

GUARANTEE

THE CONTRACTOR SHALL GUARANTEE THAT THE TRAFFIC CONTROL SYSTEM INSTALLED AS PART OF THIS CONTRACT SHALL OPERATE SATISFACTORILY FOR A PERIOD OF 90 DAYS FOLLOWING COMPLETION OF THE 10-DAY PERFORMANCE TEST. IN THE EVENT OF UNSATISFACTORY OPERATION THE CONTRACTOR SHALL CORRECT FAULTY INSTALLATIONS, MAKE REPAIRS AND REPLACE DEFECTIVE PARTS WITH NEW PARTS OF EQUAL OR BETTER QUALITY.

EQUIPMENT, MATERIAL AND LABOR COSTS INCURRED IN CORRECTING AN UNSATISFACTORY OPERATION SHALL BE BORNE BY THE CONTRACTOR.

THE GUARANTEE SHALL COVER THE FOLLOWING ITEMS OF THE TRAFFIC CONTROL SYSTEM: CONTROLLER, CABINET, UNINTERRUPTIBLE POWER SUPPLY, VEHICLE DETECTION EQUIPMENT, LED LAMP UNITS, NETWORK AND COMMUNICATION/INTERCONNECT EQUIPMENT.

CUSTOMARY MANUFACTURER'S GUARANTEES FOR THE FOREGOING ITEMS SHALL BE TURNED OVER TO THE STATE OR THE MAINTAINING AGENCY 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.

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

USE OF LAW ENFORCEMENT OFFICES (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 ADDITIONAL TO THE REQUIREMENTS OF C&MS 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).

IN ADDITION TO THE REQUIREMENT OF C&MS 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) SHOULD BE PROVIDED FOR THE FOLLOWING TRAFFIC CONTROL TASKS AS APPROVED BY THE ENGINEER:

- FOR LANCE CLOSURES: DURING INITIAL SET-UP PERIODS, TEAR DOWN PERIODS, SUBSTANTIAL SHIFTS OF A CLOSURE POINT OR WHEN NEW LANE CLOSURE ARRANGEMENTS ARE INITIATED FOR LONG-TERM LANE CLOSURES/SHIFTS (FOR THE FIRST AND LAST DAY OF MAJOR CHANGES IN TRAFFIC CONTROL SETUP).

IN GENERAL, LEOs SHOULD BE POSITIONED IN ADVANCE OF AND ON THE SAME SIDE AS THE LANE RESTRICTION, OR AT THE POINT OF ROAD CLOSURE, AND TO MANUALLY CONTROL TRAFFIC MOVEMENTS THROUGH SIGNALIZED INTERSECTIONS IN WORK ZONES.

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 CONTRACTOR. 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.

ENSURE PROVIDED LEOs HAVE BEEN TRAINED APPROPRIATE TO THE JOB DECISIONS THEY ARE REQUIRED TO MAKE WHILE ON THE PROJECT, IN ACCORDANCE WITH C&MS 614.03.

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 SHALL REPORT TO THE CONTRACTOR AT THE END OF HIS/HER SHIFT. 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 UNIT PRICE (HOURLY) BASIS UNDER ITEM 614, LAW ENFORCEMENT OFFICE (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 40 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.

ITEM 632-RELAMP EXISTING SIGNAL SECTION WITH LED LAMP UNIT, BY TYPE, AS PER PLAN

THIS ITEM OF WORK SHALL CONSIST OF REPLACING THE EXISTING 12-INCH LENS AND LED LAMP IN AN EXISTING SIGNAL HEAD SECTION WITH A NEW 12-IN LED LAMP UNIT.

THE LIGHT EMITTING DIODE (LED) SIGNAL LAMP UNITS SHALL MEET THE REQUIREMENTS OF C&MS 732.04-C. AN LED SIGNAL LAMP UNIT SHALL BE FURNISHED AND INSTALLED FOR THE TYPE OF SIGNAL LENS SPECIFIED IN THE BID ITEM DESCRIPTION.

THE EXISTING REFLECTOR UNIT AND LENS SHALL BE REMOVED AND RETURNED TO THE MAINTAINING AGENCY. THE EXISTING LAMPS SHALL BE DISPOSED BY THE CONTRACTORS.

THE DEPARTMENTS WILL MEASURE "RELAMP EXISTING SIGNAL HEAD WITH LED LAMPS UNITS, BY LENS TYPE, AS PER PLAN" BY THE NUMBER OF COMPLETE UNITS FURNISHED AND INSTALLED AND WILL INCLUDE ALL HARDWARE AND LAMPS AS SPECIFIED.

ITEM 632- SIGNALIZATION MISC.: RELAMP EXISTING PEDESTRIAN HEADS

THIS ITEM OF WORK SHALL CONSIST OF REPLACING THE EXISTING LENS AND LAMP LAMP IN AN EXISTING PEDESTRIAN SIGNAL HEAD SECTION WITH A NEW LED LAMP UNIT.

THE LIGHT EMITTING DIODE (LED) SIGNAL LAMP UNITS SHALL MEET THE REQUIREMENTS OF C&MS 732.04-C. AN LED SIGNAL LAMP UNIT SHALL BE FURNISHED AND INSTALLED. THE EXISTING LAMPS SHALL BE DISPOSED BY THE CONTRACTORS.

THE DEPARTMENTS WILL MEASURE "SIGNALIZATION MISC.: RELAMP EXISTING PEDESTRIAN HEADS" BY THE NUMBER OF COMPLETE UNITS FURNISHED AND INSTALLED AND WILL INCLUDE ALL HARDWARE AND LAMPS AS SPECIFIED.

ITEM 632- SIGNALIZATION MISC.: REPLACE EXISTING CONFLICT MONITOR

THIS ITEM SHALL INCLUDE ALL PARTS, LABOR, LABOR AND MATERIALS REQUIRED TO THE REPLACEMENT OF THE EXISTING MALFUNCTION MONITOR UNIT (MMU) AT EACH INTERSECTION. MMU SHALL MEET ALL ODOT SPECIFICATIONS AND SHALL BE PROGRAMMED BY THE CONTRACTOR OR SUPPLIER PRIOR TO INSTALLATION. MMU SHALL BE CAPABLE OF COMMUNICATING CONFLICT ALERTS TO THE CITY'S CENTRACS SYSTEM AND SHALL BE PROGRAMMED TO DO SO.

ALL MMU'S ARE NEMA TYPE WITH THE EXCEPTION OF SR4 & 275 WB WHICH IS 2070 TYPE. MMU UNITS SHALL BE SUPPLIED ACCORDINGLY.

REMOVED MMU'S SHALL REMAIN IN THE TRAFFIC SIGNAL CABINET.

PAYMENT FOR ITEM 632 - SIGNALIZATION MISC.: REPLACE EXISTING CONFLICT MONITOR SHALL BE MADE FOR EACH MONITOR REPLACED, COMPLETE.

ITEM 632- SIGNALIZATION MISC. REPLACE PEDESTRIAN PUSHBUTTON

THIS WORK INCLUDES FURNISHING AND INSTALLING A NEW PEDESTRIAN PUSHBUTTON. THE REMOVED PUSHBUTTONS SHOULD BE DISPOSED OF BY THE CONTRACTOR. PUSHBUTTON SIGNS ARE NOT INCLUDED IN THIS ITEM.

ITEM 633-CABINET, TYPE TS-2, AS PER PLAN

THE CABINET SHALL BE FURNISHED AND INSTALLED ACCORDING TO CMS 633 AND 733 AND BE LISTED ON THE TRAFFIC AUTHORIZED PRODUCTS LIST (TAP).

THE GROUND-MOUNTED CABINET SHALL BE A NEMA TS-2, TYPE 1, CABINET SIZE 7 WITH 16 LOAD SWITCH BAYS, LED UNDER-SELF LIGHTING, POWER HARNESSSES FOR BOTH TS2 TYPE 1 AND TYPE 2 CONTROLLERS AND SHALL HAVE A MINIMUM OF THREE SHELVES.

EACH CABINET SHALL COME EQUIPPED WITH TWO 16-CHANNEL CABINET DETECTOR RACKS (CDR) INCLUDING BUS INTERFACE UNITS (BIU). THE LOOP DETECTOR TERMINATION PANEL FOR THE SECOND DETECTOR RACK SHALL BE OMITTED.

THE CABINET SHALL BE FURNISHED WITH AN EDI MMU AS ALLOWED ON THE TAP/APPROVED PRODUCTS LIST.

PAYMENT FOR ITEM 633 CABINET, TYPE TS-2, AS PER PLAN WILL BE AT THE CONTRACT BID PRICE PER EACH COMPLETE AND IN PLACE INCLUDING ALL CONNECTIONS TESTED AND ACCEPTED.

ITEM 632 REMOVAL OF TRAFFIC SIGNAL, AS PER PLAN

TRAFFIC SIGNAL INSTALLATIONS, INCLUDING SIGNAL HEADS, CABLE, MESSENGER WIRE, STRAIN POLES, CABINET, CONTROLLER, ETC., SHALL BE REMOVED IN ACCORDANCE WITH C&MS 632.26 AND AS INDICATED ON THE PLANS. REMOVED ITEMS SHALL BE REUSED AS PART OF A NEW INSTALLATION ON THE PROJECT OR STORED ON THE PROJECT FOR SALVAGE BY THE CITY OF SPRINGDALE IN ACCORDANCE WITH THE LISTING GIVEN HEREIN.

ALL VEHICULAR AND PEDESTRIAN SIGNAL HEADS, CCTV DOME CAMERA, ETHERNET RADIO, CABINET, RADAR DETECTION UNITS AND CORRESPONDING WIRING AND HARDWARE SHALL BE SAVED AND STORED BY THE CONTRACTOR.

THE REMOVED ITEMS SHALL BE DELIVERED TO THE CITY OF SPRINGDALE WHOSE ADDRESS IS LISTED BELOW:
CITY OF SPRINGDALE, ATTN: 513-346-5520
335 NORTHLAND BOULEVARD
SPRINGDALE, OHIO 45246

ITEM 632 REMOVAL OF TRAFFIC SIGNAL, AS PER PLAN (CONT.)

IN THE EVENT THE ITEMS STORED ON THE PROJECT FOR SALVAGE BY THE LOCAL AGENCY ARE NOT REMOVED, THE CONTRACTOR SHALL, WHEN DIRECTED BY THE ENGINEER IN WRITING, REMOVE AND DISPOSE OF THE ITEMS AT NO ADDITIONAL COST TO THE PROJECT.

ITEM 632- SIGNAL SUPPORT FOUNDATION, AS PER PLAN

PRIOR TO ORDERING THE SIGNAL SUPPORTS, THE CONTRACTOR SHALL CONTACT OUPS TO HAVE ALL THE UTILITIES LOCATED IN THE FIELD THEN MEET WITH THE PROJECT ENGINEER TO LOCATE THE PROPOSED SUPPORT LOCATIONS TO INSURE THERE ARE NO CONFLICTS WITH UTILITIES. IF THERE ARE ISSUES, THE PROJECT ENGINEER SHALL PROVIDE GUIDANCE AS TO THE RELOCATION OF THE SUPPORT POLES.

FOUNDATION FOR POLE SP-1 SHALL FOLLOW DESIGN PROVIDED IN PLANS. PAYMENT WILL BE AT THE CONTRACT UNIT PRICE AND WILL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS, TOOLS, EQUIPMENT AND OTHER INCIDENTALS NECESSARY FOR EACH SUPPORT FURNISHED, IN PLACE, COMPLETE AND ACCEPTED.

ITEM 633 - UNINTERRUPTIBLE POWER SUPPLY (UPS), 1000 WATT, AS PER PLAN

THIS ITEM SHALL CONFORM TO ODOT CMS 633 AND 733, EXCEPT THAT A GENERATOR CONNECTION AND APPROPRIATE POWER INVERTER SHALL BE PROVIDED TO ALLOW THE SIGNAL ELECTRICIANS TO OPERATE THE TRAFFIC SIGNAL AND RECHARGE THE BATTERIES DURING EXTENDED POWER OUTAGES (3 PRONG CONNECTION). THE UPS SHALL BE PROGRAMMED TO PROVIDE AN ALERT THROUGH A RELAY WHEN BATTERY POWER BEGINS AND AN ADDITIONAL ALERT WHEN THE BATTERY CHARGE IS REDUCED TO 20%. THESE ALERT RELAYS SHALL BE WIRED TO THE ALARM INPUTS ON THE SIGNAL CONTROLLER. THE CONTRACTOR SHALL PROVIDE ALL PROGRAMMING, MATERIALS, LABOR AND INCIDENTALS TO COMPLETE THIS ITEM.

ITEM 804 - DROP CABLE, 12 FIBER, AS PER PLAN

THIS ITEM INCLUDES ALL SPECIFICATION SET FORTH IN THE ODOT CMS ITEM 804 - IN ADDITION, THE CONTRACTOR SHALL BE RESPONSIBLE TO ENSURE ANY NEW DROP CABLES INSTALLED ARE SPLICED SUCH THAT THE NEW FIBER CONNECTIONS MATCH THE PREVIOUS SPLICES IN EACH ENCLOSURE. ALL NEW SPLICES ARE TO BE CONSIDERED INCIDENTAL TO THE DROP CABLE ITEM. THESE QUANTITIES PERTAIN TO THE NEW TRAFFIC SIGNAL AT SR747 & KEMPER

ITEM 804 - FIBER TERMINATION PANEL, 12 FIBER, AS PER PLAN

THIS ITEM INCLUDES ALL SPECIFICATION SET FORTH IN THE ODOT CMS ITEM 804 - IN ADDITION, THE CONTRACTOR SHALL BE RESPONSIBLE TO ENSURE NEW DROP CABLE TERMINATION MATCH EXISTING TERMINATIONS. THESE QUANTITIES PERTAIN TO THE NEW TRAFFIC SIGNAL AT SR747 & KEMPER.

ITEM 804 - SPLICE ENCLOSURE, AS PER PLAN

THIS ITEM INCLUDES ALL SPECIFICATION SET FORTH IN THE ODOT CMS ITEM 804 - SPLICE ENCLOSURE. THESE QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR CONNECTION OF THE NEW TRAFFIC SIGNAL CABINET AT SR747 & KEMPER TO THE CITY'S EXISTING FIBER NETWORK.

SPLICE ENCLOSURE SHOULD BE INSTALLED ON SP1. THIS ITEM INCLUDES RELOCATING THE SLACK FROM THE EXISTING SIGNAL SUPPORT ON THE NW CORNER TO SP 1.

ITEM 804 - FIBER OPTIC CABLE TESTING, AS PER PLAN

PRIOR TO RELOCATION OF THE FIBER OPTIC CABLE, THE CONTRACTOR SHALL TEST THE FIBER OPTIC CABLE IN ORDER TO ESTABLISH AN OPERATIONAL BASE LINE. OLD DROPS HAVE BEEN DISCONNECTED AND THE NEW DROPS HAVE BEEN SPLICED, THE CABLE SHALL BE TESTED TO CONFIRM THAT THE CABLE PLANT WAS NOT DAMAGED DURING THE TRANSFER. RECORDS OF THE OPERATIONAL TESTS SHALL BE PROVIDED TO THE ENGINEER, CITY OF SPRINGDALE FOR THEIR RECORDS. THIS ITEM PERTAINS ONLY TO THE NEW SIGNAL AT SR747 & KEMPER.

ITEM 809 - ATC CONTROLLER, AS PER PLAN

THE CONTROLLER UNIT SHALL BE FURNISHED AND INSTALLED PER SS 809 AND BE LISTED ON THE TRAFFIC AUTHORIZED PRODUCTS (TAP) LIST.

THE CONTROLLER SHALL BE AN ECONOLITE COBALT AND COMPATIBLE WITH THE CABINET TYPE BEING INSTALLED.

ITEM 809 - STOP LINE RADAR DETECTION, AS PER PLAN

THIS ITEM SHALL INCLUDE ALL SPECIFICATIONS OF SUPPLEMENTAL SPEC 809 - STOP LINE RADAR DETECTION. THE CONTRACTOR SHALL INSTALL STOP LINE DETECTION FOR ALL SIDE STREET APPROACHES AND MAIN STREET LEFT TURN PHASES WHERE APPLICABLE. THIS ITEM INCLUDES ALL LABOR, MATERIALS AND INCIDENTALS FOR THE INSTALLATION OF THE STOP LINE RADAR UNITS TO BE FULLY OPERATIONAL.

THIS ITEM INCLUDES DISCONNECTION AND REMOVAL OF EXISTING DETECTION EQUIPMENT FOR THESE MOVEMENTS FROM OPERATION.

THIS ITEM SHALL BE PERFORMED AT THE FOLLOWING INTERSECTIONS:

- 1)SR747 & PROGRESS PLACE
- 2)SR747 & NORTH MALL
- 3)SR 747 & SOUTH MALL
- 4) KEMPER & TRI COUNTY PKWY.

ITS SERVICE DEVICE DOWNTIME

ALL NEW FIBER DROPS SHALL BE TERMINATED AND READY FOR SPLICING PRIOR TO THE EXISTING DROP BEING SEVERED AS OUTLINED IN THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION SUPPLEMENTAL SPECIFICATION 804 ITS DEVICES AND COMPONENTS. THE CONTRACTOR SHALL PHASE AND COORDINATE CONSTRUCTION ACTIVITIES TO INSURE RESTORATION OF COMMUNICATION WITH THE LOCAL INTERSECTION CONTROLLERS BY THE CITY WITHIN 10 BUSINESS DAYS OF BEING NOTIFIED THAT THE FIBER OPTIC TRUNK LINE HAS BEEN TRANSFERRED.

CALCULATED
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GENERAL NOTES

HAM SPRINGDALE
SIGNAL UPGRADES

SHEET NUM.										PART.		ITEM	ITEM EXT	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
6	9									01/MPO/O T	02/MPO/O T/SPR						
1										1		804	32011	1	EACH	DROP CABLE, 12 FIBER, AS PER PLAN	3
1										1		804	34013	1	EACH	FIBER TERMINATION PANEL, 12 FIBER, AS PER PLAN	3
1										1		804	37001	1	EACH	SPLICE ENCLOSURE, AS PER PLAN	3
										LS		804	37701	LS		FIBER OPTIC CABLE TESTING, AS PER PLAN	3
1										1		809	60000	1	EACH	CCTV IP-CAMERA SYSTEM, DOME-TYPE	
1										1		809	64500	1	EACH	HIGH-SPEED ETHERNET RADIO	
400										400		809	64550	400	FT	ETHERNET CABLE, OUTDOOR-RATED	
4	17									21		809	69101	21	EACH	STOP LINE RADAR DETECTION, AS PER PLAN	3
	1									1		809	69123	1	EACH	ATC CONTROLLER, AS PER PLAN	3
										80		614	11110	80	HOUR	MAINTENANCE OF TRAFFIC LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE	
										LS		614	11000	LS		INCIDENTALS MAINTAINING TRAFFIC	
										LS		623	10000	LS		CONSTRUCTION LAYOUT STAKES AND SURVEYING	
										LS		624	10000	LS		MOBILIZATION	

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GENERAL SUMMARY

**HAM SPRINGDALE
SIGNAL UPGRADES**

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Item	Quantity	Unit	Description
202	378	SF	WALK REMOVED
253	2.9	SY	PAVEMENT REPAIR, AS PER PLAN
608	1.5	SF	4" CONCRETE WALK
608	459	SF	CURB RAMP
625	4	EACH	BRACKET ARM, 30'
625	4	EACH	LUMINAIRE, CONVENTIONAL, SOLID STATE (LED)
625	564	FT	NO. 10 AWG POLE AND BRACKET CABLE
625	889	FT	NO. 4 AWG 600 VOLT DISTRIBUTION CABLE
625	840	FT	CONDUIT, JACKED OR DRILLED, 725.051, 4"
625	150	FT	CONDUIT, 2", 725.05
625	100	FT	CONDUIT, 4", 725.05
625	155	FT	TRENCH, 30" DEEP
625	3	EACH	PULL BOX, MISC.:ADJUSTED TO GRADE
625	10	EACH	GROUND ROD
625	1	EACH	POWER SERVICE
625	8	EACH	PULL BOX, 725.08, 24"
632	80	FT	POWER CABLE, 3 CONDUCTOR, NO. 6 AWG
630	12	EACH	SIGN HANGER ASSEMBLY, MAST ARM
630	108	SF	SIGN, FLAT SHEET
632	16	EACH	VEHICULAR SIGNAL HEAD, (LED), 3-SECTION, 12" LENS, 1-WAY, POLYCARBONATE, BLACK
632	3	EACH	VEHICULAR SIGNAL HEAD, (LED), 5-SECTION, 12" LENS, 1-WAY, POLYCARBONATE. BLACK
632	19	EACH	COVERING OF VEHICULAR SIGNAL HEAD
632	6	EACH	PEDESTRIAN SIGNAL HEAD (LED), TYPE D2, COUNTDOWN
632	6	EACH	PEDESTRIAN PUSHBUTTON
632	6	EACH	COVERING OF PEDESTRIAN SIGNAL HEAD
632	1	EACH	SIGNAL SUPPORT, TYPE TC-81.22, DESIGN 12
632	-	EACH	SIGNAL SUPPORT, TYPE TC-81.22, DESIGN 13
632	4	EACH	SIGNAL SUPPORT, TYPE TC-81.22, DESIGN 14
632	1	EACH	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EACH	CABINET, TYPE TS-2
633	1	EACH	CABINET FOUNDATION
633	1	EACH	CONTROLLER WORK PAD
632	5	EACH	PEDESTAL, 8', TRANSFORMER BASE
632	5	EACH	PEDESTAL FOUNDATION
632	4	EACH	SIGNAL SUPPORT FOUNDATION
632	1	EACH	SIGNAL SUPPORT FOUNDATION, AS PER PLAN
659	2.8	SY	SEEDING AND MULCHING
633	1	EACH	UNINTERRUPTIBLE POWER SUPPLY (UPS), 1000 WATT, AS PER PLAN
632	6,000	FT	SIGNAL CABLE, 7 CONDUCTOR, NO. 14 AWG
632	1,700	FT	SIGNAL CABLE, 5 CONDUCTOR, NO. 14 AWG
632	1,700	FT	LOOP DETECTOR LEAD-IN CABLE, 2 CONDUCTOR, NO. 14 AWG
804	1	EACH	DROP CABLE, 12 FIBER, AS PER PLAN
804	1	EACH	SPLICE ENCLOSURE, AS PER PLAN
804	1	EACH	FIBER TERMINATION PANEL, 12 FIBER, AS PER PLAN
804	1	LS	FIBER OPTIC TESTING, AS PER PLAN
809	1	EACH	CCTV IP-CAMERA SYSTEM, DOME-TYPE
809	400	FT	ETHERNET CABLE, OUTDOOR-RATED
809	4	EACH	STOP LINE RADAR DETECTION, AS PER PLAN
809	1	EACH	HIGH-SPEED ETHERNET RADIO
809	1	EACH	ATC CONTROLLER, AS PER PLAN

CALCULATED
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SUB-SUMMARY
SR 747 AND KEMPER RD.

HAM SPRINGDALE
SIGNAL UPGRADES