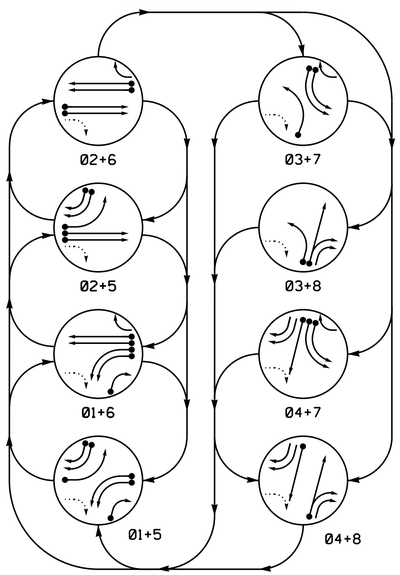
DocuSign Envelope ID: 2D0541FF-961B-4856-92D7-3664EA825C64

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-5021 | Sig. 19.0 |

## PHASING DIAGRAM




PHASING DIAGRAM DETECTION LEGEND

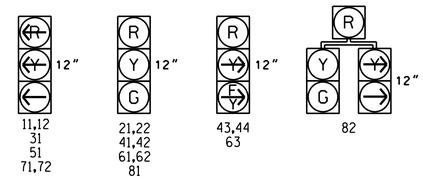
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

## TABLE OF OPERATION

| SIGNAL FACE | PHASE 01+5 | 01+6 | 02+5 | 02+6 | 03+7 | 03+8 | 04+7 | 04+8 | FLASH |
|---|---|---|---|---|---|---|---|---|---|
| 11,12 | — | — | ~~R~~ | ~~R~~ | ~~R~~ | ~~R~~ | ~~R~~ | ~~R~~ | ~~R~~ |
| 21,22 | R | R | G | G | R | R | R | R | Y |
| 31 | ~~R~~ | ~~R~~ | ~~R~~ | ~~R~~ | — | — | ~~R~~ | ~~R~~ | ~~R~~ |
| 41,42 | R | R | R | R | R | R | G | G | R |
| 43,44 | F Y | R | F Y | R | R | R | F Y | F Y | R |
| 51 | — | ~~R~~ | — | ~~R~~ | ~~R~~ | ~~R~~ | ~~R~~ | ~~R~~ | ~~R~~ |
| 61,62 | R | G | R | G | R | R | R | R | Y |
| 63 | R | F Y | R | F Y | F Y | R | F Y | R | ~~Y~~ |
| 71,72 | ~~R~~ | ~~R~~ | ~~R~~ | ~~R~~ | — | ~~R~~ | — | ~~R~~ | ~~R~~ |
| 81 | R | R | R | R | R | G | R | G | R |
| 82 | R/— | R/— | R | R | R | G | R | G | R |

## SIGNAL FACE I.D.

All Heads L.E.D.



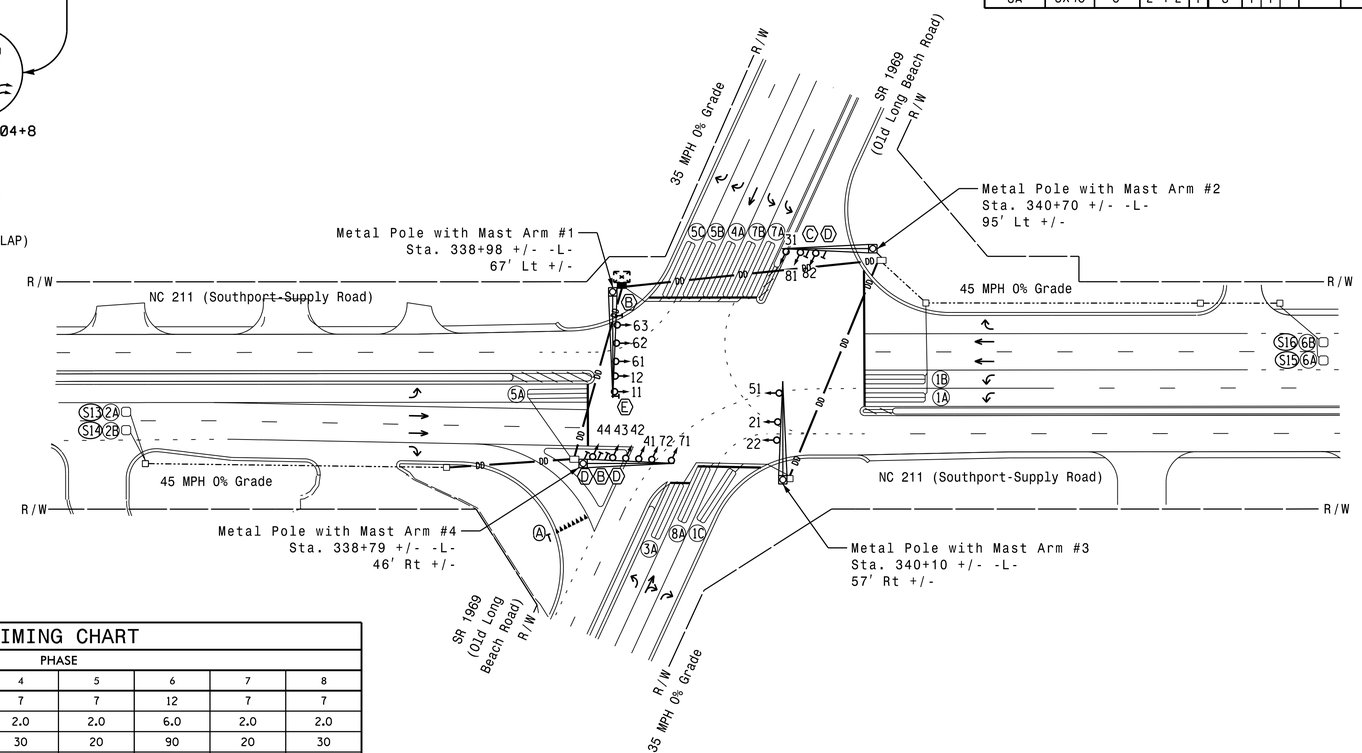

## OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

| INDUCTIVE LOOPS | | | | | DETECTOR PROGRAMMING | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| LOOP | SIZE (FT) | DISTANCE FROM STOPBAR (FT) | TURNS | NEW LOOP | PHASE | CALLING | EXTENSION | FULL TIME DELAY | STRETCH TIME | DELAY TIME | SYSTEM LOOP | NEW CARD |
| 1A | 6X40 | 0 | 2-4-2 | Y | 1 | Y | Y | - | - | - | - | Y |
| 1B | 6X40 | 0 | 2-4-2 | Y | 1 | Y | Y | - | - | - | - | Y |
| 1C | 6X40 | 0 | 2-4-2 | Y | 1 | Y | Y | - | - | 15 | - | Y |
| 2A/S13 | 6X6 | 300 | 5 | Y | 2 | Y | Y | - | - | - | Y | Y |
| 2B/S14 | 6X6 | 300 | 5 | Y | 2 | Y | Y | - | - | - | Y | Y |
| 3A | 6X40 | 0 | 2-4-2 | Y | 3 | Y | Y | - | - | - | - | Y |
| 4A | 6X40 | 0 | 2-4-2 | Y | 4 | Y | Y | - | - | - | - | Y |
| 5A | 6X40 | 0 | 2-4-2 | Y | 5 | Y | Y | - | - | - | - | Y |
| 5B | 6X40 | 0 | 2-4-2 | Y | 5 | Y | Y | - | - | 15 | - | Y |
| 5C | 6X40 | 0 | 2-4-2 | Y | 5 | Y | Y | - | - | 15 | - | Y |
| 6A/S15 | 6X6 | 300 | 5 | Y | 6 | Y | Y | - | - | - | Y | Y |
| 6B/S16 | 6X6 | 300 | 5 | Y | 6 | Y | Y | - | - | - | Y | Y |
| 7A | 6X40 | 0 | 2-4-2 | Y | 7 | Y | Y | - | - | - | - | Y |
| 7B | 6X40 | 0 | 2-4-2 | Y | 7 | Y | Y | - | - | - | - | Y |
| 8A | 6X40 | 0 | 2-4-2 | Y | 8 | Y | Y | - | - | - | - | Y |

8 Phase
Fully Actuated
(NC 133 Closed Loop System)

## 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. Phase 3 and/or phase 7 may be lagged.
5. Set all detector units to presence mode.
6. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
7. Closed loop system data: Master Asset #10317 Controller Asset #0626




## LEGEND

| PROPOSED | | EXISTING |
|---|---|---|
| | Traffic Signal Head | |
| | Modified Signal Head | N/A |
| | Sign | |
| | Pedestrian Signal Head With Push Button & Sign | |
| | Signal Pole with Guy | |
| | Signal Pole with Sidewalk Guy | |
| | Inductive Loop Detector | |
| | Controller & Cabinet | |
| | Junction Box | |
| | 2-in Underground Conduit | |
| N/A | Right of Way | |
| | Directional Arrow | |
| | Directional Drill | N/A |
| | Metal Pole with Mastarm | |
| | Guardrail | |
| Ⓐ | "YIELD" Sign (R1-2) | Ⓐ |
| Ⓑ | "RIGHT TURN MUST YIELD TO U-TURN" Sign | Ⓑ |
| Ⓒ | Combined Through and Right Arrow Sign (R3-6R) | Ⓒ |
| Ⓓ | Right Arrow "ONLY" Sign (R3-5R) | Ⓓ |
| Ⓔ | "U-TURN YIELD TO RIGHT TURN" Sign (R10-16) | Ⓔ |

## OASIS 2070 TIMING CHART

| FEATURE | PHASE 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Min Green 1 * | 7 | 12 | 7 | 7 | 7 | 12 | 7 | 7 |
| Extension 1 * | 2.0 | 6.0 | 2.0 | 2.0 | 2.0 | 6.0 | 2.0 | 2.0 |
| Max Green 1 * | 20 | 90 | 20 | 30 | 20 | 90 | 20 | 30 |
| Yellow Clearance | 3.0 | 4.5 | 3.0 | 3.8 | 3.0 | 4.5 | 3.0 | 3.8 |
| Red Clearance | 4.1 | 1.8 | 3.1 | 2.2 | 3.8 | 2.5 | 3.2 | 2.3 |
| Red Revert | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 |
| Walk 1 * | - | - | - | - | - | - | - | - |
| Don't Walk 1 | - | - | - | - | - | - | - | - |
| Seconds Per Actuation * | - | 1.5 | - | - | - | 1.5 | - | - |
| Max Variable Initial * | - | 34 | - | - | - | 34 | - | - |
| Time Before Reduction * | - | 15 | - | - | - | 15 | - | - |
| Time To Reduce * | - | 45 | - | - | - | 45 | - | - |
| Minimum Gap | - | 3.0 | - | - | - | 3.0 | - | - |
| Recall Mode | - | MIN RECALL | - | - | - | MIN RECALL | - | - |
| Vehicle Call Memory | - | YELLOW | - | - | - | YELLOW | - | - |
| Dual Entry | - | - | - | - | - | - | - | - |
| Simultaneous Gap | ON | ON | ON | ON | ON | ON | ON | ON |

* 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.

HNTB NORTH CAROLINA, P.C.
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Raleigh, North Carolina 27609
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(919) 546-8997

Signal Upgrade - Final Design

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

Prepared for: Transportation Mobility and Safety Division, STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION, Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

NC 211 (Southport-Supply Road)
at
SR 1969 (Old Long Beach Road)

Division 03 Brunswick Co. Southport

| | | | |
|---|---|---|---|
| PLAN DATE: June 2017 | REVIEWED BY: A.D. Klinksiek | | |
| PREPARED BY: A.H. Thornburg | REVIEWED BY: N.R. Simmons | | |

SCALE 0 50 1"=50'

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

SEAL: NORTH CAROLINA PROFESSIONAL SEAL 031464 ENGINEER NATASHA R. SIMMONS

DocuSigned by: Natasha Simmons
F6DA8BDE3AD445A...
SIGNATURE 9/10/2021 DATE

SIG. INVENTORY NO. 03-0626