-1A |
| 2530 | TS | 15261 | IL 38 ROOSEVELT RD @ COMMUNITY DR HAZELTON AVE | DU | | ON T-1A |
| 2531 | TS | 15305 | IL 38 ROOSEVELT RD @ VILLA OAKS SC ENT | DU | | OFF T-1A |
| 2532 | TS | 15310 | IL 38 ROOSEVELT RD @ ARDMORE AVE | DU | | OFF T-1A |

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|------|----|-------|---|----|------|-----|
| 2533 | TS | 15315 | IL 64 NORTH AVE @ WESTMORE RD | DU | | ON |
| | | | | | T-1A | |
| 2534 | TS | 15320 | GREEN BAY RD @ WINNETKA AVE | CO | | ON |
| | | | | | T-1A | |
| 2535 | TS | 20115 | OLD MCHENRY RD @ MIDLOTHIAN RD | LA | | ON |
| | | | | | T-1A | |
| 2536 | TS | 20323 | IL 31 @ SILVER GLEN RD | KA | | ON |
| | | | | | T-1A | |
| 2537 | TS | 20330 | IL 53 @ DUPAGE BLVD BAKER HILL DR | DU | | ON |
| | | | | | T-1A | |
| 2538 | TS | 20333 | IL 53 @ SPRING AVE | DU | | ON |
| | | | | | T-1B | |
| 2539 | TS | 20335 | IL 53 @ PERSHING AVE | DU | | ON |
| | | | | | T-1A | |
| 2540 | TS | 20341 | TOUHY AVE @ LAWNDALE AVE | CO | | ON |
| | | | | | T-1A | |
| 2541 | TS | 20345 | TOUHY AVE @ LINCOLNWOOD TOWN CTR ENT | CO | | ON |
| | | | | | T-1A | |
| 2542 | TS | 20350 | IL 22 HALF DAY RD @ LAKESIDE DR | LA | | ON |
| | | | | | T-1A | |
| 2543 | TS | 20355 | NILES CENTER RD CARPENTER @ VILLAGE CROSSING ENT D | CO | | ON |
| | | | | | T-1A | |
| 2544 | TS | 20360 | IL 59 @ MERIDIAN PKWY GLACIER PARK | DU | | OFF |
| | | | | | T-1A | |

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|------|----|-------|---|----|------|-----|
| 2545 | TS | 20365 | US 6 159TH ST @ 91ST AVE PARKHILL DR | CO | T-1A | ON |
| 2546 | TS | 20366 | IL 50 IL 83 CICERO AVE @ 137TH ST | CO | T-1A | OFF |
| 2547 | TS | 20370 | IL 56 BUTTERFIELD RD @ CROMWELL DR | DU | T-1A | ON |
| 2548 | TS | 20373 | IL 31 @ RED GATE RD | KA | T-1A | ON |
| 2549 | TS | 20375 | IL 176 ROCKLAND RD @ BRADLEY DR | LA | T-1A | ON |
| 2550 | TS | 20380 | US 14 NORTHWEST HWY @ ELA ROAD | CO | T-1A | ON |
| 2551 | TS | 20385 | BALLARD RD @ BENDER RD | CO | T-1A | ON |
| 2552 | TS | 20390 | IL 38 @ ST CHARLES MALL | KA | T-1A | ON |
| 2553 | TS | 20395 | MCCORMICK BLVD @ LINCOLNWOOD TOWN CENTER | CO | T-1A | ON |
| 2554 | TS | 20396 | IL 31 @ KANE ST | KA | T-1A | ON |
| 2555 | TS | 20400 | BARRINGTON RD @ ST ALEXIUS MEDICAL CTR | CO | T-1A | ON |
| 2556 | TS | 20402 | IL 58 GOLF RD @ | CO | | ON |

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| | | | HOFFMAN VILLAGE SC ENT | | | T-1A |
|------|----|-------|---|----|--|------|
| 2557 | TS | 20405 | US 45 DES PLAINES RIVER RD @ US 45 IL 21 MILWAUKEE | CO | | ON |
| | | | | | | T-1A |
| 2558 | TS | 20425 | IL 22 HALF DAY RD @ BUFFALO GROVE RD | LA | | ON |
| | | | | | | T-1A |
| 2559 | TS | 20426 | IL 22 HALF DAY RD @ BUFFALO GROVE FIRE STATION | LA | | ON |
| | | | | | | T-1A |
| 2560 | TS | 20435 | IL 50 CICERO AVE @ 24TH PL | CO | | ON |
| | | | | | | T-1A |
| 2561 | TS | 20480 | PALATINE RD @ ROSELLE RD | CO | | ON |
| | | | | | | T-1A |
| 2562 | TS | 20485 | IL 131 GREEN BAY RD @ CRESCENT AVE | LA | | ON |
| | | | | | | T-1A |
| 2563 | TS | 20490 | US 6 159TH ST @ 108TH AVE | CO | | OFF |
| | | | | | | T-1A |
| 2564 | TS | 20491 | US 6 159TH ST @ RAVINIA AVE | CO | | ON |
| | | | | | | T-1A |
| 2565 | TS | 20492 | US 6 159TH ST @ 104TH AVE | CO | | OFF |
| | | | | | | T-1A |
| 2566 | TS | 20495 | IL 50 CICERO AVE @ 120TH ST | CO | | ON |
| | | | | | | T-1A |
| 2567 | TS | 20525 | IL 171 ARCHER AVE @ BULLDOG DR 57TH ST | CO | | ON |
| | | | | | | T-1A |

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| | | | | | | |
|------|----|-------|--|----|------|----|
| 2568 | TS | 20530 | IL 60 TOWNLINE RD @ SAUNDERS RD FIELD DR | LA | T-1A | ON |
| 2569 | TS | 20535 | US 12 RAND RD @ DEERPATH RD PHEASANT RIDGE DR | LA | T-1A | ON |
| 2570 | TS | 20555 | WAUKEGAN RD @ NILES CIVIC CENTER PLAZA | CO | T-1A | ON |
| 2571 | TS | 20560 | US 6 WOLF RD @ 167TH ST | CO | T-1A | ON |
| 2572 | TS | 20561 | IL 7 IL 53 BROADWAY ST @ CATON FARM RD | WI | T-1A | ON |
| 2573 | TS | 20575 | US 20 LAKE ST @ WALNUT AVE | CO | T-1A | ON |
| 2574 | TS | 20590 | US 14 NORTHWEST HWY @ FIRST BANK | CO | T-1A | ON |
| 2575 | TS | 20595 | US 12 RAND RD @ OLD MCHENRY RD | LA | T-1A | ON |
| 2576 | TS | 20600 | US 6 @ BRANDON RD | WI | T-1A | ON |
| 2577 | TS | 20605 | I 290 IKE WEST RAMP ENT @ IL 53 BIESTERFIELD RD | CO | T-1A | ON |
| 2578 | TS | 20610 | I 290 IKE EAST RAMP EXT @ IL 53 BIESTERFIELD RD | CO | T-1A | ON |
| 2579 | TS | 20615 | BRAINARD AVE @ HEGEWISCH METRA PARK LOT ENT | CO | T-1A | ON |

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|------|----|-------|---|----|------|-----|
| 2580 | TS | 20620 | IL 59 @ NEW YORK AVE AURORA AVE | DU | T-1A | OFF |
| 2581 | TS | 20625 | IL 56 BUTTERFIELD RD @ I 355 N S TLWY E RAMP | DU | T-1A | ON |
| 2582 | TS | 20630 | IL 56 BUTTERFIELD RD @ I 355 N S TLWY W RAMP | DU | T-1A | ON |
| 2583 | TS | 20631 | IL 38 ROOSEVELT RD @ NICOLL WAY | DU | T-1A | OFF |
| 2584 | TS | 20632 | IL 38 ROOSEVELT RD @ PARK BLVD | DU | T-1A | OFF |
| 2585 | TS | 20634 | IL 38 ROOSEVELT RD @ LAMBERT RD | DU | T-1A | OFF |
| 2586 | TS | 20635 | IL 59 @ LA FOX AVE FOX VALLEY ENT 1 | DU | T-1A | OFF |
| 2587 | TS | 20660 | IL 56 BUTTERFIELD RD @ EAST LOOP DR | DU | T-1A | ON |
| 2588 | TS | 20900 | IL 173 @ LEWIS AVE | LA | T-1A | ON |
| 2589 | TS | 20901 | IL 137 SHERIDAN RD @ IL 173 21ST ST | LA | T-1A | ON |
| 2590 | TS | 20902 | IL 137 SHERIDAN RD @ 23RD ST | LA | T-1A | ON |
| 2591 | TS | 20903 | IL 137 SHERIDAN RD @ | LA | | ON |

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| | | | 27TH ST | | T-1A |
|------|----|-------|---|----|-------------|
| 2592 | TS | 20904 | IL 137 SHERIDAN RD @ 29TH ST | LA | ON T-1A |
| 2593 | TS | 20905 | IL 137 SHERIDAN RD @ SHILOH BLVD | LA | ON T-1A |
| 2594 | TS | 20906 | IL 137 SHERIDAN RD @ 31ST ST | LA | ON T-1A |
| 2595 | TS | 20907 | IL 137 SHERIDAN RD @ 33RD ST | LA | ON T-1A |
| 2596 | TS | 20908 | IL 137 SHERIDAN RD @ 34TH ST | LA | ON T-1A |
| 2597 | TS | 20910 | US 34 OGDEN AVE @ FOX RIVER COMMONS SC ENT | DU | OFF T-1A |
| 2598 | TS | 20935 | TOUHY AVE @ VILLAGE CROSSING SC ENT C | CO | ON T-1A |
| 2599 | TS | 20945 | US 45 96TH AVE @ 179TH ST | CO | ON T-1A |
| 2600 | TS | 20955 | US 6 IL 83 TORRENCE AVE @ EXCHANGE ST | CO | OFF T-1A |
| 2601 | TS | 20965 | 127TH ST @ KOSTNER AVE | CO | ON T-1A |
| 2602 | TS | 20966 | IL 126 @ COUNTY LINE RD | WI | ON T-1A |

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| | | | | | | |
|------|----|-------|--|----|------|----|
| 2603 | TS | 20967 | IL 126 @ MEADOW AVE | WI | T-1A | ON |
| 2604 | TS | 20968 | US 30 143RD ST @ VAN DYKE RD | WI | T-1A | ON |
| 2605 | TS | 20969 | IL 126 @ DRAUDEN RD STEINER RD | WI | T-1A | ON |
| 2606 | TS | 20970 | IL 126 LOCKPORT RD @ WALLIN DR | WI | T-1A | ON |
| 2607 | TS | 20971 | IL 126 @ VAN DYKE RD | WI | T-1A | ON |
| 2608 | TS | 20972 | US 30 @ 135TH ST | WI | T-1A | ON |
| 2609 | TS | 20974 | US 30 LINCOLN HWY @ US 30 143RD ST | WI | T-1B | ON |
| 2610 | TS | 20976 | US 30 LINCOLN WAY @ 119TH ST | WI | T-1A | ON |
| 2611 | TS | 20979 | US 30 @ 127TH ST | WI | T-1A | ON |
| 2612 | TS | 20986 | TORRENCE AVE @ JOE ORR RD | CO | T-1A | ON |
| 2613 | TS | 20995 | US 45 IL 21 MILWAUKEE AVE @ RIVERWALK DR COLUMBUS PKWY | LA | T-1A | ON |
| 2614 | TS | 21000 | IL 132 GRAND AVE @ GURNEE MILLS CIRCLE WEST MENARDS EN | LA | T-1A | ON |

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|------|----|-------|--|----|------|-----|
| 2615 | TS | 21010 | IL 137 BOB THOMPSON OHIO @ IL 137 BUCKLEY RD | LA | T-1A | ON |
| 2616 | TS | 21015 | IL 50 CICERO AVE @ 105TH ST | CO | T-1A | ON |
| 2617 | TS | 21020 | US 6 MAPLE RD @ BRIGGS ST FERNWOOD AVE | WI | T-1A | ON |
| 2618 | TS | 21030 | 22ND ST @ MACARTHUR DR COSTCO ENT | DU | T-1A | ON |
| 2619 | TS | 21035 | 22ND ST @ PARKVIEW DR | DU | T-1A | ON |
| 2620 | TS | 21070 | US 45 @ EVERGREEN DR | LA | T-1A | ON |
| 2621 | TS | 21085 | IL 137 SHERIDAN RD @ 22ND ST MLK KING DR | LA | T-1A | ON |
| 2622 | TS | 21090 | GLENWOOD DYER RD @ STONY ISLAND AVE | CO | T-1A | OFF |
| 2623 | TS | 21100 | IL 83 OLD MCHENRY RD @ LEXINGTON DR | CO | T-1A | ON |
| 2624 | TS | 21110 | IL 132 GRAND AVE @ GURNEE MILLS CRCL E TRI STATE PKWY | LA | T-1A | ON |
| 2625 | TS | 21115 | IL 132 GRAND AVE @ SAMS CLUB ENT HOME DEPOT ENT | LA | T-1A | ON |
| 2626 | TS | 21117 | IL 132 GRAND AVE @ ALMOND RD HUTCHINS RD | LA | T-1A | ON |

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| | | | | | | |
|------|----|-------|---|----|------|-----|
| 2627 | TS | 21118 | IL 132 GRAND AVE @ ROLLINS RD OAKWOOD DR | LA | T-1A | ON |
| 2628 | TS | 21119 | IL 132 GRAND AVE @ STONEBROOK DR | LA | T-1A | ON |
| 2629 | TS | 21120 | US 41 @ STEARNS SCHOOL RD | LA | T-1A | ON |
| 2630 | TS | 21125 | IL 58 GOLF RD @ GOLF GLEN SHOPPING CENTER | CO | T-1A | ON |
| 2631 | TS | 21130 | BARRINGTON RD @ OLD CHURCH RD | CO | T-1A | OFF |
| 2632 | TS | 21134 | US 30 LINCOLN HWY @ RETAIL DR VANCINA LN | WI | T-1A | ON |
| 2633 | TS | 21135 | US 30 LINCOLN HWY @ SCHOOL HOUSE RD SCHMUHL RD | WI | T-1A | ON |
| 2634 | TS | 21139 | IL 59 @ WESTRIDGE CT MEIJER ENT | DU | T-1A | OFF |
| 2635 | TS | 21145 | ELMHURST RD @ GREENLEAF AVE | CO | T-1A | ON |
| 2636 | TS | 21150 | ELMHURST RD @ PRATT BLVD | CO | T-1A | ON |
| 2637 | TS | 21175 | 31ST ST @ MAYFAIR | CO | T-1A | ON |

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|------|----|-------|---|----|------|-----|
| 2638 | TS | 21181 | IL 22 HALF DAY RD @ MAIN ST PRAIRIE RD W JCT | LA | T-1A | ON |
| 2639 | TS | 21185 | IL 83 TORRENCE AVE @ GLENWOOD LANSING RD | CO | T-1A | OFF |
| 2640 | TS | 21190 | IL 59 @ KELSEY RD | LA | T-1A | ON |
| 2641 | TS | 21195 | IL 132 GRAND AVE @ BELLE PLAINE ST | LA | T-1A | ON |
| 2642 | TS | 21200 | IL 68 DUNDEE RD @ HUNTINGTON LANE LAKE BLVD | CO | T-1A | ON |
| 2643 | TS | 21210 | MAIN ST COUNTY LINE RD @ ELA RD | CO | T-1A | ON |
| 2644 | TS | 21215 | IL 22 HALF DAY RD @ ARBORETUM WAY | LA | T-1A | ON |
| 2645 | TS | 21220 | 111TH ST @ AUSTIN AVE | CO | T-1A | ON |
| 2646 | TS | 21235 | IL 58 GOLF RD @ BASSWOOD | CO | T-1A | ON |
| 2647 | TS | 21237 | IL 58 GOLF RD @ WILKENING RD | CO | T-1A | ON |
| 2648 | TS | 21239 | IL 176 @ HALIGUS RD MT THABOR RD | MC | T-1A | ON |
| 2649 | TS | 21240 | IL 47 EASTWOOD DR @ IL 176 SOUTH | MC | T-1A | ON |

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|------|----|-------|--|----|------|-----|
| 2650 | TS | 21241 | IL 47 @ IL 176 NORTH | MC | T-1A | ON |
| 2651 | TS | 21250 | IL 38 ROOSEVELT RD @ BLANCHARD ST | DU | T-1A | OFF |
| 2652 | TS | 21255 | IL 38 ROOSEVELT RD @ MAIN ST (GLEN ELLYN) | DU | T-1A | OFF |
| 2653 | TS | 21260 | US 45 @ INNOVATION WAY | LA | T-1A | ON |
| 2654 | TS | 21275 | WILLOW RD @ KRAFT FOOD THREE LAKES DR | CO | T-1A | ON |
| 2655 | TS | 21280 | BARRINGTON RD @ BUTTITTA DR LAURIE LN | CO | T-1A | ON |
| 2656 | TS | 21285 | BARRINGTON RD @ RAMBLEWOOD DR | CO | T-1A | ON |
| 2657 | TS | 21290 | IL 58 GOLF RD @ NATIONAL PKWY | CO | T-1A | OFF |
| 2658 | TS | 21295 | US 12 RAND RD @ MILLER RD | LA | T-1A | ON |
| 2659 | TS | 21320 | IL 72 HIGGINS RD @ SPRING MILL DR | CO | T-1A | ON |
| 2660 | TS | 21322 | IL 72 HIGGINS RD @ GRAND CANYON PKWY | CO | T-1A | OFF |
| 2661 | TS | 21325 | IL 43 HARLEM AVE @ | CO | | ON |

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| | | | OAK PARK AVE | | T-1A |
|------|----|-------|--|----|-------------|
| 2662 | TS | 21340 | IL 83 TORRENCE AVE @ 176TH ST | CO | ON T-1A |
| 2663 | TS | 21350 | IL 59 HOUGH RD @ CUBA RD | LA | ON T-1A |
| 2664 | TS | 21355 | IL 62 ALGONQUIN RD @ BRIARWOOD | CO | ON T-1A |
| 2665 | TS | 21370 | IL 58 GOLF RD @ KNOLLWOOD DR | CO | ON T-1A |
| 2666 | TS | 21375 | IL 58 GOLF RD @ HARMON BLVD | CO | OFF T-1A |
| 2667 | TS | 21390 | US 30 LINCOLN HWY @ WOLF'S CROSSING RD | KE | ON T-1A |
| 2668 | TS | 21392 | US 30 LINCOLN HWY @ EOLA RD | WI | ON T-1A |
| 2669 | TS | 21393 | US 30 @ 111TH ST | WI | ON T-1A |
| 2670 | TS | 21395 | IL 64 NORTH AVE @ PRESIDENT ST | DU | ON T-1A |
| 2671 | TS | 21405 | US 45 IL 21 MILWAUKEE AVE @ TOWER PKWY RIVERSIDE RD | LA | ON T-1A |
| 2672 | TS | 21409 | IL 21 MILWAUKEE AVE @ AMERICAN HOTEL REGISTER DR | LA | ON T-1A |

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| | | | | | | |
|------|----|-------|---|----|------|-----|
| 2673 | TS | 21410 | IL 21 MILWAUKEE AVE @ CORPORATE WOODS PKWY | LA | | ON |
| | | | | | T-1A | |
| 2674 | TS | 21411 | IL 21 MILWAUKEE AVE @ WOODLAND PKWY | LA | | ON |
| | | | | | T-1A | |
| 2675 | TS | 21412 | IL 21 MILWAUKEE AVE @ JAMESTOWN RD PORT CLINTON RD | LA | | ON |
| | | | | | T-1A | |
| 2676 | TS | 21420 | US 45 LAKE AVE @ DUNBAR RD UNIVERSITY DR | LA | | ON |
| | | | | | T-1A | |
| 2677 | TS | 21435 | IL 53 CHICAGO RD @ MANHATTAN RD | WI | | ON |
| | | | | | T-1A | |
| 2678 | TS | 21437 | IL 53 @ IRA MORGAN ST | WI | | ON |
| | | | | | T-1A | |
| 2679 | TS | 21439 | IL 53 @ HOFF RD | WI | | ON |
| | | | | | T-1A | |
| 2680 | TS | 21450 | IL 19 IRVING PARK RD @ OLD SALEM | CO | | OFF |
| | | | | | T-1A | |
| 2681 | TS | 21460 | US 14 DIVISION ST @ AIRPORT RD MCGUIRE RD | MC | | ON |
| | | | | | T-1A | |
| 2682 | TS | 21463 | US 14 DIVISION ST @ IL 23 | MC | | ON |
| | | | | | T-1A | |
| 2683 | TS | 21465 | IL 59 @ 103RD ST | WI | | ON |
| | | | | | T-1A | |
| 2684 | TS | 21470 | US 14 @ KISHWAUKEE VALLEY RD | MC | | ON |
| | | | | | T-1A | |

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| | | | | | | |
|------|----|-------|--|----|------|-----|
| 2685 | TS | 21473 | IL 171 ARCHER AVE @ 131ST ST ASHBURY DR | CO | T-1A | ON |
| 2686 | TS | 21475 | IL 171 ARCHER AVE @ BELL RD | CO | T-1A | OFF |
| 2687 | TS | 21490 | IL 21 MILWAUKEE AVE @ LAKE ST | LA | T-1A | ON |
| 2688 | TS | 21500 | IL 83 GLENWOOD DYER RD @ BURNHAM AVE | CO | T-1B | ON |
| 2689 | TS | 21505 | IL 53 @ SHEEHAN AVE | DU | T-1A | ON |
| 2690 | TS | 21510 | I 90 TLWY SOUTH RAMP @ IL 59 SUTTON RD | CO | T-1A | OFF |
| 2691 | TS | 21515 | IL 43 HARLEM AVE @ VOLLMER RD | CO | T-1A | ON |
| 2692 | TS | 21516 | IL 43 HARLEM AVE @ BENTON DR | WI | T-1A | ON |
| 2693 | TS | 21520 | IL 7 143RD ST @ IL 7 WOLF RD | CO | T-1A | ON |
| 2694 | TS | 21522 | IL 7 143RD ST @ 108TH ST | CO | T-1A | ON |
| 2695 | TS | 21523 | 143RD ST @ WILL COOK RD | CO | T-1A | ON |
| 2696 | TS | 21525 | IL 22 @ | LA | | ON |

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| | | | OLD MCHENRY RD | | T-1A |
|------|----|-------|---|----|------|
| 2697 | TS | 21535 | I 90 @ IL 59 NORTH RAMP HOFFMAN BLVD | CO | OFF |
| | | | | | T-1A |
| 2698 | TS | 21537 | IL 59 SUTTON RD @ POPLAR PRAIRIE SC ENT | CO | OFF |
| | | | | | T-1A |
| 2699 | TS | 21543 | IL 21 MILWAUKEE AVE @ IL 120 NORTH RAMP | LA | ON |
| | | | | | T-1A |
| 2700 | TS | 21544 | IL 21 MILWAUKEE AVE @ IL 120 SOUTH RAMP | LA | ON |
| | | | | | T-1A |
| 2701 | TS | 21545 | IL 21 MILWAUKEE AVE @ GAGES LAKE RD | LA | ON |
| | | | | | T-1A |
| 2702 | TS | 21547 | IL 21 MILWAUKEE AVE @ I 94 TLWY EXIT RAMP | LA | ON |
| | | | | | T-1A |
| 2703 | TS | 21550 | IL 68 DUNDEE RD @ BARRINGTON MIDDLE SCHOOL ENT | CO | ON |
| | | | | | T-1A |
| 2704 | TS | 21553 | IL 72 HIGGINS RD @ PRAIRIE STONE PKWY | CO | OFF |
| | | | | | T-1A |
| 2705 | TS | 21555 | IL 72 HIGGINS RD @ TRILLIUM BLVD WICHMAN RD | CO | OFF |
| | | | | | T-1A |
| 2706 | TS | 21557 | IL 72 HIGGINS RD @ SEARS PKWY W ENT | CO | OFF |
| | | | | | T-1A |
| 2707 | TS | 21560 | IL 72 HIGGINS RD @ OLD SUTTON RD | CO | OFF |
| | | | | | T-1A |

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| | | | | | | |
|------|----|-------|---|----|------|-----|
| 2708 | TS | 21565 | US 45 LAGRANGE RD @ LA PORTE RD | WI | | ON |
| | | | | | T-1A | |
| 2709 | TS | 21570 | IL 53 CHICAGO ST @ MILLS RD | WI | | ON |
| | | | | | T-1A | |
| 2710 | TS | 21590 | JOLIET RD @ INTERNATIONAL PKWY | WI | | ON |
| | | | | | T-1A | |
| 2711 | TS | 21595 | IL 62 ALGONQUIN RD @ NEWPORT DR | CO | | ON |
| | | | | | T-1A | |
| 2712 | TS | 21600 | PFINGSTEN RD @ GLENLAKE DR | CO | | ON |
| | | | | | T-1A | |
| 2713 | TS | 21605 | US 30 LINCOLN HWY @ ELLIS AVE | CO | | ON |
| | | | | | T-1A | |
| 2714 | TS | 21625 | IL 134 @ HART RD | LA | | ON |
| | | | | | T-1A | |
| 2715 | TS | 21630 | IL 31 @ BONCOSKY RD | KA | | OFF |
| | | | | | T-1A | |
| 2716 | TS | 21635 | IL 59 @ PETITE LAKE RD | LA | | ON |
| | | | | | T-1A | |
| 2717 | TS | 21637 | IL 83 MILWAUKEE AVE @ PETITE LAKE RD | LA | | ON |
| | | | | | T-1A | |
| 2718 | TS | 21640 | IL 62 ALGONQUIN RD @ SANDBLOOM RD COUNTRYSIDE DR | MC | | ON |
| | | | | | T-1A | |
| 2719 | TS | 21650 | IL 50 CICERO AVE @ 71ST ST WALMART ENT | CO | | OFF |
| | | | | | T-1A | |

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| | | | | | | |
|------|----|-------|--|----|------|----|
| 2720 | TS | 21655 | US 45 @ GAGES LAKE RD | LA | T-1A | ON |
| 2721 | TS | 21660 | US 45 @ IL 137 | LA | T-1A | ON |
| 2722 | TS | 21662 | IL 137 BUCKLEY RD @ CASEY RD MIDLOTHIAN RD | LA | T-1A | ON |
| 2723 | TS | 21663 | US 45 @ CASEY RD | LA | T-1A | ON |
| 2724 | TS | 21695 | IL 43 WAUKEGAN RD @ BAXTER ENT NORMAN RD | LA | T-1A | ON |
| 2725 | TS | 21700 | US 34 OGDEN AVE @ CHELSEA AVE US POST OFFICE ENT | DU | T-1A | ON |
| 2726 | TS | 21709 | IL 19 IRVING PARK RD @ IL 390 TLWY E FRONTAGE | CO | T-1A | ON |
| 2727 | TS | 21710 | IL 19 IRVING PARK RD @ IL 390 TLWY W FRONTAGE | CO | T-1A | ON |
| 2728 | TS | 21715 | IL 43 WAUKEGAN RD @ ABBOTT LABS GATE FORESTPOINTE APT | LA | T-1A | ON |
| 2729 | TS | 21717 | IL 43 WAUKEGAN RD @ ATKINSON AVE | LA | T-1A | ON |
| 2730 | TS | 21745 | IL 64 MAIN ST @ 38TH ST CHARLESTOWN MALL EAST ENT | KA | T-1A | ON |
| 2731 | TS | 21746 | IL 64 NORTH AVE @ | KA | | ON |

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| | | | | | | |
|------|----|-------|--|----|------|----|
| | | | CHARLESTOWN CENTER W DR | | T-1A | |
| 2732 | TS | 21747 | IL 64 MAIN ST @ FOXFIELD COMMONS LAKESIDE DR | KA | | ON |
| | | | | | T-1A | |
| 2733 | TS | 21765 | US 41 @ WASHINGTON EAST RAMP | LA | | ON |
| | | | | | T-1A | |
| 2734 | TS | 21766 | US 41 @ WASHINGTON WEST RAMP | LA | | ON |
| | | | | | T-1A | |
| 2735 | TS | 21768 | IL 72 @ SLEEPY HOLLOW RD CARRINGTON DR | KA | | ON |
| | | | | | T-1A | |
| 2736 | TS | 21775 | MONTROSE AVE @ NEENAH AVE | CO | | ON |
| | | | | | T-1A | |
| 2737 | TS | 21785 | US 12 RAND RD @ PLUM GROVE RD | LA | | ON |
| | | | | | T-1A | |
| 2738 | TS | 21795 | WESTERN AVE @ JOE ORR RD COUNTRY CLUB DR | CO | | ON |
| | | | | | T-1A | |
| 2739 | TS | 21805 | PALATINE RD @ CHAMBERS DR JEWEL OSCO ENT | CO | | ON |
| | | | | | T-1A | |
| 2740 | TS | 21815 | US 14 NORTHWEST HWY @ JANDUS CUT OFF RD LAKE JULIAN LN | MC | | ON |
| | | | | | T-1A | |
| 2741 | TS | 21820 | I 80 WESTBOUND RAMPS @ IL 53 CHICAGO AVE | WI | | ON |
| | | | | | T-1A | |
| 2742 | TS | 21825 | US 6 US 52 MCDONOUGH ST 4TH AVE @ US 6 IL 53 CHICAGO ST | WI | | ON |
| | | | | | T-1A | |

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| | | | | | | |
|------|----|-------|---|----|------|----|
| 2743 | TS | 21830 | US 34 OGDEN AVE @ DOWNERS PLAZA SC ENT | DU | | ON |
| | | | | | T-1A | |
| 2744 | TS | 21845 | MAIN ST COUNTY LINE RD @ DUNDEE AVE | CO | | ON |
| | | | | | T-1A | |
| 2745 | TS | 21850 | IL 64 NORTH AVE @ WALMART ENT HILLSIDE | CO | | ON |
| | | | | | T-1A | |
| 2746 | TS | 21855 | IL 43 WAUKEGAN RD @ OVERLOOK DR KRAFT FOOD ENT | CO | | ON |
| | | | | | T-1A | |
| 2747 | TS | 21860 | IL 59 @ 111TH ST | WI | | ON |
| | | | | | T-1A | |
| 2748 | TS | 21861 | IL 59 @ ROYAL WORTHINGTON DR | WI | | ON |
| | | | | | T-1A | |
| 2749 | TS | 21862 | IL 59 @ 127TH ST | WI | | ON |
| | | | | | T-1A | |
| 2750 | TS | 21863 | IL 59 @ 119TH ST | WI | | ON |
| | | | | | T-1A | |
| 2751 | TS | 21864 | IL 59 @ 135TH ST | WI | | ON |
| | | | | | T-1A | |
| 2752 | TS | 21866 | IL 59 @ CHAMPION RD | WI | | ON |
| | | | | | T-1A | |
| 2753 | TS | 21870 | IL 56 BUTTERFIELD RD @ MAXANT DR TECHNOLOGY DR | DU | | ON |
| | | | | | T-1A | |
| 2754 | TS | 21880 | US 6 @ TERMINAL CT JOHNS MANVILLE ENT | WI | | ON |
| | | | | | T-1A | |

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|------|----|-------|--|----|------|-----|
| 2755 | TS | 21881 | US 6 CHANNAHON RD @ REEVES RD CATERPILLAR ENT | WI | T-1A | ON |
| 2756 | TS | 21882 | US 6 @ HOLLYWOOD BLVD CASINO ENT | WI | T-1A | ON |
| 2757 | TS | 21883 | US 6 @ MCCLINTOCK RD | WI | T-1A | ON |
| 2758 | TS | 21885 | US 45 @ ARBOR BLVD JONES POINT RD | LA | T-1A | ON |
| 2759 | TS | 21890 | BIESTERFIELD RD @ BEISNER RD | CO | T-1A | ON |
| 2760 | TS | 21893 | IL 59 @ CANTORE DR | WI | T-1A | ON |
| 2761 | TS | 21895 | IL 59 @ 95TH ST | WI | T-1A | ON |
| 2762 | TS | 21897 | IL 59 @ LACROSSE LN | WI | T-1A | ON |
| 2763 | TS | 21900 | US 6 EAMES ST @ HOLLYWOOD RD BUSCH RD | WI | T-1A | OFF |
| 2764 | TS | 21910 | US 20 LAKE ST @ IL 390 RAMP D | DU | T-1A | ON |
| 2765 | TS | 21920 | US 6 159TH ST @ JEWEL ORLAND TOWN CENTER | CO | T-1A | ON |
| 2766 | TS | 21925 | I 80 NORTH RAMP @ | WI | | OFF |

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| | | | | | | | |
|------|----|-------|--|----|--|------|-----|
| | | | HOBOLT RD | | | T-1A | |
| 2767 | TS | 21926 | I 80 SOUTH RAMP @ HOBOLT RD HOLLYWOOD RD | WI | | T-1A | OFF |
| 2768 | TS | 21930 | AURORA RD @ WESTRIDGE CT NAPER WEST PLAZA | DU | | T-1A | ON |
| 2769 | TS | 21935 | IL 31 @ PRAIRIE ST | KA | | T-1A | ON |
| 2770 | TS | 21940 | IL 120 BELVIDERE RD @ GILMER RD | LA | | T-1A | ON |
| 2771 | TS | 21942 | IL 120 BELVIDERE RD @ FISH LAKE RD | LA | | T-1A | ON |
| 2772 | TS | 21955 | IL 72 HIGGINS RD @ NATIONAL PKWY | CO | | T-1A | OFF |
| 2773 | TS | 21962 | US 20 BRIER HILL RD @ BIG TIMBER RD | KA | | T-1B | ON |
| 2774 | TS | 21965 | IL 22 HALF DAY RD @ STEVENSON DR PALAZZO DR | LA | | T-1A | ON |
| 2775 | TS | 21968 | US 20 @ PROSPECT ST | MC | | T-1A | OFF |
| 2776 | TS | 21969 | IL 120 BELVIDERE RD @ MILL RD | LA | | T-1A | ON |
| 2777 | TS | 21970 | US 20 GRANT HWY @ IL 23 STATE ST | MC | | T-1A | ON |

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| | | | | | | |
|------|----|-------|---|----|------|----|
| 2778 | TS | 21971 | IL 23 STATE ST @ IL 176 TELEGRAPH ST | MC | T-1A | ON |
| 2779 | TS | 21972 | I 90 TLWY @ US 20 | KA | T-1A | ON |
| 2780 | TS | 21973 | IL 23 @ CORAL RD PLEASANT GROVE RD | MC | T-1A | ON |
| 2781 | TS | 21975 | US 45 @ TOWNLINE SQUARE SC | LA | T-1A | ON |
| 2782 | TS | 21990 | IL 83 @ LAKE ST | LA | T-1A | ON |
| 2783 | TS | 21991 | IL 83 @ HOME DEPOT MILLSTONE DR | LA | T-1A | ON |
| 2784 | TS | 21992 | IL 83 @ HOOK DR OLD ROLLINS RD | LA | T-1A | ON |
| 2785 | TS | 21993 | IL 83 @ SHOREWOOD DR | LA | T-1A | ON |
| 2786 | TS | 21996 | IL 25 5TH AVE @ COUNTRY CLUB RD | KA | T-1A | ON |
| 2787 | TS | 21997 | IL 25 5TH AVE @ RED GATE RD | KA | T-1A | ON |
| 2788 | TS | 22010 | IL 120 BELVIDERE RD @ IL 60 | LA | T-1A | ON |
| 2789 | TS | 22015 | IL 60 @ FISH LAKE RD | LA | T-1A | ON |

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| | | | | | | |
|------|----|-------|--|----|------|-----|
| 2790 | TS | 22025 | US 20 LAKE ST @ RODENBURG RD | DU | | ON |
| | | | | | T-1A | |
| 2791 | TS | 22035 | 75TH ST @ WILLOW SPRINGS RD | CO | | ON |
| | | | | | T-1A | |
| 2792 | TS | 22040 | IL 59 @ ROBERTS RD | LA | | ON |
| | | | | | T-1A | |
| 2793 | TS | 22041 | IL 59 @ INDIAN TRAIL | LA | | ON |
| | | | | | T-1A | |
| 2794 | TS | 22050 | IL 21 MILWAUKEE AVE @ EXECUTIVE WAY MARKETPLACE ENT | LA | | ON |
| | | | | | T-1A | |
| 2795 | TS | 22052 | IL 21 MILWAUKEE AVE @ CDW WAY MARKETPLACE ENT | LA | | ON |
| | | | | | T-1B | |
| 2796 | TS | 22055 | IL 43 HARLEM AVE @ ST FRANCES RD COX AVE | WI | | ON |
| | | | | | T-1A | |
| 2797 | TS | 22060 | US 45 LA GRANGE RD @ 171ST ST | CO | | OFF |
| | | | | | T-1A | |
| 2798 | TS | 22065 | 22ND ST CERMAK RD @ 14TH ST | CO | | ON |
| | | | | | T-1A | |
| 2799 | TS | 22095 | 104TH AVE @ 123RD ST MCCARTHY RD | CO | | ON |
| | | | | | T-1A | |
| 2800 | TS | 22100 | IL 120 RAND RD @ LILY LAKE RD | MC | | ON |
| | | | | | T-1A | |
| 2801 | TS | 22102 | IL 120 BELVIDERE RD @ | LA | | ON |

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| | | | DARRELL RD | | T-1A |
|------|----|-------|---|----|------|
| 2802 | TS | 22104 | IL 120 BELVIDERE RD @ WOODMANS ENT | LA | ON |
| | | | | | T-1A |
| 2803 | TS | 22110 | IL 59 @ INGALTON AVE ARBOR LN | DU | OFF |
| | | | | | T-1A |
| 2804 | TS | 22115 | IL 59 @ DIVERSEY PKWY | DU | OFF |
| | | | | | T-1A |
| 2805 | TS | 22120 | 17TH AVE @ 19TH ST | CO | OFF |
| | | | | | T-1A |
| 2806 | TS | 22121 | 17TH AVE @ 23RD ST | CO | ON |
| | | | | | T-1A |
| 2807 | TS | 22125 | IL 59 @ SCHICK RD | DU | OFF |
| | | | | | T-1A |
| 2808 | TS | 22130 | IL 59 @ DEVLIN RD | LA | OFF |
| | | | | | T-1A |
| 2809 | TS | 22135 | IL 53 ROHLWING RD @ SIDNEY AVE | DU | ON |
| | | | | | T-1A |
| 2810 | TS | 22150 | DEVON AVE @ GREENWOOD AVE | CO | ON |
| | | | | | T-1A |
| 2811 | TS | 22155 | IL 31 @ JAMES RAKOW RD CENTRAL PARK DR | MC | ON |
| | | | | | T-1A |
| 2812 | TS | 22156 | IL 31 @ VIRGINIA RD | MC | ON |
| | | | | | T-1A |
| 2813 | TS | 22157 | IL 31 @ | MC | ON |

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| | | | KLASEN RD | | T-1A |
|------|----|-------|---|----|------------|
| 2814 | TS | 22165 | 25TH AVE @ ARMITAGE | CO | ON T-1A |
| 2815 | TS | 22180 | I 55 @ US 52 JEFFERSON ST EAST | WI | ON T-1A |
| 2816 | TS | 22185 | I 55 @ US 52 JEFFERSON ST WEST | WI | ON T-1A |
| 2817 | TS | 22191 | I 55 EAST FRONTAGE RD @ US 52 JEFFERSON ST | WI | ON T-1A |
| 2818 | TS | 22205 | GILMER @ MIDLOTHIAN | LA | ON T-1A |
| 2819 | TS | 22215 | US 12 20 45 LAGRANGE RD @ 58TH ST | CO | ON T-1A |
| 2820 | TS | 22220 | US 14 NORTHWEST HWY @ CARY ALGONQUIN RD SILVER LAKE RD | MC | ON T-1A |
| 2821 | TS | 22225 | IL 58 GOLF RD SUMMIT ST @ ROHRSEN RD | CO | ON T-1A |
| 2822 | TS | 22230 | IL 62 ALGONQUIN RD @ WILLOW CREEK WILLOWMERE | CO | ON T-1A |
| 2823 | TS | 22235 | ARLINGTON HEIGHTS RD @ BENNETT RD | CO | ON T-1A |
| 2824 | TS | 22240 | IL 62 ALGONQUIN RD @ PENNY RD | CO | ON T-1A |

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| | | | | | | |
|------|----|-------|---|----|------|----|
| 2825 | TS | 22242 | COUNTY LINE RD LAKE COOK RD @ HAEGERS BEND RD ELGIN RD | MC | | ON |
| | | | | | T-1A | |
| 2826 | TS | 22245 | IL 62 ALGONQUIN RD @ LAKE COOK RD COMPTON DR | MC | | ON |
| | | | | | T-1A | |
| 2827 | TS | 22250 | IL 120 BELVIDERE RD @ FAIRFIELD RD | LA | | ON |
| | | | | | T-1A | |
| 2828 | TS | 22255 | IL 120 BELVIDERE RD @ WILSON RD | LA | | ON |
| | | | | | T-1A | |
| 2829 | TS | 22259 | 191ST @ OAK PARK AVE | CO | | ON |
| | | | | | T-1A | |
| 2830 | TS | 22263 | IL 43 HARLEM AVE @ 191ST ST | CO | | ON |
| | | | | | T-1A | |
| 2831 | TS | 22305 | IL 72 @ VILLAGE QUARTER RD | KA | | ON |
| | | | | | T-1A | |
| 2832 | TS | 75111 | IL 7 159TH ST @ I 355 TLWY WEST RAMP | WI | | ON |
| | | | | | T-1A | |
| 2833 | TS | 75112 | IL 7 159TH ST @ I 355 TLWY EAST RAMP | WI | | ON |
| | | | | | T-1A | |
| 2834 | TS | FL21 | US 12 LEE ST SB @ PARK PL JEFFERSON | CO | | ON |
| | | | | | T-2B | |
| 2835 | TS | FL22 | KEDZIE AVE @ 132ND ST | CO | | ON |
| | | | | | T-2B | |
| 2836 | TS | FL28 | US 12 LEE ST NB @ PARK PL JEFFERSON | CO | | ON |
| | | | | | T-2A | |

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| | | | | | | |
|------|----|-------|--|----|------|----|
| 2837 | TS | FL100 | IL 31 NB @ HALF MILE TRAIL | MC | T-2B | ON |
| 2838 | TS | FL101 | IL 31 SB @ HALF MILE TRAIL | MC | T-2B | ON |
| 2839 | TS | FL105 | IL 31 NB @ EDGEWOOD RD | MC | T-2B | ON |
| 2840 | TS | FL106 | IL 31 SB @ EDGEWOOD RD | MC | T-2B | ON |
| 2841 | TS | FL110 | IL 31 NB @ AMES | MC | T-2B | ON |
| 2842 | TS | FL111 | IL 31 SB @ AMES | MC | T-2B | ON |
| 2843 | TS | FL114 | IL 53 @ MISSISSIPPI AVE EB RIGHT | WI | T-2B | ON |
| 2844 | TS | FL115 | IL 53 @ MISSISSIPPI AVE EB LEFT | WI | T-2B | ON |
| 2845 | TS | FL116 | IL 53 @ MISSISSIPPI RD WB RIGHT | WI | T-2B | ON |
| 2846 | TS | FL117 | IL 53 NB RIGHT @ MISSISSIPPI AVE MISSISSIPPI RD | WI | T-2B | ON |
| 2847 | TS | FL118 | IL 53 NB LEFT @ MISSISSIPPI AVE MISSISSIPPI RD | WI | T-2B | ON |
| 2848 | TS | FL119 | IL 53 SB RIGHT @ | WI | | ON |

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| | | | | | | |
|------|----|-------|---|----|------|----|
| | | | MISSISSIPPI AVE MISSISSIPPI RD | | T-2B | |
| 2849 | TS | FL120 | IL 53 SB LEFT @ MISSISSIPPI AVE MISSISSIPPI RD | WI | | ON |
| | | | | | T-2B | |
| 2850 | TS | FL140 | US 20 EB @ REINKING RD | KA | | ON |
| | | | | | T-2B | |
| 2851 | TS | FL145 | US 45 LAGRANGE RD NB @ STEGER RD | WI | | ON |
| | | | | | T-2B | |
| 2852 | TS | FL146 | US 45 LAGRANGE RD SB @ STEGER RD | WI | | ON |
| | | | | | T-2B | |
| 2853 | TS | FL149 | US 45 LAGRANGE RD @ STEGER RD | WI | | ON |
| | | | | | T-2A | |
| 2854 | TS | FL150 | US 20 @ MARSHALL (WEST OF) | KA | | ON |
| | | | | | T-2B | |
| 2855 | TS | FL151 | US 20 WEST @ MARSHALL | KA | | ON |
| | | | | | T-2B | |
| 2856 | TS | FL156 | 183RD ST @ WOLF RD NB | WI | | ON |
| | | | | | T-2B | |
| 2857 | TS | FL157 | 183RD ST @ WOLF RD SB | WI | | ON |
| | | | | | T-2B | |
| 2858 | TS | FL158 | WOLF RD @ 151ST ST | CO | | ON |
| | | | | | T-2B | |
| 2859 | TS | FL160 | US 20 WB @ REINKING RD | KA | | ON |
| | | | | | T-2B | |

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| | | | | | | |
|------|----|-------|---------------------------------------|----|------|-----|
| 2860 | TS | FL170 | IL 31 @ MOOSEHART HENRY WILSON | KA | | ON |
| | | | | | T-2A | |
| 2861 | TS | FL191 | IL 47 @ IL 64 EB | KA | | ON |
| | | | | | T-2B | |
| 2862 | TS | FL192 | IL 38 LINCOLN HWY EB @ ANDERSON RD | KA | | ON |
| | | | | | T-2B | |
| 2863 | TS | FL194 | IL 38 LINCOLN HWY WB @ ANDERSON RD | KA | | ON |
| | | | | | T-2B | |
| 2864 | TS | FL195 | I 80 I 94 EB RIGHT @ TORRENCE AVE | CO | | ON |
| | | | | | T-2B | |
| 2865 | TS | FL196 | I 80 I 94 EB LEFT @ TORRENCE AVE | CO | | ON |
| | | | | | T-2B | |
| 2866 | TS | FL197 | I 80 I 94 WB RIGHT @ TORRENCE AVE | CO | | ON |
| | | | | | T-2B | |
| 2867 | TS | FL198 | I 80 I 94 WB LEFT @ TORRENCE AVE | CO | | ON |
| | | | | | T-2B | |
| 2868 | TS | FL210 | IL 47 @ MAIN ST (IN KANEVILLE) | KA | | OFF |
| | | | | | T-2A | |
| 2869 | TS | FL211 | IL 47 @ MAIN ST | KA | | ON |
| | | | | | T-2B | |
| 2870 | TS | FL212 | IL 47 @ MAIN ST | KA | | ON |
| | | | | | T-2B | |
| 2871 | TS | FL222 | IL 47 @ PLATO RD NB RIGHT | KA | | ON |
| | | | | | T-2B | |

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|------|----|-------|---------------------------------|----|------|----|
| 2872 | TS | FL225 | IL 47 @ PLATO RD SB RIGHT | KA | T-2B | ON |
| 2873 | TS | FL226 | IL 72 @ BRIER HILL RD EB | KA | T-2B | ON |
| 2874 | TS | FL227 | IL 72 @ BRIER HILL RD WB | KA | T-2B | ON |
| 2875 | TS | FL230 | IL 47 NB @ MCDONALD RD | KA | T-2B | ON |
| 2876 | TS | FL231 | IL 47 @ MCDONALD RD WB RIGHT | KA | T-2B | ON |
| 2877 | TS | FL235 | IL 47 SB @ MCDONALD RD | KA | T-2B | ON |
| 2878 | TS | FL236 | IL 47 @ MCDONALD RD EB RIGHT | KA | T-2B | ON |
| 2879 | TS | FL240 | IL 72 WB @ WALKER RD | KA | T-2B | ON |
| 2880 | TS | FL241 | IL 72 EB @ WALKER RD | KA | T-2B | ON |
| 2881 | TS | FL242 | IL 72 @ WALKER RD NB | KA | T-2B | ON |
| 2882 | TS | FL243 | IL 72 @ WALKER RD SB | KA | T-2B | ON |
| 2883 | TS | FL330 | US 14 NORTHWEST HWY @ | CO | | ON |

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| | | | | | | |
|------|----|-------|---|----|--|-------------|
| | | | IL 68 DUNDEE RD | | | T-2B |
| 2884 | TS | FL332 | US 14 NORTHWEST HWY EB RIGHT @ METRA CHICAGO NORTHWESTERN RR | CO | | ON T-2B |
| 2885 | TS | FL333 | US 14 NORTHWEST HWY WB LEFT @ METRA CHICAGO NORTHWESTERN RR | CO | | ON T-2B |
| 2886 | TS | FL334 | US 14 NORTHWEST HWY WB RIGHT @ METRA CHICAGO NORTHWESTERN RR | CO | | ON T-2B |
| 2887 | TS | FL480 | 87TH ST @ SOUTHWEST HWY COLUMBUS | CO | | ON T-2B |
| 2888 | TS | FL490 | 107TH ST @ KEAN | CO | | ON T-2A |
| 2889 | TS | FL530 | ASHLAND AVE WOOD ST @ 140TH ST RR UNDERPASS NB | CO | | OFF T-2B |
| 2890 | TS | FL531 | ASHLAND AVE WOOD ST @ 140TH ST RR UNDERPASS SB | CO | | OFF T-2B |
| 2891 | TS | FL566 | 123RD ST MCCARTHY @ 86TH AVE | CO | | ON T-2A |
| 2892 | TS | FL587 | IL 83 KINGERY HWY @ 91ST ST EB | DU | | ON T-2B |
| 2893 | TS | FL590 | PALATINE RD EB FRONTAGE @ WHEELING RD (EAST OF) | CO | | ON T-2B |
| 2894 | TS | FL591 | PALATINE RD WB FRONTAGE @ WOLF RD (WEST OF) | CO | | ON T-2B |

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|------|----|-------|---|----|------|----|
| 2895 | TS | FL635 | IL 59 @ JOLIET RD | DU | | ON |
| | | | | | T-2B | |
| 2896 | TS | FL640 | IL 59 @ INGALTON | DU | | ON |
| | | | | | T-2B | |
| 2897 | TS | FL660 | US 12 IL 59 SB RIGHT SIDE @ IL 134 BIG HOLLOW RD | LA | | ON |
| | | | | | T-2B | |
| 2898 | TS | FL661 | US 12 IL 59 SB LEFT SIDE @ IL 134 BIG HOLLOW RD | LA | | ON |
| | | | | | T-2B | |
| 2899 | TS | FL701 | IL 53 @ ROBERT PARKER COFFIN RD EB | LA | | ON |
| | | | | | T-2B | |
| 2900 | TS | FL715 | IL 59 SB @ MONAVILLE RD | LA | | ON |
| | | | | | T-2B | |
| 2901 | TS | FL716 | IL 59 NB @ MONAVILLE RD | LA | | ON |
| | | | | | T-2B | |
| 2902 | TS | FL727 | IL 60 KENNEDY RD WB @ ACADEMY RD | LA | | ON |
| | | | | | T-2B | |
| 2903 | TS | FL740 | IL 120 BELVIDERE RD EB @ ALMOND RD | LA | | ON |
| | | | | | T-2B | |
| 2904 | TS | FL741 | IL 120 BELVIDERE RD WB @ ALMOND RD | LA | | ON |
| | | | | | T-2B | |
| 2905 | TS | FL748 | IL 120 BELVIDERE RD WB LEFT @ BACON RD | LA | | ON |
| | | | | | T-2B | |
| 2906 | TS | FL749 | IL 120 BELVIDERE RD WB RIGHT @ BACON RD | LA | | ON |
| | | | | | T-2B | |

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| | | | | | | |
|------|----|-------|---|----|------|----|
| 2907 | TS | FL752 | IL 23 STATE RD NB @ RIVER RD | MC | T-2B | ON |
| 2908 | TS | FL753 | IL 23 STATE RD SB @ RIVER RD | MC | T-2B | ON |
| 2909 | TS | FL755 | IL 176 WB @ MILLSTREAM RD DUNHAM RD | MC | T-2B | ON |
| 2910 | TS | FL756 | IL 176 EB @ MILLSTREAM RD DUNHAM RD | MC | T-2B | ON |
| 2911 | TS | FL757 | IL 176 @ MILLSTREAM RD DUNHAM RD NB | MC | T-2B | ON |
| 2912 | TS | FL758 | IL 176 @ MILLSTREAM RD DUNHAM RD SB | MC | T-2B | ON |
| 2913 | TS | FL760 | IL 23 STATE RD @ RIVER RD EB | MC | T-2B | ON |
| 2914 | TS | FL761 | IL 23 STATE RD @ RIVER RD WB | MC | T-2B | ON |
| 2915 | TS | FL762 | IL 72 EB HIGGINS RD MAIN ST @ RANDALL RD | KA | T-2B | ON |
| 2916 | TS | FL763 | IL 72 WB @ RANDALL RD | KA | T-2B | ON |
| 2917 | TS | FL764 | US 12 NB @ SUNSET RD | MC | T-2B | ON |
| 2918 | TS | FL766 | US 14 SE @ | LA | | ON |

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| | | | | | | |
|------|----|-------|--|----|--|------------|
| | | | CUBA RD | | | T-2B |
| 2919 | TS | FL767 | US 14 NW @ CUBA RD | LA | | ON T-2B |
| 2920 | TS | FL768 | US 14 @ CUBA RD EB | LA | | ON T-2B |
| 2921 | TS | FL769 | US 14 @ CUBA RD WB | LA | | ON T-2B |
| 2922 | TS | FL820 | IL 173 @ KEYSTONE RD NB | MC | | ON T-2B |
| 2923 | TS | FL821 | IL 173 @ KEYSTONE RD SB | MC | | ON T-2B |
| 2924 | TS | FL822 | IL 173 @ GREENWOOD RD NB RIGHT SIDE | MC | | ON T-2B |
| 2925 | TS | FL824 | IL 173 EB @ KEYSTONE RD | MC | | ON T-2B |
| 2926 | TS | FL825 | IL 23 @ KISHWAUKEE VALLEY RD | MC | | ON T-2A |
| 2927 | TS | FL826 | IL 173 WB @ KEYSTONE RD | MC | | ON T-2B |
| 2928 | TS | FL827 | IL 23 NB @ KISHWAUKEE VALLEY RD | MC | | ON T-2B |
| 2929 | TS | FL828 | IL 173 @ GREENWOOD RD NB LEFT SIDE | MC | | ON T-2B |

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|------|----|-------|--|----|------|----|
| 2930 | TS | FL829 | IL 23 SB @ KISHWAUKEE VALLEY RD | MC | T-2B | ON |
| 2931 | TS | FL830 | IL 47 @ IL 173 | MC | T-2A | ON |
| 2932 | TS | FL835 | IL 47 @ CHARLES RD | MC | T-2A | ON |
| 2933 | TS | FL836 | IL 47 SB @ OBRIEN RD | MC | T-2B | ON |
| 2934 | TS | FL837 | IL 47 NB @ OBRIEN RD | MC | T-2B | ON |
| 2935 | TS | FL840 | IL 120 @ CHARLES | MC | T-2A | ON |
| 2936 | TS | FL851 | IL 173 @ ALDEN | MC | T-2A | ON |
| 2937 | TS | FL852 | IL 173 @ ALDEN EASTBOUND | MC | T-2B | ON |
| 2938 | TS | FL853 | IL 173 @ ALDEN WESTBOUND | MC | T-2B | ON |
| 2939 | TS | FL856 | IL 173 WB @ CONVERSE RD (WEST OF) | MC | T-2B | ON |
| 2940 | TS | FL857 | IL 38 EB @ ST CHARLES BOYS SCHOOL | KA | T-2B | ON |
| 2941 | TS | FL859 | IL 173 KENOSHA ST @ WINN RD SE CORNER | MC | T-2B | ON |

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| | | | | | | |
|------|----|-------|---|----|------|----|
| 2942 | TS | FL865 | I 80 WB RIGHT SIDE @ WATER ST | WI | | ON |
| | | | | | T-2B | |
| 2943 | TS | FL866 | I 80 WB LEFT SIDE @ WATER ST | WI | | ON |
| | | | | | T-2B | |
| 2944 | TS | FL880 | NORTH FRONTAGE RD @ BAILEY RD (SOUTH OF) | DU | | ON |
| | | | | | T-2B | |
| 2945 | TS | FL890 | US 45 @ MANHATTAN MONEE RD | WI | | ON |
| | | | | | T-2A | |
| 2946 | TS | FL895 | US 45 US 52 MAIN ST @ WILMINGTON PEOTONE RD | WI | | ON |
| | | | | | T-2A | |
| 2947 | TS | FL900 | US 52 STATE ST @ NORTH ST WB | WI | | ON |
| | | | | | T-2B | |
| 2948 | TS | FL901 | US 52 STATE ST SB @ NORTH ST | WI | | ON |
| | | | | | T-2B | |
| 2949 | TS | FL902 | US 52 STATE ST NB @ NORTH ST | WI | | ON |
| | | | | | T-2B | |
| 2950 | TS | FL913 | IL 50 CICERO AVE @ PEOTONE RD | WI | | ON |
| | | | | | T-2A | |
| 2951 | TS | FL925 | GOVERNORS HWY @ UNIVERSITY | WI | | ON |
| | | | | | T-2A | |
| 2952 | TS | FL928 | CHICAGO RD DOCTOR M.L.K. JR DR @ LINCOLN AVE | CO | | ON |
| | | | | | T-2A | |
| 2953 | TS | FL930 | MANHATTAN MONEE RD @ | WI | | ON |

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| | | | CEDAR RD | | T-2A |
|------|----|--------|---|----|------------|
| 2954 | TS | FL967 | US 12 RAND RD @ OLD RAND RD SB | LA | ON T-2B |
| 2955 | TS | FL1029 | IL 126 WB RIGHT EAST OF RR @ IL 59 (EAST OF) | WI | ON T-2B |
| 2956 | TS | FL1030 | IL 126 WB RIGHT WEST OF RR @ IL 59 (EAST OF) | WI | ON T-2B |
| 2957 | TS | FL1034 | IL 126 @ ESSINGTON RD WB | WI | ON T-2B |
| 2958 | TS | FL1036 | IL 59 NB @ DAYFIELD DR | WI | ON T-2B |
| 2959 | TS | FL1037 | IL 59 SB @ DAYFIELD DR | WI | ON T-2B |
| 2960 | TS | FL1086 | IL 129 NB & SB FLASHERS @ STRIP MINE RD | WI | ON T-2B |
| 2961 | TS | FL1087 | IL 129 @ STRIP MINE RD EB & WB FLASHERS | WI | ON T-2B |
| 2962 | TS | FL1088 | IL 129 ADV YELLOW FLASHER NB @ STRIP MINE RD | WI | ON T-2B |
| 2963 | TS | FL1089 | IL 129 ADV YELLOW FLASHER SB @ STRIP MINE RD | WI | ON T-2B |
| 2964 | TS | FL1091 | IL 394 CALUMET EXPY SB LEFT @ RICHTON RD | WI | ON T-2B |

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| | | | | | | |
|------|----|--------|---|----|------|----|
| 2965 | TS | FL1092 | IL 394 CALUMET EXPY SB RIGHT @ RICHTON RD | WI | | ON |
| | | | | | T-2B | |
| 2966 | TS | FL1093 | IL 394 CALUMET EXPY NB LEFT @ RICHTON RD | WI | | ON |
| | | | | | T-2B | |
| 2967 | TS | FL1094 | IL 394 CALUMET EXPY NB RIGHT @ RICHTON RD | WI | | ON |
| | | | | | T-2B | |
| 2968 | TS | FL1096 | IL 394 CALUMET EXPY NB LEFT @ BURRVILLE RD | WI | | ON |
| | | | | | T-2B | |
| 2969 | TS | FL1097 | IL 394 CALUMET EXPY NB RIGHT @ BURRVILLE RD | WI | | ON |
| | | | | | T-2B | |
| 2970 | TS | FL1098 | IL 394 CALUMET EXPY SB LEFT @ BURRVILLE RD | WI | | ON |
| | | | | | T-2B | |
| 2971 | TS | FL1099 | IL 394 CALUMET EXPY SB RIGHT @ BURRVILLE RD | WI | | ON |
| | | | | | T-2B | |
| 2972 | TS | FL1107 | I 90 SE HARLEM OFF RAMP LEFT SIDE @ W HIGGINS RD N OCTAVIA | CO | | ON |
| | | | | | T-2B | |
| 2973 | TS | FL1108 | I 90 SE HARLEM OFF RAMP RIGHT SIDE @ W HIGGINS RD N OCTAVIA | CO | | ON |
| | | | | | T-2B | |
| 2974 | TS | FL1115 | IL 59 S NELTOR BLVD NB @ GARYS MILL RD | DU | | ON |
| | | | | | T-2B | |
| 2975 | TS | FL1116 | IL 59 S NELTOR BLVD SB @ GARYS MILL RD | DU | | ON |
| | | | | | T-2B | |
| 2976 | TS | FL1117 | IL 38 ROOSEVELT RD @ GARYS MILL RD NB | DU | | ON |
| | | | | | T-2B | |

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| | | | | | | |
|------|----|--------|--|----|------|----|
| 2977 | TS | FL1118 | IL 38 ROOSEVELT RD @ GARYS MILL RD SB | DU | | ON |
| | | | | | T-2B | |
| 2978 | TS | FL1123 | IL 83 CAL SAG RD @ RIDGELAND NB | CO | | ON |
| | | | | | T-2B | |
| 2979 | TS | FL1125 | I 80 EB RIGHT SIDE @ WHEELER (BEFORE) | WI | | ON |
| | | | | | T-2B | |
| 2980 | TS | FL1126 | I 80 EB LEFT SIDE @ WHEELER (BEFORE) | WI | | ON |
| | | | | | T-2B | |
| 2981 | TS | FL1127 | I 80 EB RIGHT SIDE @ WHEELER (AFTER) | WI | | ON |
| | | | | | T-2B | |
| 2982 | TS | FL1128 | I 80 EB LEFT SIDE @ WHEELER (AFTER) | WI | | ON |
| | | | | | T-2B | |
| 2983 | TS | FL1131 | IL 53 CHICAGO RD NB RIGHT SIDE @ MANHATTAN RD | WI | | ON |
| | | | | | T-2B | |
| 2984 | TS | FL1132 | IL 53 CHICAGO RD NB LEFT SIDE @ MANHATTAN RD | WI | | ON |
| | | | | | T-2B | |
| 2985 | TS | FL1133 | IL 53 CHICAGO RD SB RIGHT SIDE @ MANHATTAN RD | WI | | ON |
| | | | | | T-2B | |
| 2986 | TS | FL1134 | IL 53 CHICAGO RD SB LEFT SIDE @ MANHATTAN RD | WI | | ON |
| | | | | | T-2B | |
| 2987 | TS | FL1136 | IL 53 NB @ NORTH RIVER RD | WI | | ON |
| | | | | | T-2B | |
| 2988 | TS | FL1137 | IL 53 SB @ NORTH RIVER RD | WI | | ON |
| | | | | | T-2B | |

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| | | | | | | |
|------|----|--------|---|----|------|----|
| 2989 | TS | FL1138 | IL 53 BALTIMORE RD NB @ 216TH AVE | WI | | ON |
| | | | | | T-2B | |
| 2990 | TS | FL1139 | IL 53 BALTIMORE RD SB @ 216TH AVE | WI | | ON |
| | | | | | T-2B | |
| 2991 | TS | FL1140 | US 12 20 45 MANNHEIM RD @ CANTERBURY WATERFORD | CO | | ON |
| | | | | | T-2B | |
| 2992 | TS | FL1141 | GRAND AVE EB NEAR RIGHT @ ELMWOOD PARK RR CROSSING | CO | | ON |
| | | | | | T-2B | |
| 2993 | TS | FL1142 | GRAND AVE EB FAR RIGHT @ ELMWOOD PARK RR CROSSING | CO | | ON |
| | | | | | T-2B | |
| 2994 | TS | FL1143 | GRAND AVE WB NEAR RIGHT @ ELMWOOD PARK RR CROSSING | CO | | ON |
| | | | | | T-2B | |
| 2995 | TS | FL1144 | GRAND AVE WB FAR RIGHT @ ELMWOOD PARK RR CROSSING | CO | | ON |
| | | | | | T-2B | |
| 2996 | TS | FL1150 | US 14 EB @ BERRY RD | LA | | ON |
| | | | | | T-2B | |
| 2997 | TS | FL1151 | IL 59 SB NEAR @ COUNTY LINE RD LAKE COOK | CO | | ON |
| | | | | | T-2B | |
| 2998 | TS | FL1152 | IL 59 SB FAR @ COUNTY LINE RD LAKE COOK | CO | | ON |
| | | | | | T-2B | |
| 2999 | TS | FL1153 | IL 59 @ COUNTY LINE RD LAKE COOK WB NEAR | CO | | ON |
| | | | | | T-2B | |
| 3000 | TS | FL1154 | IL 59 @ | CO | | ON |

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| COUNTY LINE RD LAKE COOK WB FAR | | | | T-2B | |
|---------------------------------|----|--------|--|------------|----|
| 3001 | TS | FL1155 | IL 59 HOUGH ST NB FAR @ JAMES ST CN RR | LA T-2B | ON |
| 3002 | TS | FL1156 | IL 59 HOUGH ST SB NEAR @ JAMES ST CN RR | LA T-2B | ON |
| 3003 | TS | FL1157 | IL 59 HOUGH ST SB FAR @ JAMES ST CN RR | LA T-2B | ON |
| 3004 | TS | FL1158 | IL 59 HOUGH ST NB NEAR @ JAMES ST CN RR | LA T-2B | ON |
| 3005 | TS | FL1165 | IL 83 NB LEFT @ RED OAK LN | DU T-2B | ON |
| 3006 | TS | FL1166 | IL 83 NB RIGHT @ RED OAK LN | DU T-2B | ON |
| 3007 | TS | FL1193 | US 12 @ IL 59 OFF RAMP | LA T-2B | ON |
| 3008 | TS | FL1210 | US 41 SKOKIE VALLEY RD SB @ PARK AVE WEST | LA T-2A | ON |
| 3009 | TS | FL1211 | US 41 @ DEERFIELD WEST PARK | LA T-2B | ON |
| 3010 | TS | FL1212 | US 41 @ WEST PARK NB | LA T-2B | ON |
| 3011 | TS | FL1222 | LAGRANGE RD NB @ WEEPING WILLOW RD | CO T-2B | ON |

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| | | | | | | |
|------|----|--------|---|----|------|-----|
| 3012 | TS | FL1223 | LAGRANGE RD SB @ WEEPING WILLOW RD | CO | | ON |
| | | | | | T-2B | |
| 3013 | TS | FL1251 | IL 43 WAUKEGAN RD @ VOLTZ RD | CO | | OFF |
| | | | | | T-2B | |
| 3014 | TS | FL1297 | WOLF RD NB @ CAMP MCDONALD RD | CO | | ON |
| | | | | | T-2B | |
| 3015 | TS | FL1298 | OAKTON ST EB @ BUSSE HWY | CO | | ON |
| | | | | | T-2B | |
| 3016 | TS | FL1306 | IL 137 BUCKLEY RD @ IL 137 BOBBY THOMPSON OHIO | LA | | ON |
| | | | | | T-2A | |
| 3017 | TS | FL1308 | US 20 LAKE ST WB @ GARDEN | DU | | ON |
| | | | | | T-2B | |
| 3018 | TS | FL1309 | US 20 LAKE ST EB @ GARDEN AVE | DU | | ON |
| | | | | | T-2B | |
| 3019 | TS | FL1310 | IL 19 IRVING PARK RD WB @ BLOOMINGDALE RD | DU | | ON |
| | | | | | T-2B | |
| 3020 | TS | FL1320 | US 20 LAKE ST @ BLUFF CITY LOVEL WB | CO | | ON |
| | | | | | T-2B | |
| 3021 | TS | FL1321 | US 20 LAKE ST @ BARRINGTON RD | CO | | ON |
| | | | | | T-2B | |
| 3022 | TS | FL1471 | US 34 WB OGDEN AVE @ JOLIET RD (WEST OF) | CO | | ON |
| | | | | | T-2B | |
| 3023 | TS | FL1472 | US 34 EB OGDEN AVE @ LELAND | CO | | ON |
| | | | | | T-2B | |

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| | | | | | | |
|------|----|--------|--|----|------|----|
| 3024 | TS | FL1825 | IL 1 HALSTED @ 171ST NB | CO | | ON |
| | | | | | T-2B | |
| 3025 | TS | FL1945 | IL 19 IRVING PARK RD @ DESPLAINES RIVER RD SB | CO | | ON |
| | | | | | T-2B | |
| 3026 | TS | FL2116 | IL 173 EB @ TIFFANY RD | LA | | ON |
| | | | | | T-2B | |
| 3027 | TS | FL2117 | IL 173 WB @ TIFFANY RD | LA | | ON |
| | | | | | T-2B | |
| 3028 | TS | FL2121 | IL 173 @ LINDEN LANE | LA | | ON |
| | | | | | T-2B | |
| 3029 | TS | FL2122 | IL 173 WB @ GRIMM RD | LA | | ON |
| | | | | | T-2B | |
| 3030 | TS | FL2123 | IL 173 EB @ GRIMM RD | LA | | ON |
| | | | | | T-2B | |
| 3031 | TS | FL2515 | US 45 @ US 52 JOLIET RD | WI | | ON |
| | | | | | T-2A | |
| 3032 | TS | FL2690 | IL 56 BUTTERFIELD RD @ IL 56 WASHINGTON BLVD | CO | | ON |
| | | | | | T-2B | |
| 3033 | TS | FL2760 | IL 58 GOLF RD WB @ GANNON DR | CO | | ON |
| | | | | | T-2B | |
| 3034 | TS | FL2761 | IL 58 GOLF RD EB @ GANNON DR | CO | | ON |
| | | | | | T-2B | |
| 3035 | TS | FL3150 | IL 62 ALGONQUIN RD WB @ | CO | | ON |

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| | | | | | | |
|------|----|--------|--|----|--|------------|
| | | | BATEMAN RD | | | T-2B |
| 3036 | TS | FL3151 | IL 62 ALGONQUIN RD EB @ BATEMAN RD | CO | | ON T-2B |
| 3037 | TS | FL3152 | IL 62 ALGONQUIN RD @ BATEMAN RD SB | CO | | ON T-2B |
| 3038 | TS | FL3153 | IL 62 ALGONQUIN RD @ BATEMAN RD NB | CO | | ON T-2B |
| 3039 | TS | FL3154 | IL 62 ALGONQUIN RD @ OLD SUTTON RD NB | CO | | ON T-2B |
| 3040 | TS | FL3155 | IL 62 ALGONQUIN RD @ OLD SUTTON RD SB | CO | | ON T-2B |
| 3041 | TS | FL3156 | IL 62 ALGONQUIN RD @ OLD SUTTON RD EB | CO | | ON T-2B |
| 3042 | TS | FL3157 | IL 62 ALGONQUIN RD @ OLD SUTTON RD WB | CO | | ON T-2B |
| 3043 | TS | FL3160 | IL 68 DUNDEE RD WB @ OLD SUTTON RD | CO | | ON T-2B |
| 3044 | TS | FL3161 | IL 68 DUNDEE RD EB @ OLD SUTTON RD | CO | | ON T-2B |
| 3045 | TS | FL3162 | IL 68 DUNDEE RD @ OLD SUTTON RD SB | CO | | ON T-2B |
| 3046 | TS | FL3163 | IL 68 DUNDEE RD @ OLD SUTTON RD NB | CO | | ON T-2B |

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|------|----|--------|--|----|------|----|
| 3047 | TS | FL3168 | IL 68 DUNDEE RD @ STERLING AVE | CO | T-2B | ON |
| 3048 | TS | FL3325 | IL 72 HIGGINS RD WB @ GANNON DR | CO | T-2B | ON |
| 3049 | TS | FL3326 | IL 72 HIGGINS RD EB @ GANNON DR | CO | T-2B | ON |
| 3050 | TS | FL3540 | 95TH ST SW @ IL 171 ARCHER AVE | CO | T-2B | ON |
| 3051 | TS | FL3542 | 95TH ST NE @ IL 171 ARCHER AVE | CO | T-2B | ON |
| 3052 | TS | FL3544 | IL 171 ARCHER AVE NE @ 95TH ST | CO | T-2B | ON |
| 3053 | TS | FL3546 | IL 171 ARCHER AVE SW @ 95TH ST | CO | T-2B | ON |
| 3054 | TS | FL3555 | IL 171 ARCHER AVE EB LEFT @ 55TH ST | CO | T-2B | ON |
| 3055 | TS | FL3556 | IL 171 ARCHER AVE EB RIGHT @ 55TH ST | CO | T-2B | ON |
| 3056 | TS | FL3575 | IL 171 ARCHER AVE NB LEFT @ 44TH ST | CO | T-2B | ON |
| 3057 | TS | FL3576 | IL 171 ARCHER AVE NB RIGHT @ 44TH ST | CO | T-2B | ON |
| 3058 | TS | FL3577 | IL 171 ARCHER NB FAR LEFT @ 44TH ST (SOLAR AMBER) | CO | T-2B | ON |

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|------|----|--------|--|----|------|-----|
| 3059 | TS | FL3578 | IL 171 NB FAR RIGHT @ 44TH ST (SOLAR AMBER) | CO | | ON |
| | | | | | T-2B | |
| 3060 | TS | FL3936 | CRAWFORD AVE PULASKI RD @ 123RD ST NB | CO | | ON |
| | | | | | T-2B | |
| 3061 | TS | FL3972 | 119TH EB BEFORE RR TRACKS @ PAGE ST | CO | | OFF |
| | | | | | T-2B | |
| 3062 | TS | FL3973 | 119TH EB PAST RR TRACKS @ PAGE ST | CO | | OFF |
| | | | | | T-2B | |
| 3063 | TS | FL4034 | 135TH ST EB @ RIDGELAND (WEST OF) | CO | | ON |
| | | | | | T-2B | |
| 3064 | TS | FL4036 | 135TH ST WB @ RIDGELAND (WEST OF) | CO | | ON |
| | | | | | T-2B | |
| 3065 | TS | FL4660 | IL 59 NB @ WEST BARTLETT RD | CO | | OFF |
| | | | | | T-2B | |
| 3066 | TS | FL4662 | IL 59 SB @ WEST BARTLETT RD | CO | | ON |
| | | | | | T-2B | |
| 3067 | TS | FL4705 | IL 83 MAIN ST SB @ LAKE ST | LA | | ON |
| | | | | | T-2B | |
| 3068 | TS | FL4706 | IL 83 MAIN ST NB @ LAKE ST | LA | | ON |
| | | | | | T-2B | |
| 3069 | TS | FL4710 | IL 83 MAIN ST SB (BEFORE RR) @ NORTH AVE | LA | | ON |
| | | | | | T-2B | |
| 3070 | TS | FL4711 | IL 83 MAIN ST SB (AFTER RR) @ NORTH AVE | LA | | ON |
| | | | | | T-2B | |

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|------|----|--------|--|----|------|----|
| 3071 | TS | FL4713 | IL 83 MAIN ST @ NORTH AVE WB (BEFORE RR) | LA | T-2B | ON |
| 3072 | TS | FL4714 | IL 83 MAIN ST @ NORTH AVE WB (AFTER RR) | LA | T-2B | ON |
| 3073 | TS | FL5240 | FRANCISCO AVE @ BROADWAY ST | CO | T-2B | ON |
| 3074 | TS | FL5322 | ILLINOIS RD @ HIBBARD RD NB | CO | T-2B | ON |
| 3075 | TS | FL5324 | ILLINOIS RD @ HIBBARD RD SB | CO | T-2B | ON |
| 3076 | TS | FL5326 | ILLINOIS RD WB @ HIBBARD RD | CO | T-2B | ON |
| 3077 | TS | FL5328 | ILLINOIS RD EB @ HIBBARD RD | CO | T-2B | ON |
| 3078 | TS | FL5930 | WILLOW RD EB @ OLD WILLOW RD (WEST OF) | CO | T-2B | ON |
| 3079 | TS | FL6021 | US 52 WB @ COUNTY LINE RD | WI | T-2B | ON |
| 3080 | TS | FL6023 | US 52 EB @ COUNTY LINE RD | WI | T-2B | ON |
| 3081 | TS | FL6051 | US 34 OGDEN AVE EB @ FRONTENAC ST | DU | T-2B | ON |
| 3082 | TS | FL6151 | IL 19 IRVING PARK RD @ IL 53 ROHLWING RD SB RIGHT | DU | T-2B | ON |
| 3083 | TS | FL6152 | IL 19 IRVING PARK RD @ IL 53 ROHLWING RD SB LEFT | DU | T-2B | ON |
| 3084 | TS | FL6153 | IL 19 IRVING PARK RD @ IL 53 ROHLWING RD NB RIGHT | DU | T-2B | ON |

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|------|----|--------|---|----|------|-----|
| 3085 | TS | FL6154 | IL 19 IRVING PARK RD @ IL 53 ROHLWING RD NB LEFT | DU | | ON |
| | | | | | T-2B | |
| 3086 | TS | FL6406 | IL 64 NORTH AVE @ ADDISON RD EB BEFORE RR LEFT SIDE | DU | | ON |
| | | | | | T-2B | |
| 3087 | TS | FL6407 | IL 64 NORTH AVE @ ADDISON RD EB BEFORE RR RIGHT SIDE | DU | | ON |
| | | | | | T-2B | |
| 3088 | TS | FL6408 | IL 64 NORTH AVE @ ADDISON RD EB AFTER RR LEFT SIDE | DU | | ON |
| | | | | | T-2B | |
| 3089 | TS | FL6409 | IL 64 NORTH AVE @ ADDISON RD EB AFTER RR RIGHT SIDE | DU | | ON |
| | | | | | T-2B | |
| 3090 | TS | FL6512 | US 12 IL 59 NB RIGHT SIDE @ SULLIVAN RD | LA | | ON |
| | | | | | T-2B | |
| 3091 | TS | FL6513 | US 12 IL 59 NB LEFT SIDE @ SULLIVAN RD | LA | | ON |
| | | | | | T-2B | |
| 3092 | TS | FL6545 | US 41 SKOKIE HWY NB RIGHT SIDE @ IL 60 KENNEDY RD | LA | | ON |
| | | | | | T-2B | |
| 3093 | TS | FL6550 | US 41 @ IL 132 GRAND AVE WB | LA | | ON |
| | | | | | T-2B | |
| 3094 | TS | FL6625 | IL 176 WB @ US 45 | LA | | OFF |
| | | | | | T-2B | |
| 3095 | TS | FL6757 | IL 22 @ OLD RAND RD SB BEFORE RR TRACKS | LA | | ON |
| | | | | | T-2B | |
| 3096 | TS | FL6758 | IL 22 MAIN ST @ EAST MAIN SB BEFORE RR TRACKS | LA | | ON |
| | | | | | T-2B | |
| 3097 | TS | FL6759 | IL 22 MAIN ST @ OLD RAND SB AFTER RR TRACKS | LA | | ON |
| | | | | | T-2B | |
| 3098 | TS | FL6760 | IL 22 @ EAST MAIN SB AFTER RR TRACKS | LA | | ON |
| | | | | | T-2B | |
| 3099 | TS | FL6841 | IL 173 @ | LA | | ON |

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|------|----|--------|--|----|------|----|
| | | | LAKE AVE (EAST OF) | | T-2B | |
| 3100 | TS | FL6842 | IL 173 @ LAKE AVE (WEST OF) | LA | T-2B | ON |
| 3101 | TS | FL6916 | IL 176 EB @ HAWLEY ST | LA | T-2B | ON |
| 3102 | TS | FL6917 | IL 176 WB @ HAWLEY ST | LA | T-2B | ON |
| 3103 | TS | FL6921 | IL 60 IL 83 NB @ DIAMOND LAKE RD S OF RR | LA | T-2B | ON |
| 3104 | TS | FL6922 | IL 60 IL 83 NB @ DIAMOND LAKE RD N OF RR | LA | T-2B | ON |
| 3105 | TS | FL6923 | IL 60 IL 83 SB @ DIAMOND LAKE RD N OF RR | LA | T-2B | ON |
| 3106 | TS | FL6924 | IL 60 IL 83 SB @ DIAMOND LAKE RD S OF RR | LA | T-2B | ON |
| 3107 | TS | FL6950 | IL 83 @ IL 173 WB BEFORE RR | LA | T-2B | ON |
| 3108 | TS | FL6951 | IL 83 @ IL 173 WB AFTER RR | LA | T-2B | ON |
| 3109 | TS | FL7049 | IL 131 GREEN BAY RD NB RIGHT SIDE @ 9 TH ST | LA | T-2B | ON |
| 3110 | TS | FL7050 | IL 131 GREEN BAY RD SB RIGHT SIDE @ 9 TH ST | LA | T-2B | ON |
| 3111 | TS | FL7051 | 9 TH ST WB RIGHT SIDE @ IL 131 GREEN BAY RD | LA | T-2B | ON |
| 3112 | TS | FL7052 | 9 TH ST EB RIGHT SIDE @ IL 131 GREEN BAY RD | LA | T-2B | ON |
| 3113 | TS | FL7122 | IL 120 BELVIDERE RD (EAST BOUND) @ RIVER RD | LA | T-2B | ON |

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|------|----|--------|---|----|------|----|
| 3114 | TS | FL7123 | IL 120 BELVIDERE RD (WEST BOUND) @ RIVER RD | LA | | ON |
| | | | | | T-2B | |
| 3115 | TS | FL7124 | IL 120 BELVIDERE RD @ RIVER RD (NORTH BOUND) | LA | | ON |
| | | | | | T-2B | |
| 3116 | TS | FL7249 | US 14 EB @ HARTLAND RD HUGHES RD | MC | | ON |
| | | | | | T-2B | |
| 3117 | TS | FL7250 | US 14 WB @ HARTLAND RD HUGHES RD | MC | | ON |
| | | | | | T-2B | |
| 3118 | TS | FL7252 | US 14 @ HARTLAND RD HUGHES RD NB | MC | | ON |
| | | | | | T-2B | |
| 3119 | TS | FL7254 | US 14 @ HARTLAND RD HUGHES RD SB | MC | | ON |
| | | | | | T-2B | |
| 3120 | TS | FL7292 | IL 176 WB @ BAYVIEW BEACH RD | MC | | ON |
| | | | | | T-2B | |
| 3121 | TS | FL7293 | IL 176 EB @ BAYVIEW BEACH RD | MC | | ON |
| | | | | | T-2B | |
| 3122 | TS | FL7506 | IL 1 DIXIE HWY NB @ COUNTY LINE RD | WI | | ON |
| | | | | | T-2B | |
| 3123 | TS | FL7507 | IL 1 DIXIE HWY SB @ COUNTY LINE RD | WI | | ON |
| | | | | | T-2B | |
| 3124 | TS | FL7508 | IL 1 DIXIE HWY @ COUNTY LINE RD EB | WI | | ON |
| | | | | | T-2B | |
| 3125 | TS | FL7509 | IL 1 DIXIE HWY @ COUNTY LINE RD WB | WI | | ON |
| | | | | | T-2B | |
| 3126 | TS | FL7600 | IL 50 NB RIGHT SIDE @ COUNTY LINE ROAD | WI | | ON |
| | | | | | T-2B | |
| 3127 | TS | FL7605 | IL 50 SB RIGHT SIDE @ COUNTY LINE ROAD | WI | | ON |
| | | | | | T-2B | |

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| | | | | | | |
|------|----|---------|--|----|------|-----|
| 3128 | TS | FL7610 | IL 50 @ COUNTY LINE RD WB RIGHT SIDE | WI | T-2B | ON |
| 3129 | TS | FL7615 | IL 50 @ COUNTY LINE RD EB RIGHT SIDE | WI | T-2B | ON |
| 3130 | TS | FL7620 | IL 50 @ COUNTY LINE RD WB LEFT SIDE | WI | T-2B | ON |
| 3131 | TS | FL8853 | IL 59 @ HAWTHORN LN SB | DU | T-2B | ON |
| 3132 | TS | FL9126 | 135TH WB ROMEO RD @ NEW AVE (WEST OF) | WI | T-2B | ON |
| 3133 | TS | FL9670 | IL 83 NB ELMHURST RD @ LINCOLN | CO | T-2B | ON |
| 3134 | TS | FL9671 | IL 83 SB ELMHUURST RD @ LINCOLN | CO | T-2B | ON |
| 3135 | TS | FL9717 | ARSENAL RD @ I 55 WEST FRONTAGE SB RIGHT SIDE | WI | T-2B | ON |
| 3136 | TS | FL10698 | IL 72 @ BIG TIMBER EB | KA | T-2B | ON |
| 3137 | TS | FL10699 | IL 72 @ BIG TIMBER WB | KA | T-2B | ON |
| 3138 | TS | FL11245 | US 12 45 LEE ST @ US 12 45 MANNHEIM RD WB | CO | T-2B | ON |
| 3139 | TS | FL11246 | US 12 45 LEE ST @ US 12 45 MANNHEIM RD NB | CO | T-2B | OFF |
| 3140 | TS | FL11355 | RIDGE RD @ MARGARET ST (SOUTH OF) | CO | T-2B | ON |
| 3141 | TS | FL11356 | MARGARET ST @ RIDGE RD (EAST OF) | CO | T-2B | ON |
| 3142 | TS | FL11715 | WESTERN @ | CO | | ON |

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| | | | SAUK TRAIL WB | | T-2B | |
|------|----|---------|--|----|------|----|
| 3143 | TS | FL11720 | IL 50 CICERO AVE @ 175TH ST | CO | T-2B | ON |
| 3144 | TS | FL11725 | DIXIE HWY @ FLOSSMOOR RD | CO | T-2B | ON |
| 3145 | TS | FL11744 | IL 394 @ SAUK TRAIL SB RT | CO | T-2B | ON |
| 3146 | TS | FL11745 | IL 394 @ SAUK TRAIL SB LT | CO | T-2B | ON |
| 3147 | TS | FL11751 | US 6 WB 159TH ST @ PARK AVE RIGHT | CO | T-2B | ON |
| 3148 | TS | FL11760 | US 12 20 95TH ST @ I 294 SB OFF RAMP TO WB 95TH LEFT | CO | T-2B | ON |
| 3149 | TS | FL11761 | US 12 20 95TH ST @ I 294 SB OFF RAMP TO WB 95TH RIGHT | CO | T-2B | ON |
| 3150 | TS | FL11765 | US 12 20 95TH ST @ 88TH AVE EB | CO | T-2B | ON |
| 3151 | TS | FL11770 | SOUTHWEST HWY NE @ RIDGELAND | CO | T-2B | ON |
| 3152 | TS | FL11795 | US 12 EB 95TH ST BEFORE TRACKS @ WHITE CASTLE ENT | CO | T-2B | ON |
| 3153 | TS | FL11796 | US 12 EB 95TH ST AFTER RR TRACKS @ ALDI ENT | CO | T-2B | ON |
| 3154 | TS | FL11797 | US 12 95TH ST WB BEFORE RR TRACKS @ WALMART | CO | T-2B | ON |
| 3155 | TS | FL11798 | US 12 95TH ST WB AFTER RR TRACKS @ BP GAS STATION | CO | T-2B | ON |
| 3156 | TS | FL11870 | IL 72 TOUHY AVE @ | CO | | ON |

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| | | | IL 72 CUT OFF | | T-2B | |
|------|----|---------|---|----|------|----|
| 3157 | TS | FL11880 | IL 176 STATE RD @ ROBERTS RD MIDWAY DR | MC | | ON |
| | | | | | T-2B | |
| 3158 | TS | FL11894 | IL 176 EB @ DEAN ST | MC | | ON |
| | | | | | T-2B | |
| 3159 | TS | FL11896 | IL 176 WB @ DEAN ST | MC | | ON |
| | | | | | T-2B | |
| 3160 | TS | FL11945 | US 12 @ STATE PARK RD SB BEFORE RR TRACK | LA | | ON |
| | | | | | T-2B | |
| 3161 | TS | FL11946 | US 12 @ STATE PARK SB AFTER RR TRACK | LA | | ON |
| | | | | | T-2B | |
| 3162 | TS | FL11948 | US 12 @ SOLON NB | MC | | ON |
| | | | | | T-2B | |
| 3163 | TS | FL11949 | US 12 @ SOLON SB | MC | | ON |
| | | | | | T-2B | |
| 3164 | TS | FL11950 | US 52 IL 53 CHICAGO @ PATTERSON RD | WI | | ON |
| | | | | | T-2A | |
| 3165 | TS | FL11952 | US 52 IL 53 CHICAGO @ I 80 EB RAMP | WI | | ON |
| | | | | | T-2B | |
| 3166 | TS | FL11953 | US 52 IL 53 CHICAGO @ PATTERSON SB | WI | | ON |
| | | | | | T-2B | |
| 3167 | TS | FL11955 | IL 53 NB @ SCHWEITZER RD | WI | | ON |
| | | | | | T-2B | |
| 3168 | TS | FL11956 | IL 53 SB @ SCHWEITZER RD | WI | | ON |
| | | | | | T-2B | |
| 3169 | TS | FL11957 | IL 53 @ SCHWEITZER RD EB | WI | | ON |
| | | | | | T-2B | |
| 3170 | TS | FL11958 | IL 53 @ | WI | | ON |

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| | | | SCHWEITZER RD WB | | T-2B |
|------|----|---------|--|----|------|
| 3171 | TS | FL12015 | IL 56 BUTTERFIELD RD EB @ TAFT AVE | CO | ON |
| | | | | | T-2B |
| 3172 | TS | FL12025 | LAWRENCE AVE @ 25TH AVE RUBY EB | CO | ON |
| | | | | | T-2B |
| 3173 | TS | FL12092 | IL 25 NB (SOUTH OF RR TRACKS) @ GILBERT ST (SOUTH OF) | KA | ON |
| | | | | | T-2B |
| 3174 | TS | FL12093 | IL 25 SB (NORTH OF RR TRACKS) @ STEARNS RD (NORTH OF) | KA | ON |
| | | | | | T-2B |
| 3175 | TS | FL12094 | IL 25 SB (SOUTH OF RR TRACKS) @ STEARNS RD (NORTH OF) | KA | ON |
| | | | | | T-2B |
| 3176 | TS | FL12095 | IL 25 NB (NORTH OF RR TRACKS) @ GILBERT ST (SOUTH OF) | KA | ON |
| | | | | | T-2B |
| 3177 | TS | FL12315 | IL 83 BARRON BLVD SB @ WASHINGTON ST | LA | ON |
| | | | | | T-2B |
| 3178 | TS | FL13220 | IL 31 @ LAWRENCE AVE KIMBALL EB BEFORE RR | KA | ON |
| | | | | | T-2B |
| 3179 | TS | FL13221 | IL 31 STATE @ LAWRENCE AVE KIMBALL ST EB AFTER RR | KA | ON |
| | | | | | T-2B |
| 3180 | TS | FL15064 | IL 137 @ MONTESANO AVE (SOUTH OF) | LA | ON |
| | | | | | T-2B |
| 3181 | TS | FL15066 | IL 137 @ MONTESANO AVE (NORTH OF) | LA | ON |
| | | | | | T-2B |
| 3182 | TS | FL15100 | IL 19 IRVING PARK RD WB (BEFORE RR) @ WOOD DALE RD (EAST OF) | DU | ON |
| | | | | | T-2B |
| 3183 | TS | FL15101 | IL 19 IRVING PARK RD WB (AFTER RR) @ WOOD DALE RD (EAST OF) | DU | ON |
| | | | | | T-2B |

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| | | | | | | |
|------|----|---------|---|----|------|-----|
| 3184 | TS | FL15131 | IL 137 SHERIDAN RD AMSTUTZ SB TRUSS @ GENESEE | LA | | ON |
| | | | | | T-2A | |
| 3185 | TS | FL20445 | 127TH ST @ WIRETON RD NB | CO | | ON |
| | | | | | T-2B | |
| 3186 | TS | FL20600 | US 6 @ BRANDON RD WB | WI | | ON |
| | | | | | T-2B | |
| 3187 | TS | FL21475 | IL 171 ARCHER AVE @ BELL RD WB | CO | | OFF |
| | | | | | T-2B | |
| 3188 | TS | FL21476 | IL 171 ARCHER AVE @ 131ST NB LEFT | CO | | ON |
| | | | | | T-2B | |
| 3189 | TS | FL21477 | IL 171 ARCHER AVE @ 131ST NB RIGHT | CO | | ON |
| | | | | | T-2B | |
| 3190 | TS | FL21478 | IL 171 ARCHER AVE @ 131ST SB LEFT | CO | | ON |
| | | | | | T-2B | |
| 3191 | TS | FL21479 | IL 171 ARCHER AVE @ 131ST SB RIGHT | CO | | ON |
| | | | | | T-2B | |
| 3192 | TS | FL21968 | US 20 NB @ MARENGO RD | MC | | ON |
| | | | | | T-2B | |
| 3193 | TS | FL21969 | US 20 SB @ MARENGO RD | MC | | ON |
| | | | | | T-2B | |
| 3194 | TS | FL21973 | US 20 NB @ CORAL | MC | | ON |
| | | | | | T-2B | |
| 3195 | TS | FL21974 | US 20 SB @ CORAL | MC | | ON |
| | | | | | T-2B | |
| 3196 | TS | FL21976 | IL 23 NB @ CORAL RD PLEASANT GROVE RD | MC | | ON |
| | | | | | T-2B | |
| 3197 | TS | FL21977 | IL 23 SB @ CORAL RD PLEASANT GROVE RD | MC | | ON |
| | | | | | T-2B | |

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|------|----|---------|---|----|------|----|
| 3198 | TS | FL21978 | US 20 @ CORAL RD EB | MC | | ON |
| | | | | | T-2B | |
| 3199 | TS | FL21979 | US 20 @ CORAL RD WB | MC | | ON |
| | | | | | T-2B | |
| 3200 | TS | FL21982 | US 20 NB RIGHT @ HARMONY RD | MC | | ON |
| | | | | | T-2B | |
| 3201 | TS | FL21983 | US 20 SB RIGHT @ HARMONY RD | MC | | ON |
| | | | | | T-2B | |
| 3202 | TS | FL21992 | IL 83 @ HOOK DR OLD ROLLINS RD EB BEFORE RR | LA | | ON |
| | | | | | T-2B | |
| 3203 | TS | FL21993 | IL 83 @ HOOK DR OLD ROLLINS RD AFTER RR | LA | | ON |
| | | | | | T-2B | |
| 3204 | TS | FL22101 | IL 120 EB WEST BELVIDERE RD @ SULLIVAN LAKE BLVD | LA | | ON |
| | | | | | T-2B | |
| 3205 | TS | FL22103 | IL 120 WB WEST BELVIDERE RD @ SULLIVAN LAKE BLVD | LA | | ON |
| | | | | | T-2B | |

VARIOUS SYSTEM - EQUIPMENT PAY CODE - LOCATIONS

| | | | | | | |
|---|---|-----|--|----|-----|----|
| 1 | V | 55Y | I 55 YARD @ 151 E SOUTH FRONTAGE RD | WI | | ON |
| | | | | | V-1 | |
| 2 | V | 57Y | I 57 YARD @ 16010 S CRAWFORD AVE | CO | | ON |
| | | | | | V-1 | |
| 3 | V | 80E | I 80 EB @ LINCOLN OASIS | CO | | ON |
| | | | | | V-1 | |
| 4 | V | 80W | I 80 WB @ COLUMBIA AVE JARNECKE | CO | | ON |
| | | | | | V-1 | |

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| | | | | | | |
|----|---|------|---|----|-----|----|
| 5 | V | 12WS | WEIGH STATION @ US 12 & BURLINGTON RD RICHMOND | MC | | ON |
| | | | | | V-1 | |
| 6 | V | 1317 | I 55 STEV NE SPEED SIGN @ I 294 TLWY NB EXT | CO | | ON |
| | | | | | V-1 | |
| 7 | V | 14WS | WEIGH STATION @ US 14 & CROWLEY RD HARVARD | MC | | ON |
| | | | | | V-1 | |
| 8 | V | 1717 | I 55 STEV NE SPEED SIGN @ ARSENAL RD EXT | WI | | ON |
| | | | | | V-1 | |
| 9 | V | 214V | MATTESON VIADUCT 214 @ GOVERNORS HWY & 214TH ST | CO | | ON |
| | | | | | V-1 | |
| 10 | V | 219V | MATTESON VIADUCT 219 @ GOVERNORS HWY & 219TH ST | CO | | ON |
| | | | | | V-1 | |
| 11 | V | 290A | I 290 IB @ ASHLAND AVE | CO | | ON |
| | | | | | V-1 | |
| 12 | V | 290E | I 290 OB @ WESTCHESTER | CO | | ON |
| | | | | | V-1 | |
| 13 | V | 290T | I 290 IB @ THORNDALE AVE | DU | | ON |
| | | | | | V-1 | |
| 14 | V | 290W | I 290 @ WELLS ST | CO | | ON |
| | | | | | V-1 | |
| 15 | V | 30WS | WEIGH STATION @ US 30 E OF TORRENCE CHICAGO HEIGHTS | CO | | ON |
| | | | | | V-1 | |
| 16 | V | 5367 | I 90 94 RYAN NB SPEED SIGN @ CERMAK RD EXT | CO | | ON |
| | | | | | V-1 | |

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| | | | | | | |
|----|---|--------|---|----|-----|----|
| 17 | V | 83WS | WEIGH STATION @ IL 83 & ST CHARLES ELMHURST | DU | | ON |
| | | | | | V-1 | |
| 18 | V | 9073 | I 290 IKE EB SPEED SIGN @ NORTH AVE EXT | DU | | ON |
| | | | | | V-1 | |
| 19 | V | 10058 | IL 53 NB SPEED SIGN @ PALATINE RD EB EXT | CO | | ON |
| | | | | | V-1 | |
| 20 | V | 10120 | I 290 IL 53 NB SPEED SIGN @ LAKE COOK EB EXT | CO | | ON |
| | | | | | V-1 | |
| 21 | V | 10125 | I 290 IL 53 NB SPEED SIGN @ LAKE COOK WB EXT | CO | | ON |
| | | | | | V-1 | |
| 22 | V | 15028 | I 80 EB SPEED SIGN @ I 57 NB EXT | CO | | ON |
| | | | | | V-1 | |
| 23 | V | 20058 | IL 38 WB SPEED SIGN @ BRUSH HILL DR EXT | DU | | ON |
| | | | | | V-1 | |
| 24 | V | 20087 | I 94 EDENS SB SPEED SIGN @ IL 58 WB EXT | CO | | ON |
| | | | | | V-1 | |
| 25 | V | 41IBWS | WEIGH STATION @ US 41 IB ROSECRANS | LA | | ON |
| | | | | | V-1 | |
| 26 | V | 41OBWS | WEIGH STATION @ US 41 OB WADSWORTH | LA | | ON |
| | | | | | V-1 | |
| 27 | V | 55IBWS | WEIGH STATION @ I 55 IB W OF IL 53 BOLINGBROOK | WI | | ON |
| | | | | | V-1 | |
| 28 | V | 55OBWS | WEIGH STATION @ I 55 OB W OF IL 53 BOLINGBROOK | WI | | ON |
| | | | | | V-1 | |

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|----|---|--------|--|----|-----|-----|
| 29 | V | 57IBRA | PRAIRIEVIEW REST AREA @ I 57 IB @ PEOTONE | WI | | ON |
| | | | | | V-1 | |
| 30 | V | 57IBWS | WEIGH STATION @ I 57 IB N OF US 52 PEOTONE | WI | | ON |
| | | | | | V-1 | |
| 31 | V | 57OBRA | PRAIRIEVIEW REST AREA @ I 57 OB @ PEOTONE | WI | | ON |
| | | | | | V-1 | |
| 32 | V | 57OBWS | WEIGH STATION @ I 57 OB N OF US 52 PEOTONE | WI | | ON |
| | | | | | V-1 | |
| 33 | V | 80IBWS | WEIGH STATION @ I 80 IB E OF TOWNLINE FRANKFORT | WI | | OFF |
| | | | | | V-1 | |
| 34 | V | 80OBWS | WEIGH STATION @ I 80 OB E OF TOWNLINE FRANKFORT | WI | | PAR |
| | | | | | V-1 | |
| 35 | V | ACS | ADDISON AVE COLD STORAGE @ US 12 20 MANNHEIM RD (UNDER) | CO | | ON |
| | | | | | V-1 | |
| 36 | V | ALSY | ALSIP YARD @ 11801 S RIDGELAND AVE | CO | | ON |
| | | | | | V-1 | |
| 37 | V | ARLY | ARLINGTON YARD @ 210 E NOYSE | CO | | ON |
| | | | | | V-1 | |
| 38 | V | AS1 | IL 38 RACS AUX SIGN AS1 @ I 88 (WEST OF) | DU | | OFF |
| | | | | | V-1 | |
| 39 | V | AS2 | IL 38 RACS AUX SIGN AS2 @ I 88 (WEST OF) | DU | | OFF |
| | | | | | V-1 | |
| 40 | V | BBO | BIESTERFIELD BRIDGE OFFICE @ 1101 BIESTERFIELD RD ELK GROVE | CO | | ON |
| | | | | | V-1 | |

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| | | | | | | |
|----|---|------|--|----|-----|-----|
| 41 | V | BBY | BIRDS BRIDGE YARD @ I 55 & US 6 | WI | V-1 | ON |
| 42 | V | BFY | BISHOP FORD YARD @ 16915 VAN DAM RD | CO | V-1 | ON |
| 43 | V | BRAN | JOLIET MOVEABLE BRIDGE @ BRANDON | WI | V-1 | OFF |
| 44 | V | C1 | IL 38 RACS CAM C1 @ YORK RD (WEST OF) | DU | V-1 | OFF |
| 45 | V | C2 | IL 38 RACS CAM C2 @ YORK RD (EAST OF) | DU | V-1 | OFF |
| 46 | V | C3 | IL 38 RACS CAM C3 @ YORK RD (EAST OF) | DU | V-1 | OFF |
| 47 | V | C4 | IL 38 RACS CAM C4 @ I 88 (EAST OF) | DU | V-1 | OFF |
| 48 | V | C5 | IL 38 RACS CAM C5 @ I 88 (EAST OF) | DU | V-1 | ON |
| 49 | V | C6 | IL 38 RACS CAM C6 @ I 88 (EAST OF) | DU | V-1 | ON |
| 50 | V | C7 | IL 38 RACS CAM C7 @ I 294 (SOUTH OF) | DU | V-1 | ON |
| 51 | V | C8 | IL 38 RACS CAM C8 @ HILLSIDE TOWER | DU | V-1 | ON |
| 52 | V | CASS | JOLIET MOVEABLE BRIDGE @ | WI | | OFF |

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| | | | CASS ST | | | V-1 |
|----|---|-----------|--|----|--|-----------|
| 53 | V | CDR94 | I 94 RYAN FIBER CAB @ 31ST ST | CO | | ON RM |
| 54 | V | CIE1 | I 80 FIBER CAB @ I 355 TLWY | WI | | ON V-1 |
| 55 | V | CIE2 | I 80 FIBER CAB @ RM LAGRANGE RD | CO | | ON RM |
| 56 | V | CIE3 | I 80 FIBER CAB @ RM US 30 | WI | | ON RM |
| 57 | V | CIE4 | I 80 FIBER CAB @ RM 80TH AVE (WEST OF) | CO | | ON RM |
| 58 | V | CIK1 | I 90 KENN FIBER CAB @ RM IL 53 NW QUAD | CO | | ON RM |
| 59 | V | COM | IDOT HQ COMCENTER & EQUIP ROOM @ 201 W CENTER CT SCHAUMBURG | CO | | ON RM |
| 60 | V | CST1 | I 55 STEV FIBER CAB @ RM I 80 | WI | | ON RM |
| 61 | V | CST2 | I 55 STEV FIBER CAB @ RM LORENZO RD | WI | | ON RM |
| 62 | V | DRO | DAN RYAN FIELD OFFICE @ DES PLAINES & TAYLOR | CO | | ON V-1 |
| 63 | V | DRY MY | DAN RYAN YARD @ 6543 S WENTWORTH AVE | CO | | ON V-1 |

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| | | | | | | |
|----|---|--------------|---|-----|-----|-----|
| 64 | V | EDENS HAR | I 94 IB @ TOWER RD | CO | | ON |
| | | | | | V-1 | |
| 65 | V | EDY MY | EDENS YARD @ 2 HAPP RD | CO | | ON |
| | | | | | V-1 | |
| 66 | V | EMC VSL | MEADE DISPATCH CENTER @ 6850 W 62ND ST CHICAGO | VAR | | ON |
| | | | | | V-1 | |
| 67 | V | ESS SS | ELGIN SIGN SHOP @ 595 S STATE ST | KA | | ON |
| | | | | | V-1 | |
| 68 | V | ETP | ETP @ 3501 NORMAL AVE CGO | CO | | ON |
| | | | | | V-1 | |
| 69 | V | FIB | IDOT FIBER & CABINETS @ D1 LOCATION | VAR | | ON |
| | | | | | V-1 | |
| 70 | V | FOS | FOSTER TOWER EQUIP @ I 94 @ FOSTER AVE | CO | | ON |
| | | | | | V-1 | |
| 71 | V | FRB | FORMER REVLAC BLDG B @ I 90 94 KENN 1035 GRAND AVE | CO | | OFF |
| | | | | | V-1 | |
| 72 | V | G1 | IL 38 RACS GATE G1 @ I 88 (EAST OF) | DU | | ON |
| | | | | | V-1 | |
| 73 | V | G2 | IL 38 RACS GATE G2 @ I 88 (EAST OF) | DU | | ON |
| | | | | | V-1 | |
| 74 | V | G3 | IL 38 RACS GATE G3 @ I 88 (EAST OF) | DU | | ON |
| | | | | | V-1 | |
| 75 | V | G4 | IL 38 RACS GATE G4 @ I 88 (EAST OF) | DU | | ON |
| | | | | | V-1 | |

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|----|---|-------|--|----|-----|----|
| 76 | V | G5 | IL 38 RACS GATE G5 @ I 88 (EAST OF) | DU | | ON |
| | | | | | V-1 | |
| 77 | V | G6 | IL 38 RACS GATE G6 @ I 88 (EAST OF) | DU | | ON |
| | | | | | V-1 | |
| 78 | V | G7 | IL 38 RACS GATE G7 @ I 88 (EAST OF) | DU | | ON |
| | | | | | V-1 | |
| 79 | V | G8 | IL 38 RACS GATE G8 @ I 88 (EAST OF) | DU | | ON |
| | | | | | V-1 | |
| 80 | V | G9 | IL 38 RACS GATE G9 @ I 88 (EAST OF) | DU | | ON |
| | | | | | V-1 | |
| 81 | V | G10 | IL 38 RACS GATE G10 @ I 88 (EAST OF) | DU | | ON |
| | | | | | V-1 | |
| 82 | V | GRAY | GRAYSLAKE YARD @ 219 N BARON BLVD | LA | | ON |
| | | | | | V-1 | |
| 83 | V | GURY | GURNEE YARD @ 3516 W WASHINGTON ST | LA | | ON |
| | | | | | V-1 | |
| 84 | V | HARY | HARVEY YARD @ 16738 S LATHROP AVE | CO | | ON |
| | | | | | V-1 | |
| 85 | V | HH100 | I 290 WB OB - RIGHT SIDE I 90 (EAST OF) | CO | | ON |
| | | | | | V-1 | |
| 86 | V | HH105 | I 290 WB OB - LEFT SIDE I 90 (WEST OF) | CO | | ON |
| | | | | | V-1 | |
| 87 | V | HH110 | I 290 WB OB - LEFT SIDE | CO | | ON |

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| | | | I 90 (WEST OF) | | V-1 |
|----|---|-------|---|----|-----------|
| 88 | V | HH115 | I 290 WB OB - RIGHT SIDE MORGAN ST (EAST OF) | CO | ON V-1 |
| 89 | V | HH120 | I 290 WB OB - RIGHT SIDE RACINE AVE (WEST OF) | CO | ON V-1 |
| 90 | V | HH125 | I 290 WB OB - RIGHT SIDE ASHLAND AVE (WEST OF) | CO | ON V-1 |
| 91 | V | HH130 | I 290 WB OB - RIGHT SIDE OGDEN AVE (EAST OF) | CO | ON V-1 |
| 92 | V | HH135 | I 290 WB OB - RIGHT SIDE DAMEN AVE (WEST OF ON RAMP) | CO | ON V-1 |
| 93 | V | HH140 | I 290 WB OB - LEFT SIDE DAMEN AVE (WEST OF) | CO | ON V-1 |
| 94 | V | HH145 | I 290 WB OB - LEFT SIDE DAMEN AVE (WEST OF) | CO | ON V-1 |
| 95 | V | HH150 | I 290 WB OB - RIGHT SIDE LEAVITT ST (WEST OF) | CO | ON V-1 |
| 96 | V | HH155 | I 290 WB OB - RIGHT SIDE SACRAMENTO BLVD (WEST OF ENT RAMP) | CO | ON V-1 |
| 97 | V | HH160 | I 290 WB OB - RIGHT SIDE ALBANY AVE (UNDER WALK OVER) | CO | ON V-1 |
| 98 | V | HH165 | I 290 WB OB - RIGHT SIDE IL 50 CICERO AVE (WEST OF) | CO | ON V-1 |

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|-----|---|-------|--|----|-----|----|
| 99 | V | HH170 | I 290 WB OB - RIGHT SIDE LARAMIE AVE (EAST OF) | CO | V-1 | ON |
| 100 | V | HH175 | I 290 WB OB - RIGHT SIDE CENTRAL AVE (EAST OF ON RAMP) | CO | V-1 | ON |
| 101 | V | HH180 | I 290 WB OB - RIGHT SIDE CENTRAL AVE (JUST EAST) | CO | V-1 | ON |
| 102 | V | HH185 | I 290 WB OB - RIGHT SIDE CENTRAL AVE (WEST OF) | CO | V-1 | ON |
| 103 | V | HH190 | I 290 WB OB - RIGHT SIDE AUSTIN AVE (JUST WEST OF) | CO | V-1 | ON |
| 104 | V | HH195 | I 290 WB OB - RIGHT SIDE AUSTIN AVE (JUST WEST OF) | CO | V-1 | ON |
| 105 | V | HH200 | I 290 WB OB - RIGHT SIDE EAST AVE (EAST OF) | CO | V-1 | ON |
| 106 | V | HH205 | I 290 WB OB - RIGHT SIDE EAST AVE (JUST WEST OF) | CO | V-1 | ON |
| 107 | V | HH210 | I 290 WB OB - RIGHT SIDE HARLEM AVE (EAST OF - EAST HOLE) | CO | V-1 | ON |
| 108 | V | HH215 | I 290 WB OB - RIGHT SIDE HARLEM AVE (EAST OF - WEST HOLE) | CO | V-1 | ON |
| 109 | V | HH220 | I 290 WB OB - RIGHT SIDE HARLEM AVE (WEST OF) | CO | V-1 | ON |
| 110 | V | HH225 | I 290 WB OB - RIGHT SIDE 1ST AVE (JUST WEST) | CO | V-1 | ON |

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|-----|---|-------|--|----|-----|----|
| 111 | V | HH230 | I 290 WB OB - RIGHT SIDE 17TH AVE (EAST OF) | CO | V-1 | ON |
| 112 | V | HH235 | I 290 WB OB - RIGHT SIDE US 45 MANNHEIM (EAST OF ON EXT RMP) | CO | V-1 | ON |
| 113 | V | HH240 | I 290 WB OB - RIGHT SIDE US 45 MANNHEIM (EAST OF) | CO | V-1 | ON |
| 114 | V | HH245 | I 290 WB OB - RIGHT SIDE US 45 MANNHEIM (EAST OF-CNTR EXIT) | CO | V-1 | ON |
| 115 | V | HH250 | I 290 WB OB - RIGHT SIDE US 45 MANNHEIM (EAST OF - CNTR RIGHT) | CO | V-1 | ON |
| 116 | V | HH255 | I 290 WB OB - RIGHT SIDE US 45 MANNHEIM (ENTRANCE RAMP) | CO | V-1 | ON |
| 117 | V | HH260 | I 290 WB OB - LEFT SIDE US 45 MANNHEIM (WB ENT RMP LFT SD) | CO | V-1 | ON |
| 118 | V | HH265 | I 290 WB OB - LEFT SIDE US 45 MANNHEIM (JUST EAST AT RAMP) | CO | V-1 | ON |
| 119 | V | HH270 | I 290 WB OB - RIGHT SIDE US 45 MANNHEIM (EAST OF VIADUCT) | CO | V-1 | ON |
| 120 | V | HH275 | I 290 WB OB - RIGHT SIDE US 45 MANNHEIM (JUST WST @ VIADUCT) | CO | V-1 | ON |
| 121 | V | HH280 | I 290 WB OB - RIGHT SIDE US 45 MANNHEIM (WEST OF) | CO | V-1 | ON |
| 122 | V | HH285 | I 290 WB OB - US 45 NB ENT RAMP | CO | | ON |

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| | | | | | | |
|-----|---|-------|---|----|-----|----|
| | | | US 45 MANNHEIM (EAST HOLE) | | V-1 | |
| 123 | V | HH290 | I 290 WB OB - US 45 NB ENT RAMP US 45 MANNHEIM (WEST HOLE) | CO | | ON |
| | | | | | V-1 | |
| 124 | V | HH295 | I 290 WB OB - RIGHT SIDE US 45 MANNHEIM ENT RAMP END | CO | | ON |
| | | | | | V-1 | |
| 125 | V | HH300 | I 290 WB OB - LEFT SIDE HILLSIDE DR (EAST OF) | CO | | ON |
| | | | | | V-1 | |
| 126 | V | HH305 | I 290 WB OB - RIGHT SIDE HILLSIDE DR (EAST OF END OF RAMP) | CO | | ON |
| | | | | | V-1 | |
| 127 | V | HH310 | I 290 WB OB - RIGHT SIDE HILLSIDE DR (EAST OF) | CO | | ON |
| | | | | | V-1 | |
| 128 | V | HH315 | I 290 WB OB FRONTAGE RD - LEFT SIDE HILLSIDE DR (EAST OF) | CO | | ON |
| | | | | | V-1 | |
| 129 | V | HH320 | I 290 WB OB - LEFT SIDE BUTTERFIELD RD (EAST OF) | CO | | ON |
| | | | | | V-1 | |
| 130 | V | HH325 | I 290 WB OB - RIGHT SIDE NORTH AVE (WEST OF @ EXIT RAMP) | DU | | ON |
| | | | | | V-1 | |
| 131 | V | HH330 | I 290 WB OB - RIGHT SIDE NORTH AVE (WEST END OF ENT RAMP) | DU | | ON |
| | | | | | V-1 | |
| 132 | V | HH335 | I 290 WB OB - RIGHT SIDE CHURCH RD (EAST OF) | DU | | ON |
| | | | | | V-1 | |
| 133 | V | HH340 | I 290 WB OB - RIGHT SIDE IL 83 (EAST OF) | DU | | ON |
| | | | | | V-1 | |

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|-----|---|-------|--|----|-----|----|
| 134 | V | HH345 | I 290 WB OB - RIGHT SIDE IL 83 (WEST OF) | DU | V-1 | ON |
| 135 | V | HH350 | I 290 WB OB - LEFT SIDE WOOD DALE RD (NW OF) | DU | V-1 | ON |
| 136 | V | HH355 | I 290 WB OB - RIGHT SIDE WOOD DALE RD (SOUTHEST OF) | DU | V-1 | ON |
| 137 | V | HH360 | I 290 WB OB - LEFT SIDE I 355 TLWY (SOUTHEST OF) | DU | V-1 | ON |
| 138 | V | HH365 | I 290 WB OB - RIGHT SIDE IRVING PARK RD (NORTH OF) | DU | V-1 | ON |
| 139 | V | HH370 | I 290 WB OB - RIGHT SIDE I 390 (SOUTH OF) | DU | V-1 | ON |
| 140 | V | HH380 | I 290 WB OB - RIGHT SIDE UNDER IL 390 | DU | V-1 | ON |
| 141 | V | HH385 | I 290 WB OB - RIGHT SIDE IL 390 (NORTH OF) | DU | V-1 | ON |
| 142 | V | HH390 | I 290 WB OB - RIGHT SIDE EMROY AVE (WEST OF) | DU | V-1 | ON |
| 143 | V | HH400 | I 290 EB IB - RIGHT SIDE I 390 WB EXT RAMP (BOTTOM) | DU | V-1 | ON |
| 144 | V | HH405 | I 290 EB IB - RIGHT SIDE I 390 WB EXT RAMP (GRASS) | DU | V-1 | ON |
| 145 | V | HH410 | I 290 EB IB - RIGHT SIDE I 390 (NORTH OF) | DU | V-1 | ON |

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|-----|---|-------|--|----|-----|----|
| 146 | V | HH415 | I 290 EB IB - RIGHT SIDE I 390 (UNDER WB EXIT RAMPS) | DU | V-1 | ON |
| 147 | V | HH420 | I 290 EB IB - RIGHT SIDE I 390 (UNDER EB ENT RAMP) | DU | V-1 | ON |
| 148 | V | HH425 | I 290 EB IB - RIGHT SIDE I 390 (SOUTH OF) | DU | V-1 | ON |
| 149 | V | HH430 | I 290 EB IB - RIGHT SIDE I 390 (EAST OF WB EXT RAMPS) | DU | V-1 | ON |
| 150 | V | HH435 | I 290 EB IB - LEFT SIDE I 390 (END OF RAMP - GRASS) | DU | V-1 | ON |
| 151 | V | HH440 | I 290 EB IB - RIGHT SIDE IRVING PARK RD (NORTH OF) | DU | V-1 | ON |
| 152 | V | HH445 | I 290 EB IB - LEFT SIDE IRVING PARK RD (SOUTH OF BTWN RAMPS) | DU | V-1 | ON |
| 153 | V | HH450 | I 290 EB IB - RIGHT SIDE 355 INTERCHANGE (EAST OF SHOULDER) | DU | V-1 | ON |
| 154 | V | HH455 | I 290 EB IB - RIGHT SIDE 355 INTERCHANGE (EAST OF GRASS) | DU | V-1 | ON |
| 155 | V | HH460 | I 290 EB IB - LEFT SIDE MILL RD (NORTHWEST OF) | DU | V-1 | ON |
| 156 | V | HH465 | I 290 EB IB - LEFT SIDE WOOD DALE RD (NORTHWEST OF) | DU | V-1 | ON |
| 157 | V | HH470 | I 290 EB IB - RIGHT SIDE | DU | | ON |

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|-----|---|-------|--------------------------------------|----|-----|----|
| | | | WOOD DALE RD (NORTHWEST OF) | | V-1 | |
| 158 | V | HH475 | I 290 EB IB - RIGHT SIDE | DU | | ON |
| | | | LAKE ST ENT RAMP (BTWN LANE AND RMP) | | V-1 | |
| 159 | V | HH480 | I 290 EB IB - RIGHT SIDE | DU | | ON |
| | | | LAKE ST ENT RAMP (SHOULDER) | | V-1 | |
| 160 | V | HH485 | I 290 EB IB - RIGHT SIDE | DU | | ON |
| | | | LAKE ST ENT RAMP (GRASS) | | V-1 | |
| 161 | V | HH490 | I 290 EB IB - RIGHT SIDE | DU | | ON |
| | | | EMROY AVE (WEST OF) | | V-1 | |
| 162 | V | HH495 | I 290 EB IB - RIGHT SIDE | DU | | ON |
| | | | NORTH AVE (SOUTHEAST OF) | | V-1 | |
| 163 | V | HH500 | I 290 EB IB - RIGHT SIDE | DU | | ON |
| | | | NORTH AVE ENT RAMP (BTWN RMP & LANE) | | V-1 | |
| 164 | V | HH505 | I 290 EB IB - RIGHT SIDE | CO | | ON |
| | | | WOLF RD EXIT RAMP | | V-1 | |
| 165 | V | HH510 | I 290 EB IB - CENTER | CO | | ON |
| | | | WOLF RD (WEST OF) | | V-1 | |
| 166 | V | HH515 | I 290 EB IB - RIGHT SIDE | CO | | ON |
| | | | WOLF RD (WEST OF - WEST HOLE) | | V-1 | |
| 167 | V | HH520 | I 290 EB IB - RIGHT SIDE | CO | | ON |
| | | | WOLF RD (WEST OF - EAST HOLE) | | V-1 | |
| 168 | V | HH525 | I 290 EB IB - LEFT SIDE | CO | | ON |
| | | | WOLF RD (EAST OF) | | V-1 | |

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|-----|---|-------|--|----|-----|----|
| 169 | V | HH530 | I 290 EB IB - RIGHT SIDE FRONTAGE RD/HARRISON ENT RMP (WEST) | CO | V-1 | ON |
| 170 | V | HH535 | I 290 EB IB - RIGHT SIDE FRONTAGE RD/HARRISON ENT RMP (CENTER) | CO | V-1 | ON |
| 171 | V | HH540 | I 290 EB IB - RIGHT SIDE HILLSIDE DR (EAST OF) | CO | V-1 | ON |
| 172 | V | HH545 | I 290 EB IB - RIGHT SIDE FRONTAGE RD/HARRISON ENT RMP (EAST) | CO | V-1 | ON |
| 173 | V | HH550 | I 290 EB IB - LEFT SIDE IL 45 MANNHEIM EXIT RAMP | CO | V-1 | ON |
| 174 | V | HH555 | I 290 EB IB - RIGHT SIDE IL 45 MANNHEIM EXIT RAMP | CO | V-1 | ON |
| 175 | V | HH560 | I 290 EB IB - LEFT SIDE IL 45 MANNHEIM ENT RAMP | CO | V-1 | ON |
| 176 | V | HH565 | I 290 EB IB IL 45 MANNHEIM ENT RAMP CNTR GRASS | CO | V-1 | ON |
| 177 | V | HH570 | I 290 EB IB - RIGHT SIDE IL 45 MANNHEIM (WEST OF) | CO | V-1 | ON |
| 178 | V | HH575 | I 290 EB IB - RAMP ACCESS IL 45 MANNHEIM (E OF) RMP CNTR GRASS | CO | V-1 | ON |
| 179 | V | HH580 | I 290 EB IB - RAMP ACCESS IL 45 EB ENTRANCE RAMP | CO | V-1 | ON |
| 180 | V | HH585 | I 290 EB IB - RAMP ACCESS | CO | | ON |

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|-----|---|-------|--|----|-----|----|
| | | | IL 45 NB - EB ENT RAMP (BOTTOM) | | V-1 | |
| 181 | V | HH590 | I 290 EB IB - RAMP ACCESS IL 45 MANNHEIM (EAST OF) | CO | V-1 | ON |
| 182 | V | HH595 | I 290 EB IB - RIGHT SIDE GARDNER RD EXIT RAMP | CO | V-1 | ON |
| 183 | V | HH600 | I 290 EB IB - RIGHT SIDE GARDNER RD (EAST OF) | CO | V-1 | ON |
| 184 | V | HH605 | I 290 EB IB - RIGHT SIDE 25TH AVE ENT RAMP (TOP) | CO | V-1 | ON |
| 185 | V | HH610 | I 290 EB IB - RIGHT SIDE 25TH AVE (WEST OF) | CO | V-1 | ON |
| 186 | V | HH615 | I 290 EB IB - RIGHT SIDE 25TH AVE (EAST AVE) | CO | V-1 | ON |
| 187 | V | HH620 | I 290 EB IB - RIGHT SIDE 25TH AVE NB ENT RAMP (WEST HOLE) | CO | V-1 | ON |
| 188 | V | HH625 | I 290 EB IB - RIGHT SIDE 25TH AVE NB ENT RAMP (WEST HOLE) | CO | V-1 | ON |
| 189 | V | HH630 | I 290 EB IB - RIGHT SIDE 25TH AVE NB ENT RAMP (CENTER HOLE) | CO | V-1 | ON |
| 190 | V | HH635 | I 290 EB IB - RIGHT SIDE 25TH AVE NB ENT RAMP (EAST HOLE) | CO | V-1 | ON |
| 191 | V | HH640 | I 290 EB IB - RIGHT SIDE 17TH AVE EXIT RAMP LEFT SIDE | CO | V-1 | ON |

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|-----|---|-------|---|----|-----|----|
| 192 | V | HH645 | I 290 EB IB - RIGHT SIDE 17TH AVE EXIT RAMP LEFT TOP | CO | | ON |
| | | | | | V-1 | |
| 193 | V | HH650 | I 290 EB IB - RIGHT SIDE 9TH AVE ENT RAMP (LEFT TOP) | CO | | ON |
| | | | | | V-1 | |
| 194 | V | HH660 | I 290 EB IB - RIGHT SIDE 1ST AVE ENT RAMP (CENTER GRASS) | CO | | ON |
| | | | | | V-1 | |
| 195 | V | HH665 | I 290 EB IB - RIGHT SIDE DES PLAINES AVE (WEST OF) | CO | | ON |
| | | | | | V-1 | |
| 196 | V | HH670 | I 290 EB IB - RIGHT SIDE DES PLAINES AVE (UNDERPASS) | CO | | ON |
| | | | | | V-1 | |
| 197 | V | HH675 | I 290 EB IB - RIGHT SIDE CENTRAL AVE (WEST OF) | CO | | ON |
| | | | | | V-1 | |
| 198 | V | HH680 | I 290 EB IB - RIGHT SIDE CENTRAL AVE (EAST OF) | CO | | ON |
| | | | | | V-1 | |
| 199 | V | HH685 | I 290 EB IB - RIGHT SIDE IL 50 CICERO AVE (WEST OF) | CO | | ON |
| | | | | | V-1 | |
| 200 | V | HH690 | I 290 EB IB IL 50 CICERO AVE EXT RMP (TOP LEFT) | CO | | ON |
| | | | | | V-1 | |
| 201 | V | HH695 | I 290 EB IB - RIGHT SIDE SACRAMENTO AVE EXIT RAMP (BOTTOM) | CO | | ON |
| | | | | | V-1 | |
| 202 | V | HH700 | I 290 EB IB - RIGHT SIDE LEAVITT ST (WEST UNDERPASS) | CO | | ON |
| | | | | | V-1 | |
| 203 | V | HH705 | I 290 EB IB - RIGHT SIDE LEAVITT ST (EAST UNDERPASS) | CO | | ON |
| | | | | | V-1 | |

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|-----|---|-------|---|-----|-----|-----|
| 204 | V | HH710 | I 290 EB IB - RIGHT SIDE LEAVITT ST (EAST OF) | CO | | ON |
| | | | | | V-1 | |
| 205 | V | HH715 | I 290 EB IB - LEFT SIDE I 90 INTRCHNG (JUST EAST OVERPASS) | CO | | ON |
| | | | | | V-1 | |
| 206 | V | HILY | HILLSIDE YARD/BS @ EAST AVE & MAY ST | CO | | ON |
| | | | | | V-1 | |
| 207 | V | HQ | IDOT HQ BLDG & TOWER @ 201 W CENTER CT SCHAUMBURG | CO | | ON |
| | | | | | V-1 | |
| 208 | V | HRB | HILLSIDE RACS BLDG @ IL 38 12100 W ROOSEVELT RD | DU | | ON |
| | | | | | V-1 | |
| 209 | V | I55 | FIBER RUN @ I 55 | VAR | | PAR |
| | | | | | RM | |
| 210 | V | I57 | FIBER RUN @ I 57 | VAR | | ON |
| | | | | | RM | |
| 211 | V | I80 | FIBER RUN @ I 80 | VAR | | ON |
| | | | | | RM | |
| 212 | V | I90 | FIBER RUN @ I 90 | VAR | | ON |
| | | | | | RM | |
| 213 | V | I94 | FIBER RUN @ I 94 | VAR | | ON |
| | | | | | RM | |
| 214 | V | I190 | FIBER RUN @ I190 | VAR | | ON |
| | | | | | RM | |
| 215 | V | I290 | FIBER RUN @ | VAR | | ON |

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|-----|---|---------|---|-----|--|-----|-----|
| | | | I 290 | | | RM | |
| 216 | V | I294 | I 55 IB @ I 294 | CO | | V-1 | OFF |
| 217 | V | I355 | FIBER RUN @ I 355 TLWY | VAR | | RM | ON |
| 218 | V | I190IB | I 190 IB @ I 294 | CO | | V-1 | ON |
| 219 | V | IKEY | EISENHOWER YARD @ 5201 W FLOURNOY ST | CO | | V-1 | ON |
| 220 | V | IL53 | FIBER RUN @ IL 53 | VAR | | RM | ON |
| 221 | V | IL394 | FIBER RUN @ IL 394 | VAR | | RM | ON |
| 222 | V | IL394IB | IL 394 IB @ 186TH ST | CO | | V-1 | ON |
| 223 | V | ISP | IL STATE POLICE DIST CHICAGO ISP 3 @ 9511 W HARRISON ST DESPLAINES | CO | | V-1 | ON |
| 224 | V | JACK | JOLIET MOVEABLE BRIDGE @ JACKSON ST | WI | | V-1 | OFF |
| 225 | V | JB100 | I 290 WB OB - J WALL DESPLAINES ST (WEST OF) | CO | | V-1 | ON |
| 226 | V | JB105 | I 290 WB OB - J WALL I 90 OVERPASS (WEST OF) | CO | | V-1 | ON |

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|-----|---|-------|---|----|-----|----|
| 227 | V | JB110 | I 290 WB OB - J WALL HALSTED ST (WEST OF) | CO | V-1 | ON |
| 228 | V | JB115 | I 290 WB OB - J WALL PEORIA ST (JUST EAST OF) | CO | V-1 | ON |
| 229 | V | JB120 | I 290 WB OB - J WALL PEORIA ST (JUST WEST OF) | CO | V-1 | ON |
| 230 | V | JB125 | I 290 WB OB - J WALL PEORIA ST (WEST OF) | CO | V-1 | ON |
| 231 | V | JB130 | I 290 WB OB - J WALL MORGAN ST (EAST OF) | CO | V-1 | ON |
| 232 | V | JB135 | I 290 WB OB - J WALL MORGAN ST (JUST EAST OF) | CO | V-1 | ON |
| 233 | V | JB140 | I 290 WB OB - J WALL MORGAN ST (JUST WEST OF) | CO | V-1 | ON |
| 234 | V | JB145 | I 290 WB OB - J WALL MORGAN ST (WEST OF) | CO | V-1 | ON |
| 235 | V | JB150 | I 290 WB OB - J WALL RACINE AVE (EAST OF) | CO | V-1 | ON |
| 236 | V | JB155 | I 290 WB OB - J WALL RACINE AVE (JUST EAST OF) | CO | V-1 | ON |
| 237 | V | JB160 | I 290 WB OB - J WALL RACINE AVE (WEST OF) | CO | V-1 | ON |
| 238 | V | JB165 | I 290 WB OB - J WALL THROOP ST (EAST OF) | CO | V-1 | ON |

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|-----|---|-------|---|----|-----|----|
| 239 | V | JB170 | I 290 WB OB - J WALL LOOMIS ST (WEST OF) | CO | V-1 | ON |
| 240 | V | JB175 | I 290 WB OB - J WALL ASHLAND AVE (WEST OF) | CO | V-1 | ON |
| 241 | V | JB180 | I 290 WB OB - J WALL OGDEN AVE (EAST OF) | CO | V-1 | ON |
| 242 | V | JB185 | I 290 WB OB - J WALL OGDEN AVE (WEST OF) | CO | V-1 | ON |
| 243 | V | JB190 | I 290 WB OB - J WALL WESTERN AVE (EAST OF) | CO | V-1 | ON |
| 244 | V | JB195 | I 290 WB OB - J WALL WESTERN AVE (WEST OF) | CO | V-1 | ON |
| 245 | V | JB200 | I 290 WB OB - J WALL CALIFORNIA AVE (EAST OF) | CO | V-1 | ON |
| 246 | V | JB205 | I 290 WB OB - J WALL SACRANEBTO AVE (WEST OF) | CO | V-1 | ON |
| 247 | V | JB210 | I 290 WB OB - J WALL KEDZIE AVE (WEST OF) | CO | V-1 | ON |
| 248 | V | JB215 | I 290 WB OB - J WALL CENTRAL PARK AVE(EAST OF) | CO | V-1 | ON |
| 249 | V | JB220 | I 290 WB OB - J WALL INDEPENDENCE BLVD (EAST OF) | CO | V-1 | ON |
| 250 | V | JB225 | I 290 WB OB - J WALL | CO | | ON |

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| | | | SPRINGFIELD AVE (EAST OF) | | V-1 |
|-----|---|-------|---|----|-----|
| 251 | V | JB230 | I 290 WB OB - J WALL PULASKI RD (EAST OF) | CO | ON |
| | | | | | V-1 |
| 252 | V | JB235 | I 290 WB OB - J WALL KEELER AVE (EAST OF) | CO | ON |
| | | | | | V-1 |
| 253 | V | JB240 | I 290 WB OB - J WALL KOSTNER AVE (EAST OF) | CO | ON |
| | | | | | V-1 |
| 254 | V | JB245 | I 290 WB OB - J WALL KOLMAR AVE (WEST OF) | CO | ON |
| | | | | | V-1 |
| 255 | V | JB250 | I 290 WB OB - J WALL CICERO AVE (JUST WEST OF) | CO | ON |
| | | | | | V-1 |
| 256 | V | JB255 | I 290 WB OB - J WALL CICERO AVE (WEST OF) | CO | ON |
| | | | | | V-1 |
| 257 | V | JB260 | I 290 WB OB - J WALL LARAMIE AVE (WEST OF) | CO | ON |
| | | | | | V-1 |
| 258 | V | JB265 | I 290 WB OB - J WALL CENTRAL AVE (EAST OF) | CO | ON |
| | | | | | V-1 |
| 259 | V | JB270 | I 290 WB OB - J WALL CENTRAL AVE (WEST OF) | CO | ON |
| | | | | | V-1 |
| 260 | V | JB275 | I 290 WB OB - J WALL LOMBARD AVE (WEST OF) | CO | ON |
| | | | | | V-1 |
| 261 | V | JB280 | I 290 WB OB - J WALL RIDGELAND AVE (JUST EAST) | CO | ON |
| | | | | | V-1 |

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| | | | | | | |
|-----|---|-------|---|----|-----|----|
| 262 | V | JB285 | I 290 WB OB - J WALL EAST AVE (JUST WEST) | CO | | ON |
| | | | | | V-1 | |
| 263 | V | JB290 | I 290 WB OB - J WALL OAK PARK AVE (EAST OF) | CO | | ON |
| | | | | | V-1 | |
| 264 | V | JB295 | I 290 WB OB - J WALL CIRCLE AVE (WEST OF) | CO | | ON |
| | | | | | V-1 | |
| 265 | V | JB300 | I 290 WB OB - J WALL DESPLAINES AVE (EAST OF) | CO | | ON |
| | | | | | V-1 | |
| 266 | V | JB305 | I 290 WB OB - J WALL US 45 MANNHEIM (WEST OF) | CO | | ON |
| | | | | | V-1 | |
| 267 | V | JB310 | I 290 WB OB - J WALL BUTTERFIELD RD (EAST OF) | CO | | ON |
| | | | | | V-1 | |
| 268 | V | JB315 | I 290 WB OB - J WALL BUTTERFIELD RD (WEST OF) | CO | | ON |
| | | | | | V-1 | |
| 269 | V | JB320 | I 290 WB OB - J WALL 294 OVERPASS (MIDDLE TOP OF J WALL) | CO | | ON |
| | | | | | V-1 | |
| 270 | V | JB325 | I 290 WB OB - J WALL ST CHARLES RD (SOUTHEAST OF) | CO | | ON |
| | | | | | V-1 | |
| 271 | V | JB330 | I 290 WB OB - J WALL ST CHARLES RD (NORTHWEST OF) | CO | | ON |
| | | | | | V-1 | |
| 272 | V | JB335 | I 290 WB OB - J WALL NORTH AVE (NORTHWEST OF) | DU | | ON |
| | | | | | V-1 | |
| 273 | V | JB340 | I 290 WB OB - J WALL 294 EXT RAMP TO WB LAKE ST (NW OF) | DU | | ON |
| | | | | | V-1 | |

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| | | | | | | |
|-----|---|-------|--|----|-----|----|
| 274 | V | JB345 | I 290 WB OB - J WALL BELDEN AVE | DU | V-1 | ON |
| 275 | V | JB350 | I 290 WB OB - J WALL IL 83 (JUST WEST OF) | DU | V-1 | ON |
| 276 | V | JB355 | I 290 WB OB - J WALL IL 83 (WEST OF) | DU | V-1 | ON |
| 277 | V | JB360 | I 290 WB OB - J WALL IL 83 EXIT RAMP (SOUTHEST OF) | DU | V-1 | ON |
| 278 | V | JB365 | I 290 WB OB - J WALL VILLA AVE (EAST OF) | DU | V-1 | ON |
| 279 | V | JB370 | I 290 WB OB - J WALL VILLA AVE (JUST EAST OF) | DU | V-1 | ON |
| 280 | V | JB375 | I 290 WB OB - J WALL VILLA AVE (NORTHWEST OF) | DU | V-1 | ON |
| 281 | V | JB380 | I 290 WB OB - J WALL VILLA AVE (NW OF @ OVERKAMP AVE) | DU | V-1 | ON |
| 282 | V | JB385 | I 290 WB OB - J WALL NORDIC RD (NORTH OF) | DU | V-1 | ON |
| 283 | V | JB390 | I 290 WB OB - J WALL IRVING PARK RD (SOUTH OF) | DU | V-1 | ON |
| 284 | V | JB395 | I 290 WB OB - J WALL IRVING PARK RD (JUST SOUTH OF) | DU | V-1 | ON |
| 285 | V | JB400 | I 290 WB OB - J WALL | DU | | ON |

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| | | | | | | |
|-----|---|-------|--|----|-----|----|
| | | | IRVING PARK RD (JUST NORTH OF) | | V-1 | |
| 286 | V | JB405 | I 290 WB OB - J WALL IRVING PARK RD (NORTH OF) | DU | | ON |
| | | | | | V-1 | |
| 287 | V | JB410 | I 290 WB OB - J WALL EXT RAMP TO 390 (JUST NORTH OF) | DU | | ON |
| | | | | | V-1 | |
| 288 | V | JB415 | I 290 WB OB - J WALL IL 390 (SOUTH OF) | DU | | ON |
| | | | | | V-1 | |
| 289 | V | JB505 | I 290 EB (IB) - J WALL 355 TLWY MERGE (SOUTH OF) | DU | | ON |
| | | | | | V-1 | |
| 290 | V | JB510 | I 290 EB (IB) - J WALL 355/I 290 ENT RAMP (SOUTH OF) | DU | | ON |
| | | | | | V-1 | |
| 291 | V | JB515 | I 290 EB (IB) - J WALL MILL RD (NORTHWEST OF) | DU | | ON |
| | | | | | V-1 | |
| 292 | V | JB520 | I 290 EB (IB) - J WALL MILL RD (JUST WEST OF) | DU | | ON |
| | | | | | V-1 | |
| 293 | V | JB525 | I 290 EB (IB) - J WALL MILL RD (JUST EAST OF) | DU | | ON |
| | | | | | V-1 | |
| 294 | V | JB530 | I 290 EB (IB) - J WALL MILL RD (SOUTHEAST OF) | DU | | ON |
| | | | | | V-1 | |
| 295 | V | JB535 | I 290 EB (IB) - J WALL ADDISON RD (NORTHWEST OF) | DU | | ON |
| | | | | | V-1 | |
| 296 | V | JB540 | I 290 EB (IB) - J WALL ADDISON RD (NW OF @ SCHOOL ST) | DU | | ON |
| | | | | | V-1 | |

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|-----|---|-------|---|----|-----|----|
| 297 | V | JB545 | I 290 EB (IB) - J WALL ADDISON RD (JUST NORTHWEST OF) | DU | V-1 | ON |
| 298 | V | JB550 | I 290 EB (IB) - J WALL ADDISON RD (JUST NORTH OF) | DU | V-1 | ON |
| 299 | V | JB555 | I 290 EB (IB) - J WALL ADDISON RD (SOUTHEAST OF SALT CREEK) | DU | V-1 | ON |
| 300 | V | JB560 | I 290 EB (IB) - J WALL ADDISON RD (SE OF @ STONE AVE) | DU | V-1 | ON |
| 301 | V | JB565 | I 290 EB (IB) - J WALL WOOD DALE RD (NORTHWEST OF) | DU | V-1 | ON |
| 302 | V | JB570 | I 290 EB (IB) - J WALL IL 83 (EAST OF) | DU | V-1 | ON |
| 303 | V | JB575 | I 290 EB (IB) - J WALL GRAND AVE (JUST EAST OF) | DU | V-1 | ON |
| 304 | V | JB580 | I 290 EB (IB) - J WALL GRAND AVE (EAST OF) | DU | V-1 | ON |
| 305 | V | JB585 | I 290 EB (IB) - J WALL CHURCH RD (JUST WEST OF) | DU | V-1 | ON |
| 306 | V | JB590 | I 290 EB (IB) - J WALL CHURCH RD (JUST SOUTHEAST OF) | DU | V-1 | ON |
| 307 | V | JB595 | I 290 EB (IB) - J WALL CHURCH RD (SOUTHEAST OF) | DU | V-1 | ON |
| 308 | V | JB600 | I 290 EB (IB) - J WALL LAKE ST CRESTVIEW RAMPS (NW OF) | DU | V-1 | ON |

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|-----|---|-------|--|----|-----|----|
| 309 | V | JB605 | I 290 EB (IB) - J WALL LAKE ST OVRPSS RMP (JUST NORTH OF) | DU | V-1 | ON |
| 310 | V | JB610 | I 290 EB (IB) - J WALL LAKE ST OVRPSS RMP (JUST SOUTH OF) | DU | V-1 | ON |
| 311 | V | JB615 | I 290 EB (IB) - J WALL LAKE ST OVRPSS RMP (SOUTH OF) | DU | V-1 | ON |
| 312 | V | JB620 | I 290 EB (IB) - J WALL YORK ST (JUST SOUTHWEST OF) | DU | V-1 | ON |
| 313 | V | JB625 | I 290 EB (IB) - J WALL YORK ST (EAST OF) | DU | V-1 | ON |
| 314 | V | JB630 | I 290 EB (IB) - J WALL EMROY AVE (WEST OF) | DU | V-1 | ON |
| 315 | V | JB635 | I 290 EB (IB) - J WALL EMROY ST (JUST WEST OF) | DU | V-1 | ON |
| 316 | V | JB640 | I 290 EB (IB) - J WALL EMROY AVE (JUST EAST OF) | DU | V-1 | ON |
| 317 | V | JB645 | I 290 EB (IB) - J WALL NORTH AVE (NORTHWEST OF) | DU | V-1 | ON |
| 318 | V | JB650 | I 290 EB (IB) - J WALL NORTH AVE (JUST NORTHWEST OF) | DU | V-1 | ON |
| 319 | V | JB655 | I 290 EB (IB) - J WALL NORTH AVE (JUST SOUTH OF) | DU | V-1 | ON |
| 320 | V | JB660 | I 290 EB (IB) - J WALL | DU | | ON |

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|-----|---|-------|--|----|-----|----|
| | | | NORTH AVE (SOUTH OF) | | V-1 | |
| 321 | V | JB665 | I 290 EB (IB) - J WALL NORTH AVE (SOUTH OF B4 RR TRACKS) | DU | | ON |
| 322 | V | JB670 | I 290 EB (IB) - J WALL ST CHARLES RD (NORTH OF) | CO | V-1 | ON |
| 323 | V | JB675 | I 290 EB (IB) - J WALL ST CHARLES RD (JUST NORTH OF) | CO | V-1 | ON |
| 324 | V | JB680 | I 290 EB (IB) - J WALL ST CHARLES RD (JUST SOUTH OF) | CO | V-1 | ON |
| 325 | V | JB685 | I 290 EB (IB) - J WALL ST CHARLES RD (SOUTH OF) | CO | V-1 | ON |
| 326 | V | JB690 | I 290 EB (IB) - J WALL 294 INTERCHANGE (NORTH OF) | CO | V-1 | ON |
| 327 | V | JB695 | I 290 EB (IB) - J WALL 294 INTERCHANGE (CENTER) | CO | V-1 | ON |
| 328 | V | JB700 | I 290 EB (IB) - J WALL BUTTERFIELD RD (NORTHWEST OF) | CO | V-1 | ON |
| 329 | V | JB705 | I 290 EB (IB) - J WALL BUTTERFIELD RD (JUST SOUTHWEST OF) | CO | V-1 | ON |
| 330 | V | JB710 | I 290 EB (IB) - J WALL BUTTERFIELD RD (SOUTHWEST OF) | CO | V-1 | ON |
| 331 | V | JB715 | I 290 EB (IB) - J WALL WOLF RD (WEST OF) | CO | V-1 | ON |

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| 332 | V | JB720 | I 290 EB (IB) - J WALL WOLF RD (JUST WEST OF) | CO | | ON |
| | | | | | V-1 | |
| 333 | V | JB725 | I 290 EB (IB) - J WALL HILLSIDE DR (SOUTHEAST OF) | CO | | ON |
| | | | | | V-1 | |
| 334 | V | JB730 | I 290 EB (IB) - J WALL HILLSIDE DR (SE OF @ MAPLE AVE) | CO | | ON |
| | | | | | V-1 | |
| 335 | V | JB735 | I 290 EB (IB) - J WALL US 45 MANNHEIM (WEST OF @ ORCHARD) | CO | | ON |
| | | | | | V-1 | |
| 336 | V | JB740 | I 290 EB (IB) - J WALL US 45 MANNHEIM (JUST WEST) | CO | | ON |
| | | | | | V-1 | |
| 337 | V | JB745 | I 290 EB (IB) - J WALL US 45 MANNHEIM (JUST EAST) | CO | | ON |
| | | | | | V-1 | |
| 338 | V | JB750 | I 290 EB (IB) - J WALL BELLWOOD/WEST CHESTER BLVD (W OF) | CO | | ON |
| | | | | | V-1 | |
| 339 | V | JB755 | I 290 EB (IB) - J WALL BELLWOOD/WEST CHESTER BLVD (W OF) | CO | | ON |
| | | | | | V-1 | |
| 340 | V | JB760 | I 290 EB (IB) - J WALL CERNAN DR GARDNER RD (WEST OF) | CO | | ON |
| | | | | | V-1 | |
| 341 | V | JB765 | I 290 EB (IB) - J WALL 25TH AVE (EST OF) @ 21ST AVE | CO | | ON |
| | | | | | V-1 | |
| 342 | V | JB770 | I 290 EB (IB) - J WALL 25TH AVE (EAST OF) AT 20TH AVE | CO | | ON |
| | | | | | V-1 | |
| 343 | V | JB775 | I 290 EB (IB) - J WALL 17TH AVE (EAST OF) | CO | | ON |
| | | | | | V-1 | |

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| 344 | V | JB780 | I 290 EB (IB) - J WALL 9TH AVE (EAST OF) | CO | V-1 | ON |
| 345 | V | JB785 | I 290 EB (IB) - J WALL 1ST AVE (WEST AVE) | CO | V-1 | ON |
| 346 | V | JB790 | I 290 EB (IB) - J WALL 1ST AVE (JUST EAST OF) | CO | V-1 | ON |
| 347 | V | JB795 | I 290 EB (IB) - J WALL 1ST AVE (EAST AVE) | CO | V-1 | ON |
| 348 | V | JB800 | I 290 EB (IB) - J WALL DES PLAINES AVE (WEST OF) | CO | V-1 | ON |
| 349 | V | JB805 | I 290 EB (IB) - J WALL DES PLAINES AVE (JUST WEST OF) | CO | V-1 | ON |
| 350 | V | JB810 | I 290 EB (IB) - J WALL HARLEM AVE (WEST OF) | CO | V-1 | ON |
| 351 | V | JB815 | I 290 EB (IB) - J WALL HARLEM AVE (JUST EAST OF) | CO | V-1 | ON |
| 352 | V | JB820 | I 290 EB (IB) - J WALL HARLEM AVE (EAST OF) 2 JBS | CO | V-1 | ON |
| 353 | V | JB825 | I 290 EB (IB) - J WALL AUSTIN AVE (WEST OF) | CO | V-1 | ON |
| 354 | V | JB830 | I 290 EB (IB) - J WALL CENTRAL AVE (WEST OF) | CO | V-1 | ON |
| 355 | V | JB835 | I 290 EB (IB) - J WALL | CO | | ON |

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| | | | CENTRAL AVE (EAST OF) | | V-1 | |
| 356 | V | JB840 | I 290 EB (IB) - J WALL LARAMIE AVE (EAST OF) | CO | V-1 | ON |
| 357 | V | JB845 | I 290 EB (IB) - J WALL LAVERGNE AVE (WEST OF) | CO | V-1 | ON |
| 358 | V | JB850 | I 290 EB (IB) - J WALL CICERO AVE (JUST WEST OF) | CO | V-1 | ON |
| 359 | V | JB855 | I 290 EB (IB) - J WALL CICERO AVE (EAST OF RR TRACKS) | CO | V-1 | ON |
| 360 | V | JB860 | I 290 EB (IB) - J WALL KOSTNER AVE | CO | V-1 | ON |
| 361 | V | JB865 | I 290 EB (IB) - J WALL KILDARE AVE (WEST OF) | CO | V-1 | ON |
| 362 | V | JB870 | I 290 EB (IB) - J WALL KEELER AVE (WEST OF) | CO | V-1 | ON |
| 363 | V | JB875 | I 290 EB (IB) - J WALL PULASKI RD (EAST OF) | CO | V-1 | ON |
| 364 | V | JB880 | I 290 EB (IB) - J WALL ALBANY AVE (EAST OF) | CO | V-1 | ON |
| 365 | V | JB885 | I 290 EB (IB) - J WALL SACRAMENTO BLVD (JUST WEST) | CO | V-1 | ON |
| 366 | V | JB890 | I 290 EB (IB) - J WALL CALIFORNIA AVE (JUST EAST) | CO | V-1 | ON |

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| 367 | V | JB895 | I 290 EB (IB) - J WALL WASHTENAW AVE | CO | ON | V-1 |
| 368 | V | JB900 | I 290 EB (IB) - J WALL MAPLEWOOD AVE (JUST E OF WALK OVER) | CO | ON | V-1 |
| 369 | V | JB905 | I 290 EB (IB) - J WALL LEAVITT ST (WEST OF) | CO | ON | V-1 |
| 370 | V | JB910 | I 290 EB (IB) - J WALL LEAVITT ST (EAST OF) | CO | ON | V-1 |
| 371 | V | JB915 | I 290 EB (IB) - J WALL OGDEN AVE (WEST OF) | CO | ON | V-1 |
| 372 | V | JB920 | I 290 EB (IB) - J WALL PAULINA ST (EAST OF) | CO | ON | V-1 |
| 373 | V | JB925 | I 290 EB (IB) - J WALL ASHLAND AVE (WEST OF) | CO | ON | V-1 |
| 374 | V | JB930 | I 290 EB (IB) - J WALL LOOMIS ST (WEST OF) | CO | ON | V-1 |
| 375 | V | JB935 | I 290 EB (IB) - J WALL LOOMIS ST (EAST OF) | CO | ON | V-1 |
| 376 | V | JB940 | I 290 EB (IB) - J WALL RACINE AVE (JUST WEST OF) | CO | ON | V-1 |
| 377 | V | JB945 | I 290 EB (IB) - J WALL RACINE AVE (JUST EAST OF) | CO | ON | V-1 |
| 378 | V | JB950 | I 290 EB (IB) - J WALL MORGAN ST (WEST OF) | CO | ON | V-1 |

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| | | | | | | |
|-----|---|--------|---|----|-----|----|
| 379 | V | JB955 | I 290 EB (IB) - J WALL MORGAN ST (JUST WEST OF) | CO | V-1 | ON |
| 380 | V | JB960 | I 290 EB (IB) - J WALL MORGAN ST (JUST EAST OF) | CO | V-1 | ON |
| 381 | V | JB965 | I 290 EB (IB) - J WALL PEORIA ST (JUST WEST OF) | CO | V-1 | ON |
| 382 | V | JB975 | I 290 EB (IB) - J WALL PEORIA ST (EAST OF) | CO | V-1 | ON |
| 383 | V | JB980 | I 290 EB (IB) - J WALL HALSTED ST (JUST WEST OF) | CO | V-1 | ON |
| 384 | V | JB985 | I 290 EB (IB) - J WALL HALSTED ST (UNDER BRIDGE) | CO | V-1 | ON |
| 385 | V | JB990 | I 290 EB (IB) - J WALL HALSTED ST (EAST OF) | CO | V-1 | ON |
| 386 | V | JB1100 | I 290 EB (IB) - J WALL I 294 RAMP OVERPASS | CO | V-1 | ON |
| 387 | V | JB1105 | I 290 EB (IB) - J WALL I 294 RAMP OVERPASS (EAST OF) | CO | V-1 | ON |
| 388 | V | JB1110 | I 290 EB (IB) - J WALL I 294 (EAST OF) | CO | V-1 | ON |
| 389 | V | JB1115 | I 290 EB (IB) - J WALL WILLOW SPRINGS RD (WEST OF) | CO | V-1 | ON |
| 390 | V | JB1120 | I 290 EB (IB) - J WALL | CO | | ON |

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|-----|---|--------|---|----|-----|----|
| | | | WILLOW SPRINGS RD 9JUST EAST OF) | | V-1 | |
| 391 | V | JB1125 | I 290 EB (IB) - J WALL WILLOW SPRINGS RD (EAST OF) | CO | | ON |
| | | | | | V-1 | |
| 392 | V | JB1130 | I 290 EB (IB) - J WALL I 294 NB ENT RAMP | CO | | ON |
| | | | | | V-1 | |
| 393 | V | JB1135 | I 290 EB (IB) - J WALL I 294 NB ENT RAMP (EAST OF) | CO | | ON |
| | | | | | V-1 | |
| 394 | V | JB1140 | I 290 EB (IB) - J WALL US 45 LAGRANGE RD (WEST OF) | CO | | ON |
| | | | | | V-1 | |
| 395 | V | JB1145 | I 290 EB (IB) - J WALL US 45 LAGRANGE RD (JUST WEST) | CO | | ON |
| | | | | | V-1 | |
| 396 | V | JB1150 | I 290 EB (IB) - J WALL US 45 LAGRANGE RD (EAST OF) | CO | | ON |
| | | | | | V-1 | |
| 397 | V | JB1155 | I 290 EB (IB) - J WALL SANTA FE DR (SOUTHWEST OF) | CO | | ON |
| | | | | | V-1 | |
| 398 | V | JB1160 | I 290 EB (IB) - J WALL SANTA FE DR (NORTHEAST OF) | CO | | ON |
| | | | | | V-1 | |
| 399 | V | JB1165 | I 290 EB (IB) - J WALL DES PLAINES RIVER (NE OF) | CO | | ON |
| | | | | | V-1 | |
| 400 | V | JB1170 | I 290 EB (IB) - J WALL 67TH ST | CO | | ON |
| | | | | | V-1 | |
| 401 | V | JB1175 | I 290 EB (IB) - J WALL 67TH ST (NE OF) | CO | | ON |
| | | | | | V-1 | |

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|-----|---|--------|---|----|-----|-----|
| 402 | V | JB1180 | I 290 EB (IB) - J WALL 67TH ST (NE OF PAST SIGN) | CO | | ON |
| | | | | | V-1 | |
| 403 | V | JBO | JOLIET BRIDGE OFFICE @ 105 BRIDGE ST | WI | | ON |
| | | | | | V-1 | |
| 404 | V | JEFF | JOLIET MOVEABLE BRIDGE @ JEFFERSON ST | WI | | OFF |
| | | | | | V-1 | |
| 405 | V | JOLY | JOLIET YARD @ CATON FARM RD & IL 53 | WI | | ON |
| | | | | | V-1 | |
| 406 | V | JRTC | ILLINOIS THOMPSON CENTER @ 100 W RANDOLPH ST CHICAGO LL201 | CO | | ON |
| | | | | | V-1 | |
| 407 | V | KENN | I 90 IB @ NAGLE AVE | CO | | ON |
| | | | | | V-1 | |
| 408 | V | KENY | KENNEDY YARD @ 5027 N CENTRAL AVE | CO | | ON |
| | | | | | V-1 | |
| 409 | V | LANY | LANDSCAPE YARD @ 1260 W AUGUSTA BLVD | CO | | ON |
| | | | | | V-1 | |
| 410 | V | LZSS | LAKE ZURICH SIGN SHOP @ 700 S ELA RD | LA | | ON |
| | | | | | V-1 | |
| 411 | V | MAT | IDOT MATERIAL LAB @ 101 CENTER CT SCHAUMBURG | CO | | ON |
| | | | | | V-1 | |
| 412 | V | MCDN | JOLIET MOVEABLE BRIDGE @ MCDONOUGH ST | WI | | OFF |
| | | | | | V-1 | |
| 413 | V | MSY | MONEE STORAGE YD @ IL 50 & US 6 MONEE | WI | | ON |
| | | | | | V-1 | |

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|-----|---|------|---|----|-----|-----|
| 414 | V | NAPY | NAPERVILLE YARD @ 28 W 731 OGDEN AVE | DU | | ON |
| | | | | | V-1 | |
| 415 | V | NBY | NORTHBROOK YARD @ 1916 TECHN Y RD | CO | | ON |
| | | | | | V-1 | |
| 416 | V | NLSS | NEW LENOX SIGN SHOP @ I 80 & US 30 | WI | | ON |
| | | | | | V-1 | |
| 417 | V | NLY | NEW LENOX YARD @ I 80 & US 30 | WI | | ON |
| | | | | | V-1 | |
| 418 | V | NSSS | NORTHSIDE SIGN SHOP @ 7151 FOREST PRESERVE DR | CO | | ON |
| | | | | | V-1 | |
| 419 | V | NSY | NORTHSIDE YARD @ 4051 N HARLEM AVE | CO | | ON |
| | | | | | V-1 | |
| 420 | V | OAKY | OAKBROOK YARD @ 17 W 125 BUTTERFIELD RD | DU | | ON |
| | | | | | V-1 | |
| 421 | V | R1 | IL 38 RACS MESSAGE SIGN R1 @ YORK RD (WEST OF) | DU | | OFF |
| | | | | | V-1 | |
| 422 | V | R3 | IL 38 RACS MESSAGE SIGN R3 @ I 88 (WEST OF) | DU | | OFF |
| | | | | | V-1 | |
| 423 | V | R4 | IL 38 RACS MESSAGE SIGN R4 @ I 88 (EAST OF) | DU | | ON |
| | | | | | V-1 | |
| 424 | V | RODY | RODENBURG YARD LTG/COM-C @ 1480 RODENBURG RD | CO | | ON |
| | | | | | V-1 | |
| 425 | V | RUBY | JOLIET MOVEABLE BRIDGE @ RUBY ST | WI | | OFF |
| | | | | | V-1 | |

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|-----|---|------|---|-----|--|-----|-----|
| 426 | V | RWIS | REGIONAL WEATHER INFO STATIONS @ VARIOUS | VAR | | RM | ON |
| 427 | V | RYAN | I 90 94 IB @ 159TH ST | CO | | V-1 | ON |
| 428 | V | SPS | SHALES PKWY STORAGE @ 525 SHALES PKWY ELGIN | KA | | V-1 | ON |
| 429 | V | SSSS | SOUTHSIDE SIGN SHOP @ 15940 PULASKI RD | CO | | V-1 | ON |
| 430 | V | STCY | ST CHARLES YARD @ 38 W 027 IL 38 | KA | | V-1 | ON |
| 431 | V | STY | STEVENSON YARD @ JOLIET RD & 1ST AVE | CO | | V-1 | OFF |
| 432 | V | TOLL | ILLINOIS TOLLWAY AUTHORITY @ VARIOUS PLAZAS | VAR | | V-1 | ON |
| 433 | V | UIC | UNIV OF IL CIRCLE CAMPUS @ 1140 S PAULINA ST CHICAGO | CO | | V-1 | ON |
| 434 | V | V1 | IL 38 RACS CHEVRON V1 @ I 88 (EAST OF) | DU | | V-1 | ON |
| 435 | V | V2 | IL 38 RACS CHEVRON V2 @ I 88 (EAST OF) | DU | | V-1 | ON |
| 436 | V | V3 | IL 38 RACS CHEVRON V3 @ I 88 (EAST OF) | DU | | V-1 | ON |
| 437 | V | V4 | IL 38 RACS CHEVRON V4 @ | DU | | | ON |

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|-----|---|-----|---|----|-----|----|
| | | | I 88 (EAST OF) | | V-1 | |
| 438 | V | V5 | IL 38 RACS CHEVRON V5 @ I 88 (EAST OF) | DU | | ON |
| | | | | | V-1 | |
| 439 | V | V6 | IL 38 RACS CHEVRON V6 @ I 88 (EAST OF) | DU | | ON |
| | | | | | V-1 | |
| 440 | V | WDY | WOODSTOCK YARD LTG @ 11916 CATALPA LANE | MC | | ON |
| | | | | | V-1 | |

REVISIONS TO THE ILLINOIS PREVAILING WAGE RATES

The Prevailing rates of wages are included in the Contract proposals which are subject to Check Sheet #5 of the Supplemental Specifications and Recurring Special Provisions. The rates have been ascertained and certified by the Illinois Department of Labor for the locality in which the work is to be performed and for each craft or type of work or mechanic needed to execute the work of the Contract. As required by Prevailing Wage Act (820 ILCS 130/0.01, et seq.) and Check Sheet #5 of the Contract, not less than the rates of wages ascertained by the Illinois Department of Labor and as revised during the performance of a Contract shall be paid to all laborers, workers and mechanics performing work under the Contract. Post the scale of wages in a prominent and easily accessible place at the site of work.

If the Illinois Department of Labor revises the prevailing rates of wages to be paid as listed in the specification of rates, the contractor shall post the revised rates of wages and shall pay not less than the revised rates of wages. Current wage rate information shall be obtained by visiting the Illinois Department of Labor web site at <http://www.state.il.us/agency/idol/> or by calling 312-793-2814. It is the responsibility of the contractor to review the rates applicable to the work of the contract at regular intervals in order to insure the timely payment of current rates. Provision of this information to the contractor by means of the Illinois Department of Labor web site satisfies the notification of revisions by the Department to the contractor pursuant to the Act, and the contractor agrees that no additional notice is required. The contractor shall notify each of its subcontractors of the revised rates of wages.