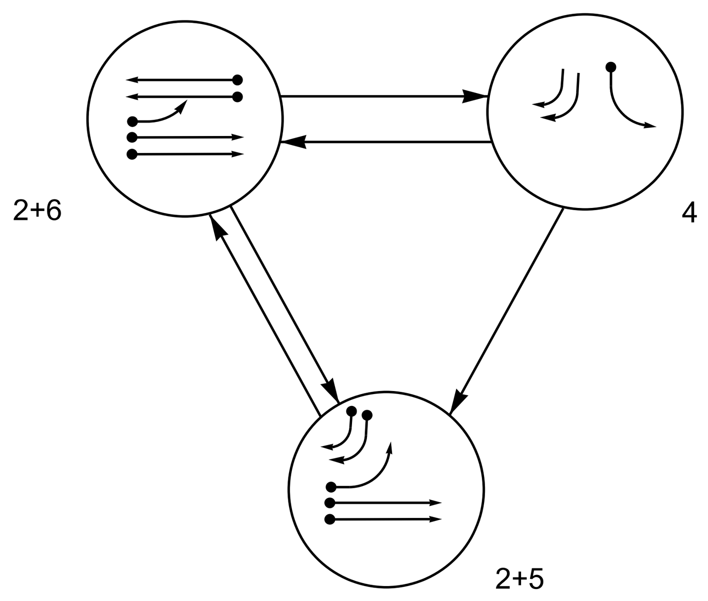
| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| I-5716 | Sig.4.0 |

3-Phase
Fully Actuated
Hickory City Signal System

## PHASING DIAGRAM




### PHASING DIAGRAM DETECTION LEGEND

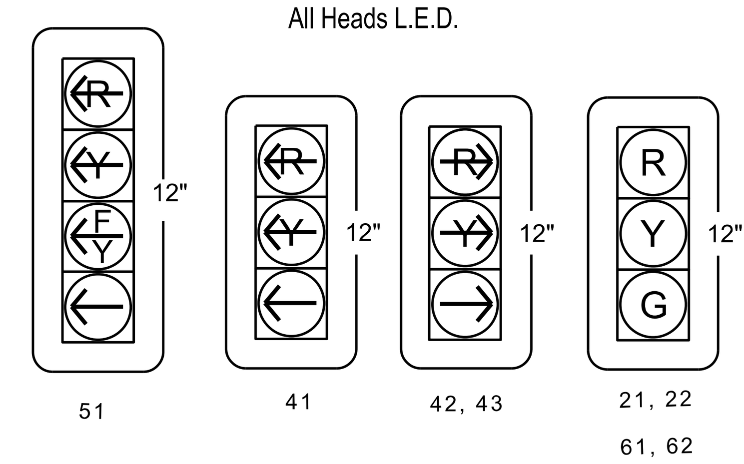
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

## TABLE OF OPERATION

| SIGNAL FACE | PHASE 2+5 | PHASE 2+6 | PHASE 4 | PHASE FLASH |
|---|---|---|---|---|
| 21, 22 | G | G | R | R |
| 41 | ←R | ←R | ← | ←R |
| 42, 43 | → | R→ | → | R→ |
| 51 | ← | ← F/Y | ←R | ←R |
| 61, 62 | R | G | R | R |

## SIGNAL FACE I.D.

All Heads L.E.D.




## SE-PAC 2070 LOOP & DETECTOR UNIT INSTALLATION CHART

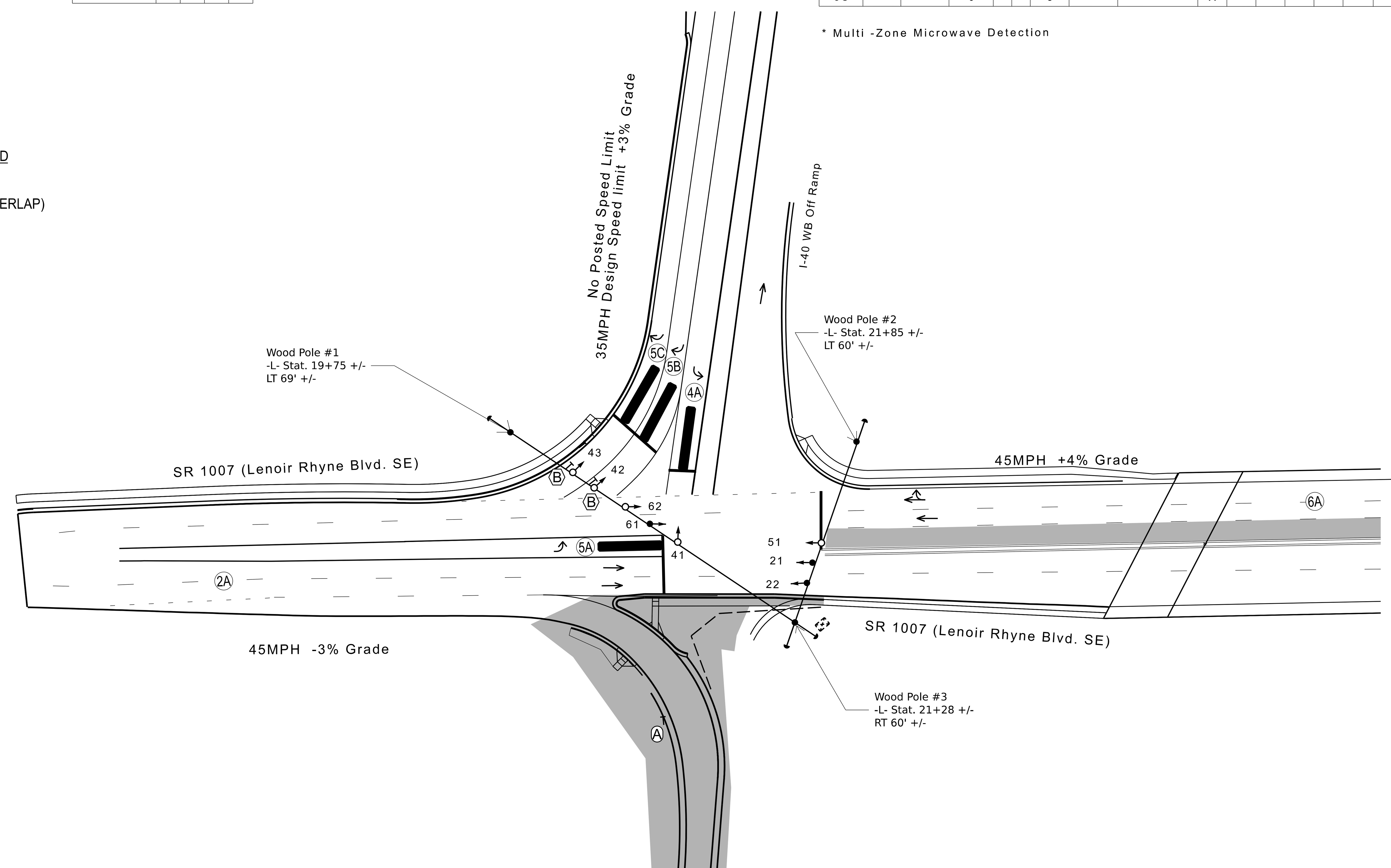
| LOOP NO. | SIZE (FT) | TURNS | DIST. FROM STOP LINE (FT) | NEW | EXISTING | ASSIGNED PHASE | DELAY | EXTEND (STRETCH) | 0 VEHICLE | 1 PEDESTRIAN | 2 1 CALL | 3 STOP A | 4 STOP B | 5 PROT/PER LEFT | 6 PROT/PER THROUGH | 7 AND | SWITCH | SYSTEM LOOPS | STATUS NEW | STATUS EXISTING |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4A | * | * | 0 | * | - | 4 | - | - | X | - | - | - | - | - | - | - | - | - | - | * |
| 5A | * | * | 0 | * | - | 5 | 15.0 | - | X | - | - | - | - | - | - | - | - | - | * | - |
| | | | | | | 2 | - | - | X | - | - | - | - | - | - | - | - | - | * | - |
| 5B | * | * | 0 | * | - | 5 | - | - | X | - | - | - | - | - | - | - | - | - | * | - |
| 5C | * | * | 0 | * | - | 5 | - | - | X | - | - | - | - | - | - | - | - | - | * | - |

(INDUCTIVE LOOP: Loop No. through Existing; DETECTOR PROGRAMMING: Assigned Phase through Status; TIMING: Delay, Extend; OPERATION MODE: 0–7)

* Multi -Zone Microwave Detection

## NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2024 and "Standard Specifications for Roads and Structures" dated January 2024.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Phase 5 may be lagged.
4. Remove signal head # 11.
5. Remove existing "No Right Turn" sign (R3-1).
6. Set all detector units to presence mode.
7. This intersection uses multi-zone microwave detection. Install detectors according to the manufacturer's instructions to achieve the desired detection.
8. Install backplates with retro-reflective sheetings on signal heads 41, 42, 43, 51 and 62.
9. See Pavement Marking Plans for proposed stop bar locations.
10. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.




## LEGEND

| PROPOSED | | EXISTING |
|---|---|---|
| | Traffic Signal Head | |
| | Modified Signal Head | N/A |
| | Sign | |
| | Pedestrian Signal Head | |
| | Signal Pole with Guy | |
| | Signal Pole with Sidewalk Guy | |
| | Inductive Loop Detector | |
| | Controller & Cabinet | |
| | Junction Box | |
| | Non - Intrusive detector | |
| X-UC | 2-in Underground Conduit | UC |
| N/A | Right of Way | |
| | Directional Arrow | |
| | Construction Zone Drums | |
| A | "YIELD" Sign (R1-2) | A |
| B | " NO TURN ON RED " Sign ( R10-11) | B |
| | Construction Zone | |

## SE-PAC 2070 TIMING CHART

| FEATURE | PHASE 2 | PHASE 4 | PHASE 5 | PHASE 6 |
|---|---|---|---|---|
| Min Green* | 12 | 7 | 7 | 12 |
| Passage Gap* | 2.0 | 2.0 | 2.0 | 2.0 |
| Maximum Green* | 90 | 30 | 15 | 90 |
| Yellow Change | 4.8 | 3.7 | 3.0 | 4.8 |
| Red Clear | 3.1 | 2.7 | 2.1 | 3.1 |
| Walk* | - | - | - | - |
| Pedestrian Clear | - | - | - | - |
| Added Initial* | - | - | - | - |
| Maximum Initial* | - | - | - | - |
| Time Before Reduction* | - | - | - | - |
| Time To Reduce* | - | - | - | - |
| Minimum Gap | - | - | - | - |
| Recall Mode | MIN RECALL | - | - | MIN RECALL |
| Vehicle Call Memory | LOCK | NON LOCK | NON LOCK | LOCK |
| Dual Entry | - | - | - | - |
| Simultaneous Gap | 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.

## Microwave Detection

| FUNCTION | SENSOR 1 (2A) | | | SENSOR 2 (6A) | | |
|---|---|---|---|---|---|---|
| Channel | 1 | | | 1 | | |
| Phase | 2 | | | 6 | | |
| Direction of Travel | SB | | | NB | | |
| Type | Priority | | | Priority | | |
| Level | 1 | 2 | Queue | 1 | 2 | Queue |
| Discovery Zone (ft) | >= 750 | <750 | - | >= 750 | <750 | - |
| Range | 900-100 | 600-100 | 150-100 | 900-100 | 600-100 | 150-100 |
| Enable Speed | Y | Y | Y | Y | Y | Y |
| Speed Range(mph) | 35-100 | 35-100 | 1-35 | 35-100 | 35-100 | 1-35 |
| Enable Estimated Time of Arrival | Y | Y | N | Y | Y | N |
| Estimated Time of Arrival (sec) | 2.5-10.0 | 2.5-6.5 | - | 2.5-10.0 | 2.5-10.0 | - |

Signal Upgrade -Temporary Design 3 (TMP Phase 4)

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared in the Offices of:
Transportation Mobility and Safety Division
Signal Design Section
750 N. Greenfield Pkwy, Garner, NC 27529

# I-40 EB Ramp at SR 1007 (Lenoir Rhyne Blvd. SE)

Division 12 Catawba County Hickory

| PLAN DATE: | January 2026 | REVIEWED BY: | R.N Zinser |
|---|---|---|---|
| PREPARED BY: | Adja Fall | REVIEWED BY: | |

SCALE 0 50

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

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 043914 ENGINEER RICHARD N. ZINSER

DocuSigned by: R. Nicholas Zinser 04/13/2026
E1388973472248E...
DATE

SIG. INVENTORY NO. 12-0309T3