3. If this signal will be managed by an ATMS software, enable controller and detector

5. The cabinet and controller are part of the NC 107 Time Based System.

#### **EQUIPMENT INFORMATION**

Controller	2070LX
Cabinet	332 w/ Aux
Software	Q-Free MAXTIME
Cabinet Mount	Base
Output File Positions	18 With Aux. Output File
Load Switches Used	S1, S2, S4, S5, S7, S8, S9, S11,
	AUX S1, AUX S2, AUX S4
Phases Used	1, 2, 4, 5, 6, 6PED, 8
Overlap "1"	*
Overlap "2"	*
Overlap "3"	*
Overlap "4"	NOT USED
Overlap "7"	*

\*See overlap programming detail on sheet 2.

- load switches in the output file. The installer shall verify that signal heads flash in accordance with the signal plan.
- 2. Program phases 4 and 8 for Dual Entry.
- logging for all detectors used at this location.
- 4. Program controller to start up in phase 2 Green No Walk and phase 6 Green

Controller	2070LX
Cabinet	332 w/ Aux
Software	Q-Free MAXTIME
Cabinet Mount	Base
Output File Positions	18 With Aux. Output File
Load Switches Used	S1, S2, S4, S5, S7, S8, S9, S11,
	AUX S1, AUX S2, AUX S4
Phases Used	
Overlap "1"	*
Overlap "2"	
Overlap "3"	*
Overlap "4"	NOT USED
Overlap "7"	*

#### INPUT FILE POSITION LAYOUT

18 CHANNEL IP CONFLICT MONITOR

PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

COMPONENT SIDE

1. Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.

2. Ensure jumpers SEL2-SEL5 and SEL9 are present on the monitor board.

3. Ensure that the Red Enable is active at all times during normal operation.

4. Integrate monitor with Ethernet network in cabinet.

REMOVE JUMPERS AS SHOWN

REMOVE DIODE JUMPERS 1-3, 1-5, 1-6, 1-9, 1-10, 1-11, 1-15, 2-5, 2-6, 2-9, 2-11, 2-15, 3-5, 3-6, 3-9, 3-10, 3-11, 3-15, 4-8, 4-10, 5-9, 5-10, 5-11, 6-9, 6-10, 6-11, 6-15, 8-10, 9-10, 9-11, 9-15, 10-11, 10-15 AND 11-15.

ON OFF

RF 2010

─ WD 1.0 SEC

RP DISABLE

**GY ENABLE** 

LEDguard

FYA 1-9 - FYA 3-10 FYA 5-11

- FYA 7-12

13

14

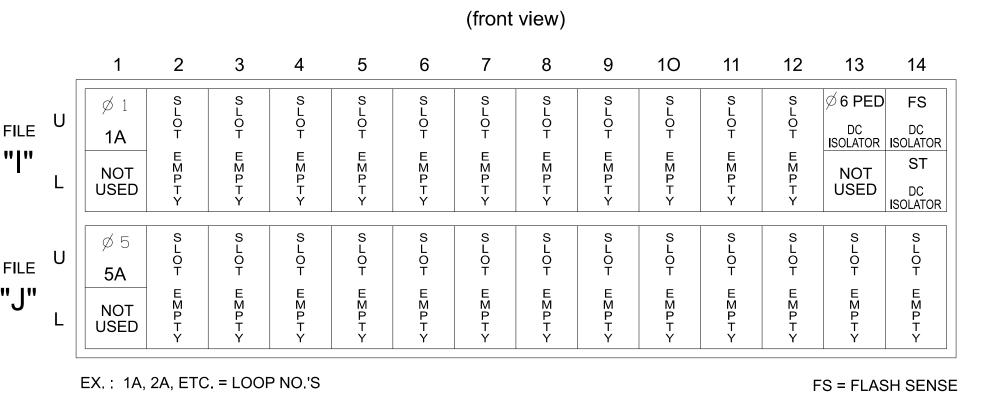
= DENOTES POSITION OF SWITCH

ST = STOP TIME

SF#1 POLARITY

FYA COMPACT—

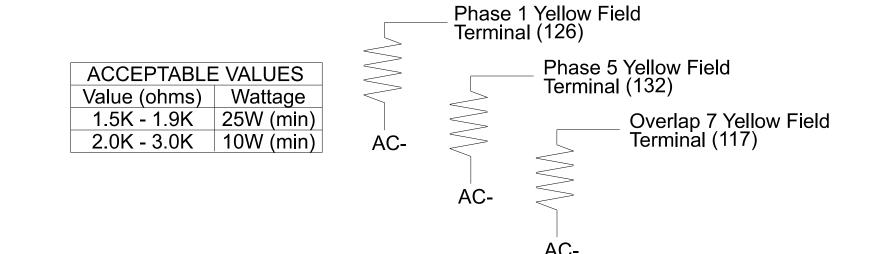
WD ENABLE (



Note: For Detection Zones 1A and 5A the equipment and slots reserved are typical for a NCDOT installation.

#### LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown)



#### INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT POINT	DETECTOR NO.	CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL	DELAY DURING GREEN
1A	TB2-1,2	14.1.1	56	18	1	1	15.0		Х		Χ	
IA I	102-1,2	l1U	30	-	29	6			Х		Χ	
5A	TB3-1,2	J1U	55	17	15	5	15.0		X		Χ	
5A	103-1,2	J 10	33	-	31	2			Х		Χ	
PED PUSH BUTTONS							NOTE:					
P61,P62	TB8-7,9	I13U	68	34	6	PED 6		DC ISOLAT				
IN INPUT FILE SLOT IN INSUT FILE SLOT FILE SLOT IN INSUT FILE SLOT IN INSUT FILE SLOT IN												
FILE J SLOT 2 LOWER												

#### SPECIAL DETECTOR NOTE

- 1. Install a multi-zone microwave detection system for vehicle detection. Perform installation according to manufacturer's directions and NCDOT engineer -approved mounting locations to accomplish the detection schemes shown on the Signal Design Plans.
- 2. For Detection Zones 1A and 5A, the equipement placement is typical for a NCDOT installation.

#### COUNTDOWN PEDESTRIAN SIGNAL OPERATION

Countdown Ped Signals are required to display timing only during Ped Clearance Interval. Consult Ped Signal Module user's manual for instructions on selecting this feature.

**Plans Prepared By:** 

#### SIGNAL HEAD HOOK-UP CHART S2 S3 S4 S5 S6 S7 S8 S9 S10 S11 S12 AUX S1 AUX S2 AUX S3 AUX S5 S6 CMU CHANNEL 1 2 13 3 4 14 5 6 15 7 8 16 9 10 17 11 12 18 1 2 | 2 | OL7 | 4 | 4 | 5 | 6 | 6 | 7 | 8 | 8 | OL1 | OL2 | SPARE | OL3 | OL4 | SPARE | 11 21,22 NU 83 41,42 NU 51 61,62 P61, NU 81,82 NC 11 83 NU 51 NU NU RED **\*** 129 **\*** 102 **\*** 135 YELLOW GREEN 130 103 136 109 RED A121 A114 ARROW YELLOW A122 A125 A115 FLASHING A123 A126 YELLOW **GREEN** 133 ARROW

R-5600

| Sig-28.1

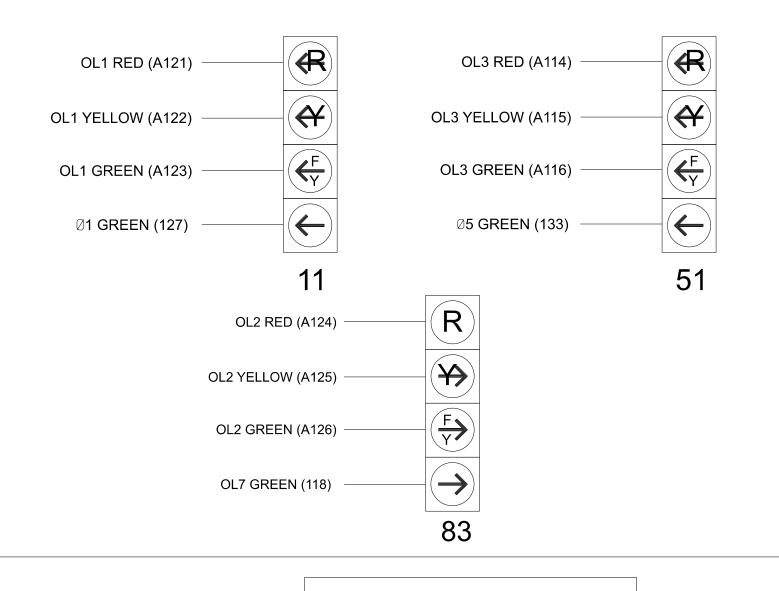
NC = Not Connected

- \* Denotes install load resistor. See load resistor installation detail this sheet.
- ★ See pictorial of head wiring in detail this sheet.

#### FYA SIGNAL WIRING DETAIL

121

(wire signal heads as shown)



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 14-1200T4 DESIGNED: Aug 2025 SEALED: 8/26/2025 REVISED: N/A

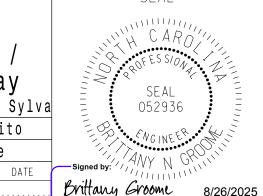
Electrical Detail - Sheet 1 of 2 Temporary Design 4 - TMP Ph2, S1, Part 2

ELECTRICAL AND PROGRAMMING

DETAILS FOR: SR 1723 (Cliffside Drive) Bryson Farm Supply Driveway Division 14 Jackson County PLAN DATE: August 2025 REVIEWED BY: ZM Esposito PREPARED BY: DS Griffith REVIEWED BY: BN Groome

REVISIONS

FINAL UNLESS ALL SIGNATURES COMPLETED NC 107 (E. Main Street) SEAL



DOCUMENT NOT CONSIDERED

INIT. DATE Brittany Groome 8/26/2025 SIG. INVENTORY NO. 14-1200T

#### MAXTIME OVERLAP PROGRAMMING DETAIL

Front Panel

Main Menu >Controller >Overlap >Overlap Parameters/Overlap Timings

Web Interface

Home >Controller >Overlap Configuration >Overlaps

#### Overlap Plan 1

Overlap	1	2	3	7
Type	FYA 4 - Section	FYA 4 - Section	FYA 4 - Section	Normal
Included Phases	2	8	6	1
Modifier Phases	1	1	5	-
Modifier Overlap	-	-	<u>-</u>	<u>-</u>
Trail Green	0	0	0	-
Trail Yellow	0.0	0.0	0.0	0
Trail Red	0.0	0.0	0.0	0.0

#### **OUTPUT CHANNEL CONFIGURATION**

Front Panel

Main Menu >Controller >More>Channels>Channels Config

Web Interface

Home >Controller >Advanced IO>Channels>Channel Configuration

#### Channel Configuration

	Onam	ici comigarado	<b>/</b> 11				
	Channel	Control Type	Control Source	Flash Yellow	Flash Red	Flash Alt	MMU Channel
	1	Phase Vehicle	1		Х	Х	1
	2	Phase Vehicle	2		X		2
NOTICE OVERLAP 7	3	Overlap	7		Х	X	3
ASSIGNED TO CHANNEL 3	4	Phase Vehicle	4		Х		4
	5	Phase Vehicle	5		Х		5
	6	Phase Vehicle	6		Х	Х	6
	7	Phase Vehicle	7		Х		7
	8	Phase Vehicle	8		Х	X	8
	9	Overlap	1		Х	Х	9
	10	Overlap	2		Х	X	10
	11	Overlap	3		Х		11
	12	Overlap	4		Х		12
	13	Phase Ped	2				13
	14	Phase Ped	4				14
	15	Phase Ped	6				15
	16	Phase Ped	8				16
	17	Overlap	5		Х	X	17
	18	Overlap	6		Х		18

NOTICE FLASHING RED

#### MAXTIME STARTUP AND SOFTWARE FLASH PROGRAMMING DETAIL

Front Panel
Main Menu>Controller>Unit

Web Interface Home>Controller>Unit

Start Up Parameters Startup Clearance Hold **Unit Flash Parameters** All Red Flash Exit Time

#### FLASHER CIRCUIT MODIFICATION DETAIL

IN ORDER TO INSURE THAT SIGNALS FLASH CONCURRENTLY ON THE SAME APPROACH, MAKE THE FOLLOWING FLASHER CIRCUIT CHANGES:

- 1. ON REAR OF PDA REMOVE WIRE FROM TERM. T2-4 AND TERMINATE ON T2-2.
- 2. ON REAR OF PDA REMOVE WIRE FROM TERM. T2-5 AND TERMINATE ON T2-3.
- 3. REMOVE FLASHER UNIT 2.

THE CHANGES LISTED ABOVE TIES ALL PHASES AND OVERLAPS TO FLASHER UNIT 1.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 14-1200T4 DESIGNED: Aug 2025 SEALED: 8/26/2025 REVISED: N/A

Electrical Detail - Sheet 2 of 2 Temporary Design 4 - TMP Ph2, S1, Part 2

ELECTRICAL AND PROGRAMMING

NC 107 (E. Main Street) SR 1723 (Cliffside Drive) /

Bryson Farm Supply Driveway Division 14 Jackson County PLAN DATE: August 2025 REVIEWED BY: ZM Esposito

REVISIONS

PREPARED BY: DS Griffith REVIEWED BY: BN Groome INIT. DATE

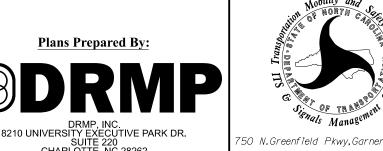
052936 Brittany Groome 8/26/2025 SIG. INVENTORY NO. |4-|200T

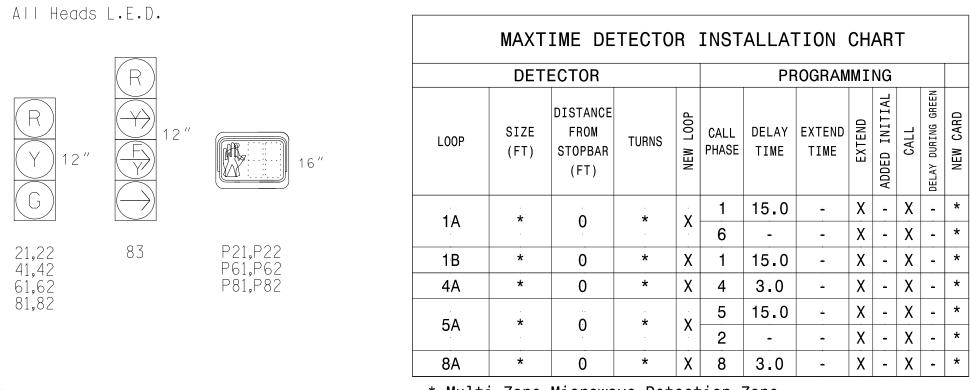
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL

SIGNATURES COMPLETED

SEAL

Plans Prepared By:





\* Multi-Zone Microwave Detection Zone

5 Phase Fully Actuated (Time Based Coordination)

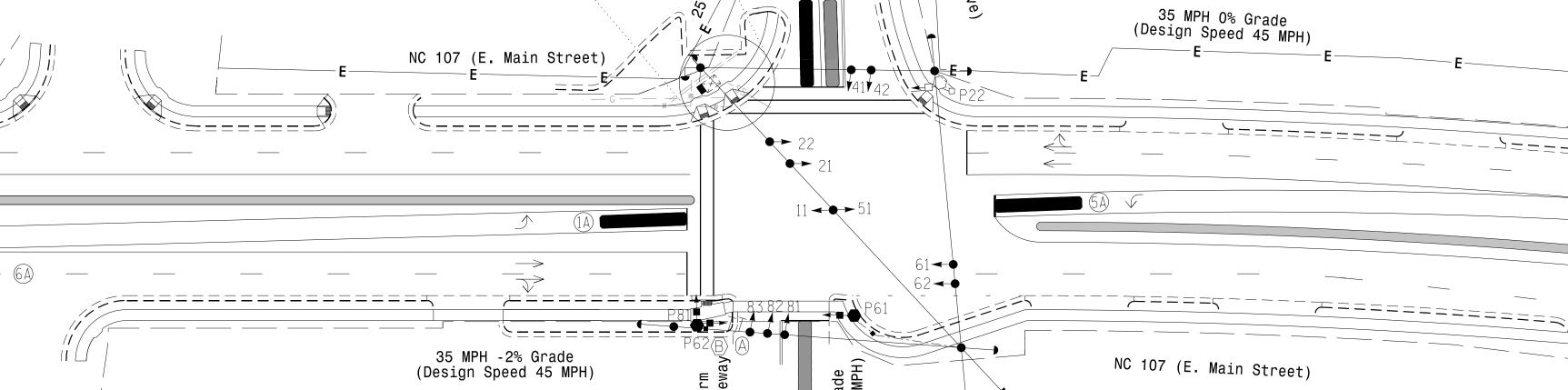
#### NOTES

- 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 1 and/or phase 5 may be lagged.
- 4. Reposition existing signal heads numbered 11, 21, 22 and 51.
- 5. Set all detector units to presence mode.

**PROPOSED** 

 $\bigcirc$ 

- 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 uses multi-zone microwave detection. Install detectors according to the manufacturer's instructions to achieve the desired detection.
- 9. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.



SIGNAL FACE I.D.

21,22 41,42 61,62 81,82

$\circ$	That the original meda	•
0->	Modified Signal Head	N/A
$\overline{}$	Sign	$\dashv$
	Pedestrian Signal Head With Push Button & Sign	<b>+</b>
$\bigcap$	Signal Pole with Guy	•
	y y	
	Signal Pole with Sidewalk Guy  Non-Intrusive Detection Zone	
	Controller & Cabinet	× J
	Junction Box	
	Oversized Junction Box	
	2-in Underground Conduit -	
N/A	Right of Way	
$\longrightarrow$	Directional Arrow	$\longrightarrow$
— DD —	- Directional Drill	N/A
0	Metal Pole with Mastarm	
N/A	Construction Easement -	E
N/A	Curb Ramp	
*	Temporary Pedestrian Post with Ped Push Button & Sign	( <del>*</del> )
	Construction Zone	N/A
$\bigcirc$	Type II Signal Pedestal	•
N/A	Underground Water Line -	
N/A	Gas Line	— G — —
N/A	Underground Sanitary Sewer	SS
$\langle \Delta \rangle$ '	"RIGHT TURN SIGNAL" Sign (R10-10	) (A)
⟨B⟩ "F	RIGHT TURN ON RED YIELD TO U-TUR	N"B

Sign (R10-30)

LEGEND

Traffic Signal Head

**EXISTING** 

**-**

	MAX	TIME T	IMING	CHART						
FEATURE	PHASE									
FEATURE	1	2	4	5	6	8				
Walk *	_	14	_	_	14	12				
Ped Clear	_	21	_	_	9	21				
Min Green *	7	12	7	7	12	7				
Passage *	2.0	2.0	2.0	2.0	2.0	2.0				
Max 1 *	20	45	25	20	45	35				
Yellow Change	3.0	4.7	3.5	3.0	4.7	3.5				
Red Clear	3.1	2.6	2.9	3.4	2.6	2.9				
Added Initial *	_	_	_	_	_	_				
Maximum Initial *	_	_	_	_	_	_				
Time Before Reduction *	_	_	_	_	_	_				
Time To Reduce *	_	_	_	_	-	_				
Minimum Gap	_	_	_	_	-	_				
Advance Walk	_	7	_	_	7	5				
Non Lock Detector	Х	_	Х	Х	_	Х				
Vehicle Recall	_	MIN RECALL	_	_	MIN RECALL	=				
Dual Entry	_	_	Х	_	_	Х				

\* These values may be field adjusted. Do not adjust Min Green and Extension times for

PHASING DIAGRAM

PHASING DIAGRAM DETECTION LEGEND

DETECTED MOVEMENT

 $<\!\!--\!\!>$  PEDESTRIAN MOVEMENT

UNSIGNALIZED MOVEMENT

UNDETECTED MOVEMENT (OVERLAP)

2+5

TABLE OF OPERATION

SIGNAL

FACE

21,22

41,42

61, 62

P21, P22

P61;P62

P81, P82

PHASE

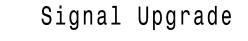
R R R F R

|DW|DW| W | W |DW|DRK

DW W DW W DW DRK

|DW|DW|DW|W |DRK

Microwave Detection							
	(2	À	(6	A			
FUNCTION	Sen	sor 1	Sens	sor 2			
Channel		1		1			
Phase	:	2		5			
Direction of Travel	٨	NB		В			
Туре	Prio	Priority		ority			
Level	2	QUEUE	2	QUEUE			
Detection Zone (ft)	< 750	_	< 750	_			
Range (ft)	600–100	150–100	600–100	150–100			
Enable Speed	Y	Υ	Y	Y			
Speed Range (mph)	35–100	1–35	35–100	1–35			
Enable Estimated Time of Arrival	Y	N	Y	N			
Estimated Time of Arrival (sec)	2.5–6.5	_	2.5–6.5	_			



Temporary Design 5 - TMP Ph 3, S1



**Plans Prepared By:** 

NC 107 (E. Main Street) SR 1723 (Cliffside Drive) Bryson Farm Supply Driveway Division 14 Jackson County

PLAN DATE: August 2025 REVIEWED BY: ZM Esposito nfield Pkwy, Garner, NC 27529 PREPARED BY: DS Griffith REVIEWED BY: BN Groome

SEAL

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Brittany Groome

phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

A114

A115

51

SIGNAL HEAD HOOK-UP CHART

**\*** 135

133

136

 S2
 S3
 S4
 S5
 S6
 S7
 S8
 S9
 S10
 S11
 S12
 AUX S1
 AUX S2
 AUX S3
 AUX S5
 S6

1 2 13 3 4 14 5 6 15 7 8 16 9 10 17 11 12 18

1 2 2 3 4 4 5 6 6 7 8 8 OL1 OL2 SPARE OL3 OL4 SPARE

11 21,22 P21, P22 NC 41,42 NU 51 61,62 P61, P62 NU 81,82 P81, P82 11 83 NU 51 NU NU

FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)

109

A121

112

OL3 RED (A114)

OL3 YELLOW (A115)

OL3 GREEN (A116)

Ø5 GREEN (133)

THIS ELECTRICAL DETAIL IS FOR

THE SIGNAL DESIGN: 14-1200T5

A122 A125

A123 A126

#### NOTES

- 1. To prevent "flash-conflict" problems, insert red flash program blocks for all vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the signal plan.
- 3. If this signal will be managed by an ATMS software, enable controller and detector
- No Walk.

#### **EQUIPMENT INFORMATION**

Controller	2070LX
Cabinet	332 w/ Aux
Software	Q-Free MAXTIME
Cabinet Mount	Base
Output File Positions	18 With Aux. Output File
Load Switches Used	S1, S2, S3, S5, S7, S8, S9
	S11, S12, AUX S1, AUX S2, AUX S4
Phases Used	1, 2, 2PED, 4, 5, 6, 6PED, 8, 8PED
Overlap "1"	*
Overlap "2"	*
Overlap "3"	*
Overlap "4"	NOT USED

\*See overlap programming detail on sheet 2.

- 2. Program phases 4 and 8 for Dual Entry and Simultaneous Start.
- logging for all detectors used at this location.
- 4. Program controller to start up in phase 2 Green No Walk and phase 6 Green
- 5. The cabinet and controller are part of the NC 107 Time Based System.

Controller	2070LX
Cabinet	332 w/ Aux
Software	Q-Free MAXTIME
Cabinet Mount	Base
Output File Positions	18 With Aux. Output File
Load Switches Used	S1, S2, S3, S5, S7, S8, S9
	S11, S12, AUX S1, AUX S2, AUX
Phases Used	1, 2, 2PED, 4, 5, 6, 6PED, 8, 8PI
Overlap "1"	*
Overlap "2"	*
Overlap "3"	*
Overlap "4"	NOT USED
Overlap "7"	NOT USED

#### INPUT FILE POSITION LAYOUT

(front view)

18 CHANNEL IP CONFLICT MONITOR

PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

**COMPONENT SIDE** 

1. Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.

2. Ensure jumpers SEL2-SEL5 and SEL9 are present on the monitor board.

3. Ensure that the Red Enable is active at all times during normal operation

REMOVE JUMPERS AS SHOWN

4. Integrate monitor with Ethernet network in cabinet.

EX.: 1A, 2A, ETC. = LOOP NO.'S

REMOVE DIODE JUMPERS 1-5, 1-6, 1-9, 1-11, 1-15, 2-5, 2-6, 2-9, 2-11, 2-13, 2-15, 4-8, 4-10, 4-16, 5-9, 5-11, 5-13, 6-9, 6-11, 6-13, 6-15, 8-10, 8-16, 9-11, 9-13, 9-15, 10-16, 11-13, 11-15 AND 13-15.

ON OFF

- RF 2010

─ WD 1.0 SEC

- FYA 1-9

- FYA 3-10

FYA 5-11

- FYA 7-12

13

14

16

■ = DENOTES POSITION OF SWITCH

FS = FLASH SENSE

ST = STOP TIME

RP DISABLE

GY ENABLE

- SF#1 POLARITY 📮

FYA COMPACT—

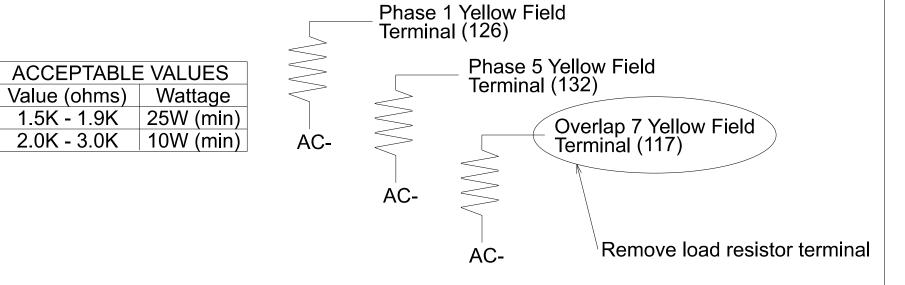
WD ENABLE (

1 2 3 4 5 6 7 8 9 10 11 12 13 14 DC DC DC ISOLATOR ISOLATOR FILE Ø8 PED ST NOT DC DC ISOLATOR

Note: For Detection Zones 1A and 5A the equipment and slots reserved are typical for a NCDOT installation.

#### LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown)



#### INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT POINT	DETECTOR NO.	CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL	DELAY DURING GREEN
1 /	TD2 1 2	1411	56	18	1	1	15.0		Х		Х	
1A	TB2-1,2	I1U	50	-	29	6			Х		Х	
ΕΛ	TD2 1 2	1411	55	17	15	5	15.0		Х		Х	
5A	TB3-1,2	J1U	55	<u> -</u>	31	2			Х		Х	
PED PUSH BUTTONS							NOTE:					
P21,P22	TB8-4,6	I12U	67	33	2	PED 2	INSTALL	DC ISOLAT	ORS			
P61;P62	TB8-7,9	I13U	68	34	6	PED 6	I12 AND		3			
P81;P82	TB8-8,9	I13L	70	36	8	PED 8						
INPUT FILE POSITION LEGEND: J2L  FILE J  SLOT 2  LOWER												

#### SPECIAL DETECTOR NOTE

- 1. Install a multi-zone microwave detection system for vehicle detection. Perform installation according to manufacturer's directions and NCDOT engineer -approved mounting locations to accomplish the detection schemes shown on the Signal Design Plans.
- 2. For Detection Zones 1A and 5A, the equipement placement is typical for a NCDOT installation.

#### COUNTDOWN PEDESTRIAN SIGNAL OPERATION

Countdown Ped Signals are required to display timing only during Ped Clearance Interval. Consult Ped Signal Module user's manual for instructions on selecting this feature.



DESIGNED: Aug 2025 SEALED: 8/26/2025 REVISED: N/A

OL2 RED (A124)

OL2 YELLOW (A125)

OL2 GREEN (A126)

OL7 GREEN (NC)

Electrical Detail - Sheet 1 of 2 Temporary Design 5 - TMP Ph3, S1

ELECTRICAL AND PROGRAMMING NC 107 (E. Main Street) DETAILS FOR: SR 1723 (Cliffside Drive) Division 14 Jackson County

Bryson Farm Supply Driveway Sylva PLAN DATE: August 2025 REVIEWED BY: ZM Esposito PREPARED BY: DS Griffith REVIEWED BY: BN Groome REVISIONS INIT. DATE

SIGNATURES COMPLETED SEAL 052936

DOCUMENT NOT CONSIDERED

FINAL UNLESS ALL

Brittany Groome 8/26/2025 SIG. INVENTORY NO. [4-[2]]

CMU CHANNEL

RED

YELLOW

GREEN

RED

ARROW

YELLOW

FLASHING

YELLOW

ARROW

NU = Not Used

**\*** 129

130

113

OL1 RED (A121)

OL1 YELLOW (A122)

OL1 GREEN (A123)

Ø1 GREEN (127)

NC = Not Connected

★ See pictorial of head wiring in detail this sheet.

102

103

NC = Not Connected

\* Denotes install load resistor. See load resistor installation detail this sheet.

#### MAXTIME OVERLAP PROGRAMMING DETAIL

Front Panel

Main Menu >Controller >Overlap >Overlap Parameters/Overlap Timings

Web Interface

Home >Controller >Overlap Configuration >Overlaps

#### Overlap Plan 1

Overlap	1	2	3	7
Type	FYA 4 - Section	FYA 4 - Section	FYA 4 - Section	Off
Included Phases	2	8	6	<u>-</u>
Modifier Phases	1	<u> </u>	5	<u>-</u>
Modifier Overlap	<u>-</u>	÷	<u>-</u>	<u>-</u>
Trail Green	0	0	0	-
Trail Yellow	0.0	0.0	0.0	0
Trail Red	0.0	0.0	0.0	0.0

#### **OUTPUT CHANNEL CONFIGURATION**

Front Panel

Main Menu >Controller >More>Channels>Channels Config

Web Interface

Home >Controller >Advanced IO>Channels>Channel Configuration

#### Channel Configuration

Channel	Control Type	Control Source	Flash Yellow	Flash Red	Flash Alt	MMU Channel
1	Phase Vehicle	1		X	X	1
2	Phase Vehicle	2		X		2
3	Phase Vehicle	3		X	Х	3
4	Phase Vehicle	4		Х		4
5	Phase Vehicle	5		Х		5
6	Phase Vehicle	6		X	Х	6
7	Phase Vehicle	7		Χ		7
8	Phase Vehicle	8		X	Х	8
9	Overlap	1		X	Х	9
10	Overlap	2		X	Х	10
11	Overlap	3		Х		11
12	Overlap	4		X		12
13	Phase Ped	2				13
14	Phase Ped	4				14
15	Phase Ped	6				15
16	Phase Ped	8				16
17	Overlap	5		Χ	Х	17
18	Overlap	6		Χ		18
	Channel  1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	Channel Control Type  1 Phase Vehicle 2 Phase Vehicle 3 Phase Vehicle 4 Phase Vehicle 5 Phase Vehicle 6 Phase Vehicle 7 Phase Vehicle 8 Phase Vehicle 9 Overlap 10 Overlap 11 Overlap 12 Overlap 13 Phase Ped 14 Phase Ped 15 Phase Ped 16 Phase Ped 17 Overlap	1       Phase Vehicle       1         2       Phase Vehicle       2         3       Phase Vehicle       3         4       Phase Vehicle       4         5       Phase Vehicle       5         6       Phase Vehicle       7         8       Phase Vehicle       8         9       Overlap       1         10       Overlap       2         11       Overlap       3         12       Overlap       4         13       Phase Ped       2         14       Phase Ped       4         15       Phase Ped       6         16       Phase Ped       8         17       Overlap       5	Channel         Control Type         Control Source         Flash Yellow           1         Phase Vehicle         1           2         Phase Vehicle         2           3         Phase Vehicle         3           4         Phase Vehicle         4           5         Phase Vehicle         6           7         Phase Vehicle         7           8         Phase Vehicle         8           9         Overlap         1           10         Overlap         2           11         Overlap         3           12         Overlap         4           13         Phase Ped         2           14         Phase Ped         4           15         Phase Ped         6           16         Phase Ped         8           17         Overlap         5	Channel         Control Type         Control Source         Flash Yellow         Flash Red           1         Phase Vehicle         1         X           2         Phase Vehicle         2         X           3         Phase Vehicle         3         X           4         Phase Vehicle         4         X           5         Phase Vehicle         5         X           6         Phase Vehicle         7         X           7         Phase Vehicle         8         X           9         Overlap         1         X           9         Overlap         1         X           10         Overlap         2         X           11         Overlap         3         X           12         Overlap         4         X           13         Phase Ped         2           14         Phase Ped         4           15         Phase Ped         6           16         Phase Ped         8           17         Overlap         5         X	Channel         Control Type         Control Source         Flash Yellow         Flash Red         Flash Alt           1         Phase Vehicle         1         X         X           2         Phase Vehicle         2         X           3         Phase Vehicle         3         X         X           4         Phase Vehicle         4         X         X           5         Phase Vehicle         5         X         X           6         Phase Vehicle         7         X         X           7         Phase Vehicle         8         X         X           8         Phase Vehicle         8         X         X           9         Overlap         1         X         X           10         Overlap         2         X         X           11         Overlap         3         X         X           12         Overlap         4         X         X           13         Phase Ped         2         X           14         Phase Ped         4         X           15         Phase Ped         6         X           16         Phase Ped         8<

NOTICE FLASHING RED

#### MAXTIME STARTUP AND SOFTWARE FLASH PROGRAMMING DETAIL

Front Panel Main Menu>Controller>Unit

Web Interface Home>Controller>Unit

Start Up Parameters Startup Clearance Hold

**Unit Flash Parameters** All Red Flash Exit Time

#### FLASHER CIRCUIT MODIFICATION DETAIL

IN ORDER TO INSURE THAT SIGNALS FLASH CONCURRENTLY ON THE SAME APPROACH, MAKE THE FOLLOWING FLASHER CIRCUIT CHANGES:

- 1. ON REAR OF PDA REMOVE WIRE FROM TERM. T2-4 AND TERMINATE ON T2-2.
- 2. ON REAR OF PDA REMOVE WIRE FROM TERM. T2-5 AND TERMINATE ON T2-3.
- 3. REMOVE FLASHER UNIT 2.

THE CHANGES LISTED ABOVE TIES ALL PHASES AND OVERLAPS TO FLASHER UNIT 1.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 14-1200T5 DESIGNED: Aug 2025 SEALED: 8/26/2025 REVISED: N/A

Electrical Detail - Sheet 2 of 2 Temporary Design 5 - TMP Ph3, S1

ELECTRICAL AND PROGRAMMING

NC 107 (E. Main Street)

SR 1723 (Cliffside Drive) / Bryson Farm Supply Driveway Division 14 Jackson County PLAN DATE: August 2025 REVIEWED BY: ZM Esposito

052936 Brittany Groome 8/26/2025

REVIEWED BY: BN Groome REVISIONS INIT. DATE

**Plans Prepared By:** 

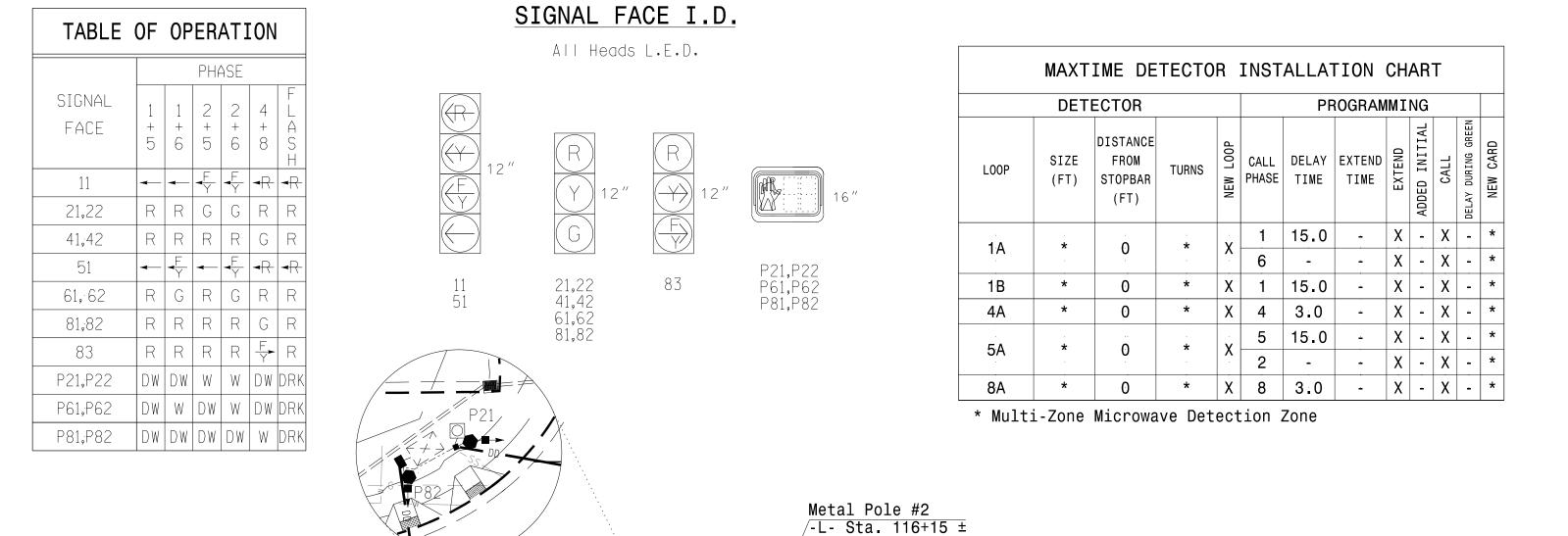
PREPARED BY: DS Griffith

SIG. INVENTORY NO. 4-1200T

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL

SIGNATURES COMPLETED

SEAL



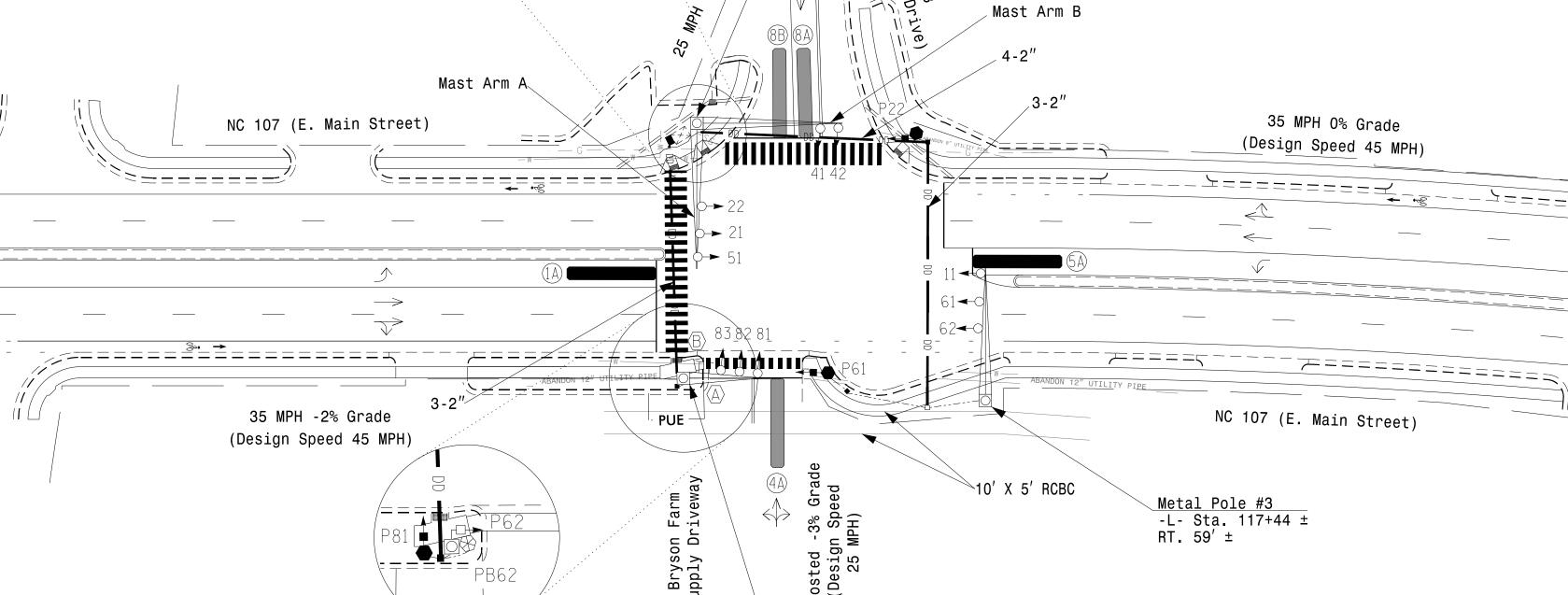
/ LT. 65 $^{\prime}$  ±

Metal Pole #1

-L- Sta. 116+09 ± RT. 49′ ±

5 Phase Fully Actuated (NC 107-D14-14) 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 1 and/or phase 5 may be lagged.
- 4. Set all detector units to presence mode.
- 5. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
- 6. Program pedestrian heads to countdown the flashing "Don't Walk"
- time only 7. This intersection uses multi-zone microwave detection. Install
- detectors according to the manufacturer's instructions to achieve the desired detection.
- 8. 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 With Push Button & Sign Signal Pole with Guy Signal Pole with Sidewalk Guy Non-Intrusive Detection Zone Controller & Cabinet Junction Box Oversized Junction Box 2-in Underground Conduit N/A Right of Way Directional Arrow Directional Drill N/A Metal Pole with Mastarm Type I Pushbutton Post Type II Signal Pedestal Curb Ramp Gas Line Underground Water Line Underground Sanitary Sewer Abandon 8" Utility Pipe — ABANDON 8" UTILITY PIPE Abandon 12" Utility Pipe - ABANDON 12" UTILITY PIPE "RIGHT TURN SIGNAL" Sign (R10-10) (B) "RIGHT TURN ON RED YIELD TO U-TURN" (B) Sign (R10-30)

(6A) **FUNCTION** Sensor 1 Sensor 2 Channel **Direction of Travel** SB Priority Priority QUEUE QUEUE < 750 < 750 Detection Zone (ft) 600–100 600–100 150-100 Range (ft) 150-100 **Enable Speed** Speed Range (mph) 35-100 1–35 35-100 1–35

2.5-6.5

2.5-6.5

Microwave Detection

PUE -

**Enable Estimated Time of Arrival** 

Estimated Time of Arrival (sec)

Signal Upgrade - Final Design



**Plans Prepared By:** 

NC 107 (E. Main Street) SR 1723 (Cliffside Drive) Bryson Farm Supply Driveway

Division 14 Jackson County PLAN DATE: August 2025 REVIEWED BY: ZM Esposito PREPARED BY: KA Jones

REVIEWED BY: BN Groome REVISIONS INIT. DATE

SEAL 052936

DOCUMENT NOT CONSIDERED

FINAL UNLESS ALL

SIGNATURES COMPLETED

Brittany Groome 8/26/2025 SIG. INVENTORY NO. |4-|200

	MAX	TIME T	IMING	CHART		
			PH	IASE		
FEATURE	1	2	4	5	6	8
Walk *	_	14	_	_	14	14
Ped Clear	_	21	_	_	9	21
Min Green *	7	12	7	7	12	7
Passage *	2.0	2.0	2.0	2.0	2.0	2.0
Max 1 *	20	45	25	20	45	35
Yellow Change	3.0	4.7	3.5	3.0	4.7	3.5
Red Clear	3.2	2.6	2.9	3.4	2.6	2.9
Added Initial *	_	_	_	_	_	-
Maximum Initial *	_	_	_	_	_	_
Time Before Reduction *	_	-	_	_	-	_
Time To Reduce *	_	-	_	_	-	_
Minimum Gap	_	_	_	_	_	_
Advance Walk	_	7	_	_	7	7
Non Lock Detector	Х	_	Х	Х	_	Х
Vehicle Recall	-	MIN RECALL	_	_	MIN RECALL	-
Dual Entry	-	_	Х	_	_	Х

\* 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.

PHASING DIAGRAM

PHASING DIAGRAM DETECTION LEGEND

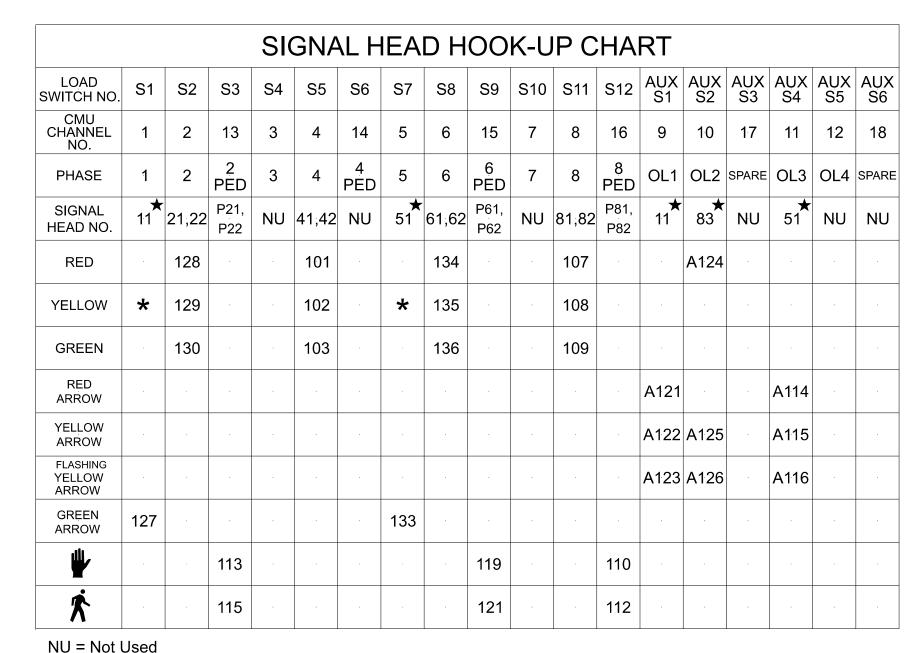
DETECTED MOVEMENT

 $<\!\!--\!\!>$  PEDESTRIAN MOVEMENT

UNSIGNALIZED MOVEMENT

UNDETECTED MOVEMENT (OVERLAP)

2+5



FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)

OL3 RED (A114)

OL3 YELLOW (A115)

OL3 GREEN (A116)

Ø5 GREEN (133)

 $\overline{Y}$ 

OL2 RED (A124)

OL2 YELLOW (A125)

OL2 GREEN (A126)

\* Denotes install load resistor. See load resistor installation detail this sheet.

★ See pictorial of head wiring in detail this sheet.

OL1 RED (A121)

OL1 YELLOW (A122)

OL1 GREEN (A123)

Ø1 GREEN (127)

# NOTES

- 1. To prevent "flash-conflict" problems, insert red flash program blocks for all vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the signal plan.
- 2. Program phases 4 and 8 for Dual Entry and Simultaneous Start.
- 3. Program controller to start up in phase 2 Green Walk No and phase 6 Green No Walk.
- 4. If this signal will be managed by an ATMS software, enable controller and detector logging for all detectors used at this location.
- 5. The cabinet and controller are part of the NC 107 D14-14 System.

#### **EQUIPMENT INFORMATION**

0 4 11	0070174
Controller	2070LX
Cabinet	332 w/ Aux
Software	Q-Free MAXTIME
Cabinet Mount	Base
Output File Positions	18 With Aux. Output File
Load Switches Used	S1, S2, S3, S5, S7, S8, S9
	S11, S12, AUX S1, AUX S2, AUX S4
Phases Used	1, 2, 2PED, 4, 5, 6, 6PED, 8, 8PED
Overlap "1"	*
Overlap "2"	
Overlap "3"	
•	NOTHEED

Overlap "4".....NOT USED

\*See overlap programming detail on sheet 2.

#### INPUT FILE POSITION LAYOUT

18 CHANNEL IP CONFLICT MONITOR

PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

**COMPONENT SIDE** 

1. Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.

2. Ensure jumpers SEL2-SEL5 and SEL9 are present on the monitor board.

3. Ensure that the Red Enable is active at all times during normal operation

REMOVE JUMPERS AS SHOWN

4. Integrate monitor with Ethernet network in cabinet.

REMOVE DIODE JUMPERS 1-5, 1-6, 1-9, 1-11, 1-15, 2-5, 2-6, 2-9, 2-11, 2-13, 2-15, 4-8, 4-10, 4-16, 5-9, 5-11, 5-13, 6-9, 6-11, 6-13, 6-15, 8-10, 8-16, 9-11, 9-13, 9-15, 10-16, 11-13, 11-15 AND 13-15.

ON OFF

RF 2010

─ WD 1.0 SEC

- FYA 1-9 - FYA 3-10

FYA 5-11

- FYA 7-12

13

14

15 16

■ = DENOTES POSITION OF SWITCH

ST = STOP TIME

RP DISABLE

GY ENABLE

SF#1 POLARITY

FYA COMPACT—

WD ENABLE (

(front view)

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
		Ø 1	S	S	S	S I	S	S L	S	S	S	S	Ø2 PED	Ø6 PED	FS
FILE		1A	Ö T	Ö T	Ö T	SLOT	Ö T	Ŏ T	Ŏ T	S L O T	Ŏ T	Ö	DC ISOLATOR	DC ISOLATOR	DC ISOLATOR
"I" <sub>,</sub>		NOT	E M P	E M P	E M P	E M P	E M P	E M P	E M P	E M P	E M P	E M P	NOT	Ø8 PED	
L		JSED	T Y	T Y	T Y	T Y	T Y	T Y	T Y	T Y	T Y	T Y	USED	DC ISOLATOR	DC ISOLATOR
		Ø 5	S	S	S	S	S	S	S	ş	S	S	S	S	S
FILE		5A	Ö T	Ö T	O T	L O T	O T	O T	Ö T	S L O T	O T	o T	O T	O T	O
"J" ˌ		NOT	E M P T	E M	E M	E M P	E M	E M P	E M P	E M P T	E M	E M P	E M P	E M	E M
L		JSED	T Y	T Y	P T Y	T Y	T Y	T Y	T Y	T Y	T Y	T Y	T Y	P T Y	P T Y
	EV	. 10 (	DA ETC	- 1 005	אַר אַר			1	1		1				
		IA, 2	∠A, ⊏10	. = LOOF	110.5								F	S = FLAS	SH SENSE

Note: For Detection Zones 1A and 5A the equipment and slots reserved are typical for a NCDOT installation.

LOAD RESISTOR INSTALLATION DETAIL (install resistors as shown)

ACCEPTABLE VALUES Value (ohms) Wattage 1.5K - 1.9K 25W (min) 2.0K - 3.0K 10W (min) Phase 1 Yellow Field Terminal (126) Phase 5 Yellow Field Terminal (132)

#### INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT POINT	DETECTOR NO.	CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL	DELAY DURING GREEN		
1.0	TD2 1 2	I1U	56	18	1	1	15.0		Х		Х			
1A	TB2-1,2	I ITU	50	-	29	6			Х		Х			
5A	TB3-1,2	J1U	55	17	15	5	15.0		X		Χ			
5/A	103-1,2	310	55	-	31	2			X		Χ			
PED PUSH BUTTONS							NOTE:							
P21;P22	TB8-4,6	I12U	67	33	2	PED 2	6 I12 AND I13.							
P61,P62	TB8-7,9	I13U	68	34	6	PED 6								
P81;P82	TB8-8,9	I13L	70	36	8	PED 8								

INPUT FILE POSITION LEGEND: J2L FILE J SLOT 2 LOWER

#### SPECIAL DETECTOR NOTE

- 1. Install a multi-zone microwave detection system for vehicle detection. Perform installation according to manufacturer's directions and NCDOT engineer -approved mounting locations to accomplish the detection schemes shown on the Signal Design Plans.
- 2. For Detection Zones 1A and 5A, the equipement placement is typical for a NCDOT installation.

Countdown Ped Signals are required to display timing only during Ped Clearance Interval. Consult Ped Signal Module user's manual for instructions on selecting this feature.

**Plans Prepared By:** 

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 14-1200 DESIGNED: Aug 2025 SEALED: 8/26/2025 REVISED: N/A

Electrical Detail - Sheet 1 of 2 Final Design

ELECTRICAL AND PROGRAMMING

NC 107 (E. Main Street) SR 1723 (Cliffside Drive) Bryson Farm Supply Driveway

Division 14 Jackson County Sylva PLAN DATE: August 2025 REVIEWED BY: ZM Esposito PREPARED BY: KA Jones REVIEWED BY: BN Groome

REVISIONS

SEAL 052936 INIT. DATE

Brittany Groome 8/26/2025 SIG. INVENTORY NO.

DOCUMENT NOT CONSIDERED

FINAL UNLESS ALL SIGNATURES COMPLETED

COUNTDOWN PEDESTRIAN SIGNAL OPERATION

#### MAXTIME OVERLAP PROGRAMMING DETAIL

Front Panel

Main Menu >Controller >Overlap >Overlap Parameters/Overlap Timings

Web Interface

Home >Controller >Overlap Configuration >Overlaps

#### Overlap Plan 1

Overlap	1	2	3
Type	FYA 4 - Section	FYA 4 - Section	FYA 4 - Section
Included Phases	2	8	6
Modifier Phases	1	÷	5
Trail Green	0	0	0
Trail Yellow	0.0	0.0	0.0
Trail Red	0.0	0.0	0.0

#### **OUTPUT CHANNEL CONFIGURATION**

Front Panel

Main Menu >Controller >More>Channels>Channels Config

Web Interface

Home >Controller >Advanced IO>Channels>Channel Configuration

#### Channel Configuration

Channel	Control Type	Control Source	Flash Yellow	Flash Red	Flash A <b>l</b> t	MMU Channel
1	Phase Vehicle	1		Х	X	1
2	Phase Vehicle	2		Х		2
3	Phase Vehicle	3		Х	Х	3
4	Phase Vehicle	4		Х		4
5	Phase Vehicle	5		Х		5
6	Phase Vehicle	6		Х	Χ	6
7	Phase Vehicle	7		Х		7
8	Phase Vehicle	8		Х	Χ	8
9	Overlap	1		Х	Χ	9
10	Overlap	2		Х	Χ	10
11	Overlap	3		Х		11
12	Overlap	4		Х		12
13	Phase Ped	2				13
14	Phase Ped	4				14
15	Phase Ped	6				15
16	Phase Ped	8				16
17	Overlap	5		Х	Χ	17
18	Overlap	6		Х		18

# MAXTIME STARTUP AND SOFTWARE FLASH PROGRAMMING DETAIL

Front Panel Main Menu>Controller>Unit

Web Interface Home>Controller>Unit

Start Up Parameters
Startup Clearance Hold
6

Unit Flash Parameters
All Red Flash Exit Time

#### FLASHER CIRCUIT MODIFICATION DETAIL

IN ORDER TO INSURE THAT SIGNALS FLASH CONCURRENTLY ON THE SAME APPROACH, MAKE THE FOLLOWING FLASHER CIRCUIT CHANGES:

- 1. ON REAR OF PDA REMOVE WIRE FROM TERM. T2-4 AND TERMINATE ON T2-2.
- 2. ON REAR OF PDA REMOVE WIRE FROM TERM. T2-5 AND TERMINATE ON T2-3.
- 3. REMOVE FLASHER UNIT 2.

THE CHANGES LISTED ABOVE TIES ALL PHASES AND OVERLAPS TO FLASHER UNIT 1.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 14-1200
DESIGNED: Aug 2025
SEALED: 8/26/2025
REVISED: N/A

Electrical Detail - Sheet 2 of 2
Final Design

ELECTRICAL AND PROGRAMMING NC 107 (F Ma



NC 107 (E. Main Street) at SR 1723 (Cliffside Drive) / Bryson Farm Supply Driveway

SIG. INVENTORY NO. |4-|200

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL

SIGNATURES COMPLETED

SEAL

N DATE: August 2025 REVIEWED BY: ZM Esposito
PARED BY: KA Jones REVIEWED BY: BN Groome
REVISIONS INIT. DATE

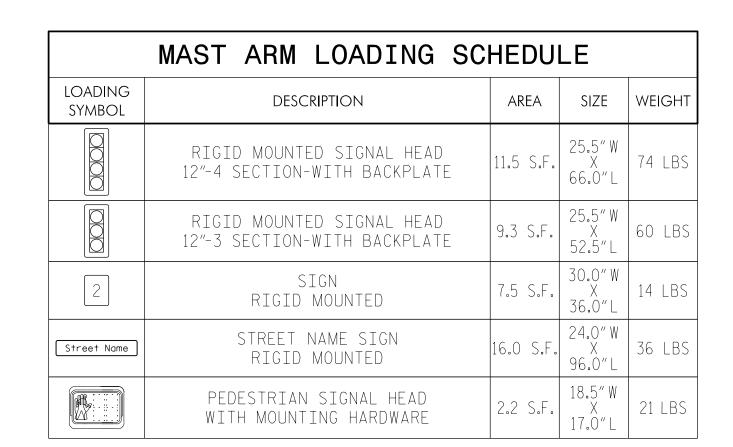
Plans Prepared By:

DRMP, INC.
8210 UNIVERSITY EXECUTIVE PARK DR.
SUITE 220
CHARLOTTE, NC 28262
NC LICENSE NO. 5-1524 (704) 549-4260

Maximum

25.6 ft.

# METAL POLE No. 1 and 3



#### NOTES

#### DESIGN REFERENCE MATERIAL

- 1. Design the traffic signal structure and foundation in accordance with:
- The 1st Edition 2015 AASHTO LRFD "Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, including all of the latest interim revisions.
- The 2024 NCDOT "Standard Specifications for Roads and Structures." The latest addenda to the specifications can be found in the traffic signal project special provisions.
- The 2024 NCDOT Roadway Standard Drawings.
- The traffic signal project plans and special provisions.
- The NCDOT "Metal Pole Standards" located at the following NCDOT website: https://connect.ncdot.gov/resources/safety/Pages/ITS-Design-Resources.aspx

#### DESIGN REQUIREMENTS

- 2. Design the traffic signal structure using the loading conditions shown in the elevation views. These are anticipated worst case "design loads" and may not represent the actual loads that will be applied at the time of the installation. The contractor should refer to the traffic signal plans for the actual loads that will be applied at the time of the installation.
- 3. Design all signal supports using force ratios that do not exceed 0.9.
- 4. A clamp-type bolted mast arm-to-pole connection may be used instead of the welded ring stiffened box connection shown as long as the connection meets all of the design requirements.
- 5. Design base plate with 8 anchor bolt holes. Provide 2 inch x 60 inch anchor bolts.
- 6. The mast arm attachment height (H1) shown is based on the following design assumptions: a. Nominal vertical rise in mast arm is 5 feet as measured from the centerline of the arm base to the centerline of the free end of the arm.
- b. Signal heads are rigidly mounted and vertically centered on the mast arm.
- c. The roadway clearance height for design is as shown in the elevation views.
- d. The top of the pole base plate is 0.75 feet above the ground elevation. e. Refer to the Elevation Data Chart for the elevation differences between the proposed
- foundation ground level and the high point of the roadway.
- f. Provide horizontal distance from the proposed centerline of the foundation to the edge of travelway. Refer to the Elevation Data Chart for elevation difference between the proposed foundation ground level and the edge of travelway. This information is necessary to ensure that the roadway clearance is maintained at the edge of the travelway and to aid in the camber design of the arm.
- 7. The pole manufacturer will determine the total height (H2) of each pole using the greater of the following:
- Mast arm attachment height (H1) plus 2 feet, or
- H1 plus 1/2 of the total height of the mast arm attachment assembly plus 1 foot. 8. If pole location adjustments are required, the contractor must gain approval from the
- Engineer as this may affect the mast arm lengths and arm attachment heights. The contractor may contact the Signal Design Section Senior Structural Engineer for assistance at (919) 814-5000.
- 9. The contractor is responsible for verifying that the mast arm length shown will allow proper positioning of the signal heads over the roadway.
- 10. The contractor is responsible for providing soil penetration testing data (SPT) to the pole manufacturer so site specific foundations can be designed.

All metalpoles and arms should be black in color as specified in the project specialprovisions.

# NC 107 (E Main Street)

SR 1723 (Jones Street) Bryson Farm Supply Driveway

Division 14 Jackson County Sylva PLAN DATE: August 2025 | REVIEWED BY: ZM Esposito PREPARED BY: F Vazquez REVIEWED BY: BN Groome REVISIONS INIT. DATE

052936 Brittany Groome 8/26/2025 SIG. INVENTORY NO.

DOCUMENT NOT CONSIDERED

FINAL UNLESS ALL

SIGNATURES COMPLETED

SEAL

SPECIAL NOTE Design Loading for METAL POLE NO. 1 The contractor is responsible for verifying Ç Pole that the mast arm attachment height (H1) will provide the "Design Height" clearance from the roadway before submitting final shop drawings for approval. Verify elevation data below which was obtained by field measurement or from available project survey data. See Note Street Name Elevation Data for Mast Arm Ç Pole Attachment (H1) Elevation Differences for: | Pole 1 | Pole 3 Baseline reference point at © Foundation @ ground level See Note 4 Elevation difference at High point of roadway surface Н2 Elevation difference at Edge of travelway or face of curb See Note Roadway Clearance Design Height 17 ft. ГН1= 13.7<sup>,</sup> Minimum 16.5 ft. See Note 6 7′ min. -10′ max.

C Foundation

DRMP, INC. 8210 UNIVERSITY EXECUTIVE PARK DR. SUITE 220 CHARLOTTE, NC 28262 NC LICENSE NO. F-1524 (704) 549-4260

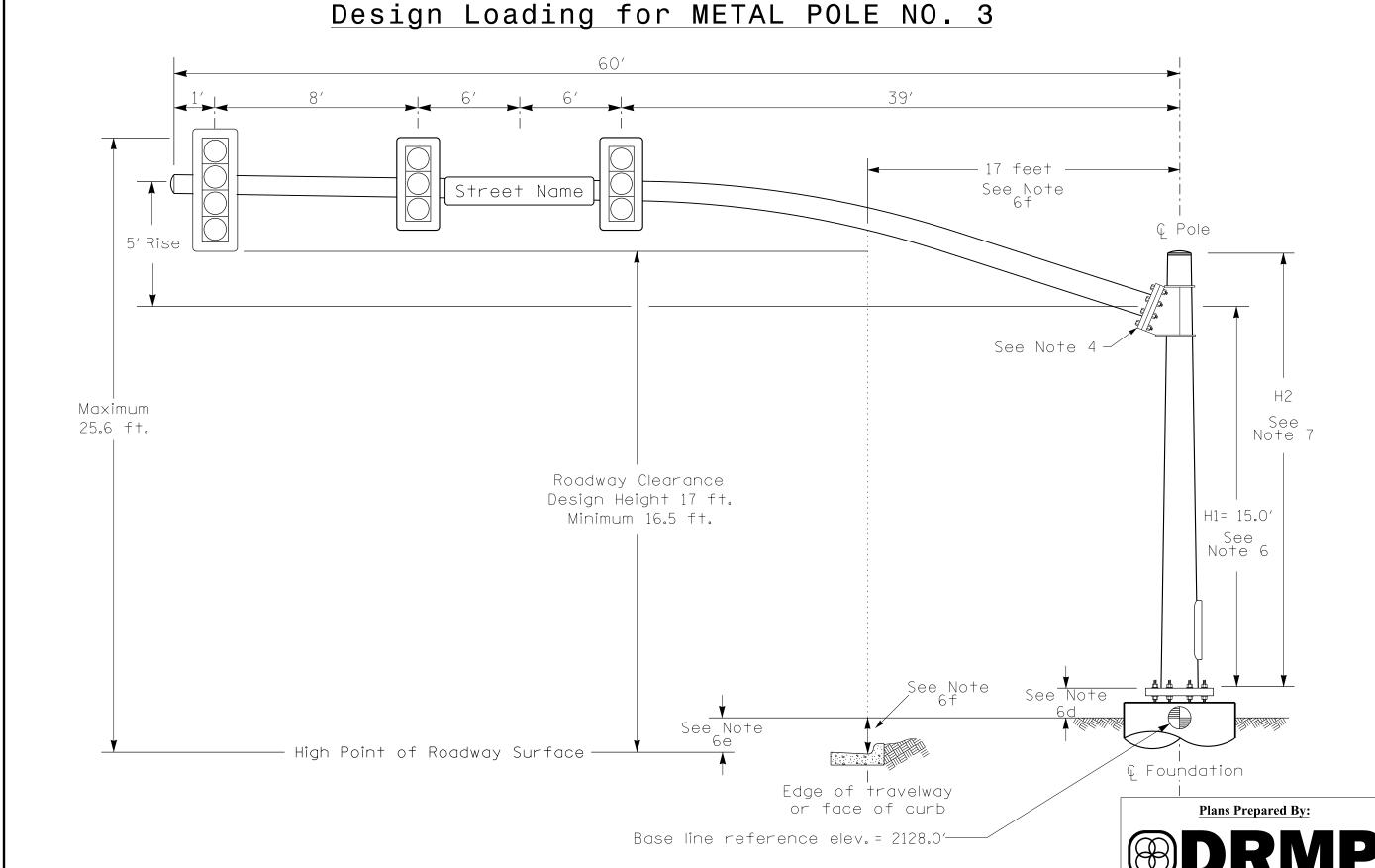
**Elevation View** 

High Point of Roadway Surface —

See Note

Base line reference elev. = 2129.54

Edge of travelway or face of curb



**Elevation View** 

# POLE RADIAL ORIENTATION

2129.5 ft. 2128.0 ft

+1.0 f+.

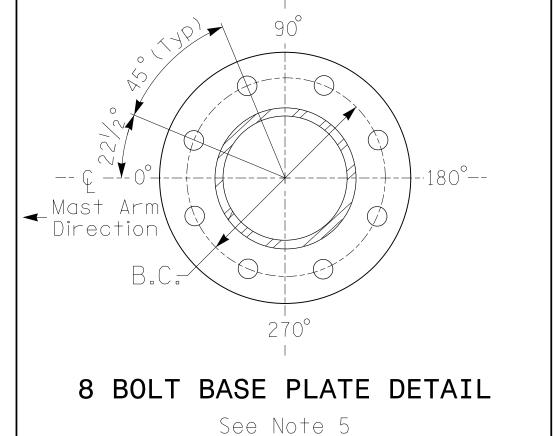
-O.7 ft.

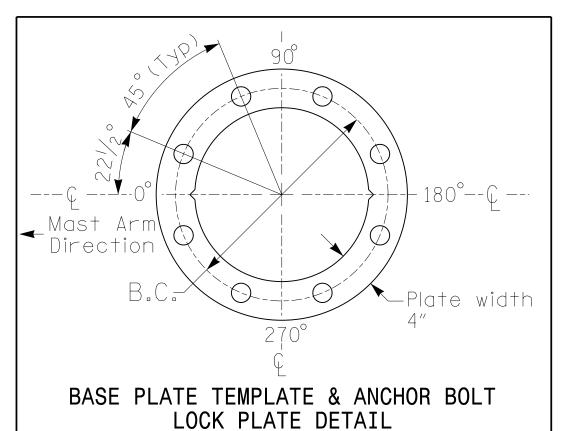
Terminal

Compartment @ 180°

-0.3 ft.

-0.7 ft.





For 8 Bolt Base Plate

NCDOT Wind Zone 5 (110 mph)

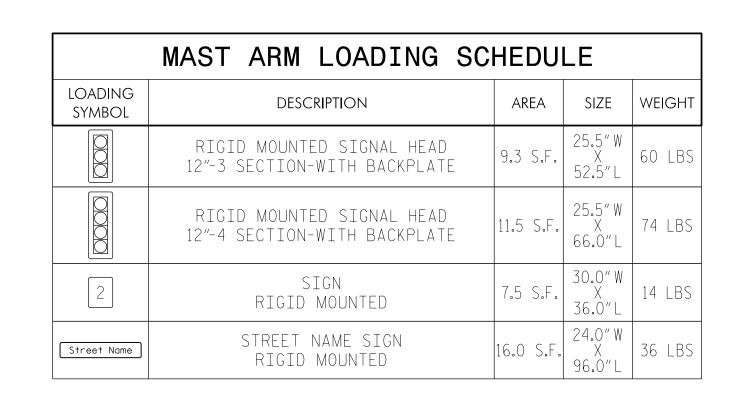
N.Greenfield Pkwy,Garner,NC 27529 N/A

Maximum

25.6 ft.

Roadway Clearance Design Height 17 ft.

Minimum 16.5 ft.



#### **NOTES**

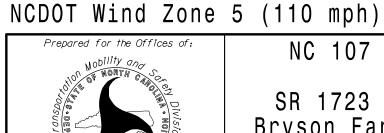
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- 3. Design all signal supports using force ratios that do not exceed 0.9.
- 4. A clamp-type bolted mast arm-to-pole connection may be used instead of the welded ring stiffened box connection shown as long as the connection meets all of the design requirements. This requires staggering the connections. Use elevation data for each arm to determine appropriate connection points.
- 5. Design base plate with 8 anchor bolt holes. Provide 2 inch x 60 inch anchor bolts.
- 6. The mast arm attachment height (H1) shown is based on the following design assumptions: a. Nominal vertical rise in mast arm is 5 feet as measured from the centerline of the arm base to the centerline of the free end of the arm.
- b. Signal heads are rigidly mounted and vertically centered on the mast arm.
- c. The roadway clearance height for design is as shown in the elevation views.
- d. The top of the pole base plate is 0.75 feet above the ground elevation.
- e. Refer to the Elevation Data Chart for the elevation differences between the proposed foundation ground level and the high point of the roadway.
- f. Provide horizontal distance from the proposed centerline of the foundation to the edge of travelway. Refer to the Elevation Data Chart for elevation difference between the proposed foundation ground level and the edge of travelway. This information is necessary to ensure that the roadway clearance is maintained at the edge of the travelway and to aid in the camber design of the arm.
- 7. The pole manufacturer will determine the total height (H2) of each pole using the greater of the following:
- Mast arm attachment height (H1) plus 2 feet, or
- H1 plus 1/2 of the total height of the mast arm attachment assembly plus 1 foot.
- 8. If pole location adjustments are required, the contractor must gain approval from the Engineer as this may affect the mast arm lengths and arm attachment heights. The contractor may contact the Signal Design Section Senior Structural Engineer for assistance at (919) 814-5000.
- 9. The contractor is responsible for verifying that the mast arm length shown will allow proper positioning of the signal heads over the roadway.
- 10. The contractor is responsible for providing soil penetration testing data (SPT) to the pole manufacturer so site specific foundations can be designed.

All metalpoles and arms should be black in color as specified in the project specialprovisions.



N/A

# NC 107 (E Main Street) SR 1723 (Jones Street)

Bryson Farm Supply Driveway Division 14 Jackson County PLAN DATE: August 2025 | REVIEWED BY: ZM Esposito PREPARED BY: F Vazquez REVIEWED BY: BN Groome N.Greenfield Pkwy,Garner,NC 27529 REVISIONS

Sylva 052936 INIT. DATE Brittary Groome 8/26/2025

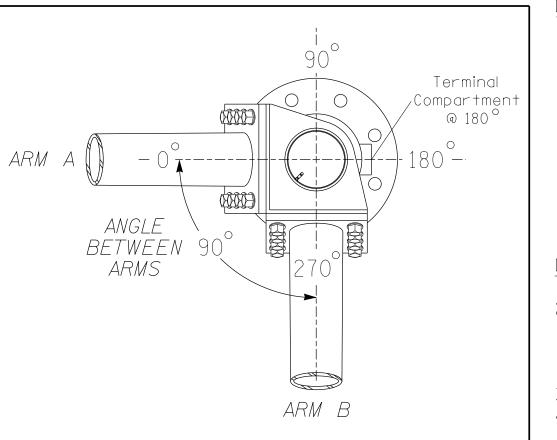
DOCUMENT NOT CONSIDERED

FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL

SPECIAL NOTE The contractor is responsible for verifying that the mast arm attachment height (H1) will provide the "Design Height" clearance from the roadway before submitting final shop drawings for approval. Verify elevation data below which was obtained by field measurement or from available project survey data. Elevation Data for Mast Arm Attachment (H1)

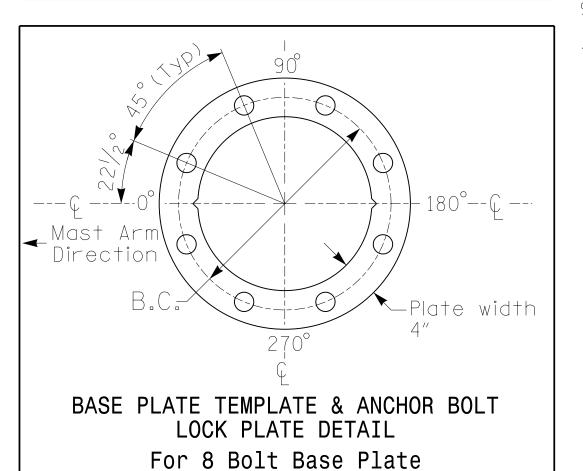
Elevation Differences for:	Arm A	Arm B
Baseline reference point at © Foundation @ ground level	2131.0 ft.	2131.0 ft.
Elevation difference at High point of roadway surface	-0.8 ft.	-1.O ft.
Elevation difference at Edge of travelway or face of curb	-0.8 ft.	-1.4 ft.

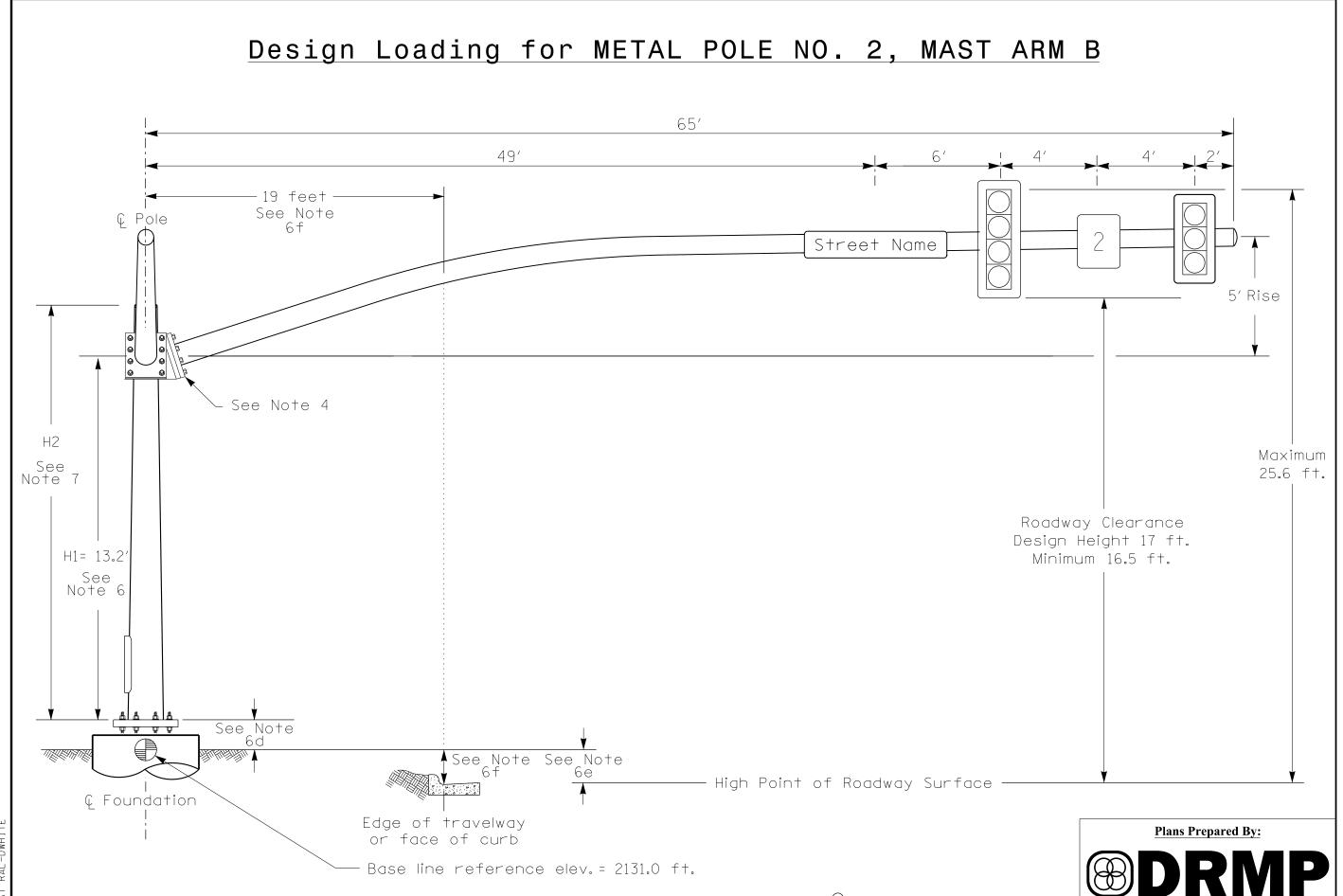


# --180°--Mast Arm | ← Direction ' 8 BOLT BASE PLATE DETAIL

See Note 5

POLE RADIAL ORIENTATION





Elevation View @ 180

Elevation View @ 270

Design Loading for METAL POLE NO. 2, MAST ARM A

Street Name

– High Point of Roadway Surface —

44′

See Note See Note

Base line reference elev. = 2131.0 ft

Edge of travelway

or face of curb

16 feet

See Note

See Note 4 -

See Note

H1= 13.2'

See Note 6

Foundation

DRMP, INC. 8210 UNIVERSITY EXECUTIVE PARK DR. SUITE 220 CHARLOTTE, NC 28262 NC LICENSE NO. F-1524 (704) 549-4260

#### R-5600 Sig-31.0

**EXISTING** 

**●**→

N/A

 $\longrightarrow$ 

N/A

N/A

•

----- PUE -----

——E——

-PROP O/H POW LINES-

— 8" GAS —

— W — –

\_\_\_\_T F0\_\_\_\_

\_\_\_\_\_ T V \_\_\_\_\_

—— 18" WL ——

CARO

- and "Standard Specifications for Roads and Structures" dated January 2024.
- otherwise directed by the Engineer.
- 4. Bag and disconnect pushbutton for P42.
- 5. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
- 6. Omit "WALK" and flashing "DON'T WALK" with no pedestrian
- 7. Program pedestrian heads to countdown the flashing "Don't Walk"
- 8. To provide a leading pedestrian interval on phase 6, program FYA heads numbered 51 and 63 to delay for 7 seconds after the start
- 9. The Division Traffic Engineer will determine the hours of use for each
- 10. This intersection uses multi-zone microwave detection. Install detectors according to the manufacturer's instructions to achieve the desired detection
- Coordinated signal system timing values supersede these values.

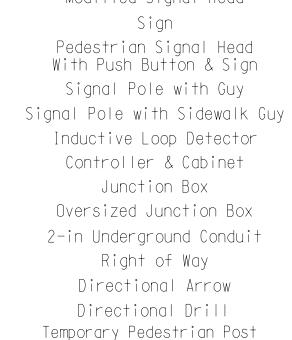
#### Fully Actuated w/ Alternate Phasing Operation (Time Based Coordination) NOTES 1. Refer to "Roadway Standard Drawings NCDOT" dated January 2024

3 Phase

- 2. Do not program signal for late night flashing operation unless
- 3. Phase 5 may be lagged.

- of the phase 6 walk interval. See Electrical Details for programming.
- phasing plan.
- 11. Maximum times shown in timing chart are for free-run operation only.

#### **LEGEND PROPOSED** Traffic Signal Head $\bigcirc$ Modified Signal Head $\bigcirc$



with Ped Push Button Sign Type I Pushbutton Post Type II Signal Pedestal

> Construction Zone Construnction Drums Barricade Non-Intrusive Detection Zone Perm. Utility Easement Construction Easement

> > O/H Pwr. & Utl. Lines Gas Line U/G Water Line U/G Telephone Cable

U/G TV Cable 18" Water Line

"RIGHT TURN SIGNAL" Sign (R10-10R) Right Arrow "ONLY" Sign (R3-5R)

> DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED SEAL

NC 107 (E Main Street) NC 116 (Webster Road) Alexander Street

N/A

Jackson County Division 14

August 2025 REVIEWED BY: ZM Esposito

052936 Brittany Groome 8/26/2025 SIG. INVENTORY NO.

PREPARED BY: DS Griffith REVIEWED BY: BN Groome REVISIONS INIT. DATE

DISTANCE CALL DELAY EXTEND Q INIT CALL TIME TIME TIME CALL SIZE FROM (FT) STOPBAR \* | X | 4 | 3.0 | - | X | - | X | - | 4A 4B 5 | 15.0\*\* | - | X | - | X | -5A \* | X | 5 | 15.0 | - | X | - | X | - | 7

MAXTIME DETECTOR INSTALLATION CHART

**PROGRAMMING** 

35 MPH 0% Grade

(Design Speed 45 MPH)

NC 107

Signal Upgrade

1"=40'

Temporary Design 1 - TMP Ph1, S1A

\* Multi-Zone Microwave Detection Zone

LT 53' +/-

<u>-L- Sta. 131+58 +/-</u> RT 72' +/-

**DETECTOR** 

- \*\* Disable delay during Alternate Phase Operation.
- # Disable Phase call for loop during Alternate Phasing Operation.

#### ALTERNATE PHASING DIAGRAM

DEFAULT PHASING DIAGRAM

DEFAULT PHASING

TABLE OF OPERATION

SIGNAL

FACE

21, 22

41,42

44

51

61, 62

63

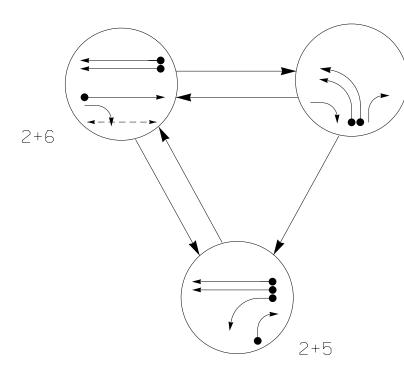
P61,P62

PHASE

╾│<del>┞</del>│<del>┩</del>│┩

F | - |

DW | W | DW |DF



#### PHASING DIAGRAM DETECTION LEGEND

UNSIGNALIZED MOVEMENT

 $<\!\!--\!\!>$  PEDESTRIAN MOVEMENT

DETECTED MOVEMENT UNDETECTED MOVEMENT (OVERLAP)

<u>-L- Sta. 130+78 +/-</u> LT 62' +/-NC 107 (E Main Street) - 22 1 61 62 63 83 35 MPH -1% Grade (Design Speed 45 MPH)

ALTERNATE PHASING

TABLE OF OPERATION

SIGNAL

FACE

21, 22

41,42

44

63

PHASE

│<del></del>╾│<del>द</del>ि│<del>दि</del>│

|<del>|</del>|->| F

P61,P62 | DW | W | DW | DR

SIGNAL FACE I.D.

All Heads L.E.D.

P61, P62

Microwave Detection **FUNCTION** Sensor 1 Channel Direction of Travel QUEUE < 750 Detection Zone (ft) 600–100 150–100 Range (ft) **Enable Speed** Speed Range (mph) 35-100 1–35 Enable Estimated Time of Arrival Estimated Time of Arrival (sec) 2.5-6.5 2.5-6.5

MAXTIME TIMING CHART PHASE **FEATURE** 2 5 14 Ped Clear <sup>\*</sup> 20 Passage \* 2.0 2.0 2.0 2.0 90 40 3.0 3.0 Yellow Change 4.6 4.6 2.0 Red Clear 2.9 2.8 Added Initial \* Maximum Initial \* Time Before Reduction Time To Reduce Minimum Gap \_ Advance Walk Non Lock Detector MIN RECALL MIN RECALL Vehicle Recall

\* 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

\*\* See note #8

lower than 4 seconds

Sensor 2 Priority QUEUE < 750 150-100 600-100 1–35 35–100

-L- Sta. 130+51 +/-RT 80' +/-

**Plans Prepared By: ®DRMP** 

#### 18 CHANNEL IP CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

ON SW2 ☐

- RF 2010

■ WD 1.0 SEC GY ENABLE

> - LEDguard − RF SSM

- FYA 1-9 - FYA 3-10 FYA 5-11

– FYA 7-12

15

16 \_\_\_\_ 17

= DENOTES POSITION OF SWITCH

RP DISABLE

SF#1 POLARITY

- FYA COMPACT-

REMOVE DIODE JUMPERS: 2-5, 2-6, 2-7, 2-10, 2-11, 2-12, 2-15, 3-4, 3-7, 3-10, 3-12, 4-7, 4-10, 4-12, 5-7, 5-11, 5-12, 6-10, 6-11, 6-15, 7-10, 7-11, 7-12, 10-11, 10-12, 10-15, 11-12 AND 11-15.

#### REMOVE JUMPERS AS SHOWN

1. Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.

**COMPONENT SIDE** 

- 2. Ensure jumpers SEL2-SEL5 and SEL9 are present on the monitor board.
- 3. Ensure that the Red Enable is active at all times during normal operation.
- 4. Integrate monitor with Ethernet network in cabinet.

#### INPUT FILE POSITION LAYOUT

(front view)

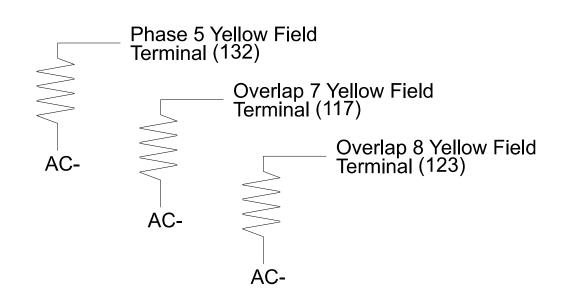
	r	1	2	3	4	5	6	7	8	9	10	11	12	13	14
FILE	U	S L O T	S L O T	S L O T	S L O T	S L O T	S L O T	Ø 6 PED  DC ISOLATOR	FS DC ISOLATOR						
" "	L	E M P T Y	NOT USED	ST DC ISOLATOR											
FILE	U	Ø 5 <b>5A</b>	S L O T	S L O T	S L O T	S L O T	S L O T	S L O T	SLOT	S L O T	S L O T	S L O T	S L O T	S L O T	S L O T
"J"	L	NOT USED	E M P T Y	E M P T Y	E M P T Y	EMPTY	E M P T Y	E M P T Y	EMPTY	E M P T Y	E M P T Y	E M P T Y	E M P T Y	E M P T Y	E M P T Y
	l	EX.: 1A	, 2A, ET	C. = LOC	P NO.'S							FS = I	FLASH S	SENSE	

Note: For Detection Zone 5A the equipment and slots reserved are typical for a NCDOT installation.

#### LOAD RESISTOR INSTALLATION DETAIL

(install resistor as shown)

ACCEPTABLE VALUES Value (ohms) | Wattage 1.5K - 1.9K | 25W (min) 2.0K - 3.0K | 10W (min)



ST = STOP TIME

#### NOTES

- 1. To prevent "flash-conflict" problems, insert red flash program blocks for all vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the signal plan.
- 2. Program controller to start up in phase 2 Green No Walk and 6 Green No Walk.
- 3. If this signal will be managed by an ATMS software, enable controller and detector logging for all detectors used at this location.
- 4. The cabinet and controller are part of NC 107 Time Based System.

#### **EQUIPMENT INFORMATION**

Controller	2070LX
Cabinet	332 w/ Aux
Software	Q-Free MAXTIME
Cabinet Mount	Base
Output File Positions	18 With Aux. Output File
Load Switches Used	S2, S4, S5, S7, S8, S9, S10, AUX S2,
	AUX S4, AUXS5
Phases Used	2, 4, 5, 6, 6PED
Overlap "1"	NOT USED
Overlap "2"	*
Overlap "3"	
Overlap "4"	*
Overlap "5"	
Overlap "6"	NOT USED
Overlap "7"	
Overlap "8"	*

\*See overlap programming detail on sheet 2.

#### INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT POINT	DETECTOR NO.	CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL	DELAY DURING GREEN	
5A	TB3-1,2	J1U	55	17	15 ★	5	15.0		Х		Х		
D/A	103-1,2	310	່ວວ	-	31 ★	2	3.0		Х		Х	Х	
PED PUSH BUTTONS							NOTE:						
P61,P62	TB8-7,9	I13U	68	34	6	PED 6	INSTALL DC ISOLATORS						
							´ IN INPU	T FILE SLOT	_				

For the detectors to work as shown on the signal design plan, see the Vehicle Detector Setup Programming Detail for Alternate Phasing on sheet 3.

INPUT FILE POSITION LEGEND: J2L

FILE J SLOT 2 **LOWER** 

#### SPECIAL DETECTOR NOTE

- Install a multi-zone microwave detection system for vehicle detection.
   Perform installation according to manufacturer's directions and NCDOT engineer -approved mounting locations to accomplish the detection schemes shown on the Signal Design Plans.
- 2. For detection zone 5A, equipment and slots reserved are typical for a NCDOT installation. Inputs associated with these slots are compatiable with time of day instructions located on sheet 3 of this electrical detail.

#### COUNTDOWN PEDESTRIAN SIGNAL OPERATION

Countdown Ped Signals are required to display timing only during Ped Clearance Interval. Consult Ped Signal Module user's manual for instructions on selecting this feature.

SUITE 220 CHARLOTTE, NC 28262 NC LICENSE NO. F-1524 (704) 549-4260

R-5600 Sig-31.

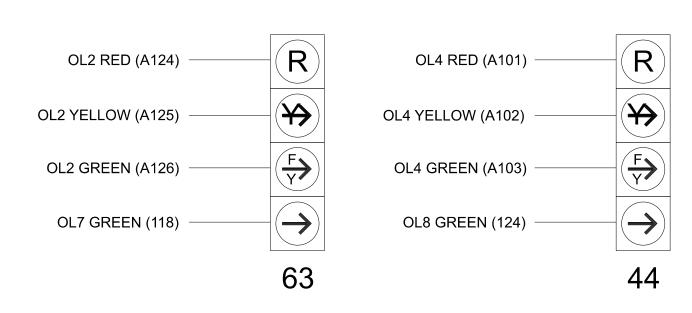
					S	IGN	AL	HE/	AD I	10C	OK-	UP (	CHA	4RT	•			
LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	AUX S1	AUX S2	AUX S3	AUX S4	AUX S5	AI
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16	9	10	17	11	12	,
PHASE	1	2	2 PED	OL7	4	4 PED	5	6	6 PED	OL8	3	8 PED	OL1		SPARE	OL3	OL4	
SIGNAL HEAD NO.	NU	21,22	NU	63 <sup>*</sup>	41.42	NU	<b>★</b> 51	61,62	P61, P62	44	NU	NU	NU	63 <sup>*</sup>	NU	<b>★</b> 51	<b>★</b> 44	N
RED		128						134						A124			A101	
YELLOW		129		*			*	135		*								
GREEN		130						136										
RED ARROW					101											A114		
YELLOW ARROW					102									A125		A115	A102	
FLASH <b>I</b> NG YELLOW ARROW														A126		A116	A103	
GREEN ARROW				118	103		133			124								
*									119									
Ķ									121									

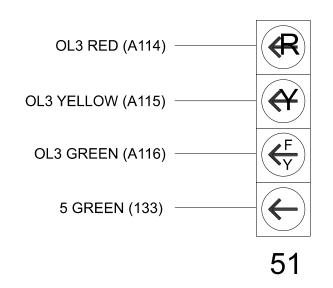
NU = Not Used

- \* Denotes install load resistor. See load resistor installation detail this sheet.
- ★ See pictorial of head wiring in detail this sheet.

#### FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)





THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 14-0411T1 DESIGNED: Aug 2025 SEALED: 8/26/2025 REVISED: N/A

Electrical Detail - Sheet 1 of 3 Temporary Design 1 - TMP Ph1, S1A

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING

SR 116 (Webster Road) Alexander Street

REVISIONS

NC 107 (E Main Street)

Division 14 Jackson County PLAN DATE: August 2025 REVIEWED BY: ZM Esposito PREPARED BY: DS Griffith REVIEWED BY: BN Groome

Sylva 052936 INIT. DATE

Brittany Groome 8/26/2025 14 - 0 4 I I T SIG. INVENTORY NO.

SEAL

CARA

#### MAXTIME STARTUP AND SOFTWARE FLASH PROGRAMMING DETAIL

Front Panel Main Menu >Controller >Unit

Web Interface Home >Controller >Unit

Modify parameters as shown below and save changes.

Start Up Parameters

**Unit Flash Parameters** 

StartUp Clearance Hold

All Red Flash Exit Time

#### FLASHER CIRCUIT MODIFICATION DETAIL

IN ORDER TO INSURE THAT SIGNALS FLASH CONCURRENTLY ON THE SAME APPROACH, MAKE THE FOLLOWING FLASHER CIRCUIT CHANGES:

- 1. ON REAR OF PDA REMOVE WIRE FROM TERM. T2-4 AND TERMINATE ON T2-2.
- 2. ON REAR OF PDA REMOVE WIRE FROM TERM. T2-5 AND TERMINATE ON T2-3.
- 3. REMOVE FLASHER UNIT 2.

THE CHANGES LISTED ABOVE TIES ALL PHASES AND OVERLAPS TO FLASHER UNIT 1.

## MAXTIME OVERLAP PROGRAMMING DETAIL FOR DEFAULT PHASING

Front Panel Main Menu >Controller >Overlap >Overlap Parameters/Overlap Timings

Web Interface Home >Controller >Overlap Configuration >Overlaps

#### Overlap Plan 1

Overlap	2	3	4	7	8
Type	FYA 4 - Section	FYA 4 - Section	FYA 4 - Section	Normal	Normal
Included Phases	6	6	-	4	4,5
Modifier Phases	4	5	4,5	-	-
Modifier Overlap	-	-	-	-	-
Trail Green	0	0	0	0	0
Trail Yellow	0.0	0.0	0.0	0.0	0.0
Trail Red	0.0	0.0	0.0	0.0	0.0
FYA PED Delay	7.0	7.0	0.0	0.0	0.0

#### **OUTPUT CHANNEL CONFIGURATION**

Front Panel

Main Menu >Controller >More>Channels>Channels Config

Web Interface

Home >Controller >Advanced IO>Channels>Channel Configuration

#### **Channel Configuration**

	Channel	Control Type	Control Source	Flash Yellow	Flash Red	Flash Alt	MMU Channel
	1	Phase Vehicle	1		Х	X	1
NOTICE OVERLAP 7	2	Phase Vehicle	2		Χ	X	2
ASSIGNED TO CHANNEL 3	3	Overlap	7		Х	X	3
·	4	Phase Vehicle	4		Χ	X	4
	5	Phase Vehicle	5		Х	X	5
NOTICE OVERLAP 8	6	Phase Vehicle	6		Χ	X	6
ASSIGNED TO CHANNEL 7	7	Overlap	8		Х		7
NOTICE PHASE VEHICLE 3	8	Phase Vehicle	3		Х		8
ASSIGNED TO CHANNEL 8	9	Overlap	1		Х	X	9
	10	Overlap	2		Χ	X	10
	11	Overlap	3		Х	X	11
	12	Overlap	4		Х		12
	13	Phase Ped	2				13
	14	Phase Ped	4				14
	15	Phase Ped	6				15
	16	Phase Ped	8				16
	17	Overlap	5		Х	X	17
	18	Overlap	6		Χ		18

NOTICE FLASHING RED

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 14-0411T1

DESIGNED: Aug 2025 SEALED: 8/26/2025 REVISED: N/A

Electrical Detail - Sheet 2 of 3 Temporary Design 1 - TMP Ph1, S1A

NC 107 (E Main Street)

REVISIONS

SR 116 (Webster Road) Alexander Street

Division 14 Jackson County PLAN DATE: August 2025 REVIEWED BY: ZM Esposito PREPARED BY: DS Griffith REVIEWED BY:

BN Groome INIT. DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL

SIGNATURES COMPLETED

DRMP, INC. 8210 UNIVERSITY EXECUTIVE PARK DR. SUITE 220 CHARLOTTE, NC 28262 NC LICENSE NO. F-1524 (704) 549-4260



ELECTRICAL AND PROGRAMMING

#### R-5600 Sig-31

#### MAXTIME ALTERNATE PHASING ACTIVATION DETAIL

To run alternate phasing, select a Pattern that is programmed to run Overlap Plan 2 and Detector Plan 2. A Pattern can be selected through the scheduler or manually by changing the Operational Mode.

PHASING	OVERLAP PLAN	VEH DET PLAN
ACTIVE PLAN REQUIRED TO RUN DEFAULT PHASING	1	1
ACTIVE PLAN REQUIRED TO RUN ALTERNATE PHASING	2	2

ALTERNATE PHASING CHANGE SUMMARY

THE FOLLOWING IS A SUMMARY OF WHAT TAKES PLACE WHEN OVERLAP PLAN 2 AND VEHICLE DETECTOR PLAN 2 ACTIVATE TO CALL THE "ALTERNATE PHASING":

OVERLAP PLAN 2: Modifies overlap included phases for head 51 to run protected turns only.

VEH DET PLAN 2: Disables phase 2 call on loop 5A

5 call on loop 5A to 0 seconds.

and reduces delay time for phase

#### MAXTIME OVERLAP PROGRAMMING DETAIL FOR ALTERNATE PHASING

Front Panel

Main Menu >Controller >Overlap >Overlap Parameters/Overlap Timings

Web Interface

Home >Controller >Overlap Configuration >Overlaps

In the table view of the web interface, right click on "Overlap" in the top left corner of the table. Copy the entire contents of Overlap Plan 1. Paste Overlap Plan 1 into Overlap Plan 2. Modify Overlap Plan 2 as shown below and save changes.

#### Overlap Plan 2

Overlap	2	3	4	7	8
Type	FYA 4 - Section	FYA 4 - Section	FYA 4 - Section	Normal	Normal
Included Phases	6	-	-	4	4,5
Modifier Phases	4	5	4,5	-	-
Modifier Overlaps	-	-	-	-	-
Trail Green	0	0	0	0	0
Trail Yellow	0.0	0.0	0.0	0.0	0.0
Trail Red	0.0	0.0	0.0	0.0	0.0
FYA PED Delay	7.0	0.0	0.0	0.0	0.0

NOTICE INCLUDED PHASE

# MAXTIME DETECTOR PROGRAMMING DETAIL FOR ALTERNATE PHASING LOOP 5A

Front Panel

Main Menu >Controller >Detector >Veh Det Plans

Web Interface

Home >Controller >Detector Configuration >Vehicle Detectors

In the table view of web interface right click on "Detector" in the top left corner of the table. Copy the entire contents of Detector Plan 1. Paste Detector Plan 1 into Detector Plan 2. Modify Detector Plan 2 as shown below and save changes.

Plan 2

5A

Detector	Call Phase	Delay
15	5	0.0
31	0	÷

#### MAXTIME ALTERNATE PHASING PATTERN PROGRAMMING DETAIL

Front Panel

Main Menu >Controller >Coordination >Patterns

Web Interface

Home >Controller >Coordination >Patterns

Pattern Parameters

Pattern	Veh Det Plan	Overlap Plan						
*	2	2						

\*The Pattern number(s) are to be determined by the Division and/or City Traffic Engineer.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 14-0411T1 DESIGNED: Aug 2025

SEALED: 8/26/2025 REVISED: N/A

Electrical Detail - Sheet 3 of 3 Temporary Design 1 - TMP Ph1, S1A

NC 107 (E Main Street)

SR 116 (Webster Road)

Alexander Street Jackson County

Division 14 Sylva PLAN DATE: August 2025 REVIEWED BY: ZM Esposito BN Groome PREPARED BY: DS Griffith REVIEWED BY: REVISIONS

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL

SIGNATURES COMPLETED

Brittany Groome 8/26/2025

SUITE 220 CHARLOTTE, NC 28262 NC LICENSE NO. F-1524 (704) 549-4260

DEFAULT PHASING DIAGRAM

PHASING DIAGRAM DETECTION LEGEND

UNSIGNALIZED MOVEMENT PEDESTRIAN MOVEMENT

UNDETECTED MOVEMENT (OVERLAP)

SIGNAL FACE I.D.

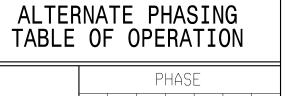
All Heads L.E.D.

21,22 32,33 43 61,62

DETECTED MOVEMENT

\*\* See note 10.

Sig-32.0 R-5600 6 Phase Fully Actuated w/ Alternate Phasing Operation (Time Based Coordination) 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 1 and/or phase 5 may be lagged. 4. The order of phase 3 and phase 4 may be reversed. 5. Reposition signal heads numbered 61, 62 and 63. 6. Bag and disconnect pedestrian heads and pushbuttons for P61 and P62. 7. Unbag and reconnect pushbutton for P42. 8. Omit "WALK" and flashing "DON'T WALK" with no pedestrian 9. Program pedestrian heads to countdown the flashing "Don't Walk" 10. To provide a leading pedestrian interval on phase 4, program FYA LEGEND **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 Oversized Junction Box 2-in Underground Conduit Right of Way Directional Arrow Type II Signal Pedestal Temporary Pedestrian Post with Ped Push Button & Sign Non-Intrusive Detection Zone Construction Zone N/A Barricade XXX Temporary Construction Easement Permenant Utility Easement \_\_\_\_\_ PUE \_\_\_\_ "RIGHT TURN SIGNAL" Sign (R10-10R) DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED Temporary Design 2 - TMP Ph1, S2, Part 1 SEAL



P41.P42 DWDWDWDWDWWWDRK

Sidewalk

			Р	HAS	E						Р	HASI	E		
SIGNAL FACE	1 + 5	1 + 6	2 + 5	2 + 6	3	4	HUANI	SIGNAL FACE	1 + 5	1 + 6	2 + 5	2+6	3	4	FLAST
11	-	-	<del>-</del> F	<del>F</del> Y	₩	₩	+	11	-	•	₩	₩	₩	₩	<b>→</b>
21,22	R	R	G	G	R	R	R	21, 22	R	R	G	G	R	R	R
31	R	R	R	R	G	R	R	31	R	R	R	R	<b>U</b>	R	R
32,33	R	R	R	R	G	R	R	32,33	R	R	R	R	G	R	$R_{\mu}^{\mu}$
41	<del></del>	<del></del>	<del>-R</del>	<del></del>	<del></del>	<b>-</b>	<b>→</b>	41	<b>→</b> R	<b>→</b>	<del></del>	₩	<b>→</b>	-	<b>→</b> R
42	R	R	R	R	R	G	R	42	R	R	R	R	R	G	R
43	R	R	R	R	R	G	R	43	R	R	R	R	R	G	R
44		R	-	R	R	F	R	44	-	R		R	R	F	R
51	•	<del>F</del> Y	•	<del>-</del> F	₩	<del></del>	₩	51	-	₩	•	*	₩	<del></del>	<del></del>
61,62	R	G	R	G	R	R	R	61,62	R	G	R	G	R	R	R
63	R	F	R	F	R	-	R	63	R	F	R	F	R		R
P21, P22	DW	DW	W	W	DW	DW	DRK	P21, P22	DW	DW	W	W	DW	DW	DRK

/Miniminimikali/-

DEFAULT PHASING

TABLE OF OPERATION

DW DW DW DW DW W DF

#### MAXTIME DETECTOR INSTALLATION CHART **DETECTOR** PROGRAMMING DISTANCE CALL DELAY EXTEND ON LINI ON L L00P 1 | 15.0\*\* | - | X | - | X | -- | X | - | X | -X 3 5.0 \* |- | 4 | 3.0 | - | X |- | X |- | - | X | - | X | -5 |15.0\*\*| - |X|-|X|-| - | X | - | X | - |

- \*\* Disable delay during Alternate Phase Operation.
- # Disable Phase call for loop during Alternate

# Phasing Operation

35 MPH 0% Grade

(Design Speed 45 MPH)

NC 107

\* Multi-Zone Microwave Detection Zone

time only

- heads numbered 44 to delay for 7 seconds after the start of the phase 4 walk interval. See Electrical Details for programming.
- 11. Remove existing Right Arrow "Only" sign (R3-5R) on Southbound approach.
- 12. The Division Traffic Engineer will determine the hours of use for each phasing plan
- 13. This intersection uses multi-zone microwave detection. Install detectors according to the manufacturer's instructions to achieve the desired detection.
- 14. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.

# Sidewalk Slack Span NC 107 (E Main Street) 35 MPH -1% Grade (Design Speed 45 MPH)

ALTERNATE PHASING DIAGRAM

	MAX	XTIME	ΓΙΜΙΝG	CHART		
FEATURE			PH	IASE		
FEATURE	1	2	3	4	5	6
Walk *	_	14	_	14	_	_
Ped Clear *	_	20	_	23	_	_
Min Green	7	12	7	7	7	12
Passage *	2.0	2.0	2.0	2.0	2.0	2.0
Max 1 *	45	90	30	40	45	90
Yellow Change	3.0	4.6	4.2	3.8	3.0	4.6
Red Clear	2.6	2.3	2.8	2.1	3.1	2.3
Added Initial *	_	_	_	_	_	_

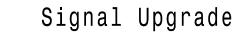
44 63

P41, P42

Yellow Cha Red Clear Added Initial Maximum Initial \* Time Before Reduction Time To Reduce \_ Minimum Gap Advance Walk \*\* Non Lock Detector Х Χ MIN RECALL Vehicle Recall MIN RECALL Dual Entry

\* 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.

	(2	A)	(6A)		
FUNCTION	Sen	sor 1	Sens	sor 2	
Channel		1	1		
Phase		2		6	
Direction of Travel	N	NB SB			
Туре	Pric	ority	Priority		
Level	2	QUEUE	2	QUEUE	
Detection Zone (ft)	< 750	-	< 750	_	
Range (ft)	600–100	150–100	600–100	150_100	
Enable Speed	Υ	Y	Υ	Y	
Speed Range (mph)	35–100	1–35	35–100	1–35	
Enable Estimated Time of Arrival	Υ	Ν	Y	N	
Estimated Time of Arrival (sec)	2.5-6.5	_	2.5–6.5	_	



NC 107 (E Main Street)

**PROPOSED** 

N/A

 $\longrightarrow$ 

N/A

N/A

N/A



NC 116 (Webster Road) Alexander Street

Jackson County Division 14 PLAN DATE: August 2025 REVIEWED BY: ZM Esposito PREPARED BY: DS Griffith REVIEWED BY: BN Groome

Sylva INIT. DATE

DRMP, INC. 8210 UNIVERSITY EXECUTIVE PARK DR. SUITE 220 CHARLOTTE, NC 28262 NC LICENSE NO. F-1524 (704) 549-4260 1"=40'

**Plans Prepared By:** 

052936 Brittany Groome

SIG. INVENTORY NO. |4-04||T2

(remove jumpers and set switches as shown)

REMOVE DIODE JUMPERS: 1-5, 1-6, 1-7, 1-9, 1-10, 1-11, 1-12, 2-5, 2-6, 2-7, 2-9, 2-10, 2-11, 2-12, 2-13, 3-4, 3-10, 3-12, 3-14, 4-10, 4-12, 4-14, 5-7, 5-9, 5-11, 5-12, 5-13, 6-9, 6-10, 6-11, 6-13, 7-9, 7-11, 7-12, 7-13 9-10, 9-11, 9-12, 9-13, 10-11, 10-12, 10-13, 10-14, 11-12, 11-13, 12-13 AND 12-14. RP DISABLE WD 1.0 SEC **GY ENABLE** SF#1 POLARITY LEDguard RF SSM - FYA COMPACT-– FYA 1-9 - FYA 3-10 FYA 5-11 – FYA 7-12

ON

15

16 \_\_\_\_ 17

= DENOTES POSITION OF SWITCH

ST = STOP TIME

COMPONENT SIDE

REMOVE JUMPERS AS SHOWN

- 1. Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
- 2. Ensure jumpers SEL2-SEL5 and SEL9 are present on the monitor board.
- 3. Ensure that the Red Enable is active at all times during normal operation.
- 4. Integrate monitor with Ethernet network in cabinet.

#### INPUT FILE POSITION LAYOUT

(front view)

	r	1	2	3	4	5	6	7	8	9	10	11	12	13	14
FILE	U	Ø 1 1A	SLOT EMP	S L O T E	S L O T E	SLOT EMP	S L OT E	S L O T	S L OT E	S L O T	S L O T	S L O T	Ø 2 PED  DC ISOLATOR Ø 4 PED	SLOT EM	FS DC ISOLATOR ST
1	L	NOT USED	T Y	M P T Y	E M P T Y	Y	M P T Y	E M P T Y	E M P T Y	M P T Y	E M P T Y	E M P T Y	DC ISOLATOR	P T Y	DC ISOLATOR
FILE	U	Ø 5 <b>5A</b>	S L O T E	S L O T E	S L O T	S L O T E	S L O T E	S L O T	S L O T	S L O T E	S L O T	S L O T E	S L O T	S L O T	S L O T
"J"	L	NOT USED	M P T Y	M P T Y	E M P T Y	M P T Y	M P T Y	E M P T Y	E M P T Y	M P T Y	E M P T Y	M P T Y	E M P T Y	E M P T Y	E M P T Y
	EX.: 1A, 2A, ETC. = LOOP NO.'S FS = FLASH SENSE														

Note: For Detection Zones 1A and 5A the equipment and slots reserved are typical for a NCDOT installation.

#### LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown)

		_ Phase 1 Yellow Field Terminal (126)
ACCEPTABLE VALUES Value (ohms) Wattage 1.5K - 1.9K 25W (min) 2.0K - 3.0K 10W (min)	AC-	Phase 5 Yellow Field Terminal (132)  Overlap 7 Yellow Field Terminal (117)  Overlap 8 Yellow Field Terminal (123)  AC-

#### **NOTES**

- 1. To prevent "flash-conflict" problems, insert red flash program blocks for all vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the signal plan.
- 2. Program controller to start up in phase 2 Green No Walk and 6 Green No Walk.
- 3. If this signal will be managed by an ATMS software, enable controller and detector logging for all detectors used at this location.
- 4. The cabinet and controller are part of NC 107 Time Based System.

#### **EQUIPMENT INFORMATION**

Controller	
Cabinet	332 w/ Aux
Software	Q-Free MAXTIME
Cabinet Mount	Base
Output File Positions	18 With Aux. Output File
Load Switches Used	S1, S2, S3, S4, S5, S6, S7, S8, S10, S11
	AUX S1, AUX S2, AUX S4, AUX S5
Phases Used	1, 2, 2PED, 3, 4, 4PED, 5, 6
Overlap "1"	*
Overlap "2"	*
Overlap "3"	
Overlap "4"	*
Overlap "5"	NOT USED
Overlap "6"	NOT USED
Overlap "7"	*
Overlap "8"	*

\*See overlap programming detail on sheet 2.

#### INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT POINT	DETECTOR NO.	CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL	DELAY DURING GREEN
1.0	TB2-1,2	I1U	56	18	1 ★	1	15.0		Х		Х	
1A	102-1,2	ITO	50	-	29 ★	6			X		Х	
5A	TB3-1,2	J1U	55	17	15 ★	5	15.0		X		Χ	
5A	103-1,2	310	33	-	31★	2			X		Χ	
PED PUSH BUTTONS							NOTE:					
P21,P22	TB8-4,6	I12U	67	33	2	PED 2	INSTALL	DC ISOLAT				
P41,P42	TB8-5,6	I12L	69	35	4	PED 4	IN INPU	Γ FILE SLOT	_			

★ For the detectors to work as shown on the signal design plan, see the Vehicle Detector Setup Programming Detail for Alternate Phasing on sheet 3.

INPUT FILE POSITION LEGEND:	J2I
FILE J	_
SLOT 2	
LOWER	

#### SPECIAL DETECTOR NOTE

- 1. Install a multi-zone microwave detection system for vehicle detection. Perform installation according to manufacturer's directions and NCDOT engineer -approved mounting locations to accomplish the detection schemes shown on the Signal Design Plans.
- 2. For detection zones 1A and 5A, equipment and slots reserved are typical for a NCDOT installation. Inputs associated with these slots are compatiable with time of day instructions located on sheet 3 of this electrical detail.

#### COUNTDOWN PEDESTRIAN SIGNAL OPERATION

Countdown Ped Signals are required to display timing only during Ped Clearance Interval. Consult Ped Signal Module user's manual for instructions on selecting this feature.

> **Plans Prepared By:** SUITE 220 CHARLOTTE, NC 28262 NC LICENSE NO. F-1524 (704) 549-4260

R-5600 Sig-32.1

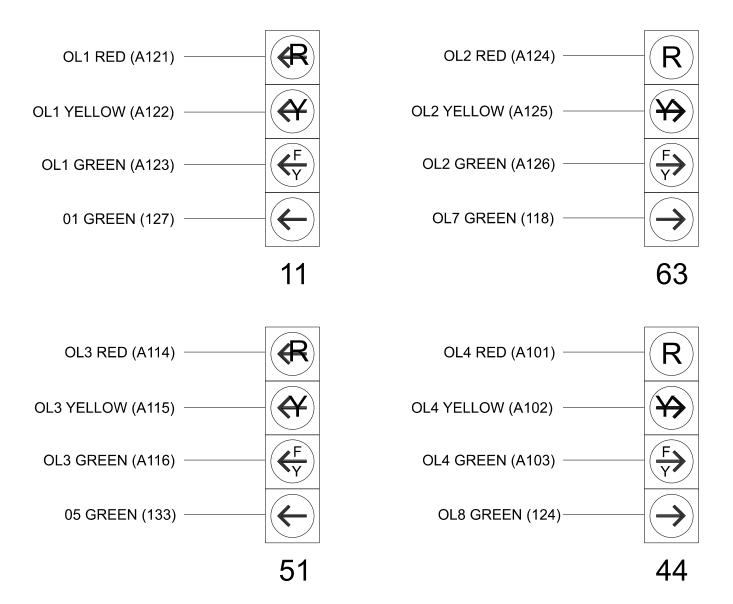
LOAD																AUX	ΔΗΥ	AUX	AUX	AUX	ΛΙΙ
SWITCH NO.	S1	S2	S3	S4		S5		S6	S7	S8	S9	S10	S	11	S12	S1	S2	S3	S4	S5	S
CMU CHANNEL NO.	1	2	13	3		4		14	5	6	15	7		8	16	9	10	17	11	12	18
PHASE	1	2	2 PED			4		4 PED	5	6	6 PED	OL8		3	8 PED	OL1	OL2	SPARE	OL3	OL4	SPA
SIGNAL HEAD NO.	<b>★</b> 11	21,22	P21, P22	63 <sup>*</sup>	41	42	43	P41, P42	<b>★</b> 51	61,62	NU	<b>44</b>	31	32,33	NU	11	63 <sup>*</sup>	NU	<b>★</b> 51	<b>★</b> 44	N
RED		128				101	101			134			107	107			A124			A101	
YELLOW	*	129		*		102	102		*	135		*	108	108							
GREEN		130				103	103			136			109	109							
RED ARROW					101											A121			A114		
YELLOW ARROW					102											A122	A125		A115	A102	
FLASHING YELLOW ARROW																A123	A126		A116	A103	
GREEN ARROW	127			118	103	103			133			124	109								
₩			113					104													
Ķ			115					106													

NU = Not Used

- \* Denotes install load resistor. See load resistor installation detail this sheet.
- ★ See pictorial of head wiring in detail this sheet.

#### FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 14-0411T2 DESIGNED: Aug 2025 SEALED: 8/26/2025 REVISED: N/A

Electrical Detail - Sheet 1 of 3

Temporary Design 2 - TMP Ph1, S2, Part 1 ELECTRICAL AND PROGRAMMING NC 107 (E Main Street)

> SR 116 (Webster Road) Alexander Street Division 14 Jackson County

> > REVISIONS

PLAN DATE: August 2025 REVIEWED BY: ZM Esposito PREPARED BY: DS Griffith REVIEWED BY: BN Groome

Sylva 052936 INIT. DATE

SIG. INVENTORY NO. |4-04||T

CARA

Brittany Groome 8/26/2025

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SIGNATURES COMPLETED

SEAL

#### MAXTIME STARTUP AND SOFTWARE FLASH PROGRAMMING DETAIL

Front Panel Main Menu >Controller >Unit

Web Interface Home >Controller >Unit

Modify parameters as shown below and save changes.

Start Up Parameters

**Unit Flash Parameters** 

StartUp Clearance Hold

All Red Flash Exit Time

#### FLASHER CIRCUIT MODIFICATION DETAIL

IN ORDER TO INSURE THAT SIGNALS FLASH CONCURRENTLY ON THE SAME APPROACH, MAKE THE FOLLOWING FLASHER CIRCUIT CHANGES:

- 1. ON REAR OF PDA REMOVE WIRE FROM TERM. T2-4 AND TERMINATE ON T2-2.
- 2. ON REAR OF PDA REMOVE WIRE FROM TERM. T2-5 AND TERMINATE ON T2-3.
- 3. REMOVE FLASHER UNIT 2.

THE CHANGES LISTED ABOVE TIES ALL PHASES AND OVERLAPS TO FLASHER UNIT 1.

#### MAXTIME OVERLAP PROGRAMMING DETAIL FOR DEFAULT PHASING

Front Panel Main Menu >Controller >Overlap >Overlap Parameters/Overlap Timings

Web Interface Home >Controller >Overlap Configuration >Overlaps

#### Overlap Plan 1

Overlap	1	2	3	4	7	8
Туре	FYA 4 - Section	Normal	Normal			
Included Phases	2	6	6	4	4	5
Modifier Phases	1	4	5	5	-	-
Modifier Overlap	-	-	-	-	-	-
Trail Green	0	0	0	0	0	0
Trail Yellow	0.0	0.0	0.0	0.0	0.0	0.0
Trail Red	0.0	0.0	0.0	0.0	0.0	0.0
FYA PFD Delay	0.0	0.0	0.0	7.0	0.0	0.0

#### OUTPUT CHANNEL CONFIGURATION

Front Panel

Main Menu >Controller >More>Channels>Channels Config

Web Interface

NOTICE OVERLAP 7 ASSIGNED TO CHANNEL 3

NOTICE OVERLAP 8 ASSIGNED TO CHANNEL 7

NOTICE PHASE VEHICLE 3

ASSIGNED TO CHANNEL 8

Home >Controller >Advanced IO>Channels>Channel Configuration

#### **Channel Configuration**

Cha	annel	Control Type	Control Source	Flash Yellow	Flash Red	Flash Alt	MMU Channel
	1	Phase Vehicle	1		Χ	X	1
	2	Phase Vehicle	2		Х	Χ	2
•	3	Overlap	7		Χ	Χ	3
	4	Phase Vehicle	4		X	Χ	4
	5	Phase Vehicle	5		X	Χ	5
	6	Phase Vehicle	6		Χ	Χ	6
•	7	Overlap	8		Χ		7
•	8	Phase Vehicle	3		Χ		8
	9	Overlap	1		Χ	Χ	9
	10	Overlap	2		Χ	Χ	10
	11	Overlap	3		Χ	Χ	11
	12	Overlap	4		Χ		12
	13	Phase Ped	2				13
	14	Phase Ped	4				14
	15	Phase Ped	6				15
,	16	Phase Ped	8				16
	17	Overlap	5		Χ	Χ	17
,	18	 Overlap	6		Χ		18

NOTICE FLASHING RED

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 14-0411T2

DESIGNED: Aug 2025 SEALED: 8/26/2025 REVISED: N/A

Electrical Detail - Sheet 2 of 3

Temporary Design 2 - TMP Ph1, S2, Part 1 ELECTRICAL AND PROGRAMMING NC 107 (E Main Street)

REVISIONS

SR 116 (Webster Road) Alexander Street

Jackson County Division 14 PLAN DATE: August 2025 REVIEWED BY: ZM Esposito PREPARED BY: DS Griffith REVIEWED BY: BN Groome

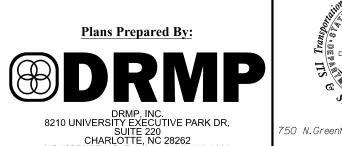
INIT. DATE

Brittany Groome

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DRMP, INC. 8210 UNIVERSITY EXECUTIVE PARK DR. SUITE 220 CHARLOTTE, NC 28262 NC LICENSE NO. F-1524 (704) 549-4260



#### R-5600 Sig-32.3

#### MAXTIME ALTERNATE PHASING ACTIVATION DETAIL

To run alternate phasing, select a Pattern that is programmed to run Overlap Plan 2 and Detector Plan 2. A Pattern can be selected through the scheduler or manually by changing the Operational Mode.

PHASING	OVERLAP PLAN	VEH DET PLAN
ACTIVE PLAN REQUIRED TO RUN DEFAULT PHASING	1	1
ACTIVE PLAN REQUIRED TO RUN ALTERNATE PHASING	2	2

#### ALTERNATE PHASING CHANGE SUMMARY

THE FOLLOWING IS A SUMMARY OF WHAT TAKES PLACE WHEN OVERLAP PLAN 2 AND VEHICLE DETECTOR PLAN 2 ACTIVATE TO CALL THE "ALTERNATE PHASING":

OVERLAP PLAN 2: Modifies overlap included phases

for heads 11 and 51 to run protected turns only.

VEH DET PLAN 2: Disables phase 6 call on loop 1A

and reduces delay time for phase 1 call on loop 1A to 0 seconds.

Disables phase 2 call on loop 5A and reduces delay time for phase

5 call on loop 5A to 0 seconds.

#### MAXTIME OVERLAP PROGRAMMING DETAIL FOR ALTERNATE PHASING

Front Panel

Main Menu >Controller >Overlap >Overlap Parameters/Overlap Timings

Web Interface

Home >Controller >Overlap Configuration >Overlaps

In the table view of the web interface, right click on "Overlap" in the top left corner of the table. Copy the entire contents of Overlap Plan 1. Paste Overlap Plan 1 into Overlap Plan 2. Modify Overlap Plan 2 as shown below and save changes.

#### Overlap Plan 2

Overlap	1	2	3	4	7	8
Type	FYA 4 - Section	Normal	Normal			
Included Phases	-	6	-	4	4	5
Modifier Phases	1	4	5	5	-	-
Modifier Overlaps	-	-	-	-	-	-
Trail Green	0	0	0	0	0	0
Trail Yellow	0.0	0.0	0.0	0.0	0.0	0.0
Trail Red	0.0	0.0	0.0	0.0	0.0	0.0
FYA PED Delay	0.0	0.0	0.0	7.0	0.0	0.0

NOTICE INCLUDED PHASE

# MAXTIME DETECTOR PROGRAMMING DETAIL FOR ALTERNATE PHASING LOOPS 1A & 5A

Front Panel

Main Menu >Controller >Detector >Veh Det Plans

Web Interface

Home >Controller >Detector Configuration >Vehicle Detectors

In the table view of web interface right click on "Detector" in the top left corner of the table. Copy the entire contents of Detector Plan 1. Paste Detector Plan 1 into Detector Plan 2. Modify Detector Plan 2 as shown below and save changes.

0.0

#### Plan 2

1A

Detector	Call Phase	Delay
1	1	0.0
29	0	-

Call Phase Delay 31

#### MAXTIME ALTERNATE PHASING PATTERN PROGRAMMING DETAIL

Front Panel

Main Menu >Controller >Coordination >Patterns

Web Interface

Home >Controller >Coordination >Patterns

Pattern Parameters

allenn ara	11161613	
Pattern	Veh Det Plan	Overlap Plan
*	2	2

\*The Pattern number(s) are to be determined by the Division and/or City Traffic Engineer.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 14-0411T2

DESIGNED: Aug 2025 SEALED: 8/26/2025 REVISED: N/A

Electrical Detail - Sheet 3 of 3

Temporary Design 2 - TMP Ph1, S2, Part 1

NC 107 (E Main Street) SR 116 (Webster Road)

Alexander Street Jackson County Division 14

Sylva PLAN DATE: August 2025 REVIEWED BY: ZM Esposito PREPARED BY: DS Griffith REVIEWED BY: BN Groome REVISIONS

Brittany Groome 8/26/2025

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SIGNATURES COMPLETED



DEFAULT PHASING DIAGRAM

PHASING DIAGRAM DETECTION LEGEND

UNSIGNALIZED MOVEMENT

PEDESTRIAN MOVEMENT

UNDETECTED MOVEMENT (OVERLAP)

SIGNAL FACE I.D.

All Heads L.E.D.

21,22 32,33 43

61,62

DETECTED MOVEMENT

ALTERNATE PHASING DIAGRAM

**EXISTING** 

**-**

N/A

 $\longrightarrow$ 

(<del>\*</del>)

N/A

----- PUE -----

#### PHASE MAXTIME DETECTOR INSTALLATION CHART SIGNAL **DETECTOR** PROGRAMMING FACE DISTANCE CALL DELAY EXTEND ON TIME TIME TIME STATE OF THE STATE OF FROM L00P 21, 22 1 |15.0\*\*| - |X|-|X|-32,33 - | X | - | X | -RRGRR 3 5.0 - | X | - | X | -4 3.0 4A - | X | - | X | -42 4 | - | - | X | - | X | -43 RRRG 5 |15.0\*\* - | X | - | X | - $\rightarrow$ R R $\rightleftharpoons$ F 2# | - | - | X | - | X | -\* 0 \* - 5 15.0 - | X | - | X 61,62

- \* Multi-Zone Microwave Detection Zone
- \*\* Disable delay during Alternate Phase Operation.
- # Disable Phase call for loop during Alternate Phasing Operation

#### 6 Phase Fully Actuated w/ Alternate Phasing Operation (Time Based Coordination) 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 1 and/or phase 5 may be lagged.
- 4. The order of phase 3 and phase 4 may be reversed.
- 5. Bag and disconnect pedestrian head and pushbutton for P41.
- 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. To provide a leading pedestrian interval on phase 4, program FYA head numbered 44 to delay for 7 seconds after the start of phase 4 walk
- 9. The Division Traffic Engineer will determine the hours of use for each phasing plan
- 10. This intersection uses multi-zone microwave detection. Install detectors according to the manufacturer's instructions to achieve the desired

LEGEND

Traffic Signal Head

Modified Signal Head

Sign Pedestrian Signal Head

With Push Button & Sign

Signal Pole with Guy Signal Pole with Sidewalk Guy

Inductive Loop Detector

Controller & Cabinet

Junction Box

Oversized Junction Box 2-in Underground Conduit

Right of Way

Directional Arrow

Type II Signal Pedestal

Temporary Pedestrian Post with Ped Push Button & Sign

Non-Intrusive Detection Zone

Construction Zone

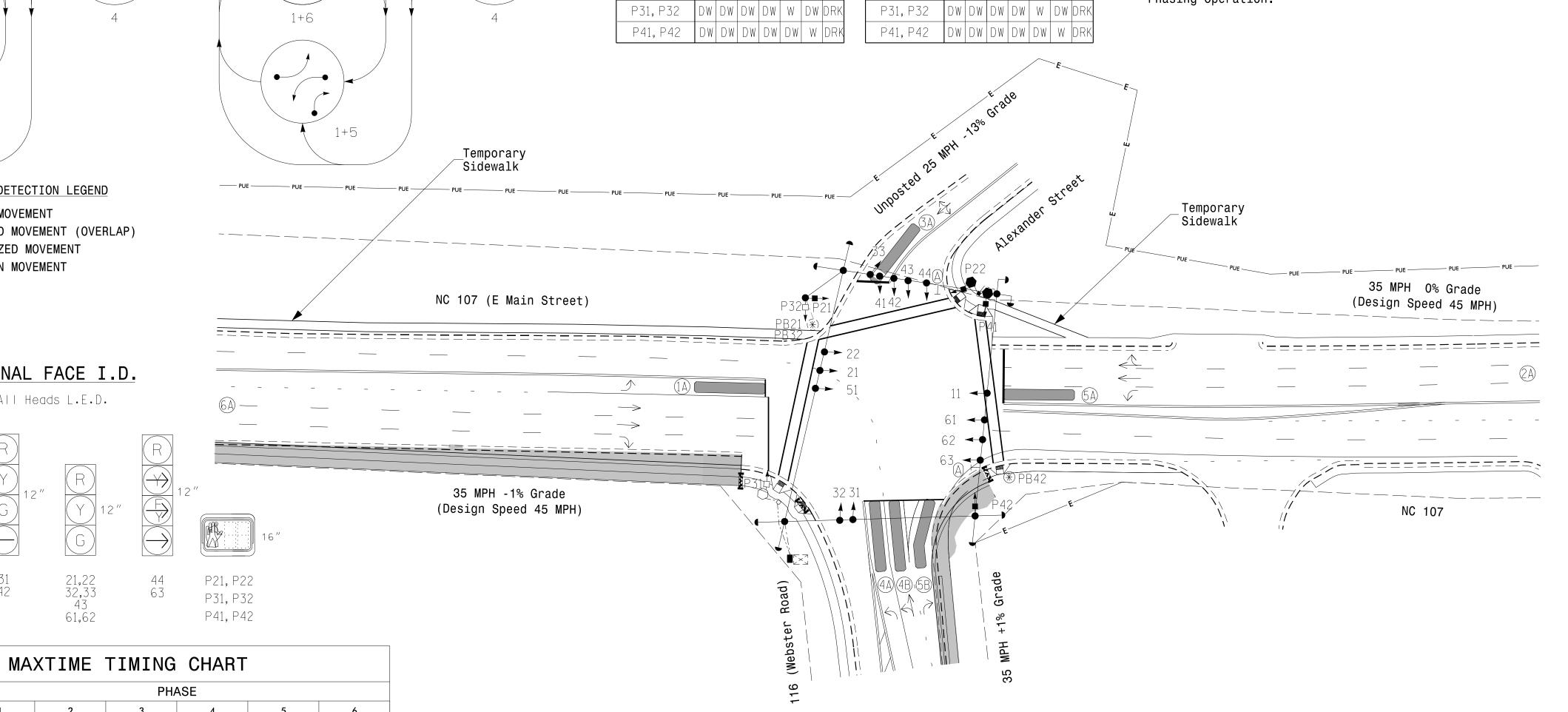
Temporary Construction Easement

Permanant Utility Easement

Barricade

"RIGHT TURN SIGNAL" Sign (R10-10R)

11. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.



63

P21, P22

ALTERNATE PHASING

TABLE OF OPERATION

| DW|DW| W | W | DW|DW|DR

		PH	ASE		
1	2	3	4	5	6
_	14	14	14	_	_
_	20	20	21	_	_
7	12	7	7	7	12
2.0	2.0	2.0	2.0	2.0	2.0
45	90	30	40	45	90
3.0	4.6	4.2	3.8	3.0	4.6
2.8	2.5	2.8	2.4	3.1	2.5
_	_	_	_	_	_
_	_	_	_	_	_
_	_	_	_	_	-
_	_	_	_	_	_
_	_	_	_	_	_
_	7	7	**	_	_
Х	_	Х	Х	Х	_
_	MIN RECALL	_	_	_	MIN RECALL
_	_	_	_	_	_
	- 7 2.0 45 3.0 2.8 X - X	- 14 - 20 7 12 2.0 2.0 45 90 3.0 4.6 2.8 2.5 7 X - MIN RECALL	1       2       3         -       14       14         -       20       20         7       12       7         2.0       2.0       2.0         45       90       30         3.0       4.6       4.2         2.8       2.5       2.8         -       -       -         -       -       -         -       -       -         -       -       -         -       -       -         -       -       -         -       -       -         -       -       -         -       -       -         -       7       7         X       -       X         -       MIN RECALL       -	-       14       14       14         -       20       20       21         7       12       7       7         2.0       2.0       2.0       2.0         45       90       30       40         3.0       4.6       4.2       3.8         2.8       2.5       2.8       2.4         -       -       -       -         -       -       -       -         -       -       -       -         -       -       -       -         -       -       -       -         -       -       -       -         -       -       -       -         -       -       -       -         -       -       -       -         -       -       -       -         -       -       -       -         -       -       -       -         -       -       -       -         -       -       -       -         -       -       -       -         -       -       -       - <td>1       2       3       4       5         -       14       14       14       -         -       20       20       21       -         7       12       7       7       7         2.0       2.0       2.0       2.0         45       90       30       40       45         3.0       4.6       4.2       3.8       3.0         2.8       2.5       2.8       2.4       3.1         -       -       -       -       -         -       -       -       -       -         -       -       -       -       -         -       -       -       -       -         -       -       -       -       -         -       -       -       -       -         -       -       -       -       -         -       -       -       -       -         -       -       -       -       -         -       -       -       -       -         -       -       -       -       -         -       <td< td=""></td<></td>	1       2       3       4       5         -       14       14       14       -         -       20       20       21       -         7       12       7       7       7         2.0       2.0       2.0       2.0         45       90       30       40       45         3.0       4.6       4.2       3.8       3.0         2.8       2.5       2.8       2.4       3.1         -       -       -       -       -         -       -       -       -       -         -       -       -       -       -         -       -       -       -       -         -       -       -       -       -         -       -       -       -       -         -       -       -       -       -         -       -       -       -       -         -       -       -       -       -         -       -       -       -       -         -       -       -       -       -         - <td< td=""></td<>

\* 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. \*\* See note 8

Microwa	ve De	tecti	.on		
	(2	A	(6A)		
FUNCTION	Sen	sor 1	Sens	sor 2	
Channel		1	1		
Phase	:	2		6	
Direction of Travel	N	IB	SB		
Туре	Pric	ority	Priority		
Level	2	QUEUE	2	QUEUE	
Detection Zone (ft)	< 750	_	< 750	_	
Range (ft)	600–100	150–100	600–100	150–100	
Enable Speed	Y	Υ	Y	Y	
Speed Range (mph)	35–100	1–35	35–100	1–35	
Enable Estimated Time of Arrival	Y	Ν	Y	N	
Estimated Time of Arrival (sec)	2.5-6.5	_	2.5–6.5	_	

DEFAULT PHASING

TABLE OF OPERATION

SIGNAL

FACE

21,22

31

32,33

42

43

44

61,62

63

P21, P22

PHASE

RRRRGR

|R|R|R|R|G

RRRRGI

┈<del>╎</del>╸┈┈┈

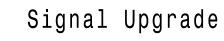
 $\left| \frac{F}{Y} \right| R \left| \frac{F}{Y} \right| R \left| \longrightarrow \right| F$ 

DW|DW| W | W |DW|DW|DF

DWIDWIDWIDWI W IDWIDR

 $\rightarrow$  R  $\rightarrow$  R R  $\left| \frac{F}{Y} \right|$ 

RRRGRR



Temporary Design 3 - TMP Ph1, S2, Part 2

**PROPOSED** 

 $\bigcirc$ 

N/A

 $\longrightarrow$ 

N/A

N/A

N/A

 $\langle \Delta \rangle$ 



1"=40'

NC 107 (E Main Street) NC 116 (Webster Road) Alexander Street

Division 14 Jackson County

Sylva PLAN DATE: August 2025 REVIEWED BY: ZM Esposito PREPARED BY: DS Griffith REVIEWED BY: BN Groome REVISIONS INIT. DATE

052936 Brittany Groome

SIG. INVENTORY NO. |4-04||T3

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL

**Plans Prepared By:** DRMP, INC. 8210 UNIVERSITY EXECUTIVE PARK DR. SUITE 220 CHARLOTTE, NC 28262 NC LICENSE NO. F-1524 (704) 549-4260

- 1. Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
- 2. Ensure jumpers SEL2-SEL5 and SEL9 are present on the monitor board.
- 3. Ensure that the Red Enable is active at all times during normal operation.
- 4. Integrate monitor with Ethernet network in cabinet.

#### INPUT FILE POSITION LAYOUT

(front view)

= DENOTES POSITION OF SWITCH

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
11	Ø 1	S	S L	S L	S	SL	S	SL	S	SL	S L	Ø 2 PED	NOI	FS
FILE	1A	O T	O T	O T	O T	O T	O T	O T	Q T	O T	Q T	DC ISOLATOR	USED	DC ISOLATOR
"]"	NOT	E M P	E M	E M P	Ø4 PED	Ø3 PED	ST							
L	USED	T Y	Ť	DC ISOLATOR	DC ISOLATOR	DC ISOLATOR								
	Ø 5	S L	S L O	S L	S L	S L	S L	S L						
FILE	5A	S L O T	O T	O T	o T	O T	O T	Ö T	O T	O T	O T	O T	O T	O T
"J" <sub>L</sub>	NOT USED	E M P T												
	EX.: 1A	. 2A. ET	C. = LOC	P NO.'S	Y	Y	Y	Y	Y	Y	FS =	FLASH S	FNSF	Y

Note: For Detection Zones 1A and 5A the equipment and slots reserved are typical for a NCDOT installation.

#### LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown)

Phase 1 Yellow Field

	Terminal (126)
	Phase 5 Yellow Field Terminal (132)
AC-	Overlap 7 Yellow Field Terminal (117)
	AC- Overlap 8 Yellow Field Terminal (123)
	AC-
	AC-

#### **NOTES**

- 1. To prevent "flash-conflict" problems, insert red flash program blocks for all vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the signal plan.
- 2. Program controller to start up in phase 2 Green No Walk and 6 Green No Walk.
- 3. If this signal will be managed by an ATMS software, enable controller and detector logging for all detectors used at this location.
- 4. The cabinet and controller are part of NC 107 Time Based System.

#### **EQUIPMENT INFORMATION**

\*See overlap programming detail on sheet 2.

Controller	2070LX
Cabinet	332 w/ Aux
Software	Q-Free MAXTIME
Cabinet Mount	Base
Output File Positions	18 With Aux. Output File
Load Switches Used	S1, S2, S3, S4, S5, S6, S7, S8, S10, S11, S12,
	AUX S1, AUX S2, AUX S4, AUX S5
Phases Used	1, 2, 2PED, 3, 3PED, 4, 4PED, 5, 6
Overlap "1"	*
Overlap "2"	
Overlap "3"	
Overlap "4"	
Overlap "5"	
Overlap "6"	
Overlap "7"	*
Overlap "8"	
•	

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT POINT	DETECTOR NO.	CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL	DELAY DURING GREEN				
1A	TB2-1,2	1411	56	18	1 ★	1	15.0		Х		Х					
IA	102-1,2	l1U	00	-	29 ★	6			Х		Х					
5A	TB3-1,2	J1U	1411	1411	141.1	.1111	55	17	15 ★	5	15.0		Х		Х	
ЭA			55	-	31★	2			Х		Х					
PED PUSH BUTTONS																
P21,P22	TB8-4,6	I12U	67	33	2	PED 2	NOTE:									
P31,P32	TB8-8,9	I13L	70	36	8	PED 3		DC ISOLAT								
P41,P42	TB8-5,6	I12L	69	35	4	PED 4	IN INPUT FILE SLOTS I12 AND I13.									

INPUT FILE CONNECTION & PROGRAMMING CHART

★ For the detectors to work as shown on the signal design plan, see the Vehicle Detector Setup Programming Detail for Alternate Phasing on sheet 3.

INPUT FILE POSITION LEGEND: J2L

FILE J -SLOT 2 **LOWER** 

#### SPECIAL DETECTOR NOTE

- Install a multi-zone microwave detection system for vehicle detection.
   Perform installation according to manufacturer's directions and NCDOT engineer -approved mounting locations to accomplish the detection schemes shown on the Signal Design Plans.
- 2. For detection zones 1A and 5A, equipment and slots reserved are typical for a NCDOT installation. Inputs associated with these slots are compatiable with time of day instructions located on sheet 3 of this electrical detail.

#### COUNTDOWN PEDESTRIAN SIGNAL OPERATION

Countdown Ped Signals are required to display timing only during Ped Clearance Interval. Consult Ped Signal Module user's manual for instructions on selecting this feature.

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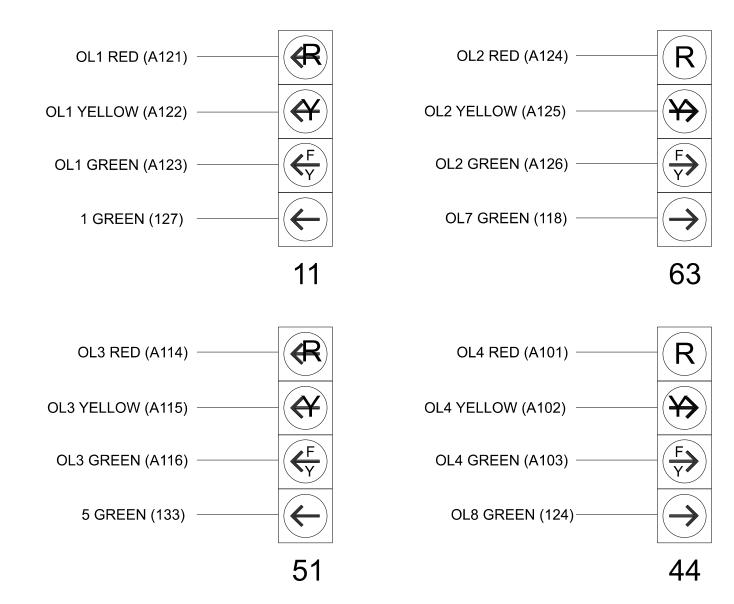
R-5600 Sig-33.1

						S	SIGI	NAL	HE	AD	НО	OK-	-UP	СН	AR <sup>-</sup>	Τ					
LOAD SWITCH NO.	S1	S2	S3	S4		S5		S6	S7	S8	S9	S10	S	11	S12	AUX S1	AUX S2	AUX S3	AUX S4	AUX S5	AUX S6
CMU CHANNEL NO.	1	2	13	3		4		14	5	6	15	7		8	16	9	10	17	11	12	18
PHASE	1	2	2 PED	OL7		4		4 PED	5	6	6 PED	OL8		3	3 PED	OL1		SPARE	OL3	OL4	SPAF
SIGNAL HEAD NO.	<b>★</b> 11	21,22	P21, P22	63 <sup>*</sup>	41	42	43	P41, P42	<b>★</b> 51	61,62	NU	<b>44</b> ★	31	32,33	P31, P32	11	63 <sup>*</sup>	NU	<b>★</b> 51	<b>44</b> ★	NL
RED		128				101	101			134			107	107			A124			A101	
YELLOW	*	129		*		102	102		*	135		*	108	108							
GREEN		130				103	103			136			109	109							
RED ARROW					101											A121			A114		
YELLOW ARROW					102											A122	A125		A115	A102	
FLASHING YELLOW ARROW																A123	A126		A116	A103	
GREEN ARROW	127			118	103	103			133			124	109								
₩			113					104							110						
Ķ			115					106							112						

- \* Denotes install load resistor. See load resistor installation detail this sheet.
- ★ See pictorial of head wiring in detail this sheet.

#### FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 14-0411T3 DESIGNED: Aug 2025 SEALED: 8/26/2025 REVISED: N/A

Electrical Detail - Sheet 1 of 3

ELECTRICAL AND PROGRAMMING

Temporary Design 3 - TMP Ph1, S2, Part 2 NC 107 (E Main Street)

> NC 116 (Webster Road) Alexander Street

Division 14 Jackson County PLAN DATE: August 2025 REVIEWED BY: ZM Esposito PREPARED BY: DS Griffith BN Groome REVIEWED BY: REVISIONS

SEAL CARA 052936

Brittary Groome SIG. INVENTORY NO. |4 - 0.4||T

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL

SIGNATURES COMPLETED

Sylva INIT. DATE

AC-

ST = STOP TIME

R-5600 Sig-33 2

#### MAXTIME STARTUP AND SOFTWARE FLASH PROGRAMMING DETAIL

Front Panel Main Menu >Controller >Unit

Web Interface Home >Controller >Unit

Modify parameters as shown below and save changes.

Start Up Parameters

StartUp Clearance Hold

**Unit Flash Parameters** All Red Flash Exit Time

#### FLASHER CIRCUIT MODIFICATION DETAIL

IN ORDER TO INSURE THAT SIGNALS FLASH CONCURRENTLY ON THE SAME APPROACH, MAKE THE FOLLOWING FLASHER CIRCUIT CHANGES:

- 1. ON REAR OF PDA REMOVE WIRE FROM TERM. T2-4 AND TERMINATE ON T2-2.
- 2. ON REAR OF PDA REMOVE WIRE FROM TERM. T2-5 AND TERMINATE ON T2-3.
- 3. REMOVE FLASHER UNIT 2.

THE CHANGES LISTED ABOVE TIES ALL PHASES AND OVERLAPS TO FLASHER UNIT 1.

#### MAXTIME OVERLAP PROGRAMMING DETAIL FOR DEFAULT PHASING

Front Panel Main Menu >Controller >Overlap >Overlap Parameters/Overlap Timings

Web Interface Home >Controller >Overlap Configuration >Overlaps

#### Overlap Plan 1

Overlap	1	2	3	4	7	8
Type	FYA 4 - Section	Normal	Normal			
Included Phases	2	6	6	-	4	4,5
Modifier Phases	1	4	5	4,5	-	-
Modifier Overlap	-	-	-	-	-	-
Trail Green	0	0	0	0	0	0
Trail Yellow	0.0	0.0	0.0	0.0	0.0	0.0
Trail Red	0.0	0.0	0.0	0.0	0.0	0.0
FYA PED Delay	0.0	0.0	0.0	7.0	0.0	0.0

#### PED 3 PROGRAMMING AND OUTPUT CHANNEL CONFIGURATION

Front Panel

Main Menu >Controller >Detector >Ped Det Plans

Web Interface

Home >Controller >Detector Configuration >Pedestrian Detector

#### Plan 1

	Detector	Descripton	Call Phase	Call Overlap
	2		2	0
NOTICE PHASE 3 PED	4		4	0
ASSIGNED TO	6		6	0
DETECTOR 8 PED	8		3	0

Front Panel

Main Menu >Controller >More>Channels>Channels Config

Web Interface

Home >Controller >Advanced IO>Channels>Channels Configuration

#### **Channel Configuration**

	Channel	Control Type	Control Source	Flash Yellow	Flash Red	Flash Alt	MMU Channel
	1	Phase Vehicle	1		X	X	1
NOTICE OVERLAP 7	2	Phase Vehicle	2		Χ	Х	2
ASSIGNED TO CHANNEL 3	3	Overlap	7		Х	X	3
·	4	Phase Vehicle	4		Х	X	4
	5	Phase Vehicle	5		Х	X	5
NOTICE OVERLAP 8	6	Phase Vehicle	6		Х	X	6
ASSIGNED TO CHANNEL 7	7	Overlap	8		Χ		7
NOTICE PHASE VEHICLE 3	8	Phase Vehicle	3		Х		8
ASSIGNED TO CHANNEL 8	9	Overlap	1		Χ	Χ	9
	10	Overlap	2		Χ	Χ	10
	11	Overlap	3		Х	Χ	11
	12	Overlap	4		Х		12
	13	Phase Ped	2				13
	14	Phase Ped	4				14
NOTICE PHASE 3 PED	15	Phase Ped	6				15
ASSIGNED TO CHANNEL 16	16	Phase Ped	3				16
•	17	Overlap	5		Χ	Χ	17
	18	Overlap	6		Х		18

NOTICE RED FLASH

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 14-0411T3 DESIGNED: Aug 2025 SEALED: 8/26/2025 REVISED: N/A

Electrical Detail - Sheet 2 of 3 Temporary Design 3 - TMP Ph1, S2, Part 2

ELECTRICAL AND PROGRAMMING NC 107 (E Main Street) NC 116 (Webster Road)

Alexander Street Division 14 Jackson County

PLAN DATE: August 2025 REVIEWED BY: ZM Esposito PREPARED BY: DS Griffith REVIEWED BY: BN Groome REVISIONS INIT. DATE

Brittany Groome

DOCUMENT NOT CONSIDERED

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DRMP, INC. 8210 UNIVERSITY EXECUTIVE PARK DR. SUITE 220 CHARLOTTE, NC 28262 NC LICENSE NO. F-1524 (704) 549-4260

#### R-5600 Sig-33.3

#### MAXTIME ALTERNATE PHASING ACTIVATION DETAIL

To run alternate phasing, select a Pattern that is programmed to run Overlap Plan 2 and Detector Plan 2. A Pattern can be selected through the scheduler or manually by changing the Operational Mode.

PHASING	OVERLAP PLAN	VEH DET PLAN
ACTIVE PLAN REQUIRED TO RUN DEFAULT PHASING	1	1
ACTIVE PLAN REQUIRED TO RUN ALTERNATE PHASING	2	2

#### ALTERNATE PHASING CHANGE SUMMARY

THE FOLLOWING IS A SUMMARY OF WHAT TAKES PLACE WHEN OVERLAP PLAN 2 AND VEHICLE DETECTOR PLAN 2 ACTIVATE TO CALL THE "ALTERNATE PHASING":

OVERLAP PLAN 2: Modifies overlap included phases

for heads 11 and 51 to run protected turns only.

VEH DET PLAN 2: Disables phase 6 call on loop 1A

and reduces delay time for phase 1 call on loop 1A to 0 seconds.

Disables phase 2 call on loop 5A and reduces delay time for phase 5 call on loop 5A to 0 seconds.

# MAXTIME OVERLAP PROGRAMMING DETAIL FOR ALTERNATE PHASING

Front Panel

Main Menu >Controller >Overlap >Overlap Parameters/Overlap Timings

Web Interface

Home >Controller >Overlap Configuration >Overlaps

In the table view of the web interface, right click on "Overlap" in the top left corner of the table. Copy the entire contents of Overlap Plan 1. Paste Overlap Plan 1 into Overlap Plan 2. Modify Overlap Plan 2 as shown below and save changes.

#### Overlap Plan 2

Overlap	1	2	3	4	7	8
Туре	FYA 4 - Section	Normal	Normal			
Included Phases	-	6	-	-	4	4,5
Modifier Phases	1	4	5	4,5	-	-
Modifier Overlaps	-	-	-	-	-	-
Trail Green	0	0	0	0	0	0
Trail Yellow	0.0	0.0	0.0	0.0	0.0	0.0
Trail Red	0.0	0.0	0.0	0.0	0.0	0.0
FYA PED Delay	0.0	0.0	0.0	7.0	0.0	0.0

NOTICE INCLUDED PHASE

# MAXTIME DETECTOR PROGRAMMING DETAIL FOR ALTERNATE PHASING LOOPS 1A & 5A

Front Panel

Main Menu >Controller >Detector >Veh Det Plans

Web Interface

Home >Controller >Detector Configuration >Vehicle Detectors

In the table view of web interface right click on "Detector" in the top left corner of the table. Copy the entire contents of Detector Plan 1. Paste Detector Plan 1 into Detector Plan 2. Modify Detector Plan 2 as shown below and save changes.

0.0

#### Plan 2

1A

Detector	Call Phase	Delay
1	1	0.0
29	0	-

Call Phase Delay 31

#### MAXTIME ALTERNATE PHASING PATTERN PROGRAMMING DETAIL

Front Panel

Main Menu >Controller >Coordination >Patterns

Web Interface

Home >Controller >Coordination >Patterns

Pattern Parameters

i alleili ala	11161613	
Pattern	Veh Det Plan	Overlap Plan
*	2	2

\*The Pattern number(s) are to be determined by the Division and/or City Traffic Engineer.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 14-0411T3

DESIGNED: Aug 2025 SEALED: 8/26/2025 REVISED: N/A

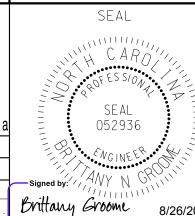
Electrical Detail - Sheet 3 of 3 Temporary Design 3 - TMP Ph1, S2, Part 2

NC 107 (E Main Street)

NC 116 (Webster Road) Alexander Street

Jackson County

Division 14 Sylva PLAN DATE: August 2025 REVIEWED BY: ZM Esposito BN Groome PREPARED BY: DS Griffith REVIEWED BY: REVISIONS INIT. DATE



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL

SIGNATURES COMPLETED

Brittany Groome 8/26/2025



DEFAULT PHASING DIAGRAM ALTERNATE PHASING DIAGRAM Sig-34.0 R-5600 DEFAULT PHASING ALTERNATE PHASING MAXTIME DETECTOR INSTALLATION CHART TABLE OF OPERATION TABLE OF OPERATION **DETECTOR** PROGRAMMING 6 Phase GALL DELAY EXTEND N. INITINI PHASE PHASE Fully Actuated DISTANCE FROM SIGNAL SIGNAL w/ Alternate Phasing Operation STOPBAR ⊧ PHASE | TIME | TIME FACE FACE (Time Based Coordination) (FT) **NOTES** ╼┈┈┈┈┈┈┈┈┈ 1A 6# - | - | X | - | X | -21, 22 21,22 1. Refer to "Roadway Standard Drawings NCDOT" dated January 2024 and \* |- | 3 | 5.0 | - | X |- | X |- | R R R <mark>G</mark> R F "Standard Specifications for Roads and Structures" dated January 2024. 31 31 \* | X | 4 | 3.0 | - | X | - | X | - | \* 2. Do not program signal for late night flashing operation unless otherwise 32,33 32,33 RRRGRR R R R R G R F \* | X | 4 | - | - | X | - | X | - | directed by the Engineer 41 41 5 | 15.0\*\* | - | X | - | X | -3. Phase 1 and/or phase 5 may be lagged. 42 42 4. The order of phase 3 and phase 4 may be reversed. RRRRRG 0 | \* | X | 5 | 15.0 | - | X | - | X | - | \* 43 43 5 Reposition sign B  $\rightarrow$  R  $\rightarrow$  R R  $\rightleftharpoons$  F 6. Bag and disconnect pedestrian heads and pushbuttons for P22 and P31. \* Multi-Zone Microwave Detection Zone 44 44 7. Unbag and re-connect pedestrian head and pushbutton for P41. \*\* Disable delay during Alternate Phase Operation. - R - R - R 51 51 # Disable Phase call for loop during Alternate 8. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls. 61,62 61,62 RGRGRRF Phasing Operation 9. Program pedestrian heads to countdown the flashing "Don't Walk" time  $R \neq R \neq R \rightarrow F$ 63 63 10. To provide a leading pedestrian interval on phase 4, program FYA head P41, P42 P41, P42 DW|DW|DW|DW| W |DR DW DW DW DW DW W DF numbered 44 to delay for 7 seconds after the start of the phase 4 walk P61, P62 P61, P62 DW | W | DW | W | DW | DW | DF DW | W | DW | W | DW | DH interval. See Electrical Details for programming. 11. To provide a leading pedestrian interval on phase 6, program FYA heads numbered 51 and 63 to delay for 7 seconds after the start of the phase 6 walk interval. See Electrical Details for programming. 12. The Division Traffic Engineer will determine the hours of use for each phasing plan 13. This intersection uses multi-zone microwave detection. Install detectors according to the manufacturer's instructions to achieve the desired 14. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values. PHASING DIAGRAM DETECTION LEGEND DETECTED MOVEMENT NC 107 (E Main Street) UNDETECTED MOVEMENT (OVERLAP) UNSIGNALIZED MOVEMENT  $<\!\!--\!\!>$  PEDESTRIAN MOVEMENT 35 MPH 0% Grade (Design Speed 45 MPH) 414243 44 LEGEND **EXISTING PROPOSED** SIGNAL FACE I.D.  $\bigcirc$ Traffic Signal Head **-**All Heads L.F.D. Modified Signal Head N/A Sign Pedestrian Signal Head \_\_\_\_\_\_. With Push Button & Sign :========: Signal Pole with Guy Signal Pole with Sidewalk Guy 35 MPH -1% Grade Inductive Loop Detector (Design Speed 45 MPH) NC 107 Controller & Cabinet Junction Box Oversized Junction Box 44 63 2-in Underground Conduit \_-----P61, P62 N/A Right of Way \_\_\_\_\_ 61,62  $\longrightarrow$  $\longrightarrow$ Directional Arrow Type II Signal Pedestal Non-Intrusive Detection Zone MAXTIME TIMING CHART Construction Zone N/A N/A Barricade FEATURE 2 3 6 N/A Portable Concrete Barrier 14 N/A Temporary Construction Easement Ped Clear \* 26 20 N/A Permenant Utility Easement ----- PUE ----- $\langle \triangle \rangle$ "RIGHT TURN SIGNAL" Sign (R10-10R) Min Green 7 12 Microwave Detection 2.0 2.0 2.0 2.0 2.0 2.0 Passage \* Max 1 \* 45 40 45 90 **FUNCTION** Sensor 1 Sensor 2 3.0 4.2 3.8 3.0 Yellow Change 4.6 4.6 Channel 2.5 Red Clear 2.8 2.5 3.3 2.5 3.3 Signal Upgrade DOCUMENT NOT CONSIDERED Added Initial \* **Direction of Travel** FINAL UNLESS ALL SB Temporary Design 4 - TMP Ph2, S1, Part 1 SIGNATURES COMPLETED Maximum Initial \* Priority Priority NC 107 (E Main Street) Time Before Reduction SEAL QUEUE QUEUE 2 Time To Reduce \* < 750 Detection Zone (ft) < 750 NC 116 (Webster Road) Minimum Gap \_ Range (ft) 600–100 150–100 600–100 150–100 \*\* \*\*\* Advance Walk Alexander Street **Enable Speed** Non Lock Detector Χ Χ Χ Jackson County **Plans Prepared By:** Division 14 Sylva 052936 Speed Range (mph) 35-100 1–35 35-100 1–35 PLAN DATE: August 2025 REVIEWED BY: ZM Esposito Vehicle Recall MIN RECALL MIN RECALL **Enable Estimated Time of Arrival** Υ PREPARED BY: DS Griffith | REVIEWED BY: BN Groome Dual Entry Estimated Time of Arrival (sec) 2.5-6.5 2.5-6.5 INIT. DATE \* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what Brittany Groome DRMP, INC. 8210 UNIVERSITY EXECUTIVE PARK DR. SUITE 220 CHARLOTTE, NC 28262 NC LICENSE NO. F-1524 (704) 549-4260

1"=40'

14-041174

SIG. INVENTORY NO.

\*\* See note 10.

\*\*\* See note 11.

ON OFF

REMOVE DIODE JUMPERS: 1-5, 1-6, 1-7, 1-9, 1-10, 1-11, 1-12, 1-15, 2-5, 2-6, 2-7, 2-9, 2-10, 2-11, 2-12, 2-15, 3-4, 3-10, 3-12, 3-14, 4-10, 4-12, 4-14, 5-7, 5-9, 5-11, 5-12, 6-9, 6-10, 6-11, 6-15, 7-9, 7-11, 7-12, 9-10, 9-11, 9-12, 9-15, 10-11, 10-12, 10-14, 10-15, 11-12, 11-15 AND 12-14. RP DISABLE WD 1.0 SEC - GY ENABLE - SF#1 POLARITY LEDguard RF SSM - FYA COMPACT-– FYA 1-9 - FYA 3-10 FYA 5-11 – FYA 7-12

REMOVE JUMPERS AS SHOWN

- 1. Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
- 2. Ensure jumpers SEL2-SEL5 and SEL9 are present on the monitor board.
- 3. Ensure that the Red Enable is active at all times during normal operation.
- 4. Integrate monitor with Ethernet network in cabinet.

#### INPUT FILE POSITION LAYOUT

(front view)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
<sub>FILE</sub> U	Ø 1 1A	S L O T	NOT USED	Ø 6 PED  DC ISOLATOR	FS DC ISOLATOR									
" <b> "</b> L	NOT USED	E M P T Y	Ø 4 PED  DC ISOLATOR		ST DC ISOLATOR									
FILE U	Ø 5 <b>5A</b>	S L O T												
"J" L	NOT USED	E M P T Y												
	EX.: 1A, 2A, ETC. = LOOP NO.'S FS = FLASH													

Note: For Detection Zones 1A and 5A the equipment and slots reserved are typical for a NCDOT installation.

#### LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown)

ACCEPTABLE VALUES Value (ohms) | Wattage 1.5K - 1.9K | 25W (min) 2.0K - 3.0K | 10W (min)

Phase 1 Yellow Field Terminal (126) Phase 5 Yellow Field Terminal (132) Overlap 7 Yellow Field Terminal (117)

Overlap 8 Yellow Field Terminal (123)

ST = STOP TIME

15

16

= DENOTES POSITION OF SWITCH

\_\_\_\_ 17

#### NOTES

- 1. To prevent "flash-conflict" problems, insert red flash program blocks for all vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the signal plan.
- 2. Program controller to start up in phase 2 Green No Walk and 6 Green No Walk.
- 3. If this signal will be managed by an ATMS software, enable controller and detector logging for all detectors used at this location.
- 4. The cabinet and controller are part of NC 107 Time Based System.

#### **EQUIPMENT INFORMATION**

Controller	2070LX
Cabinet	.332 w/ Aux
Software	.Q-Free MAXTIME
Cabinet Mount	.Base
Output File Positions	.18 With Aux. Output File
Load Switches Used	S1, S2, S4, S5, S6, S7, S8, S9, S10, S11
	AUX S1, AUX S2, AUX S4, AUX S5
Phases Used	1, 2, 3, 4, 4PED, 5, 6, 6PED
Overlap "1"	*
Overlap "2"	*
Overlap "3"	
Overlap "4"	
Overlap "5"	
Overlap "6"	NOT USED
Overlap "7"	
Overlap "8"	*

\*See overlap programming detail on sheet 2.

#### INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT POINT	DETECTOR NO.	CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL	DELAY DURING GREEN
1.0	TD2 1 2	141.1	56	18	1 ★	1	15.0		Х		Х	
1A	TB2-1,2	I1U	50	-	29 ★	6			Х		Х	
5A	TD2 1 2	J1U	55	17	15 ★	5	15.0		Х		Х	X
3A	TB3-1,2	310	55	-	31★	2			Х		Χ	
PED PUSH BUTTONS							NOTE:					
P41,P42	TB8-5,6	I12L	69	35	4	PED 4	INSTALL DC ISOLATORS					
P61,P62	TB8-7,9	I13U	68	34	6	PED 6	IN INPUT FILE SLOTS I12 AND I13.					

★ For the detectors to work as shown on the signal design plan, see the Vehicle Detector Setup Programming Detail for Alternate Phasing on sheet 3.

> INPUT FILE POSITION LEGEND: J2L FILE J SLOT 2 **LOWER**

#### SPECIAL DETECTOR NOTE

- Install a multi-zone microwave detection system for vehicle detection.
   Perform installation according to manufacturer's directions and NCDOT engineer -approved mounting locations to accomplish the detection schemes shown on the Signal Design Plans.
- 2. For detection zones 1A and 5A, equipment and slots reserved are typical for a NCDOT installation. Inputs associated with these slots are compatiable with time of day instructions located on sheet 3 of this electrical detail.

#### COUNTDOWN PEDESTRIAN SIGNAL OPERATION

Countdown Ped Signals are required to display timing only during Ped Clearance Interval. Consult Ped Signal Module user's manual for instructions on selecting this feature.

SUITE 220 CHARLOTTE, NC 28262 NC LICENSE NO. F-1524 (704) 549-4260

Sig-34 R-5600

#### SIGNAL HEAD HOOK-UP CHART S12 | AUX | AUX | AUX | AUX | AUX | AUX | S5 | S6 | S1 | S2 | S3 | S4 S6 | S7 | S8 | S9 | S10 | CHANNEL NO. 1 2 13 3 16 9 10 17 11 12 18 14 5 6 15 7 1 2 2 PED OL7 PED OL1 OL2 SPARE OL3 OL4 SPARE SIGNAL HEAD NO. 101 | 101 RED **\*** 108 108 129 102 | 102 **\*** 135 YELLOW 103 | 103 136 GREEN 130 109 | 109 | A121 A114 ARROW YELLOW 102 A122 A125 A115 A102 ARROW FLASHING YELLOW A123 A126 A116 A103 ARROW 118 | 103 | 103 133 127 124 | 109 | ARROW 121

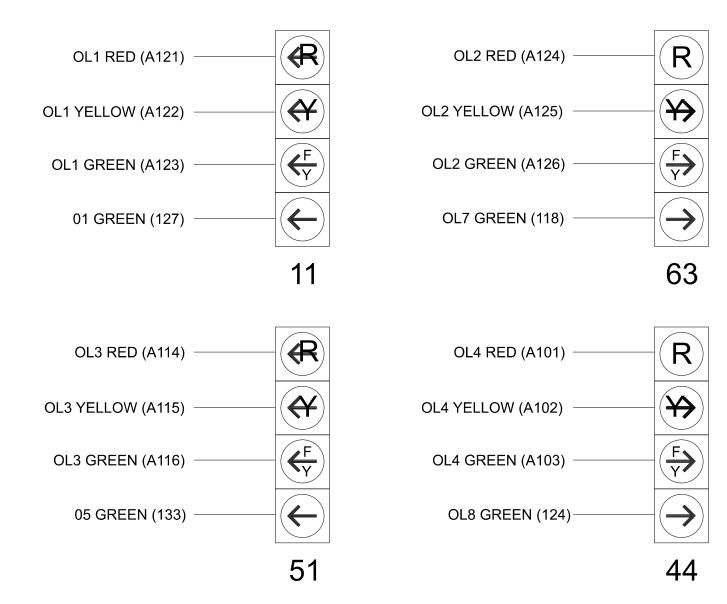
NU = Not Used NC = Not Used

★ Denotes install load resistor. See load resistor installation detail this sheet.

★ See pictorial of head wiring in detail this sheet.

#### FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 14-0411T4 DESIGNED: Aug 2025 SEALED: 8/26/2025

REVISED: N/A

REVISIONS

Electrical Detail - Sheet 1 of 3 Temporary Design 4 - TMP Ph2, S1, Part 1 ELECTRICAL AND PROGRAMMING

NC 107 (E Main Street) NC 116 (Webster Road)

Alexander Street Division 14 Jackson County PLAN DATE: August 2025 REVIEWED BY: ZM Esposito PREPARED BY: DS Griffith REVIEWED BY: BN Groome

CARA Sylva 052936 INIT. DATE Brittany Groome

8/26/2025 SIG. INVENTORY NO. |4-04||T

DOCUMENT NOT CONSIDERED

SIGNATURES COMPLETED

FINAL UNLESS ALL

SEAL

#### MAXTIME STARTUP AND SOFTWARE FLASH PROGRAMMING DETAIL

Front Panel Main Menu >Controller >Unit

Web Interface Home >Controller >Unit

Modify parameters as shown below and save changes.

Start Up Parameters

StartUp Clearance Hold

**Unit Flash Parameters** All Red Flash Exit Time

#### FLASHER CIRCUIT MODIFICATION DETAIL

IN ORDER TO INSURE THAT SIGNALS FLASH CONCURRENTLY ON THE SAME APPROACH, MAKE THE FOLLOWING FLASHER CIRCUIT CHANGES:

- 1. ON REAR OF PDA REMOVE WIRE FROM TERM. T2-4 AND TERMINATE ON T2-2.
- 2. ON REAR OF PDA REMOVE WIRE FROM TERM. T2-5 AND TERMINATE ON T2-3.
- 3. REMOVE FLASHER UNIT 2.

THE CHANGES LISTED ABOVE TIES ALL PHASES AND OVERLAPS TO FLASHER UNIT 1

# MAXTIME OVERLAP PROGRAMMING DETAIL FOR DEFAULT PHASING

Front Panel Main Menu >Controller >Overlap >Overlap Parameters/Overlap Timings

Web Interface Home >Controller >Overlap Configuration >Overlaps

#### Overlap Plan 1

Overlap	1	2	3	4	7	8
Type	FYA 4 - Section	Normal	Normal			
Included Phases	2	6	6	4	4	5
Modifier Phases	1	4	5	5	-	-
Modifier Overlap	-	-	-	-	-	-
Trail Green	0	0	0	0	0	0
Trail Yellow	0.0	0.0	0.0	0.0	0.0	0.0
Trail Red	0.0	0.0	0.0	0.0	0.0	0.0
FYA PED Delay	0.0	7.0	7.0	7.0	0.0	0.0

#### PED 3 PROGRAMMING AND OUTPUT CHANNEL CONFIGURATION

Front Panel

Main Menu >Controller >Detector >Ped Det Plans

Web Interface

Home >Controller >Detector Configuration >Pedestrian Detector

#### Plan 1

NOTICE PHASE 3 PED	
ASSIGNED TO	
DETECTOR 8 PED	

Detector	Descripton	Call Phase	Call Overlap
2		2	0
4		4	0
6		6	0
8		3	0

Front Panel

Main Menu >Controller >More>Channels>Channels Config

Web Interface

Home >Controller >Advanced IO>Channels>Channels Configuration

#### **Channel Configuration**

	Channel	Control Type	Control Source Flash Yellow	Flash Red	Flash Alt	MMU Channel
	1	Phase Vehicle	1	Χ	X	1
NOTICE OVERLAP 7	2	Phase Vehicle	2	Χ	Χ	2
ASSIGNED TO CHANNEL 3	3	Overlap	7	Χ	Χ	3
•	4	Phase Vehicle	4	Χ	Χ	4
	5	Phase Vehicle	5	Χ	Χ	5
NOTICE OVERLAP 8	6	Phase Vehicle	6	Χ	Χ	6
ASSIGNED TO CHANNEL 7	7	Overlap	8	X		7
NOTICE PHASE VEHICLE 3	8	Phase Vehicle	3	Χ		8
ASSIGNED TO CHANNEL 8	9	Overlap	1	Χ	Χ	9
	10	 Overlap	2	Χ	Χ	10
	11	 Overlap	3	Χ	Χ	11
	12	Overlap	4	Χ		12
	13	Phase Ped	2			13
	14	Phase Ped	4			14
	15	Phase Ped	6			15
NOTICE PHASE 3 PED	16	Phase Ped	8			16
ASSIGNED TO CHANNEL 16	17	Overlap	5	Χ	Χ	17
	18	Overlap	6	Χ		18

NOTICE FLASHING RED

Electrical Detail - Sheet 2 of 3 Temporary Design 4 - TMP Ph2, S1, Part 1

ELECTRICAL AND PROGRAMMING

NC 107 (E Main Street) NC 116 (Webster Road)

Alexander Street

Division 14 Jackson County PLAN DATE: August 2025 REVIEWED BY: ZM Esposito PREPARED BY: DS Griffith REVIEWED BY: BN Groome REVISIONS INIT. DATE

Brittany Groome

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL

SIGNATURES COMPLETED

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 14-0411T4 DESIGNED: Aug 2025 SEALED: 8/26/2025

REVISED: N/A

SUITE 220 CHARLOTTE, NC 28262 NC LICENSE NO. F-1524 (704) 549-4260

#### R-5600 Sig-34.3

#### MAXTIME ALTERNATE PHASING ACTIVATION DETAIL

To run alternate phasing, select a Pattern that is programmed to run Overlap Plan 2 and Detector Plan 2. A Pattern can be selected through the scheduler or manually by changing the Operational Mode.

PHASING	OVERLAP PLAN	VEH DET PLAN
ACTIVE PLAN REQUIRED TO RUN DEFAULT PHASING	1	1
ACTIVE PLAN REQUIRED TO RUN ALTERNATE PHASING	2	2

#### ALTERNATE PHASING CHANGE SUMMARY

THE FOLLOWING IS A SUMMARY OF WHAT TAKES PLACE WHEN OVERLAP PLAN 2 AND VEHICLE DETECTOR PLAN 2 ACTIVATE TO CALL THE "ALTERNATE PHASING":

OVERLAP PLAN 2: Modifies overlap included phases

for heads 11 and 51 to run protected turns only.

VEH DET PLAN 2: Disables phase 6 call on loop 1A

and reduces delay time for phase 1 call on loop 1A to 0 seconds.

Disables phase 2 call on loop 5A and reduces delay time for phase 5 call on loop 5A to 0 seconds.

# MAXTIME OVERLAP PROGRAMMING DETAIL FOR ALTERNATE PHASING

Front Panel

Main Menu >Controller >Overlap >Overlap Parameters/Overlap Timings

Web Interface

Home >Controller >Overlap Configuration >Overlaps

In the table view of the web interface, right click on "Overlap" in the top left corner of the table. Copy the entire contents of Overlap Plan 1. Paste Overlap Plan 1 into Overlap Plan 2. Modify Overlap Plan 2 as shown below and save changes.

#### Overlap Plan 2

Overlap	1	2	3	4	7	8
Type	FYA 4 - Section	Normal	Normal			
Included Phases	<u>-</u>	6	-	4	4	5
Modifier Phases	1	4	5	5	-	<del>-</del>
Modifier Overlaps	-	-	-	-	-	-
Trail Green	0	0	0	0	0	0
Trail Yellow	0.0	0.0	0.0	0.0	0.0	0.0
Trail Red	0.0	0.0	0.0	0.0	0.0	0.0
FYA PED Delay	0.0	7.0	0.0	7.0	0.0	0.0

NOTICE INCLUDED PHASE

#### MAXTIME DETECTOR PROGRAMMING DETAIL FOR ALTERNATE PHASING LOOPS 1A & 5A

Front Panel

Main Menu >Controller >Detector >Veh Det Plans

Web Interface

Home >Controller >Detector Configuration >Vehicle Detectors

In the table view of web interface right click on "Detector" in the top left corner of the table. Copy the entire contents of Detector Plan 1. Paste Detector Plan 1 into Detector Plan 2. Modify Detector Plan 2 as shown below and save changes.

#### Plan 2

1A

Detector	Call Phase	Delay
1	1	0.0
29	0	÷

5A

Detector	Call Phase	Delay
15	5	0.0
31	0	-

# MAXTIME ALTERNATE PHASING PATTERN PROGRAMMING DETAIL

Front Panel

Main Menu >Controller >Coordination >Patterns

Web Interface

Home >Controller >Coordination >Patterns

Pattern Parameters

Pattern	Veh Det Plan	Overlap Plan
*	2	2

\*The Pattern number(s) are to be determined by the Division and/or City Traffic Engineer.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 14-0411T4

DESIGNED: Aug 2025 SEALED: 8/26/2025 REVISED: N/A

Electrical Detail - Sheet 3 of 3

Temporary Design 4 - TMP Ph2, S1, Part 1 NC 107 (E Main Street)

NC 116 (Webster Road) Alexander Street

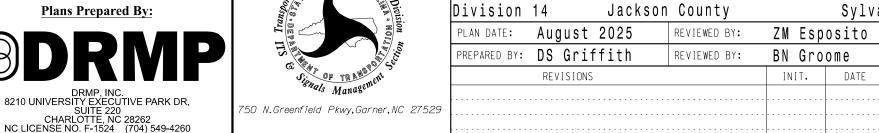
Jackson County

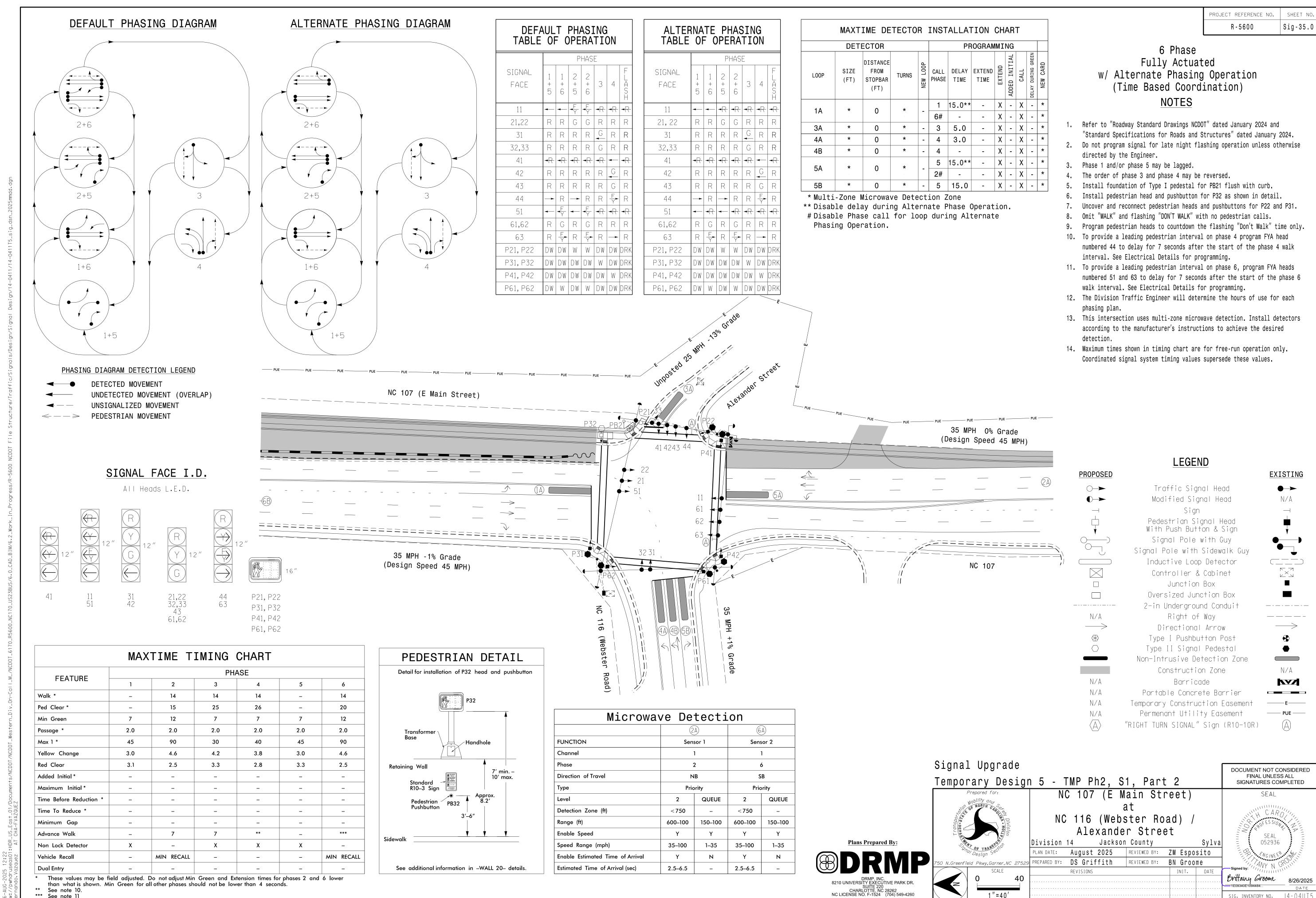
Sylva BN Groome

Brittany Groome 8/26/2025

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SIGNATURES COMPLETED





1"=40'

14-041175

SIG. INVENTORY NO.

See note 10.

15

16 17

= DENOTES POSITION OF SWITCH

(remove jumpers and set switches as shown)

REMOVE DIODE JUMPERS: 1-5, 1-6, 1-7, 1-9, 1-10, 1-11, 1-12, 1-15, 2-5, 2-6, 2-7, 2-9, 2-10, 2-11, 2-12, 2-13, 2-15, 3-4, 3-10, 3-12, 3-14, 4-10, 4-12, 4-14, 5-7, 5-9, 5-11, 5-12, 5-13, 6-9, 6-10, 6-11, 6-13, 6-15, 7-9, 7-11, 7-12, 7-13, 8-16, 9-10, 9-11, 9-12, 9-13, 9-15, 10-11, 10-12, 10-13, 10-14,10-15, 11-12, 11-13, 11-15, 12-13, 12-14 AND 13-15.

- RF 2010 RP DISABLE WD 1.0 SEC GY ENABLE SF#1 POLARITY - LEDguard RF SSM - FYA COMPACT-– FYA 1-9 - FYA 3-10 - FYA 5-11 – FYA 7-12

**COMPONENT SIDE** 

1. Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.

REMOVE JUMPERS AS SHOWN

- 2. Ensure jumpers SEL2-SEL5 and SEL9 are present on the monitor board.
- 3. Ensure that the Red Enable is active at all times during normal operation.
- 4. Integrate monitor with Ethernet network in cabinet.

#### INPUT FILE POSITION LAYOUT

(front view)

	ſ	1	2	3	4	5	6	7	8	9	10	11	12	13	14
FILE	U	Ø 1	S L O T	S L O T	S L O T	S L O T	S L O T	S L O T	S L O T	S L O T	S L O T	S L O T	Ø 2 PED  DC ISOLATOR	DC	FS DC ISOLATOR
" "	L	NOT USED	E M P T Y	Ø 4 PED  DC ISOLATOR	Ø 3 PED										
FILE	U	Ø 5 <b>5A</b>	S L O T												
"J"	L	NOT USED	EMPTY	E M P T Y	E M P T Y	ШМРНУ	E M P T Y								
	l	EX.: 1A	, 2A, ET	C. = LOC	P NO.'S		FS = FLASH SENSE								

Note: For Detection Zones 1A and 5A the equipment and slots reserved are typical for a NCDOT installation.

#### LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown)

Phase 1 Yellow Field

ACCEPTABLE VALUES Value (ohms) Wattage 1.5K - 1.9K | 25W (min) 2.0K - 3.0K 10W (min) Terminal (126) Phase 5 Yellow Field Terminal (132) Overlap 7 Yellow Field Terminal (117) Overlap 8 Yellow Field Terminal (123)

ST = STOP TIME

#### NOTES

- 1. To prevent "flash-conflict" problems, insert red flash program blocks for all vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the signal plan.
- 2. Program controller to start up in phase 2 Green No Walk and 6 Green No Walk.
- 3. If this signal will be managed by an ATMS software, enable controller and detector logging for all detectors used at this location.
- 4. The cabinet and controller are part of NC 107 Time Based System.

#### **EQUIPMENT INFORMATION**

Controller	2070LX
Cabinet	332 w/ Aux
Software	Q-Free MAXTIME
Cabinet Mount	
Output File Positions	18 With Aux. Output File
•	S1, S2, S3, S4, S5, S6, S7, S8, S9, S10, S1
	S12, AUX S1, AUX S2, AUX S4, AUX S5
Phases Used	1, 2, 2PED, 3, 3PED, 4, 4PED, 5, 6, 6PED
Overlap "1"	*
Overlap "2"	
Overlap "3"	
Overlap "4"	
Overlap "5"	
Overlap "6"	
Overlap "7"	
Overlap "8"	

\*See overlap programming detail on sheet 2.

#### INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT POINT	DETECTOR NO.	CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL	DELAY DURING GREEN		
1 /	TD2 4.2	50 18	1 ★	1	15.0		Х		Х					
1A	TB2-1,2	I1U	56	-	29 ★	6			Х		Х			
5A	TB3-1,2	J1U	1411	1411	55	17	15 ★	5	15.0		Х		Х	
JA.	100-1,2		33	•	31★	2			Х		Χ			
PED PUSH BUTTONS														
P21,P22	TB8-4,6	I12U	67	33	2	PED 2	NOTE:							
P31,P32	TB8-8,9	I13L	70	36	8	PED 3		. DC ISOLAT						
P41,P42	TB8-5,6	I12L	69	35	4	PED 4	IN INPUT FILE SLOTS I12 AND I13.							
P61,P62	TB8-7,9	I13U	68	34	6	PED 6								

★ For the detectors to work as shown on the signal design plan, see the Vehicle Detector Setup Programming Detail

INPUT FILE POSITION LEGEND: J2L FILE J SLOT 2 **LOWER** 

#### SPECIAL DETECTOR NOTE

- Install a multi-zone microwave detection system for vehicle detection.
   Perform installation according to manufacturer's directions and NCDOT engineer -approved mounting locations to accomplish the detection schemes shown on the Signal Design Plans.
- 2. For detection zones 1A and 5A, equipment and slots reserved are typical for a NCDOT installation. Inputs associated with these slots are compatiable with time of day instructions located on sheet 3 of this electrical detail.

#### COUNTDOWN PEDESTRIAN SIGNAL OPERATION

Countdown Ped Signals are required to display timing only during Ped Clearance Interval. Consult Ped Signal Module user's manual for instructions on selecting this feature.

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Sig-35. R-5600

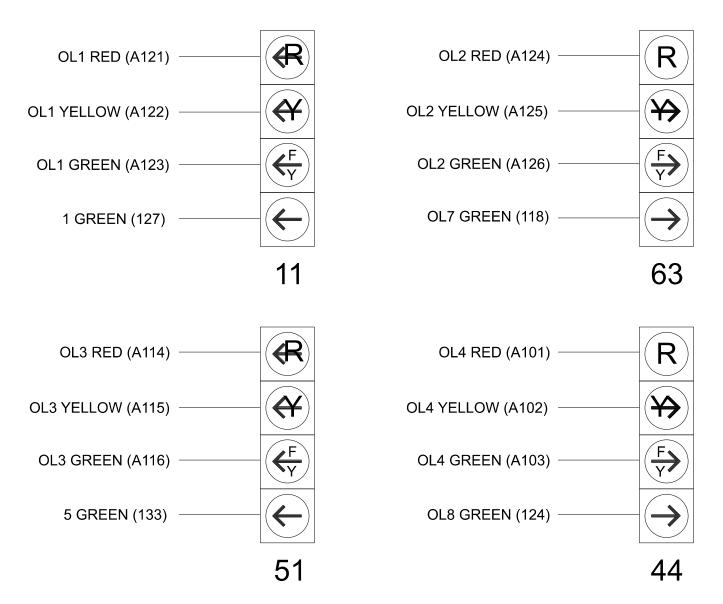
#### SIGNAL HEAD HOOK-UP CHART S12 AUX AUX AUX AUX AUX S5 S6 S1 S2 S3 S4 S6 | S7 | S8 | S9 | S10 | CHANNEL NO. 1 2 13 3 14 5 6 15 7 16 | 9 | 10 | 17 | 11 | 12 | 18 1 2 2 PED OL7 3 OL1 OL2 SPARE OL3 OL4 SPARE PHASE 11 21,22 P21, 63 41 42 43 P41, 51 61,62 P61, 44 31 32,33 P31, 11 63 NU 51 44 NU SIGNAL HEAD NO. 101 101 RED **\*** 108 108 129 102 | 102 **\*** 135 YELLOW 103 | 103 130 136 109 | 109 | GREEN A121 A114 ARROW YELLOW 102 A122 A125 A115 A102 ARROW FLASHING YELLOW A123 A126 A116 A103 ARROW 118 | 103 | 103 133 127 124 | 109 | ARROW 113 104 110 115 106 121 112

NU = Not Used

- ★ Denotes install load resistor. See load resistor installation detail this sheet.
- ★ See pictorial of head wiring in detail this sheet.

#### FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 14-0411T5 DESIGNED: Aug 2025 SEALED: 8/26/2025 REVISED: N/A

Electrical Detail - Sheet 1 of 3

Temporary Design 5 - TMP Ph2, S1, Part 2 ELECTRICAL AND PROGRAMMING NC 107 (E Main Street)

REVISIONS

NC 116 (Webster Road) Division 14 Jackson County

Alexander Street PLAN DATE: August 2025 REVIEWED BY: ZM Esposito PREPARED BY: DS Griffith REVIEWED BY:

Sylva BN Groome INIT. DATE

052936 Brittary Groome SIG. INVENTORY NO. |4-04||T

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL

SIGNATURES COMPLETED

SEAL

#### MAXTIME STARTUP AND SOFTWARE FLASH PROGRAMMING DETAIL

Front Panel Main Menu >Controller >Unit

Web Interface Home >Controller >Unit

Modify parameters as shown below and save changes.

Start Up Parameters

StartUp Clearance Hold

**Unit Flash Parameters** All Red Flash Exit Time

#### FLASHER CIRCUIT MODIFICATION DETAIL

IN ORDER TO INSURE THAT SIGNALS FLASH CONCURRENTLY ON THE SAME APPROACH, MAKE THE FOLLOWING FLASHER CIRCUIT CHANGES:

- 1. ON REAR OF PDA REMOVE WIRE FROM TERM. T2-4 AND TERMINATE ON T2-2.
- 2. ON REAR OF PDA REMOVE WIRE FROM TERM. T2-5 AND TERMINATE ON T2-3.
- 3. REMOVE FLASHER UNIT 2.

THE CHANGES LISTED ABOVE TIES ALL PHASES AND OVERLAPS TO FLASHER UNIT 1.

## MAXTIME OVERLAP PROGRAMMING DETAIL FOR DEFAULT PHASING

Front Panel Main Menu >Controller >Overlap >Overlap Parameters/Overlap Timings

Web Interface Home >Controller >Overlap Configuration >Overlaps

#### Overlap Plan 1

Overlap	1	2	3	4	7	8
Type	FYA 4 - Section	Normal	Normal			
Included Phases	2	6	6	4	4	5
Modifier Phases	1	4	5	5	-	-
Modifier Overlap	-	-	-	-	-	-
Trail Green	0	0	0	0	0	0
Trail Yellow	0.0	0.0	0.0	0.0	0.0	0.0
Trail Red	0.0	0.0	0.0	0.0	0.0	0.0
FYA PED Delay	0.0	7.0	7.0	7.0	0.0	0.0

#### PED 3 PROGRAMMING AND OUTPUT CHANNEL CONFIGURATION

Front Panel

Main Menu >Controller >Detector >Ped Det Plans

Web Interface

Home >Controller >Detector Configuration >Pedestrian Detector

Plan 1

	Detector	Descripton	Call Phase	Call Overlap
	2		2	0
OTICE PHASE 3 PED	4		4	0
ASSIGNED TO	6		6	0
DETECTOR 8 PED	8		3	0

Front Panel

NOTICE

Main Menu >Controller >More>Channels>Channels Config

Web Interface

Home >Controller >Advanced IO>Channels>Channels Configuration

**Channel Configuration** 

	Channel	Control Type	Control Source	Flash Yellow	Flash Red	Flash Alt	MMU Channel
	1	Phase Vehicle	1		Χ	X	1
	2	Phase Vehicle	2		Χ	X	2
NOTICE OVERLAP 7	3	Overlap	7		Χ	X	3
ASSIGNED TO CHANNEL 3	4	Phase Vehicle	4		Χ	X	4
	5	Phase Vehicle	5		Χ	X	5
NOTICE OVERLAP 8	6	Phase Vehicle	6		Χ	X	6
ASSIGNED TO CHANNEL 7	7	Overlap	8		Χ		7
NOTICE PHASE 3	8	Phase Vehicle	3		Χ		8
ASSIGNED TO CHANNEL 8	9	Overlap	1		Χ	X	9
	10	Overlap	2		Χ	X	10
	11	Overlap	3		Χ	X	11
	12	Overlap	4		Χ		12
	13	Phase Ped	2				13
	14	Phase Ped	4				14
NOTICE PHASE 3 PED	15	Phase Ped	6				15
ASSIGNED TO CHANNEL 16	16	Phase Ped	3				16
·	17	Overlap	5		Х	X	17
	18	Overlap	6		Χ		18

NOTICE FLASHING RED

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 14-0411T5 DESIGNED: Aug 2025

SEALED: 8/26/2025 REVISED: N/A

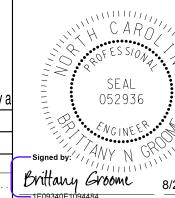
Electrical Detail - Sheet 2 of 3

Temporary Design 5 - TMP Ph2, S1, Part 2 ELECTRICAL AND PROGRAMMING NC 107 (E Main Street)

NC 116 (Webster Road) Alexander Street

Division 14 Jackson County

PLAN DATE: August 2025 REVIEWED BY: ZM Esposito PREPARED BY: DS Griffith REVIEWED BY: BN Groome REVISIONS INIT. DATE



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL

SIGNATURES COMPLETED



#### R-5600 Sig-35.3

#### MAXTIME ALTERNATE PHASING ACTIVATION DETAIL

To run alternate phasing, select a Pattern that is programmed to run Overlap Plan 2 and Detector Plan 2. A Pattern can be selected through the scheduler or manually by changing the Operational Mode.

PHASING	OVERLAP PLAN	VEH DET PLAN
ACTIVE PLAN REQUIRED TO RUN DEFAULT PHASING	1	1
ACTIVE PLAN REQUIRED TO RUN ALTERNATE PHASING	2	2

#### ALTERNATE PHASING CHANGE SUMMARY

THE FOLLOWING IS A SUMMARY OF WHAT TAKES PLACE WHEN OVERLAP PLAN 2 AND VEHICLE DETECTOR PLAN 2 ACTIVATE TO CALL THE "ALTERNATE PHASING":

OVERLAP PLAN 2: Modifies overlap included phases

for heads 11 and 51 to run protected turns only.

VEH DET PLAN 2: Disables phase 6 call on loop 1A

and reduces delay time for phase 1 call on loop 1A to 0 seconds.

Disables phase 2 call on loop 5A and reduces delay time for phase 5 call on loop 5A to 0 seconds.

# MAXTIME OVERLAP PROGRAMMING DETAIL FOR ALTERNATE PHASING

Front Panel

Main Menu >Controller >Overlap >Overlap Parameters/Overlap Timings

Web Interface

Home >Controller >Overlap Configuration >Overlaps

In the table view of the web interface, right click on "Overlap" in the top left corner of the table. Copy the entire contents of Overlap Plan 1. Paste Overlap Plan 1 into Overlap Plan 2. Modify Overlap Plan 2 as shown below and save changes.

#### Overlap Plan 2

Overlap	1	2	3	4	7	8
Туре	FYA 4 - Section	Normal	Normal			
Included Phases	-	6	-	4	4	5
Modifier Phases	1	4	5	5	-	-
Modifier Overlaps	-	-	-	-	-	-
Trail Green	0	0	0	0	0	0
Trail Yellow	0.0	0.0	0.0	0.0	0.0	0.0
Trail Red	0.0	0.0	0.0	0.0	0.0	0.0
FYA PED Delay	0.0	7.0	0.0	7.0	0.0	0.0

NOTICE INCLUDED PHASE

# MAXTIME DETECTOR PROGRAMMING DETAIL FOR ALTERNATE PHASING LOOPS 1A & 5A

Front Panel

Main Menu >Controller >Detector >Veh Det Plans

Web Interface

Home >Controller >Detector Configuration >Vehicle Detectors

In the table view of web interface right click on "Detector" in the top left corner of the table. Copy the entire contents of Detector Plan 1. Paste Detector Plan 1 into Detector Plan 2. Modify Detector Plan 2 as shown below and save changes.

Plan 2

1A

Detector	Call Phase	Delay
1	1	0.0
29	0	-

Detector	Call Phase	Delay
15	5	0.0
31	0	1

# MAXTIME ALTERNATE PHASING PATTERN PROGRAMMING DETAIL

Front Panel

Main Menu >Controller >Coordination >Patterns

Web Interface

Home >Controller >Coordination >Patterns

Pattern Parameters

Pattern	Veh Det Plan	Overlap Plan
*	2	2

\*The Pattern number(s) are to be determined by the Division and/or City Traffic Engineer.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 14-0411T5

DESIGNED: Aug 2025 SEALED: 8/26/2025 REVISED: N/A

Electrical Detail - Sheet 3 of 3

Temporary Design 5 - TMP Ph2, S1, Part 2 NC 107 (E Main Street)

NC 116 (Webster Road) Alexander Street

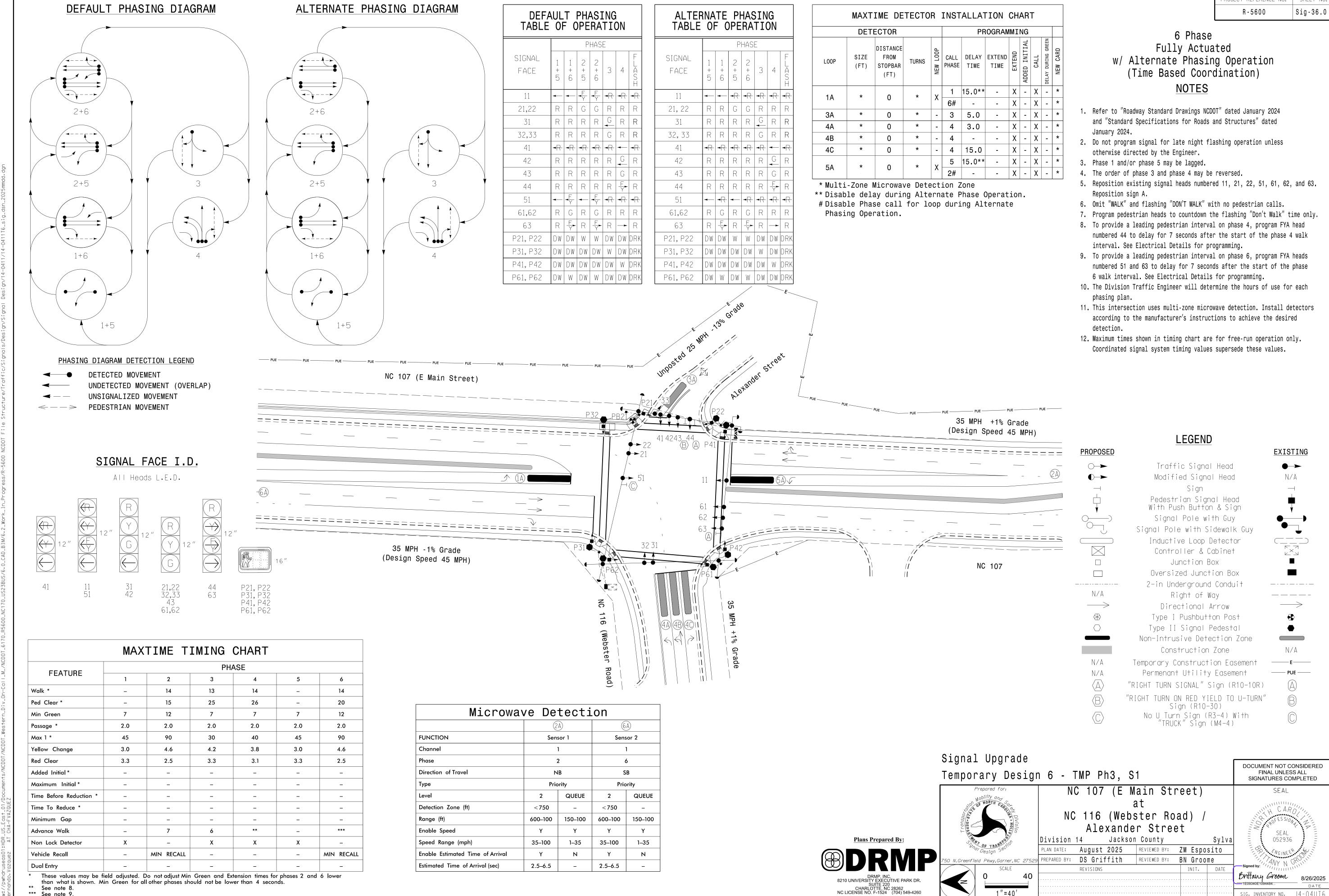
Jackson County Division 14 PLAN DATE: August 2025 REVIEWED BY: ZM Esposito BN Groome PREPARED BY: DS Griffith REVIEWED BY: REVISIONS

Sylva

Brittany Groome 8/26/2025

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL





1"=40'

SIG. INVENTORY NO. |4-04||T6

See note 8.

than what is shown. Min Green for all other phases should not be lower than 4 seconds

ON

- RF 2010

RP DISABLE

- GY ENABLE - SF#1 POLARITY

- FYA COMPACT-

WD 1.0 SEC

 LEDguard RF SSM

– FYA 1-9 - FYA 3-10

- FYA 5-11

– FYA 7-12

15

16

= DENOTES POSITION OF SWITCH

17

REMOVE DIODE JUMPERS: 1-5, 1-6, 1-9, 1-10, 1-11, 1-15, 2-5, 2-6, 2-9, 2-10, 2-11, 2-13, 2-15, 3-4, 3-10, 3-12, 3-14, 4-10, 4-12, 4-14, 5-9, 5-11, 5-13, 6-9, 6-10, 6-11, 6-13, 6-15, 8-16, 9-10, 9-11, 9-13, 9-15, 10-11, 10-12, 10-13, 10-14, 10-15, 11-13, 11-15, 12-14 AND 13-15.

COMPONENT SIDE

1. Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.

REMOVE JUMPERS AS SHOWN

- 2. Ensure jumpers SEL2-SEL5 and SEL9 are present on the monitor board.
- 3. Ensure that the Red Enable is active at all times during normal operation.
- 4. Integrate monitor with Ethernet network in cabinet.

#### INPUT FILE POSITION LAYOUT

(front view)

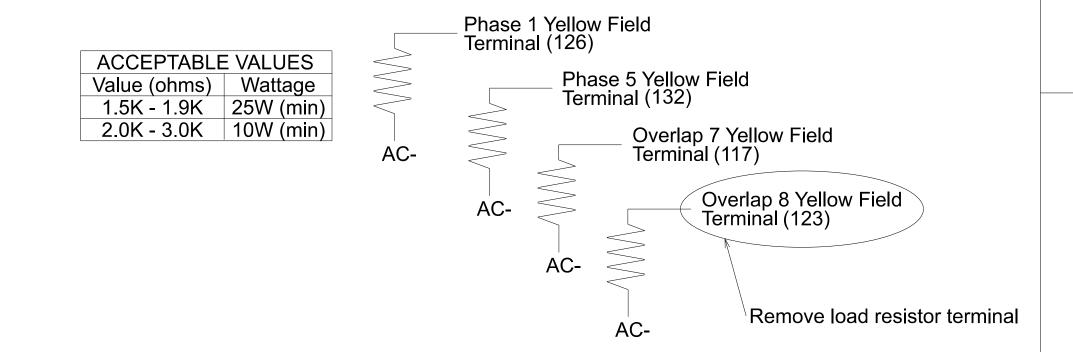
	r	1	2	3	4	5	6	7	8	9	10	11	12	13	14
FILE	U	<ul><li>Ø 1</li><li>1A</li><li>NOT</li></ul>	SLOT EMP	810F EMP1	SLOT EMPT	SLOT EMP	SLOT EMP	SLOT EMPT	SLOT EMPT	S L O T E M P T	S L O T E M P T	SLOT EMPT	DC ISOLATOR Ø 4 PED	Ø 6 PED  DC ISOLATOR Ø 3 PED	DC ISOLATOR ST
FILE	U	<b>USED</b>	T Y S L O T	S L O T	S L OT	Y S L O	S L O	S L O	S L O	S L O	S L O	S L O T	S L O	DC ISOLATOR S L O	DC ISOLATOR S L O T
"J"	L	NOT USED	E M P T Y	EMPTY	E M P T Y	E M P T Y	E M P T Y								
	l	EX.: 1A, 2A, ETC. = LOOP NO.'S										FS =	FLASH S	ENSE	

ST = STOP TIME

#### LOAD RESISTOR INSTALLATION DETAIL

Note: For Detection Zones 1A and 5A the equipment and slots reserved are typical for a NCDOT installation.

(install resistors as shown)



#### **NOTES**

- 1. To prevent "flash-conflict" problems, insert red flash program blocks for all vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the signal plan.
- 2. Program controller to start up in phase 2 Green No Walk and 6 Green No Walk.
- 3. If this signal will be managed by an ATMS software, enable controller and detector logging for all detectors used at this location.
- 4. The cabinet and controller are part of NC 107 Time Based System.

#### **EQUIPMENT INFORMATION**

Controller	2070LX
Cabinet	332 w/ Aux
Software	
Cabinet Mount	Base
Output File Positions	18 With Aux. Output File
	S1, S2, S3, S4, S5, S6, S7, S8, S9, S11, S <sup>2</sup>
	AUX S1, AUX S2, AUX S4, AUX S5
Phases Used	1, 2, 2PED, 3, 3PED, 4, 4PED, 5, 6, 6PED
Overlap "1"	*
Overlap "2"	*
Overlap "3"	*
Overlap "4"	*
Overlap "5"	NOT USED
Overlap "6"	NOT USED
Overlap "7"	
Overlap "8"	NOT USED

\*See overlap programming detail on sheet 2.

#### INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT POINT	DETECTOR NO.	CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL	DELAY DURING GREEN	
1 /	TD2 1 2	1411	1411 56	18	1 ★	1	15.0		Х		Х		
1A	102-1,2	TB2-1,2 I1U 56 - 29 ★ 6			Х		Х						
5A	TB3-1,2	J1U	55	17	15 ★	5	15.0		Х		Χ		
ЭA	163-1,2	310	55	=	31★	2			X		Χ		
PED PUSH BUTTONS													
P21,P22	TB8-4,6	I12U	67	33	2	PED 2	NOTE:						
P31,P32	TB8-8,9	I13L	70	36	8	PED 3	INSTALL DC ISOLATORS						
P41,P42	TB8-5,6	I12L	69	35	4	PED 4	1127(10)						
P61,P62	TB8-7,9	I13U	68	34	6	PED 6							

★ For the detectors to work as shown on the signal design plan, see the Vehicle Detector Setup Programming Detail

NPUT FILE POSITION LEGEND:	J2
FILE J	
SLOT 2	
I OWED	

#### SPECIAL DETECTOR NOTE

- Install a multi-zone microwave detection system for vehicle detection.
   Perform installation according to manufacturer's directions and NCDOT engineer -approved mounting locations to accomplish the detection schemes shown on the Signal Design Plans.
- 2. For detection zones 1A and 5A, equipment and slots reserved are typical for a NCDOT installation. Inputs associated with these slots are compatiable with time of day instructions located on sheet 3 of this electrical detail.

#### COUNTDOWN PEDESTRIAN SIGNAL OPERATION

Countdown Ped Signals are required to display timing only during Ped Clearance Interval. Consult Ped Signal Module user's manual for instructions on selecting this feature.

> **Plans Prepared By:** SUITE 220 CHARLOTTE, NC 28262 NC LICENSE NO. F-1524 (704) 549-4260

R-5600 Sig-36.1

#### SIGNAL HEAD HOOK-UP CHART S12 | AUX | AUX | AUX | AUX | AUX | AUX | S5 | S6 | S2 S3 S4 S1 S8 S9 S10 CHANNEL NO. 1 2 13 3 14 5 6 15 7 16 | 9 | 10 | 17 | 11 | 12 | 18 1 2 2 PED OL7 3 OL1 OL2 SPARE OL3 OL4 SPARE SIGNAL HEAD NO. 101 101 RED A124 **\*** 135 108 108 129 102 102 YELLOW 103 | 103 136 130 109 | 109 | GREEN A121 A114 ARROW YELLOW 102 A122 A125 A115 A102 ARROW FLASHING YELLOW A123 A126 A116 A103 ARROW 109 118 | 103 | 103 133 127 ARROW 113 104 115 106 121 112

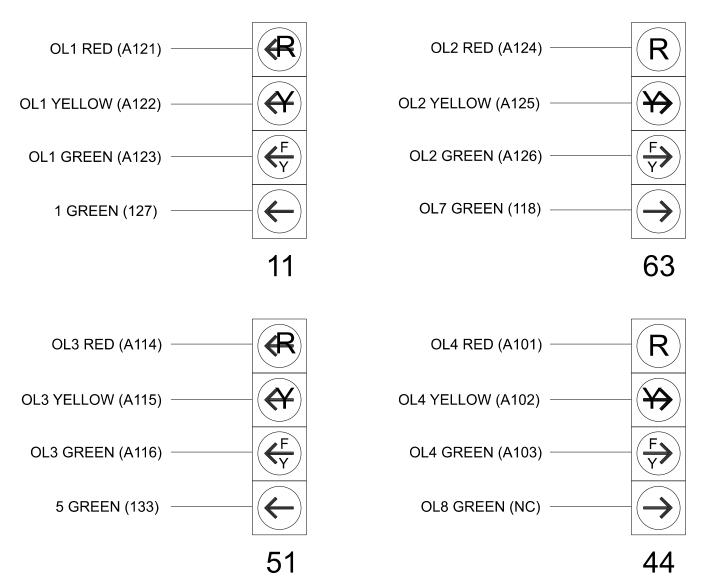
NU = Not Used

NC = Not Connected ★ Denotes install load resistor. See load resistor installation detail this sheet.

★ See pictorial of head wiring in detail this sheet.

#### FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



NC = Not Connected

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 14-0411T6 DESIGNED: Aug 2025 SEALED: 8/26/2025 REVISED: N/A

Electrical Detail - Sheet 1 of 3 Temporary Design 6 - TMP Ph3, S1

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING NC 107 (E Main Street)

SR 116 (Webster Road) Alexander Street

Division 14 Jackson County Sylval PLAN DATE: August 2025 REVIEWED BY: ZM Esposito PREPARED BY: DS Griffith BN Groome REVIEWED BY: REVISIONS

SEAL CARA 052936 INIT. DATE

Brittany Groome 8/26/2025 SIG. INVENTORY NO. |4-04||T

#### MAXTIME STARTUP AND SOFTWARE FLASH PROGRAMMING DETAIL

Front Panel Main Menu >Controller >Unit

Web Interface Home >Controller >Unit

Modify parameters as shown below and save changes.

Start Up Parameters

All Red Flash Exit Time

**Unit Flash Parameters** 

StartUp Clearance Hold

#### FLASHER CIRCUIT MODIFICATION DETAIL

IN ORDER TO INSURE THAT SIGNALS FLASH CONCURRENTLY ON THE SAME APPROACH, MAKE THE FOLLOWING FLASHER CIRCUIT CHANGES:

- 1. ON REAR OF PDA REMOVE WIRE FROM TERM. T2-4 AND TERMINATE ON T2-2.
- 2. ON REAR OF PDA REMOVE WIRE FROM TERM. T2-5 AND TERMINATE ON T2-3.
- 3. REMOVE FLASHER UNIT 2.

THE CHANGES LISTED ABOVE TIES ALL PHASES AND OVERLAPS TO FLASHER UNIT 1.

## MAXTIME OVERLAP PROGRAMMING DETAIL FOR DEFAULT PHASING

Front Panel Main Menu >Controller >Overlap >Overlap Parameters/Overlap Timings

Web Interface Home >Controller >Overlap Configuration >Overlaps

#### Overlap Plan 1

Overlap	1	2	3	4	7
Type	FYA 4 - Section	Normal			
Included Phases	2	6	6	4	4
Modifier Phases	1	4	5	-	<del>-</del>
Modifier Overlap	-	-	-	-	-
Trail Green	0	0	0	0	0
Trail Yellow	0.0	0.0	0.0	0.0	0.0
Trail Red	0.0	0.0	0.0	0.0	0.0
FYA PED Delay	0.0	7.0	7.0	7.0	0.0

#### PED 3 PROGRAMMING AND OUTPUT CHANNEL CONFIGURATION

Front Panel

Main Menu >Controller >Detector >Ped Det Plans

Web Interface

Home >Controller >Detector Configuration >Pedestrian Detector

#### Plan 1

	Detector	Descripton	Call Phase	Call Overlap
	2	·	2	0
NOTICE PHASE 3 PED	4	·	4	0
ASSIGNED TO	6	·	6	0
DETECTOR 8 PED	8		3	0

Front Panel

Main Menu >Controller >More>Channels>Channels Config

Web Interface

Home >Controller >Advanced IO>Channels>Channels Configuration

#### **Channel Configuration**

	Channel	Control Type	Control Source	Flash Yellow	Flash Red	Flash Alt	MMU Channel
	1	Phase Vehicle	1		Χ	X	1
	2	Phase Vehicle	2		Х	X	2
NOTICE OVERLAP 7	3	Overlap	7		Χ	X	3
ASSIGNED TO CHANNEL 3	4	Phase Vehicle	4		Χ	X	4
	5	Phase Vehicle	5		Χ	X	5
NOTICE PHASE 7	6	Phase Vehicle	6		Χ	X	6
ASSIGNED TO CHANNEL 7	7	Phase Vehicle	7		Χ		7
NOTICE PHASE 3	8	Phase Vehicle	3		Χ		8
ASSIGNED TO CHANNEL 8	9	Overlap	1		Х	X	9
	10	Overlap	2		Χ	X	10
	11	Overlap	3		Х	X	11
	12	Overlap	4		Х		12
	13	Phase Ped	2				13
	14	Phase Ped	4				14
NOTICE PHASE 3 PED	15	Phase Ped	6				15
ASSIGNED TO CHANNEL 16	16	Phase Ped	3				16
·	17	Overlap	5		Х	X	17
	18	Overlap	6		Х		18

NOTICE FLASHING RED

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 14-0411T6 DESIGNED: Aug 2025

SEALED: 8/26/2025 REVISED: N/A

Electrical Detail - Sheet 2 of 3 Temporary Design 6 - TMP Ph3, S1

ELECTRICAL AND PROGRAMMING

NC 107 (E Main Street)

SR 116 (Webster Road) Alexander Street

Division 14 Jackson County

Sylva| PLAN DATE: August 2025 REVIEWED BY: ZM Esposito PREPARED BY: DS Griffith REVIEWED BY: BN Groome REVISIONS INIT. DATE

Brittany Groome

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#### R-5600 Sig-36.3

#### MAXTIME ALTERNATE PHASING ACTIVATION DETAIL

To run alternate phasing, select a Pattern that is programmed to run Overlap Plan 2 and Detector Plan 2. A Pattern can be selected through the scheduler or manually by changing the Operational Mode.

PHASING	OVERLAP PLAN	VEH DET PLAN
ACTIVE PLAN REQUIRED TO RUN DEFAULT PHASING	1	1
ACTIVE PLAN REQUIRED TO RUN ALTERNATE PHASING	2	2

#### ALTERNATE PHASING CHANGE SUMMARY

THE FOLLOWING IS A SUMMARY OF WHAT TAKES PLACE WHEN OVERLAP PLAN 2 AND VEHICLE DETECTOR PLAN 2 ACTIVATE TO CALL THE "ALTERNATE PHASING":

OVERLAP PLAN 2: Modifies overlap included phases

for heads 11 and 51 to run protected turns only.

VEH DET PLAN 2: Disables phase 6 call on loop 1A and reduces delay time for phase 1 call on loop 1A to 0 seconds.

> Disables phase 2 call on loop 5A and reduces delay time for phase 5 call on loop 5A to 0 seconds.

#### MAXTIME OVERLAP PROGRAMMING DETAIL FOR ALTERNATE PHASING

Front Panel

Main Menu >Controller >Overlap >Overlap Parameters/Overlap Timings

Web Interface

Home >Controller >Overlap Configuration >Overlaps

In the table view of the web interface, right click on "Overlap" in the top left corner of the table. Copy the entire contents of Overlap Plan 1. Paste Overlap Plan 1 into Overlap Plan 2. Modify Overlap Plan 2 as shown below and save changes.

#### Overlap Plan 2

Overlap	1	2	3	4	7
Type	FYA 4 - Section	Normal			
Included Phases	-	6	-	4	4
Modifier Phases	1	4	5	-	-
Modifier Overlaps	-	-	-	-	-
Trail Green	0	0	0	0	0
Trail Yellow	0.0	0.0	0.0	0.0	0.0
Trail Red	0.0	0.0	0.0	0.0	0.0
FYA PED Delav	0.0	7.0	0.0	7.0	0.0

NOTICE INCLUDED PHASE

# MAXTIME DETECTOR PROGRAMMING DETAIL FOR ALTERNATE PHASING LOOPS 1A & 5A

Front Panel

Main Menu >Controller >Detector >Veh Det Plans

Web Interface

Home >Controller >Detector Configuration >Vehicle Detectors

In the table view of web interface right click on "Detector" in the top left corner of the table. Copy the entire contents of Detector Plan 1. Paste Detector Plan 1 into Detector Plan 2. Modify Detector Plan 2 as shown below and save changes.

#### Plan 2

1A

Detector	Call Phase	Delay
1	1	0.0
29	0	-

Detector	Call Phase	Delay
15	5	0.0
31	0	-

# MAXTIME ALTERNATE PHASING PATTERN PROGRAMMING DETAIL

Front Panel

Main Menu >Controller >Coordination >Patterns

Web Interface

Home >Controller >Coordination >Patterns

Pattern Parameters

i alleiii aia	11161613	
Pattern	Veh Det Plan	Overlap Plan
*	2	2

\*The Pattern number(s) are to be determined by the Division and/or City Traffic Engineer.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 14-0411T6 DESIGNED: Aug 2025

SEALED: 8/26/2025 REVISED: N/A

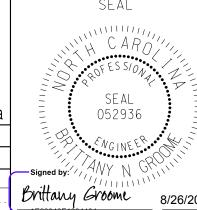
Electrical Detail - Sheet 3 of 3 Temporary Design 6 - TMP Ph3, S1

NC 107 (E Main Street)

SR 116 (Webster Road) Alexander Street

Jackson County

Division 14 Sylva PLAN DATE: August 2025 REVIEWED BY: ZM Esposito BN Groome PREPARED BY: DS Griffith REVIEWED BY: REVISIONS



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL

SIGNATURES COMPLETED

Brittany Groome 8/26/2025



DEFAULT PHASING DIAGRAM

1+5

\*\*\* See note 8.

PHASING DIAGRAM DETECTION LEGEND

DETECTED MOVEMENT

UNSIGNALIZED MOVEMENT PEDESTRIAN MOVEMENT

UNDETECTED MOVEMENT (OVERLAP)

SIGNAL FACE I.D.

All Heads L.E.D.

ALTERNATE PHASING TABLE OF OPERATION

DEFAULT PHASING TABLE OF OPERATION PHASE SIGNAL FACE 21,22 R R R G RRRRGR 32,33 ~~|~~|~~|~~|~~ 42 43 RRRRG | R | R | R | F | F 61,62 G R G R R R 63

P21, P22

P31, P32

P41, P42

P61, P62

Microwave Detection

Sensor 1

**Priority** 

< 750

600-100

Υ

35–100

2.5-6.5

QUEUE

150–100

1–35

Sensor 2

**Priority** 

< 750

600–100

35-100

2.5-6.5

QUEUE

150-100

1–35

Ν

**FUNCTION** 

**Direction of Travel** 

Detection Zone (ft)

Speed Range (mph)

Enable Estimated Time of Arrival

Estimated Time of Arrival (sec)

Range (ft)

Enable Speed

Channel

Phase

 →
 R
 →
 F

DW|DW| W | W |DW|DW|DRH

DW|DW|DW|DW| W |DW|DR

DW|DW|DW|DW| W |DRI

DW W DW W DW DW DR

Metal Pole #2 -L- Sta. 130+66 +/-

ALTERNATE PHASING DIAGRAM

PHASE SIGNAL FACE 21, 22 32,33 43 R | R | R | R | <del>Ç</del> | ╾┃╼₽┃╼₽┃╼₽┃╼₽ 61,62 63 P21, P22 P31, P32 DW DW DW DW W DW DF P41, P42 Dw|Dw|Dw|Dw|W|Dr P61, P62 | DW | W | DW | W | DW | DF

MAXTIME DETECTOR INSTALLATION CHART **DETECTOR PROGRAMMING** CALL DELAY EXTEND HILL DISTANCE SIZE | PHASE | TIME | TIME STOPBAR | 1 |15.0\*\*| - | X | - | X | -\* | X | 3 | 5.0 | - | X | - | X | - | \* |- | 4 | 3.0 | - | X |- | X |- | 4 | - | - | X | - | X | -4 | 15.0 - | X | - | X | -5 |15.0\*\*| - |X|-|X|-| 2# | - | - | X | - | X | - | \*

\* Multi-Zone Microwave Detection Zone

\*\* Disable delay during Alternate Phase Operation. # Disable Phase call for loop during Alternate

Phasing Operation.

Mast Arm B LT 56' +/-NC 107 (E Main Street) Mast Arm A 35 MPH +1% Grade (Design Speed 45 MPH) 35 MPH -1% Grade (Design Speed 45 MPH) Metal Pole #1 NC 107 -L- Sta. 130+62 +/-RT 96' +/-Metal Pole #3 -L- Sta. 132+01 +/-P21, P22 P31, P32 P41, P42 P61, P62 RT 54' +/-

	MA	XTIME	ΓIMING	CHART						
FEATURE	PHASE									
FEATURE	1	2	3	4	5	6				
Walk *	_	14	13	14	_	14				
Ped Clear	_	15	25	26	_	20				
Min Green *	7	12	7	7	7	12				
Passage *	2.0	2.0	2.0	2.0	2.0	2.0				
Max 1 *	45	90	30	40	45	90				
Yellow Change	3.0	4.6	4.2	3.8	3.0	4.6				
Red Clear	3.3	2.8	3.3	2.9	3.6	2.8				
Added Initial *	_	_	_	_	_	_				
Maximum Initial *	_	_	_	-	_	_				
Time Before Reduction *	_	_	_	_	_	_				
Time To Reduce *	_	_	_	_	_	_				
Minimum Gap	_	_	_	_	_	_				
Advance Walk	_	7	6	**	_	***				
Non Lock Detector	Х	_	Х	Х	Х	_				
Vehicle Recall	-	MIN RECALL	_	-	_	MIN RECALI				
Dual Entry	_	_	_	_	_	_				

- | - | - | - | - | -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.

\*\* See note 7.

**Plans Prepared By:** 

Signal Upgrade - Final Design

1"=40'

NC 116 (Webster Road) Alexander Street

Jackson County Division 14

PLAN DATE: August 2025 REVIEWED BY: ZM Esposito PREPARED BY: DS Griffith REVIEWED BY: BN Groome INIT. DATE

Brittany Groome SIG. INVENTORY NO.

052936

ON OFF

- RF 2010

■ WD 1.0 SEC

 LEDguard RF SSM

– FYA 1-9 - FYA 3-10

- FYA 5-11 FYA 7-12

12

15

16

■ = DENOTES POSITION OF SWITCH

\_\_\_\_ 17

ST = STOP TIME

RP DISABLE

- GY ENABLE - SF#1 POLARITY

- FYA COMPACT-

(remove jumpers and set switches as shown)

REMOVE DIODE JUMPERS: 1-5, 1-6, 1-9, 1-10, 1-11, 1-15, 2-5, 2-6, 2-9, 2-10, 2-11, 2-13, 2-15, 3-4, 3-10, 3-12, 3-14, 4-10, 4-12, 4-14, 5-9, 5-11, 5-13, 6-9, 6-10, 6-11, 6-13, 6-15, 8-16, 9-10, 9-11, 9-13, 9-15, 10-11, 10-12, 10-13, 10-14, 10-15, 11-13, 11-15, 12-14 AND 13-15.

#### REMOVE JUMPERS AS SHOWN

1. Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.

COMPONENT SIDE

- 2. Ensure jumpers SEL2-SEL5 and SEL9 are present on the monitor board.
- 3. Ensure that the Red Enable is active at all times during normal operation.
- 4. Integrate monitor with Ethernet network in cabinet.

#### INPUT FILE POSITION LAYOUT

(front view)

	г	1	2	3	4	5	6	7	8	9	10	11	12	13	14
FILE	U	Ø 1	S L O T	S L O	S L O	S L O T	S L O	S L O	S L O T	S L O	S L O	S L O	Ø 2 PED	Ø 6 PED	FS DC
" "	L	NOT USED	E M P T	E M P T	E M P T	E M P T	E M P	E M P	E M P T	E M P	E M P	E M P	ISOLATOR		ISOLATOR
		Ø 5	, 	Y S	s s	Y S	s	S	ş	ş	y s	y s	ISOLATOR		ISOLATOR S
FILE	U	5A	Ŏ T	LOT	O T	LOT	L OT E	LOT	O T	O T	L O T	L O T	O T	L O T	L O T
"J"	L	NOT USED	E M P T Y	E M P T Y	E M P T Y	EMPTY	EMPTY	E M P T Y	E M P T Y	E M P T Y	M P T Y	E M P T Y	E M P T Y	M P T Y	E M P T Y
		EX.: 1A	, 2A, ET	C. = LOC	P NO.'S						FS =	FLASH S	ENSE		

Note: For Detection Zones 1A and 5A the equipment and slots reserved are typical for a NCDOT installation.

#### LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown)

ACCEPTABLE VALUES Value (ohms) Wattage 1.5K - 1.9K | 25W (min) 2.0K - 3.0K | 10W (min) Terminal (126) Phase 5 Yellow Field Terminal (132) Overlap 7 Yellow Field Terminal (117)

Phase 1 Yellow Field

**NOTES** 

- 1. To prevent "flash-conflict" problems, insert red flash program blocks for all vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the signal plan.
- 2. Program controller to start up in phase 2 Green No Walk and 6 Green No Walk.
- 3. If this signal will be managed by an ATMS software, enable controller and detector logging for all detectors used at this location.
- 4. The cabinet and controller are part of the Signal System #: NC 107 D14-14.

#### **EQUIPMENT INFORMATION**

Controller	2070LX
Cabinet	332 w/ Aux
Software	Q-Free MAXTIME
Cabinet Mount	Base
Output File Positions	18 With Aux. Output File
Load Switches Used	S1, S2, S3, S4, S5, S6, S7, S8, S9, S11, S12,
	AUX S1, AUX S2, AUX S4, AUX S5
Phases Used	1, 2, 2PED, 3, 3PED, 4, 4PED, 5, 6, 6PED
Overlap "1"	*
Overlap "2"	
Overlap "3"	
Overlap "4"	
Overlap "5"	
Overlap "6"	
Overlap "7"	
•	

\*See overlap programming detail on sheet 2.

#### INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT POINT	DETECTOR NO.	CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL	DELAY DURING GREEN
1A	TB2-1,2	I1U	56	18	1 ★	1	15.0		Х		Х	
IA	102-1,2	ITU	20	-	29 ★	6	3.0		X		Х	X
5A	TB3-1,2	J1U	55	17	15 ★	5	15.0		X		Χ	
JA .	163-1,2	310	33	•	31★	2	3.0		X		Χ	X
PED PUSH BUTTONS												
P21,P22	TB8-4,6	I12U	67	33	2	PED 2						
P31,P32	TB8-8,9	I13L	70	36	8	PED 3						
P41,P42	TB8-5,6	I12L	69	35	4	PED 4	IN INPUT FILE SLOTS I12 AND I13.					
P61,P62	TB8-7,9	I13U	68	34	6	PED 6						

★ For the detectors to work as shown on the signal design plan, see the Vehicle Detector Setup Programming Detail

NPUT FILE POSITION LEGEND:	J:
FILE J	
SLOT 2 ————	
LOWED -	

#### SPECIAL DETECTOR NOTE

- Install a multi-zone microwave detection system for vehicle detection.
   Perform installation according to manufacturer's directions and NCDOT engineer -approved mounting locations to accomplish the detection schemes shown on the Signal Design Plans.
- 2. For detection zones 1A and 5A, equipment and slots reserved are typical for a NCDOT installation. Inputs associated with these slots are compatiable with time of day instructions located on sheet 3 of this electrical detail.

#### COUNTDOWN PEDESTRIAN SIGNAL OPERATION

Countdown Ped Signals are required to display timing only during Ped Clearance Interval. Consult Ped Signal Module user's manual for instructions on selecting this feature.

> **Plans Prepared By:** SUITE 220 CHARLOTTE, NC 28262 NC LICENSE NO. F-1524 (704) 549-4260

Sig-37 R-5600

#### SIGNAL HEAD HOOK-UP CHART S12 | AUX | AUX | AUX | AUX | AUX | AUX | S5 | S6 | S1 S2 S3 S4 S6 | S7 | S8 | S9 | S10 | CHANNEL NO. 1 2 13 3 16 9 10 17 11 12 18 14 | 5 | 6 | 15 | 7 1 2 2 PED OL7 PED OL1 OL2 SPARE OL3 OL4 SPARE $11^{*}$ 21,22 $\stackrel{\text{P21}}{\text{P22}}$ $63^{*}$ 41 42 43 $\stackrel{\text{P41}}{\text{P42}}$ $51^{*}$ 61,62 $\stackrel{\text{P61}}{\text{P62}}$ NU 31 32,33 $\stackrel{\text{P31}}{\text{P32}}$ $11^{*}$ $63^{*}$ NU $51^{*}$ 44 NU SIGNAL HEAD NO. 101 101 RED A124 **\*** 135 108 108 129 102 102 YELLOW 103 | 103 136 130 109 | 109 | GREEN A121 A114 ARROW YELLOW 102 A122 A125 A115 A102 ARROW FLASHING YELLOW A123 A126 A116 A103 ARROW 109 118 | 103 | 103 133 127 ARROW 113 104 106 112

NC = Not Connected NU = Not Used Denotes install load resistor. See load resistor installation detail this sheet.

★ See pictorial of head wiring in detail this sheet.

#### FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 14-0411 DESIGNED: Aug 2025 SEALED: 8/26/2025 REVISED: N/A

Electrical Detail - Sheet 1 of 3

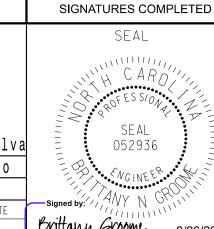
Final Design

ELECTRICAL AND PROGRAMMING

NC 107 (E Main Street) SR 116 (Webster Road)

Alexander Street

Division 14 Jackson County Sylva PLAN DATE: August 2025 REVIEWED BY: ZM Esposito PREPARED BY: DS Griffith BN Groome REVIEWED BY: REVISIONS INIT. DATE



Brittany Groome 8/26/2025 SIG. INVENTORY NO. 14-0411

DOCUMENT NOT CONSIDERED

FINAL UNLESS ALL

#### MAXTIME STARTUP AND SOFTWARE FLASH PROGRAMMING DETAIL

Front Panel Main Menu >Controller >Unit

Web Interface Home >Controller >Unit

Modify parameters as shown below and save changes.

Start Up Parameters

StartUp Clearance Hold

**Unit Flash Parameters** All Red Flash Exit Time

#### FLASHER CIRCUIT MODIFICATION DETAIL

IN ORDER TO INSURE THAT SIGNALS FLASH CONCURRENTLY ON THE SAME APPROACH, MAKE THE FOLLOWING FLASHER CIRCUIT CHANGES:

- 1. ON REAR OF PDA REMOVE WIRE FROM TERM. T2-4 AND TERMINATE ON T2-2.
- 2. ON REAR OF PDA REMOVE WIRE FROM TERM. T2-5 AND TERMINATE ON T2-3.
- 3. REMOVE FLASHER UNIT 2.

THE CHANGES LISTED ABOVE TIES ALL PHASES AND OVERLAPS TO FLASHER UNIT 1.

# MAXTIME OVERLAP PROGRAMMING DETAIL FOR DEFAULT PHASING

Front Panel Main Menu >Controller >Overlap >Overlap Parameters/Overlap Timings

Web Interface Home >Controller >Overlap Configuration >Overlaps

#### Overlap Plan 1

Overlap	1	2	3	4	7
Type	FYA 4 - Section	Normal			
Included Phases	2	6	6	4	4
Modifier Phases	1	4	5	-	<del>-</del>
Modifier Overlap	-	-	-	-	-
Trail Green	0	0	0	0	0
Trail Yellow	0.0	0.0	0.0	0.0	0.0
Trail Red	0.0	0.0	0.0	0.0	0.0
FYA PED Delay	0.0	7.0	7.0	7.0	0.0

#### PED 3 PROGRAMMING AND OUTPUT CHANNEL CONFIGURATION

Front Panel

Main Menu >Controller >Detector >Ped Det Plans

Web Interface

Home >Controller >Detector Configuration >Pedestrian Detector

#### Plan 1

	Detector	Descripton	Call Phase	Call Overlap
	2		2	0
NOTICE PHASE 3 PED	4		4	0
ASSIGNED TO	6		6	0
DETECTOR 8 PED	8		3	0

Front Panel

Main Menu >Controller >More>Channels>Channels Config

Web Interface

Home >Controller >Advanced IO>Channels>Channels Configuration

#### **Channel Configuration**

	Channel	Control Type	Control Source	Flash Yellow	Flash Red	Flash Alt	MMU Channel
	1	Phase Vehicle	1		X	X	1
	2	Phase Vehicle	2		Х	X	2
NOTICE OVERLAP 7	3	Overlap	7		Х	X	3
ASSIGNED TO CHANNEL 3	4	Phase Vehicle	4		Х	X	4
	5	Phase Vehicle	5		Χ	X	5
	6	Phase Vehicle	6		Х	X	6
	7	Phase Vehicle	7		Χ		7
NOTICE PHASE 3	8	Phase Vehicle	3		Χ		8
ASSIGNED TO CHANNEL 8	9	Overlap	1		Χ	X	9
	10	Overlap	2		Χ	X	10
	11	Overlap	3		Χ	X	11
	12	Overlap	4		Χ		12
	13	Phase Ped	2				13
	14	Phase Ped	4				14
NOTICE PHASE 3 PED	15	Phase Ped	6				15
ASSIGNED TO CHANNEL 16	16	Phase Ped	3				16
	17	Overlap	5		Χ	X	17
	18	Overlap	6		Χ		18

NOTICE FLASHING RED

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 14-0411

DESIGNED: Aug 2025 SEALED: 8/26/2025 REVISED: N/A

Electrical Detail - Sheet 2 of 3 Final Design

ELECTRICAL AND PROGRAMMING

NC 107 (E Main Street)

SR 116 (Webster Road) Alexander Street

Division 14 Jackson County PLAN DATE: August 2025 REVIEWED BY: ZM Esposito PREPARED BY: DS Griffith REVIEWED BY: BN Groome REVISIONS INIT. DATE

Brittany Groome

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL

SIGNATURES COMPLETED

DRMP, INC. 8210 UNIVERSITY EXECUTIVE PARK DR. SUITE 220 CHARLOTTE, NC 28262 NC LICENSE NO. F-1524 (704) 549-4260

#### R-5600 Sig-37.3

#### MAXTIME ALTERNATE PHASING ACTIVATION DETAIL

To run alternate phasing, select a Pattern that is programmed to run Overlap Plan 2 and Detector Plan 2. A Pattern can be selected through the scheduler or manually by changing the Operational Mode.

PHASING	OVERLAP PLAN	VEH DET PLAN
ACTIVE PLAN REQUIRED TO RUN DEFAULT PHASING	1	1
ACTIVE PLAN REQUIRED TO RUN ALTERNATE PHASING	2	2

#### ALTERNATE PHASING CHANGE SUMMARY

THE FOLLOWING IS A SUMMARY OF WHAT TAKES PLACE WHEN OVERLAP PLAN 2 AND VEHICLE DETECTOR PLAN 2 ACTIVATE TO CALL THE "ALTERNATE PHASING":

OVERLAP PLAN 2: Modifies overlap included phases

for heads 11 and 51 to run protected turns only.

VEH DET PLAN 2: Disables phase 6 call on loop 1A and reduces delay time for phase 1 call on loop 1A to 0 seconds.

> Disables phase 2 call on loop 5A and reduces delay time for phase 5 call on loop 5A to 0 seconds.

#### MAXTIME OVERLAP PROGRAMMING DETAIL FOR ALTERNATE PHASING

Front Panel

Main Menu >Controller >Overlap >Overlap Parameters/Overlap Timings

Web Interface

Home >Controller >Overlap Configuration >Overlaps

In the table view of the web interface, right click on "Overlap" in the top left corner of the table. Copy the entire contents of Overlap Plan 1. Paste Overlap Plan 1 into Overlap Plan 2. Modify Overlap Plan 2 as shown below and save changes.

#### Overlap Plan 2

Overlap	1	2	3	4	7
Type	FYA 4 - Section	Normal			
Included Phases	-	6	-	4	4
Modifier Phases	1	4	5	-	-
Modifier Overlaps	-	-	-	-	-
Trail Green	0	0	0	0	0
Trail Yellow	0.0	0.0	0.0	0.0	0.0
Trail Red	0.0	0.0	0.0	0.0	0.0
FYA PED Delay	0.0	7.0	0.0	7.0	0.0

NOTICE INCLUDED PHASE

# MAXTIME DETECTOR PROGRAMMING DETAIL FOR ALTERNATE PHASING LOOPS 1A & 5A

Front Panel

Main Menu >Controller >Detector >Veh Det Plans

Web Interface

Home >Controller >Detector Configuration >Vehicle Detectors

In the table view of web interface right click on "Detector" in the top left corner of the table. Copy the entire contents of Detector Plan 1. Paste Detector Plan 1 into Detector Plan 2. Modify Detector Plan 2 as shown below and save changes.

Plan 2

1A

Detector	Call Phase	Delay
1	1	0.0
29	0	-

Detector	Call Phase	Delay
15	5	0.0
31	0	<del>-</del>

#### MAXTIME ALTERNATE PHASING PATTERN PROGRAMMING DETAIL

Front Panel

Main Menu >Controller >Coordination >Patterns

Web Interface

Home >Controller >Coordination >Patterns

Pattern Parameters

Pattern	Veh Det Plan	Overlap Plan
*	2	2

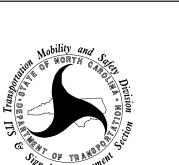
\*The Pattern number(s) are to be determined by the Division and/or City Traffic Engineer.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 14-0411 DESIGNED: Aug 2025

SEALED: 8/26/2025 REVISED: N/A

Electrical Detail - Sheet 3 of 3

Final Design



NC 107 (E Main Street)

SR 116 (Webster Road) Alexander Street

Jackson County Division 14 PLAN DATE: August 2025 REVIEWED BY: ZM Esposito BN Groome PREPARED BY: DS Griffith REVIEWED BY: REVISIONS

Sylva

Brittany Groome 8/26/2025

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SIGNATURES COMPLETED



MAST ARM LOADING SCHEDULE						
loading symbol	DESCRIPTION	AREA	SIZE	WEIGHT		
	RIGID MOUNTED SIGNAL HEAD 12"-4 SECTION-WITH BACKPLATE	11.5 S.F.	25.5″W X 66.0″L	74 LBS		
	RIGID MOUNTED SIGNAL HEAD 12"-3 SECTION-WITH BACKPLATE	9.3 S.F.	25.5" W X 52.5" L	60 LBS		
2	SIGN RIGID MOUNTED	7.5 S.F.	30.0" W X 36.0"L	14 LBS		
Street Name	STREET NAME SIGN RIGID MOUNTED	16.0 S.F.	24.0" W X 96.0"L	36 LBS		
	CCTV CAMERA ARM-MOUNTED	1.0 S.F.	11.0" W X 11.0" L	30 LBS		

#### **NOTES**

#### DESIGN REFERENCE MATERIAL

- 1. Design the traffic signal structure and foundation in accordance with:
- The 1st Edition 2015 AASHTO LRFD "Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, including all of the latest interim revisions.
- The 2024 NCDOT "Standard Specifications for Roads and Structures." The latest addenda to
- the specifications can be found in the traffic signal project special provisions.
- The 2024 NCDOT Roadway Standard Drawings.
- The traffic signal project plans and special provisions.
- The NCDOT "Metal Pole Standards" located at the following NCDOT website: https://connect.ncdot.gov/resources/safety/Pages/ITS-Design-Resources.aspx

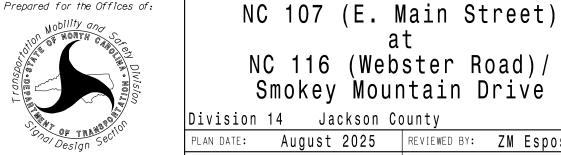
#### DESIGN REQUIREMENTS

- 2. Design the traffic signal structure using the loading conditions shown in the elevation views. These are anticipated worst case "design loads" and may not represent the actual loads that will be applied at the time of the installation. The contractor should refer to the traffic signal plans for the actual loads that will be applied at the time of the installation. 3. Design all signal supports using force ratios that do not exceed 0.9.
- 4. A clamp-type bolted mast arm-to-pole connection may be used instead of the welded ring stiffened box connection shown as long as the connection meets all of the design
- 5. Design base plate with 8 anchor bolt holes. Provide 2 inch x 60 inch anchor bolts.
- 6. The mast arm attachment height (H1) shown is based on the following design assumptions: a. Nominal vertical rise in mast arm is 5 feet as measured from the centerline of the arm base to the centerline of the free end of the arm.
- b. Signal heads are rigidly mounted and vertically centered on the mast arm.
- c. The roadway clearance height for design is as shown in the elevation views.
- d. The top of the pole base plate is 0.75 feet above the ground elevation.
- e. Refer to the Elevation Data Chart for the elevation differences between the proposed foundation ground level and the high point of the roadway.
- f. Provide horizontal distance from the proposed centerline of the foundation to the edge of travelway. Refer to the Elevation Data Chart for elevation difference between the proposed foundation ground level and the edge of travelway. This information is necessary to ensure that the roadway clearance is maintained at the edge of the travelway and to aid in the camber design of the arm.
- 7. The pole manufacturer will determine the total height (H2) of each pole using the greater of the following:
- Mast arm attachment height (H1) plus 2 feet, or
- H1 plus 1/2 of the total height of the mast arm attachment assembly plus 1 foot. 8. If pole location adjustments are required, the contractor must gain approval from the
- Engineer as this may affect the mast arm lengths and arm attachment heights. The contractor may contact the Signal Design Section Senior Structural Engineer for assistance at (919) 814-5000.
- 9. The contractor is responsible for verifying that the mast arm length shown will allow proper positioning of the signal heads over the roadway.
- 10. The contractor is responsible for providing soil penetration testing data (SPT) to the pole manufacturer so site specific foundations can be designed.

All metalpoles and arms should be black in color as specified in the project specialprovisions.

#### NCDOT Wind Zone 5 (110 mph)

N/A



Smokey Mountain Drive Division 14 Jackson County PLAN DATE: August 2025 | REVIEWED BY: ZM Esposito PREPARED BY: DJ White REVIEWED BY: BN Groome N.Greenfield Pkwy,Garner,NC 27529 REVISIONS INIT. DATE

Sylva 052936 Brittany Groome 14-0411

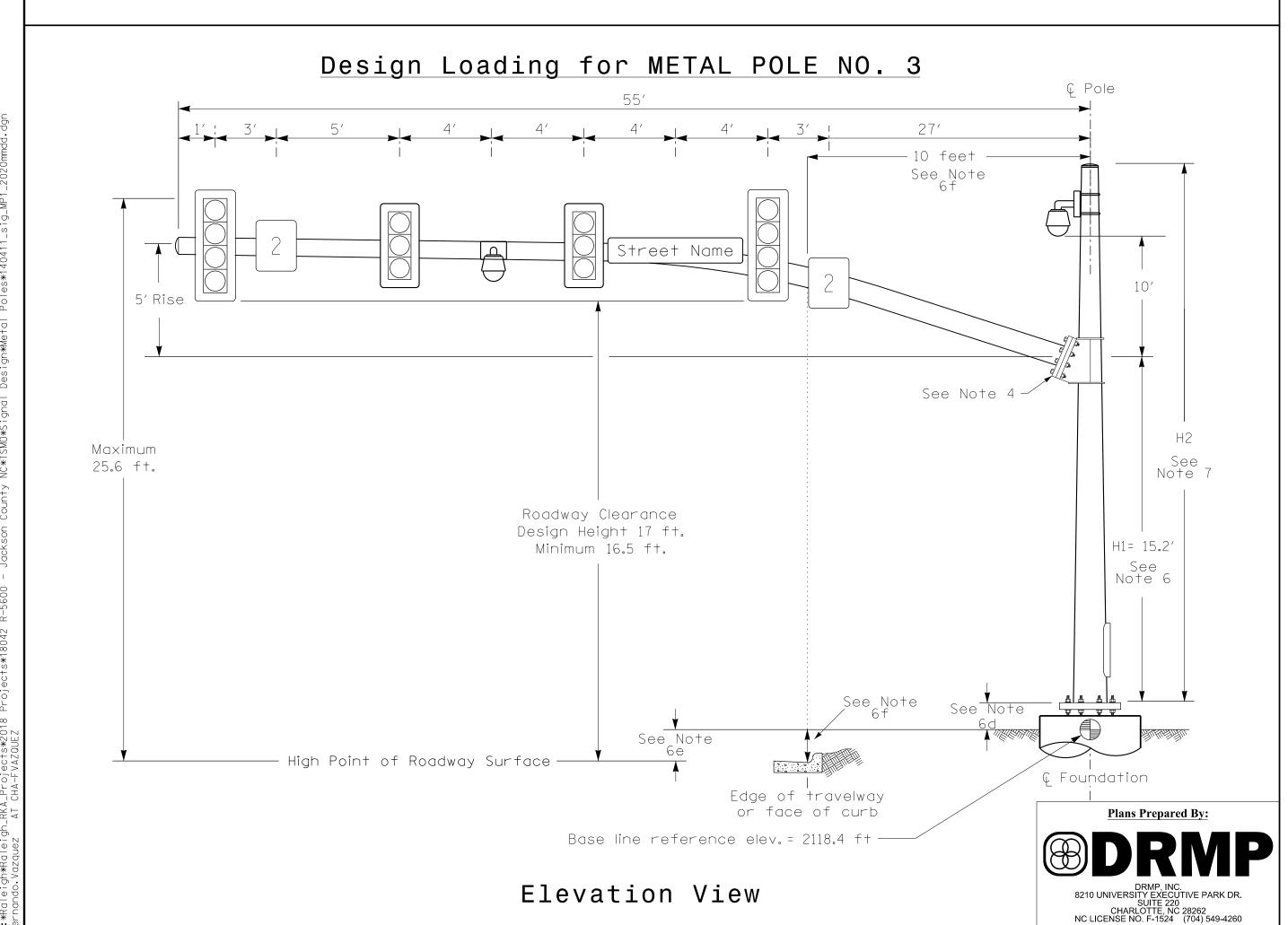
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SEAL

Design Loading for METAL POLE NO. 1 See Note Street Name Ç Pole See Note 4 Н2 Maximum See . Note 25.6 ft. Roadway Clearance Design Height 17 ft. H1= 14.2′ Minimum 16.5 ft. See Note 6 See Note High Point of Roadway Surface î Foundation Edge of travelway or face of curb Base line reference elev. = 2119.1 ft

Elevation View



#### Attachment (H1) Elevation Differences for: | Pole 1 | Pole 3 Baseline reference point at & Foundation @ ground level 2119.1 ft. | 2118.4 ft. Elevation difference at High point of roadway surface +0.2 ft. +1.2 ft. Elevation difference at Edge of travelway or face of curb +/-0.0 ft. +0.7 ft.

SPECIAL NOTE

The contractor is responsible for verifying that the mast arm attachment height (H1)

will provide the "Design Height" clearance

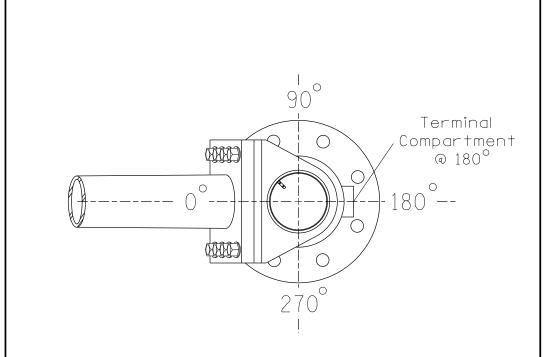
elevation data below which was obtained by field measurement or from available

shop drawings for approval. Verify

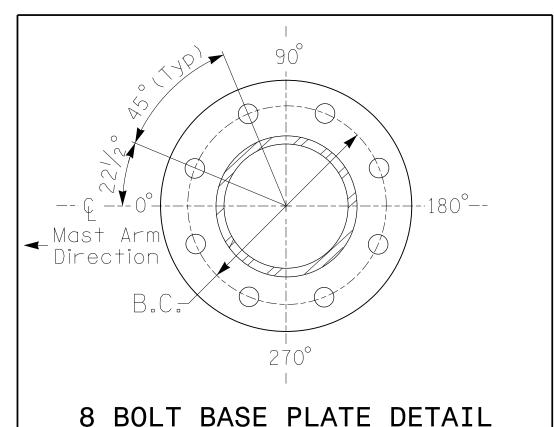
project survey data.

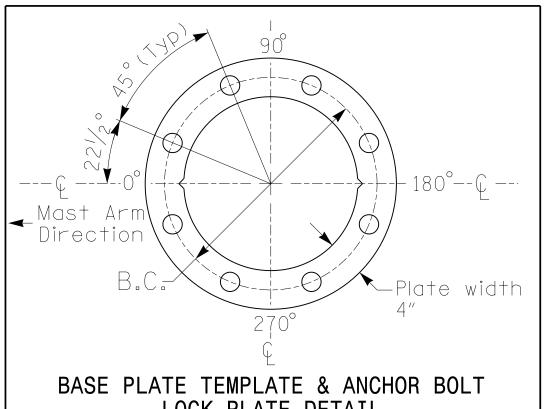
from the roadway before submitting final

Elevation Data for Mast Arm



POLE RADIAL ORIENTATION





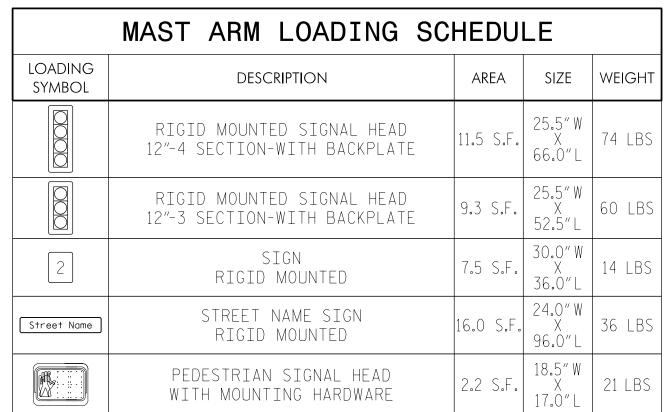
See Note 5

LOCK PLATE DETAIL For 8 Bolt Base Plate Maximum

25.6 ft.

Roadway Clearance

Design Height 17 ft. Minimum 16.5 ft.



#### NOTES

#### DESIGN REFERENCE MATERIAL

- 1. Design the traffic signal structure and foundation in accordance with:
- The 1st Edition 2015 AASHTO LRFD "Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, including all of the latest interim revisions.
- The 2024 NCDOT "Standard Specifications for Roads and Structures." The latest addenda to the specifications can be found in the traffic signal project special provisions.
- The 2024 NCDOT Roadway Standard Drawings.
- The traffic signal project plans and special provisions.
- The NCDOT "Metal Pole Standards" located at the following NCDOT website:
- https://connect.ncdot.gov/resources/safety/Pages/ITS-Design-Resources.aspx

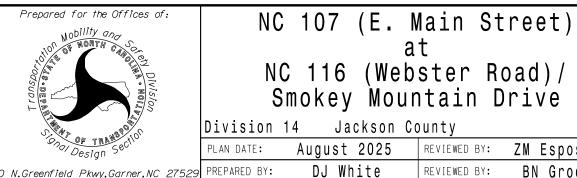
#### DESIGN REQUIREMENTS

- 2. Design the traffic signal structure using the loading conditions shown in the elevation views. These are anticipated worst case "design loads" and may not represent the actual loads that will be applied at the time of the installation. The contractor should refer to the traffic signal plans for the actual loads that will be applied at the time of the installation.
- 3. Design all signal supports using force ratios that do not exceed 0.9.
- 4. A clamp-type bolted mast arm-to-pole connection may be used instead of the welded ring stiffened box connection shown as long as the connection meets all of the design requirements. This requires staggering the connections. Use elevation data for each arm to determine appropriate connection points.
- 5. Design base plate with 8 anchor bolt holes. Provide 2 inch x 60 inch anchor bolts.
- 6. The mast arm attachment height (H1) shown is based on the following design assumptions: a. Nominal vertical rise in mast arm is 5 feet as measured from the centerline of the arm base to the centerline of the free end of the arm.
- b. Signal heads are rigidly mounted and vertically centered on the mast arm.
- c. The roadway clearance height for design is as shown in the elevation views.
- d. The top of the pole base plate is 0.75 feet above the ground elevation.
- e. Refer to the Elevation Data Chart for the elevation differences between the proposed foundation ground level and the high point of the roadway.
- f. Provide horizontal distance from the proposed centerline of the foundation to the edge of travelway. Refer to the Elevation Data Chart for elevation difference between the proposed foundation ground level and the edge of travelway. This information is necessary to ensure that the roadway clearance is maintained at the edge of the travelway and to aid in the camber design of the arm.
- 7. The pole manufacturer will determine the total height (H2) of each pole using the greater of the following:
- Mast arm attachment height (H1) plus 2 feet, or
- H1 plus 1/2 of the total height of the mast arm attachment assembly plus 1 foot.
- 8. If pole location adjustments are required, the contractor must gain approval from the Engineer as this may affect the mast arm lengths and arm attachment heights. The contractor may contact the Signal Design Section Senior Structural Engineer for assistance at (919) 814-5000.
- 9. The contractor is responsible for verifying that the mast arm length shown will allow proper positioning of the signal heads over the roadway.
- 10. The contractor is responsible for providing soil penetration testing data (SPT) to the pole manufacturer so site specific foundations can be designed.

All metal poles and arms should be black in color as specified in the project special provisions.

#### NCDOT Wind Zone 5 (110 mph)

N/A



Division 14 Jackson County PLAN DATE: August 2025 REVIEWED BY: ZM Esposito PREPARED BY: DJ White REVIEWED BY: BN Groome REVISIONS INIT. DATE

Sylva 052936 Brittany Groome

DOCUMENT NOT CONSIDERED

FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL

Terminal /Compartmer @ 180° BETWEEN ARMS

SPECIAL NOTE

The contractor is responsible for verifying that the mast arm attachment height (H1)

will provide the "Design Height" clearance

elevation data below which was obtained

by field measurement or from available

shop drawings for approval. Verify

project survey data.

Elevation Differences for:

Elevation difference at High point of roadway surface

Elevation difference at

Edge of travelway or face of curb

Baseline reference point at

© Foundation @ ground level

from the roadway before submitting final

Elevation Data for Mast Arm

Attachment (H1)

Arm A

-8.5 ft.

-8.9 ft.

2128.9 ft. 2128.9 ft

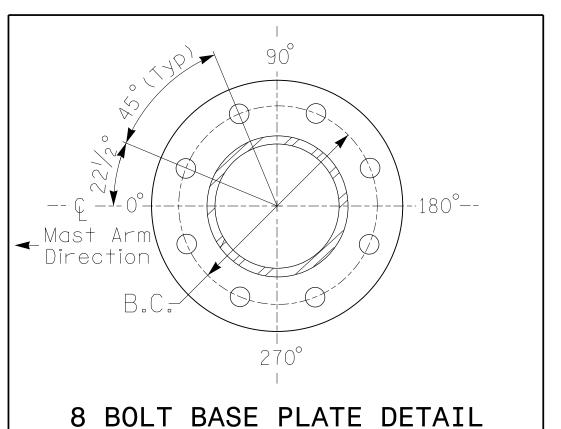
Arm B

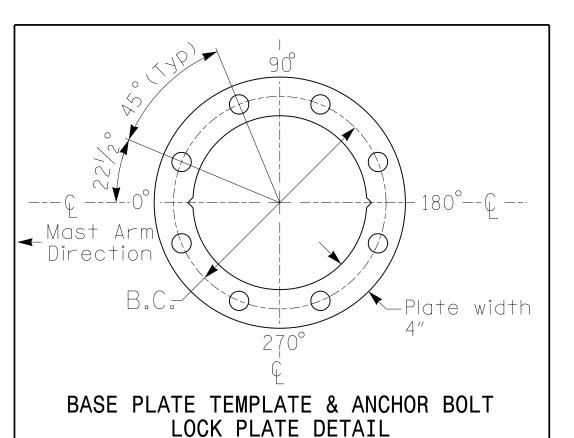
-9.0 ft.

-8.6 ft.

#### POLE RADIAL ORIENTATION

ARM B





For 8 Bolt Base Plate

See Note 5

# See Note Street Name 🔲 5' Rise See Note 4 Maximum See lote 25.6 ft. Roadway Clearance Design Height 17 ft. H1= 5.5′ Minimum 16.5 ft. See Note 7′ min. -10′ max. ↑See Note See Note High Point of Roadway Surface © Foundation Edge of travelway **Plans Prepared By:** or face of curb

Elevation View @ O

-Base line reference elev. = 2128.9 ft.

Elevation View @ 270

Design Loading for METAL POLE NO. 2, MAST ARM B

See Note See Note

Base line reference elev. = 2128.9 f

Edge of travelway or face of curb

Design Loading for METAL POLE NO. 2, MAST ARM A

Street Name

– High Point of Roadway Surface —

14 feet

See Note

See Note 4

7′ min. – 10′ max.

See Note

See Note 6

Foundation

DRMP, INC. 8210 UNIVERSITY EXECUTIVE PARK DR. SUITE 220 CHARLOTTE, NC 28262 NC LICENSE NO. F-1524 (704) 549-4260

PHASING DIAGRAM

PHASING DIAGRAM DETECTION LEGEND

DETECTED MOVEMENT

UNSIGNALIZED MOVEMENT

PEDESTRIAN MOVEMENT

UNDETECTED MOVEMENT (OVERLAP)

R-5600 Sig-38.0

**EXISTING** 

**-**

N/A

\_----

\_\_\_\_\_\_

N/A

— PUE —

—DUE—

\_\_\_\_P\_\_

- - W - -

\_\_\_\_\_T F0\_\_\_\_

\_ \_ T \_ \_ \_

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL

SIGNATURES COMPLETED

SEAL

CARO

052936

-PROP O/H POW TEL & CATV LINES

#### 5 Phase Fully Actuated (Time Based Coordination) 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 1 and/or phase 5 may be lagged.

**PROPOSED** 

 $\bigcirc$ 

\_---

N/A

 $\langle \Delta \rangle$ 

REVISIONS

- 4. Set all detectors units to presence mode.
- 5. Locate new cabinet so as not to obsutruct sight distance of vehicles turning right on red.
- 6. This intersection uses multi-zone microwave detection. Install detectors according to the manufacturer's instructions to achieve the desired detection.

**LEGEND** 

Traffic Signal Head

Modified Signal Head

Sign

Pedestrian Signal Head With Push Button & Sign

Signal Pole with Guy

Signal Pole with Sidewalk Guy

Inductive Loop Detector

Controller & Cabinet

Junction Box

Oversized Junction Box

2-in Underground Conduit

Right of Way

Directional Arrow Non-Intrusive Detection Zone

Construction Zone

Permenant Utility Easement

Drainage Utility Easement

Underground Power Line

Underground Water Line

Undgerground Fiber Optics

Over Head Power Line

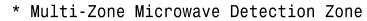
Barricade

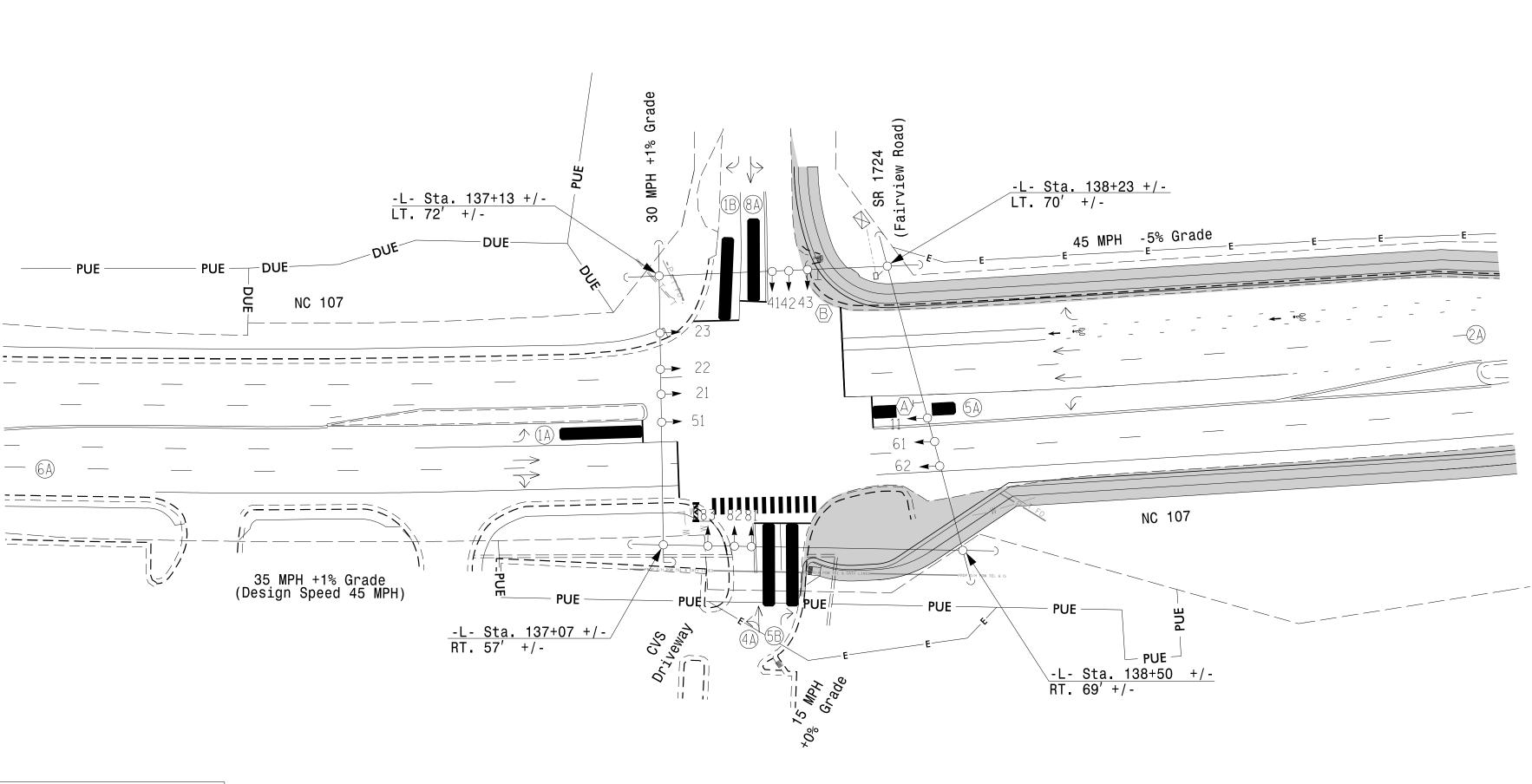
No U-Turn Sign Sign (R3-4) Right Turn Yield to U-Turn Sign

Telephone Cable Underground Telephone Cable

7. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.

	DET	ECTOR			PF	ROGRAM	MΙ	NG				
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL	DELAY DURING GREEN	NEW CARD
	CV 40		*	*	1	15.0	-	Χ	_	Χ	-	*
1A	6X40	0	, î	,	6	-	-	Χ	-	Χ	-	*
1B	*	0	*	Χ	1	15.0	<u> </u>	Χ	_	Χ	-	*
4A	*	0	*	Χ	4	5.0	-	Χ	_	Χ	-	*
E A	CV 40		*	*	5	15.0	<u>-</u>	Χ	_	Χ	-	*
5A	6X40	0			2	-	-	Χ	_	Χ	-	*
5B	*	0	*	Х	5	15.0	-	Χ	-	Χ		*
8A	*	0	*	Х	8	5.0	-	Χ	_	Χ	-	*





SIGNAL FACE I.D.

All Heads L.E.D.

83

21,22 41,42 61,62 81,82

TABLE OF OPERATION

SIGNAL

FACE

21, 22

41,42

61,62

81,82

8:3

PHASE

|R| + |F| = |F|

F R F R F

- <del>-</del> - <del>-</del> - <del>-</del>

R | G | R | G | R | R

RRRRG

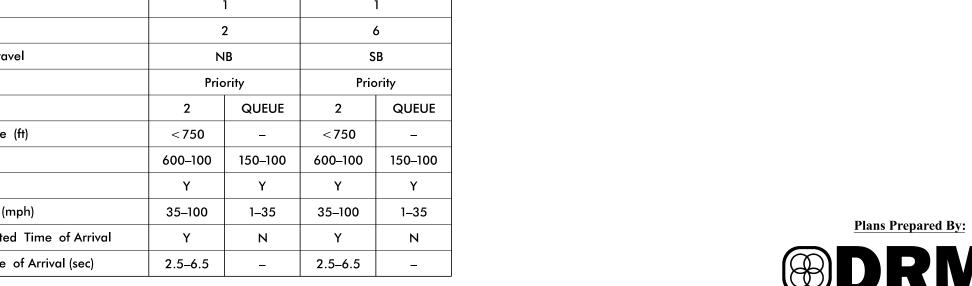
 $\rightarrow$  R R  $\stackrel{F}{\rightarrow}$  F

| R | R | C

	MA	XTIME 7	TIMING	CHAR	Γ					
FFATURE	PHASE									
FEATURE	1	2	4	5	6	8				
Walk *	_	_	_	_	_	_				
Ped Clear *	_	_	_	_	_	_				
Min Green	7	12	7	7	12	7				
Passage *	2.0	2.0	2.0	2.0	2.0	2.0				
Max 1 *	15	120	30	15	120	30				
Yellow Change	3.0	5.0	3.5	3.1	5.0	3.5				
Red Clear	3.1	2.3	3.8	2.6	2.3	3.8				
Added Initial *	_	_	_	_	-	_				
Maximum Initial *	_	_	_	_	_	_				
Time Before Reduction *	_	_	_	_	-	_				
Time To Reduce *	_	_	_	_	_	_				
Minimum Gap	_	_	_	_	_	_				
Advance Walk	_	_	_	_	_	_				
Non Lock Detector	Х	_	Х	Х	_	Х				
Vehicle Recall	_	MIN RECALL	_	_	MIN RECALL	_				
Dual Entry	-	_	Х	_	_	Х				

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

Microwave Detection										
	(2	A	(6 A)							
FUNCTION	Sen	sor 1	Sens	Sensor 2						
Channel		1		1						
Phase		2	6							
Direction of Travel	N	IB	SB							
Туре	Pric	ority	Priority							
Level	2	QUEUE	2	QUEUE						
Detection Zone (ft)	< 750	_	< 750	_						
Range (ft)	600–100	150–100	600–100	150–100						
Enable Speed	Υ	Y	Y	Y						
Speed Range (mph)	35–100	1–35	35–100	1–35						
Enable Estimated Time of Arrival	Υ	N	Y	Ν						
Estimated Time of Arrival (sec)	2.5–6.5	_	2.5–6.5	_						



Temporary Design 1 - TMP Ph1, S1

Signal Upgrade

1"=40'

NC 107 SR 1724 (Fairview Road) CVS Driveway

Division 14 Jackson County PLAN DATE: August 2025 REVIEWED BY: ZM Esposito 29 PREPARED BY: DS Griffith REVIEWED BY: BN Groome

INIT. DATE Brittany Groome 8/26/2025 SIG. INVENTORY NO. |4-07907

DRMP, INC. 8210 UNIVERSITY EXECUTIVE PARK DR. SUITE 220 CHARLOTTE, NC 28262 NC LICENSE NO. F-1524 (704) 549-4260

− RF 2010

■ WD 1.0 SEC

■— LEDguard ■— RF SSM

FYA 3-10 FYA 5-11
FYA 7-12

> \_ 13 14

= DENOTES POSITION OF SWITCH

— FYA 1-9

- RP DISABLE

- GY ENABLE ☐─ SF#1 POLARITY

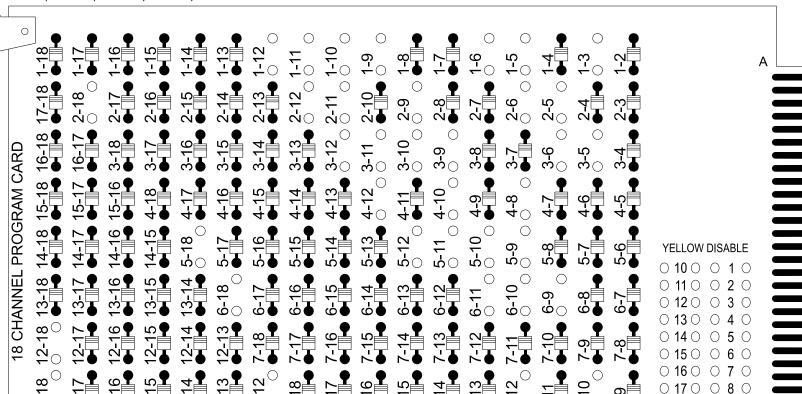
FYA COMPACT—

WD ENABLE (

SW2

PROGRAMMING DETAIL (remove jumpers and set switches as shown)

REMOVE DIODE JUMPERS 1-3, 1-5, 1-6, 1-9, 1-10, 1-11, 1-12, 2-5, 2-6, 2-9, 2-11, 2-12, 2-18, 3-5, 3-6, 3-9, 3-10, 3-11, 3-12, 4-8, 4-10, 4-12, 5-9, 5-10, 5-11, 5-12, 5-18, 6-9, 6-10, 6-11, 6-18, 8-10, 8-12, 9-10, 9-11, 9-12, 9-18, 10-11, 10-12, 11-12, 11-18 AND 12-18.



#### REMOVE JUMPERS AS SHOWN

- 1. Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
- 2. Ensure jumpers SEL2-SEL5 and SEL9 are present on the monitor board.
- 3. Ensure that the Red Enable is active at all times during normal operation.
- 4. Integrate monitor with Ethernet network in cabinet.

#### NOTES

- 1. To prevent "flash-conflict" problems, insert red flash program blocks for all vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the signal plan.
- 2. Program phases 4 and 8 for Dual Entry.
- 3. If this signal will be managed by an ATMS software, enable controller and detector logging for all detectors used at this location.
- 4. Program controller to start up in phase 2 Green No Walk and 6 Green No Walk.
- 5. The cabinet and controller are part of the NC 107 Time Based System.

#### **EQUIPMENT INFORMATION**

Controller	2070LX
Cabinet	332 w/ Aux
Software	Q-Free MAXTIME
Cabinet Mount	Base
Output File Positions	18 With Aux. Output File
Load Switches Used	S1, S2, S4, S5, S7, S8, S11,
	AUX S1, AUX S2, AUX S4, AUX S5, AUX S6
Phases Used	1, 2, 4, 5, 6, 8
Overlap "1"	*
Overlap "2"	*
Overlap "3"	*
Overlap "4"	*
Overlap "5"	NOT USED
Overlap "6"	*

\*See overlap programming detail on sheet 2.

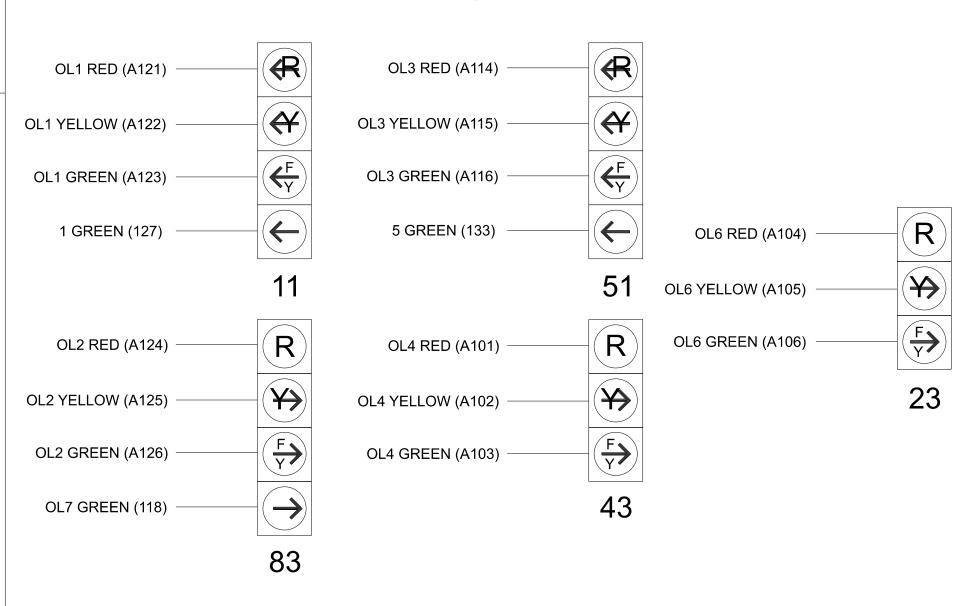
Overlap "7".....\*

#### SIGNAL HEAD HOOK-UP CHART S1 S2 S3 S4 S5 S6 S7 S8 S9 S10 S11 S12 AUX AUX AUX AUX S5 S6 S6 1 2 13 3 4 14 5 6 15 7 8 16 9 10 17 11 12 18 CHANNEL NO. 1 2 PED OL7 4 PED 5 6 PED 7 8 PED OL1 OL2 SPARE OL3 OL4 OL6 11 21,22 NU 83 41,42 NU 51 61,62 NU NU 81,82 NU 11 83 NU 51 43 23 RED A101 A104 **\*** 102 129 **\*** 135 YELLOW 130 103 109 GREEN A121 YELLOW A122 A125 A115 A102 A105 ARROW FLASHING A123 A126 A116 A103 A106 YELLOW ARROW **GREEN** 118 133 ARROW

- \* Denotes install load resistor. See load resistor installation detail this sheet.
- ★ See pictorial of head wiring in detail this sheet.

#### FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



# INPUT FILE POSITION LAYOUT

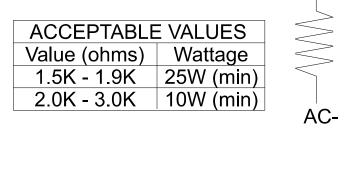
(front view)

	r	1	2	3	4	5	6	7	8	9	10	11	12	13	14
FILE	U	Ø 1	S L O	S L O T	S L O	S L OT	S L O T	S L O	S L O	S L O T	S L O	S L O	S L O T	S L O	FS DC
" "	L	NOT USED	T E M P T	E M P T	T E M P T	E M P T	E M P T	E M P T	E M P T	E M P T	E M P T	E M P T	E M P T	E M P T	ISOLATOR ST
FILE	U	Ø 5	S L O	S L O T	S L O	S L O	S L O T	S L Q	S L O	S L O	S L O	S L O	S L O T	Y S L O	ISOLATOR S L O
"J"	L	NOT USED	T E M P T Y	E M P T Y	T E M P T Y	T E M P T Y	E M P T Y	E M P T Y	E M P T Y	E M P T Y	E M P T Y	T E M P T Y	E M P T Y	T E M P T Y	E M P T Y
		EX.: 1A	, 2A, ET	C. = LOC	P NO.'S	l	I	I	1			FS = I	FLASH S	ENSE	

Note: For Detection Zones 1A and 5A the equipment and slots reserved are typical for a NCDOT installation.

#### LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown)



Phase 1 Yellow Field Terminal (126) Phase 5 Yellow Field Terminal (132) **OL7 Yellow Field** Terminal (117)

AC-

ST = STOP TIME

#### INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT POINT	DETECTOR NO.	CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL	DELAY DURING GREEN
1 /	TD2 1.2	I1U	56	18	1	1	15.0		Х		Х	
1A	TB2-1,2	TIO	56	-	29	6			Х		Х	
5A	TB3-1,2	J1U	55	17	15	5	15.0		Х		Х	
JA.	100-1,2	210	55	<u>-</u>	31	2			X		Χ	

INPUT FILE POSITION LEGEND: J2L FILE J -SLOT 2

**LOWER** 

#### SPECIAL DETECTOR NOTE

- 1. Install a multi-zone microwave detection system for vehicle detection. Perform installation according to manufacturer's directions and NCDOT engineer -approved mounting locations to accomplish the detection schemes shown on the Signal Design Plans.
- 2. For Detection Zones 1A and 5A, the equipement placement is typical for a NCDOT installation.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 14-0790T1 DESIGNED: Aug 2025

SEALED: 8/26/2025 REVISED: N/A

Electrical Detail - Sheet 1 of 2 Temporary Design 1 - TMP Ph1, S1

ELECTRICAL AND PROGRAMMING NC 107 DETAILS FOR: SR 1724 (Fairview Road) CVS Driveway Division 14 Jackson County

PLAN DATE: August 2025 REVIEWED BY: ZM Esposito PREPARED BY: DS Griffith REVIEWED BY: REVISIONS

SEAL CARA Sylva 052936

R-5600

Sig-38

SUITE 220 CHARLOTTE, NC 28262 NC LICENSE NO. F-1524 (704) 549-4260

BN Groome INIT. DATE

DOCUMENT NOT CONSIDERED

SIGNATURES COMPLETED

FINAL UNLESS ALL

Brittany Groome 8/26/2025 SIG. INVENTORY NO. |4-0790

#### MAXTIME OVERLAP PROGRAMMING DETAIL

Front Panel

Main Menu >Controller >Overlap >Overlap Parameters/Overlap Timings

Web Interface

Home >Controller >Overlap Configuration >Overlaps

#### Overlap Plan 1

Overlap	1	2	3	4	6	7
Туре	FYA 4 - Section	Normal				
Included Phases	2	8	6	4,5	2	1
Modifier Phases	1	1	5	-	-	-
Modifier Overlap	-	-	-	-	-	-
Trail Green	0	0	0	0	0	0
Trail Yellow	0.0	0.0	0.0	0.0	0.0	0.0
Trail Red	0.0	0.0	0.0	0.0	0.0	0.0

#### **OUTPUT CHANNEL CONFIGURATION**

Front Panel

Main Menu >Controller >More>Channels>Channels Config

Web Interface

Home >Controller >Advanced IO>Channels>Channel Configuration

#### **Channel Configuration**

	Channel	Control Type	Control Source	Flash Yellow	Flash Red	Flash Alt	MMU Channe
	1	Phase Vehicle	1		X	X	1
NOTICE OVERLAP 7	2	Phase Vehicle	2		Х		2
ASSIGNED TO CHANNEL 3	3	Overlap	7		Х	Χ	3
	4	Phase Vehicle	4		Х		4
	5	Phase Vehicle	5		Х		5
	6	Phase Vehicle	6		Х	Χ	6
	7	Phase Vehicle	7		Х		7
	8	Phase Vehicle	8		Х	Χ	8
	9	Overlap	1		Х	Χ	9
	10	Overlap	2		Х	Χ	10
	11	Overlap	3		Х		11
	12	Overlap	4		Χ		12
	13	Phase Ped	2				13
	14	Phase Ped	4				14
	15	Phase Ped	6				15
	16	Phase Ped	8				16
	17	Overlap	5		Χ	Χ	17
	18	Overlap	6		Χ		18

NOTICE FLASHING RED

#### MAXTIME STARTUP AND SOFTWARE FLASH PROGRAMMING DETAIL

Front Panel
Main Menu>Controller>Unit Web Interface Home>Controller>Unit

Start Up Parameters Startup Clearance Hold **Unit Flash Parameters** All Red Flash Exit Time

#### FLASHER CIRCUIT MODIFICATION DETAIL

IN ORDER TO INSURE THAT SIGNALS FLASH CONCURRENTLY ON THE SAME APPROACH, MAKE THE FOLLOWING FLASHER CIRCUIT CHANGES:

- 1. ON REAR OF PDA REMOVE WIRE FROM TERM. T2-4 AND TERMINATE ON T2-2.
- 2. ON REAR OF PDA REMOVE WIRE FROM TERM. T2-5 AND TERMINATE ON T2-3.
- 3. REMOVE FLASHER UNIT 2.

THE CHANGES LISTED ABOVE TIES ALL PHASES AND OVERLAPS TO FLASHER UNIT 1.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 14-0790T1

DESIGNED: Aug 2025 SEALED: 8/26/2025 REVISED: N/A

Electrical Detail - Sheet 2 of 2

Temporary Design 1 - TMP Ph1, S1

ELECTRICAL AND PROGRAMMING NC 1 NC 107

> SR 1724 (Fairview Road) CVS Driveway Division 14 Jackson County

> > REVISIONS

PLAN DATE: August 2025 REVIEWED BY: ZM Esposito PREPARED BY: DS Griffith REVIEWED BY: BN Groome

INIT. DATE

052936 Brittany Groome 8/26/2025 SIG. INVENTORY NO. 14-0790

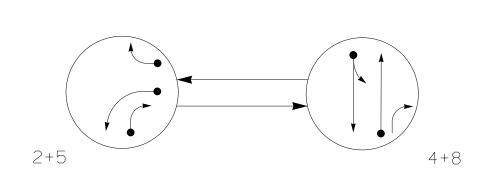
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SEAL

**Plans Prepared By:** DRMP, INC. 8210 UNIVERSITY EXECUTIVE PARK DR. SUITE 220 CHARLOTTE, NC 28262 NC LICENSE NO. F-1524 (704) 549-4260



#### PHASING DIAGRAM



#### PHASING DIAGRAM DETECTION LEGEND

DETECTED MOVEMENT UNDETECTED MOVEMENT (OVERLAP)

 $<\!\!\!<\!\!\!--\!\!\!>$  PEDESTRIAN MOVEMENT

UNSIGNALIZED MOVEMENT

TABLE	OF C	)PER	ATI	:01
		Р	HAS	E
SIGN	AL	2	1	F
FAC	E	2+5	4 + 8	JASH
23,2	24	-	R	R
41,4	12	R	G	R
43	1	F	F	R
51		-	#	4
81,8	32	R	G	R

<u>.</u>	SIGNAL F	ACE I.D.	
	All Heads	s L.E.D.	
(F) 12"	R Y 12"	R 12"	R 12"
51	41,42 81,82	23, 24	43

LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL	DELAY DURING GREEN	NEW CARD
2A	*	0	*	Х	2	-	-	Χ	-	Χ	-	*
4A	*	0	*	-	4	3.0	-	Χ	-	Χ	-	*
5A	6X40	0	*	*	5	15.0	-	Χ	-	Χ	-	*
3A	0740	U	,		2	-	-	Χ	-	Χ	-	*
5B	*	0	*	-	5	5.0	-	Χ	-	Χ	-	*
8A	*	0	*	_	8	-	-	Χ	-	X	-	*

MAXTIME DETECTOR INSTALLATION CHART

PROGRAMMING

\* Multi-Zone Microwave Detection Zone

Plans Prepared By:

**DETECTOR** 

#### 2 Phase Fully Actuated (Time Based Coordination)

#### 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. Disconnect and bag exisiting signal heads 11, 21, 22, 61, 62 and 83.
- 4. Bag existing No U-Turn sign (R3-4).
- 5. Set all detectors to presence mode.
- 6. This intersection uses multi-zone microwave detection. Install detectors according to the manufacturer's instructions to achieve the desired detection
- 7. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.

LEGEND

Traffic Signal Head

Modified Signal Head

Pedestrian Signal Head With Push Button & Sign

Signal Pole with Guy

Signal Pole with Sidewalk Guy Inductive Loop Detector Controller & Cabinet Junction Box

> Right of Way Directional Arrow

Construction Zone

Construction Drums Barricade

No Right Turn sign (R3-1)

No Left Turn sign (R3-2)

2-in Underground Conduit -----

Non-Intrusive Detection Zone

Permenant Utility Easement — PUE — Drainage Utility Easement —— **DUE**—

**EXISTING** 

N/A

N/A

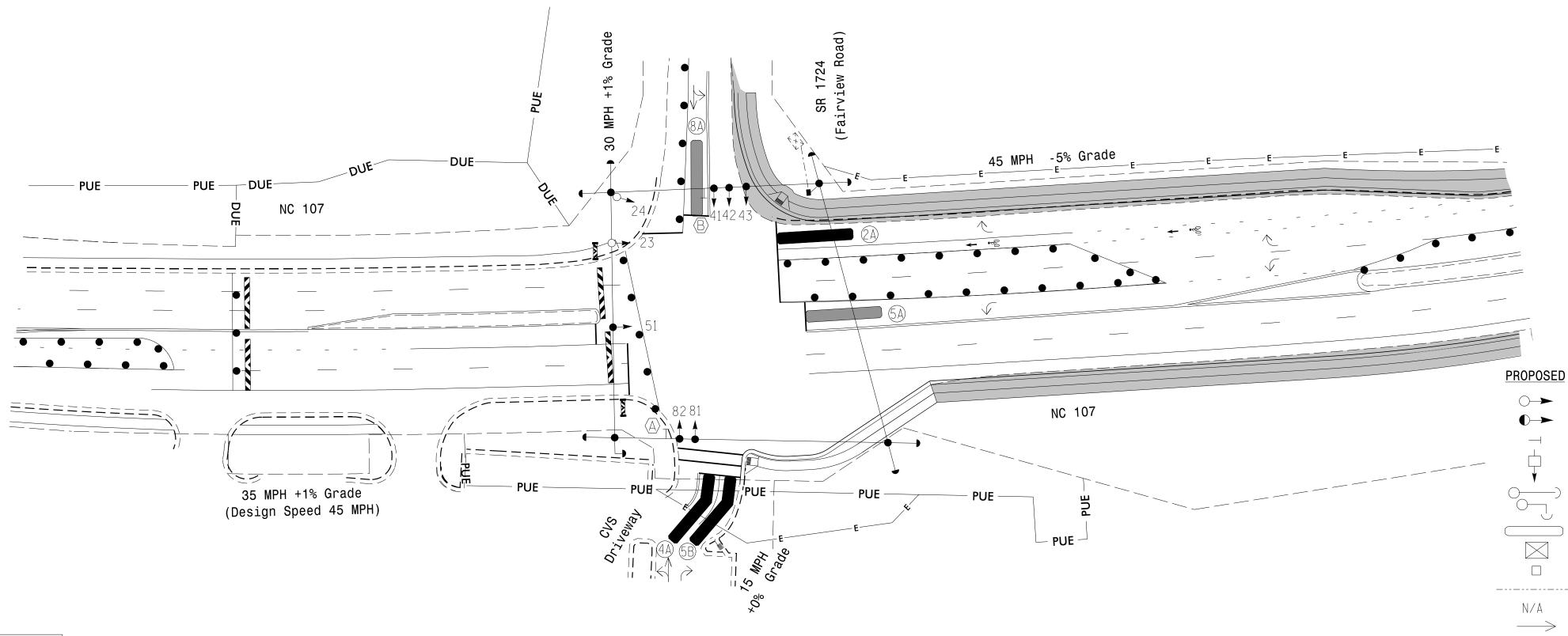
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DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL

052936

10/1/2025



MAXTIM	E TIMI	NG CHA	RT							
FFATURE	PHASE									
FEATURE	2	4	5	8						
Walk *	_	_	_	_						
Ped Clear	_	_	_	_						
Min Green *	12	7	12	7						
Passage *	2.0	2.0	2.0	2.0						
Max 1 *	50	50	50	50						
Yellow Change	3.1	3.5	3.1	3.5						
Red Clear	2.4	4.5	2.4	4.5						
Added Initial *	_	_	_	_						
Maximum Initial *	_	_	_	_						
Time Before Reduction *	_	_	_	_						
Time To Reduce *	_	_	_	_						
Minimum Gap	_	_	_	_						
Advance Walk	_	_	_	_						
Non Lock Detector	Х	Х	Х	Х						
Vehicle Recall	MIN RECALL	_	MIN RECALL	_						
Dual Entry	_	Х	_	х						

Signal Upgrade Temporary Design 2 - TMP Ph1, S1A NC 107

1"=40'

SR 1724 (Fairview Road) CVS Driveway

N/A

Division 14 Jackson County PREPARED BY: DS Griffith REVIEWED BY: BN Groome REVISIONS

PLAN DATE: October 2025 REVIEWED BY: ZM Esposito Brittany Groome SIG. INVENTORY NO. 14-0790T

\* 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.

#### NOTES

- 1. To prevent "flash-conflict" problems, insert red flash program blocks for all vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the signal plan.
- 2. Return controller to Factory Defaults before programming per this electrical detail
- 3. Program phases 4 and 8 for Dual Entry.
- 4. If this signal will be managed by an ATMS software, enable controller and detector logging for all detectors used at this location.
- 5. Program controller to start up in phase 2 Green No Walk and 6 Green No Walk.
- 6. The cabinet and controller are part of the NC 107 Time Based System.

#### **EQUIPMENT INFORMATION**

Controller	.2070LX
Cabinet	.332 w/ Aux
Software	.Q-Free MAXTIME
Cabinet Mount	.Base
Output File Positions	.18 With Aux. Output File
Load Switches Used	.S5, S7, S11, AUX S4, AUX S5, AUX S6
Phases Used	2, 4, 5, 8
Overlap "1"	NOT USED
Overlap "2"	NOT USED
Overlap "3"	*
Overlap "4"	*
Overlap "5"	NOT USED
Overlap "6"	*

\*See overlap programming details on sheet 2.

Overlap "7".....NOT USED

				9	SIGN	۱AL	. HE	AD	НО	OK	-UP	СН	AR'	Т				
LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	AUX S1	AUX S2	AUX S3	AUX S4	AUX S5	AUX S6
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16	9	10	17	11	12	18
PHASE	1	2	2 PED	OL7	4	4 PED	5	6	6 PED	7	8	8 PED	OL1	OL2	SPARE	OL3	OL4	OL6
SIGNAL HEAD NO.	NC	NC	NU	NC	41,42	NU	<b>★</b> 51	NC	NU	NU	81,82	NU	NC	NC	NU	<b>★</b> 51	<b>★</b> 43	23,24
RED					101						107						A101	A104
YELLOW					102		*				108							
GREEN					103						109							
RED ARROW																A114		
YELLOW ARROW																A115	A102	A105
FLASHING YELLOW ARROW																A116	A103	
GREEN ARROW							133											A106
₩																		
<b>X</b>																		

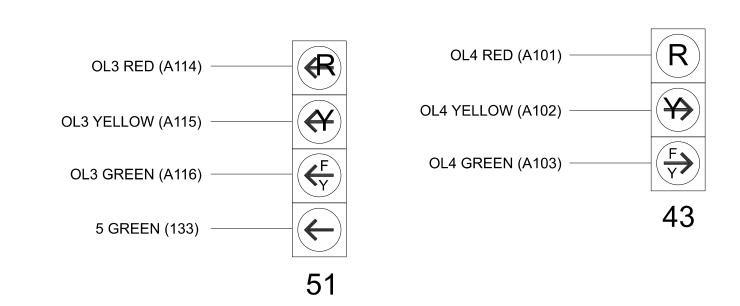
NC = Not Connected NU = Not Used

★ Denotes install load resistor. See load resistor installation detail this sheet.

★ See pictorial of head wiring in detail this sheet.

#### FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 14-0790T2

DESIGNED: Oct 2025 SEALED: 10/1/2025 REVISED: N/A

Electrical Detail - Sheet 1 of 2 Temporary Design 2 - TMP Ph1, S1A

ELECTRICAL AND PROGRAMMING

DETAILS FOR:

NC 107

SR 1724 (Fairview Road) CVS Driveway

Division 14 Jackson County October 2025 REVIEWED BY: ZM Esposito PLAN DATE: PREPARED BY: DS Griffith REVIEWED BY: BN Groome REVISIONS INIT. DATE

CARA Sylva 052936 Brittany Groome SIG. INVENTORY NO. [4-0.790]

DOCUMENT NOT CONSIDERED

SIGNATURES COMPLETED

FINAL UNLESS ALL

SEAL

10/1/2025

# SUITE 220 CHARLOTTE, NC 28262 NC LICENSE NO. F-1524 (704) 549-4260

# INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.		DETECTOR NO.	CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL	DELAY DURING GREEN
5A TB3-1	TD2 1 2	TB3-1,2 J1U	55	17	15	5	15.0		Х		Х	
	103-1,2		55	-	31	2			Х		Χ	

INPUT FILE POSITION LEGEND: J2L

SLOT 2 **LOWER** 

# Note: For Detection Zone 5A the equipment and slot reserved is typical for a NCDOT installation.

#### LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown)

ACCEPTABLE VALUES Value (ohms) Wattage 1.5K - 1.9K | 25W (min) 2.0K - 3.0K | 10W (min)

EX.: 1A, 2A, ETC. = LOOP NO.'S

18 CHANNEL IP CONFLICT MONITOR

PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

REMOVE DIODE JUMPERS 4-8, 4-12, 5-11, 5-12, 5-18, 8-12, 11-12, 11-18, AND 12-18.

4. Integrate monitor with Ethernet network in cabinet.

FILE

FILE

COMPONENT SIDE

1. Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.

2. Ensure jumpers SEL2-SEL5 and SEL9 are present on the monitor board.

3. Ensure that the Red Enable is active at all times during normal operation.

INPUT FILE POSITION LAYOUT

(front view)

1 2 3 4 5 6 7 8 9 10 11 12 13 14

REMOVE JUMPERS AS SHOWN

ON OFF

− RF 2010 - RP DISABLE **■**─ WD 1.0 SEC

GY ENABLE SF#1 POLARITY

- FYA COMPACT-

LEDguard

− RF ŠSM

– FYA 1-9 - FYA 3-10

FYA 5-11
FYA 7-12

= DENOTES POSITION OF SWITCH

WD ENABLE 🚫

SW2 ☐

Phase 5 Yellow Field Terminal (132)

FS = FLASH SENSE ST = STOP TIME

#### SPECIAL DETECTOR NOTE

- 1. Install a multi-zone microwave detection system for vehicle detection. Perform installation according to manufacturer's directions and NCDOT engineer -approved mounting locations to accomplish the detection schemes shown on the Signal Design Plans.
- 2. For Detection Zone 5A, the equipement placement is typical for a NCDOT installation.