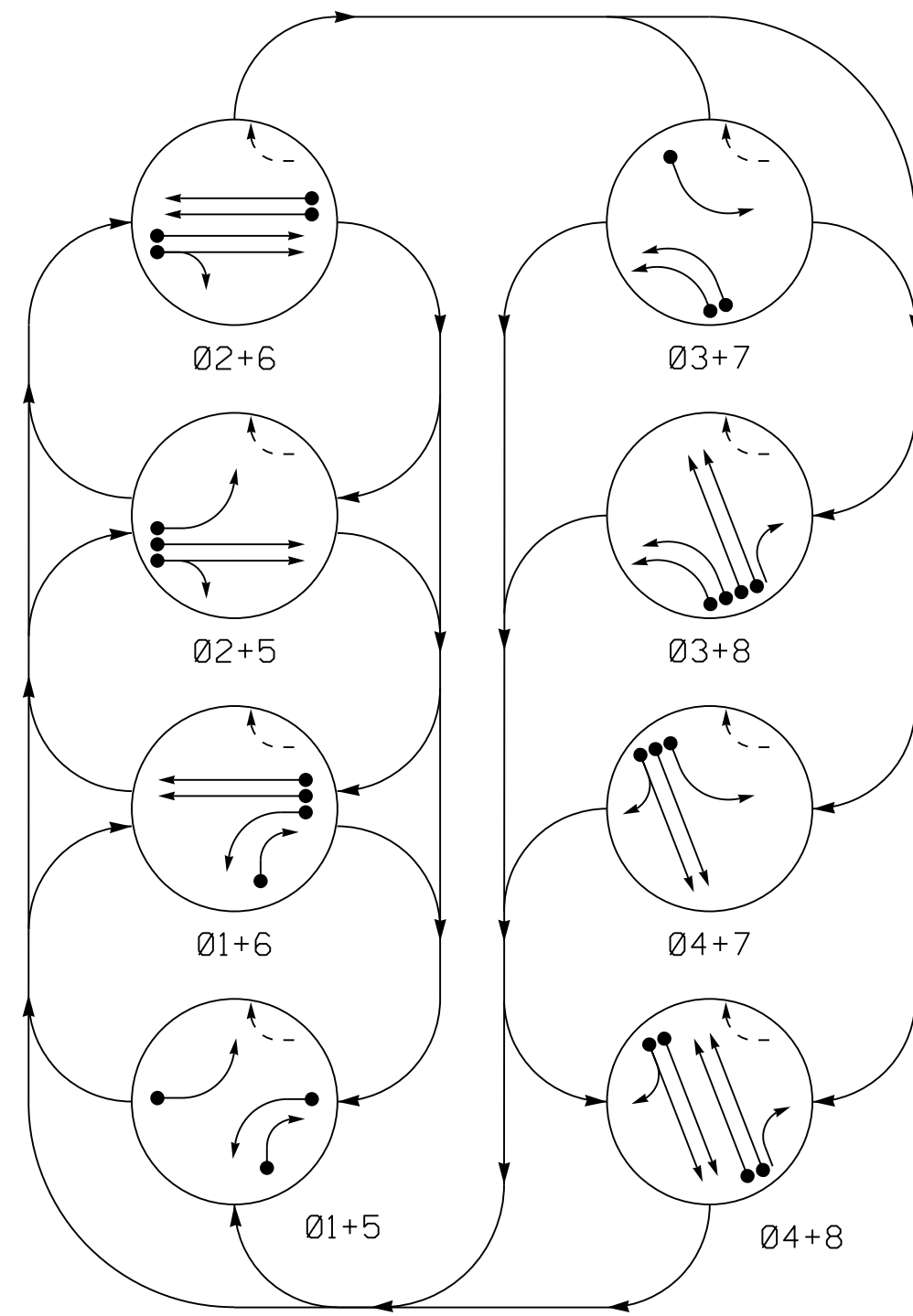
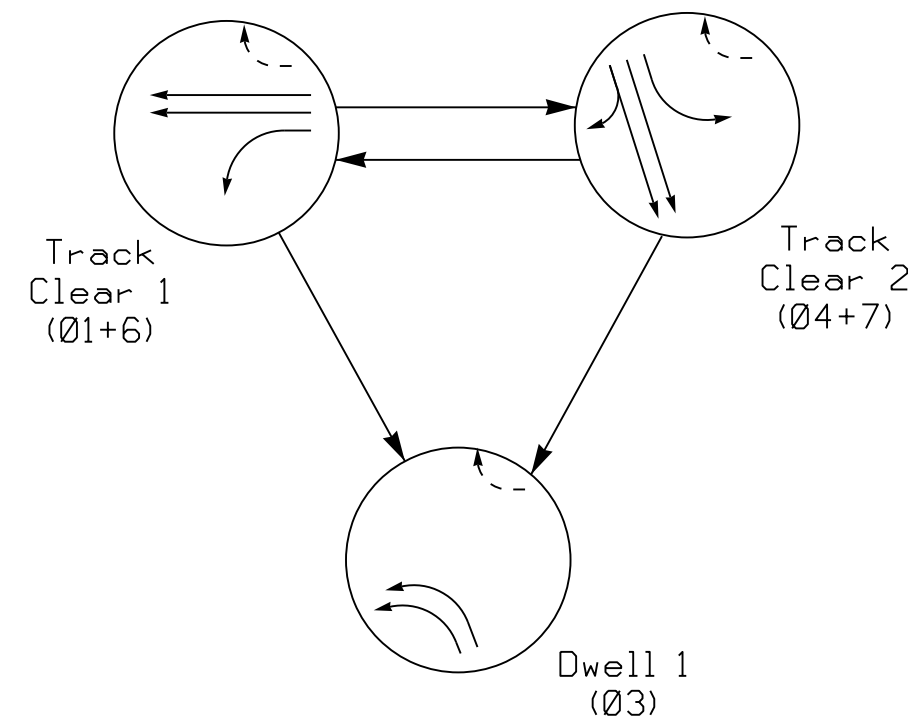


**PHASING DIAGRAM**



**RAIL PREEMPT PHASES (High Priority)**



**PHASING DIAGRAM DETECTION LEGEND**

- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- - - UNSIGNALIZED MOVEMENT
- ⚡ PEDESTRIAN MOVEMENT

**TABLE OF OPERATION**

| SIGNAL FACE | PHASE |      |      |      |      |      |      |      |    |    |    |   |
|-------------|-------|------|------|------|------|------|------|------|----|----|----|---|
|             | 01+5  | 01+6 | 02+5 | 02+6 | 03+7 | 03+8 | 04+7 | 04+8 | 1  | 2  | 3  | 4 |
| 11          | ←     | ←    | ←    | ←    | ←    | ←    | ←    | ←    | ←  | ←  | ←  | ← |
| 21,22       | R     | R    | G    | G    | R    | R    | R    | R    | R  | R  | R  | Y |
| 31,32       | ←     | ←    | ←    | ←    | ←    | ←    | ←    | ←    | ←  | ←  | ←  | ← |
| 41,42       | R     | R    | R    | R    | R    | R    | R    | G    | G  | R  | G  | R |
| 51          | ←     | ←    | ←    | ←    | ←    | ←    | ←    | ←    | ←  | ←  | ←  | ← |
| 61,62       | R     | G    | R    | G    | R    | R    | R    | R    | G  | R  | R  | Y |
| 71          | ←     | ←    | ←    | ←    | ←    | ←    | ←    | ←    | ←  | ←  | ←  | ← |
| 81          | R     | R    | R    | R    | R    | G    | R    | G    | R  | R  | R  | R |
| 82          | R     | R    | R    | R    | R    | G    | R    | G    | R  | R  | R  | R |
| Sign (A)    | OFF   | OFF  | OFF  | OFF  | OFF  | OFF  | OFF  | OFF  | ON | ON | ON | * |

\* See Note 7

**ASC/3 DETECTOR INSTALLATION CHART**

| LOOP | SIZE (FT) | DISTANCE FROM STOPBAR (FT) | TURNS | NEW LOOP | PROGRAMMING |         |             |            |                   |      |      |          |
|------|-----------|----------------------------|-------|----------|-------------|---------|-------------|------------|-------------------|------|------|----------|
|      |           |                            |       |          | PHASE       | CALLING | EXTEND TIME | DELAY TIME | USE ADDED INITIAL | TYPE | LOOP | NEW CARD |
| 1A   | 6X40      | 0                          | *     | -        | 1           | Yes     | -           | 3          | -                 | S    | -    | -        |
| 1B   | 6X40      | 0                          | *     | -        | 1           | Yes     | -           | 15         | -                 | S    | -    | -        |
| 2A   | 6X6       | 70                         | *     | -        | 2           | Yes     | -           | -          | -                 | S    | -    | -        |
| 2B   | 6X6       | 70                         | *     | -        | 2           | Yes     | -           | -          | -                 | S    | -    | -        |
| 3A   | 6X40      | 0                          | *     | -        | 3           | Yes     | -           | 3          | -                 | S    | -    | -        |
| 3B   | 6X40      | 0                          | *     | -        | 3           | Yes     | -           | -          | -                 | S    | -    | -        |
| 4A   | 6X40      | 0                          | *     | -        | 4           | Yes     | -           | -          | -                 | S    | -    | -        |
| 4B   | 6X40      | 0                          | *     | -        | 4           | Yes     | -           | 10         | -                 | S    | -    | -        |
| 4C   | 6X15      | 0                          | *     | -        | 4           | Yes     | -           | 15         | -                 | S    | -    | -        |
| 5A   | 6X40      | 0                          | *     | -        | 5           | Yes     | -           | 3          | -                 | S    | -    | -        |
| 6A   | 6X6       | 70                         | *     | -        | 6           | Yes     | -           | -          | -                 | S    | -    | -        |
| 6B   | 6X6       | 70                         | *     | -        | 6           | Yes     | -           | -          | -                 | S    | -    | -        |
| 7A   | 6X40      | 0                          | *     | -        | 7           | Yes     | -           | 3          | -                 | S    | -    | -        |
| 8A   | 6X40      | 0                          | *     | -        | 8           | Yes     | -           | -          | -                 | S    | -    | -        |
| 8B   | 6X40      | 0                          | *     | -        | 8           | Yes     | -           | -          | -                 | S    | -    | -        |

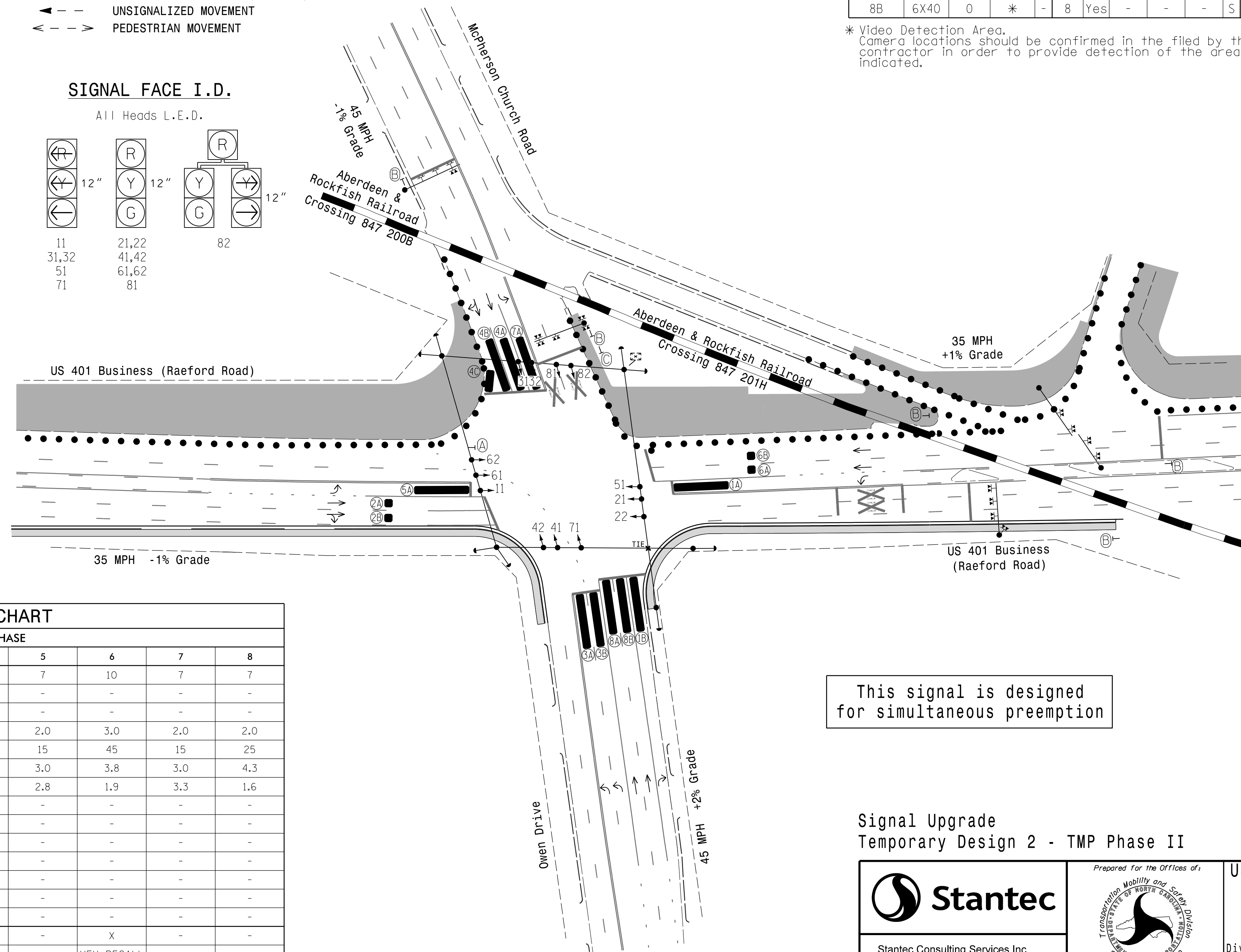
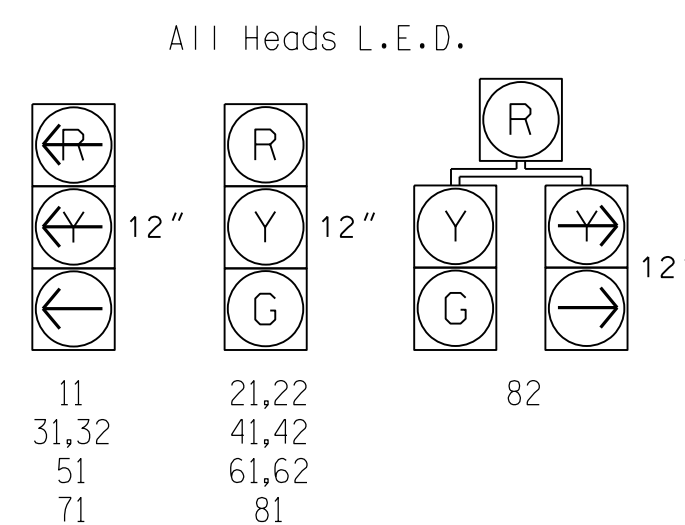
\* Video Detection Area. Camera locations should be confirmed in the filed by the contractor in order to provide detection of the areas indicated.

**ASC/3 RR PREEMPT**

| FUNCTION                    | SEQUENCE 1 | SEQUENCE 2 |
|-----------------------------|------------|------------|
| Exit Phase(s)               | 4,8        | 4,8        |
| Preempt Override            | OFF        | OFF        |
| Delay Time                  | 0          | 0          |
| Ped Clear Trough Yellow     | N          | N          |
| Terminate Phases            | N          | N          |
| Track Clear Reserve         | Y          | Y          |
| Entrance Walk               | 255*       | 255*       |
| Entrance Ped Clear          | 255*       | 255*       |
| Entrance Min Green          | 1          | 1          |
| Entrance Yellow Change      | 25.5*      | 25.5*      |
| Entrance Red Clear          | 25.5*      | 25.5*      |
| Track Clear Min Green 1     | 35         | 21         |
| Track Clear Yellow Change 1 | 3.8        | 4.6        |
| Track Clear Red Clear 1     | 2.1        | 1.7        |
| Track Clear Min Green 2     | 21         | 35         |
| Track Clear Yellow Change 2 | 4.6        | 3.8        |
| Track Clear Red Clear 2     | 1.7        | 2.1        |
| Min Dwell Time              | 7          | 7          |
| Exit Yellow Change          | 25.5*      | 25.5*      |
| Exit Red Clear              | 25.5*      | 25.5*      |

\* Time defaults to time used for phase during normal operation.

**SIGNAL FACE I.D.**



This signal is designed for simultaneous preemption

**LEGEND**

- | PROPOSED   | EXISTING  |
|--|-----------|
| ○ → Traffic Signal Head                            | ● → N/A   |
| ○ → Modified Signal Head                           | ○ → N/A   |
| ○ → Pedestrian Signal Head With Push Button & Sign | ○ → N/A   |
| ○ → Signal Pole with Guy                           | ○ → N/A   |
| ○ → Signal Pole with Sidewalk Guy                  | ○ → N/A   |
| □ → Inductive Loop Detector                        | □ → N/A   |
| □ → Controller & Cabinet                           | □ → N/A   |
| □ → Junction Box                                   | □ → N/A   |
| --- 2-in Underground Conduit                       | --- N/A   |
| N/A → Right of Way                                 | --- N/A   |
| N/A → Directional Arrow                            | → N/A     |
| N/A → Railroad Cantilever                          | --- N/A   |
| N/A → Railroad Tracks                              | --- N/A   |
| ■ → Video Detection Area                           | ■ → N/A   |
| ■ → Construction Zone                              | ■ → N/A   |
| ● → Construction Zone Drums                        | ● → N/A   |
| (A) → "NO RIGHT TURN - TRAIN" L.E.D. Blankout Sign | (A) → N/A |
| (B) → "DO NOT STOP ON TRACKS" Sign (R8-B)          | (B) → N/A |
| (C) → "Stop Here on Red" Sign (R10-6)              | (C) → N/A |

**ASC/3 TIMING CHART**

| FEATURE                 | PHASE |             |     |     |     |             |     |     |
|-------------------------|-------|-------------|-----|-----|-----|-------------|-----|-----|
|                         | 1     | 2           | 3   | 4   | 5   | 6           | 7   | 8   |
| Min Green *             | 7     | 10          | 7   | 7   | 7   | 10          | 7   | 7   |
| Walk *                  | -     | -           | -   | -   | -   | -           | -   | -   |
| Ped Clear               | -     | -           | -   | -   | -   | -           | -   | -   |
| Veh. Extension *        | 2.0   | 3.0         | 2.0 | 2.0 | 2.0 | 3.0         | 2.0 | 2.0 |
| Max 1 *                 | 15    | 45          | 15  | 25  | 15  | 45          | 15  | 25  |
| Yellow                  | 3.0   | 3.9         | 3.0 | 4.6 | 3.0 | 3.8         | 3.0 | 4.3 |
| Red Clear               | 2.9   | 2.1         | 3.3 | 1.6 | 2.8 | 1.9         | 3.3 | 1.6 |
| Red Revert              | -     | -           | -   | -   | -   | -           | -   | -   |
| Actuations B4 Add *     | -     | -           | -   | -   | -   | -           | -   | -   |
| Seconds /Actuation *    | -     | -           | -   | -   | -   | -           | -   | -   |
| Max Initial *           | -     | -           | -   | -   | -   | -           | -   | -   |
| Time Before Reduction * | -     | -           | -   | -   | -   | -           | -   | -   |
| Time To Reduce *        | -     | -           | -   | -   | -   | -           | -   | -   |
| Minimum Gap             | -     | -           | -   | -   | -   | -           | -   | -   |
| Locking Detector        | -     | X           | -   | -   | -   | X           | -   | -   |
| Recall Position         | -     | VEH. RECALL | -   | -   | -   | VEH. RECALL | -   | -   |
| Dual Entry              | -     | -           | -   | -   | -   | -           | -   | -   |
| Simultaneous Gap        | X     | X           | X   | X   | X   | X           | X   | X   |

\* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

**Signal Upgrade  
Temporary Design 2 - TMP Phase II**

**Stantec**  
Stantec Consulting Services Inc.  
801 Jones Franklin Road-Suite 300  
Raleigh, NC 27606  
Tel. (919) 851-6866  
Fax. (919) 851-7024  
www.stantec.com  
License No. F-0672

Prepared for the Offices of:  
**Transportation Mobility and Safety Division**  
STATE OF NORTH CAROLINA  
SIGNAL DESIGN SECTION  
750 N. Greenfield Pkwy, Garner, NC 27526  
SCALE: 0 50  
1"=50'

**US 401 Business (Raeford Road)  
at  
McPherson Church Road/  
Owen Drive**  
Division 6 Cumberland County Fayetteville  
PLAN DATE: March 2018 REVIEWED BY: E D Harris  
PREPARED BY: G B Spell REVIEWED BY: B L Watson

**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**

Professional Engineer Seal: 29449  
Professional Engineer: Eddy J. Watson  
DATE: 3/29/2018  
SIG. INVENTORY NO. 06-005472

3/29/2018 10:41:11 AM User: rfmuncy