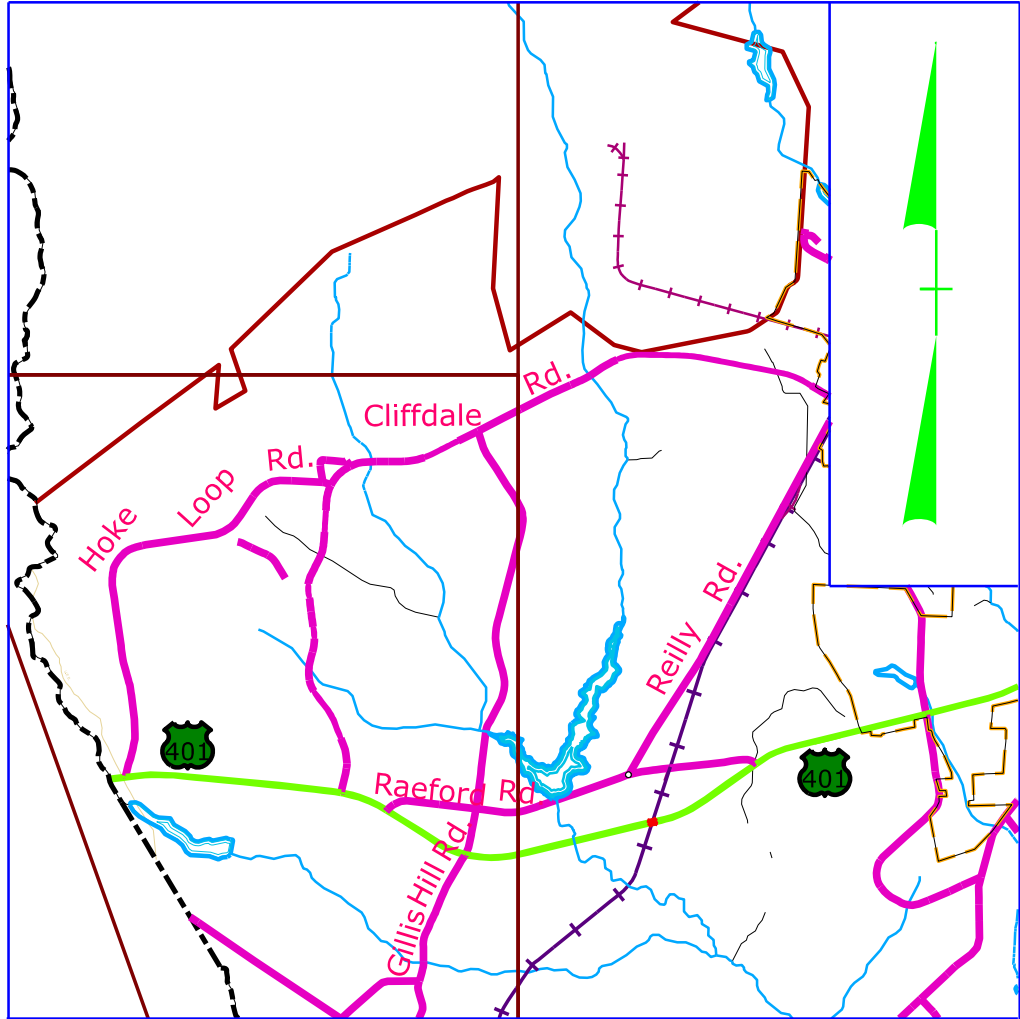


TIP PROJECT: *HS-2406V*
CONTRACT: *DF00570*

See Sheet 1A For Index of Sheets



VICINITY MAP (NTS)

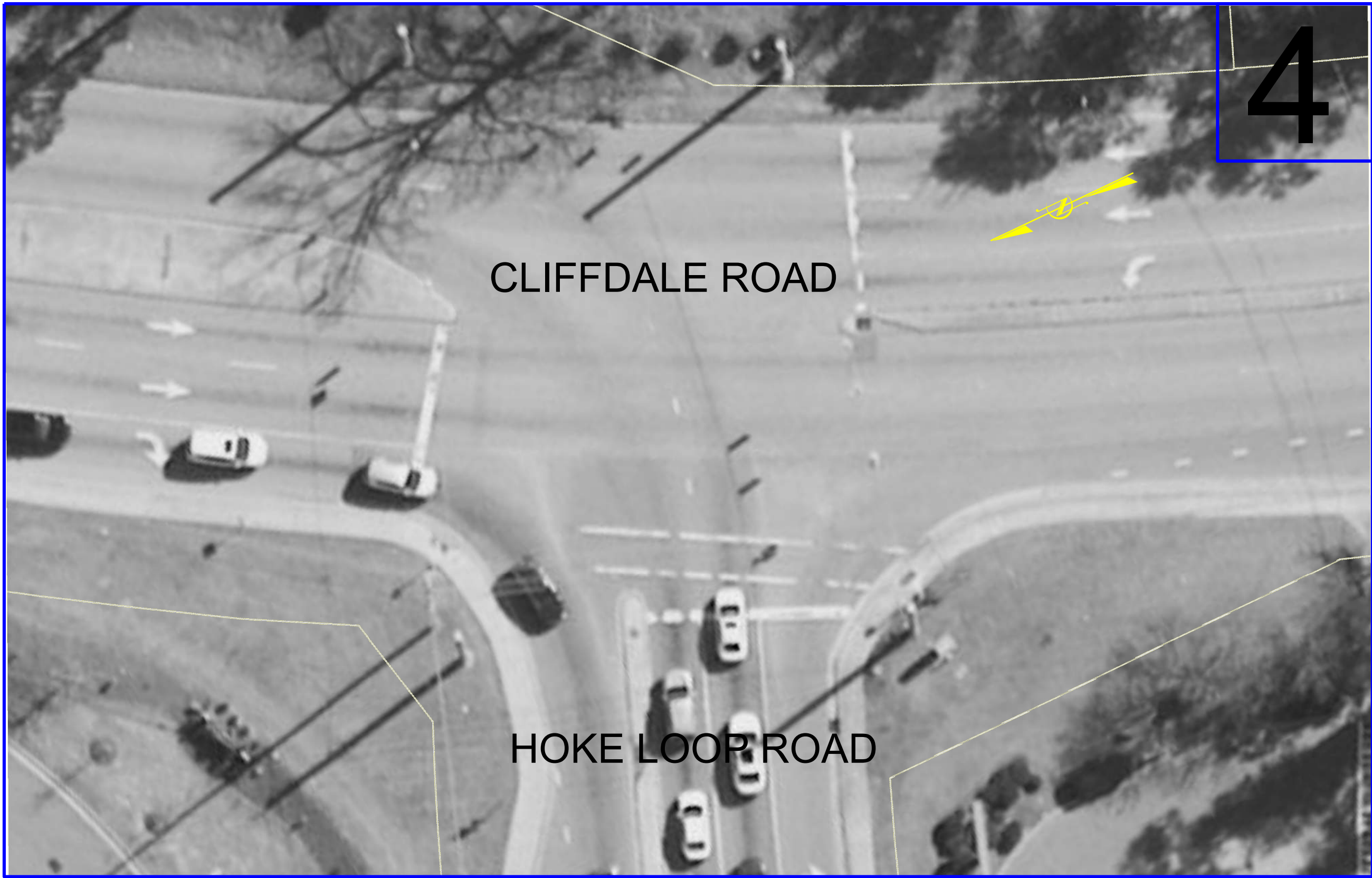
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CUMBERLAND COUNTY

LOCATION: *SR 1400 (CLIFFDALE ROAD)*
AT HOKE LOOP ROAD

TYPE OF WORK: *PEDESTRIAN SIGNAL, SIGNAL UPGRADE
AND PAVEMENT MARKINGS*

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	HS-2406V	11	
STATE PROJ. NO.		F. A. PROJ. NO.	DESCRIPTION
50978.1.24			P.E.
50978.3.25		5097825	CONST



CLIFFDALE ROAD

HOKE LOOP ROAD

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES



PLANS

Prepared in the Office of:

DIVISION OF HIGHWAYS

431 TRANSPORTATION DR., FAYETTEVILLE NC, 28301

2024 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:

N/A

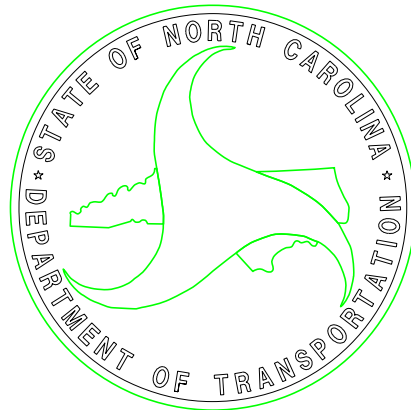
LETTING DATE:

SEPTEMBER 16, 2026

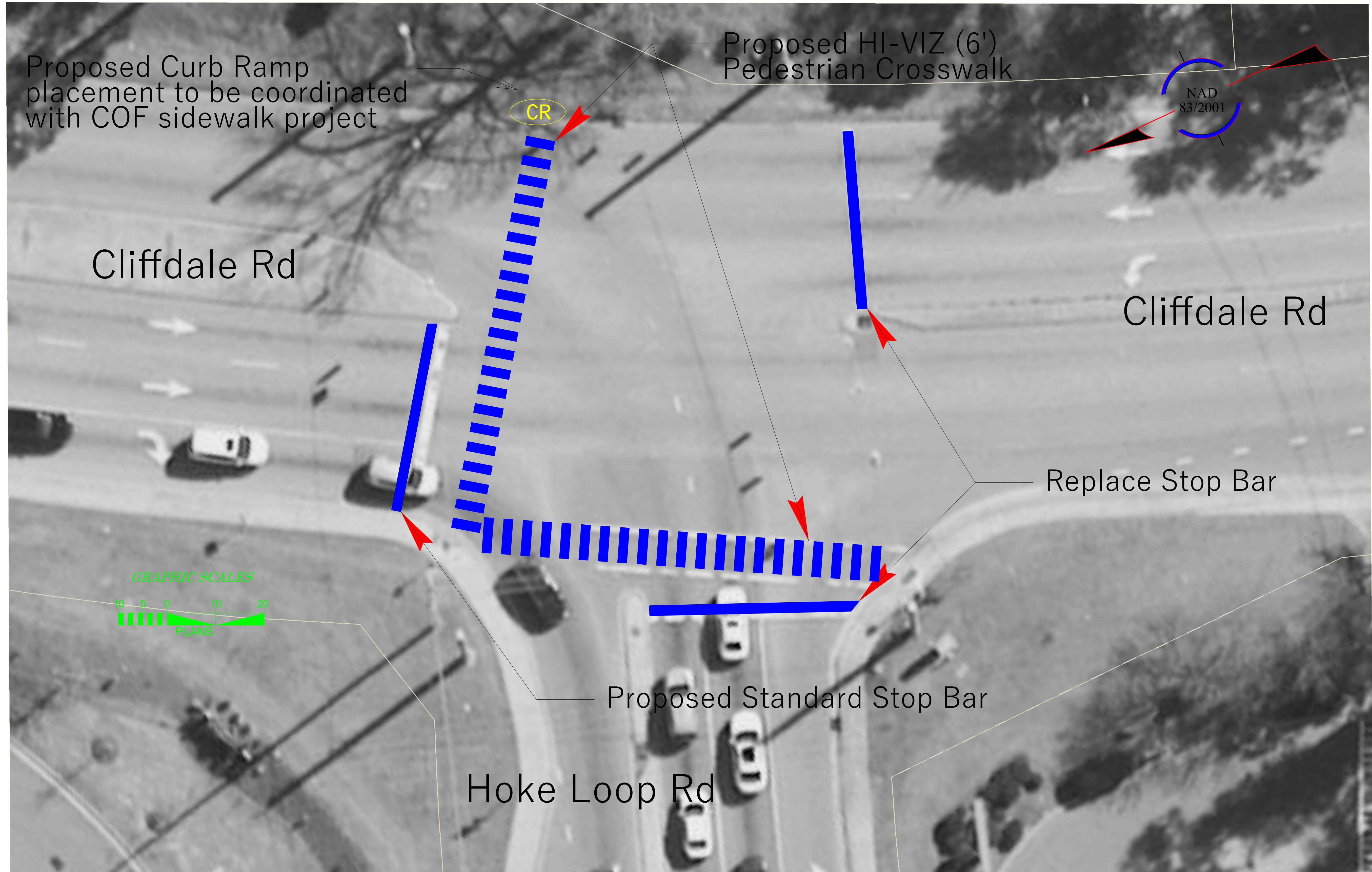
JOHN GAUTHIER
PROJECT ENGINEER

JULIO WILLIAMS
PROJECT DESIGN ENGINEER

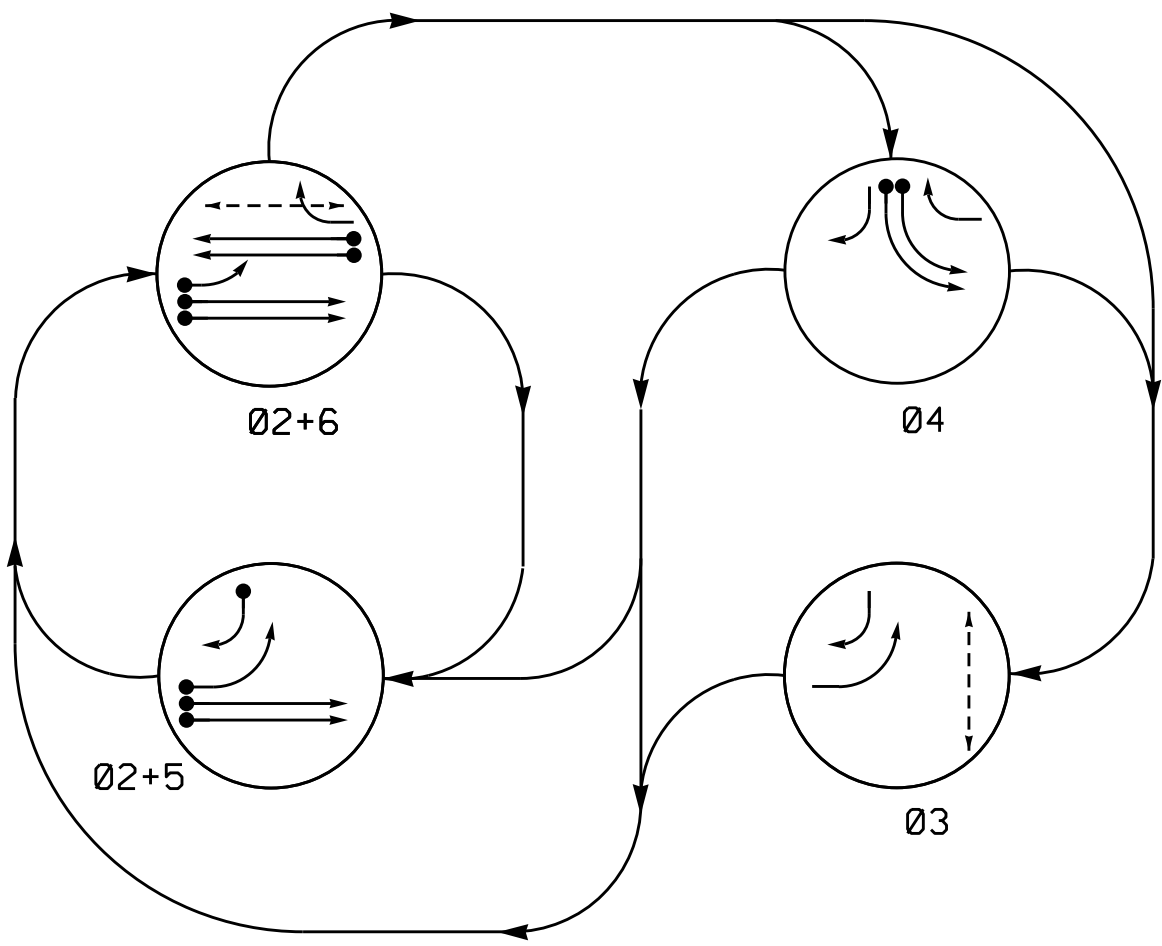
JULIO WILLIAMS
NCDOT CONTACT



HS-2406V



PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

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

SIGNAL FACE	PHASE				FLASH
	02+5	02+6	03	04	
21,22,23	G	G	R	R	R
41,42	R	R	R	R	R
51	R	R	R	R	R
52	R	R	R	R	R
61,62	R	G	R	R	R
63	R	G	R	R	R
P31,P32	DW	DW	W	DW	DRK
P61,P62	DW	W	DW	DW	DRK

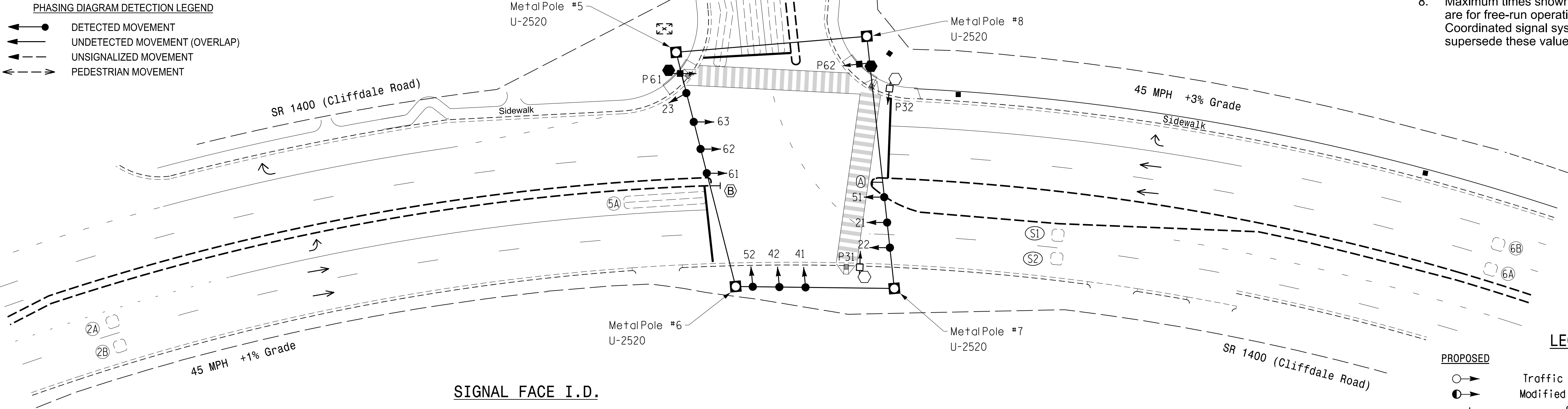
MAXTIME DETECTOR INSTALLATION CHART

DETECTOR				PROGRAMMING						
LOOP	SIZE (FT)	DISTANCE FROM STOP LINE (FT)	TURN	NEW LOOP	CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL DELAY DURING GREEN
2A	6X6	300	5	-	2	-	-	X	X	X
2B	6X6	300	5	-	2	-	-	X	X	X
4A	6X40	0	2-4-2	-	4	-	-	X	-	X
4B	6X40	0	2-4-2	-	4	-	-	X	-	X
5A	6X40	0	2-4-2	-	5	15	-	X	-	X
5B	6X40	+5	2-4-2	-	5	15	-	X	-	X
6A	6X6	300	5	-	6	-	-	X	X	X
6B	6X6	300	5	-	6	-	-	X	X	X
S1	6X6	+165	4	-	-	-	-	-	-	-
S2	6X6	+165	4	-	-	-	-	-	-	-

3 Phase Fully Actuated Fayetteville Signal System

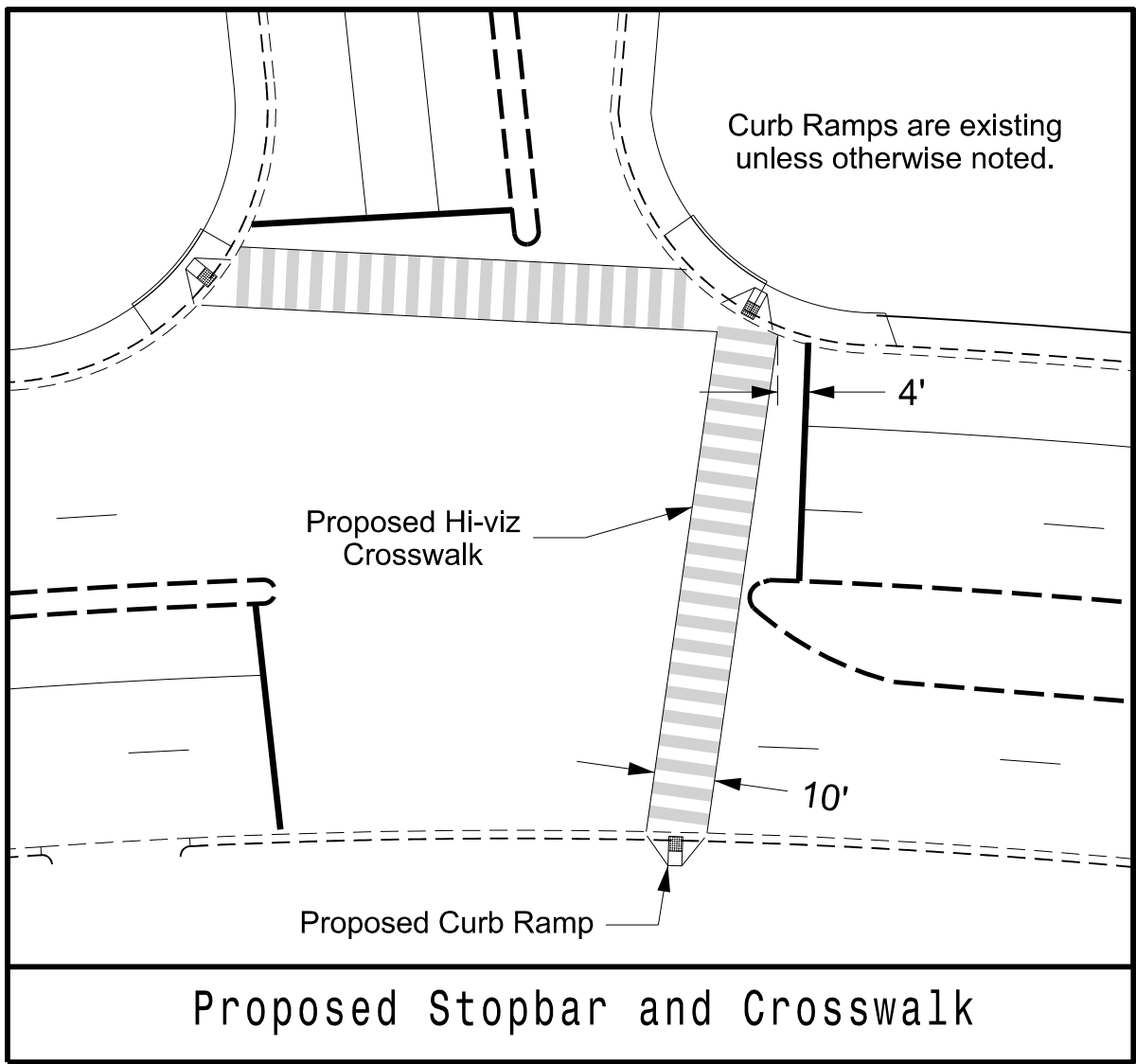
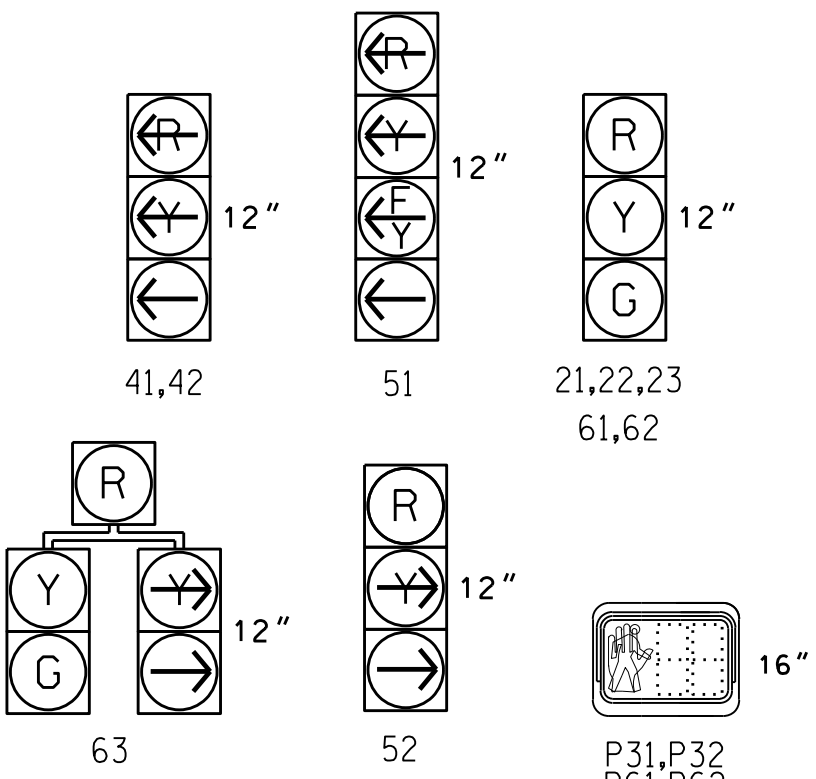
NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated January 2024 and "Standard Specifications for Roads and Structures" dated January 2024.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Omit Phase 5 during Phase 3 on.
- The order of phase 3 and phase 4 may be reversed.
- Set all detector units to presence mode.
- Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
- Program pedestrian heads to countdown the flashing "Don't Walk" time only.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.



SIGNAL FACE I.D.

All Heads L.E.D.



LEGEND

- | PROPOSED | EXISTING |
|--|----------|
| Traffic Signal Head | N/A |
| Modified Signal Head | N/A |
| Pedestrian Signal Head With Push Button & Sign | N/A |
| Signal Pole with Guy | N/A |
| Signal Pole with Sidewalk Guy | N/A |
| Inductive Loop Detector | N/A |
| Controller & Cabinet | N/A |
| Junction Box | N/A |
| 2-in Underground Conduit | N/A |
| Right of Way | N/A |
| Directional Arrow | N/A |
| Metal Strain Pole | N/A |
| Type II Signal Pedestal | N/A |
| "U-TURN YIELD TO RIGHT TURN" Sign (R10-16) | N/A |
| No U-Turn Sign (R3-4) | N/A |
| Curb Ramp | N/A |

MAXTIME TIMING CHART					
FEATURE	2	3	4	5	6
Walk *	-	7	-	-	14
Ped Clear	-	22	-	-	22
Min Green *	12	7	7	7	12
Passage *	6.0	2.0	2.0	2.0	6.0
Max 1 *	90	15	30	15	90
Yellow Change	4.4	3.0	3.0	3.0	4.4
Red Clear	1.5	2.6	3.3	2.6	1.5
Added Initial *	1.5	-	-	-	1.5
Maximum Initial *	34	-	-	-	34
Time Before Reduction *	15	-	-	-	15
Time To Reduce *	40	-	-	-	40
Minimum Gap	3.0	-	-	-	3.0
Advance Walk	-	-	-	-	7
Non Lock Detector	-	X	X	X	-
Vehicle Recall	MIN RECALL	-	-	-	MIN RECALL
Dual Entry	-	-	-	-	-

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

Signal Upgrade - Corr. File No. 06-24-024

Prepared in the Offices of:

750 N. Greenfield Pkwy, Garner, NC 27529

TRANSPORTATION MOBILITY AND SAFETY DIVISION
DEPARTMENT OF TRANSPORTATION
SIGNAL DESIGN SECTION

SR 1400 (Cliffdale Road)
at
SR 1593 (Hoke Loop Road)

Division 6 Cumberland County Fayetteville

PLAN DATE: October 2025 REVIEWED BY: BMH

PREPARED BY: KGP, Jr. REVIEWED BY:

REVISIONS

SCALE 0 30
1"=30'

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER
SEAL 047646
BAILEY M. HARDEN

Desigined By: Bailey M. Harden
DATE: 01/30/2026

SIG. INVENTORY NO. 06-1236

LOGIC PROCESSOR PROGRAMMING

Front Panel
Main Menu >Controller >More >User Programs >Definition

Web Interface
Home >Controller >User Programs Configuration >User Programs Definition

Program 1

Statement	Result	Index	Operation	Parameter A	Index	Parameter B	Index	Delay	Ext
1	Phase Phase Omit	5	Result=A	Phase On	3	-	-	0.0	0.0

LOGIC STATEMENT DESCRIPTION

Statement 1 Description: Omits phase 5 for the current cycle if phase 3 is served.

OVERLAP PROGRAMMING

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

Web Interface
Home >Controller >Overlap Configuration >Overlaps

Overlap Plan 1

Overlap (Signal Head No.)	3 (51)	4 (52)	7 (51 - GRN)
Type	FYA 4 - Section	Normal	Normal
Included Phases	6	3,4,5	3,5
Modifier Phases	3,5	-	-
Modifier Overlaps	-	-	-
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 Alt	MMU Channel
1	Phase Vehicle	1		X	X	1
2	Phase Vehicle	2		X		2
3	Phase Vehicle	3		X	X	3
4	Phase Vehicle	4		X		4
5	Overlap	7		X		5
6	Phase Vehicle	6		X	X	6
7	Phase Vehicle	7		X		7
8	Phase Vehicle	8		X	X	8
9	Overlap	1		X	X	9
10	Overlap	2		X	X	10
11	Overlap	3		X		11
12	Overlap	4		X		12
13	Phase Ped	2				13
14	Phase Ped	4				14
15	Phase Ped	6				15
16	Phase Ped	3				16
17	Overlap	5		X	X	17
18	Overlap	6		X		18

NOTICE OL7
ASSIGNED
TO CH. 5



NOTICE 3PED
ASSIGNED
TO CH. 16



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.

PED DETECTOR PROGRAMMING DETAIL

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
4		4	0
6		6	0
8		3	0

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
6

Unit Flash Parameters

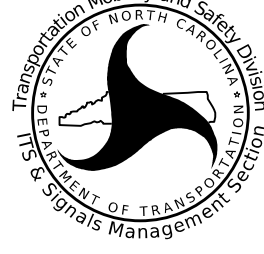
All Red Flash Exit Time
6

Electrical Detail - Sheet 2 of 2

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

Electrical and Programming
Details For:

Prepared in the Offices of:



750 N. Greenfield Pkwy, Garner, NC 27529

SR 1400 (Cliffdale Road)
at
SR 1593 (Hoke Loop Road)

Division 6Cumberland CountyFayetteville

PLAN DATE: January 2026REVIEWED BY:

PREPARED BY: Tim LangstonREVIEWED BY:

REVISIONS

INIT. DATE

SEAL
NORTH CAROLINA
PROFESSIONAL
SEAL
031001
ENGINEER
D. Todd Joyce

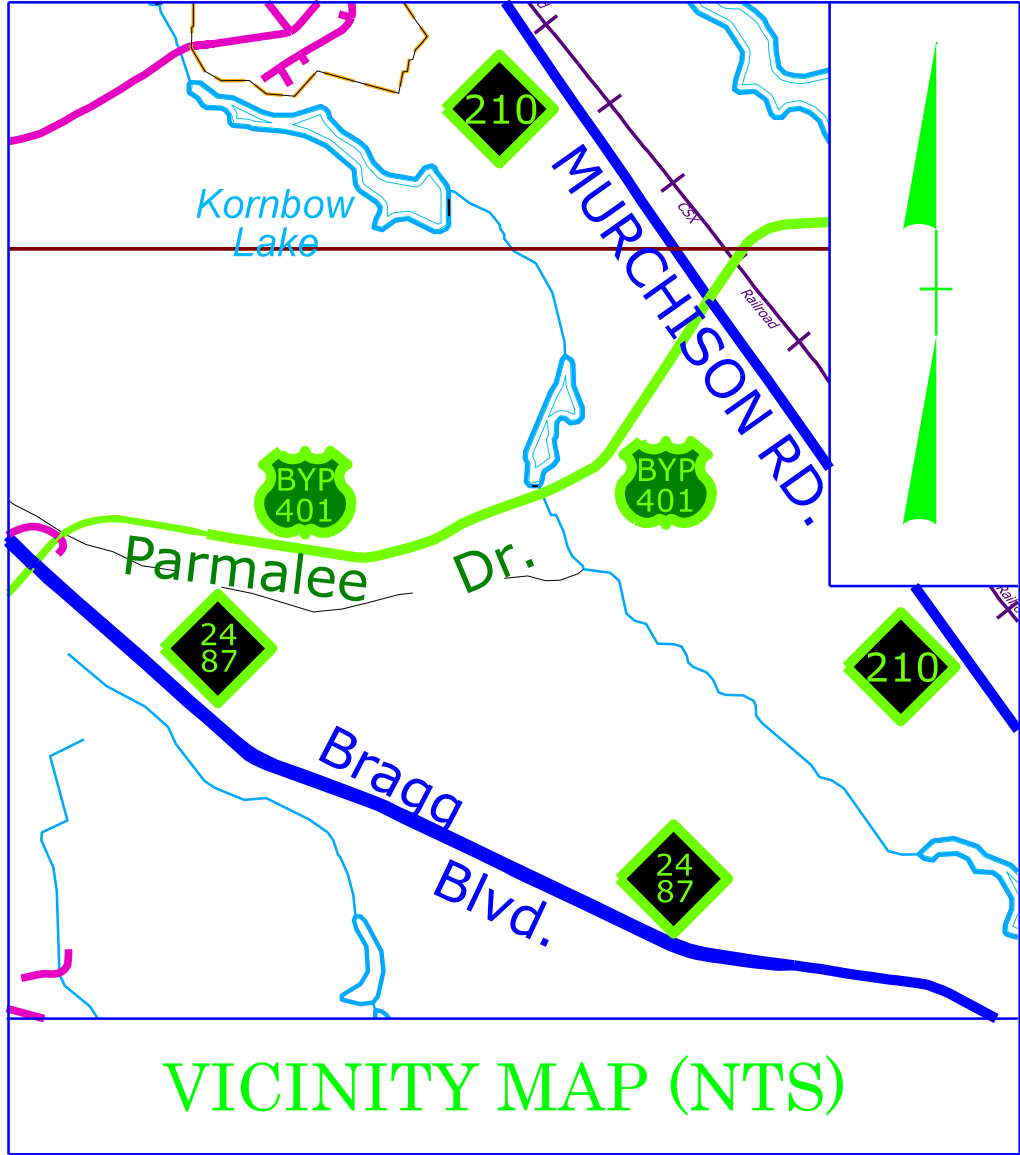
DocuSigned by:
D. Todd Joyce01/30/2026
DATE
SIG. INVENTORY NO. 06-1236

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 06-1236
DESIGNED: October 2025
SEALED: 01/30/2026
REVISED: N/A

TIP PROJECT: HS-2406W

CONTRACT: DF00570

See Sheet 1A For Index of Sheets



VICINITY MAP (NTS)

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CUMBERLAND COUNTY

LOCATION: *US 401 (PAMALEE DRIVE)*
AT HELEN STREET AND CAIN ROAD

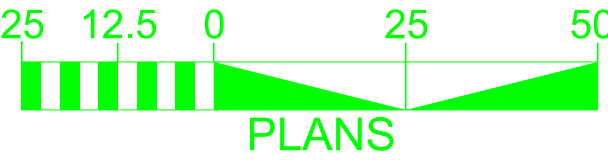
TYPE OF WORK: *PEDESTRIAN SIGNALS, SIGNAL UPGRADE
AND PAVEMENT MARKINGS*

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	HS-2406W	11	
STATE PROJ. NO.		F. A. PROJ. NO.	DESCRIPTION
50978.1.25			P.E.
50978.3.26		5097826	CONST



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES



Prepared in the Office of:
DIVISION OF HIGHWAYS
558 GILLESPIE ST. FAYETTEVILLE NC 28301

2024 STANDARD SPECIFICATIONS

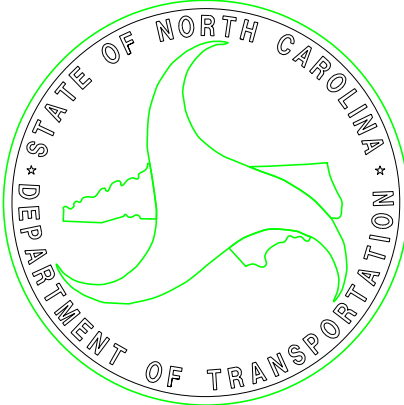
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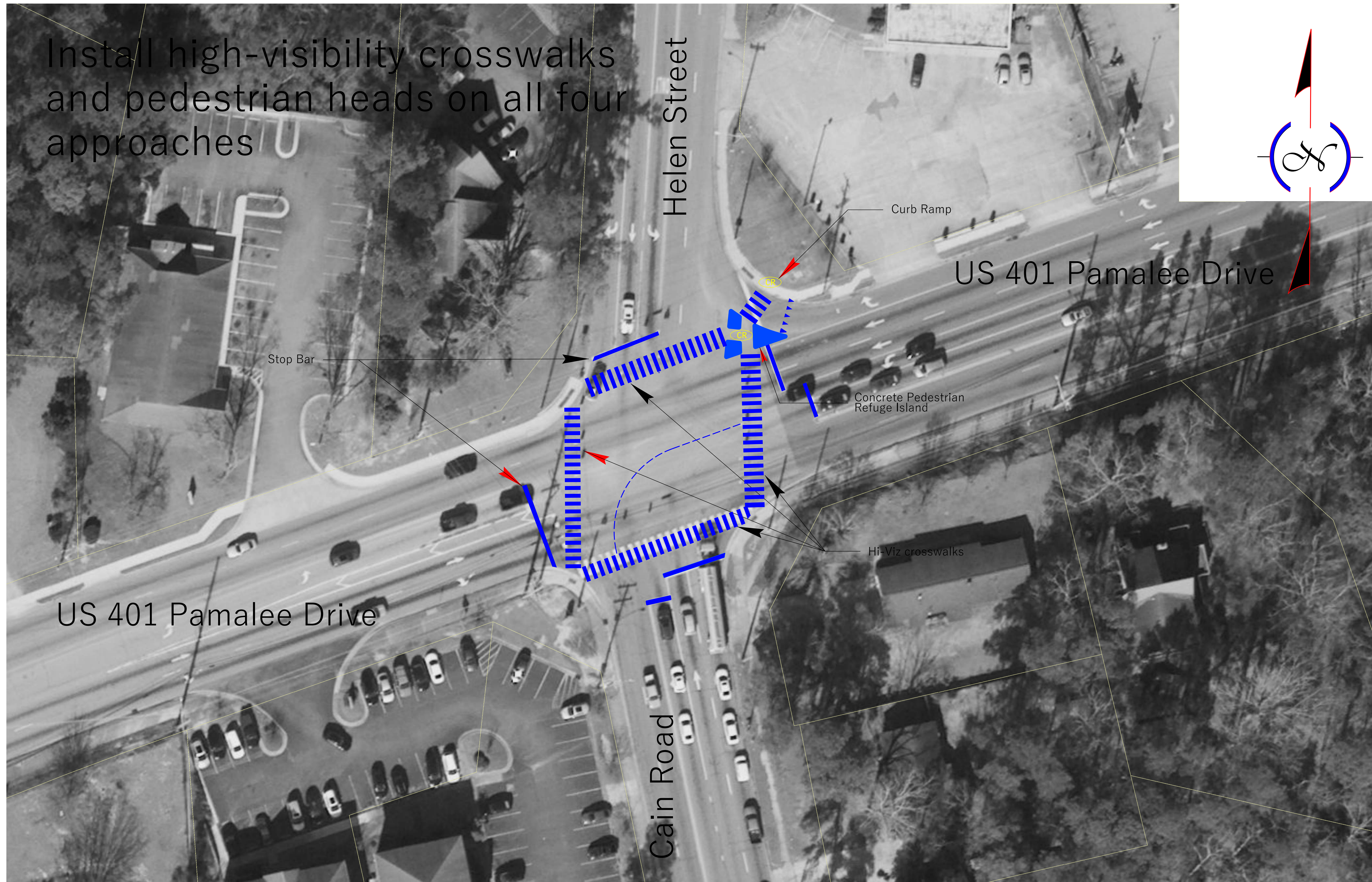
LETTING DATE:

JOHN GAUTHIER
PROJECT ENGINEER

JULIO WILLIAMS
PROJECT DESIGN ENGINEER

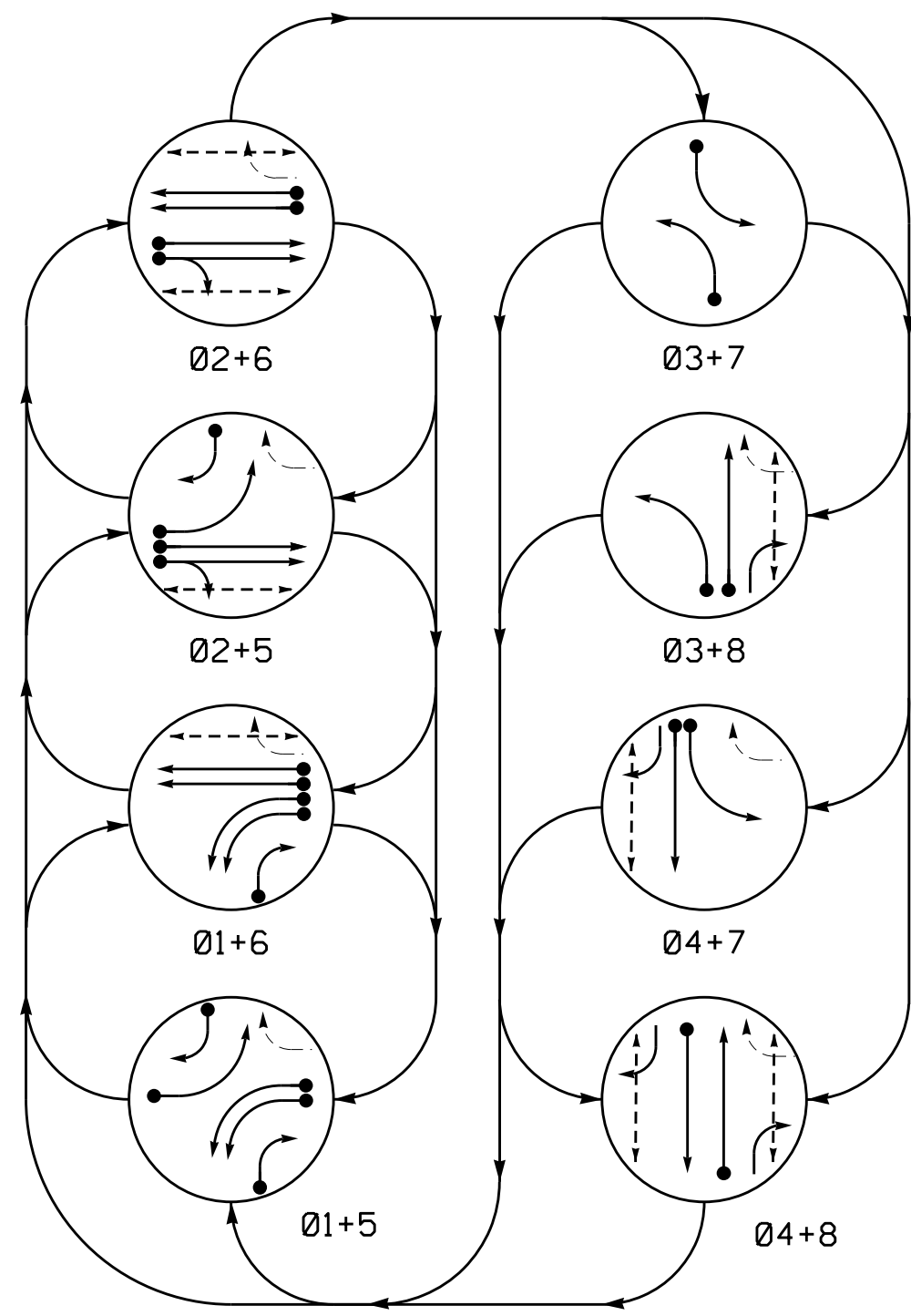
JULIO WILLIAMS
NCDOT CONTACT





HS-2406W

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

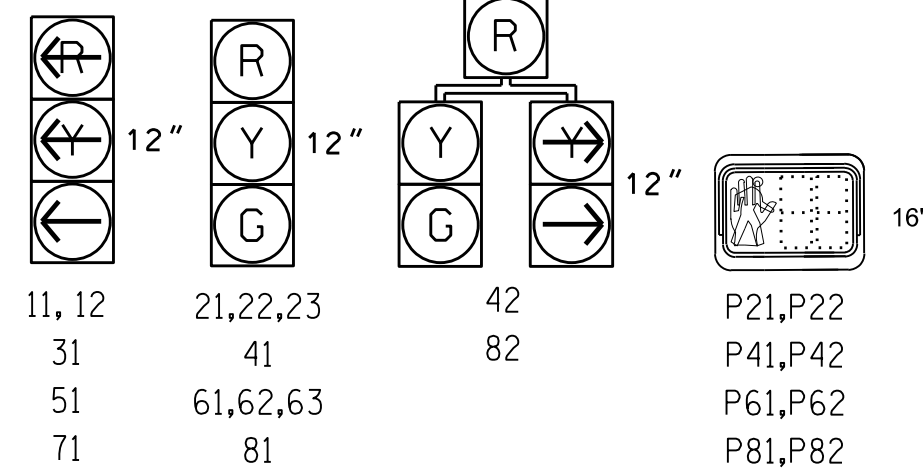
- | | |
|---|-------------------------------|
|  | DETECTED MOVEMENT |
|  | UNDETECTED MOVEMENT (OVERLAP) |
|  | UNSIGNALIZED MOVEMENT |
| | PEDESTRIAN MOVEMENT |

TABLE OF OPERATION

SIGNAL FACE	PHASE								
	0 1 + 5	0 1 + 6	0 2 + 5	0 2 + 6	0 3 + 7	0 3 + 8	0 4 + 7	0 4 + 8	F L A S H
11,12	←	←	→	→	→	→	→	→	→
21,22,23	R	R	G	G	R	R	R	R	R
31	→	→	→	→	←	←	←	←	←
41	R	R	R	R	R	R	G	G	R
42	R	R	R	R	R	R	G	G	R
51	←	→	←	→	→	→	→	→	→
61,62,63	R	G	R	G	R	R	R	R	R
71	→	→	→	→	←	←	←	←	←
81	R	R	R	R	R	G	G	G	R
82	R	R	R	R	R	G	G	G	R
P21,P22	DW	DW	W	W	DW	DW	DW	DW	DR
P41,P42	DW	DW	DW	DW	DW	DW	W	W	DR
P61,P62	DW	W	DW	W	DW	DW	DW	DW	DR
P81,P82	DW	DW	DW	DW	DW	W	DW	W	DR

SIGNAL FACE I.D.

All Heads L.E.D.



MAXTIME DETECTOR INSTALLATION CHART

DETECTOR					PROGRAMMING						
LOOP	SIZE (FT)	DISTANCE FROM STOP LINE (FT)	TURNS	NEW LOOP	CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL DURING GREEN	NEW
1A,1B	6X40	+5	2-4-2	-	1	-	-	X	-	X	-
1C	6X40	+5	2-4-2	-	1	15	-	X	-	X	-
2A	6X6	300	5	X	2	-	-	X	X	X	-
2B	6X6	300	5	X	2	-	-	X	X	X	-
3A	6X40	+5	2-4-2	-	3	3	-	X	-	X	-
4A	6X40	+5	2-4-2	-	4	-	-	X	-	X	-
5A	6X40	+5	2-4-2	-	5	3	-	X	-	X	-
5B	6X40	+5	2-4-2	-	5	15	-	X	-	X	-
6A	6X6	300	5	X	6	-	-	X	X	X	-
6B	6X6	300	5	X	6	-	-	X	X	X	-
7A	6X40	+5	2-4-2	-	7	3	-	X	-	X	-
8A	6X40	+5	2-4-2	-	8	-	-	X	-	X	-

8 Phase
Fully Actuated
Fayetteville Signal System

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. Phase 3 and/or phase 7 may be lagged.
5. Set all detector units to presence mode.
6. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
7. Program pedestrian heads to countdown the flashing "Don't Walk" time only.
8. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.

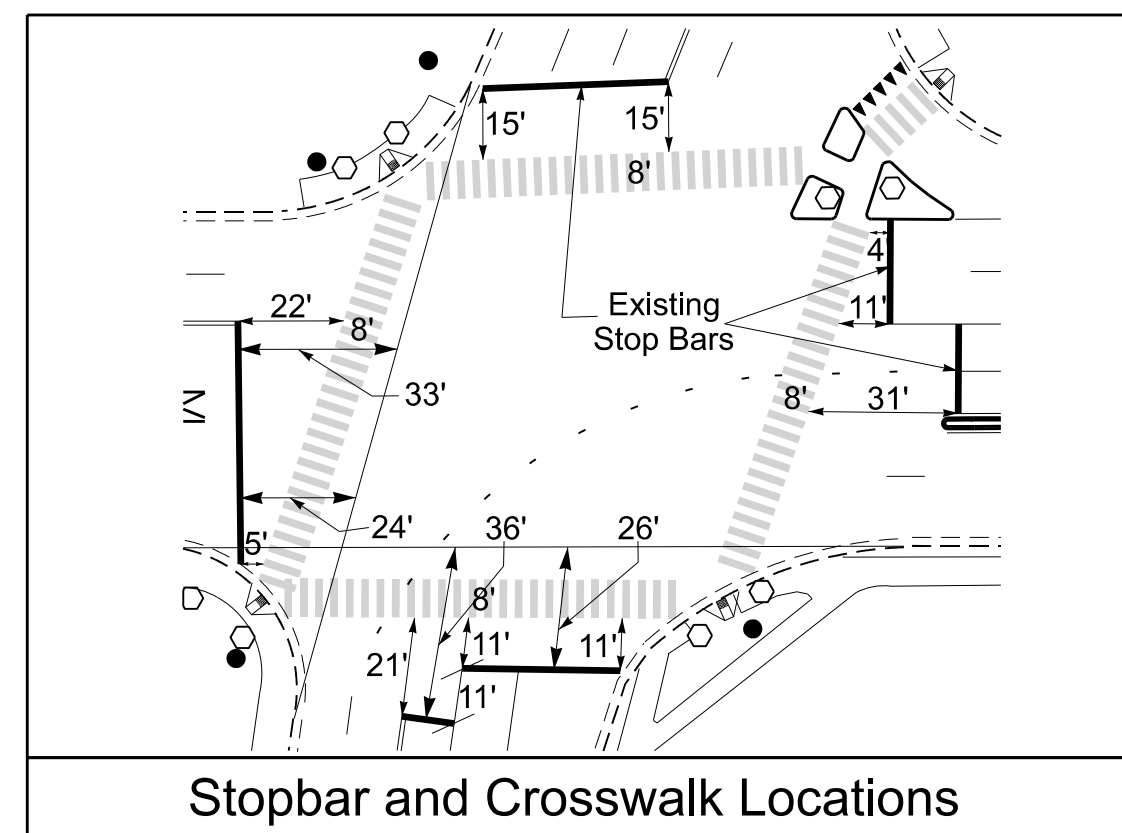
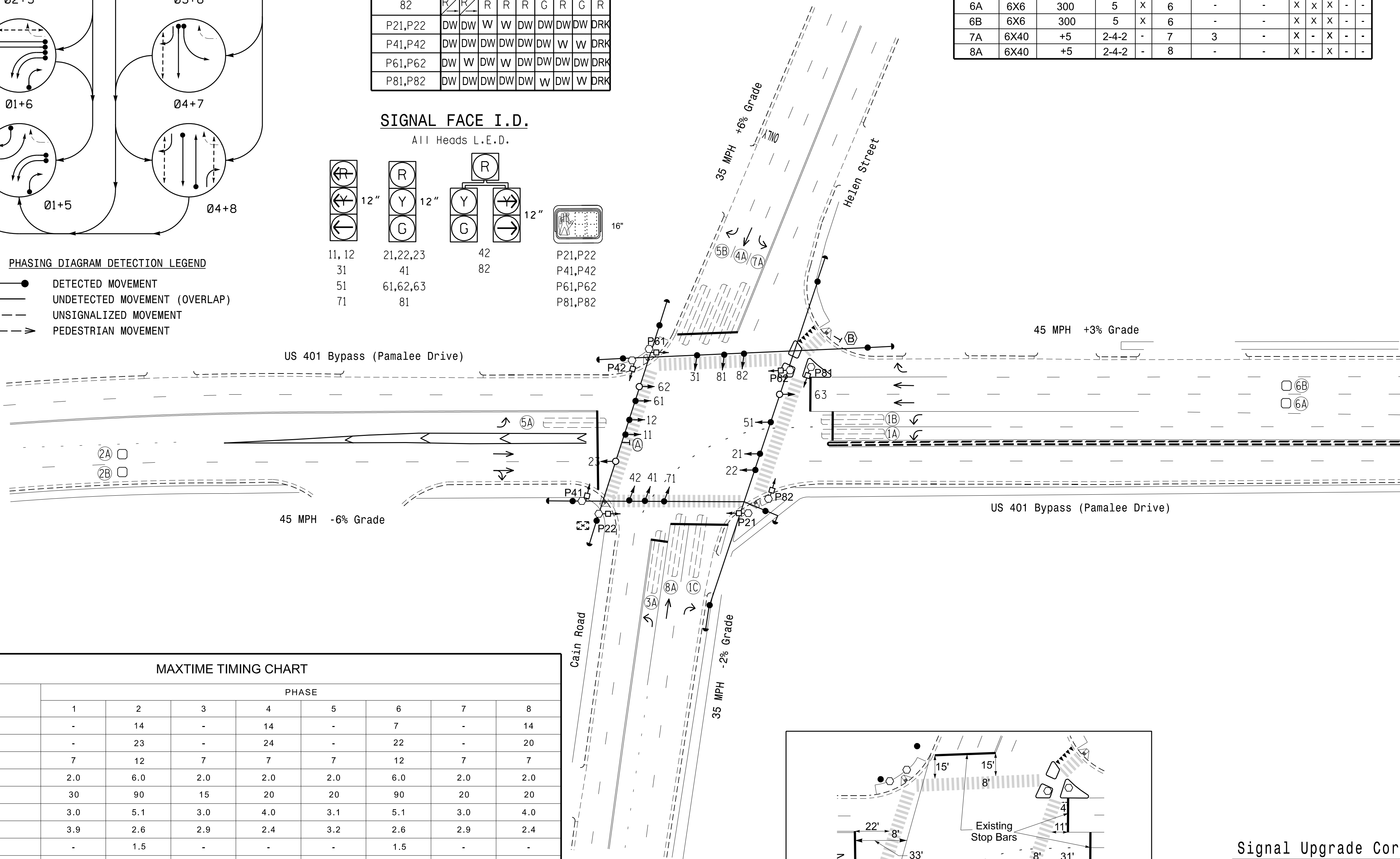
LEGEND

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	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
-----	2-in Underground Conduit	-----
N/A	Right of Way	-----
	Directional Arrow	
N/A	Wheel Chair Ramp	
	Type II Signal Pedestal	
	"U-TURN YIELD TO RIGHT TURN" Sign (R10-16)	
	"YIELD" Sign (R1-2)	

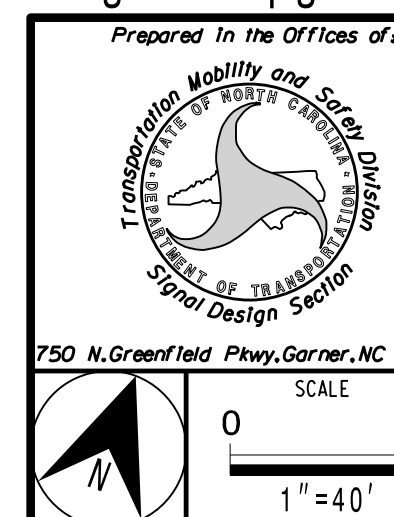
MAXTIME TIMING CHART

FEATURE	PHASE							
	1	2	3	4	5	6	7	8
Walk *	-	14	-	14	-	7	-	14
Ped Clear	-	23	-	24	-	22	-	20
Min Green *	7	12	7	7	7	12	7	7
Passage *	2.0	6.0	2.0	2.0	2.0	6.0	2.0	2.0
Max 1 *	30	90	15	20	20	90	20	20
Yellow Change	3.0	5.1	3.0	4.0	3.1	5.1	3.0	4.0
Red Clear	3.9	2.6	2.9	2.4	3.2	2.6	2.9	2.4
Added Initial *	-	1.5	-	-	-	1.5	-	-
Maximum Initial *	-	34	-	-	-	34	-	-
Time Before Reduction *	-	15	-	-	-	15	-	-
Time To Reduce *	-	15	-	-	-	15	-	-
Minimum Gap	-	3.0	-	-	-	3.0	-	-
Advance Walk	-	7	-	7	-	-	-	7
Non Lock Detector	X	-	X	X	X	-	X	X
Vehicle Recall	-	MIN RECALL	-	-	-	MIN RECALL	-	-
Dual Entry	-	-	-	-	-	-	-	-

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



Signal Upgrade Corr. File No. 06-24-125



US 401 Bypass (Pamalee Drive)
at
Cain Road / Helen Street

Division 6 Cumberland County Fayetteville

PLAN DATE:	January 2026	REVIEWED BY:	BMH
------------	--------------	--------------	-----

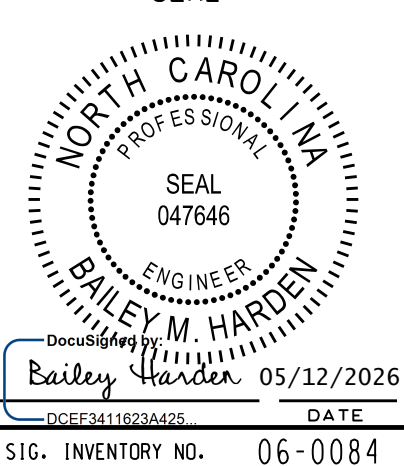
29	PREPARED BY: Jeff Spence	REVIEWED BY:
----	--------------------------	--------------

REVISIONS	INIT.	DATE

[illegible]

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

SEAL



DocuSigned by: M. HARRIS

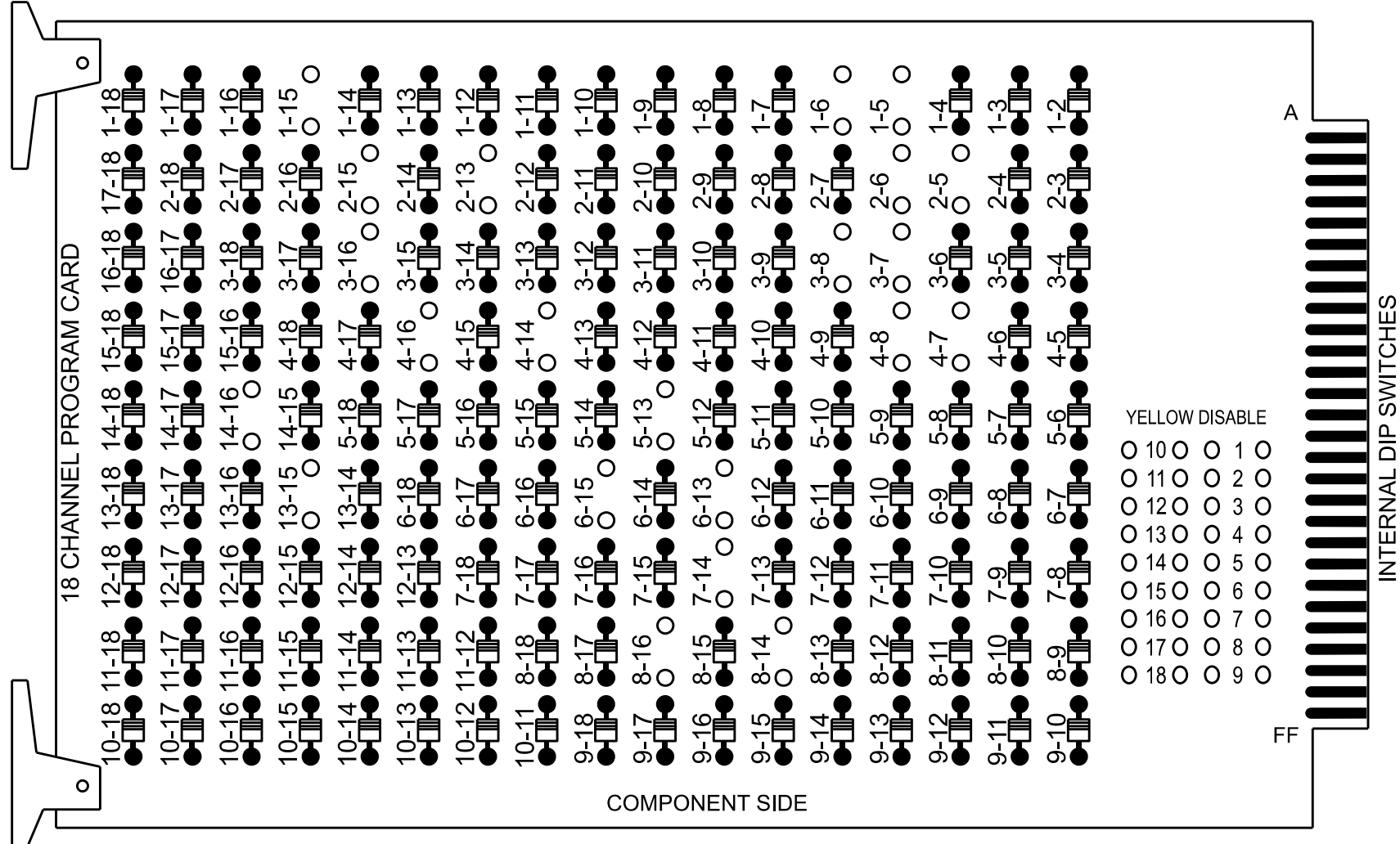
Bailey Harden 05/12/2026

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18 CHANNEL IP CONFLICT MONITOR
PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

REMOVE DIODE JUMPERS 1-5, 1-6, 1-15, 2-5, 2-6, 2-13, 2-15, 3-7, 3-8, 3-16, 4-7, 4-8, 4-14, 4-16, 5-13, 6-13, 6-15, 7-14, 8-14, 8-16, 13-15, and 14-16.



REMOVE JUMPERS AS SHOWN

NOTES:

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

INPUT FILE POSITION LAYOUT

(front view)

FILE "I"	1	2	3	4	5	6	7	8	9	10	11	12	13	14
U	Ø 1 1A,1B	Ø 1 1C	Ø 2 2A	Ø 2 2B	Ø 3 3A	Ø 4 4A	Ø 5 5A	Ø 6 6A	Ø 7 7A	Ø 8 8A	Ø 9 9A	Ø 10 10A	Ø 11 11A	Ø 12 12A
L	NOT USED	NOT USED	Ø 2 2B	Ø 3 3A	Ø 4 4A	Ø 5 5A	Ø 6 6A	Ø 7 7A	Ø 8 8A	Ø 9 9A	Ø 10 10A	Ø 11 11A	Ø 12 12A	Ø 13 13A
FILE "J"	1	2	3	4	5	6	7	8	9	10	11	12	13	14
U	Ø 5 5A	Ø 5 5B	Ø 6 6B	Ø 7 7A	Ø 8 8A	Ø 9 9A	Ø 10 10A	Ø 11 11A	Ø 12 12A	Ø 13 13A	Ø 14 14A	Ø 15 15A	Ø 16 16A	Ø 17 17A
L	NOT USED	Ø 6 6A	Ø 7 7A	Ø 8 8A	Ø 9 9A	Ø 10 10A	Ø 11 11A	Ø 12 12A	Ø 13 13A	Ø 14 14A	Ø 15 15A	Ø 16 16A	Ø 17 17A	Ø 18 18A

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

FS = FLASH SENSE
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
1A,1B	TB2-1,2	I1U	56	18	1	1			X		X	
1C	TB2-5,6	I2U	39	1	2	1	15		X		X	
2A	TB2-9,10	I3U	63	29	4	2			X	X	X	
2B	TB2-11,12	I3L	76	42	5	2			X	X	X	
3A	TB4-5,6	I5U	58	20	7	3	3		X		X	
4A	TB4-9,10	I6U	41	3	8	4			X		X	
5A	TB3-1,2	J1U	55	17	15	5	3		X		X	
5B	TB3-5,6	J2U	40	2	16	5	15		X		X	
6A	TB3-7,8	J2L	44	6	17	6			X	X	X	
6B	TB3-9,10	J3U	64	30	18	6			X	X	X	
6C	TB3-11,12	J3L	77	43	19	6			X		X	
7A	TB5-5,6	J5U	57	19	21	7	3		X		X	
8A	TB5-9,10	J6U	42	4	22	8			X		X	
PED PUSH BUTTONS												
P21,P22	TB8-4,6	I12U	67	33	2	PED 2						
P41,P42	TB8-5,6	I12L	69	35	4	PED 4						
P61,P62	TB8-7,9	I13U	68	34	6	PED 6						
P81,P82	TB8-8,9	I13L	70	36	8	PED 8						

NOTE:
INSTALL DC ISOLATORS
IN INPUT FILE SLOTS
I12 AND I13.

INPUT FILE POSITION LEGEND: J2L

FILE J
SLOT 2
LOWER

NOTICE

NOTES

- 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.
- Program controller to start up in phase 2 Green No Walk and 6 Green No Walk.
- If this signal will be managed by an ATMS software, enable controller and detector logging for all detectors used at this location.
- The cabinet and controller are part of the Fayetteville Signal System.

EQUIPMENT INFORMATION

Controller.....2070LX
Cabinet.....332
Software.....Q-Free MAXTIME
Cabinet Mount.....Base
Output File Positions.....12
Load Switches Used.....S1, S2, S3, S4, S5, S6, S7,
S8, S9, S10, S11, S12
Phases Used.....1, 2, 2PED, 3, 4, 4PED,
5, 6, 6PED, 7, 8, 8PED
Overlaps.....NONE

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.

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	X	3
4	Phase Vehicle	4		X		4
5	Phase Vehicle	5		X		5
6	Phase Vehicle	6		X	X	6
7	Phase Vehicle	7		X		7
8	Phase Vehicle	8		X	X	8
9	Overlap	1		X	X	9
10	Overlap	2		X	X	10
11	Overlap	3		X		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		X	X	17
18	Overlap	6		X		18

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED
SIGNAL HEAD NO.	11,12	82	21,22 23	P21, P22	31	41,42 P41, P42	42	51	61,62 63	P61, P62	71	81,82 P81, P82
RED			128			101			134			107
YELLOW			129			102			135			108
GREEN			130			103			136			109
RED ARROW												
YELLOW ARROW	125				116			131			122	
FLASHING YELLOW ARROW	126	126			117			132	132		123	
GREEN ARROW	127	127			118			133	133		124	
Hand icon				113			104			119		110
Walking person icon				115			106			121		112

NU = Not Used

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
6

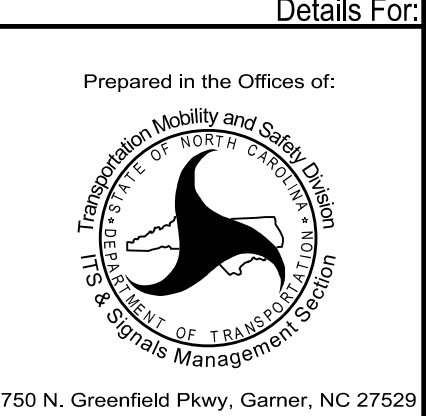
Unit Flash Parameters

All Red Flash Exit Time
6

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 06-0084
DESIGNED: January 2026
SEALED: 05/12/2026
REVISED:

Electrical Detail

Electrical and Programming
Details For:



750 N. Greenfield Pkwy, Garner, NC 27529

US 401 Bypass (Pamalee Drive)
at
Cain Road / Helen Street

Division 6 Cumberland County Fayetteville

PLAN DATE: May 2026 REVIEWED BY: DTJ

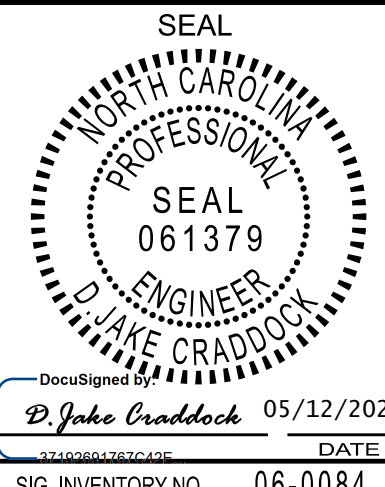
PREPARED BY: D. Jake Craddock REVIEWED BY:

REVISIONS INIT. DATE

DocuSigned by: D. Jake Craddock 05/12/2026

SIG. INVENTORY NO. 06-0084

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

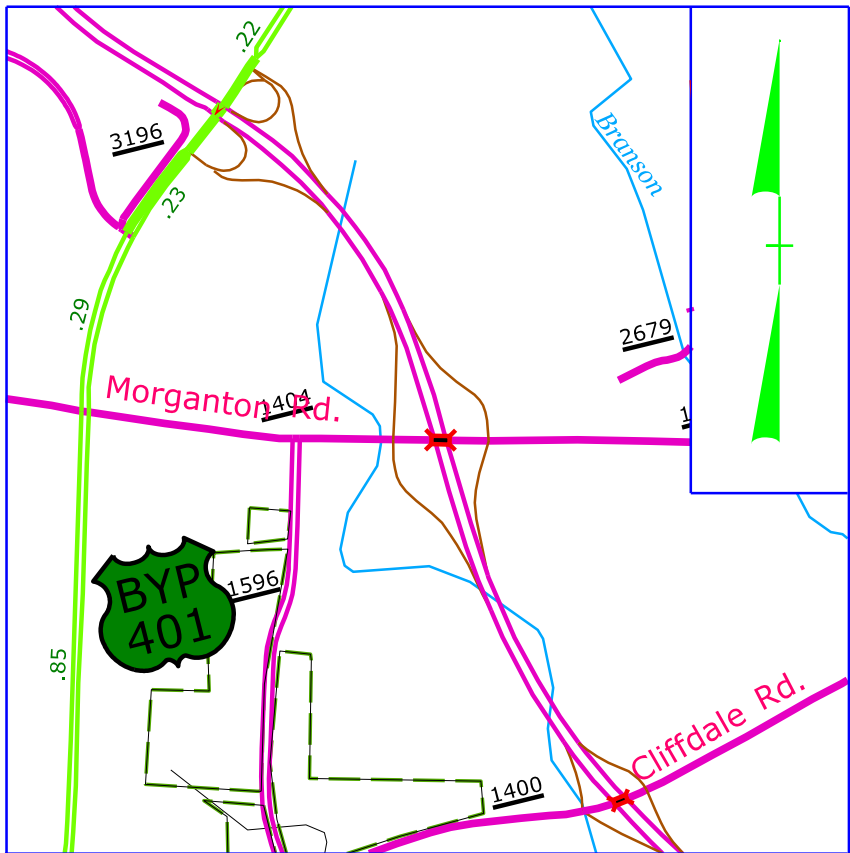


11/20/25

TIP PROJECT: *HS-2406Z*

CONTRACT: *DF00570*

See Sheet 1A For Index of Sheets



VICINITY MAP (NTS)

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CUMBERLAND COUNTY

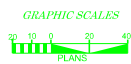
LOCATION: *SR 1404 (MORGANTON ROAD)*
SR 1007 (SYCAMORE DAIRY ROAD)
ALL AMERICAN EXPRESSWAY (NB AND SB RAMPS)
TYPE OF WORK: *PEDESTRIAN SIGNALS, SIGNAL UPGRADE*
AND PAVEMENT MARKINGS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	HS-2406Z	11	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
50978.1.28		P.E.	
50978.3.29	5097829	CONST	

Morganton and AAEX. SB

All American Expressway SB

SR 1404 Morganton Road



SR 1404 Morganton Road

HS-2406Z

Morganton and AAEX. NB

SR 1404 Morganton Road



SR 1404 Morganton Road

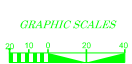
All American Expressway NB

HS-2406Z

Morganton and Sycamore Dairy

Sycamore Dairy Road

SR 1404 Morganton Road



SR 1404 Morganton Road

HS-2406Z

GRAPHIC SCALES



PLANS

Prepared in the Office of:
DIVISION OF HIGHWAYS
555 GILLESPIE ST. FAYETTEVILLE NC 28301

2024 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:

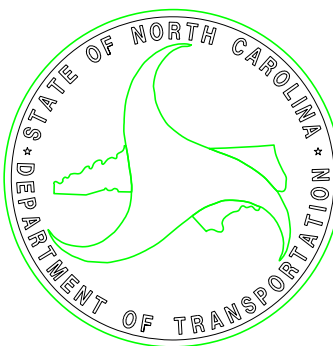
LETTING DATE:

JOHN GAUTHIER
PROJECT ENGINEER

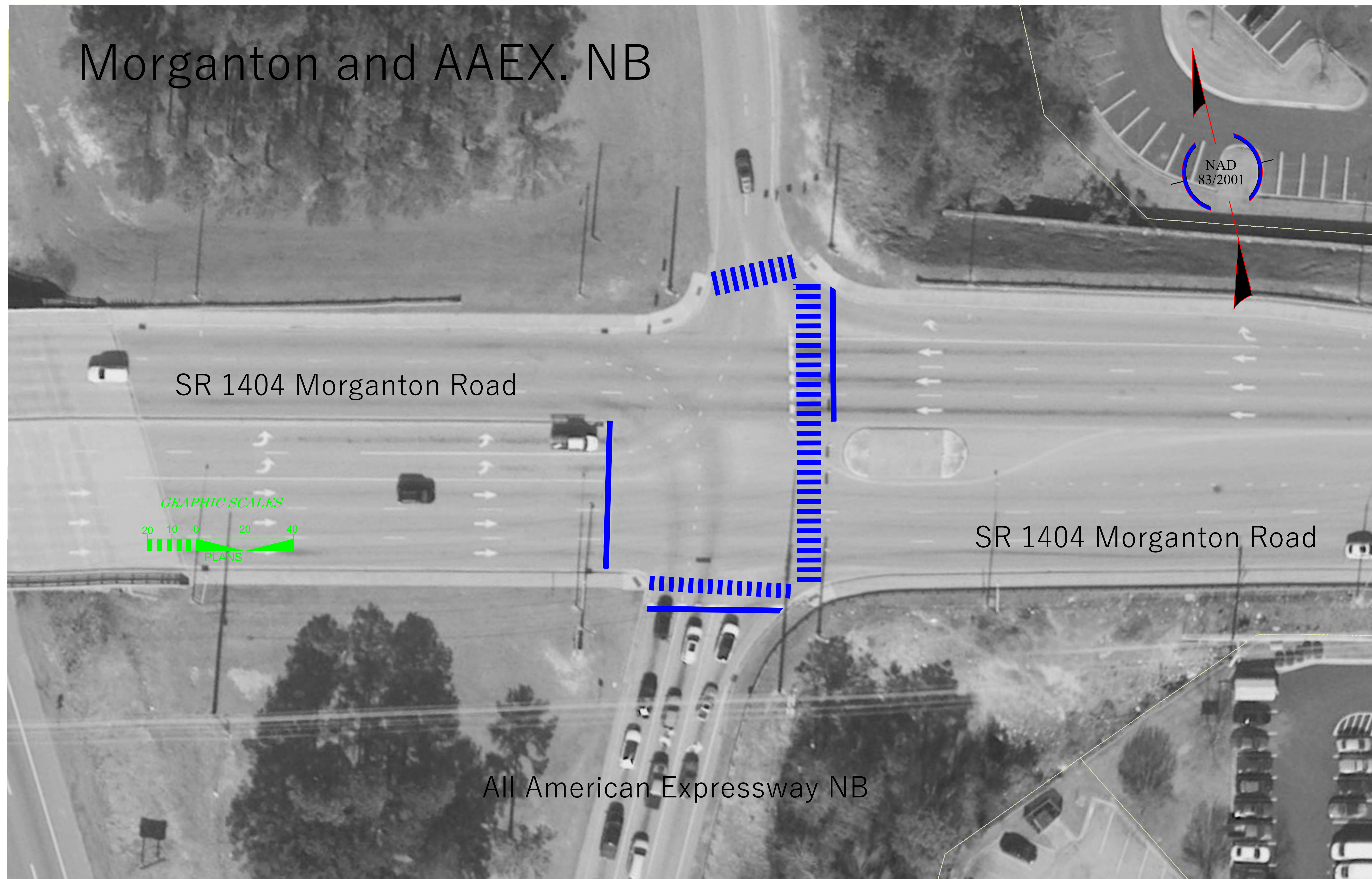
JULIO WILLIAMS
PROJECT DESIGN ENGINEER

JULIO WILLIAMS
NCDOT CONTACT

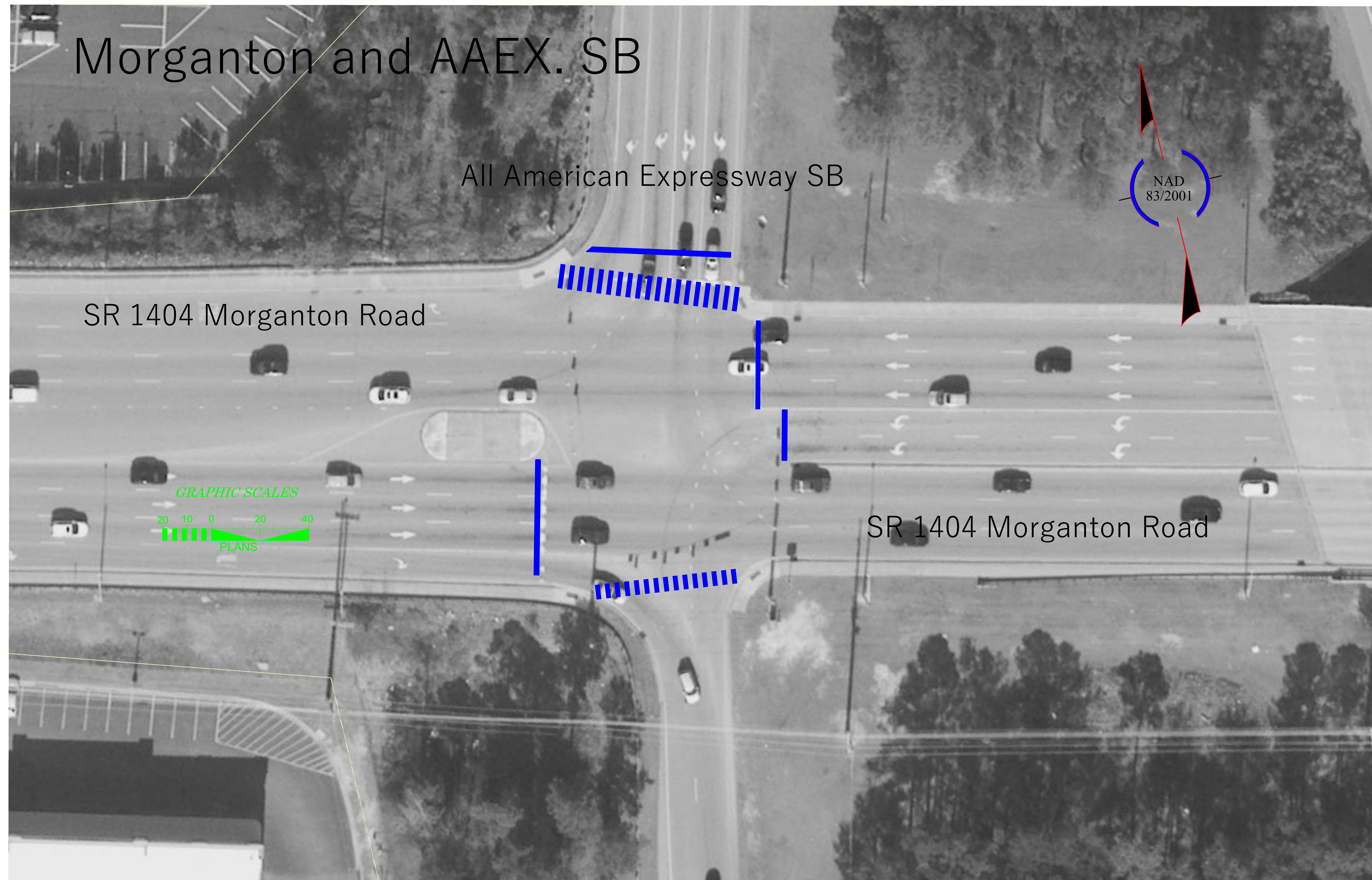
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



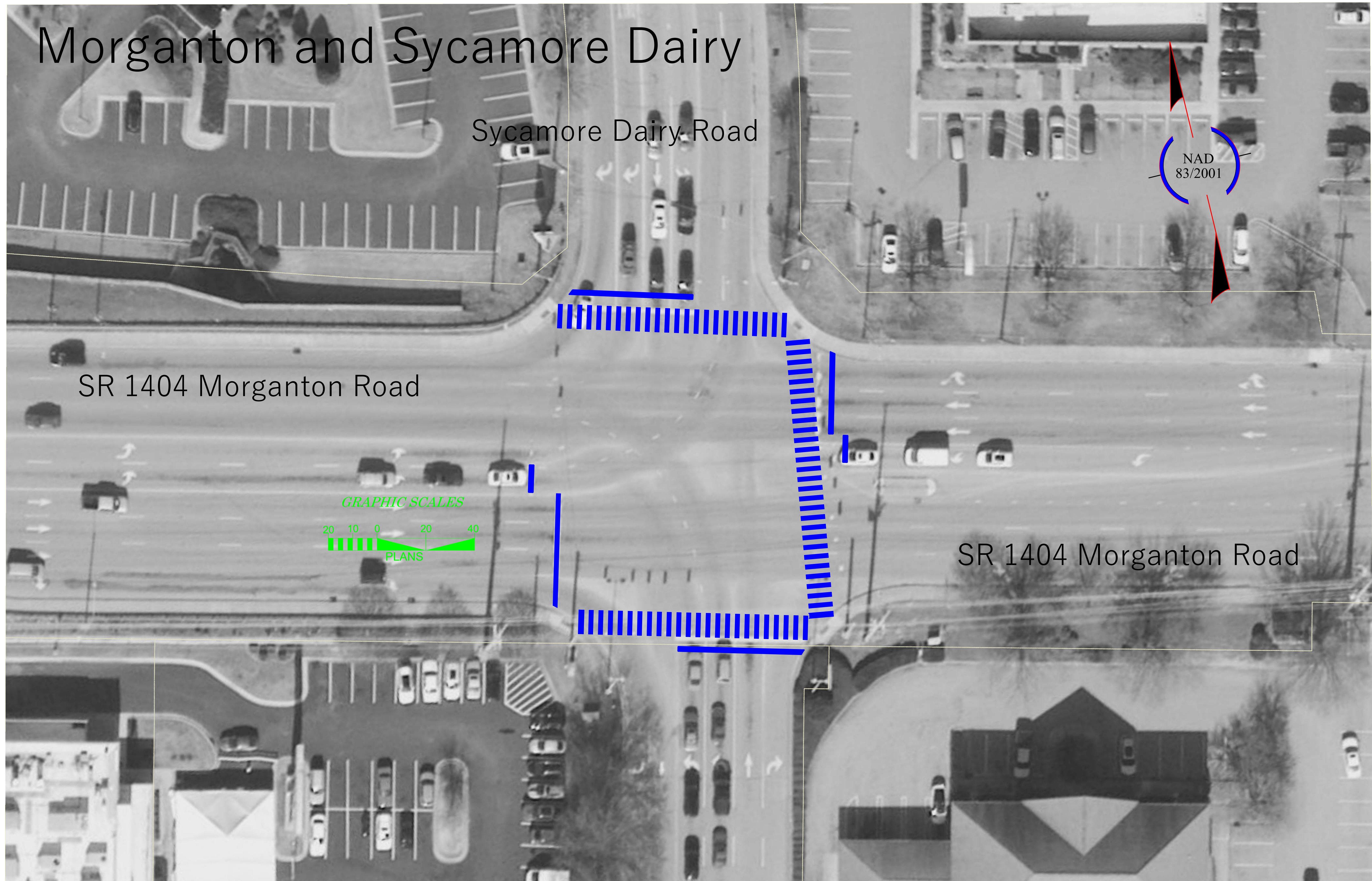
\$\$\$-USER NAME-\$\$\$ - \$\$\$-DATE-\$\$\$



HS-2406Z

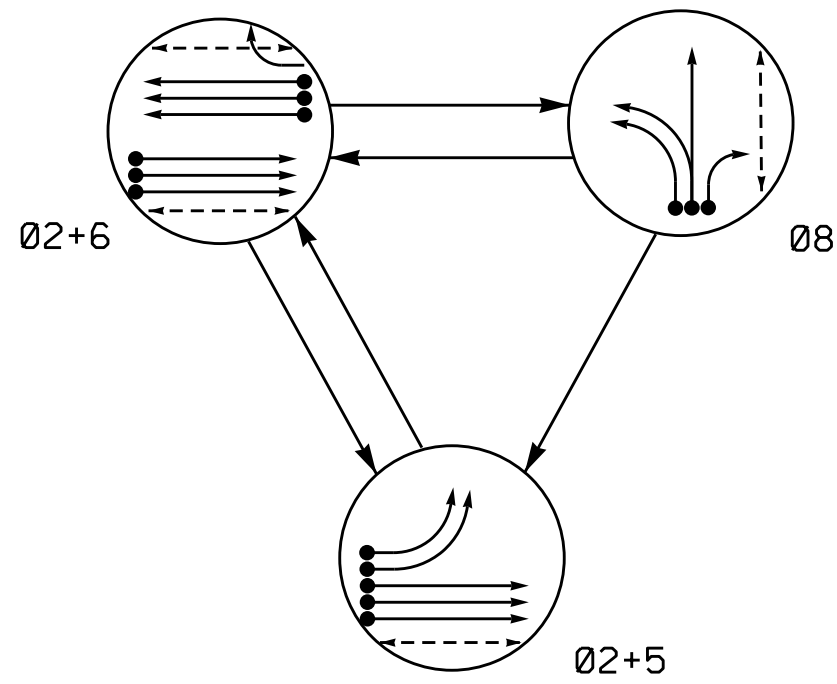


HS-2406Z

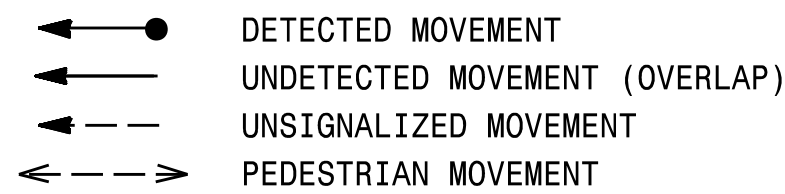


HS-2406Z

PHASING DIAGRAM



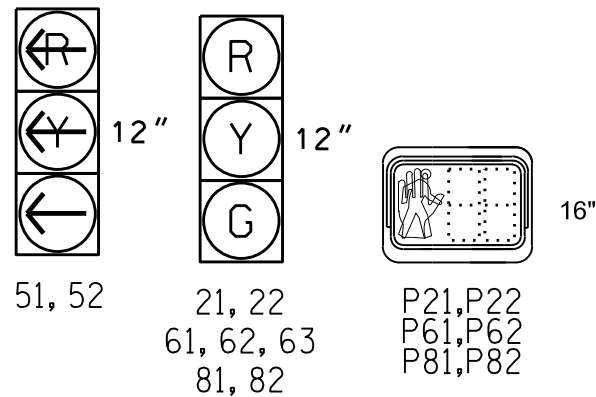
PHASING DIAGRAM DETECTION LEGEND



SIGNAL FACE	PHASE			
	0 2 + 5	0 2 + 6	0 8	F L A S H
21, 22	G	G	R	R
51, 52	←	←R	←R	←R
61, 62, 63	R	G	R	R
81, 82	R	R	G	R
P21,P22	W	W	DW	DRK
P61,P62	DW	W	DW	DRK
P81,P82	DW	DW	W	DRK

SIGNAL FACE I.D.

All Heads L.E.D.



MAXTIME DETECTOR INSTALLATION CHART

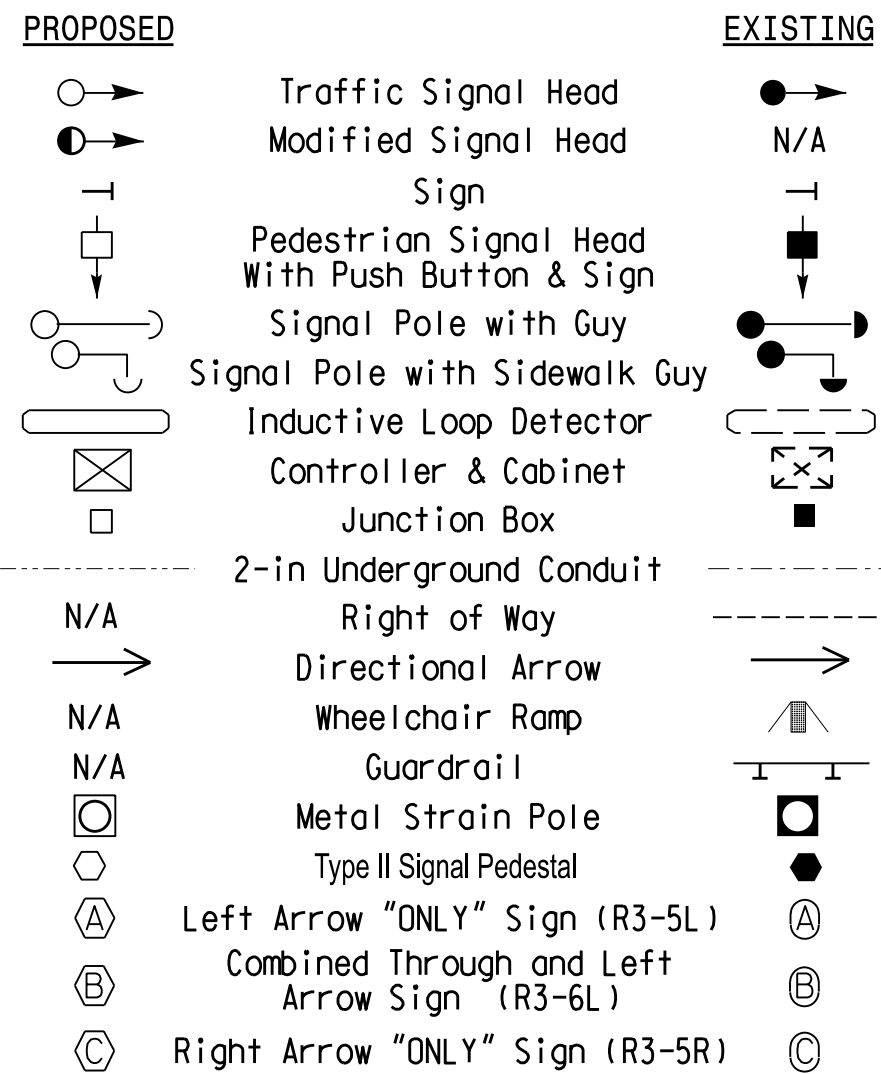
DETECTOR					PROGRAMMING						
LOOP	SIZE (FT)	DISTANCE FROM STOP LINE (FT)	TURNS	NEW LOOP	CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL DELAY DURING GREEN	NEW CARD
2A,2B,2C	6X6	70	4	-	2	-	-	X	-	X	-
5A	6X40	0	2-4-2	-	5	-	-	X	-	X	-
5B	6X40	0	2-4-2	-	5	-	-	X	-	X	-
6A	6X6	70	4	X	6	-	-	X	-	X	-
6B	6X6	70	4	X	6	-	-	X	-	X	-
6C	6X6	70	4	X	6	-	-	X	-	X	-
8A	6X40	0	2-4-2	-	8	-	-	X	-	X	-
8B	6X40	0	2-4-2	-	8	-	-	X	-	X	-
8C	6X40	0	2-4-2	-	8	15	-	X	-	X	-

3 Phase
Fully Actuated
Fayetteville Signal System

NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated January 2024 and "Standard Specifications for Roads and Structures" dated January 2024.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Phase 5 may be lagged.
- Set all detector units to presence mode.
- In the event of loop replacement, refer to the current TSMO Design Manual and submit a Plan of Record to the Signal Design Section.
- Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
- Program pedestrian heads to countdown the flashing "Don't Walk" time only.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.

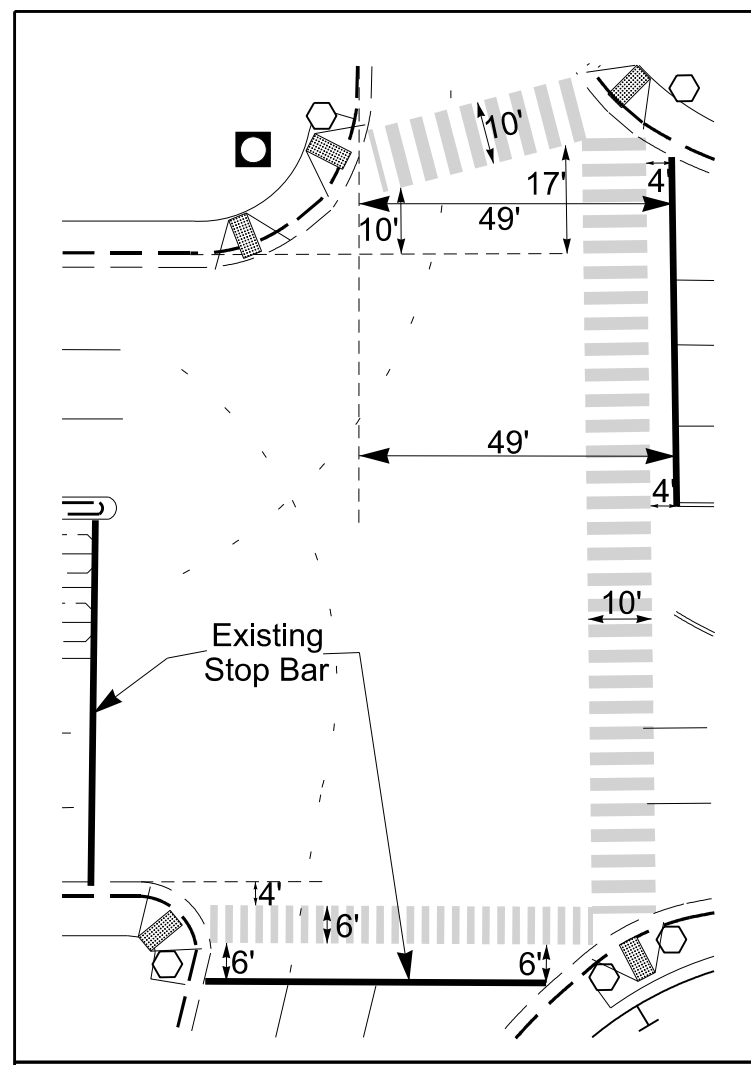
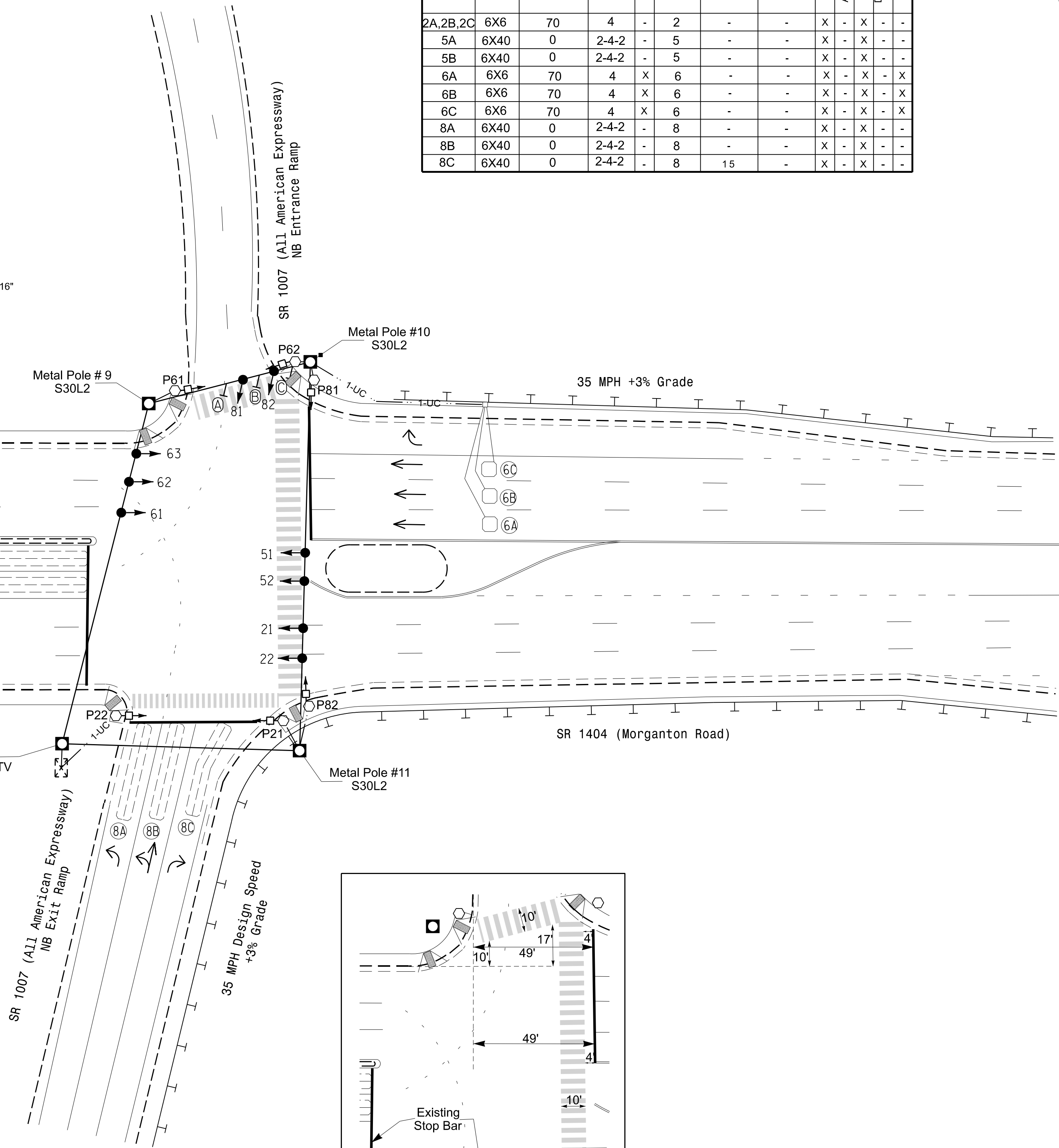
LEGEND



MAXTIME TIMING CHART

FEATURE	2	5	6	8
Walk *	7	-	14	14
Ped Clear	16	-	10	35
Min Green *	10	7	10	7
Passage *	3.0	2.0	3.0	2.0
Max 1 *	60	25	60	25
Yellow Change	4.0	3.0	4.0	3.7
Red Clear	1.6	3.3	1.6	2.6
Added Initial *	-	-	-	-
Maximum Initial *	-	-	-	-
Time Before Reduction *	-	-	-	-
Time To Reduce *	-	-	-	-
Minimum Gap	-	-	-	-
Advance Walk	-	-	7	7
Non Lock Detector	-	X	-	X
Vehicle Recall	MIN RECALL	-	MIN RECALL	-
Dual Entry	-	-	-	-

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



Signal Upgrade Corr. File No. 06-25-26010

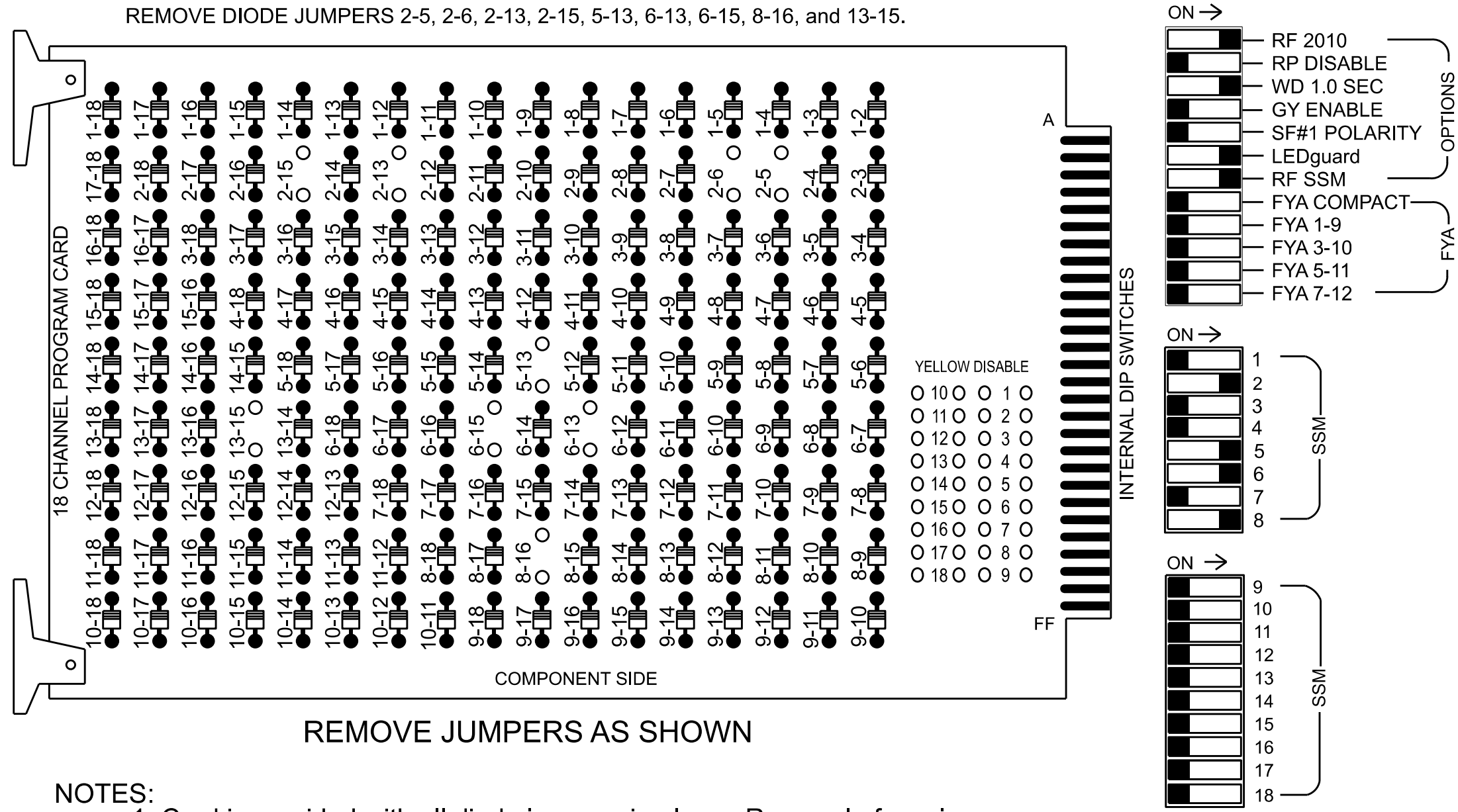
	SR 1404 (Morganton Road) at SR 1007(All American Expressway) NB Exit and Entrance Ramps	
	Division 6 Cumberland County Fayetteville	
	PLAN DATE: April 2026	REVIEWED BY: BMH
	PREPARED BY: Jeff Spence	REVIEWED BY:
	REVISIONS	INIT. DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
SEAL	SEAL
DATE: 07/13/2026	DATE:
SIG. INVENTORY NO. 06-0319	

14-JUL-2025 08:37
p:\w\modot-pa\bart ley.com\nodot-pw-01\Documents\NCDOT Unit 16\ANDOT TSMO\SIGNAL Design Section\Division_06-0319\SIGNAL Management\060319_sm.e_202606eda.dgn
cj craddock

18 CHANNEL IP CONFLICT MONITOR
PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



NOTES

- 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.
- Program controller to start up in phase 2 Green No Walk and 6 Green No Walk.
- If this signal will be managed by an ATMS software, enable controller and detector logging for all detectors used at this location.
- The cabinet and controller are part of the Fayetteville Signal System.

EQUIPMENT INFORMATION

Controller.....2070LX
Cabinet.....332
Software.....Q-Free MAXTIME
Cabinet Mount.....Base
Output File Positions.....12
Load Switches Used.....S2, S3, S7, S8, S9, S11, S12
Phases Used.....2, 2PED, 5, 6, 6PED, 8, 8PED
Overlaps.....NONE

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED
SIGNAL HEAD NO.	NU	21,22	P21, P22	NU	NU	NU	51,52	61,62, 63	P61, P62	NU	81,82	P81, P82
RED		128						134			107	
YELLOW		129						135			108	
GREEN		130						136			109	
RED ARROW							131					
YELLOW ARROW							132					
FLASHING YELLOW ARROW												
GREEN ARROW							133					
			113						119			110
			115						121			112

NU = Not Used

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.

INPUT FILE POSITION LAYOUT

(front view)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
FILE "I"	U 10-9 E P T	∅ 2 2A,2B, 2C NOT USED	U 10-9 E P T	U 10-9 E P T	U 10-9 E P T	U 10-9 E P T	U 10-9 E P T	U 10-9 E P T	U 10-9 E P T	U 10-9 E P T	U 10-9 E P T	∅ 2 PED DC ISOLATOR	∅ 6 PED DC ISOLATOR	FS DC ISOLATOR
FILE "J"	U 5A NOT USED	U 5B NOT USED	U 6A ∅ 6 6B	U 6C NOT USED	U 10-9 E P T	U 8A ∅ 8 8B	U 8C NOT USED	U 10-9 E P T	U 10-9 E P T	U 10-9 E P T	U 10-9 E P T	U 10-9 E P T	U 10-9 E P T	U 10-9 E P T

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

FS = FLASH SENSE
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
2A,2B,2C	TB2-5,6	I2U	39	1	2	2			X		X	
5A	TB3-1,2	J1U	55	17	15	5			X		X	
5B	TB3-5,6	J2U	40	2	16	5			X		X	
6A	TB3-9,10	J3U	64	30	18	6			X		X	
6B	TB3-11,12	J3L	77	43	19	6			X		X	
6C	TB5-1,2	J4U	48	10	20	6			X		X	
8A	TB5-9,10	J6U	42	4	22	8			X		X	
8B	TB5-11,12	J6L	46	8	23	8			X		X	
8C	TB7-1,2	J7U	66	32	24	8	15		X		X	
PED PUSH BUTTONS												
P21,P22	TB8-4,6	I12U	67	33	2	PED 2						
P61,P62	TB8-7,9	I13U	68	34	6	PED 6						
P81,P82	TB8-8,9	I13L	70	36	8	PED 8						

NOTE:
INSTALL DC ISOLATORS
IN INPUT FILE SLOTS
I12 AND I13.

INPUT FILE POSITION LEGEND: J2L

FILE J
SLOT 2
LOWER

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	X	3
4	Phase Vehicle	4		X		4
5	Phase Vehicle	5		X		5
6	Phase Vehicle	6		X	X	6
7	Phase Vehicle	7		X		7
8	Phase Vehicle	8		X	X	8
9	Overlap	1		X	X	9
10	Overlap	2		X	X	10
11	Overlap	3		X		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		X	X	17
18	Overlap	6		X		18

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
6

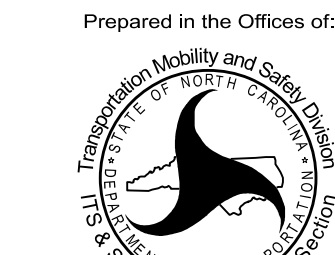
Unit Flash Parameters

All Red Flash Exit Time
6

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 06-0319
DESIGNED: April 2026
SEALED: 7/13/2026
REVISED:

Electrical Detail

Electrical and Programming
Details For:



750 N. Greenfield Pkwy, Garner, NC 27529

SR 1404 (Morganton Road)
at

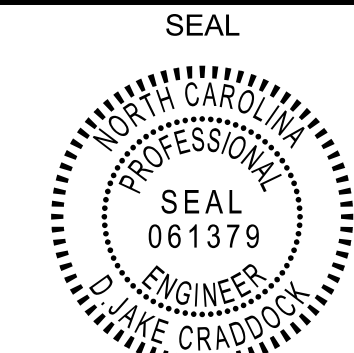
SR 1007 (All American Expressway)
NB Exit and Entrance Ramps

Division 6 Cumberland County Fayetteville

PLAN DATE: June 2026 REVIEWED BY: Tim Langston
PREPARED BY: D.J. Craddock REVIEWED BY:

REVISIONS INIT. DATE

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

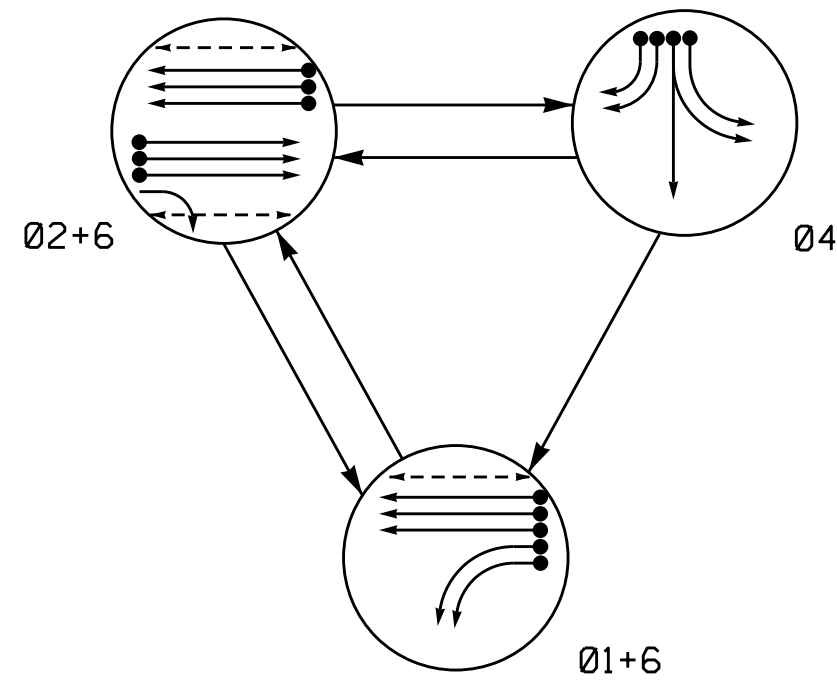


Designed by: 07/14/2026

DATE

SIG. INVENTORY NO. 06-0319

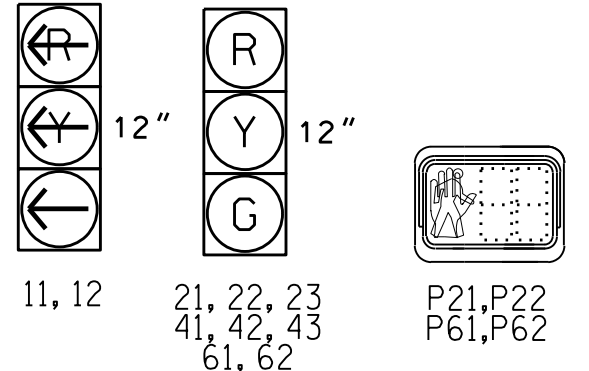
PHASING DIAGRAM



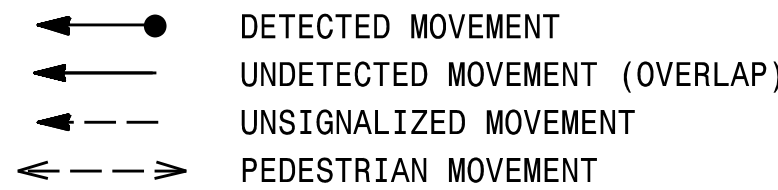
SIGNAL FACE	PHASE			
	01+6	02+6	04	FLASH
11, 12	←	←	←	←
21, 22, 23	R	G	R	R
41, 42, 43	R	R	G	R
61, 62	G	G	R	R
P21, P22	DW	W	DW	DRK
P61, P62	W	W	DW	DRK

SIGNAL FACE I.D.

All Heads L.E.D.



PHASING DIAGRAM DETECTION LEGEND



MAXTIME DETECTOR INSTALLATION CHART											
DETECTOR					PROGRAMMING						
LOOP	SIZE (FT)	DISTANCE FROM STOP LINE (FT)	TURN	NEW LOOP	CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL DELAY DURING GREEN	NEW CARD
1A	6X40	0	2-4-2	-	1	-	-	X	-	X	-
1B	6X40	0	2-4-2	-	1	-	-	X	-	X	-
2A, 2B, 2C	6X6	70	4	-	2	-	-	X	-	X	-
4A	6X40	0	2-4-2	X	4	-	-	X	-	X	-
4B	6X40	0	2-4-2	X	4	-	-	X	-	X	-
4C	6X40	0	2-4-2	X	4	15	-	X	-	X	-
4D	6X40	0	2-4-2	X	4	15	-	X	-	X	-
6A, 6B, 6C	6X6	70	4	X	6	-	-	X	-	X	-

3 Phase
Fully Actuated
Fayetteville Signal System

NOTES

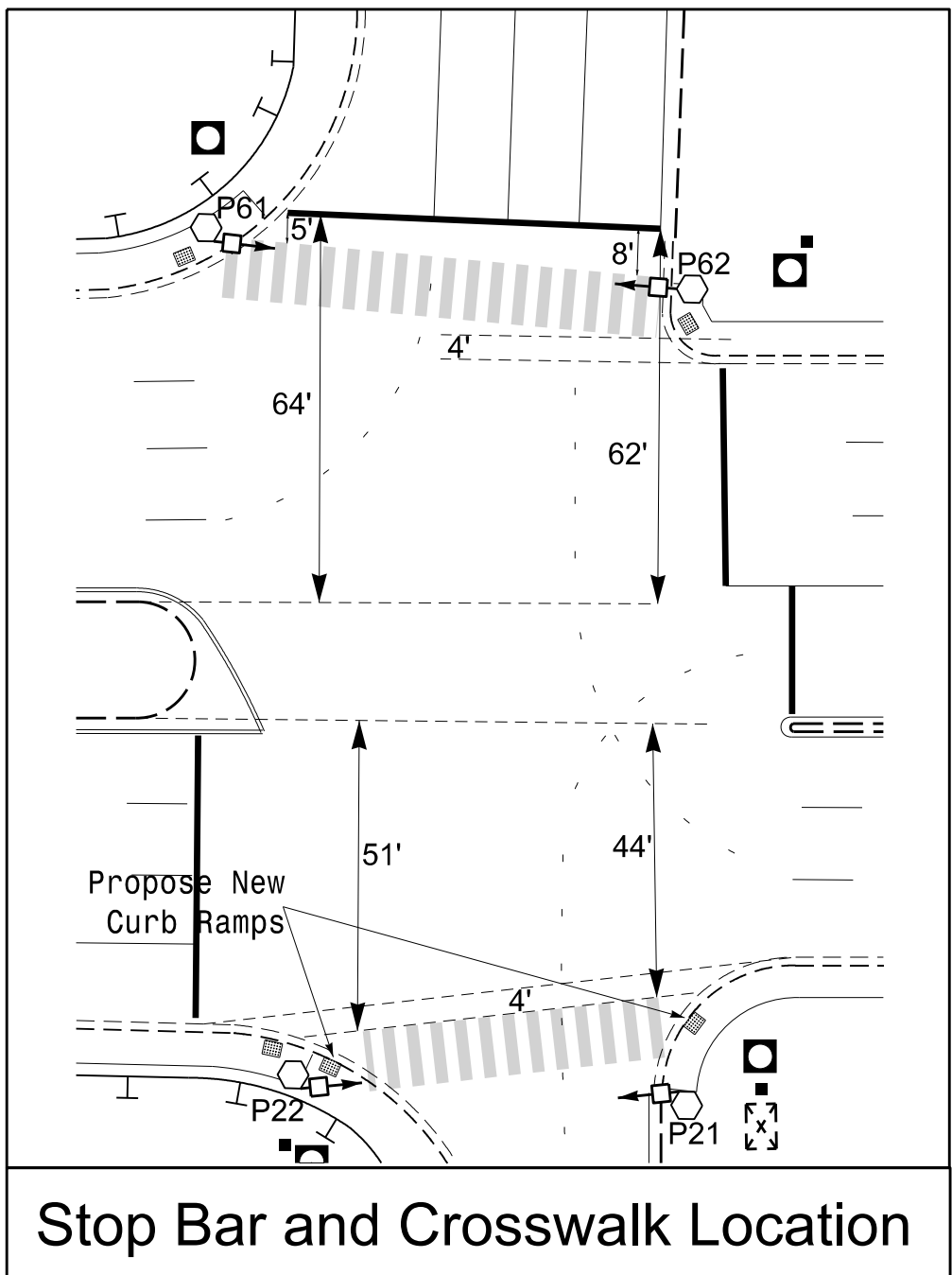
- Refer to "Roadway Standard Drawings NCDOT" dated January 2024 and "Standard Specifications for Roads and Structures" dated January 2024.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Phase 1 may be lagged.
- Set all detector units to presence mode.
- In the event of loop replacement, refer to the current TSMO Design Manual and submit a Plan of Record to the Signal Design Section.
- Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
- Program pedestrian heads to countdown the flashing "Don't Walk" time only.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.

LEGEND

PROPOSED	EXISTING

MAXTIME TIMING CHART				
FEATURE	PHASE			
	1	2	4	6
Walk *	-	14	-	7
Ped Clear	-	14	-	19
Min Green *	7	10	7	10
Passage *	2.0	3.0	2.0	3.0
Max 1 *	25	60	25	60
Yellow Change	3.0	4.1	3.7	4.1
Red Clear	2.9	1.6	2.6	1.6
Added Initial *	-	-	-	-
Maximum Initial *	-	-	-	-
Time Before Reduction *	-	-	-	-
Time To Reduce *	-	-	-	-
Minimum Gap	-	-	-	-
Advance Walk	-	7	-	-
Non Lock Detector	X	-	X	-
Vehicle Recall	-	MIN RECALL	-	MIN RECALL
Dual Entry	-	-	-	-

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



Signal Upgrade Corr. File No. 06-25-26010

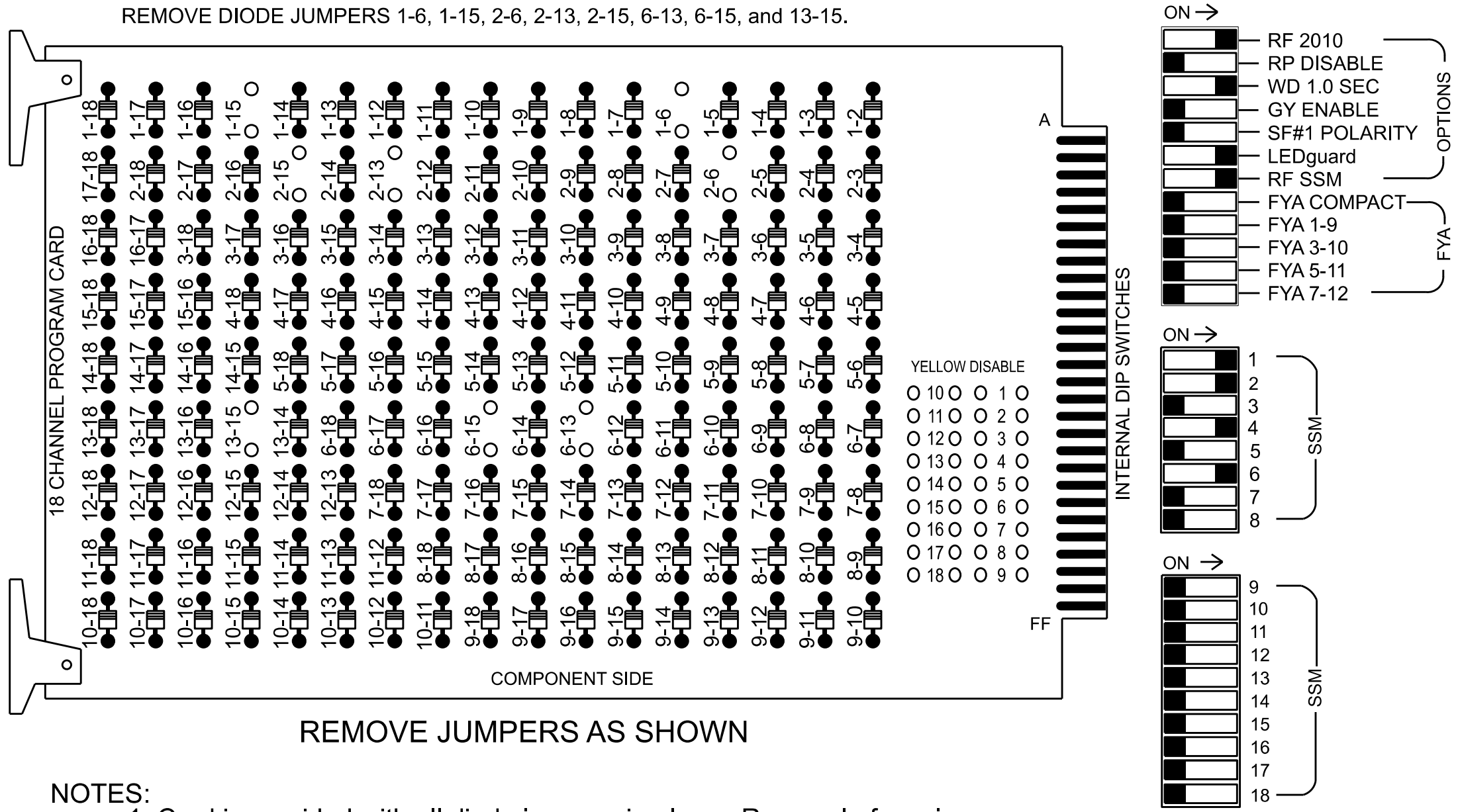
	SR 1404 (Morganton Road) at SR 1007 (All American Expressway) SB Exit and Entrance Ramps		
	Division 6	Cumberland County Fayetteville	
	PLAN DATE: April 2026	REVIEWED BY: BMH	
	PREPARED BY: Jeff Spence	REVIEWED BY:	
REVISIONS		INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
SEAL
07/13/2026
SIG. INVENTORY NO. 06-0322

14-JUL-2025 08:45
p:\c\modot-pa\bernt ley, comm\ncdot-pw-01\Documents\NCDOT Unit 6\ANDOT TSMO\SIGNAL Design Section\Division_06-0322\SIGNAL Management\060322_sm_e_202607.dgn
djcraddock1

18 CHANNEL IP CONFLICT MONITOR
PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



NOTES

- 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.
- Program controller to start up in phase 2 Green No Walk and 6 Green No Walk.
- If this signal will be managed by an ATMS software, enable controller and detector logging for all detectors used at this location.
- The cabinet and controller are part of the Fayetteville Signal System.

EQUIPMENT INFORMATION

Controller.....2070LX
Cabinet.....332
Software.....Q-Free MAXTIME
Cabinet Mount.....Base
Output File Positions.....12
Load Switches Used.....S1, S2, S3, S5, S8, S9
Phases Used.....1, 2, 2PED, 4, 6, 6PED
Overlaps.....NONE

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED
SIGNAL HEAD NO.	11,12	21,22, 23	P21, P22	NU	41,42 43	NU	NU	61,62	P61, P62	NU	NU	NU
RED		128			101			134				
YELLOW		129			102			135				
GREEN		130			103			136				
RED ARROW	125											
YELLOW ARROW	126											
FLASHING YELLOW ARROW												
GREEN ARROW	127											
Hand icon			113						119			
Walking person icon			115						121			

NU = Not Used

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.

INPUT FILE POSITION LAYOUT

(front view)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
FILE "I" U	Ø 1 1A	Ø 1 1B	Ø 2 2A, 2B, 2C	Ø 3 3A, 3B, 3C	Ø 4 4A, 4B, 4C	Ø 4 4A, 4B, 4C	Ø 5 5A, 5B, 5C	Ø 6 6A, 6B, 6C	Ø 7 7A, 7B, 7C	Ø 8 8A, 8B, 8C	Ø 9 9A, 9B, 9C	Ø 10 10A, 10B, 10C	Ø 11 11A, 11B, 11C	Ø 12 12A, 12B, 12C
FILE "J" U	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED

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

FS = FLASH SENSE
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
1A	TB2-1,2	I1U	56	18	1	1			X		X	
1B	TB2-5,6	I2U	39	1	2	1			X		X	
2A,2B,2C	TB2-9,10	I3U	63	29	4	2			X		X	
4A	TB4-9,10	I6U	41	3	8	4			X		X	
4B	TB4-11,12	I6L	45	7	9	4			X		X	
4C	TB6-1,2	I7U	65	31	10	4	15		X		X	
4D	TB6-3,4	I7L	78	44	11	4	15		X		X	
6A,6B,6C	TB3-5,6	J2U	40	2	16	6			X		X	
PED PUSH BUTTONS												
P21,P22	TB8-4,6	I12U	67	33	2	PED 2						
P61,P62	TB8-7,9	I13U	68	34	6	PED 6						

NOTE:
INSTALL DC ISOLATORS
IN INPUT FILE SLOTS
I12 AND I13.

INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

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	X	3
4	Phase Vehicle	4		X		4
5	Phase Vehicle	5		X		5
6	Phase Vehicle	6		X	X	6
7	Phase Vehicle	7		X		7
8	Phase Vehicle	8		X	X	8
9	Overlap	1		X	X	9
10	Overlap	2		X	X	10
11	Overlap	3		X		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		X	X	17
18	Overlap	6		X		18

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
6

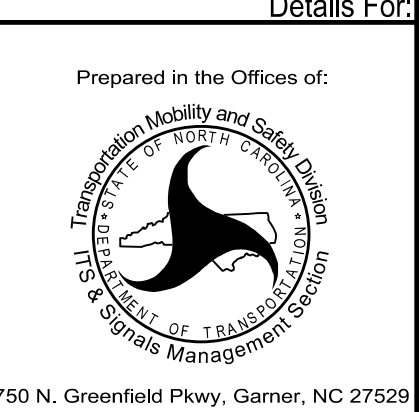
Unit Flash Parameters

All Red Flash Exit Time
6

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 06-0322
DESIGNED: April 2026
SEALED: 7/13/2026
REVISED:

Electrical Detail

Electrical and Programming
Details For:



750 N. Greenfield Pkwy, Garner, NC 27529

SR 1404 (Morganton Road)
at
SR 1007 (All American Expressway)
SB Exit and Entrance Ramps

Division 6 Cumberland County Fayetteville

PLAN DATE: June 2026 REVIEWED BY: Tim Langston

PREPARED BY: D.J. Craddock REVIEWED BY:

REVISIONS INIT. DATE

DATE

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED



DATE 7/14/2026

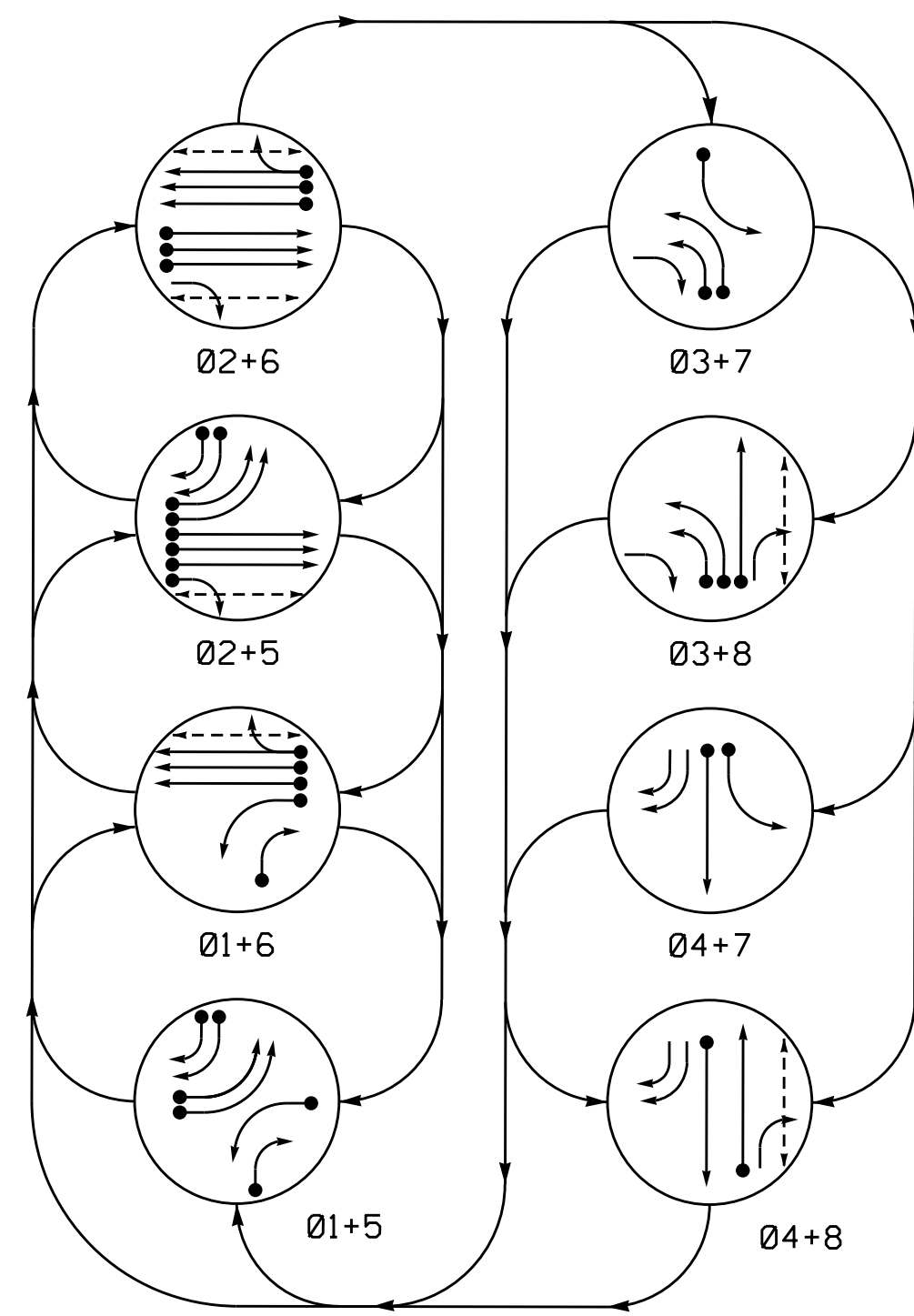
SIG. INVENTORY NO. 06-0322

8 Phase
Fully Actuated
Fayetteville Signal System

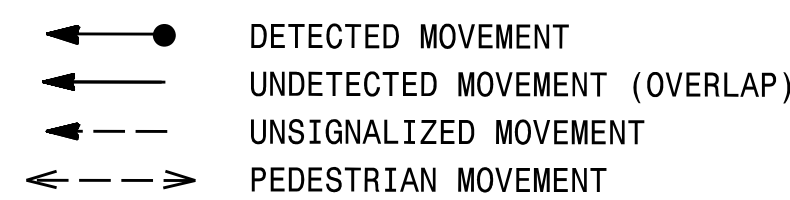
NOTES

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. Phase 3 and/or phase 7 may be lagged.
5. Set all detector units to presence mode.
6. In the event of loop replacement, refer to the current TSMO Design Manual and submit a Plan of Record to the Signal Design Section.
7. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
8. Program pedestrian heads to countdown the flashing "Don't Walk" time only.
9. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND



SIGNAL FACE I.D.

All Heads L.E.D.

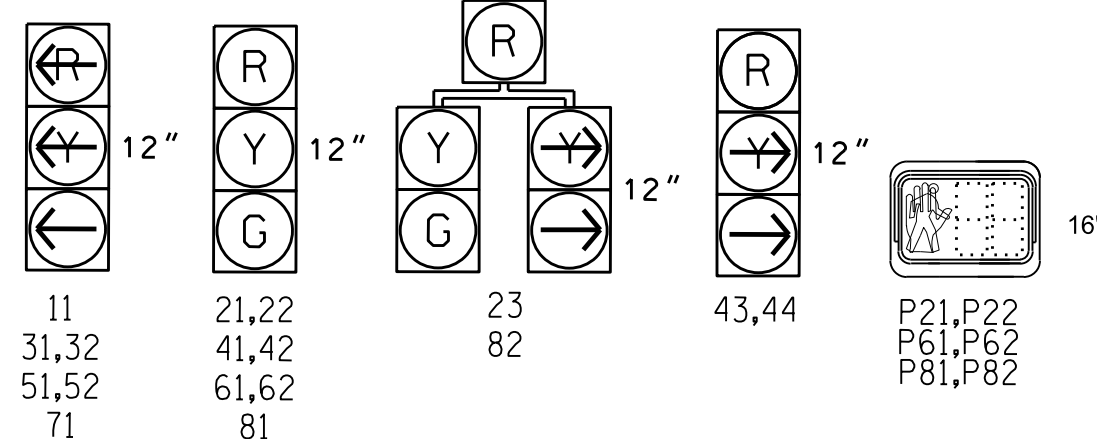
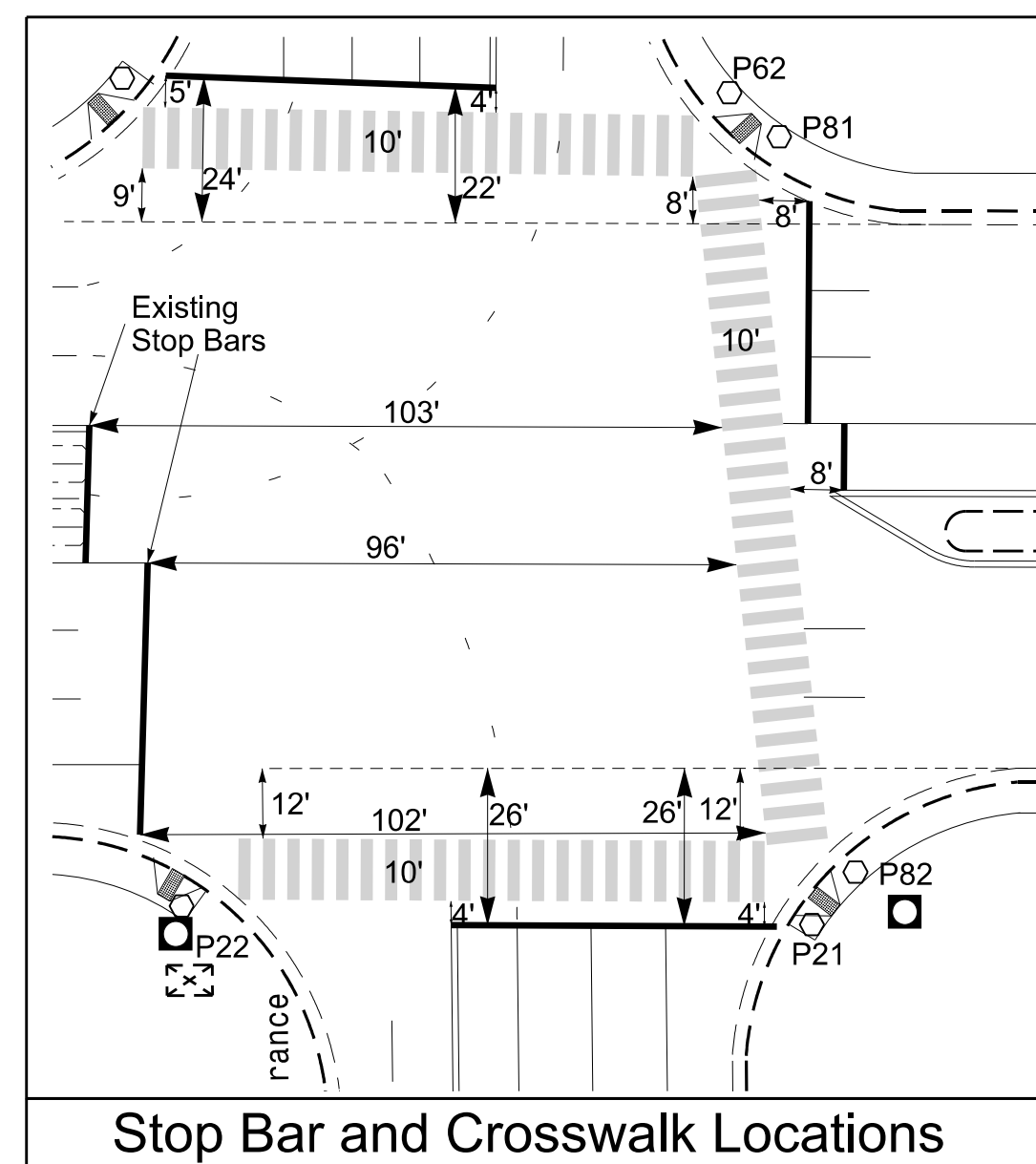


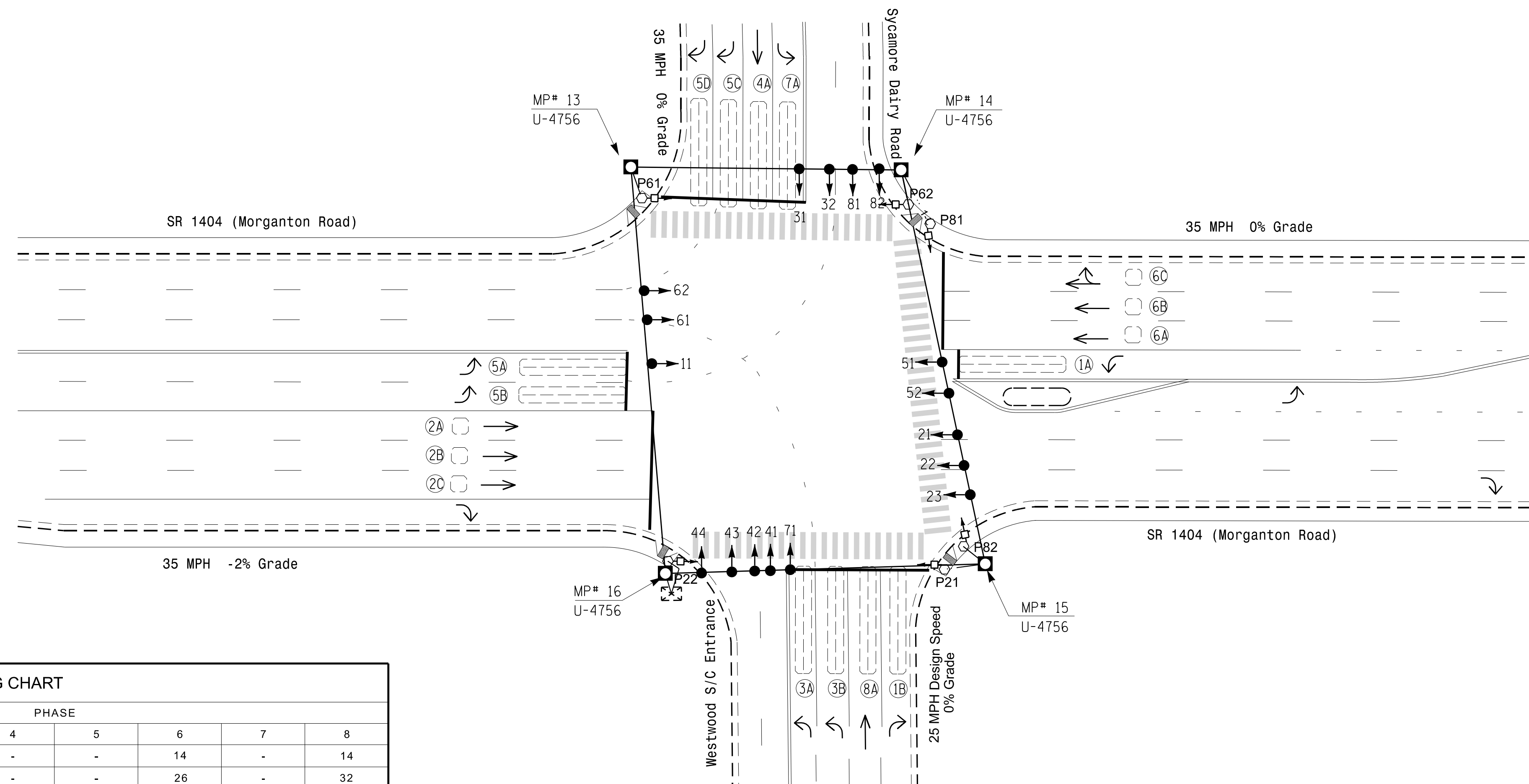
TABLE OF OPERATION

SIGNAL FACE	PHASE								
	0 1 + 5	0 1 + 6	0 2 + 5	0 2 + 6	0 3 + 7	0 3 + 8	0 4 + 7	0 4 + 8	FLASH
11	←	←	→	→	→	→	→	→	→
21,22	R	R	G	G	R	R	R	R	R
23	R	R	G	G	R	R	R	R	R
31,32	→	→	→	→	←	←	→	→	→
41,42	R	R	R	R	R	R	G	G	R
43,44	→	R	→	R	R	R	→	→	R
51,52	←	→	←	→	→	→	→	→	→
61,62	R	G	R	G	R	R	R	R	R
71	→	→	→	→	←	←	→	→	→
81	R	R	R	R	R	G	G	R	R
82	R	R	R	R	R	G	R	G	R
P21,P22	DW	DW	W	W	DW	DW	DW	DR	DR
P61,P62	DW	W	DW	W	DW	DW	DW	DR	DR
P81,P82	DW	DW	DW	DW	DW	W	DW	W	DR

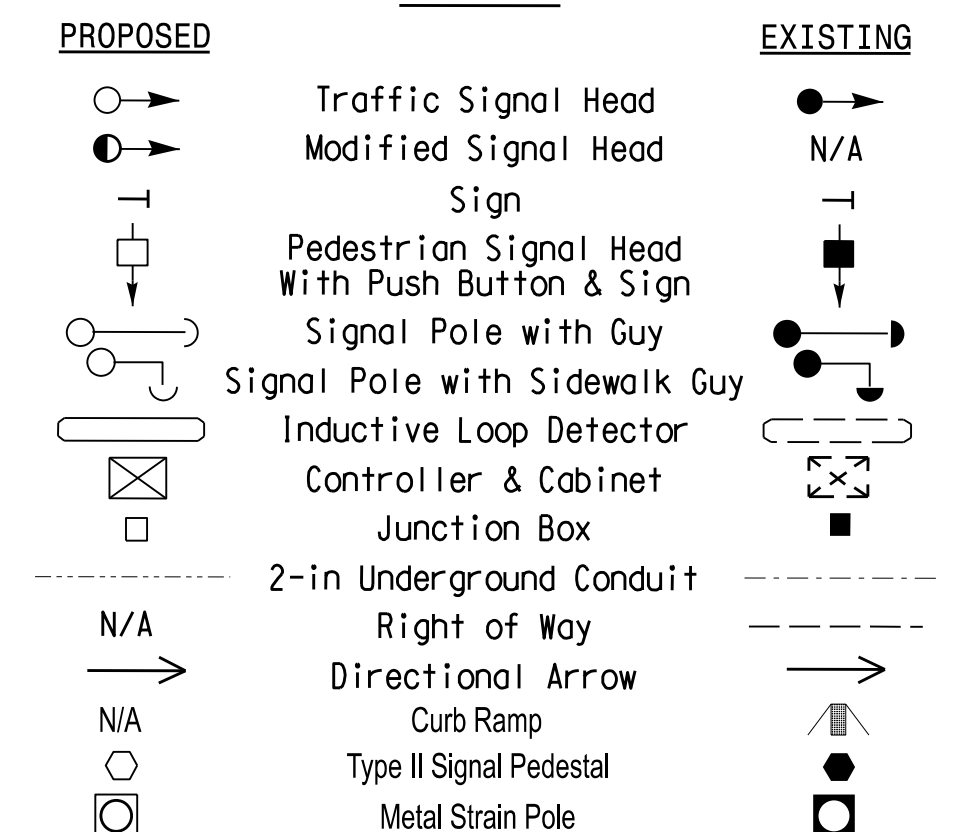


MAXTIME DETECTOR INSTALLATION CHART

DETECTOR					PROGRAMMING							
LOOP	SIZE (FT)	DISTANCE FROM STOP LINE (FT)	TURNS	NEW LOOP	CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL DURING GREEN	NEW LOOP	
2A,2B,2C	1A	6X40	0	2-4-2	-	1	-	-	X	-	X	-
	1B	6X40	0	2-4-2	-	1	15	-	X	-	X	-
	2A	6X6	70	3	-	2	-	-	X	-	X	-
	3A	6X40	0	2-4-2	-	3	3	-	X	-	X	-
	3B	6X40	0	2-4-2	-	3	-	-	X	-	X	-
	4A	6X40	0	2-4-2	-	4	-	-	X	-	X	-
	5A	6X40	0	2-4-2	-	5	3	-	X	-	X	-
	5B	6X40	0	2-4-2	-	5	-	-	X	-	X	-
	5C	6X40	0	2-4-2	-	5	15	-	X	-	X	-
	5D	6X40	0	2-4-2	-	5	15	-	X	-	X	-
5A,6B,6C	6X6	68	5	-	6	-	-	-	X	-	X	-
	7A	6X40	0	2-4-2	-	7	3	-	X	-	X	-
	8A	6X40	0	2-4-2	-	8	-	-	X	-	X	-



LEGEND



MAXTIME TIMING CHART

FEATURE	PHASE							
	1	2	3	4	5	6	7	8
Walk *	-	14	-	-	-	14	-	14
Ped Clear	-	26	-	-	-	26	-	32
Min Green *	7	10	7	7	7	10	7	7
Passage *	2.0	3.0	2.0	2.0	2.0	3.0	2.0	2.0
Max 1 *	15	45	15	15	15	45	15	15
Yellow Change	3.0	4.0	3.0	3.8	3.0	4.0	3.0	3.8
Red Clear	3.2	2.1	3.5	3.3	3.3	2.1	3.2	3.3
Added Initial *	-	-	-	-	-	-	-	-
Maximum Initial *	-	-	-	-	-	-	-	-
Time Before Reduction *	-	-	-	-	-	-	-	-
Time To Reduce *	-	-	-	-	-	-	-	-
Minimum Gap	-	-	-	-	-	-	-	-
Advance Walk	-	7	-	-	-	7	-	7
Non Lock Detector	X	-	X	X	X	-	X	X
Vehicle Recall	-	MIN RECALL	-	-	-	MIN RECALL	-	-
Dual Entry	-	-	-	-	-	-	-	-

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

Signal Upgrade Corr. File No. 06-25-26010

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

SEAL

SR 1404 (Morganton Road)
at
Sycamore Dairy Road /
Westwood Shopping Center

Division 6 Cumberland County Fayetteville

PLAN DATE:	April 2026	REVIEWED BY:	BMH
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529 PREPARED BY: Jeff Spence

REVISIONS	REVIEWED BY
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SEAL



A circular professional engineer seal for the State of North Carolina. The outer ring contains the text "NORTH CAROLINA" at the top and "BAILEY M. HARDEN" at the bottom. Inside this ring, the word "PROFESSIONAL" is at the top and "ENGINEER" is at the bottom. In the center of the seal, the word "SEAL" is at the top, the license number "047646" is in the middle, and the name "Bailey M. Harden" is at the bottom.

Dec. Signed by: Bailey M. Harden 07/13/2021

— DATE

—

SIG. INVENTORY NO. 06-0361

Declassified by: [redacted] 07/13/2026

DATE

SIG. INVENTORY NO. 06-0361

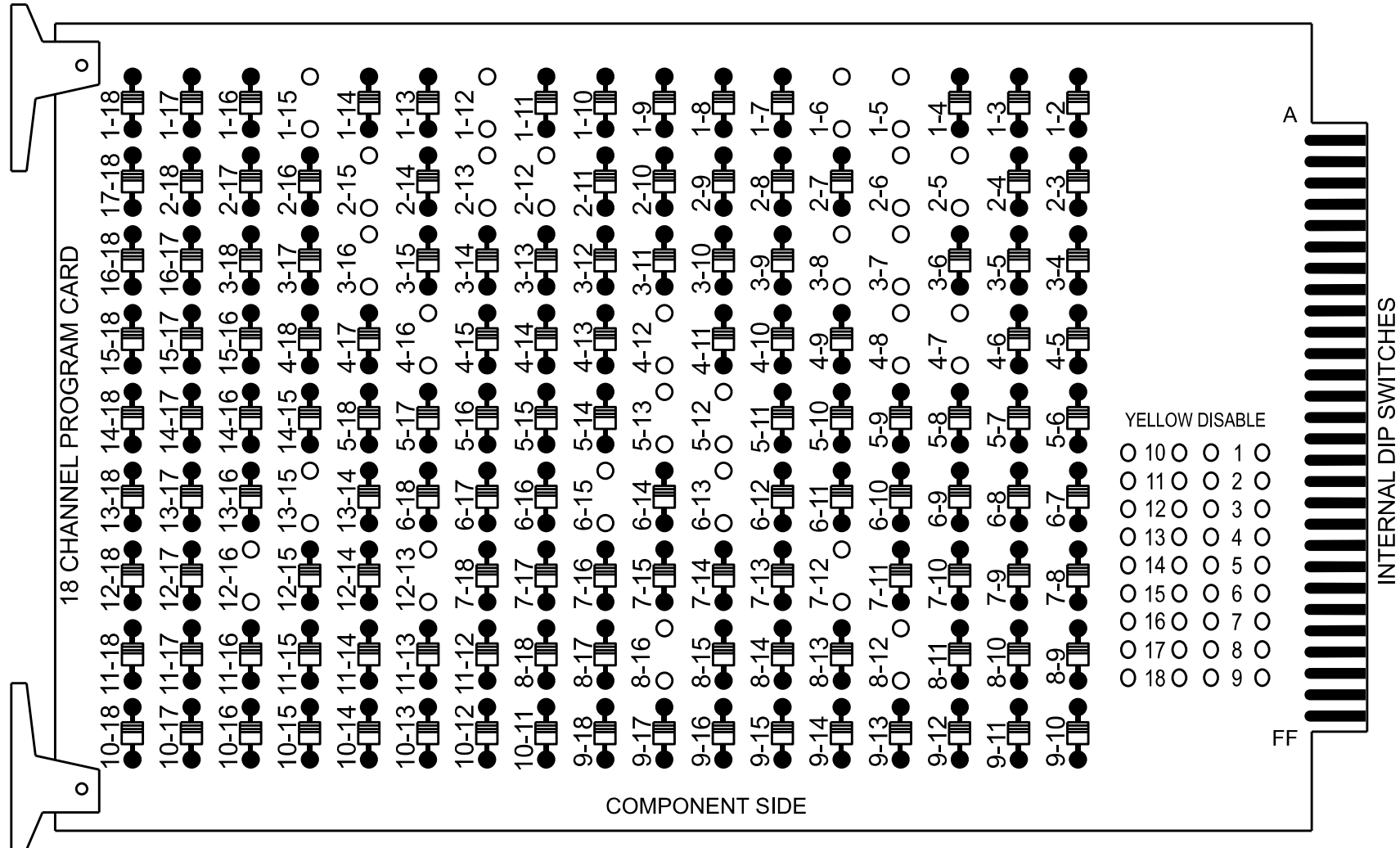
14-Jul-2025, 08:57
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GJ Craddock1

18 CHANNEL IP CONFLICT MONITOR

PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

REMOVE DIODE JUMPERS 1-5, 1-6, 1-12, 1-15, 2-5, 2-6, 2-12, 2-13, 2-15, 3-7, 3-8, 3-16, 4-7, 4-8, 4-12, 4-16, 5-12, 5-13, 6-13, 6-15, 7-12, 8-12, 8-16, 12-13, 12-16, and 13-15.



REMOVE JUMPERS AS SHOWN

NOTES:

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

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.

INPUT FILE POSITION LAYOUT

(front view)

FILE "I"	1	2	3	4	5	6	7	8	9	10	11	12	13	14
U	Ø 1 1A	Ø 2 2A, 2B, 2C	Ø 3 3A	Ø 4 4A	Ø 5 5A	Ø 6 6A, 6B, 6C	Ø 7 7A	Ø 8 8A	Ø 9 9A	Ø 10 10A	Ø 11 11A	Ø 12 12A	Ø 13 13A	Ø 14 14A
L	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED

FILE "J"	1	2	3	4	5	6	7	8	9	10	11	12	13	14
U	Ø 5 5A	Ø 6 6A, 6B, 6C	Ø 7 7A	Ø 8 8A	Ø 9 9A	Ø 10 10A	Ø 11 11A	Ø 12 12A	Ø 13 13A	Ø 14 14A	Ø 15 15A	Ø 16 16A	Ø 17 17A	Ø 18 18A
L	NOT USED	Ø 5 5B	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED

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

FS = FLASH SENSE
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
1A	TB2-1,2	I1U	56	18	1	1			X		X	
1B	TB5-11,12	J6L	46	8	23	1	15		X		X	
2A,2B,2C	TB2-5,6	I2U	39	1	2	2			X		X	
3A	TB7-1,2	J7U	66	32	24	3	3		X		X	
3B	TB7-3,4	J7L	79	45	25	3			X		X	
4A	TB4-9,10	I6U	41	3	8	4			X		X	
5A	TB3-1,2	J1U	55	17	15	5	3		X		X	
5B	TB3-7,8	J2L	44	6	17	5			X		X	
5C	TB6-1,2	I7U	65	31	10	5	15		X		X	
5D	TB6-3,4	I7L	78	44	11	5	15		X		X	
6A,6B,6C	TB3-5,6	J2U	40	2	16	6			X		X	
7A	TB4-11,12	I6L	45	7	9	7	3		X		X	
8A	TB5-9,10	J6U	42	4	22	8			X		X	
PED PUSH BUTTONS												
P21,P22	TB8-4,6	I12U	67	33	2	PED 2						
P61,P62	TB8-7,9	I13U	68	34	6							
P81,P82	TB8-8,9	I13L	70	36	8	PED 8						

INPUT FILE POSITION LEGEND: J2L

NOTE:
INSTALL DC ISOLATORS
IN INPUT FILE SLOTS
I12 AND I13.

FILE J
SLOT 2
LOWER

NOTES

- 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.
- Program controller to start up in phase 2 Green No Walk and 6 Green No Walk.
- If this signal will be managed by an ATMS software, enable controller and detector logging for all detectors used at this location.
- The cabinet and controller are part of the Fayetteville Signal 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, S3, S4, S5, S7, S8, S9, S10, S11, S12, AUX S5
Phases Used.....1, 2, 2PED, 3, 4, 5, 6, 6PED, 7, 8, 8PED
Overlap "1".....NOT USED
Overlap "2".....NOT USED
Overlap "3".....NOT USED
Overlap "4".....*

*See overlap programming detail on this sheet.

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
6

Unit Flash Parameters

All Red Flash Exit Time
6

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	X	3
4	Phase Vehicle	4		X		4
5	Phase Vehicle	5		X		5
6	Phase Vehicle	6		X	X	6
7	Phase Vehicle	7		X		7
8	Phase Vehicle	8		X	X	8
9	Overlap	1		X	X	9
10	Overlap	2		X	X	10
11	Overlap	3		X		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		X	X	17
18	Overlap	6		X		18

PROJECT REFERENCE NO.	SHEET NO.
HS-2406Z	Sig. 1.1

SIGNAL HEAD HOOK-UP CHART

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
GMU 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	3	4	4 PED	5	6	6 PED	7	8	8 PED	OL1	OL2	SPARE	OL3	OL4	SPARE
SIGNAL HEAD NO.	11	82	21,22, 23	P21, P22	31,32	23	41,42	NU	51,52	61,62	P61, P62	71	81,82	P81, P82	NU	NU	NU	43,44
RED		128			101				134			107						A101
YELLOW		129			102				135			108						
GREEN		130			103				136			109						
RED ARROW	125			116			131			122								
YELLOW ARROW	126	126		117	117		132			123								A102
FLASHING YELLOW ARROW																		
GREEN ARROW	127	127		118	118		133			124								A103
Hand				113					119			110						
Walking				115					121			112						

NU = Not Used

FLASHER CIRCUIT MODIFICATION DETAIL

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

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

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

OVERLAP PROGRAMMING

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

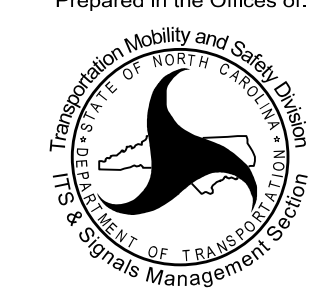
Web Interface
Home >Controller >Overlap Configuration >Overlaps

Overlap Plan 1

Overlap	1	2	3	4
Type	Off	Off	Off	Normal
Included Phases	-	-	-	4,5
Modifier Phases	-	-	-	-
Modifier Overlaps	-	-	-	-
Trail Green	0	0	0	0
Trail Yellow	0.0	0.0	0.0	0.0
Trail Red	0.0	0.0	0.0	0.0

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 06-0361
DESIGNED: April 2026
SEALED: 7/13/2026
REVISED:

Electrical Detail

Electrical and Programming Details For:	SR 1404 (Morganton Road) at Sycamore Dairy Road / Westwood Shopping Center	DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
Prepared in the Offices of: 	Division 6 Cumberland County Fayetteville PLAN DATE: June 2026 REVIEWED BY: Tim Langston PREPARED BY: D.J. Craddock REVIEWED BY:	SEAL NORTH CAROLINA PROFESSIONAL SEAL 061379 ENGINEER DUANE CRADDOCK
750 N. Greenfield Pkwy, Garner, NC 27529	REVISIONS INIT. DATE	Designd by: 07/14/2026 DATE 37192851/67C42E DATE SIG. INVENTORY NO. 06-0361