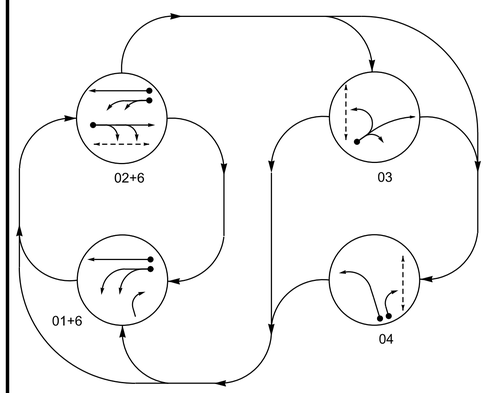
| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| HL-0003 | Sig. 4.0 |

## PHASING DIAGRAM

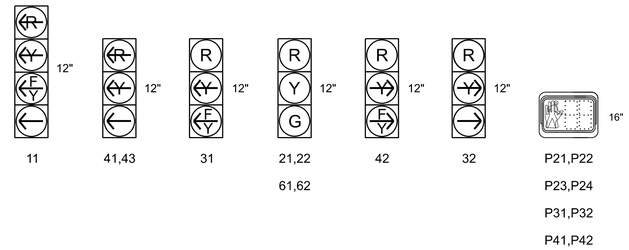



## TABLE OF OPERATION

| SIGNAL FACE | PHASE 01+6 | PHASE 02+6 | PHASE 03 | PHASE 04 | FLASH |
|---|---|---|---|---|---|
| 11 | ← | F Y | ~~R~~ | ~~R~~ | ~~Y~~ |
| 21,22 | R | G | R | R | Y |
| 31 | R | R | F Y | R | R |
| 32 | R | R | → | R | R |
| 41,43 | ~~R~~ | ~~R~~ | ~~R~~ | ← | ~~R~~ |
| 42 | F Y | R | R | F Y | R |
| 61,62 | G | G | R | R | Y |
| P21,P22 | DW | W | DW | DW | DRK |
| P23,P24 | DW | W | DW | DW | DRK |
| P31,P32 | DW | DW | W | DW | DRK |
| P41,P42 | DW | DW | DW | W | DRK |

## SIGNAL FACE I.D.

All Heads L.E.D.




## MAXTIME DETECTOR INSTALLATION CHART

| DETECTOR | | | | | PROGRAMMING | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LOOP | SIZE (FT) | DISTANCE FROM STOP LINE (FT) | TURNS | NEW LOOP | CALL PHASE | DELAY TIME | EXTEND TIME | EXTEND | ADDED INITIAL | CALL DELAY DURING GREEN | NEW CARD |
| 1A | 6X40 | 0 | 2-4-2 | X | 1 | 15.0 | - | X | - | X | - | X |
| | | | | | 6 | - | - | X | - | X | - | X |
| 2A | 6X6 | 70 | 4 | X | 2 | - | - | X | - | X | - | X |
| 3A | 6X50 | +20 | 2-4-2 | - | 3 | - | - | X | - | X | - | X |
| 4A | 6X40 | +10 | 2-4-2 | - | 4 | 3.0 | - | X | - | X | - | X |
| 4B | 6X40 | +10 | 2-4-2 | - | 4 | 15.0 | - | X | - | X | - | X |
| 6A | 6X6 | 70 | 4 | X | 6 | - | - | X | - | X | - | X |

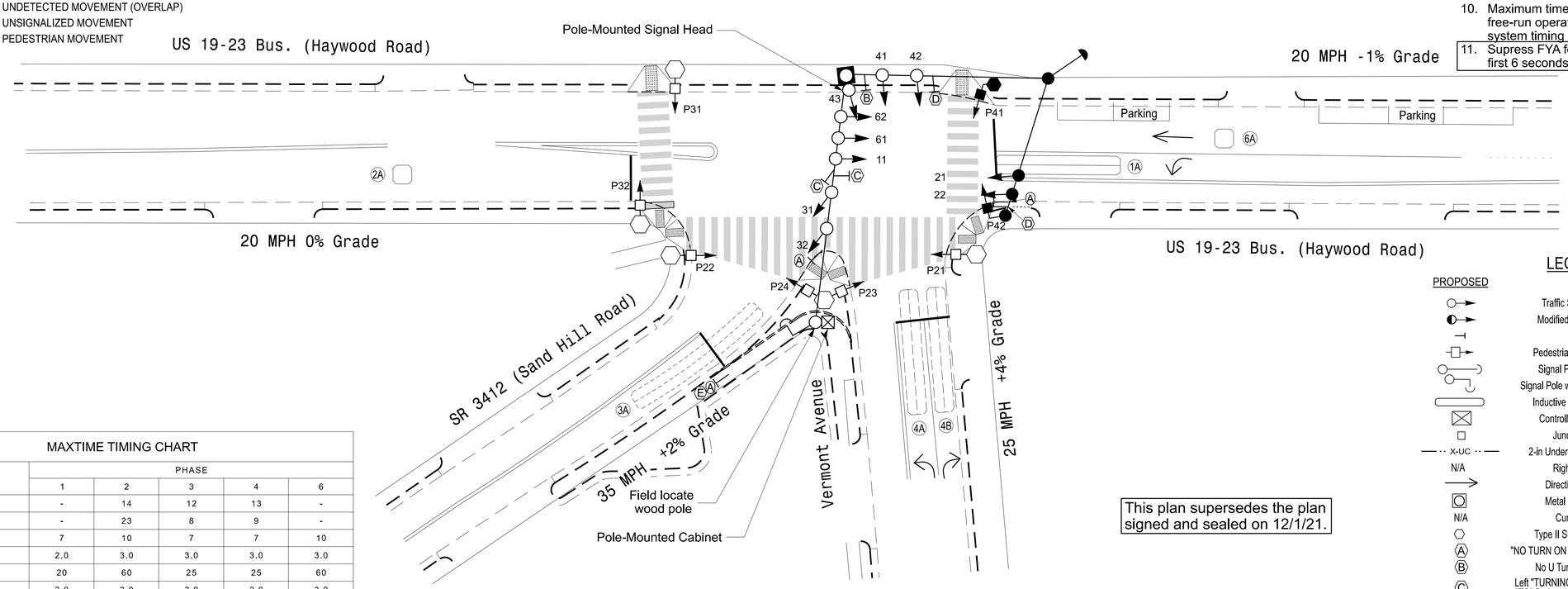
4 Phase
Fully Actuated
D13-22_Asheville

## 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. Set all detector units to presence mode.
4. In the event of loop replacement, refer to the current ITS and Signals Design Manual and submit a Plan of Record to the Signal Design Section.
5. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
6. Program controller to operate using FYA compact mode.
7. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls for Phases 3 and 4.
8. Program pedestrian heads to countdown the flashing "Don't Walk" time only.
9. See Pavement Marking Plans for proposed crosswalk locations.
10. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
11. Supress FYA for signal head 42 during the first 6 seconds of the phase 4 green interval.

PHASING DIAGRAM DETECTION LEGEND

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




This plan supersedes the plan signed and sealed on 12/1/21.

## 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 | |
| X-UC | 2-in Underground Conduit | UC |
| N/A | Right of Way | |
| | Directional Arrow | |
| | Metal Strain Pole | |
| N/A | Curb Ramp | |
| | Type II Signal Pedestal | |
| A | "NO TURN ON RED" Sign (R10-11) | A |
| B | No U Turn Sign (R3-4) | B |
| C | Left "TURNING VEHICLES" Yield "TO" Pedestrians Sign (R10-15L) | C |
| D | Right "TURNING VEHICLES" Yield "TO" Pedestrians Sign (R10-15R) | D |
| E | "STOP HERE ON RED" Sign (R10-6) | E |

## MAXTIME TIMING CHART

| FEATURE | PHASE 1 | PHASE 2 | PHASE 3 | PHASE 4 | PHASE 6 |
|---|---|---|---|---|---|
| Walk * | - | 14 | 12 | 13 | - |
| Ped Clear | - | 23 | 8 | 9 | - |
| Min Green * | 7 | 10 | 7 | 7 | 10 |
| Passage * | 2.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Max 1 * | 20 | 60 | 25 | 25 | 60 |
| Yellow Change | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Red Clear | 3.3 | 3.3 | 3.3 | 3.5 | 3.3 |
| Added Initial * | - | - | - | - | - |
| Maximum Initial * | - | - | - | - | - |
| Time Before Reduction * | - | - | - | - | - |
| Time To Reduce * | - | - | - | - | - |
| Minimum Gap | - | - | - | - | - |
| Advance Walk | - | 7 | 5 | - | - |
| Non Lock Detector | X | - | X | X | - |
| Vehicle Recall | - | PED RECALL | - | - | MIN RECALL |
| Dual Entry | - | - | - | - | - |
| Actuated Rest in Walk | - | X | - | - | - |
| Ped Recycle | - | X | - | - | - |

* These values may be field adjusted. Do not adjust Min Green and Passage 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

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

SCALE 0 20 1"=20'

# US 19-23 Bus. (Haywood Road) at SR 3412 (Sand Hill Road) and Vermont Avenue

Division 13 Buncombe County Asheville

| PLAN DATE: | January 2024 | REVIEWED BY: | R.N. Zinser |
|---|---|---|---|
| PREPARED BY: | T.A. Kenion | REVIEWED BY: | |

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

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 043914 ENGINEER RICHARD N. ZINSER

DocuSigned by:
R. Nicholas Zinser 02/09/2024
F13B897347224BF
DATE:

SIG. INVENTORY NO. 13-0404

6:FEB 2024 11:18
R:\Traffic Control\Traffic Control Plans\Buncombe County.com\cddbqw01\Documents\NCDOT TSMO\Signal Design Section\Division_13\HL-0003\Signal Design\2023-12\13404_sig_den_2023mmdd
Division
Bikeinfrm