36374
65th and Geyer Springs
Traffic Signal Modification
Little Rock, AR

2019-2021
BOND PROGRAM

DEPARTMENT OF PUBLIC WORKS
CIVIL ENGINEERING
701 WEST MARKHAM STREET
LITTLE ROCK, ARKANSAS 72201

HALFF
10800 Financial Centre Pkwy. Suite 500
Little Rock, Arkansas 72211
MAIN (501) 801-2690

2. EXTEND GREEN EQUIPMENT GROUNDING CONDUCTOR (E.G.C.) FROM GROUND BAR AT MAIN BREAKER TO CONTROL PANEL AND TO FIRST POLE. SOLIDLY BOND E.G.C. TO GROUND LUG OF CONTROL CABINET AND TO POLE GROUND. ENSURE THAT ONLY ONE NEUTRAL-TO-GROUND BOND EXISTS IN THE SYSTEM AND THAT IT IS AT THE MAIN BREAKER.  


4. CONTRACTOR SHALL CONNECT A SEPARATE NEUTRAL FOR EACH LOAD SWITCH REPRESENTED ON EACH SIGNAL POLE.  

5. TRAFFIC CONTROLLER CABINET AND LAYOUT SHALL BE SUCH THAT IT IS NOT NECESSARY TO SHUT DOWN POWER OR REMOVE LOAD SWITCHES IN ORDER TO EASILY TEST OR MODIFY DETECTOR INPUTS TO THE CONTROLLER.  

6. CONTROLLER CABINET SHALL BE WIRED SUCH THAT DURING FLASH OPERATIONS POWER TO THE LOAD SWITCHES CANNOT BEAKFED TO LOAD SWITCH POWER BUS.  

7. ALL PARTS OF THIS INSTALLATION SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, STANDARD DRAWINGS AND WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, CURRENT EDITION.  

8. CONDUIT INSTALLED UNDER ROADWAY SURFACES SHALL BE HDPE AND INSTALLED BY PUSHING OR BORING METHODS. IF THE ENGINEER DETERMINES THIS IS NOT FEASIBLE, THEN A TRENCHING METHOD AS SHOWN IN THE STANDARD DRAWINGS MAY BE USED.  

9. TRAFFIC SIGNAL POLES SHALL BE GALVANIZED WITH METAL HANDHOLE COVERS. BACKPLATES SHALL BE METAL AND SUPPLIED FOR ALL SIGNAL HEADS.  

10. PAVEMENT MARKINGS SHOWN FOR REFERENCE ONLY. SEE PERMANENT PAVEMENT MARKING DETAILS.  

11. FOUNDATION FOR ALL POLES SHALL BE EXTENDED IF NECESSARY TO ACCOMMODATE THE REQUIREMENTS FOR SIGNAL HEAD CLEARANCE ABOVE ROADWAY ONLY AT LOCATIONS WHERE THE GROUND ELEVATION AT THE POLE IS BELOW THE ELEVATION OF THE ROADWAY (SEE NOTES ON STANDARD DRAWING). PAYMENT WILL BE INCLUDED IN SECTION 714 TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, CURRENT EDITION.  

12. ALL CONCRETE FULL BOXES SHALL BE (TYPE 2 HD) UNLESS OTHERWISE INDICATED. ALL CONDUIT SHALL BE THREE (3") INCH DIAMETER UNLESS SPECIFIED ON PLANS.  

13. CONTRACTOR SHALL NOTIFY ALL EXISTING UTILITY OWNERS BEFORE BEGINNING WORK ON THIS PROJECT.  

14. LUMINAIRE ASSEMBLIES SHALL BE OF THE FULL CUTOFF TYPE.  

15. HARDWARE INPUTS MAY BE DETERMINED BY SUPPLIER. EACH DETECTOR OUTPUT SHALL INPUT THE CONTROLLER THROUGH A SEPARATE INPUT UNLESS OTHERWISE NOTED AND BE PROGRAMMED TO ACTUATE THE ASSOCIATED PHASE COMBINATION (COMB.). DETECTORS SHALL ALSO BE PROGRAMMED TO PROVIDE VEHICLE COUNTER DATA (OPTIONAL).  

16. THE LOCAL RADIO WITH ANTENNA SHALL BE COMPATIBLE WITH THE EXISTING CLOSED LOOP COORDINATION SYSTEM IN THE CITY/DEPARTMENT.  

17. TO DETERMINE UTILITY CLEARANCES ABOVE THE TRAFFIC SIGNAL POLE, REFER TO THE POLE SCHEDULE FOR VERTICAL SHAFT HEIGHT. WHERE THE POLE SCHEDULE INDICATES THAT A LUMINAIRE ARM WILL BE USED, THIRTY-EIGHT (38) FEET SHOULD BE USED TO DETERMINE UTILITY CLEARANCE ABOVE THE LUMINAIRE ARM. WHERE THE POLE SCHEDULE INDICATES A TRAFFIC SIGNAL POLE WITHOUT A LUMINAIRE ARM, A HEIGHT OF TWENTY-ONE (21") WILL BE USED TO ESTIMATE UTILITY CLEARANCE ABOVE THE TRAFFIC SIGNAL MAST ARM. AN ADDITIONAL SIX (6") FEET SHOULD BE USED DIRECTLY ABOVE "VIDEO DETECTOR" AT LOCATIONS SHOWN ON THE SIGNAL PLANS.  

18. THE DESIRABLE MINIMUM DISTANCE FROM THE FACE OF ROADWAY CURB OR SHOULDER EDGE TO THE FACE OF NON-BREAKAWAY POLE OR OBSTRUCTION IS SIX (6") FEET. REFER TO TRAFFIC SIGNAL PLANS FOR SPECIFIC LOCATION OF POLES, CONTROLLER AND ANY OTHER NON-BREAKAWAY OBSTRUCTIONS. REFER TO "DESIGN PARAMETERS, MINIMUM CLEAR ZONE DISTANCE" FOR MINIMUM DISTANCE FROM THE EDGE OF TRAVELED WAY TO THE FACE OF A NON-BREAKAWAY POLE OR OBSTRUCTION. TRAFFIC SIGNAL POLES OR ANY OTHER NON-BREAKAWAY OBSTRUCTION SHALL NOT BE INSTALLED WITHIN THE CLEAR ZONE.  

19. AS DETERMINED BY THE ENGINEER, FOUNDATION EMBEDMENT MAY BE DECREASED BY A MAXIMUM OF TWO FEET IF COMPETENT ROCK IS ENCOUNTERED PRIOR TO ACHIEVING PLAN EMBEDDEMT AND AT LEAST HALF OF THE REMAINING PLAN EMBEDDIEMENT LENGTH IS KEPT INTO COMPETENT ROCK.  

20. CONNECTION OF TRAFFIC SIGNAL DISPLAY TO FIELD WIRING SHALL UTILIZE AN APPROVED TERMINAL STRIP BEHIND HAND-HOLE COVER AT BASE OF POLE. TERMINAL STRIP SHALL PROVIDE PROTECTION TO PREVENT EXPOSURE TO THE PUBLIC IN THE EVENT THAT POLE COVER IS MISSING. PAYMENT FOR TERMINAL STRIPS SHALL BE INCLUDED IN ITEM 714 TRAFFIC SIGNAL MAS ARM AND POLE WITH FOUNDATION OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, CURRENT EDITION.  

21. CONTROLLER CABINET LOCATION AND ORIENTATION SHALL CONFORM TO MSAAAR جميع.  

22. ONE VIDEO PROGRAMMING MODULE SHALL BE PROVIDED FOR ARMING AND SETUP OF DETECTORS IF THE VIDEO SYSTEM CANNOT BE ADJUSTED THROUGH HARDWARE AND SOFTWARE PROVIDED BY ITEMS WITHIN THE JOB.  

23. TRAFFIC SIGNAL CONTRACTOR SHALL NOTIFY THE RESIDENT ENGINEER OR ASSIGNED DEPARTMENT PROJECT INSPECTOR EACH DAY PRIOR TO SIGNAL RELATED WORK. NO WORK ON TRAFFIC SIGNALS WILL BE ALLOWED OR APPROVED WITHOUT THIS PRIOR NOTIFICATION.  


25. DOOR PANEL TEST PUSH BUTTONS SHALL ACTUATE INDICATED PHASES. DETECTOR ASSIGNMENTS AND/OR SIDE PANEL JUMPERS MAY REQUIRE MODIFICATION.  

26. ALL SYSTEM DETECTOR RACKS AND ASSOCIATED EQUIPMENT SHALL BE PROTECTED BY THE MAIN CONTROLLER CABINET POWER SURGE PROTECTION.  

27. IN PULL BOXES, POLE BASES, JUNCTION BOXES AND CONTROLLER CABINETS, THE DIRECTION OF EACH CABLE RUN SHALL BE INDICATED BY ATTACHING A PERMANENT TAG OF RUGGED PLASTIC OR NONFERROUS METAL TO THE CONDUIT. TAGS SHALL BE EMBOSSED, STAMPED OR ENGRAVED WITH LETTERS 1/8" OR GREATER IN HEIGHT AND SECURED TO THE CONDUIT WITH NYLON OR PLASTIC TIES. IN INSTANCES WHERE THE CONDUIT OR CONDUIT ENTRANCES ARE NOT VISIBLE OR ACCESSIBLE, A DIRECTION TAG SHALL BE ATTACHED TO EACH CABLE.  

28. THE CONTRACTOR SHALL PERFORM ALL WORK POSSIBLE THAT WILL MINIMIZE THE TIME THAT THE TRAFFIC SIGNAL IS OUT OF OPERATION. IF, IN THE OPINION OF THE ENGINEER, TRAFFIC CONDITIONS WARRANT THE CONTRACTOR SHALL PROVIDE FLASHES TO DIRECT TRAFFIC WHILE THE TRAFFIC SIGNAL IS OUT OF OPERATION.
<table>
<thead>
<tr>
<th>ITEM #</th>
<th>ITEM DESCRIPTION</th>
<th>UNIT</th>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>701</td>
<td>ACTUATED CONTROLLER TS1-TYPE 2 (8 PHASES)</td>
<td>EACH</td>
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<tr>
<td>SP706</td>
<td>TRAFFIC SIGNAL HEAD, LED (3 SECTION, 1 WAY)</td>
<td>LIN. FT.</td>
<td>6</td>
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<tr>
<td>SP706</td>
<td>TRAFFIC SIGNAL HEAD, LED (4 SECTION, 1 WAY)</td>
<td>LIN. FT.</td>
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<tr>
<td>707</td>
<td>PEDESTRIAN SIGNAL HEAD</td>
<td>EACH</td>
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<tr>
<td>708</td>
<td>TRAFFIC SIGNAL CABLE (60C/14 A.W.C.)</td>
<td>LIN. FT.</td>
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<tr>
<td>710</td>
<td>NON-METALLIC CONDUIT (3&quot;)</td>
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<td>711</td>
<td>CONCRETE PULL BOX (TYPE 2 HD)</td>
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<tr>
<td>714</td>
<td>TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (60’ MAST ARM)</td>
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<tr>
<td>715</td>
<td>PEDESTRIAN POLE WITH FOUNDATION</td>
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<td>719</td>
<td>THERMOPLASTIC PAVEMENT MARKING WHITE (24&quot;)</td>
<td>LIN. FT.</td>
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<tr>
<td>SP</td>
<td>ELECTRICAL CONDUCTORS FOR LUMINAIRES</td>
<td>LIN. FT.</td>
<td>754</td>
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<tr>
<td>SP</td>
<td>ELECTRICAL CONDUCTORS-IN-CONDUITS (1C/8 A.W.G., E.G.C.)</td>
<td>LIN. FT.</td>
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<tr>
<td>SP</td>
<td>LED LUMINARE ASSEMBLY</td>
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<tr>
<td>SP</td>
<td>SERVICE POINT ASSEMBLY (2 CIRCUITS)</td>
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<td>733</td>
<td>VIDEO CABLE</td>
<td>LIN. FT.</td>
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<tr>
<td>733</td>
<td>VIDEO DETECTOR (CLR)</td>
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<td>733</td>
<td>VIDEO MONITOR (CLR)</td>
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<td>733</td>
<td>VIDEO PROCESSOR, EDGE CARD (2 CAMERA)</td>
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**LEGEND**

<table>
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<tr>
<th>Code</th>
<th>Description</th>
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<tbody>
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<td>N.T.S.</td>
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EXISTING TRAFFIC SIGNAL POLE AND FOUNDATION TO BE REMOVED

EXISTING TRAFFIC SIGNAL POLE TO REMAIN

REMOVE EXISTING 5 SECTION HEAD AND REPLACE WITH 4 SECTION HEAD FOR FLASHING YELLOW ARROW
NOTES:
1. TRAFFIC SIGNAL POLES TO BE REMOVED AND SHALL BE DELIVERED TO THE CITY OF LITTLE ROCK BY THE CONTRACTOR. THE CITY OF LITTLE ROCK WILL STORE THE POLES UNTIL PROPOSED TRAFFIC SIGNAL POLES SHALL STAY IN OPERATION UNTIL PROPOSED TRAFFIC SIGNAL POLES AND IMPROVEMENTS ARE COMPLETE AND READY TO BE PLACED INTO SERVICE.
2. SIGNAL HEAD A WILL BE REPLACED WHILE GEYER SPRINGS NORTH OF 65TH IS CLOSED TO TRAFFIC. THE SOUTHWEST POLE WILL NOT BE IN OPERATION WHILE GEYER SPRINGS IS CLOSED.
3. SIGNAL HEAD 1 WILL NEED TO BE REPLACED ONCE THE PROPOSED SIGNAL CABINET IS IN OPERATION.
4. THE CITY OF LITTLE ROCK WILL PROVIDE THE CONTRACTOR WITH THE EXISTING TRAFFIC SIGNAL CONFIGURATION IN SWITCHOVER. THE CONTRACTOR SHALL PROVIDE THE CITY WITH A PLAN FOR TEMPORARY OPERATION.
5. EXISTING TRAFFIC SIGNAL CABINET WILL BE REMOVED AND SHALL BE DELIVERED TO THE CITY OF LITTLE ROCK BY THE CONTRACTOR AFTER THE PROPOSED CABINET IS INSTALLED AND IN OPERATION.

A. PROPOSED TRAFFIC SIGNAL CABINET WITH GUTTER PAN WITH ACCESS RAMP AT EACH END 100' BEFORE STOP BAR
B. PROPOSED TRAFFIC SIGNAL CABINET WITH GUTTER PAN WITH ACCESS RAMP AT EACH END 80' BEFORE STOP BAR
C. PROPOSED TRAFFIC SIGNAL CABINET WITH GUTTER PAN WITH ACCESS RAMP AT EACH END 100' BEFORE STOP BAR
D. PROPOSED TRAFFIC SIGNAL CABINET WITH GUTTER PAN WITH ACCESS RAMP AT EACH END 80' BEFORE STOP BAR

Existing Signals
- P14, P15, P16, P23 (TO REMAIN)

Proposed Signals
- P17, P18, P19, P20, P21, P22 (TO BE REMOVED)

Proposed Traffic Signal Poles
- 2-3" NMC
- *0.5" NMC FOR CONTROLLER OR POLE GROUND ROD CONNECTION. THE COST OF 0.5" NMC IS INCLUDED IN ITEM 701 OR 714 RESPECTIVELY.
NOTES:
1. TRAFFIC SIGNAL POLES TO BE REMOVED AND SHALL BE DELIVERED TO THE CITY OF LITTLE ROCK BY THE CONTRACTOR.
2. THE EXISTING TRAFFIC SIGNAL CONFIGURATION AND POLES SHALL STAY IN OPERATION UNTIL PROPOSED TRAFFIC SIGNAL POLES AND IMPROVEMENTS ARE COMPLETE AND READY TO BE PLACED INTO SERVICE.
   A. SIGNAL HEAD 4 REPLACE WHILE GEYER SPRINGS NORTH OF 65TH IS CLOSED TO TRAFFIC. THE SOUTHWEST POLE WILL NOT BE IN OPERATION WHILE GEYER SPRINGS IS CLOSED.
   B. SIGNAL HEAD 1 WILL BE REPLACED ONCE THE PROPOSED SIGNAL CABINET IS IN OPERATION.
   C. THE TRAFFIC SIGNAL WILL BE OPERATIONAL DURING THE ENTIRE CONSTRUCTION TIME PERIOD AND MAY ONLY BE OUT OF OPERATION FOR SHORT TIME PERIODS, COORDINATE WITH THE CITY OF LITTLE ROCK TRAFFIC.
   D. IF CONTRACTOR WANTS TO PLACE POLES C AND D INTO OPERATION PRIOR TO THE PROPOSED TRAFFIC SIGNAL CONFIGURATION SWITCHOVER, THE CONTRACTOR SHALL PROVIDE THE CITY WITH A PLAN FOR OPERATION.
3. EXISTING TRAFFIC SIGNAL CABINET WILL BE REMOVED AND SHALL BE DELIVERED TO THE CITY OF LITTLE ROCK BY THE CONTRACTOR AFTER THE PROPOSED CABINET IS INSTALLED AND IN OPERATION.

**Existing Signals**

P14, P15, P16, P23

(TO BE REMOVED)

**Proposed Signals**

P17, P18, P19, P20, P21, P22

2, 3, 5, 6

(TO BE REMOVED)

**Proposed Detector Spacing Chart**

<table>
<thead>
<tr>
<th>40 MPH</th>
<th>Distance from Stop Line</th>
<th>LED Use</th>
<th>Lat Use</th>
<th>60 MPH</th>
<th>Distance from Stop Line</th>
<th>LED Use</th>
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</thead>
<tbody>
<tr>
<td>Pole 1</td>
<td>15'</td>
<td>NMC</td>
<td>Y</td>
<td>Pole 2</td>
<td>9'</td>
<td>Y</td>
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</tbody>
</table>

*1" OD NMC FOR CONTROLLER OR POLE GROUND ROD CONNECTION. THE COST OF 1" OD NMC IS INCLUDED IN FEM 701, 702, 714 RESPECTIVELY.*

**65th Street/Geyer Springs Road**

POLE DIMENSIONS

<table>
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<tr>
<th>Pole</th>
<th>MAST ARM</th>
<th>MAST ARM ANGLE</th>
<th>VERIT ARM</th>
<th>LUM ANGLE</th>
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<tbody>
<tr>
<td>A (EXIT)</td>
<td>45'</td>
<td>180°</td>
<td>2T</td>
<td>90°</td>
</tr>
<tr>
<td>B (EXIT)</td>
<td>44'</td>
<td>180°</td>
<td>25'</td>
<td>14°</td>
</tr>
<tr>
<td>C</td>
<td>92'</td>
<td>180°</td>
<td>20°</td>
<td>12°</td>
</tr>
<tr>
<td>D</td>
<td>94'</td>
<td>180°</td>
<td>16°</td>
<td>12°</td>
</tr>
<tr>
<td>E</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
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<tr>
<td>G</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
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</tbody>
</table>

*ANGLE MEASURED CLOCKWISE FROM MAST POLE.*
NOTES TO CONTRACTOR:
1. One separate 1-5C is run to each pole for the pedestrian push button.
2. All detector rack channels, including unused, shall be brought to terminal strip in detector area of cabinet.
3. The local government shall be responsible for providing power to the service point.
4. Separate 5C/#14 A.W.G. from each 3 sec. signal head to base of pole.
5. Separate 7C/#14 A.W.G. from each 4 sec. signal head to base of pole.