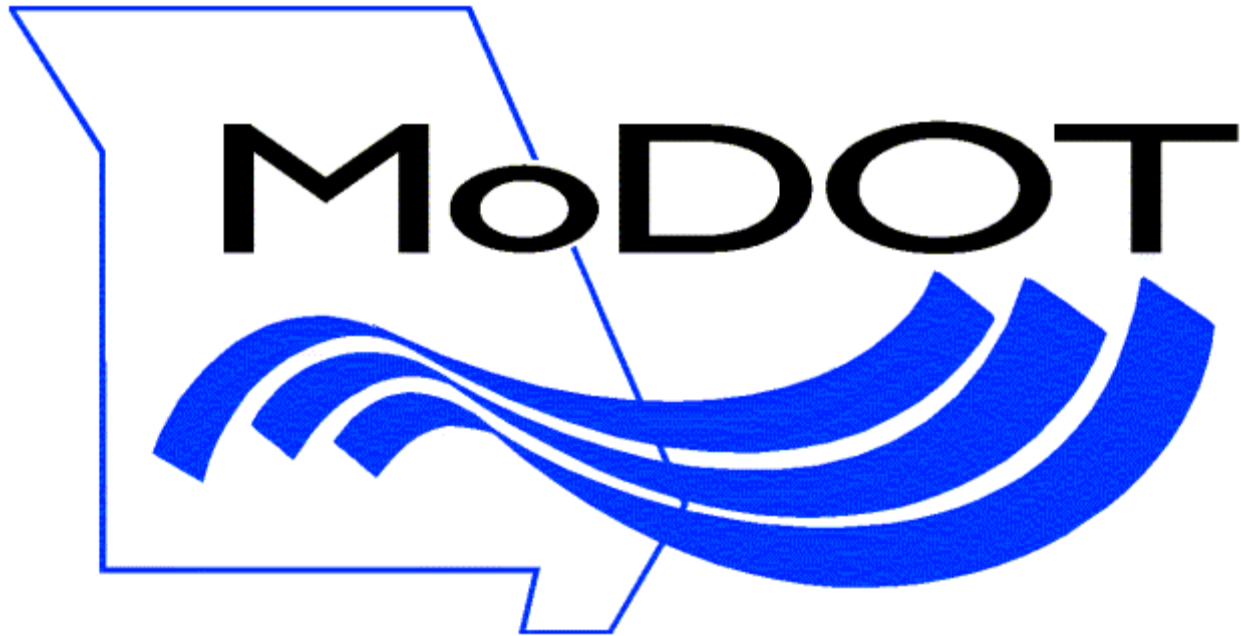




Traffic Operations

APPROVED PRODUCTS LIST

**TRAFFIC SIGNALS, HIGHWAY LIGHTING,
AND HIGHWAY SIGNING EQUIPMENT**

MISSOURI DEPARTMENT OF TRANSPORTATION
APPROVED PRODUCTS LIST
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 www.modot.state.mo.us 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.

MISSOURI DEPARTMENT OF TRANSPORTATION APPROVED PRODUCTS LIST

II. TRAFFIC SIGNAL EQUIPMENT

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

CONTROLLERS

NEMA TS1 CONTROLLERS

MODEL

Econolite	ASC/2-2100
Econolite	ASC/2S-2100
Econolite	ASC/3-2100
Intelight.....	X-1
Intelight.....	X1L
Intelight.....	X-2
Naztec	980
Peek.....	3000
Siemens	EPAC Genesis M40
Siemens	EPAC M42
Siemens	EPAC M52
Traffic Control Technologies (TCT)	LMD-8000

NEMA ON-STREET MASTER CONTROLLER

MODEL

Econolite	KMC-10,000
Econolite	ASC/2M
Siemens	MARC 360

SOLID STATE PRETIMED CONTROLLERS (ALL TYPES)

MODEL

Siemens	EPIC Series
Traffic Control Technologies (TCT)	LMD 40 Series

170 CONTROLLERS

MODEL

McCain.....	170E
Phillips/Sisson Industries, Inc.	170E
Safetran	170E
Siemens	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

MISSOURI DEPARTMENT OF TRANSPORTATION

APPROVED PRODUCTS LIST

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

CONFLICT MONITORS

NEMA CONFLICT MONITORS

MODEL

Eberle Design Incorporated (EDI).....	NSM-6
Eberle Design Incorporated (EDI).....	NSM-12
Eberle Design Incorporated (EDI).....	SSM-12LE
Eberle Design Incorporated (EDI).....	MMU-16E
Eberle Design Incorporated (EDI).....	MMU-16LE
Naztec, Incorporated	NM512
Peek/Transyt.....	1200
Power Distribution & Control (PDC).....	CM82-03
Power Distribution & Control (PDC).....	CM82-06
Power Distribution & Control (PDC).....	CM82-12
Reno A&E	MMU-1600 Series
Solid State Devices.....	NM-6
Solid State Devices.....	NM-12
Solid State Devices.....	LCD-6P
Solid State Devices.....	LCD-12P
Traffic Control Technologies (TCT)	LNМ Series

170 CONFLICT MONITORS

MODEL

Eberle Design Incorporated (EDI).....	210E
Reno A & E	2018
Solid State Devices.....	210P

CABINET ACCESSORIES

AUXILIARY TIME CLOCK

MODEL

Eltec	NTC-17E
Eltec	TC-14
RTC.....	AP41

MISSOURI DEPARTMENT OF TRANSPORTATION

APPROVED PRODUCTS LIST

EXTERNAL T.B.C. COORDINATORS MODEL

Eltec TC-14

FLASHERS MODEL (NEMA & 170)

Eberle Design Incorporated (EDI)..... 810
 Power Distribution & Control (PDC)..... SSF-86
 Power Distribution & Control (PDC)..... SSF-88
 Reno A & E FL-200
 Traffic Sensor Corp..... 204
 Traffic Sensor Corp..... 204-15
 Traffic Sensor Corp..... 304
 Traffic Sensor Corp..... 304-15

FLASH TRANSFER RELAYS MODEL

AMECO 136-4962
 Struthers-Dunn..... 21ACPX-2/21ACPXD-5
 Mid-Tex 136-62T-3A1
 Power Distribution & Control (PDC)..... FTR 91
 Reno TR-200

LOAD SWITCHES MODEL (NEMA & 170)

Eberle Design Incorporated (EDI)..... 510
 Power Distribution & Control (PDC)..... SSS-86
 Power Distribution & Control (PDC)..... SSS-88
 Reno A & E LS-200
 Traffic Control Technologies (TCT) SSS-86
 Traffic Sensor Corp..... 200
 Traffic Sensor Corp..... 200-15
 Traffic Sensor Corp..... 300
 Traffic Sensor Corp..... 300-15

ISOLATORS (170 only) MODEL (242=DC, 252=AC)

Eberle Design Incorporated 242
 GDI..... 242
 GDI..... 252
 Power Distribution & Control (PDC)..... 242
 Power Distribution & Control (PDC)..... 252
 RENO A&E 242 = DC (2 Channel)
 Safetran 242
 Safetran 252

MISSOURI DEPARTMENT OF TRANSPORTATION

APPROVED PRODUCTS LIST

SURGE PROTECTORS

MODEL

Emerson Network PowerEdco SHA-1250

TONE RECEIVERS

MODEL

InivenIR30M-05-30

TONE TRANSMITTERS

MODEL

InivenIT30

DETECTORS

MICROWAVE DETECTORS

MODEL

Microwave Sensors.....TC-26B
Electronic Integrated Systems, Inc. (EIS)RTMS X-2

MICROLOOP, PROBE

MODEL

3MCanoga 701

PEDESTRIAN PUSH BUTTONS

MODEL

Campbell.....4 EVR 120
Polara Engineering, Inc.BDSP-010-B

POWER SUPPLY FOR CARD RACK DETECTORS - NEMA

MODEL

ICC.....PS24
PGKPS-1.2

SINGLE CHANNEL SHELF MOUNT DETECTORS, STANDARD

MODEL

Eberle Design Incorporated (EDI).....LMD301S
Sarasota.....535B/MS

SINGLE CHANNEL SHELF MOUNT DETECTORS, TIME DELAY

MODEL

Eberle Design Incorporated (EDI).....LMD301T
Sarasota.....535T/MS

ULTRASONIC DETECTORS

MODEL

Microwave Sensors.....TC-30

2-CHANNEL CARD RACK COUNTING DETECTORS, DUAL OUTPUT

Eberle Design Incorporated (EDI).....LMD632

MISSOURI DEPARTMENT OF TRANSPORTATION

APPROVED PRODUCTS LIST

2-CHANNEL CARD RACK COUNTING DETECTORS, SINGLE OUTPUT PULSE MODE (NEMA)

MODEL

Eberle Design Incorporated (EDI).....	LMD632T
ICC.....	S27B
Reno A & E	C

2-CHANNEL CARD RACK DETECTORS, STANDARDMODEL (170)

Eberle Design Incorporated (EDI).....	LM222
Eberle Design Incorporated (EDI).....	LMD222
Reno A & E	222
Sarasota.....	222-GP5
Sarasota.....	222 GP6

2-CHANNEL CARD RACK DETECTORS, STANDARD (NEMA)

MODEL

Eberle Design Incorporated (EDI).....	LMD602R
ICC.....	S27B
Reno A & E	C
Reno A & E	G

2-CHANNEL CARD RACK DETECTORS, TIME DELAYMODEL (NEMA)

Eberle Design Incorporated (EDI).....	LMD602TR
Reno A & E	C
Reno A & E	GT

SIGNAL HEADS

BACKPLATES

MODEL

Chapel Hill	44xx Series
Intelight	BP INTLIT Series
Pelco.....	BK-100x Series
Neodesia Plastics.....	BP 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	5202
Reliable 1/4" Strandvise	5200

MISSOURI DEPARTMENT OF TRANSPORTATION

APPROVED PRODUCTS LIST

LOUVERS

MODEL

Pelco.....GPL

POLYCARBONATE SIDE-MOUNT BRACKETS WITH RELATED HARDWARE

MODEL

Component Products.....Any
EagleUKS1452AB

SIGNAL HEADS - OPTICALLY LIMITED

MODEL

Intelight, Inc.ESB Series
McCainHPTS Series

SIGNAL HEADS - POLY CONVENTIONAL

MODEL

Chapel HillSIG-TPB-305-CTN-NVN-0N (3 section)
Chapel HillSIG-TPB-586-CTN-NVN-0N (5 section)
EagleSA Series
Econolite.....TP Series
General Traffic Equipment Corp.....T-30 POLY
IDC/SafetransLT Series
McCainMTSTP Series
Traffic Control Technologies (TCT).....PSS Series

PEDESTRIAN HEAD – POLY 1-SECTION

MODEL

McCainM32258

PEDESTRIAN LED SIGNAL INDICATION

MODEL

Pedestrian LED signal indications must be ETL verified. The ETL verified listing is located at [Intertek ETL Verified Listing - Link located at: http://www.intertek.com/lighting/infrastructure/traffic-signals/](http://www.intertek.com/lighting/infrastructure/traffic-signals/)

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 pre-approved 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 ProductsMO13TR11 - Rev. B (Type C)
Ameron Pole ProductsMO13TR12 - Rev. B (Type CL)
Ameron Pole ProductsMO13TR13 - Rev. B (Type B)
Ameron Pole ProductsMO13TR14 - Rev. B (Type BL)
JEM Engineering & Manufacturing.....MODOT1-4 Rev. 2 (Types C, CL, B & BL)

MISSOURI DEPARTMENT OF TRANSPORTATION

APPROVED PRODUCTS LIST

Maico Industries, Inc.	MOMAST 1-5A Rev. 1-6 (Types C, CL, B & BL)
Millerbernd Manufacturing Company	780C388 (Type B)
Millerbernd Manufacturing Company	780C389 (Type BL)
Millerbernd Manufacturing Company	780C49 (Type C)
Millerbernd Manufacturing Company	780C51 (Type CL)
Millerbernd Manufacturing Company	500A971
Pelco Structural, LLC	MODMA1001 & 1002 (Type B)
Pelco Structural, LLC	MODMAL1001 & 1002 (Type BL)
Pelco Structural, LLC	MOSMA1001 & 1002 (Type C)
Pelco Structural, LLC	MOSMAL1001 & 1002 (Type CL)
Union Metals.....	30443-B202 - Rev. 19 (Types C, CL, B & BL)
Valmont	DB00408 - Rev. H (Types B, BL, C, & CL)

MISCELLANEOUS

LOOP SEALANTS

MODEL

(Loop sealants do not require material certification)

3M.....	5000
Bondo	575
Bondo	P606
Chemque	290S
Chemque	296-06
Durant Paints.....	Stat-A-Flex Polyseal
RAI Products	Pro-Seal 6006

PEDESTAL BASES

MODEL

Akron Foundry	TS-1000-L-P
Akron Foundry	TS-1000-L-WP
Component Products.....	CPI-BAS-1
Pelco.....	PB5336
Pelco.....	PB5337
Pelco.....	PB5340
Pelco.....	PB5341
Traffic Parts	TP 289 X

SPLICE KITS (DETECTOR LEAD-IN)

MODEL

3M.....	DBY Series
HOMAC HMC Industries	RAB 1/0 Series

METER SERVICE PEDESTAL (SIGNALS/SIGNALS & LIGHTING) MODEL

Milbank 120V Signal Only	CP3B51C1PAAOMO1
Milbank 120V Signal with 2 –Circuit 240V Lighting.....	CP3B51C1PBAOMO2
Milbank 120V Signal with 2-Circuit 240V Lighting Dual Meter.....	CP3B62C2NBAOMO1
Myers 120V Signal with 2-Circuit 240V Lighting	MEUGLA-M100-MDOT
Myers 120V Signal with 2-Circuit 240V Lighting	MEUG 20
Pacific Utility Products 120V Signal Only.....	USP16-M2100-112C-MODOT6-TS

MISSOURI DEPARTMENT OF TRANSPORTATION

APPROVED PRODUCTS LIST

Pacific Utility Products 120V Signal with 2-Circuit 240V LightingUSPAR-100-100-MODOT

Note: -- (Pacific Utility Products - product listed with "R" is ring less meter sockets, other utilities requiring ring type meter socket, have the "6" at the end of the catalog number)

Pacific Utility Products 120V Signal with 2-Circuit 240V LightingUSP16R-M2100-112C-MODOT

Note: -- (Pacific Utility Products - product listed with "R" is ring less meter sockets, other utilities requiring ring type meter socket, have the "6" at the end of the catalog number)

Pacific Utility Products 120V Signal with 2-Circuit 240V LightingUSP24-M2100-100-MODOT6-TSL

Pacific Utility Products 120V Sgnl w/2-Circuit 240V Lighting Dual Mtr USPD-2M2100-100-MODOT6

Tesco 120V Signal with 2-Circuit 240V Lighting28-105 Type III BF

Tesco 120V Signal with 2-Circuit 240V Lighting28-102F

LIGHT EMITTING DIODES (LED)

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

PROGRAMMABLE VIEW

MODEL

Dialight.....	P463R33003 (Red Ball)
Dialight.....	P463Y33003 (Yellow Ball)
Dialight.....	P463G33003 (Green Ball)
GELcore	DR3-RCFB-01A (Red Ball)
GELcore	DR3-YCFB-01A (Yellow Ball)
GELcore	DR3-GCFB-01A (Green Ball)

VIDEO DETECTION SYSTEMS

VIDEO DETECTOR

MODEL

Aldis.....	GridSmart
Econolite.....	Autoscope 2020
Econolite.....	Autoscope RackVision
Econolite.....	Autoscope RackVision Terra
Econolite.....	Autoscope Solo Terra
Iteris.....	Vantage Edge2
Iteris.....	Vantage Next
Iteris.....	Vantage Vector
Peek Traffic Corp.....	VideoTrak IQ-P
Peek Traffic Corp.....	VideoTrak IQ-ITS

MISSOURI DEPARTMENT OF TRANSPORTATION APPROVED PRODUCTS LIST

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	MO98AT3 – Rev. 4 (Type AT45) Design 1 & 2
Ameron Pole Products	MO98AT2 – Rev. 4 (Type AT45) Design 3, 4 & 5
Ameron Pole Products	MO98AT4 – Rev. 3 (Type AT30)
Ameron Pole Products	MO98B2 – Rev. 3 (Type B45 & MB45)
Ameron Pole Products	MO98B4 – Rev. 2 (Type B30)
JEM Engineering and Manufacturing	MO-AT30 – Rev. 3 (Type AT30)
JEM Engineering and Manufacturing	MO-AT45 – Rev. 3 (Type AT45)
Millerbernd Manufacturing Co.	730B907 (Type AT30)
Millerbernd Manufacturing Co.	730B653 (Type AT45)
Millerbernd Manufacturing Co.	730B908 (Type B30)
Millerbernd Manufacturing Co.	730B909 (Type B45)
Millerbernd Manufacturing Co.	730B910 (Type MB45)
Union Metals.....	71020-B2 - Rev. 5 (Type AT30)
Union Metals.....	71020-B3 - Rev. 4 (Type B30)
Union Metals.....	71019-B6 - Rev. 7 (Type AT45)
Union Metals.....	71019-B7 - Rev. 4 (Types B45 & MB45)
Union Metals.....	71019-B8 – Rev. 3 (Type B30)
Union Metals.....	71019-B9 – Rev. 3 (Type B45)
Union Metals.....	71019-B10 – Rev. 3 (Type MB45)
Union Metals.....	71020-B103 – Rev. 3 (Type AT30)
Union Metals.....	71020-B104 – Rev. 4 (Type AT45)
Valmont	DB00019 – Rev. N (Types AT30 & B30)
Valmont	DB00020 – Rev. N (Types AT45, B45 & MB45)

ALUMINUM POLES

Valmont	MO-051707 (Type AT-30)
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MISSOURI DEPARTMENT OF TRANSPORTATION

APPROVED PRODUCTS LIST

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 ARM MOUNT - 150 WATT	MODEL
American Electric Lighting	115 Series
American Electric Lighting	Durastar 2000, Series 30
Crouse-Hinds/Cooper	OVZ Series
Crouse-Hinds/Cooper	OVX Series
General Electric (GE).....	M2RR Series
Holophane.....	Mongoose Series

BRACKET ARM MOUNT - 250 WATT	MODEL
American Electric Lighting	115 Series
American Electric Lighting	Durastar 2000, Series 30
Crouse-Hinds/Cooper	OVZ Series
Crouse-Hinds/Cooper	OVX Series
General Electric (GE).....	MSRL Series
Holophane.....	Mongoose Series

BRACKET ARM MOUNT - 400 WATT	MODEL
American Electric Lighting	125 Series
American Electric Lighting	Durastar 2000, Series 30
Crouse-Hinds/Cooper	OVX Series
General Electric (GE).....	MSRL Series
Holophane.....	Mongoose Series

MISSOURI DEPARTMENT OF TRANSPORTATION

APPROVED PRODUCTS LIST

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

Holophane.....	HL2A Series
Holophane.....	Mongoose Series

SIGN LIGHTING - 250 WATT

MODEL

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

SIGN LIGHTING - 400 WATT

MODEL

Holophane.....	PANL Series
Holophane.....	SNVW Series

UNDERPASS (WALLPACKS)

MODEL

American Electric Lighting	582 Series
Cooper	WPK Series
General Electric (GE).....	WAL Series
Holophane.....	MDWP Series
Holophane.....	WL2K Series
Hubbell	PGM-150S Series

CONTROL EQUIPMENT

CONTACTORS-ELECTROMECHANICAL

MODEL

Square D.....	Type S
Westinghouse/Cutler-Hammer	A202 Series

CONTACTORS-MERCURY

MODEL

Dayton/Duracool	6A/6X Series
Magnecraft.....	WM Series

MISSOURI DEPARTMENT OF TRANSPORTATION APPROVED PRODUCTS LIST

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 CONTROL.....MODEL

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	SST-120 (120 volt)
Area Lighting Research	SST-240 (240 volt)
Area Lighting Research	SST-PV (120/240 volt)
American Electric Lighting	D120-1.0-STJ (Dark to Light) (120 volt)
American Electric Lighting	D124-1.0-STJ (120/240 volt)
American Electric Lighting	D240-1.0-STJ (240 volt)
American Electric Lighting	DE480-1.0-TJ (480 volt)
Fischer-Pierce.....	FPN7790B (105 – 285 volt)
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)
ITT	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)

MISSOURI DEPARTMENT OF TRANSPORTATION APPROVED PRODUCTS LIST

MISCELLANEOUS

AVIATION LIGHTING MODEL

Hughey & Philips.....KG114

FUSED SLIP CONNECTORS MODEL

NOTE: Slip connectors require a six-month evaluation.

BussHEB-JWRYC
IDEAL30-S2212

METER SERVICE PEDESTAL (LIGHTING) MODEL

Milbank 4-Circuit 240V LightingCP3B51C1PBAOMO3
Milbank 4-Circuit 480V LightingCP3B51D1PBAOMO1
Milbank 4-Circuit 480V Lighting (used for Ameren cold sequence)CP3B51D1PBAOMOCS1
Pacific Utility Products 4-Circuit 240V Lighting.....USP24-M2100-100-MODOT6
Pacific Utility Products 4-Circuit 480V Lighting.....USP16-M2100-100-MODOT
Pacific Utility Products 4-Circuit 480V Lighting.....USP24-M2100-100-MODOT6-480

NAVIGATION LIGHTING MODEL

TidelandML-140 with TF-3AC Lamp Changer
Automatic Power, Inc.....FA-143

SPLICE KITS MODEL

3M82A1 (Single)
3M82A2 (Single)
3M82B1 (Three Way)
3M82B2 (Three Way)
HOMAC HMC Industries.....RAB 1/0 Series

TRANSFORMER BASES MODEL

Akron FoundryTB1-17H (for AT30)
Akron FoundryTB3-17H (for AT45)

MISSOURI DEPARTMENT OF TRANSPORTATION

APPROVED PRODUCTS LIST

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

MODEL

Straight

Armorcast Products Company	A6001640TAPCX22 (Box & Lid)
Carson Industries	H1730-24 (Box)
CDR	A14-1730 series-22" (Box & Lid)
Composite Industries	CI183024PB1P
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	A6001640TAX24 (Box & Lid)
CDR	A12-1730 series-22" (Box & Lid)
Highline	CHA173024HO1R
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

MODEL

Straight

Armorcast Products Company	A6001974TAPCX26 (Box & Lid)
Armorcast Products Company	A6001974TAPCX24
Carson Industries.....	H2436-24 (Box)
.....	H2436-PI (Lid)
CDR	A14-2436 series-24" (Box & Lid)
Composite Industries	CI243624PB1P
Highline	PHA243624HO1R
Martin Enterprises.....	243624PC
Strongwell/Quazite.....	PG2436B539 (Box)
	PG2436H508 (Lid)
	PG2436BA Series
Synertech.....	S2436B26AA (Box)
	S2436HCB0A (Lid)

MISSOURI DEPARTMENT OF TRANSPORTATION

APPROVED PRODUCTS LIST

PREFORMED PULL BOX-CLASS 2

Flared

	MODEL
Armorcast Products Company	A6001974TAX26 (Box & Lid)
Armorcast Products Company	A6001974TAX24
CDR	A12-2436 series-24" (Box & Lid)
Highline	CHA243624HO1R
Martin Enterprises	2436/24 FRP
NewBasis	FCA243630CC4126-61 (Box & Lid)
NewBasis	FCA243630CC4749-61 (Box & Lid)
NewBasis	FCA243624T Series (Box & Lid)
Pencell Plastics	PEM-2436-36 (Box & Lid)
Pencell Plastics	PEM-2436-PCX-24 (Box & Lid)
Synertech	S2436B24AA (Box)
.....	S2436HCB0A (Lid)

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	CI304836PB1P
Highline	PHA304836HO1R
Martin Enterprises	304836PC
Strongwell/Quazite	PG3048B560 (Box)
	PG3048H517 (Lid)
	PG3048BA Series
Synertech	S3048B36AA (Box)
	S3048HCB0A (Lid)

Flared

Armorcast Products Company	A6001550TAX36 (Box & Lid)
CDR	A12-3048-series 36" (Box & Lid)
Highline	CHA304836HO1R
Martin Enterprises	3048/36 FRP
NewBasis	FCA304836EE4749-61 (Box & Lid)
NewBasis	FCA304836T Series (Box & Lid)
Pencell Plastics	PEM-3048-36-PCX-SPLIT (Box & Lid)

PREFORMED PULL BOX-CLASS 5

Flared

	MODEL
Armorcast Products Company	A6001466TA (Box & Lid)
Armorcast Products Company	A6000172TAX36 (Box & Lid)
CDR	A12-3200 series-36" (Box & Lid)
Highline Products	CRA3236H01
Martin Enterprises	320036 FRP
NewBasis	FCA320036T Series
NewBasis	FCA540036C4800 (Box & Lid)
NewBasis	FCA540036C40336 (Box & Lid)
NewBasis	FCA540036-MODOT
Quazite	PR3944Z504

MISSOURI DEPARTMENT OF TRANSPORTATION APPROVED PRODUCTS LIST

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 www.modot.state.mo.us 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.

MISSOURI DEPARTMENT OF TRANSPORTATION

APPROVED PRODUCTS LIST

VI. HIGHWAY SIGNING EQUIPMENT

BREAKAWAY DEVICES

MANUFACTURER	DESCRIPTION, MODEL
Ultimate Highway Products	Triangular Slip Base for 2.5" PSST, Slip-Mate
Xcessories Squared	Kleen Break 425 for 2" PSST, XKB42520-G
Xcessories Squared	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
Northwest Pipe Company	S-Q 8" Square Slipbase for 2.5" PSST, 31209
Designovations, Inc	Snap n Safe S200 and S200S (2")
Designovations, Inc	Snap n Safe S250 and S250 S (2.5")
Dent Breakaway Industries, Inc	3/4" Dent Bolt, #6882
Dent Breakaway Industries, Inc	5/8" Dent Bolt, #6878
Dent Breakaway Industries, Inc	1/2" Dent Bolt, #6874
Dent Breakaway Industries, Inc	5/8" Ground Anchors (Galvanized)
Dent Breakaway Industries, Inc	5/8" Modified Dent Bolt, #6220
Dent Breakaway Industries, Inc	3/4" Modified Dent Bolt, #6882

FOUNDATIONS/ANCHORS

MANUFACTURER	DESCRIPTION, MODEL
None	None

SIGN HARDWARE

MANUFACTURER	DESCRIPTION, MODEL
Xcessories Squared	Aluminum Post Clamp for 2.5" Pipe, XAPC278RD
Xcessories Squared	Aluminum Post Clamp for 3" Pipe, XAPC350RD
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

**MISSOURI DEPARTMENT OF TRANSPORTATION
APPROVED PRODUCTS LIST**

SIGNS

MANUFACTURER	DESCRIPTION, MODEL
Tapco	Blinkersigns

MISSOURI DEPARTMENT OF TRANSPORTATION APPROVED PRODUCTS LIST

TRAFFIC SIGNALS AND HIGHWAY LIGHTING EQUIPMENT

ADDED:

<u>FUSED SLIP CONNECTORS</u>	<u>MODEL</u>
IDEAL.....	30-S2212

<u>ISOLATORS (170 only)</u>	<u>MODEL</u>
(242=DC, 252=AC)	
RENO A&E	242 – DC (2 Channel)

<u>PERFORMED PULL BOX-CLASS 1</u>	<u>MODEL</u>
Flared	
Martin Enterprises.....	1730/22 FRP

<u>PERFORMED PULL BOX-CLASS 2</u>	<u>MODEL</u>
Flared	
Martin Enterprises.....	2436/24 FRP

<u>PERFORMED PULL BOX-CLASS 3</u>	<u>MODEL</u>
Flared	
Martin Enterprises.....	3048/36 FRP

<u>PREFORMED PULL BOX-CLASS 5</u>	<u>MODEL</u>
Flared	
Martin Enterprises	320036 FRP

<u>STEEL POST AND MAST ARMS</u>	<u>DRAWING NUMBER</u>
Ameron Pole Products	MO13TR13 - Rev. B (Type B)
(December 2015)	
Ameron Pole Products	MO13TR14 - Rev. B (Type BL)
(December 2015)	

<u>VIDEO DETECTION SYSTEMS</u>	<u>MODEL</u>
<u>VIDEO DETECTOR</u>	
Aldis.....	GridSmart
Iiteris.....	Vantage Next
(December 2015)	
Iiteris.....	Vantage Vector
(December 2015)	
Peek Traffic Corp	VideoTrak IQ-P
Peek Traffic Corp	VideoTrak IQ-ITS

MISSOURI DEPARTMENT OF TRANSPORTATION APPROVED PRODUCTS LIST

DELETED:

2-CHANNEL CARD RACK DETECTORS, TIME DELAYMODEL **(NEMA)**

3MCanoga C800 Series
(This product is no longer manufactured per Global Traffic Technologies, LLC – 5/21/2015)

LOOP SEALANTS **MODEL** Bondo560

SURGE PROTECTORS **MODEL** Emerson Network PowerSHA 1210

VIDEO DETECTION SYSTEMS

VIDEO DETECTOR	MODEL
Traficon..... (July 2015)	VIP 3D.1
Traficon..... (July 2015)	VIP 3D.2

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

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

METER SERVICE PEDESTAL (SIGNALS/SIGNALS & LIGHTING)MODEL

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

Pacific Utility Products 120V Signal with 2-Circuit 240V LightingUSPAR-100-100-MODOT

Pacific Utility Products 120V Signal with 2-Circuit 240V LightingUSP16-M2100-112C-MODOT
Changed to (April 2015)

Pacific Utility Products 120V Signal with 2-Circuit 240V LightingUSP16R-M2100-112C-MODOT

MISSOURI DEPARTMENT OF TRANSPORTATION

APPROVED PRODUCTS LIST

METER SERVICE PEDESTAL (LIGHTING).....MODEL

Pacific Utility Products 4-Circuit 480V LightingUSP16-M2100-112C-MODOT
 Changed to (April 2015)
 Pacific Utility Products 4-Circuit 480V LightingUSP16-M2100-100-MODOT

MOUNTING SOCKET FOR PHOTOELECTRIC CONTROLMODEL

NOTE: Mounting sockets require a six-month evaluation.

American Electric LightingPBC
 Changed to (April 2013)
 American Electric LightingDUR

SCREW ANCHOR FOUNDATIONS

DRAWING NUMBER

Hubbell ChanceSA112-0696 – Rev. G (Type AT30)
 Changed to (November 2013)
 Hubbell ChanceSA112-0696 – Rev. H (Type AT30)

 Hubbell ChanceSA112-0786 – Rev. D (Type AT45)
 Changed to (November 2013)
 Hubbell ChanceSA112-0786 – Rev. E (Type AT45)

SOLID STATE PRETIMED CABINET AND BACK PANEL ASSEMBLIES

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

STEEL POST AND MAST ARMS

DRAWING NUMBER

Ameron InternationalMO9811 - Rev. 9 (Type C)
 Changed to (December 2015)
 Ameron Pole ProductsMO13TR11 - Rev. B (Type C)

 Ameron InternationalMO9812 - Rev. 10 (Type CL)
 Changed to (December 2015)
 Ameron Pole ProductsMO13TR12 - Rev. B (Type CL)

 Valmont.....DB00408 – Rev. C (Types C, CL, B & BL)
 Changed to (revised 10/18/13)
 Valmont.....DB00408 – Rev. G (Types C, CL, B & BL)
 Changed to (revised 10/18/13)
 Valmont.....DB00408 – Rev. H (Types B, BL, C & CL)

SURGE PROTECTORS

MODEL

Emerson Network Power1250
 Changed to
 Emerson Network PowerEdco SHA-1250

**MISSOURI DEPARTMENT OF TRANSPORTATION
APPROVED PRODUCTS LIST**

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)