

Traffic Operations

### **APPROVED PRODUCTS LIST**

TRAFFIC SIGNALS, HIGHWAY LIGHTING, AND HIGHWAY SIGNING EQUIPMENT

#### TRAFFIC SIGNALS AND HIGHWAY LIGHTING EQUIPMENT

#### I. GENERAL

This Approved Products List (APL) is based on equipment meeting department specifications and being tested for the specified test period with satisfactory performance. All models shall conform to the latest revision of the Missouri Standard Specifications for Highway Construction unless otherwise indicated. The models indicated on the list are approved, but are subject to final field inspection before acceptance.

The department frequently tests new products and equipment for traffic signals and highway lighting. These new products may be installed on a construction project, purchased on parts orders or with controller orders. Vendors may also submit a device, at no cost to the department, for the test period. MoDOT will determine the methods and needs of the product for test. Only a limited number of units will be accepted for test statewide until an item is added to the Approved Products List. A vendor wishing to initiate a test on a new product shall submit a Product Evaluation Request Form - Signal and Lighting Equipment. Copies of this form can be obtained from our website at <a href="https://www.modot.state.mo.us">www.modot.state.mo.us</a> or contact MoDOT Traffic Operations. Minor model changes do not require an evaluation period; however the vendor shall submit specification sheets and a sample of the product for the Department to inspect.

All equipment evaluations are coordinated through MoDOT Traffic Operations. The vendor supplying the equipment shall provide equipment specifications and a certification that the equipment meets department specifications before the test is performed. The equipment is tested for the period specified in the APL. Products not performing satisfactorily or falls below established standards will be replaced with an approved product if the vendor cannot provide timely correction of the problem or if unsatisfactory operation of the intersection results.

If a vendor is proposing a product that does not meet department specifications, an explanation of why the product meets or exceeds the current specifications must be provided by the vendor in writing to Traffic Operations. If approved, the product may be tested for the specified period noted in the APL. If the product is satisfactory, the Department will consider a revision to the applicable specifications. Any modification to the device must be reviewed and approved by MoDOT prior to sale/use of the modified device. Products will not be added to the Approved Products List that does not meet department specifications.

Products on the APL shall continue to perform satisfactorily. In addition, the vendors shall support the products. Products not performing as required or not supported are subject to removal from the APL.

Grounds for removal of products include, but limited to:

Significant change in product specifications or design without notification to the department.

Failure to correct or replace products that are defective in manufacturing or workmanship.

Repeated patterns of malfunctions of a product not adequately corrected by the vendor.

Unreasonable pricing of repair parts or repair work. Repair work not completed in a reasonable time frame.

Excessive delivery times for new purchases or replacement parts.

Changes in standard specifications may also necessitate removal of specific products from the APL. If this occurs, there will be a grace period where the product will be retained on the list after the specifications are changed. However, the product will be removed from the list if it is not revised to meet specifications.

#### **II. TRAFFIC SIGNAL EQUIPMENT**

All traffic signal equipment requires a one-year evaluation period.

#### **CONTROLLERS**

NEMA TS1 CONTROLLERS	MODEL
Econolite Econolite Intelight. Intelight Intelight Intelight Intelight Signers	Cobalt Series X-1 X1L X-2 X-3 Series 980
NEMA ON-STREET MASTER CONTROLLER	MODEL
Econolite	ASC/2M EPAC M52 with SEMARC
SOLID STATE PRETIMED CONTROLLERS (ALL TYPES) No currently accepted models.	MODEL
170 CONTROLLERS	MODEL
McCain	170E

#### CABINETS AND BACK PANELS (NEMA & S.S. PRETIMED)

NOTE: Cabinets and Back panels that meet MoDOT specifications from the following manufacturers will be accepted. ALL other manufacturers must provide a model that meets specifications and complete a satisfactory one-year evaluation as described above to be added to the list.

#### **NEMA CABINET AND BACK PANEL ASSEMBLIES**

Control Technology Econolite Henke/Bison IDC/Gibbons Naztec P-44 Eagle

#### SOLID STATE PRETIMED CABINET AND BACK PANEL ASSEMBLIES

Eagle

#### CABINETS AND RACKS (TYPE 170 CONTROLLERS)

NOTE: Cabinets and Racks that meet MoDOT specifications from the following manufacturers will be

accepted. ALL other manufacturers must provide a model that meets specifications and complete a satisfactory one-year evaluation as described above to be added to the list.

#### 332 AND 336S CABINET AND RACK ASSEMBLIES

McCain Phillips/Sisson Industries, Inc. Safetran Eagle

#### **CONFLICT MONITORS**

NEMA CONFLICT MONITORS MODEL	
Eberle Design Incorporated (EDI)NSM-6E	
Eberle Design Incorporated (EDI)NSM-12E	
Eberle Design Incorporated (EDI)SSM-12LE	
Eberle Design Incorporated (EDI)MMU-16E	
Eberle Design Incorporated (EDI)MMU2-16L	_E
Naztec, IncorporatedNM512	
Power Distribution & Control (PDC)	
Power Distribution & Control (PDC)	
Power Distribution & Control (PDC)	
Reno A&EMMU-1600	) Series
Solid State DevicesNM-6	
Solid State DevicesNM-12	
Solid State DevicesLCD-6P	
Solid State DevicesLCD-12P	
170 CONFLICT MONITORS MODEL	
Eberle Design Incorporated (EDI)210E	
Reno A & E2018	
Solid State Devices	

#### **CABINET ACCESSORIES**

AUXILIARY TIME CLOCK	MODEL
Eltec	TC-14
EXTERNAL T.B.C. COORDINATORS	MODEL
Eltec	TC-14
FLASHERS (NEMA & 170)	MODEL
Eberle Design Incorporated (EDI)	SSF-86

Reno A & E	FL-200
Traffic Sensor Corp	
Traffic Sensor Corp	204-15
Traffic Sensor Corp	304
Traffic Sensor Corp	
Traine Corlosi Corp	
FLASH TRANSFER RELAYS	MODEL
AMECO	126 4062
Struthers-Dunn	
Mid-Tex	
Power Distribution & Control (PDC)	FTR 91
Reno	TR-200
LOAD SWITCHES	MODEL
	WODEL
(NEMA & 170)	
Eberle Design Incorporated (EDI)	510
Power Distribution & Control (PDC)	SSS-86
Power Distribution & Control (PDC)	
Reno A & E	
Traffic Sensor Corp	
Traffic Sensor Corp	200-15
Traffic Sensor Corp	300
Traffic Sensor Corp	
Traine ochsor oorp	
ISOLATORS (170 only)	MODEL
ISOLATORS (170 only) (242=DC, 252=AC)	MODEL
(242=DC, 252=AC)	
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(242=DC, 252=AC)	242
(242=DC, 252=AC)  Eberle Design Incorporated	242 242
(242=DC, 252=AC)  Eberle Design Incorporated	242 242 252
(242=DC, 252=AC)  Eberle Design Incorporated	242 242 252 242
(242=DC, 252=AC)  Eberle Design Incorporated	242 242 252 242 252
(242=DC, 252=AC)  Eberle Design Incorporated  GDI	242 242 252 242 252 242 = DC (2 Channel)
(242=DC, 252=AC)  Eberle Design Incorporated	242 242 252 242 252 242 = DC (2 Channel)
(242=DC, 252=AC)  Eberle Design Incorporated  GDI	242 242 252 242 252 242 = DC (2 Channel) 242
(242=DC, 252=AC)  Eberle Design Incorporated GDI	242 242 252 242 252 242 = DC (2 Channel) 242
(242=DC, 252=AC)  Eberle Design Incorporated GDI GDI Power Distribution & Control (PDC) Power Distribution & Control (PDC) RENO A&E Safetran Safetran	242 242 252 242 252 242 = DC (2 Channel) 242
(242=DC, 252=AC)  Eberle Design Incorporated GDI	242 242 252 242 252 242 = DC (2 Channel) 242
(242=DC, 252=AC)  Eberle Design Incorporated GDI GDI Power Distribution & Control (PDC) Power Distribution & Control (PDC) RENO A&E Safetran Safetran Surge Protectors	242 242 252 242 252 242 = DC (2 Channel) 242 252
(242=DC, 252=AC)  Eberle Design Incorporated GDI GDI Power Distribution & Control (PDC) Power Distribution & Control (PDC) RENO A&E Safetran Safetran	242 242 252 242 252 242 = DC (2 Channel) 242 252
(242=DC, 252=AC)  Eberle Design Incorporated GDI	242 242 252 252 242 = DC (2 Channel) 242 252 <b>MODEL</b> Edco SHA-1250
(242=DC, 252=AC)  Eberle Design Incorporated GDI GDI Power Distribution & Control (PDC) Power Distribution & Control (PDC) RENO A&E Safetran Safetran Surge Protectors	242 242 252 242 252 242 = DC (2 Channel) 242 252
(242=DC, 252=AC)  Eberle Design Incorporated GDI	242 242 252 242 252 242 = DC (2 Channel) 242 252 MODEL Edco SHA-1250
(242=DC, 252=AC)  Eberle Design Incorporated GDI	242 242 252 242 252 242 = DC (2 Channel) 242 252 MODEL Edco SHA-1250
(242=DC, 252=AC)  Eberle Design Incorporated GDI	242 242 252 242 252 242 = DC (2 Channel) 242 252 MODEL Edco SHA-1250
(242=DC, 252=AC)  Eberle Design Incorporated GDI GDI Power Distribution & Control (PDC) Power Distribution & Control (PDC) RENO A&E Safetran Safetran Surge Protectors  Emerson Network Power  TONE RECEIVERS  Iniven	242 242 252 242 252 242 = DC (2 Channel) 242 252 MODEL Edco SHA-1250 MODEL IR30M-05-30
(242=DC, 252=AC)  Eberle Design Incorporated GDI	242 242 252 242 252 242 = DC (2 Channel) 242 252 MODEL Edco SHA-1250 MODEL IR30M-05-30
(242=DC, 252=AC)  Eberle Design Incorporated GDI GDI Power Distribution & Control (PDC) Power Distribution & Control (PDC) RENO A&E Safetran Safetran Surge Protectors  Emerson Network Power  TONE RECEIVERS  Iniven	242 242 252 242 252 242 = DC (2 Channel) 242 252 MODEL Edco SHA-1250 MODEL IR30M-05-30
(242=DC, 252=AC)  Eberle Design Incorporated GDI	242 242 252 242 252 242 = DC (2 Channel) 242 252 MODEL Edco SHA-1250 MODEL IR30M-05-30
(242=DC, 252=AC)  Eberle Design Incorporated GDI	242 242 252 242 252 242 = DC (2 Channel) 242 252 MODEL Edco SHA-1250 MODEL IR30M-05-30

### <u>DET</u>

**MICROWAVE DETECTORS** 

MODEL

Microwave Sensors  Electronic Integrated Systems, Inc. (EIS)	
MICROLOOP, PROBE	MODEL
3M	.Canoga 701
PEDESTRIAN PUSH BUTTONS Campbell Polara Engineering, Inc.	
POWER SUPPLY FOR CARD RACK DETECTORS - NEMA	MODEL
ICCPGK	
SINGLE CHANNEL SHELF MOUNT DETECTORS, STANDARD	MODEL
Eberle Design Incorporated (EDI)	
SINGLE CHANNEL SHELF MOUNT DETECTORS, TIME DELAY	MODEL
Eberle Design Incorporated (EDI)	
ULTRASONIC DETECTORS	MODEL
Microwave Sensors	.TC-30
2-CHANNEL CARD RACK COUNTING DETECTORS, DUAL OUTPUT	
Eberle Design Incorporated (EDI)	.LMD632
2-CHANNEL CARD RACK COUNTING DETECTORS, SINGLE OUTPUT PULSE MODE (NEMA)	MODEL
Eberle Design Incorporated (EDI)	LMD632T
ICCReno A & E	.S27B
ICC	.S27B .C
Reno A & E	.S27B .C .MODEL .LM222 .LMD222 .222 .222-GP5

Eberle Design Incorporated (EDI)	.LMD602R
ICC	.S27B
Reno A & E	.C
Reno A & E	.G
2-CHANNEL CARD RACK DETECTORS, TIME DELAY(NEMA)	.MODEL
Eberle Design Incorporated (EDI)	.C
Reno A & E	

### **SIGNAL HEADS**

BACKPLATES	MODEL
Chapel HillIntelight	44xx Series
PelcoNeodesia Plastics	BK-100x Series

#### **HARDWARE**

NOTE: Hardware that meets MoDOT specifications from the following manufacturers will be accepted. ALL other manufacturers must provide equipment that meets specifications and complete a satisfactory six-month evaluation as described above to be added to the list.

Pelco Reliable 3/8" Strandvise Reliable 1/4" Strandvise	
LOUVERS	MODEL
Pelco	GPL
POLYCARBONATE SIDE-MOUNT BRACKETS WITH RELATED HARDWARE	MODEL
Component Products	Any UKS1452AB
SIGNAL HEADS - OPTICALLY LIMITED	MODEL
Intelight, IncMcCain	
SIGNAL HEADS - POLY CONVENTIONAL	MODEL
Chapel Hill	SIG-TPB-586-CTN-NVN-0N (5 section)SA Series

General Traffic Equipment Corp	LT Series MTSTP Series
PEDESTRIAN HEAD - POLY 1-SECTION	MODEL
McCain	M32258 w/ M27164
PEDESTRIAN LED SIGNAL INDICATION	MODEL

Pedestrian LED signal indications must be ETL verified. The ETL verified listing is located at <a href="Intertek">Intertek</a> ETL Verified Listing - Link located at: <a href="http://www.intertek.com/lighting/infrastructure/traffic-signals/">http://www.intertek.com/lighting/infrastructure/traffic-signals/</a>

#### **POSTS AND MAST ARMS**

Note: Posts and Mast Arms do not require an evaluation period. Posts and Mast Arms shall be fabricated in accordance with MoDOT specifications and standards. Posts and Mast Arms shall be preapproved as required by the MoDOT standards and specifications to be added to the list. The following manufacturers have pre-approved fabrication details and documentation on file with the department. Posts and Mast Arms are subject to field inspection before acceptance.

STEEL POSTS AND MAST ARMS	DRAWING NUMBER
Ameron Pole Products  Ameron Pole Products  Ameron Pole Products  Ameron Pole Products  JEM Engineering & Manufacturing	MO13TR12 - Rev. B (Type CL)MO13TR13 - Rev. B (Type B)MO13TR14 - Rev. B (Type BL)
Maico Industries, Inc.  Millerbernd Manufacturing Company  Pelco Structural, LLC	1005022 (Type B)1003534 (Type BL)1005004 (Type C)1003523 (Type CL)500A971MODMA1001 & 1002 (Type B)
Pelco Structural, LLC Pelco Structural, LLC Pelco Structural, LLC Union Metals Valmont	MOSMA1001 & 1002 (Type C)MOSMAL1001 & 1002 (Type CL)30443-B202 - Rev. 19 (Types C, CL, B & BL)

#### **MISCELLANEOUS**

LOOP SEALANTS	MODEL
(Loop sealants do not require material certification)	
3M	5000
Bondo	575

Bondo	290S 296-06 Stat-A-Flex Polyseal Pro-Seal 6006
PEDESTAL BASES	MODEL
Akron Foundry Akron Foundry Component Products Pelco Pelco Pelco Pelco Traffic Parts	TS-1000-L-WP CPI-BAS-1 PB5336 PB5337 PB5340 PB5341
SPLICE KITS (DETECTOR LEAD-IN)	MODEL
·	
3MHOMAC HMC Industries	
METER SERVICE PEDESTAL (SIGNALS/SIGNALS & LIGHTING)	) MODEL
Milbank 120V Signal Only	CP3B51C1PAAOMO1 CP3B51C1PBAOMO2 CP3B62C2NBAOMO1 MEUGLA-M100-MDOT MEUG 20
Milbank 120V Signal Only  Milbank 120V Signal with 2 –Circuit 240V Lighting  Milbank 120V Signal with 2-Circuit 240V Lighting Dual Meter  Myers 120V Signal with 2-Circuit 240V Lighting  Myers 120V Signal with 2-Circuit 240V Lighting	CP3B51C1PAAOMO1 CP3B51C1PBAOMO2 CP3B62C2NBAOMO1 MEUGLA-M100-MDOT MEUG 20 USP16-M2100-112C-MODOT6-TS
Milbank 120V Signal Only	CP3B51C1PAAOMO1CP3B51C1PBAOMO2CP3B62C2NBAOMO1MEUGLA-M100-MDOTMEUG 20USP16-M2100-112C-MODOT6-TSUSPAR-100-100-MODOT ther er)USP16R-M2100-112C-MODOT

#### **LIGHT EMITTING DIODES (LED)**

LED's (circular and arrow) must be ETL verified. The ETL verified listing is located at <a href="Intertek ETL">Intertek ETL</a> <a href="Verified Listing - Link located at: "Verified Listing - Link located at: http://www.intertek.com/lighting/infrastructure/traffic-signals/">Intertek ETL</a> <a href="Verified Listing - Link located at: http://www.intertek.com/lighting/infrastructure/traffic-signals/">Intertek ETL</a> <a href="Verified Listing - Link located at: http://www.intertek.com/lighting/infrastructure/traffic-signals/">Intertek ETL</a> <a href="Verified Listing - Link located at: http://www.intertek.com/lighting/infrastructure/traffic-signals/">Intertek ETL</a> <a href="Verified Listing - Link located at: http://www.intertek.com/lighting/infrastructure/traffic-signals/">Intertek ETL</a> <a href="Verified Listing - Link located at: http://www.intertek.com/lighting/infrastructure/traffic-signals/">Intertek ETL</a> <a href="Verified Listing - Link located at: http://www.intertek.com/lighting/infrastructure/traffic-signals/">Intertek ETL</a> <a href="Verified Listing - Link located at: http://www.intertek.com/lighting/infrastructure/traffic-signals/">Intertek ETL</a> <a href="Verified Listing - Link located at: http://www.intertek.com/lighting/infrastructure/traffic-signals/">Intertek ETL</a> <a href="Verified Listing - Link located at: http://www.intertek.com/lighting/infrastructure/traffic-signals/">Intertek ETL</a> <a href="Verified Listing - Link located at: http://www.intertek.com/lighting/infrastructure/traffic-signals/">Intertek ETL</a> <a href="Verified Listing - Link located at: http://www.intertek.com/lighting-infrastructure/traffic-signals/">Intertek ETL</a> <a href="Verified Listing - Link located at: http://www.intertek.com/listing-infrastructure/traffic-signals/">Intertek ETL</a> <a href="Verified Listing - Link located at: http://www.intertek.com/listing-infrastructure/traffic-signals/">Intertek ETL</a> <a href="Verified Listing - Link located at: http://www.intertek.com/listing-infrastructure

PROGRAMMABLE VIEW	MODEL
Dialight	P463R33003 (Red Ball)
Dialight	P463Y33003 (Yellow Ball)

Dialight	P463G33003 (Green Ball)
GELcore	
GELcore	, , ,
GELcore	,

#### **VIDEO DETECTION SYSTEMS**

VIDEO DETECTOR	MODEL
Aldis	GridSmart
Econolite	Autoscope RackVision
Econolite	Autoscope RackVision Terra
Iteris	Vantage Edge2
Iteris	Vantage Next
Iteris	Vantage Vector
Peek Traffic Corp	VideoTrak IQ-P
Peek Traffic Corp	VideoTrak IQ-ITS
FLIR	VIP 3D.x Series

#### **III. HIGHWAY LIGHTING**

All highway lighting equipment require a one-year evaluation period except for items noted requiring a six-month evaluation.

#### **LIGHTING POLES**

Note: Poles do not require an evaluation period. Poles shall be fabricated in accordance with MoDOT specifications and standards. They shall be pre-approved as required by the MoDOT standards and specifications in order to be added to the list. The following manufacturers have pre-approved fabrication details and documentation on file with the department. Lighting poles are subject to field inspection before acceptance.

STEEL POLES	DRAWING NUMBER
Ameron Pole Products JEM Engineering and Manufacturing JEM Engineering and Manufacturing Millerbernd Manufacturing Co. Union Metals	MO98AT3 – Rev. 4 (Type AT45) Design 1 & 2MO98AT2 – Rev. 4 (Type AT45)Design 3, 4 & 5MO98AT4 – Rev. 3 (Type AT30)MO98B2 – Rev. 3 (Type B45 & MB45)MO98B4 – Rev. 2 (Type B30)MO-AT30 – Rev. 3 (Type AT30)MO-AT45 – Rev. 3 (Type AT45)730B907 (Type AT30)730B653 (Type AT45)730B908 (Type B30)730B909 (Type B45)730B910 (Type MB45)71020-B2 - Rev. 5 (Type AT30)71020-B3 - Rev. 4 (Type B30)71019-B6 - Rev. 7 (Type AT45)71019-B7 - Rev. 3 (Type B45)71019-B8 – Rev. 3 (Type B45)71019-B9 – Rev. 3 (Type B45)71019-B10 – Rev. 3 (Type MB45)71020-B103 – Rev. 3 (Type AT30)71020-B104 – Rev. 3 (Type AT30)71020-B104 – Rev. 4 (Type AT45)
Valmont	DB00020 – Rev. N (Types AT45, B45 & MB45)

#### **ALUMINUM POLES**

Va	lmontMO-051707 (	Type AT-30)
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#### **FOUNDATIONS**

Note: Screw anchor foundations do not require an evaluation period. Screw anchor foundations shall be fabricated in accordance with MoDOT specifications and standards. They shall be pre-approved as required by the MoDOT standards and specifications in order to be added to the list. The following manufacturers have pre-approved fabrication details and documentation on file with the department. Screw anchor foundations are subject to field inspection before acceptance.

#### SCREW ANCHOR FOUNDATIONS

#### **DRAWING NUMBER**

Component Products, Inc.	SLSF 8-5 (Type AT30)
Component Products, Inc.	SLSF 10-7 (Type AT45)
Hubbell Chance	SA112-0696 - Rev. H (Type AT30)
Hubbell Chance	SA112-0786 - Rev. E (Type AT45)
Integrated Traffic Solutions, Inc.	ITS AT30 (Type AT30)
Integrated Traffic Solutions, Inc.	ITS AT45 (Type AT45)
J. H. Botts	JHB MOH 30 – Rev. C (Type AT30)
J. H. Botts	JHB MOH 45 – Rev. D (Type AT45)

#### **LUMINAIRES**

NOTE: Luminaires will not be furnished with photoelectric cells. Receptacles will have a shorting plug in place of cell. Multi-tap ballast for 120 Volt and 240 Volt fixtures is permissible.

BRACKET	ΔRM	MOUNT.	_ 150	WATT
DRACKET	ARIVI		- เอบ	WALL

MO	D	E	L
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American Electric Lighting	115 Series
American Electric Lighting	
Crouse-Hinds/Cooper	
Crouse-Hinds/Cooper	
General Electric (GE)	
Holophane	Mongoose Series
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#### **BRACKET ARM MOUNT - 250 WATT**

American Electric Lighting	115 Series
American Electric Lighting	
Crouse-Hinds/Cooper	
Crouse-Hinds/Cooper	
General Electric (GE)	
Holophane	

#### BRACKET ARM MOUNT - 400 WATT

M	DC	E	L

American Electric Lighting	Durastar 2000, Series 30
General Electric (GE)	MSRL Series
Holophane	Mongoose Series

#### **HIGH MAST LIGHTING**

#### MODEL

NOTE: High mast lighting is custom designed for the location. Fixtures from the following manufacturer's series are considered pre-approved.

Cooper	HMC Series
General Electric (GE)	HMA Series
Holophane	HMAO Series
Holophane	HMS Series
Metrolux	VA Series
POLE TOP MOUNTING	MODEL

#### SIGN LIGHTING - 250 WATT MODEL

General Electric (GE)	V2FN Series
Guth	B17632 Series
Holophane	PANL Series
Holophane	

#### SIGN LIGHTING - 400 WATT MODEL

Holophane	PANL Series
Holophane	SNVW Series

#### UNDERPASS (WALLPACKS) MODEL

American Electric Lighting	582 Series
Cooper	
General Electric (GE)	
Holophane	MDWP Series
Holophane	WL2K Series
Hubbell	

#### **CONTROL EQUIPMENT**

CONTACTORS-ELECTROMECHANICAL	MODEL
Square D Westinghouse/Cutler-Hammer	Type S A202 Series
CONTACTORS-MERCURY	MODEL

#### **BASE MOUNTED CONTROL CABINETS**

NOTE: Cabinets that meet MoDOT specifications from the following manufacturers will be accepted. All other manufacturers must provide a model that meets specifications and complete a satisfactory six-month evaluation as described above to be added to the list.

Cleveland Switchboard Coxline Hoffman Shallbetter Inland Technologies

MOUNTING	SOCKET FOR	PHOTOELECTRIC CONTRO	MODEL
	SOUNLIION	FIIO I OLLLO I NIC CON I NO	

#### NOTE: Mounting sockets require a six-month evaluation.

American Electric Lighting	DUR
Fischer-Pierce	S476-71
General Electric (GE)	MB-PECTL

#### PHOTOELECTRIC CONTROL MODEL

Area Lighting Research	
Area Lighting Research	SST-PV (120/240 volt)
American Electric Lighting	
American Electric Lighting	
American Electric Lighting	
American Electric Lighting	DE480-1.0-TJ (480 volt)
Fischer-Pierce	
Fischer-Pierce	FPN7772 (195 – 305 volt)
Fischer-Pierce	FPN7794 (480 volt)
Fischer-Pierce	FPN7760 (120 volt)
General Electric (GE)	PEC01TL (>120v/< 305v w/ time delay)
General Electric (GE)	PEC1TL (120v)
General Electric (GE)	PEC5TL (480v)
IIT	SAT-15
Tyco	6190 VPS

#### TYPE A CIRCUIT BREAKERS MODEL

Square D	FAL Series
Westinghouse/Cutler-Hammer	EHD Series (1-Pole)
Westinghouse/Cutler-Hammer	FDB Series (2-Pole)

### **MISCELLANEOUS**

AVIATION LIGHTING	MODEL
Hughey & Philips	KG114
FUSED SLIP CONNECTORS	MODEL
NOTE: Slip connectors require a six-month evaluation.	
BussIDEAL	
METER SERVICE PEDESTAL (LIGHTING)	MODEL
Milbank 4-Circuit 240V Lighting	CP3B51D1PBAOMO1 CP3B51D1PBAOMOCS1 USP24-M2100-100-MODOT6 USP16-M2100-100-MODOT
NAVIGATION LIGHTING	MODEL
Tideland Pharos Marine Automatic Power, Inc.	
Pharos Marine Automatic Power, Inc.	FA-143  MODEL 82A1 (Single) 82A2 (Single) 82B1 (Three Way) 82B2 (Three Way)
Pharos Marine Automatic Power, Inc.  SPLICE KITS  3M  3M  3M  3M  3M	FA-143  MODEL 82A1 (Single) 82A2 (Single) 82B1 (Three Way) 82B2 (Three Way)

#### IV. POWER SUPPLY EQUIPMENT AND PULL BOXES

All items require a six-month evaluation period.

MAIN SERVICE DISCONNECT ENCLOSURE WITH SAFETY SWITCH (NEMA 4)	MODEL
General Electric (GE)	TE 100 CS
Square D	FA-100-DS Series E2
Westinghouse	WFDN 100
PREFORMED PULL BOX-CLASS 1 Straight	MODEL
Armorcast Products Company	A6001640TAPCX22 (Box & Lid)
Carson Industries	H1730-24 (Box)
CDR	A14-1730 series-22" (Box & Lid)
Composite Industries	Cl183024PB1P
Highline	PHA173024HO1R
	H1730-PI (Lid)
Martin Enterprises	173022PC
Strongwell/Quazite	PG1730B532 (Box)
	PG1730H511 (Lid)
	PG1730BA Series
Synertech	S1730B24AA (Box)
	S1730HBB0A (Lid)
Flared	
Armorcast Products Company	
CDR	,
Highline	
Martin Enterprises	1730/22 FRP
NewBasis	FCA173022CC4126-62 (Box & Lid)
NewBasis	FCA173022CC4749-61 (Box & Lid)
NewBasis	FCA173024T Series (Box & Lid)
Pencell Plastics	PEM-1830-PCX (Box & Lid)
PREFORMED PULL BOX-CLASS 2 Straight	MODEL
Armorcast Products Company	A6001974TAPCX26 (Box & Lid)
Armorcast Products Company	
Carson Industries	
	` ,
CDR	
Composite Industries	
Highline	
Martin Enterprises	
Strongwell/Quazite	
otiongwoll/ Quazito	PG2436H508 (Lid)
	PG2436BA Series
Synertech	
Oynercoll	S2436HCB0A (Lid)
	324301 TODUA (LIU)

PREFORMED PULL BOX-CLASS 2 Flared	MODEL
Armorcast Products Company	A6001974TAX26 (Box & Lid)
Armorcast Products Company	
CDR	
Highline	
Martin Enterprises	
NewBasis	
NewBasis	
NewBasis	,
Pencell Plastics	` ,
Pencell Plastics	` ,
Synertech	` ,
Cynorical	` ,
	3243011CB0A (Eld)
PREFORMED PULL BOX-CLASS 3 Straight	MODEL
Armorcast Products Company	A6001430TAPCX36 (Box & Lid)
Carson Industries	H3048-36 (Box)
	H3048-P1 (Lid)
CDR	A14-3048 series-36" (Box & Lid)
Composite Industries	Cl304836PB1P
Highline	PHA304836HO1R
Martin Enterprises	
Strongwell/Quazite	
<b>C</b>	PG3048H517 (Lid)
	PG3048BA Series
Synertech	S3048B36AA (Box)
,	S3048HCB0A (Lid)
Flared	,
Armorcast Products Company	A6001550TAX36 (Box & Lid)
CDR	
Highline	` ,
Martin Enterprises	
NewBasis	
NewBasis	,
Pencell Plastics	` ,
PREFORMED PULL BOX-CLASS 5 Flared	MODEL
Armorcast Products Company	16001466TA (Boy & Lid)
Armorcast Products Company	
CDR	` ,
Highline Products	
Martin Enterprises	
NewBasis	
NewBasis	` ,
NewBasis	
NewBasis	
Quazite	PR3944Z504

#### **HIGHWAY SIGNING EQUIPMENT**

#### V. GENERAL

This Approved Products List (APL) for highway signing equipment contains current pre-approved products for highway signing. This list is applicable to department purchases and construction contracts. The list includes products that have been approved for use based on satisfactory performance during a specified test period. Products listed have undergone sufficient field testing to be considered acceptable for use at any time. All field tests of new products or pending products should be arranged with Central Office Traffic.

The department frequently tests new products and equipment for highway signing. These new products may be installed on a construction project or used for normal department installations and maintenance. Vendors may also submit items, at no cost to the department, for the test period. Only a limited number of units will be accepted for test statewide until the product is added to the Approved Products List. A vendor wishing to initiate a test on a new product shall submit a Product Evaluation Request Form. Copies of this form can be obtained from our website at <a href="www.modot.state.mo.us">www.modot.state.mo.us</a> or contact MoDOT Central Office Traffic. Minor model changes of previously approved products do not require a new evaluation period, although the vendor shall submit specification sheets and a sample of the product for the Department to inspect. Any modifications determined to potentially alter the performance of the product may require the product to undergo additional field testing and evaluation.

All product evaluations are coordinated through MoDOT Central Office Traffic. The vendor supplying the equipment shall provide equipment specifications and a certification that the equipment meets department specifications before the test is performed. The equipment is tested for the period specified by Central Office Traffic (typically one year). Products that are not performing satisfactorily will be left off of the list. Products that were previously approved that begin to perform unsatisfactorily will be removed or replaced with an approved product if the vendor cannot provide timely correction of the problem.

If a vendor is proposing a product that does not meet department specifications, an explanation of why the product meets or exceeds the current specifications must be provided by the vendor in writing to Central Office Traffic. If approved, the product may be tested for the specified period as described above. If the product is satisfactory, the Department will consider a revision to the applicable specifications. Products will not be added to the Approved Products List that does not meet department specifications.

Products on the APL shall continue to perform satisfactorily. In addition, the vendors shall support the products. Products not performing as required or not supported are subject to removal from the APL.

Grounds for removal of products include but are not limited to:

- Significant change in product specifications or design without notification to the department.
- Failure to correct or replace products that are defective in manufacturing or workmanship.
- Repeated patterns of malfunctions of a product not adequately corrected by the vendor.
- Unreasonable pricing of repair parts or repair work. Repair work not completed in a reasonable time frame.
- Excessive delivery times for new purchases or replacement parts.

Changes in standard specifications may also necessitate removal of specific products from the APL. If this occurs, there will be a grace period where the product will be retained on the list after the specifications are changed. However the product will eventually be removed from the list if it is not revised to meet specifications.

#### **VI. HIGWAY SIGNING EQUIPMENT**

#### **BREAKAWAY DEVICES**

MANUFACTURER	DESCRIPTION, MODEL

	Triangular Slip Base for 2.5" PSST, Slip-Mate Kleen Break 425 for 2" PSST, XKB42520-G
	Kleen Break Surface Mount 425 for 2" PSST, XKBSM42520-G
Xcessories Squared	Redi-Torque 280 for 2.5" PSST, SB8C-250A-G
Xcessories Squared	Redi-Torque 280 Pre-Assembled Slip Base for 2.5' PSST, RT8UX-25C25-G
Xcessories Squared	Redi-Torque Triangular Surface Mount Base, SMSB9-10-G
Xcessories Squared	Redi-Torque Bolt Kit, RTSB-MPHDW
	S-Q 8" Square Slipbase for 2.5" PSST, 31209
Designovations, Inc	Snap n Safe S200 and S200S (2")
Decignovations Inc	Span n Safe S250 and S250 S (2.5")

#### **FOUNDATIONS/ANCHORS**

MANUFACTURER DESCRIPTION, MODEL

None ......None

#### **SIGN HARDWARE**

#### MANUFACTURER DESCRIPTION, MODEL

Xcessories Squared	Aluminum Post Clamp for 2.5" Pipe, XAPC278RD
Xcessories Squared	
Xcessories Squared	Aluminum Post Clamp for 4" Pipe, XAPC450RD
Xcessories Squared	Aluminum Bar for Post Clamps, XAB750
Xcessories Squared	Aluminum Sign Backer Bar, ASB200P1
Xcessories Squared	Extruded Panel Clamp for 2" PSST, EPPCS200SQ
Xcessories Squared	Extruded Panel Clamp for 2.5" PSST, EPPCS250SQ
Xcessories Squared	Extruded Panel Clamp for 2.5" Pipe, EPPCS250RD
Xcessories Squared	Extruded Panel Clamp for 3" Pipe, EPPCS300RD
Xcessories Squared	Extruded Panel Clamp for 4" Pipe, EPPCS400RD
Xcessories Squared	Extruded Panel Clamp for 4x4 Wood, EPPCS44W
Xcessories Squared	Extruded Panel Clamp for 4x6 Wood, EPPCS46W
Xcessories Squared	Extruded Panel Clamp for 6x6 Wood, EPPCS66W

### **SIGNS**

MANUFACTURER	DESCRIPTION, MODEL
Тарсо	Blinkersigns

#### TRAFFIC SIGNALS AND HIGHWAY LIGHTING EQUIPMENT

### **ADDED:**

#### 332 AND 336S CABINET AND RACK ASSEMBLIES

Eagle (Added 7/27/17)

NEMA TS1 CONTROLLERS	MODEL
Intelight	X-3 Series (Added 7/27/17)
Econolite	Cobalt Series (Added 7/27/17)
FUSED SUID CONNECTORS	MODEL
FUSED SLIP CONNECTORS IDEAL	
IDEAL	30-32212
ISOLATORS (170 only)	MODEL
(242=DC, 252=AC)	
RENO A&E	242 – DC (2 Channel)
PERFORMED PULL BOX-CLASS 1	MODEL
Flared	
Martin Enterprises	1730/22 FRP
DEDECORMED DULL DOV OLACCO	MODEL
PERFORMED PULL BOX-CLASS 2 Flared	MODEL
Martin Enterprises	2/36/2/ FRP
Martin Linerprises	2430/24 I KF
PERFORMED PULL BOX-CLASS 3	MODEL
Flared	
Martin Enterprises	3048/36 FRP
PREFORMED PULL BOX-CLASS 5	MODEL
Flared	
Martin Enterprises	320036 FRP
STEEL DOST AND MAST ADMS	DRAWING NUMBER
STEEL POST AND MAST ARMS  Ameron Pole ProductsMC	MANUING NOWIDER
(December 2015)	7131K13 - Kev. B (1ype B)
Ameron Pole ProductsMC	13TR14 - Rev. B (Type BL)
(December 2015)	- ( ), - ,
VIDEO DETECTION OVOTENO	
VIDEO DETECTION SYSTEMS VIDEO DETECTOR	MODEL
Aldis	GridSmart
Iteris	
Iteris	, ,
Peek Traffic Corp	
Peek Traffic Corp	
FLIR	
1 LIIX	VIE 3D.A 361163 (Added 1/10/18)

### **DELETED:**

2-CHANNEL CARD RACK DETECTORS, TIME DELAY	MODEL
(NEMA)	
3M	Canoga C800 Series
(This product is no longer manufactured per Global Traffic Technologies – 5/21/	(15)
1.000.0541.41170	MODEL
LOOP SEALANTS	MODEL
Bondo	500
CONTROLLERS	
NEMA TS1 CONTROLLERS	MODEL
Siemens	EPAC Genesis M40
Siemens	EPAC M42
(These products are no longer manufactured per MoboTrex – 2/27/17)	
Econolite	
Econolite	ASC/2S-2100
(These products are no longer manufactured per Traffic Control Corp 7/27/17)  Peek	2000
Traffic Control Technologies (TCT)	
(These products are no longer manufactured per Pinkley Sales 5/23/17)	LIVID-0000
(Those products are no longer manufactured per l'initioy dates (1/20,17)	
NEMA ON-STREET MASTER CONTROLLER	MODEL
Econolite	KMC-10,000
(This product is no longer manufactured per Traffic Control Corp 7/27/17)	
COLUD OTATE PRETIMED CONTROLL EDG (ALL TYPES)	MODEL
SOLID STATE PRETIMED CONTROLLERS (ALL TYPES) Siemens	MODEL
(This product is no longer manufactured per MoboTrex – 2/27/2017)	EPIC Selles
Traffic Control Technologies (TCT)	LMD 40 Series
(This product is no longer manufactured per Pinkley Sales 5/23/17)	EIVID 40 OCHOS
(The product one is ignitional actions per Finnie) calco (125, 11)	
170 CONTROLLERS	MODEL
Siemens	170E
(This product is no longer manufactured per MoboTrex – 2/27/2017)	
CONFLICT MONITORS	
CONFLICT MONITORS	
NEMA CONFLICT MONITORS	MODEL
Peek/Transyt	
Traffic Control Technologies (TCT)	LNM Series
CABINET ACCESSORIES	
LOAD CMITCHEC	MODEL
LOAD SWITCHES	MODEL
(NEMA & 170) Traffic Control Technologies (TCT)	SSS-86
Traine Control Technologies (TOT)	
SURGE PROTECTORS	MODEL
SURGE PROTECTORS  Emerson Network Power	SHA 1210
VIDEO DETECTION SYSTEMS	
VIDEO DETECTOR	MODEL

Traficon	VIP 3D.1 (July 2015)
Traficon	
Econolite	
Econolite	
[The content of the c	

(These products are no longer manufactured per Traffic Control Corp 7/27/17)

#### **REVISED:**

#### CABINETS AND BACK PANELS (NEMA & S.S. PRETIMED)

NOTE: Cabinets and Back panels that meet MoDOT specifications from the following manufacturers will be accepted. ALL other manufacturers must provide a model that meets specifications and complete a satisfactory one-year evaluation as described above to be added to the list.

#### **NEMA CABINET AND BACK PANEL ASSEMBLIES**

**NEMA ON-STREET MASTER CONTROLLER** 

Control Technology Econolite Henke/Bison IDC/Gibbons Naztec P-44

Siemens

Changed to (June 2014 – to the recent ownership of Brown Traffic acquiring and marketing under the brand name of "Eagle".) Eagle

#### **CONTROLLERS**

Siemens	MARC 360
Changed to (model # change only, per MoboTrek, model	el number is now EPAC M52 with SEMARC – 2/27/17)
Siemens	FPAC M52 with SFMARC

#### **CONFLICT MONITORS**

NEMA CONFLICT MONITORS	MODEL
Eberle Design Incorporated (EDI)	-6E – 2/27/17)
Eberle Design Incorporated (EDI)	-6E – 2/27/17)
Eberle Design Incorporated (EDI) Changed to (model # change only, per MoboTrek, model number is now NSM-Eberle Design Incorporated (EDI)	-6E – 2/27/17)

#### METER SERVICE PEDESTAL (SIGNALS/SIGNALS & LIGHTING) MODEL

Pacific Utility Products 120V Signal with 2-Circuit 240V Lighting .................USPA-100-100-MODOT Changed to (April 2015)

**MODEL** 

Pacific Utility Products 120V Signal with 2-Circuit 240V Lighting	USPAR-100-100-MODOT
Pacific Utility Products 120V Signal with 2-Circuit 240V Lighting	USP16-M2100-112C-MODOT
Changed to (April 2015) Pacific Utility Products 120V Signal with 2-Circuit 240V Lighting	USP16R-M2100-112C-MODOT
METER SERVICE PEDESTAL (LIGHTING)	MODEL
Pacific Utility Products 4-Circuit 480V Lighting	USP16-M2100-112C-MODOT
Changed to (April 2015) Pacific Utility Products 4-Circuit 480V Lighting	USP16-M2100-100-MODOT
MOUNTING SOCKET FOR PHOTOELECTRIC CONTROL	MODEL
NOTE: Mounting sockets require a six-month evaluation.	
American Electric Lighting	PBC
Changed to (April 2013) American Electric Lighting	DUR
NAVIGATION LIGHTING	MODEL
Automatic Power, Inc.	
Changed to (August 2016 – Company Changed Name, product & mo Pharos Marine Automatic Power, Inc	
SCREW ANCHOR FOUNDATIONS	DRAWING NUMBER
Hubbell ChanceSA1	12-0696 – Rev. G (Type AT30)
Changed to (November 2013) Hubbell ChanceSA1	12-0696 – Rev. H (Type AT30)
Hubbell ChanceSA1 <sup>2</sup> Changed to (November 2013)	12-0786 – Rev. D (Type AT45)
Hubbell ChanceSA1	12-0786 – Rev. E (Type AT45)
SOLID STATE PRETIMED CABINET AND BACK PANEL ASSEMBL	<u>lies</u>
Siemens	
Changed to (June 2014 – to the recent ownership of Brown Traffic (Moboin March 2016) acquiring and marketing under the brand nan Eagle	
HARDWARE	
HARDWARE	
SIGNAL HEADS - POLY CONVENTIONAL Traffic Control Technologies (TCT)	MODEL PSS Series
Changed to (This product purchased by Peek per Pinkley Sales 5/23/17))	
Peek	PSS Series
STEEL POST AND MAST ARMS	DRAWING NUMBER
Ameron InternationalMO9	811 - Rev. 9 (Type C)
Changed to (December 2015) Ameron Pole ProductsMO1	3TR11 - Rev. B (Tyne C)
7411010111 010 1 1044010 111111111111111	otter tev. B (Type o)

Ameron International	MO9812 - Rev. 10 (Type CL)
Changed to (December 2015) Ameron Pole Products	MO13TR12 - Rev. B (Type CL)
Millerbernd Manufacturing Company Changed to (April 2016)	780C388 (Type B)
Millerbernd Manufacturing Company	1005022 (Type B)
STEEL POST AND MAST ARMS	DRAWING NUMBER
Millerbernd Manufacturing Company Changed to (April 2016)	780C389 (Type BL)
Millerbernd Manufacturing Company	1003534 (Type BL)
Millerbernd Manufacturing Company Changed to (April 2016)	780C49 (Type C)
Millerbernd Manufacturing Company	1005004 (Type C)
Millerbernd Manufacturing Company Changed to (April 2016)	780C51 (Type CL)
Millerbernd Manufacturing Company	1003523 (Type CL)
ValmontChanged to (revised 10/18/13)	DB00408 – Rev. C (Types C, CL, B & BL)
ValmontChanged to (revised 10/18/13)	DB00408 – Rev. G (Types C, CL, B & BL)
Valmont	DB00408 – Rev. H (Types B, BL, C & CL)
SURGE PROTECTORS	MODEL
Emerson Network Power	1250
Emerson Network Power	Edco SHA-1250

### **HIGHWAY SIGNING EQUIPMENT**

### ADDED:

#### **BREAKAWAY DEVICES**

MANUFACTURER	DESCRIPTION, MODEL
Designovations, Inc	Snap n Safe S200 and S200S (2") (January 2014)
Xcessories Squared	Kleen Break Surface Mount 425 for 2" PSST, XKBSM42520-G (December 2013)
Xcessories Squared	Redi-Torque 280 Pre-Assembled Slip Base for 2.5" PSST, RT8UX-25C25-G (December 2013)
Xcessories Squared	Redi-Torque Triangular Surface Mount Base, SMSB9-10-G (December, 2013)