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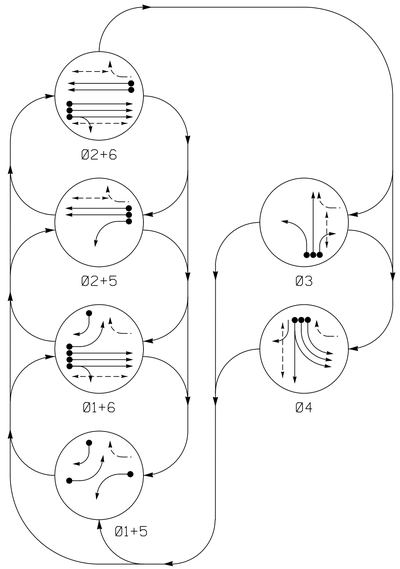
| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| I-5711 | Sig 6.0 |

# 6 Phase
# Fully Actuated w/ Emergency Vehicle Preemption
# SR 1007 (Mebane Oaks Rd) CLS
# Signal System: 10705

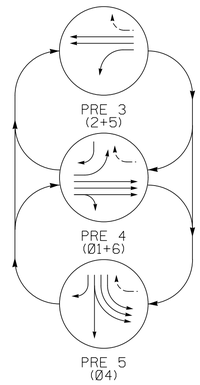
## NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Phase 1 and/or phase 5 may be lagged.
4. The order of phase 3 and phase 4 may be reversed.
5. Set all detector units to presence mode.
6. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
7. Program pedestrian heads to countdown the flashing "Don't Walk" time only.
8. This intersection features a GPS Emergency Vehicle Preemption system.
9. This intersection features accessible pedestrian signals utilizing percussive tone walk indications and speech messages. Refer to section 4E.11 of the 2009 MUTCD for tone rate and frequency requirements.
10. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
11. Closed loop system data: Controller Asset #: 2098.

## PHASING DIAGRAM




## EV PREEMPT PHASES
(Medium Priority)




## TABLE OF OPERATION

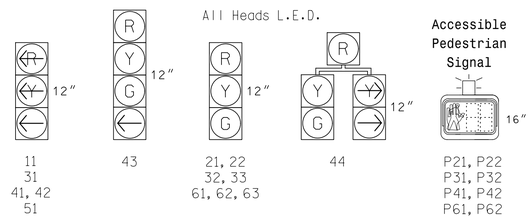
| SIGNAL FACE | PHASE Ø1+5 | Ø1+6 | Ø2+5 | Ø2+6 | Ø3 | Ø4 | PRE3 | PRE4 | PRE5 | FLASH |
|---|---|---|---|---|---|---|---|---|---|---|
| 11 | ←● | ← | ~~R~~ | ~~R~~ | ~~R~~ | ~~R~~ | ~~R~~ | ← | ~~R~~ | ~~R~~ |
| 21, 22 | R | R | G | G | R | R | G | R | R | Y |
| 31 | ~~R~~ | ~~R~~ | ~~R~~ | ~~R~~ | ← | ~~R~~ | ~~R~~ | ~~R~~ | ~~R~~ | ~~R~~ |
| 32, 33 | R | R | R | R | G | R | R | R | R | R |
| 41, 42 | ~~R~~ | ~~R~~ | ~~R~~ | ~~R~~ | ~~R~~ | ← | ~~R~~ | ~~R~~ | ← | ~~R~~ |
| 43 | R | R | R | R | R | G | R | R | G | R |
| 44 | R/← | R/← | R | R | R | G | R | R/← | G | R |
| 51 | ← | ~~R~~ | ← | ~~R~~ | ~~R~~ | ~~R~~ | ← | ~~R~~ | ~~R~~ | ~~R~~ |
| 61, 62, 63 | R | G | R | G | R | R | R | G | R | Y |
| P21, P22 | DW | DW | W | W | DW | DW | DW | DW | DW | DRK |
| P31, P32 | DW | DW | DW | DW | W | DW | DW | DW | DW | DRK |
| P41, P42 | DW | DW | DW | DW | DW | W | DW | DW | DW | DRK |
| P61, P62 | DW | W | DW | W | DW | DW | DW | DW | DW | DRK |

## ASC/3 DETECTOR INSTALLATION CHART

| DETECTOR | | | | | PROGRAMMING | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| LOOP | SIZE (FT) | DISTANCE FROM STOPBAR (FT) | TURNS | NEW LOOP | PHASE | CALLING | EXTEND TIME | DELAY TIME | USE ADDED INITIAL | TYPE | SYSTEM LOOP | NEW CARD |
| 1A | 6x40 | 0 | 2-4-2 | X | 1 | Yes | - | 3 | - | S | - | X |
| 1B | 6x40 | 0 | 2-4-2 | X | 1 | Yes | - | 15 | - | S | - | X |
| 2A | 6x6 | 70 | 4 | X | 2 | Yes | - | - | - | S | - | X |
| 2B | 6x6 | 70 | 4 | X | 2 | Yes | - | - | - | S | - | X |
| 3A | 6x40 | +5 | 2-4-2 | X | 3 | Yes | - | 3 | - | S | - | X |
| 3B | 6x40 | 0 | 2-4-2 | X | 3 | Yes | - | - | - | S | - | X |
| 3C | 6x40 | 0 | 2-4-2 | X | 3 | Yes | - | 15 | - | S | - | X |
| 4A | 6x40 | 0 | 2-4-2 | X | 4 | Yes | - | 3 | - | S | - | X |
| 4B | 6x40 | 0 | 2-4-2 | X | 4 | Yes | - | - | - | S | - | X |
| 4C | 6x40 | 0 | 2-4-2 | X | 4 | Yes | - | - | - | S | - | X |
| 5A | 6x40 | +5 | 2-4-2 | X | 5 | Yes | - | - | - | S | - | X |
| 6A | 6x6 | 70 | 4 | X | 6 | Yes | - | - | - | S | - | X |
| 6B | 6x6 | 70 | 4 | X | 6 | Yes | - | - | - | S | - | X |
| 6C | 6x6 | 70 | 4 | X | 6 | Yes | - | - | - | S | - | X |
| S3 | 6X6 | +165 | 5 | X | - | No | - | - | - | N | X | X |
| S4 | 6X6 | +165 | 5 | X | - | No | - | - | - | N | X | X |
| S5 | 6X6 | +165 | 5 | X | - | No | - | - | - | N | X | X |
| S26 | 6X6 | +140 | 3 | X | - | No | - | - | - | N | X | X |
| S27 | 6X6 | +140 | 3 | X | - | No | - | - | - | N | X | X |

## SIGNAL FACE I.D.

All Heads L.E.D.

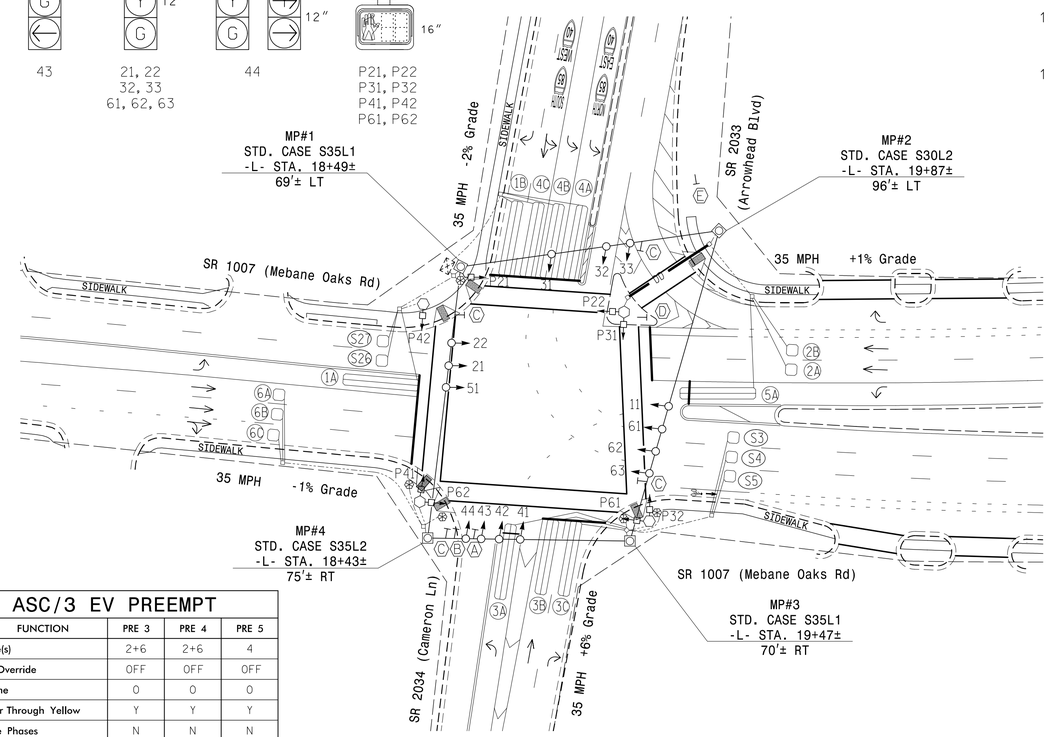



### PHASING DIAGRAM DETECTION LEGEND

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

## ACCESSIBLE PEDESTRIAN SIGNAL OPERATION

| SIGNAL FACE | VOICE | TONES | INTERVAL | SPEECH MESSAGE |
|---|---|---|---|---|
| P21 | - | X | Walk | (Rapid Ticks) |
| | | | Flashing Don't Walk / Don't Walk | - |
| P22 | X | - | Walk | Arrowhead. Walk sign is on to cross Arrowhead. |
| | | | Flashing Don't Walk / Don't Walk | Wait. Wait to cross Arrowhead. |
| P31 | X | - | Walk | Mebane Oaks. Walk sign is on to cross Mebane Oaks. |
| | | | Flashing Don't Walk / Don't Walk | Wait. Wait to cross Mebane Oaks. |
| P32 | - | X | Walk | (Rapid Ticks) |
| | | | Flashing Don't Walk / Don't Walk | - |
| P41, P42 | - | X | Walk | (Rapid Ticks) |
| | | | Flashing Don't Walk / Don't Walk | - |
| P61, P62 | - | X | Walk | (Rapid Ticks) |
| | | | Flashing Don't Walk / Don't Walk | - |




## LEGEND

| PROPOSED | | EXISTING |
|---|---|---|
| | Traffic Signal Head | |
| | Sign | |
| | Pedestrian Signal Head With Push Button & Sign | |
| | Inductive Loop Detector | |
| | Controller & Cabinet | |
| | Junction Box | |
| | 2-in Underground Conduit | |
| DD | Directional Drill | N/A |
| N/A | Right of Way | |
| | Directional Arrow | |
| | Metal Strain Pole | |
| | Type I Pushbutton Post | |
| | Type II Signal Pedestal | |
| N/A | Curb Ramp | |
| A | Combined Through and Left Arrow Sign (R3-6L) | A |
| B | Right Arrow "ONLY" Sign (R3-5R) | B |
| C | Right "TURNING VEHICLES" Yield "TO" Pedestrians Sign (R10-15R) | C |
| D | Pedestrian Warning Sign (W11-2) w/ Diagonal Arrow Plaque (W16-7P) | D |
| E | "Free Flow Right Turn" Sign (See Signing Plans) | E |

## ASC/3 TIMING CHART

| FEATURE | PHASE 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| Min Green * | 7 | 10 | 7 | 7 | 7 | 10 |
| Delayed Green | 0 | 0 | 0 | 5 | 0 | 0 |
| Walk * | 0 | 7 | 7 | 7 | 0 | 7 |
| Ped Clear | 0 | 17 | 24 | 21 | 0 | 25 |
| Veh. Extension * | 2.0 | 3.0 | 2.0 | 2.0 | 2.0 | 3.0 |
| Max 1 * | 30 | 60 | 15 | 50 | 15 | 60 |
| Yellow | 3.0 | 3.8 | 3.5 | 4.0 | 3.0 | 3.9 |
| Red Clear | 3.3 | 2.1 | 2.7 | 2.5 | 3.5 | 2.3 |
| Red Revert | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 |
| 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 |

* 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.

## ASC/3 EV PREEMPT

| FUNCTION | PRE 3 | PRE 4 | PRE 5 |
|---|---|---|---|
| Exit Phase(s) | 2+6 | 2+6 | 4 |
| Preempt Override | OFF | OFF | OFF |
| Delay Time | 0 | 0 | 0 |
| Ped Clear Through Yellow | Y | Y | Y |
| Terminate Phases | N | N | N |
| Entrance Walk | 1 | 1 | 1 |
| Entrance Ped Clear | 13 | 13 | 13 |
| Entrance Min Green | 1 | 1 | 1 |
| Entrance Yellow Clear | 25.5* | 25.5* | 25.5* |
| Entrance Red Clear | 25.5* | 25.5* | 25.5* |
| Min Dwell Time | 7 | 7 | 7 |
| Preempt Input Extension Time | 2 | 2 | 2 |
| Preempt Max Time | 120 | 120 | 120 |
| Exit Yellow Clear | 25.5* | 25.5* | 25.5* |
| Exit Red Clear | 25.5* | 25.5* | 25.5* |

* Time defaults to time used for phase during normal operation

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Signal Upgrade - Final Design

Transportation Mobility and Safety Division
Traffic Engineering Branch
Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

SCALE 0 40
1" = 40'

SR 1007 (Mebane Oaks Road)
at
SR 2033 (Arrowhead Boulevard)
and SR 2034 (Cameron Lane)

Division 7 Alamance County Mebane

PLAN DATE: November 2019 REVIEWED BY: Z. "Gavin" Teng
PREPARED BY: Z. "Gavin" Teng REVIEWED BY:

| REVISIONS | INIT. | DATE |
|---|---|---|
| | | |

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 032179 ENGINEER ZHAOLONG TENG

DocuSigned by: Zhaolong Teng 12/17/2019
SIGNATURE DATE

SIG. INVENTORY NO. 07-2098

$$$$$SYSTIME$$$$$
$$$$$USERNAME$$$$$