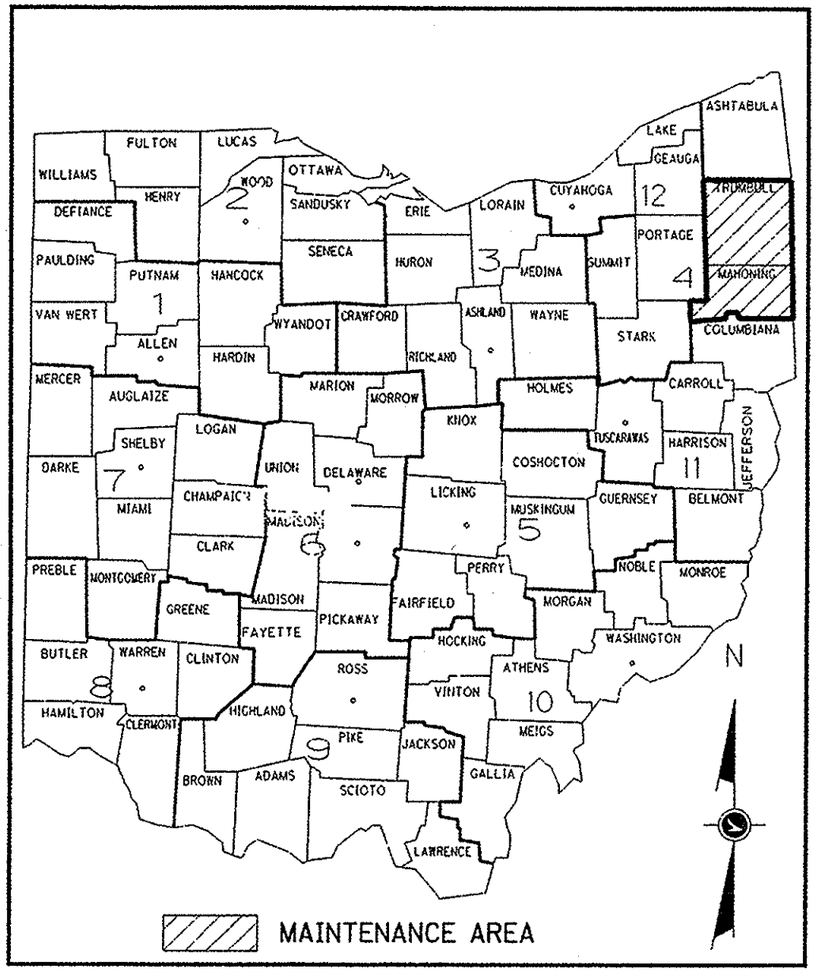
STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

PROJECT DESCRIPTION

INSTALLING SIGNAL HEADS WITH L.E.D.S AND BACKPLATES, TETHER WIRES AND OTHER SIGNAL RELATED DEVICES AT EXISTING TRAFFIC SIGNALS.

D04-TSG-FY2013(EAST)

MAHONING & TRUMBULL COUNTIES



LATITUDE: 41 °10'58" LONGITUDE: 80°45'34"

PROJECT EARTH DISTURBED AREA:	N/A MAINTENANCE PROJECT
ESTIMATED CONTRACTOR EARTH DISTRUBED AREA:	N/A MAINTENANCE PROJECT
NOTICE OF INTENT EARTH DISTURBED AREA:	N/A MAINTENANCE PROJECT

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2010 SPECIFICATIONS

THE STANDARD SPECIFICATIONS OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, INCLUDING CHANGES AND SUPPLEMENTAL SPECIFICATIONS LISTED IN THE PROPOSAL SHALL GOVERN THIS IMPROVEMENT.

I HEREBY APPROVED THESE PLANS AND DECLARE THAT THE MAKING OF THIS IMPROVEMENT WILL NOT REQUIRE THE CLOSING TO TRAFFIC OF THE HIGHWAY AND THAT PROVISIONS FOR THE MAINTENANCE AND SAFETY OF TRAFFIC WILL BE AS SET FORTH ON THE PLANS AND ESTIMATES.

UNDERGROUND UTILITIES

CONTACT BOTH SERVICES
CALL TWO WORKING DAYS
BEFORE YOU DIG

CALL
1-800-362-2764
(TOLL FREE)
OHIO UTILITIES PROTECTION SERVICE
NON-MEMBERS
MUST BE CALLED DIRECTLY

OIL & GAS PRODUCERS PROTECTIVE
SERVICE CALL: 1-800-925-0988

PLAN PREPARED BY:

ODOT - DISTRICT 4
Roadway Services
2088 S.Arlington St
AKRON, OH 44306

ENGINEERS SEAL:

STATE OF OHIO
KENNETH J GREENE
E-58379
REGISTERED
PROFESSIONAL ENGINEER

SIGNED: Kenneth J Greene
DATE: 10-17-12

STANDARD CONSTRUCTION DRAWINGS								SUPPLEMENTAL SPECIFICATIONS
MT-95.30	7/20/12							800-2010 10/19/12
MT-95.31	7/20/12							832 05/05/09
MT-95.32	7/20/12	TC-81.10	10/21/11					
MT-97.10	7/20/12							
MT-105.10	7/20/12	TC-84.20	1/21/11					
		TC-84.21	1/19/07					
		TC-85.10	10/16/09					
TC-41.20	1/19/01	TC-85.20	7/15/11					
TC-42.20	1/21/11							
TC-52.10	1/19/07							SPECIAL PROVISIONS
TC-52.20	1/19/07							

APPROVED Anthony Wamsley
DATE 9/5/12 DISTRICT DEPUTY DIRECTOR

APPROVED Jerry Wray
DATE 10/18/12 DIRECTOR, DEPARTMENT OF TRANSPORTATION

FEDERAL PROJECT NO.	E120(984)
PID NO.	92827
CONSTRUCTION PROJECT NO	
RAILROAD INVOLVEMENT	NONE
	D04-TSG-FY2013(EAST)

D04 - VA-TSG-FY2013 (EAST)
120668 PID - 92827
Dist 4 12/13/2012
Contract Proposal Available @www.contracts.dot.state.oh.us / home
I:\Projects\D04\92827\Roadway\Sheets\92827GT001.dgn 05-SEP-2012 11:23AM

SCOPE OF WORK

THE PURPOSE OF THIS CONTRACT IS TO MODIFY EXISTING SIGNALIZED INTERSECTIONS TO FURNISH AND INSTALL SOME OR ALL OF THE FOLLOWING ITEMS AT EACH INTERSECTION:

A. VEHICULAR SIGNAL HEADS WITH LIGHT EMITTING DIODE (LED LAMPS AND BACKPLATES
B. PEDESTRIAN SIGNAL HEADS WITH LIGHT EMITTING DIODE (LED) LAMPS AND COUNTDOWN DISPLAYS
C. BOTTOM TETHER WIRES FOR SPAN WIRE MOUNTED SIGNAL HEADS
D. ADJUST EXISTING SPAN WIRE POLE ATTACHMENT HEIGHT OR SAG TO INCREASE SIGNAL HEAD CLEARANCE TO PAVEMENT

TERM OF CONTRACT

THE TERM OF THE CONTRACT SHALL BE FROM THE DATE OF AWARD FOR A PERIOD OF TWELVE (12) MONTHS OR UNTIL ALL WORK DESCRIBED IN THE PLANS IS COMPLETED, WHICHEVER COMES FIRST.

WORK ASSIGNMENT PROCESS

THE DISTRICT, THROUGH THE ENGINEER, WILL PROVIDE THE CONTRACTOR WITH LOCATIONS TO BE UPGRADED. PRIOR TO ASSIGNING THE WORK TO THE CONTRACTOR, THE CONTRACTOR AND THE ENGINEER WILL PERFORM A SITE INSPECTION TO ESTABLISH THE QUANTITIES FOR THE LOCATION AND DETERMINE IF THERE ARE UTILITY CONFLICTS WITH THE PROPOSED TETHER WIRES. SEE NOTES FOR "SIGNALIZATION MISC.: SPAN WIRE ADJUSTMENT" AND "UTILITY NOTE".

IF IT IS DETERMINED THAT THE WORK CAN BE PERFORMED, THE ENGINEER SHALL RECORD THE DATE THAT THE CONTRACTOR ACKNOWLEDGES ACCEPTANCE OF THE LOCATION. THE CONTRACTOR WILL HAVE 60 CALENDAR DAYS FROM THIS DATE TO COMPLETE THE WORK AT THIS INTERSECTION. IF THE CONTRACTOR DOES NOT COMPLETE THE WORK AT THE INTERSECTION WITHIN 60 CALENDAR DAYS, DISINCENTIVES OF $1000 PER DAY WILL BE ASSESSED UNTIL THE WORK IS COMPLETED TO THE SATISFACTION OF THE ENGINEER. TO FACILITATE COMPLETION OF THE WORK WITHIN THE REQUIRED TIME PERIOD, THE CONTRACTOR HAS THE OPTION TO ACCEPT A MAXIMUM OF 12 SITES IN ANY 30 DAY PERIOD AT ANY TIME DURING THE CONTRACT, UNLESS OTHERWISE AGREED TO BY THE CONTRACTOR. COMPLETION OF THE 10 DAY PERFORMANCE TEST DOES NOT ABSOLVE THE CONTRACTOR FROM THE DISINCENTIVES IF THE PROJECT WORK HAS NOT BEEN COMPLETED TO THE SATISFACTION OF THE ENGINEER.

WORK INSPECTION

THE CONTRACTOR SHALL PROVIDE THE ENGINEER WITH 48 HOUR NOTICE OF ANY WORK TO BE PERFORMED AT THE INTERSECTION SITE SO THAT INSPECTION SERVICES CAN BE SUPPLIED.

GENERAL SUMMARY ESTIMATED QUANTITIES

QUANTITIES SHOWN IN THE GENERAL SUMMARY ARE ESTIMATED QUANTITIES BASED ON ALL OF THE POTENTIAL LOCATIONS BEING INCLUDED WITHIN THIS CONTRACT. THEY ARE NOT TO BE CONSTRUED AS EXACT AND VARIANCE CAN BE EXPECTED IN THE ACTUAL QUANTITIES BASED ON ACTUAL FIELD REVIEW. ALL PAY ITEMS LISTED IN THE PLANS ARE CONSIDERED CONTINGENCY QUANTITIES MEANING THAT THE CONTRACTOR WILL NOT RECEIVE PAYMENT FOR WORK THAT IS NOT PERFORMED OR MATERIALS THAT ARE NOT USED UNLESS OTHERWISE SPECIFIED IN THE PLANS. THE ESTIMATED QUANTITIES ASSUME THAT ALL VEHICULAR SIGNAL HEADS WILL BE REPLACED, BUT WILL NOT INCLUDE BACK PLATES FOR ALL HEADS.

THE CONTRACTOR SHALL NOT ORDER MATERIALS FOR ANY LOCATION UNTIL THE ENGINEER ESTABLISHES THE QUANTITIES THROUGH THE SITE INSPECTION.

UTILITIES NOTE

DURING THE SITE INSPECTION, THE CONTRACTOR SHALL CHECK FOR CONFLICTS BETWEEN PROPOSED TETHER WIRES, EXISTING UTILITY LINES, AND THE NEED TO RAISE THE EXISTING SPAN WIRE. WHERE SUCH CONFLICTS EXIST, THE CONTRACTOR SHALL PROPOSE A WORK PLAN TO AVOID THE CONFLICTS. IF THE UTILITY CONFLICTS CANNOT BE WORKED AROUND, THE ENGINEER MAY CANCEL SOME OR ALL WORK AT THIS LOCATION.

632 SIGNALIZATION MISC.: SPAN WIRE ADJUSTMENT

THE NEW SIGNAL HEADS WITH BACKPLATES MAY RESULT IN INSUFFICIENT CLEARANCE FROM THE PAVEMENT TO THE BOTTOM OF THE BACKPLATE OR TETHER WIRE. SCD TC-85.20 REQUIRES A CLEARANCE OF 17 TO 19 FEET FOR TETHERED SIGNAL HEADS AND A CLEARANCE OF 16 TO 18 FEET FOR UNTETHERED SIGNAL HEADS. DURING THE SITE INSPECTION, THE ENGINEER AND CONTRACTOR WILL DETERMINE IF THE EXISTING SIGNAL SPAN WIRE ELEVATION WILL PROVIDE A MINIMUM 17 FT. CLEARANCE WITH THE NEW SIGNAL HEADS. IF NOT, THEY WILL DETERMINE IF THE SPAN WIRE ATTACHMENTS AT THE STRAIN POLE CAN BE RAISED OR THE SPAN WIRE SAG REDUCED. IT IS PREFERABLE TO RAISE THE SPAN AT THE POLES INSTEAD OF ADJUSTING THE SAG.

THE ENGINEER MAY REDUCE THE MINIMUM CLEARANCE TO 16.5 FT. AT ANY LOCATION. WORK AT A LOCATION WILL NOT BE ASSIGNED IF THIS MINIMUM CANNOT BE OBTAINED.

PAYMENT FOR ITEM 632 "SIGNALIZATION MISC.: SPAN WIRE ADJUSTMENT" WILL BE MADE FOR EACH INTERSECTION AT WHICH THE CONTRACTOR RAISES THE SPAN, INCLUDING ALL LABOR AND EQUIPMENT.

632 REMOVAL OF MISCELLANEOUS TRAFFIC SIGNAL ITEM, VEHICULAR SIGNAL HEAD
632 REMOVAL OF MISCELLANEOUS TRAFFIC SIGNAL ITEM, PEDESTRIAN SIGNAL HEAD

SIGNAL HEADS REMOVED ON THIS PROJECT, BOTH VEHICULAR AND PEDESTRIAN, WILL BE DELIVERED TO THE DISTRICT FACILITY AT:
ODOT - BAILEY ROAD OUTPOST
BAILEY RD
NORTH JACKSON, OH
CONTACT: KENNETH GREENE, 330-786-3145
DELIVERY HOURS: 8:00 AM - 2:00 PM

GUARANTEE

THE CONTRACTOR SHALL GUARANTEE THAT THE TRAFFIC CONTROL EQUIPMENT INSTALLED AS PART OF THIS CONTRACT SHALL OPERATE SATISFACTORILY FOR A PERIOD OF 90 DAYS FOLLOWING THE SUCCESSFUL COMPLETION OF THE 10 DAY PERFORMANCE TEST.

THE GUARANTEE SHALL COVER ALL TRAFFIC SIGNAL EQUIPMENT, LAMPS AND WIRING INSTALLED BY THE CONTRACTOR AT THE INTERSECTION AS PART OF THIS CONTRACT. CUSTOMARY AND APPLICABLE ODOT SPECIFIED MANUFACTURER'S GUARANTEES FOR THE INSTALLED ITEMS SHALL BE TURNED OVER TO THE STATE FOLLOWING ACCEPTANCE OF THE EQUIPMENT. THE COST OF GUARANTEEING THE TRAFFIC CONTROL SYSTEM WILL BE INCIDENTAL TO AND INCLUDED IN THE CONTRACT UNIT PRICE OF THE VARIOUS ITEMS MAKING UP THE SYSTEM.

614 MAINTAINING TRAFFIC MISC.: PER LOCATION

THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING TRAFFIC DURING THE INSTALLATION OF ALL INTERSECTION WORK ITEMS. ALL TRAFFIC CONTROL DEVICES SHALL BE FURNISHED, ERECTED, MAINTAINED AND REMOVED BY THE CONTRACTOR. THE FOLLOWING REQUIREMENTS APPLY:

1. LANE CLOSURES ON ANY STREET, RAMP OR BUSINESS ENTRANCE IN THE PROJECT WILL NOT OCCUR DURING THE PEAK VOLUME HOURS OF 6 AM TO 9 AM, AND 3 PM TO 7PM.

2. THE USE OF A LAW ENFORCEMENT OFFICER WITH PATROL CAR IS REQUIRED IF THE CONTRACTOR TURNS THE INTERSECTION SIGNALS OFF OR PUTS THE INTERSECTION IN FLASHING OPERATION.

THE INTENT IS TO PERFORM THE REQUIRED WORK WITH THE LEAST INCONVENIENCE TO, AND THE MAXIMUM SAFETY TO, THE CONTRACTOR AND THE TRAVELLING PUBLIC. ANY VARIANCE FROM THESE MAINTENANCE OF TRAFFIC NOTES MUST BE APPROVED IN ADVANCE IN WRITING BY THE ENGINEER. EXCEPT AS MODIFIED BELOW, THE REQUIREMENTS FOR MAINTENANCE OF TRAFFIC AS INDICATED IN THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS(OMUTCD) CURRENT EDITION, LATEST REVISION, AND PERTINENT ITEMS AND SPECIFICATIONS AND PROPOSALS SHALL APPLY.

THE CONTRACTOR SHALL NOT CLOSE ANY LANES OR OTHERWISE IMPEDE THE FLOW OF TRAFFIC:

A] DURING NATIONAL HOLIDAYS, MOTHERS DAY AND EASTER

B] DURING HOLIDAY WEEKENDS, A "HOLIDAY WEEKEND" FOR TRAFFIC CONTROL PURPOSES IS TO BEGIN AT NOON ON THE LAST NORMAL WEEKDAY PRECEEDING THE HOLIDAY WEEKEND AND IS TO END AT NOON ON THE FIRST NORMAL WEEKDAY FOLLOWING THE WEEKEND. A DAY BETWEEN THE HOLIDAY AND SATURDAY OR SUNDAY IS CONSIDERED PART OF THE WEEKEND [I.E., THE FRIDAY AFTER THANKSGIVING].

C) THE CONTRACTOR SHALL DO ABSOLUTELY NO WORK OR CLOSE ANY LANES OF TRAFFIC, IN ANY DIRECTION DURING THE PEAK HOURS DEFINED BELOW ON THE FOLLOWING ROUTES:

MAHONING COUNTY
SR7 FROM SR165 TO SR625
6-9AM AND 3-6PM, MONDAY THRU FRIDAY
US224 FROM SR11 TO I-680
6-9AM AND 3-6PM, MONDAY THRU FRIDAY
10AM TO 9PM SATURDAY
SR46 FROM CR18 TO TRUMBULL COUNTY
6-9AM AND 3-6PM, MONDAY THRU FRIDAY
SR625 FROM US224 TO I-680
6-9AM AND 3-6PM, MONDAY THRU FRIDAY

TRUMBULL COUNTY
SR193 FROM N CORP YOUNGSTOWN TO SR304
6-9AM AND 3-6PM, MONDAY THRU FRIDAY
SR45 FROM N CORP WARREN TO SR305
6-9AM AND 3-6PM, MONDAY THRU FRIDAY
US62 FROM I-80 TO SR7
7-9AM AND 3-6PM, MONDAY THRU FRIDAY
SR82 FROM ELM RD TO SR11
7-9AM TO 2-7PM, MONDAY THRU FRIDAY

D] THE CONTRACTOR SHALL DO ABSOLUTELY NO WORK OR CLOSE ANY LANES OF TRAFFIC, IN ANY DIRECTION AT THE FOLLOWING LOCATIONS DURING THE NOTED EVENTS:

MAHONING COUNTY
US224 FROM SR11 TO I-680

EVENTS AND TIMES:
MAHONING COUNTY [CANFIELD] FAIR
NOON TUESDAY BEFORE LABOR DAY TO NOON TUESDAY AFTER LABOR DAY

PAYMENT FOR ITEM 614 "MAINTAINING TRAFFIC MISC.: PER LOCATION" SHALL INCLUDE ALL THE ITEMS REQUIRED TO MAINTAIN TRAFFIC IN ACCORDANCE WITH THESE REQUIREMENTS, THE PAYMENT BID ITEM SHALL BE ON AN EACH BASIS FOR EACH OF THE SIGNALIZED INTERSECTIONS

CALCULATED KJG
CHECKED RMB

GENERAL NOTES

D04-TSG-FY2013(EAST)

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ITEM 614 - LAW ENFORCEMENT OFFICER (WITH PATROL CAR) FOR ASSISTANCE DURING CONSTRUCTION OPERATIONS

USE OF LAW ENFORCEMENT OFFICERS (LEOS) BY CONTRACTORS OTHER THAN THE USES SPECIFIED BELOW WILL NOT BE PERMITTED AT PROJECT COST. LEOS SHOULD NOT BE USED WHERE THE OMUTCD INTENDS THAT FLAGGERS BE USED.

IN ADDITION TO THE REQUIREMENTS OF CMS 614 AND THE OMUTCD, A UNIFORMED LEO WITH AN OFFICIAL PATROL CAR (CAR WITH TOP-MOUNTED EMERGENCY FLASHING LIGHTS AND COMPLETE MARKINGS OF THE APPROPRIATE LAW ENFORCEMENT AGENCY) SHALL BE PROVIDED FOR THE FOLLOWING TRAFFIC CONTROL TASKS:

DURING THE ENTIRE ADVANCE PREPARATION AND CLOSURE SEQUENCE WHERE COMPLETE BLOCKAGE OF TRAFFIC IS REQUIRED.

DURING A TRAFFIC SIGNAL INSTALLATION WHEN IMPACTING THE NORMAL FUNCTION OF THE SIGNAL OR THE FLOW OF TRAFFIC OR WHEN TRAFFIC NEEDS TO BE DIRECTED THROUGH AN ENERGIZED TRAFFIC SIGNAL CONTRARY TO THE SIGNAL DISPLAY (E.G., DIRECTING MOTORISTS THROUGH A RED LIGHT).

LEOS SHOULD NOT FORGO THEIR TRAFFIC CONTROL RESPONSIBILITIES TO APPREHEND MOTORISTS FOR ROUTINE TRAFFIC VIOLATIONS. HOWEVER, IF A MOTORIST'S ACTIONS ARE CONSIDERED TO BE RECKLESS, THEN PURSUIT OF THE MOTORIST IS APPROPRIATE.

THE LEOS WORK AT THE DIRECTION OF THE ENGINEER. THE CONTRACTOR IS RESPONSIBLE FOR SECURING THE SERVICES OF THE LEOS WITH THE APPROPRIATE AGENCIES AND COMMUNICATING THE INTENTIONS OF THE PLANS WITH RESPECT TO DUTIES OF THE LEOS. THE ENGINEER SHALL HAVE FINAL CONTROL OVER THE LEOS' DUTIES AND PLACEMENT, AND WILL RESOLVE ANY ISSUES THAT MAY ARISE BETWEEN THE TWO PARTIES.

THE LEO SHALL REPORT IN TO THE CONTRACTOR PRIOR TO THE START OF THE SHIFT, IN ORDER TO RECEIVE INSTRUCTIONS REGARDING SPECIFIC WORK ASSIGNMENTS DURING HIS/HER SHIFT. THE LEO IS EXPECTED TO STAY AT THE PROJECT SITE FOR THE ENTIRE DURATION OF HIS/HER SHIFT. THE LEO SHALL REPORT TO THE CONTRACTOR AT THE END OF HIS/HER SHIFT. ONCE THE LEO HAS COMPLETED THE DUTIES DESCRIBED ABOVE AND STILL HAS TIME REMAINING ON HIS/HER SHIFT, THE LEO MAY BE ASKED TO PATROL THROUGH THE WORK ZONE (WITH FLASHING LIGHTS OFF) OR BE PLACED AT A LOCATION TO DETER MOTORISTS FROM SPEEDING. SHOULD IT BE NECESSARY TO LEAVE THE PROJECT SITE, THE LEO SHALL NOTIFY THE ENGINEER. THE CONTRACTOR SHALL PROVIDE THE LEO WITH A TWO-WAY COMMUNICATION DEVICE WHICH SHALL BE RETURNED TO THE CONTRACTOR AT THE END OF HIS/HER SHIFT.

LEOS (WITH PATROL CAR) REQUIRED BY THE TRAFFIC MAINTENANCE TASKS ABOVE SHALL BE PAID FOR ON A UNIT PRICE (HOURLY) BASIS UNDER ITEM 614, LAW ENFORCEMENT OFFICER (WITH PATROL CAR) FOR ASSISTANCE. THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY.

ITEM 614, LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE 260 HOURS

THE HOURS PAID SHALL INCLUDE ANY MINIMUM SHOW-UP TIME REQUIRED BY THE LAW ENFORCEMENT AGENCY INVOLVED.

ANY ADDITIONAL COSTS (ADMINISTRATIVE OR OTHERWISE) INCURRED BY THE CONTRACTOR TO OBTAIN THE SERVICES OF AN LEO ARE INCLUDED WITH THE BID UNIT PRICE FOR ITEM 614, LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE.

624 MOBILIZATION, AS PER PLAN

BECAUSE THE TOTAL NUMBER OF LOCATIONS TO BE UPGRADED MAY BE REVISED BY THE SITE INSPECTION AND MAY BE SPREAD ACROSS THE DISTRICT'S COUNTIES, PAYMENT FOR ITEM 624 "MOBILIZATION, AS PER PLAN" WILL BE ON AN EACH BASIS FOR EACH SIGNALIZED INTERSECTION WHERE THE CONTRACTOR HAS SATISFACTORILY COMPLETED THE CONTRACT WORK.

632 VEHICULAR SIGNAL HEAD, LED, (BY TYPE), WITH BACKPLATE, AS PER PLAN

THIS ITEM WILL BE USED TO REPLACE VEHICULAR SIGNAL HEADS AT THE EXISTING SIGNALIZED INTERSECTION. NEW ATTACHMENT HARDWARE SHALL BE INSTALLED FOR SPAN WIRE (INCLUDING THE SIGNAL HEAD HANGER ON THE SPAN WIRE) OR RIGID MOUNTED MAST ARM INSTALLATION. IN ADDITION TO THE REQUIREMENTS OF CMS 632 AND 732, THE FOLLOWING SHALL APPLY:

1. SIGNAL HEADS SHALL HAVE CUTAWAY VISORS (unless otherwise denoted in the plans) and meet ite SPECIFICATIONS.
2. PROPER EXTERIOR COLORS SHALL BE OBTAINED BY USE OF COLORED PLASTIC MATERIAL RATHER THAN PAINTING.
3. ALL UPPER SIGNAL SUPPORT HARDWARE AND PIPING UP TO AND INCLUDING THE WIRE INLET FITTING SHALL BE FERROUS METAL.
4. THE ENTRANCE FITTING SHALL BE OF THE TRI-STUD DESIGN WITH SERRATED RINGS IN ORDER TO ACHIEVE POSITIVE LOCKING.
5. ALUMINUM BACKPLATES WITH REFLECTIVE TAPE WILL BE IN ACCORDANCE WITH CMS 732.22.
6. THE LIGHT EMITTING DIODE (LED) SIGNAL LAMP UNITS SHALL MEET THE REQUIREMENTS OF C&MS 732.04-C. THE CONTRACTOR SHALL PROVIDE ODOT, IN WRITING, WITH THE LED MANUFACTURER NAME, SERIAL NUMBER, PART NUMBER, DESCRIPTION OF LAMP, AND DATE OF MANUFACTURE FOR ALL LED UNITS THAT ARE TO BE USED IN THE SIGNAL HEAD PRIOR TO INSTALLATION, FOR ACCEPTANCE AND WARRANTY PURPOSES.
7. BACKPLATES WILL BE INSTALLED IN THE DIRECTION AS SHOWN in the plans

REMOVAL OF AN EXISTING SIGNAL HEAD SHALL BE BY SEPARATE BID ITEM.

PAYMENT FOR ITEM 632 "VEHICULAR SIGNAL HEAD, LED, (BY TYPE), WITH BACKPLATE, AS PER PLAN" SHALL BE MADE FOR COMPLETE SIGNAL HEAD FURNISHED AND INSTALLED, INCLUDING ALL LABOR, EQUIPMENT, MATERIALS AND NEW ATTACHMENT HARDWARE.

632 VEHICULAR SIGNAL HEAD, LED, (BY TYPE), AS PER PLAN

THIS ITEM WILL BE USED TO REPLACE VEHICULAR SIGNAL HEADS WITHOUT BACKPLATES AT THE EXISTING SIGNALIZED INTERSECTION WHERE BACKPLATES ARE NOT INSTALLED ON ALL APPROACHES. NEW ATTACHMENT HARDWARE SHALL BE INSTALLED FOR SPAN WIRE (INCLUDING THE SIGNAL HEAD HANGER ON THE SPAN WIRE) OR RIGID MOUNTED MAST ARM INSTALLATION. IN ADDITION TO THE REQUIREMENTS OF CMS 632 AND 732, THE FOLLOWING SHALL APPLY:

1. SIGNAL HEADS AND VISORS SHALL BE CONSTRUCTED OF BLACK POLYCARBONATE PLASTIC WITH CUTAWAY VISORS AND MEET ITE SPECIFICATIONS.
2. PROPER EXTERIOR COLORS SHALL BE OBTAINED BY USE OF COLORED PLASTIC MATERIAL RATHER THAN PAINTING.
3. ALL UPPER SIGNAL SUPPORT HARDWARE AND PIPING UP TO AND INCLUDING THE WIRE INLET FITTING SHALL BE FERROUS METAL.
4. THE ENTRANCE FITTING SHALL BE OF THE TRI-STUD DESIGN WITH SERRATED RINGS IN ORDER TO ACHIEVE POSITIVE LOCKING.
5. THE LIGHT EMITTING DIODE (LED) SIGNAL LAMP UNITS SHALL MEET THE REQUIREMENTS OF C&MS 732.04-C. THE CONTRACTOR SHALL PROVIDE ODOT, IN WRITING, WITH THE LED MANUFACTURER NAME, SERIAL NUMBER, PART NUMBER, DESCRIPTION OF LAMP, AND DATE OF MANUFACTURE FOR ALL LED UNITS THAT ARE TO BE USED IN THE SIGNAL HEAD PRIOR TO INSTALLATION, FOR ACCEPTANCE AND WARRANTY PURPOSES.

REMOVAL OF AN EXISTING SIGNAL HEAD SHALL BE BY SEPARATE BID ITEM.

PAYMENT FOR ITEM 632 "VEHICULAR SIGNAL HEAD, LED, (BY TYPE), AS PER PLAN" SHALL BE MADE FOR COMPLETE SIGNAL HEAD FURNISHED AND INSTALLED, INCLUDING ALL LABOR, EQUIPMENT, MATERIALS AND NEW ATTACHMENT HARDWARE.

632 PEDESTRIAN SIGNAL HEAD, LED, COUNTDOWN, (BY TYPE), AS PER PLAN

THIS ITEM WILL BE USED TO REPLACE EXISTING PEDESTRIAN SIGNAL HEADS AT THE EXISTING SIGNALIZED INTERSECTION. IN ADDITION TO THE REQUIREMENTS OF CMS 632 AND 732 THE FOLLOWING SHALL APPLY:

1. SIGNAL HEADS AND VISORS SHALL BE CONSTRUCTED OF POLYCARBONATE PLASTIC AND MEET ITE SPECIFICATIONS.
2. PROPER EXTERIOR COLORS SHALL BE OBTAINED BY USE OF COLORED PLASTIC MATERIAL RATHER THAN PAINTING.
3. PIPE, SPACERS AND FITTINGS CONSTRUCTED OF POLYCARBONATE PLASTIC MAY BE USED IN LIEU OF GALVANIZED STEEL OR ALUMINUM.
4. THE PEDESTRIAN SIGNAL HEAD SHALL BE OF THE LED COUNTDOWN TYPE.
5. NEW ATTACHMENT HARDWARE AND FITTINGS SHALL USED.
6. THE LIGHT EMITTING DIODE (LED) SIGNAL LAMP UNITS SHALL MEET THE REQUIREMENTS OF C&MS 732.04-C. THE CONTRACTOR SHALL PROVIDE ODOT, IN WRITING, WITH THE LED MANUFACTURER NAME, SERIAL NUMBER, PART NUMBER, DESCRIPTION OF LAMP, AND DATE OF MANUFACTURE FOR ALL LED UNITS THAT ARE TO BE USED IN THE SIGNAL HEAD PRIOR TO INSTALLATION, FOR ACCEPTANCE & WARRANTY PURPOSES.

REMOVAL OF AN EXISTING SIGNAL HEAD SHALL BE BY SEPARATE BID ITEM.

PAYMENT FOR ITEM 632 "PEDESTRIAN SIGNAL HEAD, LED, COUNTDOWN, (BY TYPE), AS PER PLAN" SHALL BE MADE FOR COMPLETE SIGNAL HEAD FURNISHED AND INSTALLED, INCLUDING ALL LABOR, EQUIPMENT, MATERIALS AND NEW ATTACHMENT HARDWARE.

632 TETHER WIRE WITH ACCESSORIES, AS PER PLAN

INSTALLATION OF THE TETHER WIRE SHALL BE IN ACCORDANCE WITH CMS 632.225, 732.185 AND PLAN INSERT SHEET 208522 WITH THE FOLLOWING EXCEPTIONS:

II. SHIM WASHERS SHALL BE INSTALLED INSIDE THE SPAN WIRE CLAMP ON THE PIN ON WHICH THE SIGNAL HEAD WIRE ENTRANCE HANGS WHEN NECESSARY TO MINIMIZE TWISTING OF THE SIGNAL HEAD.
III. BALANCE ADJUSTERS SHALL NOT BE USED.
IV. ON ALL SPANS, BOTH SIMPLE AND COMPLEX, THE TETHER SPAN SHALL BE TIGHTENED TO PROVIDE A HORIZONTAL SPAN. SIGNAL HEAD DROP PIPES ON THE TOP OR EXTENDERS ON THE BOTTOM WILL BE USED TO KEEP THE TETHER WIRE SPAN IN A TIGHT HORIZONTAL POSITION.

IF EXTERNAL CONDUIT RISERS ATTACHED TO THE SUPPORT INTERFERE WITH THE ATTACHMENT OF THE TETHER WIRE POLE CLAMP, THE CONTRACTOR SHALL LOOSEN AND REATTACH THE CONDUIT RISER TO ALLOW INSTALLATION OF THE POLE CLAMP.

PAYMENT FOR ITEM 632 "TETHER WIRE WITH ACCESSORIES, AS PER PLAN" WILL BE MEASURED BY THE NUMBER OF FEET IN PLACE, AND WILL INCLUDE ALL NECESSARY ACCESSORIES SUCH AS ANCHOR SHACKLES, S-HOOKS YIELDING ELEMENT, THIMBLES, TURNBUCKLES, GUY GRIPS, WIRE ROPE CLIPS, LOCK WIRE, SAFETY TIE WIRE, AND SIGNAL HEAD TETHER ANCHORS AND EXTENDERS. PAYMENT ALSO INCLUDES ANY LABOR, EQUIPMENT AND MATERIALS NECESSARY TO MODIFY EXISTING CONDUIT RISERS.

CALCULATED KJG
CHECKED RMB

GENERAL NOTES

D04-TSG-FY2013(EAST)

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SHEET NUMBER									ITEM	ITEM EXT	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
				3		5		6						
													EROSION CONTROL	
									832	30000	1000	EACH	EROSION CONTROL	
													TRAFFIC SIGNALS	
						88		64	632	05007	152	EACH	VEHICULAR SIGNAL HEAD, (LED), BLACK, 3-SECTION, 12" LENS, 1-WAY, POLYCARBONATE, WITH BACKPLATE, AS PER PLAN	3
						31		19	632	05087	50	EACH	VEHICULAR SIGNAL HEAD, (LED), BLACK, 5-SECTION, 12" LENS, 1-WAY, POLYCARBONATE, WITH BACKPLATE, AS PER PLAN	3
						17		10	632	05301	27	EACH	VEHICULAR SIGNAL HEAD, (LED), BLACK, 3 SECTION, 12"LENS, 2-WAY, POLYCARBONATE, WITH 1-WAY BACKPLATE, AS PER PLAN	3
						11		5	632	05303	16	EACH	VEHICULAR SIGNAL HEAD, (LED), BLACK, 3 SECTION, 12"LENS, 2-WAY, POLYCARBONATE, WITH 2-WAY BACKPLATE, AS PER PLAN	3
						1			632	05315	1	EACH	VEHICULAR SIGNAL HEAD, (LED), BLACK, 5 SECTION, 12"LENS, 2-WAY, POLYCARBONATE, WITH 2-WAY BACKPLATE, AS PER PLAN	3
						78		52	632	05317	130	EACH	VEHICULAR SIGNAL HEAD, (LED), BLACK, 3 SECTION, 12"LENS, 1-WAY, POLYCARBONATE, AS PER PLAN	3
						16		4	632	05319	20	EACH	VEHICULAR SIGNAL HEAD, (LED), BLACK, 3 SECTION, 12"LENS, 2-WAY, POLYCARBONATE, AS PER PLAN	3
						2		2	632	05323	4	EACH	VEHICULAR SIGNAL HEAD, (LED), BLACK, 4 SECTION, 12"LENS, 1-WAY, POLYCARBONATE, AS PER PLAN	3
						23		6	632	05325	29	EACH	VEHICULAR SIGNAL HEAD, (LED), BLACK, 5 SECTION, 12"LENS, 1-WAY, POLYCARBONATE, AS PER PLAN	3
								1	632	05333	1	EACH	VEHICULAR SIGNAL HEAD, (LED), BLACK, 3-12" / 5-12" LENS, 2-WAY, POLYCARBONATE, WITH 2-WAY BACKPLATE, AS PER PLAN	3
								1	632	05335	1	EACH	VEHICULAR SIGNAL HEAD, (LED), BLACK, 3-12" / 5-12" LENS, 2-WAY, POLYCARBONATE, AS PER PLAN	3
						10		8	632	20731	18	EACH	PEDESTRIAN SIGNAL HEAD (LED) , (COUNTDOWN), TYPE D2, AS PER PLAN	3
						5993		4133	632	30601	10126	FT	TETHER WIRE, WITH ACCESSORIES, AS PER PLAN	3
						317		192	632	90020	509	EACH	REMOVAL OF MISCELLANEOUS TRAFFIC SIGNAL ITEM: VEHICULAR SIGNAL HEAD	2
						10		8	632	90020	18	EACH	REMOVAL OF MISCELLANEOUS TRAFFIC SIGNAL ITEM: PEDESTRIAN SIGNAL HEAD	2
						27		23	632	90400	50	EACH	SIGNALIZATION, MISC.: SPAN WIRE ADJUSTMENT	2
													MAINTENANCE OF TRAFFIC	
				260					614	11110	260	HOUR	LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE	
						40		25	614	18000	65	EACH	MAINTAINING TRAFFIC, MISC.: PER LOCATION	2
									619	16010	12	MONTH	FIELD OFFICE, TYPE B	
									623	10000	LUMP		CONSTRUCTION LAYOUT STAKES	
						40		25	624	15001	65	EACH	MOBILIZATION, AS PER PLAN	3

CALCULATED KJG
CHECKED RMB

GENERAL SUMMARY

D04-TSG-FY2013(EAST)

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CO	RTE	LOCATION	Backplate Directions	Vehicular Signal Head (LED) Black, 3-Section, 1-Way, 12" Lens, Polycarbonate, With Backplate, A.P.P.	Vehicular Signal Head (LED) Black, 3-Section, 1-Way, 12" Lens, Polycarbonate, A.P.P.	Vehicular Signal Head (LED) Black, 3-Section, 2-Way, 12" Lens, Polycarbonate, With 1-Way Backplate, A.P.P.	Vehicular Signal Head (LED) Black, 3-Section, 2-Way, 12" Lens, Polycarbonate, With 2-Way Backplate, A.P.P.	Vehicular Signal Head (LED) Black, 3-Section, 2-Way, 12" Lens, Polycarbonate, A.P.P.	Vehicular Signal Head (LED) Black, 4-Section, 1-Way, 12" Lens, Polycarbonate, A.P.P.	Vehicular Signal Head (LED) Black, 5-Section, 1-Way, 12" Lens, Polycarbonate, With Backplate, A.P.P.	Vehicular Signal Head (LED) Black, 5-Section, 1-Way, 12" Lens, Polycarbonate, A.P.P.	Vehicular Signal Head (LED), 5-Section, 2-Way, 12" Lens, With 2-Way Backplate, A.P.P.	Vehicular Signal Head (LED), 3-Section / 5-Section, 2-Way, 12" Lens, With 2-Way Backplate, A.P.P.	Vehicular Signal Head (LED), 3-Section / 5-Section, 2-Way, 12" Lens, A.P.P.	Pedestrian Signal Head, LED, Countdown, Type D2, As Per Plan	Removal of Misc. Traffic Signal Item: Vehicular Signal Head	Removal of Misc. Traffic Signal Item: Pedestrian Signal Head	Tether Wire with Accessories, As Per Plan	Signalization Misc: Span Wire Adjustment
				632	632	632	632	632	632	632	632	632	632	632	632	632	632	632	632	632
				Each	Each	Each	Each	Each	Each	Each	Each	Each	Each	Each	Each	Each	Each	Each	Feet	Each
MAH	7	165	E - W				2	2									8		exist	
MAH	7	164	on 164	2	3					1		1				8	9	8	392	1
MAH	7	McClurg Rd	N - S	3	2					1							6		exist	
MAH	7	Palestine Ave / Nisonger	N - S	4				2									8		exist	
MAH	7	Stadium Dr / Southern Park Mall	N - S	3	4					1							8		393	1
MAH	7	Buena Vista / Centervale	N - S	1	1	3											8		exist	
MAH	7	Wildwood / Woodrow	N - S	4				2									8		exist	1
MAH	7	Meadowbrook / Bank	N - S	3	1	1		1								2	8	2	exist	1
MAH	11 NB	Mahoning Ave (CR-18)	E - W	2		1				1							6		exist	1
MAH	11 SB	Mahoning Ave (CR-18) & Marcia	E - W	3	3					1	2						9		exist	1
MAH	45	Mahoning Ave (CR-18)	E - W	4	3					1							8		312	1
MAH	62	165	on 165	1	1	1		1	2								8		exist	
MAH	62	446	on 446				2	2									8		exist	1
MAH	62	Shields Rd / Raccoon Rd	E - W	2	2	2											8		exist	1
MAH	164	165	E - W				2	2									8		exist	
MAH	170	630	N - S				2	2									8		exist	
MAH	170	Dobbins Rd	N - S		1	1	1			1							6		exist	
MAH	170	Matthews Rd	N - S	2	1					1	1						6		exist	1
MAH	170	Lake Park Rd	E - W	3	1					1	1						6		exist	1
MAH	224	45	E - W			4											8		exist	
MAH	224	Palmyra	E - W				2	2									8		exist	
MAH	224	Westford	E - W	3	4					1							8		exist	1
MAH	224	625 / Tippecanoe	E - W		8 #						5						13		370	
MAH	224	Pheasant Dr	E - W	3	2					1							6		exist	1
MAH	224	Parkside	E - W	4	2												6		exist	1
MAH	224	West	E - W	2	2					2	2						8		301	1
MAH	224	Hitchcock	E - W	4	4												8		332	1
MAH	224	Glenwood	E - W	2 &	2 &					2 &	2 &						8		n/a	
MAH	224	Amherst	E - W	4	4												8		303	1
MAH	224	7 (Market)	E - W	3 *	2					3	2						10		431	1
MAH	224	Southern Park Mall	E - W	3	4					1							8		336	1
MAH	224	California	E - W	2	1					2	1						6		348	1
MAH	224	Southern	E - W	2	2					2	2						8		369	1
MAH	224	Shops West	E - W	3	4					1							8		336	1
MAH	224	Shops East	E - W	2	4					2							8		383	1
MAH	224	Applewood	E - W	2	3					2	1						8		335	1
MAH	224	South	E - W	6 **	1					1	2						11		287	1
MAH	224	Tiffany	E - W	2	2					2	2						8		395	1
MAH	534	Mahoning Ave (CR-18)	E - W			4											9		exist	
MAH	625	Shields Rd	E - W	4 ##	4												8		370	1
		Quantities carried to General Summary:		84	74	17	11	16	2	31	23	1		0	0	10	317	10	5623	26

* - 1 IS LEFT TURN ** - 2 ARE LEFT TURN # - 4 ARE LEFT TURN ## - 2 HAVE TUNNEL VISORS & - MAST ARM MOUNTED

CALCULATED KJG
CHECKED RB

SUB-SUMMARY: MAHONING

D04-TSG-FY2013(EAST)

I:\Projects\D04\92827\Roadway\Sheets\92827CQ001.dgn 04-SEP-2012 3:16PM rbisesi

CO	RTE	LOCATION	Backplate Directions	632 Vehicular Signal Head (LED) Black, 3-Section, 1-Way, 12" Lens, Polycarbonate, With Backplate, A.P.P. Each	632 Vehicular Signal Head (LED) Black, 3-Section, 1-Way, 12" Lens, Polycarbonate, A.P.P. Each	632 Vehicular Signal Head (LED) Black, 3-Section, 2-Way, 12" Lens, Polycarbonate, With 1-Way Backplate, A.P.P. Each	632 Vehicular Signal Head (LED) Black, 3-Section, 2-Way, 12" Lens, Polycarbonate, With 2-Way Backplate, A.P.P. Each	632 Vehicular Signal Head (LED) Black, 3-Section, 2-Way, 12" Lens, Polycarbonate, A.P.P. Each	632 Vehicular Signal Head (LED) Black, 4-Section, 1-Way, 12" Lens, Polycarbonate, A.P.P. Each	632 Vehicular Signal Head (LED) Black, 5-Section, 1-Way, 12" Lens, Polycarbonate, With Backplate, A.P.P. Each	632 Vehicular Signal Head (LED) Batck, 5-Section, 1-Way, 12" Lens, Polycarbonate, A.P.P. Each	632 Vehicular Signal Head (LED), 5-Section, 2-Way, 12" Lens, With 2-Way Backplate, A.P.P. Each	632 Vehicular Signal Head (LED), 3-Section / 5-Section, 2-Way, 12" Lens, With 2-Way Backplate, A.P.P. Each	632 Vehicular Signal Head (LED), 3-Section / 5-Section, 2-Way, 12" Lens, A.P.P. Each	632 Pedestrian Signal Head, LED, Countdown, Type D2, As Per Plan Each	632 Removal of Misc. Traffic Signal Item: Vehicular Signal Head Each	632 Removal of Misc. Traffic Signal Item: Pedestrian Signal Head Each	632 Tether Wire with Accessories, As Per Plan Feet	632 Signalization Misc: Span Wire Adjustment Each
TRU	5	82	E -W	4 ###	2													6		318	1
TRU	5/82 EB	Elm	N - S	2	2						2	3						8		395	1
TRU	5/82 WB	Elm	N - S	3	2						1							6		exist	1
TRU	7	Warren-Sharon	E -W	4 ##	4 ##													8		n/a	
TRU	11 NB	Tibbetts-Wick	E -W	2		2												6		exist	1
TRU	46	Mines	N - S	2	2			1			2							8		exist	1
TRU	46	Old Orchard / K-Mart	N - S	3	4						1							8		338	1
TRU	46	Eastwood Mall / Highland Terrace	N - S	2	2				2		2							8		exist	1
TRU	46	North Commons / Hidden Hills	N - S	3	4						1							8		395	1
TRU	46	Lowes	N - S	1 **	3	2					1							8		exist	1
TRU	46	82 EB	N - S	4 * #		2												7		exist	1
TRU	46	82 WB	N - S	4 #***	2													8		exist	1
TRU	46	Warren-Sharon	N - S	2	2						2	2					8	8	8	exist	1
TRU	62	Loganway / Applegate	US-62	1	1	1	1	1										8		exist	1
TRU	62	80 WB / TruckWorld	N - S	5	3						2	1						11		521	1
TRU	62	Loves Truckstop	N - S	4	4													8		440	1
TRU	62	Flying J Truckstop	N - S	5	2						1							8		588	1
TRU	62	Chestnut Ridge	US-62	6	4													10		419	1
TRU	80 EB	Salt Springs	N - S	3	2						1							6		exist	1
TRU	80 WB	Salt Springs	N - S	2	1	1					1							6		exist	
TRU	82	Bedford	E - W	4														8		383	1
TRU	193	Tibbets-Wick	N - S	2	4						2							8		336	1
TRU	193	Warren-Sharon	N - S				2	2										8		exist	1
TRU	304	Shady	E - W			2									1			6		exist	1
TRU	304	Loganway-Wick	E - W		2		2									1		8		exist	1
		Quantities carried to General Summary:		72	56	10	5	4		2	19	6	0		1	1	8	192	8	4133	23

* - 1 IS A LEFT TURN HEAD
** - 1 IS A RIGHT TURN HEAD
*** - 2 ARE LEFT TURN HEADS
\# - 1 IS POLE MOUNT
\#\# - HEADS TO BE RIGID MOUNT
\#\#\# - 2 HAVE TUNNEL VISORS

CALCULATED KJG
CHECKED RB

SUB-SUMMARY: TRUMBULL

D04-TSG-FY2013(EAST)

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ODOT FILE NO	CO	RTE	LOCATION	Span Type	Clearance	Span Lengths - Estimated A	B	C	D	E	F	G	H	Tether Wire with Accessories, As Per Plan
					Ft - In	Feet	Feet	Feet	Feet	Feet	Feet	Feet	Feet	Feet
381	MAH	7	165	SIMPLE	17-1	78								exist
380	MAH	7	164	Partial Box	15-10	73	80	71	88		44		36	392
652	MAH	7	McClurg Rd	2-SIMPLE	17-0	122	93							exist
1399	MAH	7	Palestine Ave / Nisonger Dr	SIMPLE	17-1	121								exist
1401	MAH	7	Stadium Dr / Southern Park Mall	BOX	16-1	82	68	81	78	22	22	20	20	393
653	MAH	7	Buena Vista / Centervale	2-SIMPLE	17-4	92	98							exist
654	MAH	7	Wildwood / Woodrow	SIMPLE	16-9	100+								exist
819	MAH	7	Meadowbrook / Bank	SIMPLE	16-9	96								exist
655	MAH	11 NB	Mahoning Ave (CR-18)	SIMPLE	16-7	136								exist
656	MAH	11 SB	Mahoning Ave (CR-18) & Marcia	4-SIMPLE	16-0	72	94	62	94					exist
382	MAH	45	Mahoning Ave (CR-18)	BOX	16-0	65	59	68	59	10	12	22	17	312
390	MAH	62	165	SIMPLE	17-0	122								exist
391	MAH	62	446	SIMPLE	16-10	88								exist
1642	MAH	62	Shields Rd / Raccoon Rd	SIMPLE	16-7	126								exist
393	MAH	164	165	SIMPLE	17-4	90								exist
1516	MAH	170	630	SIMPLE	17+	86								exist
659	MAH	170	Dobbins Rd	SIMPLE	17-4	122								exist
394	MAH	170	Matthews Rd	3-SIMPLE	16-9	70	71	77						exist
407	MAH	170	Lake Park Rd	3-SIMPLE	16-8	72	72		59					exist
395	MAH	224	45	SIMPLE	17-9	130								exist
1405	MAH	224	Palmyra	SIMPLE	17-3	112								exist
1472	MAH	224	Westford	4-SIMPLE	16-6	83	99	95	104					exist
661	MAH	224	625 / Tippecanoe	WYE	15-7	44	79	60	85	31	35		36	370
697	MAH	224	Pheasant Dr	4-SIMPLE	16-0	81	110	81	103					exist
398	MAH	224	Parkside	3-SIMPLE	17-4	87	58	92						exist
662	MAH	224	West	BOX	16-7	68	50	68	51	21	15	14	14	301
399	MAH	224	Hitchcock	BOX	16-6	71	74	71	73	6	7	14	16	332
400	MAH	224	Glenwood	MAST										n/a
663	MAH	224	Amherst	BOX	16-0	59	77	59	72	12	8	8	8	303
401	MAH	224	7 (Market)	BOX	18-0	60	60	60	60	35	39	72	45	431
1406	MAH	224	Southern Park Mall	BOX	16-4	63	50	64	50	17	17	37	38	336
664	MAH	224	California	BOX	16-0	71	71	71	71	12	14	11	27	348
402	MAH	224	Southern	Partial Box	16-1	90	64	86	63			66		369
1407	MAH	224	Shops West	BOX	16-3	73	48	73	48	28	28	20	18	336
1408	MAH	224	Shops East	BOX	16-10	74	77	77	60	22	33	18	22	383
665	MAH	224	Applewood	BOX	16-1	72	58	72	58	20	20	18	17	335
403	MAH	224	South	BOX	16-3	66	78	65	78					287
666	MAH	224	Tiffany	4-SIMPLE	16-3	93	109	100	93					395
405	MAH	534	Mahoning Ave (CR-18)	SIMPLE	17-5	144								exist
406	MAH	625	Shields Rd	Partial Box	16-10	44	79	60	85	31	35		36	370
													Sub-Total Mahoning Co:	5993

CONTRACTOR SHALL FIELD VERIFY ALL SPAN DIMENSIONS PRIOR TO CONSTRUCTING TETHER SPANS.

ODOT FILE NO	CO	RTE	LOCATION	Span Type	Low Clearance	Span Lengths - Estimated A	B	C	D	E	F	G	H	Tether Wire with Accessories, As Per Plan
					Ft - In	Feet	Feet	Feet	Feet	Feet	Feet	Feet	Feet	Feet
608	TRU	5	82	Wye	15-9	204	63	51						318
1478	TRU	5/82 EB	Elm	Box	15-10	77	60	78	60	40	25	34	21	395
1479	TRU	5/82 WB	Elm	Simple	15-10	140								exist
1299	TRU	7	Warren-Sharon	MAST	17-11									n/a
18135	TRU	11 NB	Tibbetts-Wick	Simple	16-10	170								exist
859	TRU	46	Mines	Simple	15-8	115								exist
1425	TRU	46	Old Orchard / K-Mart	Box	16-0	74	73	55	72	25	10	9	20	338
1426	TRU	46	Eastwood Mall / Highland Terrace	Simple	16-2	127								exist
1427	TRU	46	North Commons / Hidden Hills	Box	15-10	77	100	70	80	24	15	8	21	395
1428	TRU	46	Lowes	Simple	16-0	137								exist
860	TRU	46	82 EB	Simple	16-4	105+								exist
861	TRU	46	82 WB	Simple	15-8	132								exist
619	TRU	46	Warren-Sharon	4 - Simple	16-5	80	77	73	58					exist
621	TRU	62	Loganway / Applegate	Simple	16-3	85								exist
1430	TRU	62	80 WB / TruckWorld	Box	15-8	90	95	96	95	55	38	20	32	521
18078	TRU	62	Loves Truckstop	Box	15-10	90	90	59	88	40	27	32	14	440
18065	TRU	62	Flying J Truckstop	Box	16-8	125	107	125	112	25	30	37	27	588
863	TRU	62	Chestnut Ridge	H	16-0	110	72	130	70	37				419
623	TRU	80 EB	Salt Springs	Simple	16-11	170								exist
624	TRU	80 WB	Salt Springs	Simple	17-9	155								exist
629	TRU	82	Bedford	H	16-2	75	102	79	106	21				383
634	TRU	193	Tibbets-Wick	Box	16-0	56	80	54	72	20	20	23	11	336
635	TRU	193	Warren-Sharon	Simple	16-0	113								exist
1792	TRU	304	Shady	Simple	16-4	90								exist
866	TRU	304	Loganway-Wick	Simple	16-2	91								exist
													Sub-Total Trumbull Co:	4133
													Sub-Total Mahoning Co:	5993
													Total:	10126

CALCULATED KJG
CHECKED RB

SPAN DETAILS LIST

D04-TSG-FY2013(EAST)

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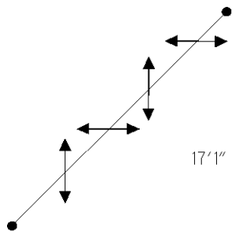
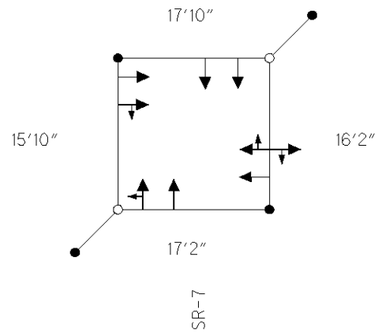
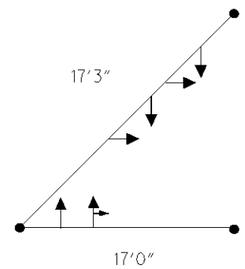
7 & 165



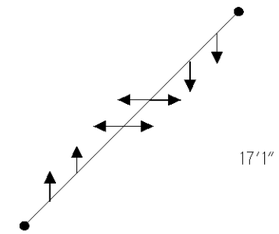
7 & 164



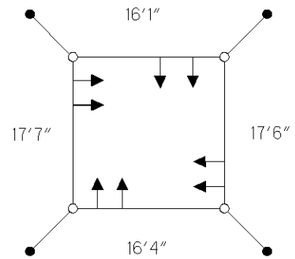
7 & MCCLURG



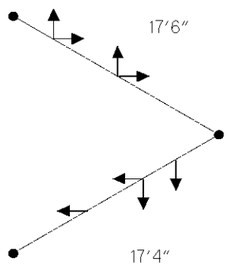
7 & PALESTINE / NISONGER



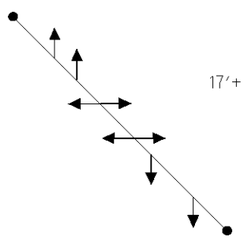
7 & STADIUM / MALL



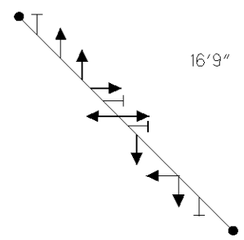
7 & BUENA VISTA / CENTERVALE



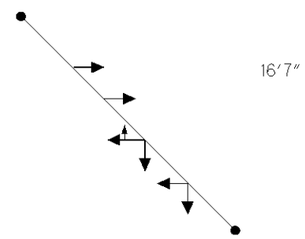
7 & WILDWOOD / WOODROW



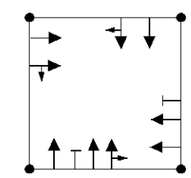
7 & MEADOWBROOK



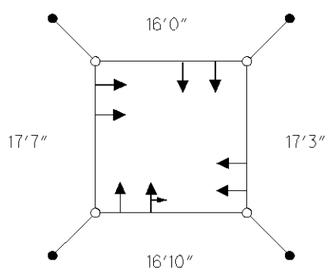
11 NB & MAHONING



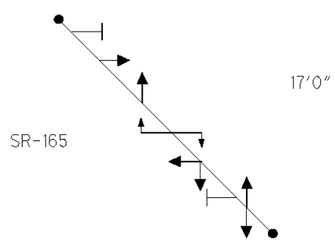
11 SB & MAHONING



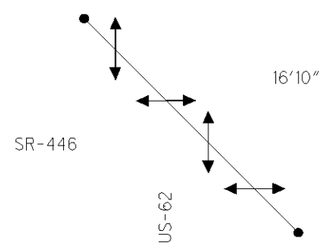
45 & MAHONING



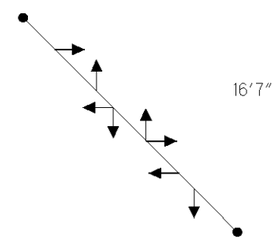
62 & 165



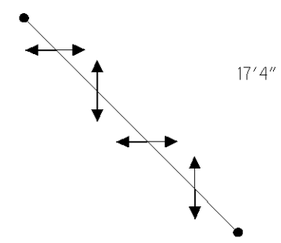
62 & 446



62 & SHIELDS / RACCOON



164 & 165



SPAN DETAILS - MAHONING

D04-TSG-
FY2013(EAST)

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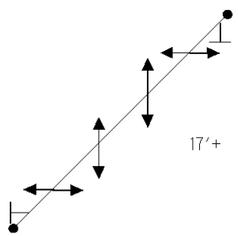
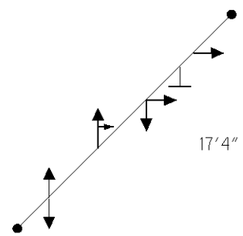
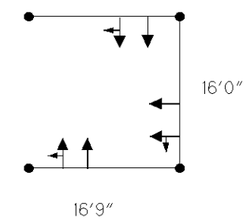
170 & 630



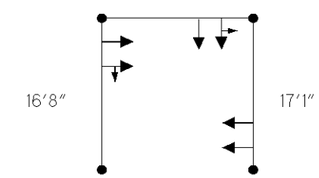
170 & DOBBINS



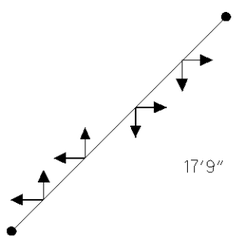
170 & MATHEWS



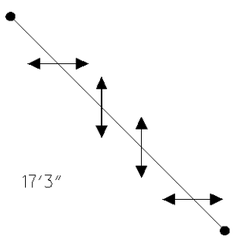
170 & LAKE PARK



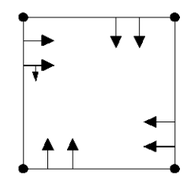
224 & 45



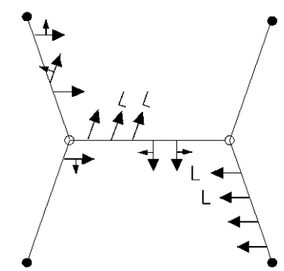
224 & PALMYRA



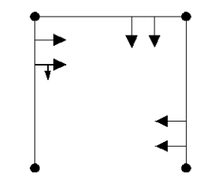
224 & WESTFORD



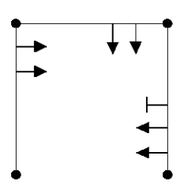
224 & 625/TIPPECANOE



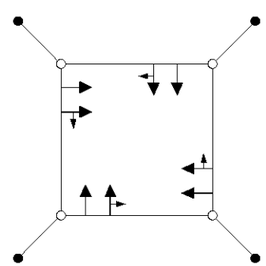
224 & PHEASANT



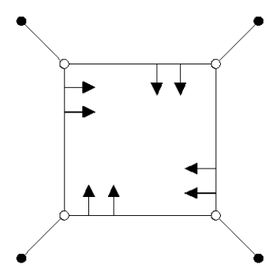
224 & PARKSIDE



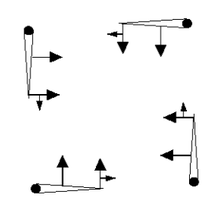
224 & WEST



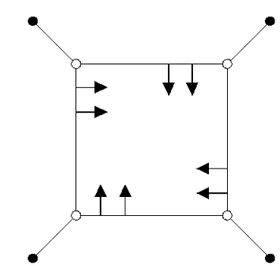
224 & HITCHCOCK



224 & GLENWOOD



224 & AMHERST



SPAN DETAILS - MAHONING

D04-TSG-
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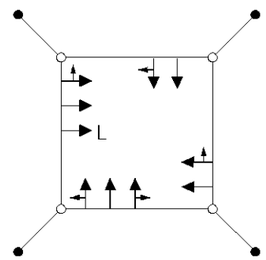
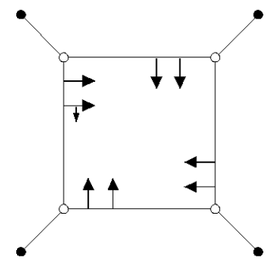
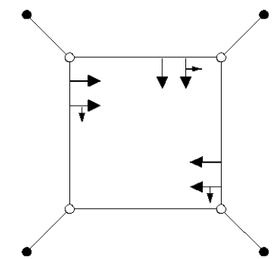
224 & 7



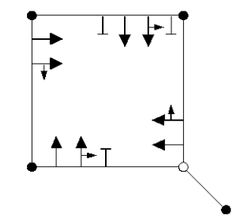
224 SOUTHERN PARK MALL



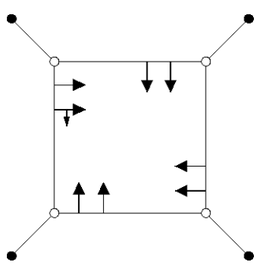
224 & CALIFORNIA



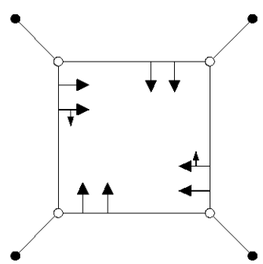
224 & SOUTHERN



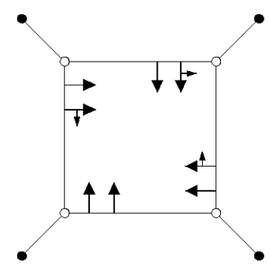
224 & SHOPS WEST



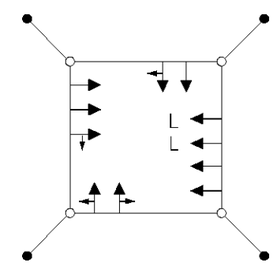
224 & SHOPS EAST



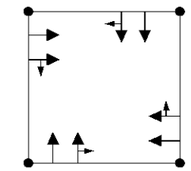
224 & APPLEWOOD



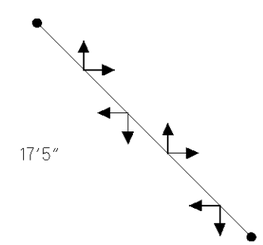
224 & SOUTH



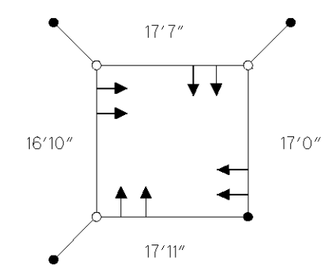
224 & TIFFANY



534 & MAHONING



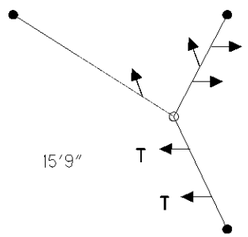
625 & SHIELDS



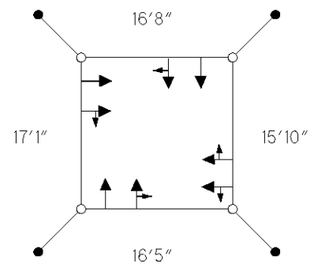
SPAN DETAILS - MAHONING

D04-TSG-
FY2013(EAST)

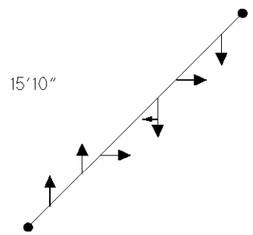
5 & 82



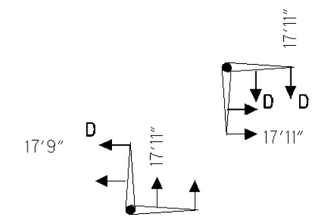
5 EB & ELM



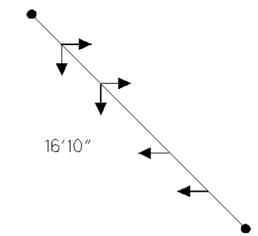
5 WB & ELM



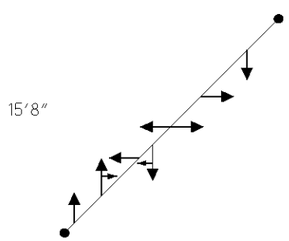
7 & WARREN-SHARON



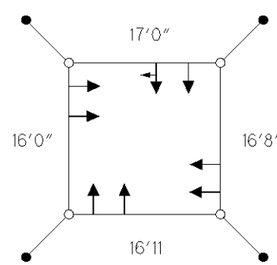
11 NB & TIBBETTS-WICK



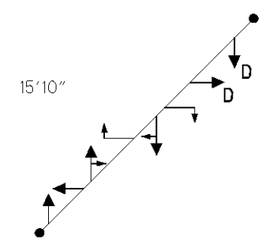
46 & MINES



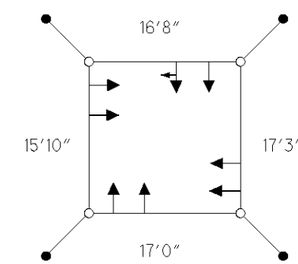
46 & K-MART



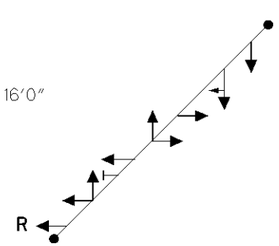
46 & EASTWOOD MALL



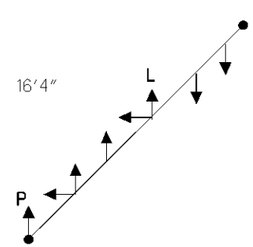
46 & NORTH COMMONS



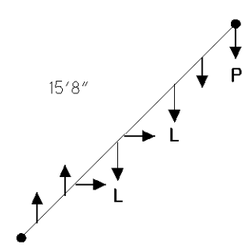
46 & LOWES



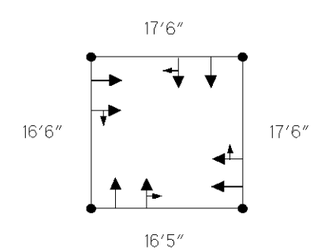
46 & 82 EB



46 & 82 WB



46 & WARREN-SHARON



SPAN DETAILS - TRUMBULL

D04-TSG-
FY2013(EAST)

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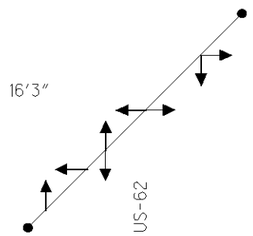
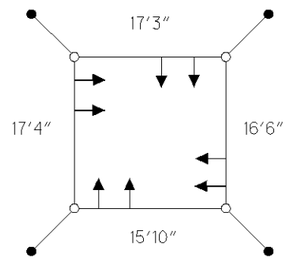
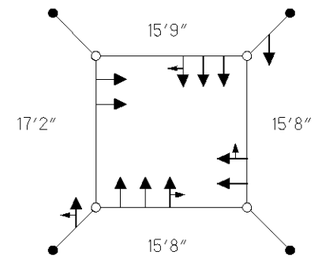
62 & LOGANGATE/APPLEGATE



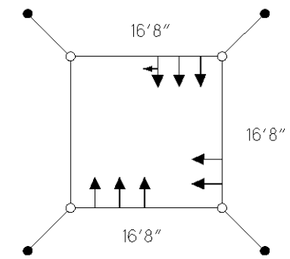
62 & LOVES



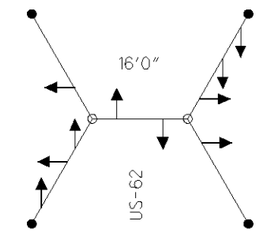
62 & 80WB/TRUCKWORLD



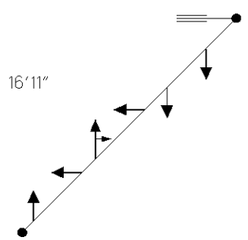
62 & FLYING J



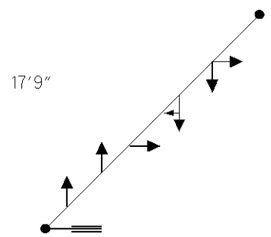
62 & CHESTNUT RIDGE



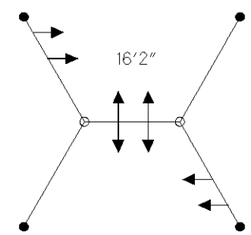
80 EB & SALT SPRINGS



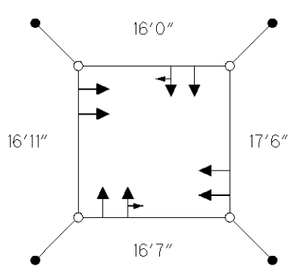
80 WB & SALT SPRINGS



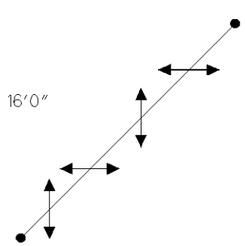
82 & BEDFORD



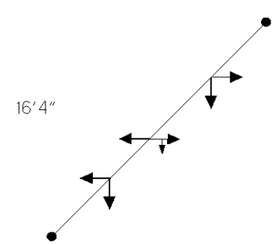
193 & TIBBETTS-WICK



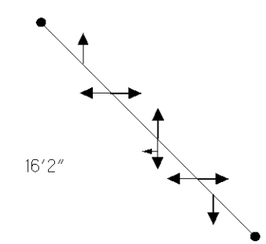
193 & WARREN-SHARON



304 & SHADY



304 & LOGANWAY



D - DROP PIPE

L - LEFT TURN SIGNAL HEAD

P - POLE OR PEDESTAL MOUNTED

T - TUNNEL VISOR

← - 3 UNIT HEAD

- 4 UNIT HEAD

- 5 UNIT HEAD

SPAN DETAILS - TRUMBULL

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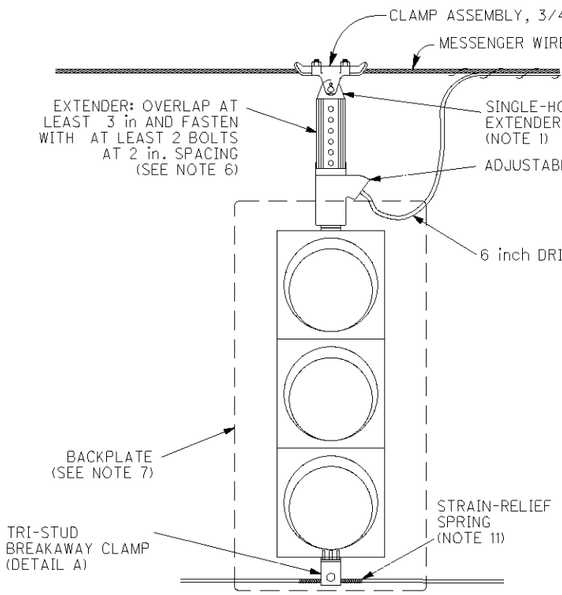
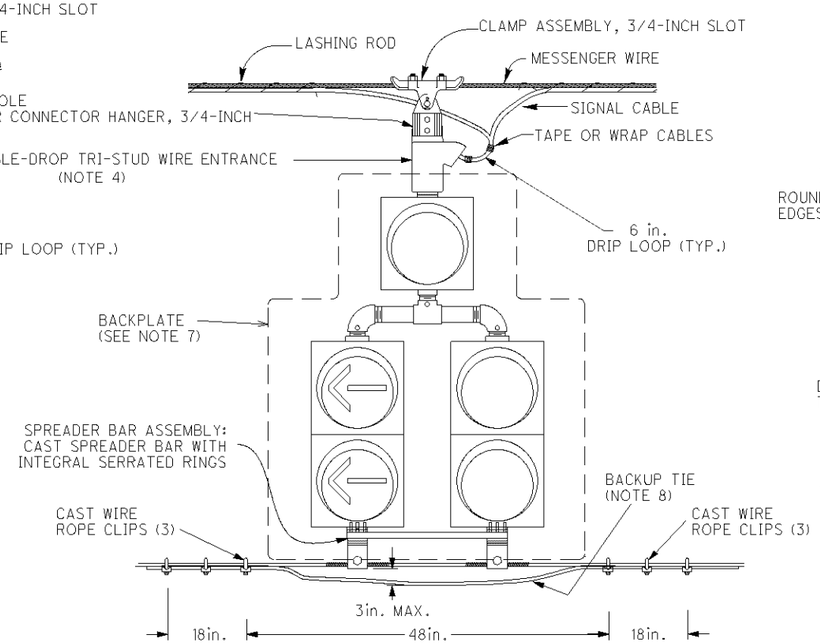


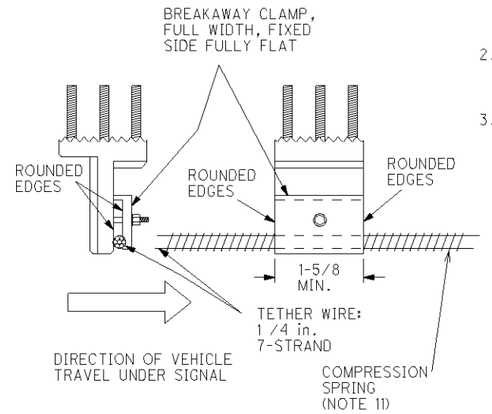
1-4 SECTION SIGNAL HEAD SUSPENSION

(NOTE 10)



5-SECTION SIGNAL HEAD SUSPENSION

(NOTE 10)

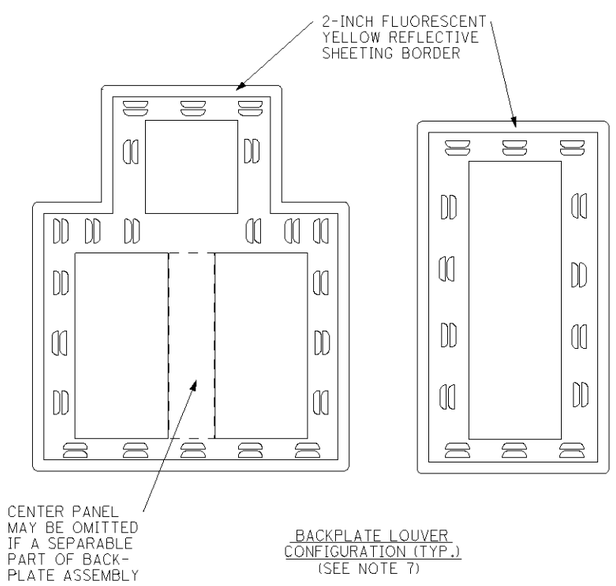


DETAIL A: BREAKAWAY TETHER ANCHOR

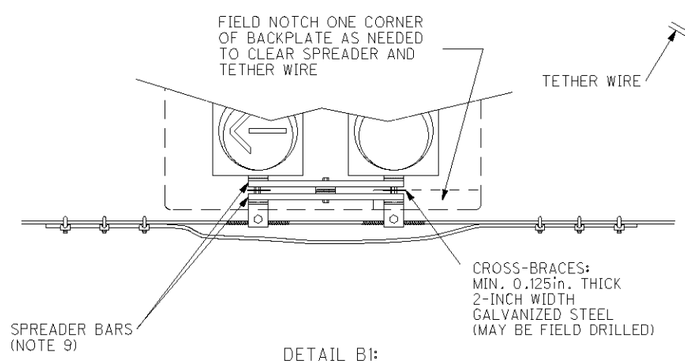
(TYPICAL, SEE NOTE 6)

NOTES

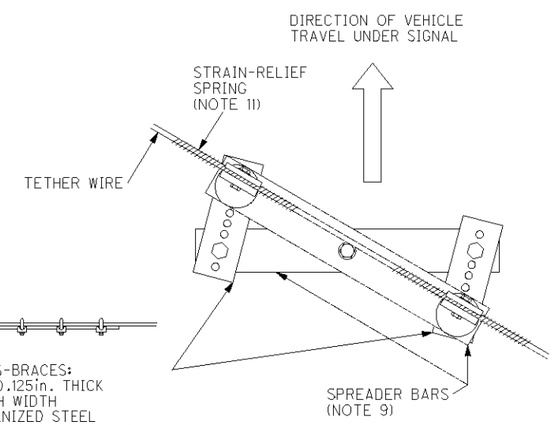
1. Adjust hanger and span wire clamp to eliminate all play between hanger and clamp by using shim washers as necessary. Cast 3/4-inch aluminum matching clamps and hangers with a tight initial fit shall be used.
2. All signal head assemblies shall be installed in a plumb position and perpendicular to the approach lane.
3. All signal heads shall be installed with their lowest part (including tether attachment hardware and backplates) with a clearance above the roadway pavement at all points of 17 feet to 19 feet It is intended that this clearance be obtained without the use of bottom extenders, but rather by the careful selection of foundation heights, attachment heights, span wire sag, and other factors during the installation. If the installation cannot be adjusted to the proper clearance the contractor shall advise the engineer of all signals which exceed the maximum. The engineer will, in consultation with the maintaining agency, direct the use of extenders or waive the maximum clearance requirement for each head. If extenders are necessary, adjustable signal hangers as detailed may be used. Only top extenders shall be used; see Note 6.
4. Signal head rotation shall be prevented by the use of serrated rings and tri-studs or other positive devices incorporated in the signal housing and at critical locations in the supporting hardware. Only single-piece tri-stud entrance ports shall be used, not inserts.
5. All conductors shall have adequate clearance between hangers, thimbles, bullrings, etc. in order to avoid damage from rubbing.
6. For all tethered installations, breakaway tether anchor(s) shall be installed in bottom bracket. Bottom tether anchor extender shall be used only if there is interference between backplate and tether wire. Signal height adjustment shall be made by top-mounted extenders only. Breakaway clamp shall be full width with rounded edges. Clamp shuld compress tether wire only against a flat surface (Detail A).
7. All backplates shall have louvers and 2 inch fluorescent yellow reflective border. Border shall not be applied over louvers. Louvers should be oriented to scoop air from the front side and oriented with the openings facing alternate directions by groups, as shown. Louver open area shall be at least 8 percent of the total backplate area. 5-section backplates shall have notched top corners, as shown.
8. Backup tie shall be 1/4-inch, 7-strand wire identical to tether wire. Three cast wire rope clips on each side shall be used with 18in. ovelap and spacing as shown. Tie shall hang no lower than 16.5 feet. above pavement, and must not rub against the breakaway clamp. Ties under 3-section heads are recommended in windy areas; shall be installed if specified in plans, or if directed by the Engineer. Spacing of clips may be adjusted to accomodate adjacent heads. Closely spaced adjacent heads may share a single backup tie and wire rope clips; there shall be a minimum of three wire rope clips between heads.
9. On diagonal spans, a double spreader bar assembly shall be used. Each spreader bar shall be cast aluminum or steel with intergral serrations, 2 on the ends, one in the middle on the opposite side. These shall be attached as shown in Details B1 and B2.
10. Multi-way heads with backplates shall not be used on tethered spans. Existing multi-way heads shall be separated as directed by the Engineer. Rewire as necessary to separate the heads per the proper alignment.
11. Compression spring, 0.375-inch OD, 0.054-inch wire diameter, 10-12 coils per inch, stainless steel 6-inch minimum length.



BACKPLATE LOUVER CONFIGURATION (TYP.)
(SEE NOTE 7)



DETAIL B1:
DOUBLE SPREADER BARS AND CROSS-BRACING ON DIAGONAL SPANS
(FRONT VIEW)



DETAIL B2:
DOUBLE SPREADER BARS AND CROSS-BRACING ON DIAGONAL SPANS
(BOTTOM VIEW)
(TYP.)

OFFICE OF TRAFFIC ENGINEERING

DESIGNED | REVIEWED KRD

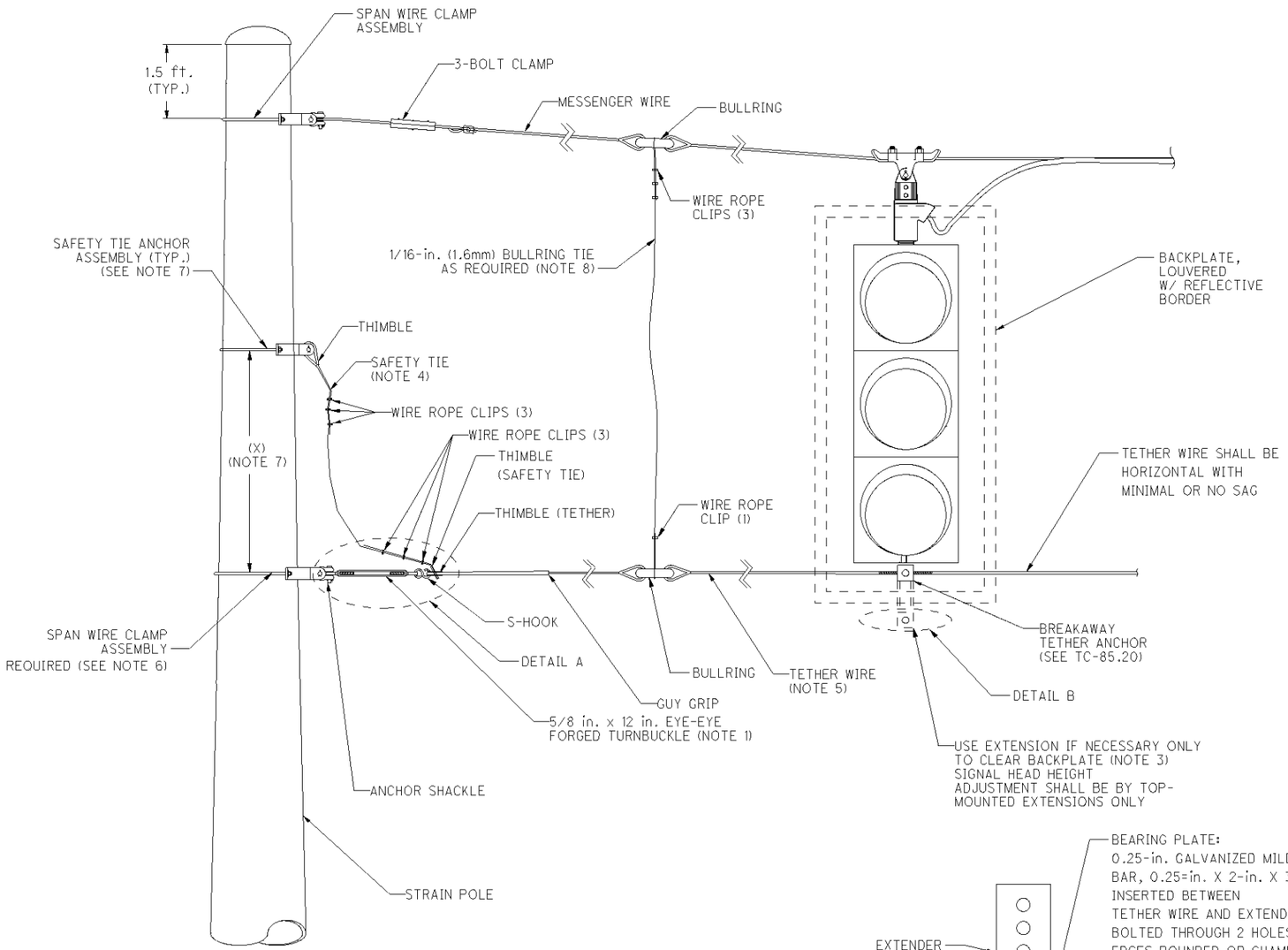
REVISION DATE 04/20/12 | CHECKED

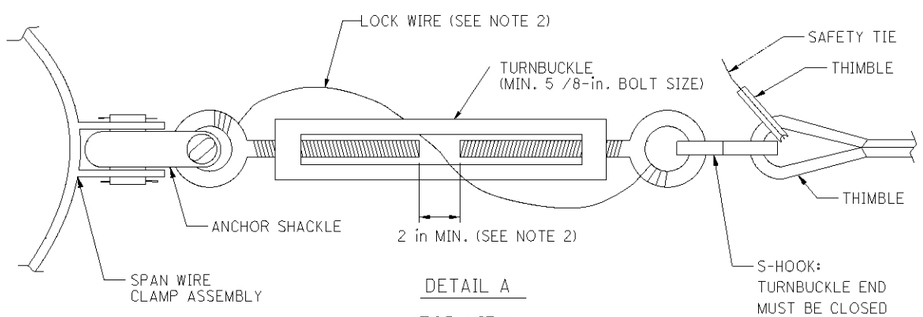
PIS NUMBER 208522

PLAN INSERT SHEET

OVERHEAD SIGNAL ATTACHMENTS, SPAN WIRE

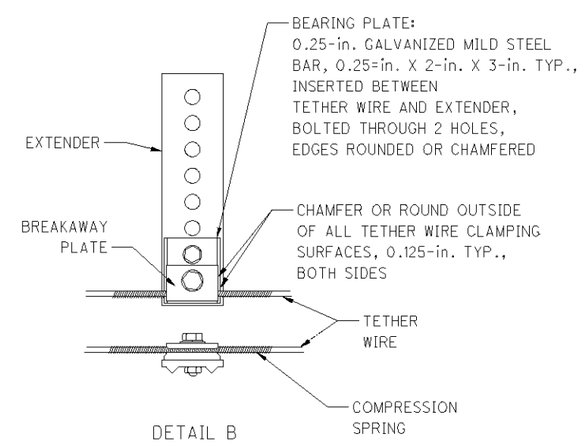
D04-TSG-FY2013(EAST)





DETAIL A

(TOP VIEW)
(NOT TO SCALE)



DETAIL B

(FRONT VIEW)
(BOTTOM VIEW)

NOTES

1. S-Hook is matched to the strain pole design number (see table). S-Hook and turnbuckle are required only at one end of simple spans, all ends of complex spans. S-hook shall be closed at pole end. If S-hook begins to yield during installation, it shall be removed and replaced.
2. Lock wire shall be stainless steel, 1/8 inch soft temper, wound to prevent turning of the turnbuckle body. Finished span shall have at least 2 inches of space for turnbuckle adjustment. Turnbuckle shall not be overtightened. Use 8-inch hand tools, maximum.
3. If signal orientation is not perpendicular to span and tether wire, then use an anchor extension. Clamp assembly must be attached to the flat side of the extender bar.
4. Install safety tie at each turnbuckle. This wire shall be 1x19, 1/8 inch stainless steel. Tie should be slack, but not so slack as to contact pole. Use 3 clips per end at 3-1/4 inch spacing.
5. Tether wire shall be 7-strand ASTM A475 HS or EHS Grade 1/4 inch. On all spans, install tether horizontally. Maintain clearance of 17 feet to 19 feet over roadway.
6. Span wire clamp as per Standard Construction Drawing TC-81.10 required for tether wire attachment. Alternate attachment method shall not be permitted.
7. Safety tie anchor height above tether is adjusted in the field before S-hook is installed. Dimension X (Safety Tie Height) shall be adjusted so that the minimum vertical clearance of the sagging tether wire above the pavement without the S-hook installed is at least 14 feet. Minimum distance between the safety tie clamp and tether clamp shall be 1.5 feet and contain enough slack for head to sway in high winds. Safety tie anchor may be any galvanized or stainless steel pole clamp assembly rated at 3000 pounds. or higher.
8. On spans with bullrings, a tie shall be provided between messenger and tether bullrings if a 14 foot clearance cannot be maintained after S-hook opening. This vertical tie shall be 1x19, 1/16 inch stainless steel. Tie shall be slightly slack, tied back using cast wire rope clips as shown. Wire rope clips shall not be over-tightened.

Strain Pole Design No.	Galvanized Mild Steel S-Hook Wire Diameter (Inches)	S-hook yield point (+10%/-20%) (Pounds)
1	1/4	1000
2	1/4	1000
3	1/4	1000
4	1/4	1000
5	1/4	1000
6	3/8	2000
7	3/8	2000
8	3/8	2000
9	3/8	2000
10	3/8	2000
11	1/2	3300
12	1/2	3300
13	1/2	3300
14	1/2	3300

OFFICE OF TRAFFIC ENGINEERING

DESIGNED | REVIEWED LAM

REVISION DATE 07/15/11 | CHECKED

PIS NUMBER 208521

PLAN INSERT SHEET

SIGNAL TETHER ATTACHMENT

D04-TSG-FY2013(EAST)

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