DocuSign Envelope ID: EE0A9FB1-617B-4D0E-A869-87C1A84AA294

PROJECT REFERENCE NO.	SHEET NO.
U-5748	Sig. 12.0

PHASING DIAGRAM

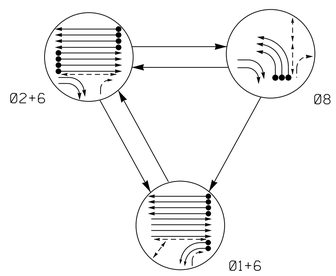


TABLE OF OPERATION

SIGNAL FACE	PHASE Ø1+6	PHASE Ø2+6	PHASE Ø8	PHASE FLASH
11, 12	←-	-R	-R	-R
21,22,23,24	↑	↑	R	Y
25, 26	↗	↗	↗	↗
27	R→	→-	→-	Y→
61,62,63,64	↑	↑	R	Y
81, 82, 83	-R	-R	←-	-R
P11, P12	W	DW	DW	DRK
P21, P22	W	W	DW	DRK
P81, P82 P83, P84 P85, P86	DW	DW	W	DRK

SE-PAC 2070 LOOP & DETECTOR UNIT INSTALLATION CHART

INDUCTIVE LOOPS						DETECTOR PROGRAMMING													
							TIMING		OPERATION MODE									STATUS	
LOOP NO.	SIZE (ft)	TURNS	DIST. FROM STOPBAR (ft)	NEW	EXISTING	ASSIGNED PHASE	DELAY	EXTEND (STRETCH)	0 VEHICLE	1 PEDESTRIAN	2 1 CALL	3 STOP A	4 STOP B	5 PROTFFER	6 LEFT PROTFFER THROUGH	7 AND	SWITCH SYSTEM LOOPS	NEW	EXISTING
1A	6X40	2-4-2	0	X	-	1	- SEC.	- SEC.	X	-	-	-	-	-	-	-	-	X	-
1B	6X40	2-4-2	0	X	-	1	- SEC.	- SEC.	X	-	-	-	-	-	-	-	-	X	-
2A	6X6	5	355	X	-	2	- SEC.	- SEC.	X	-	-	-	-	-	-	-	-	X	-
2B	6X6	5	355	X	-	2	- SEC.	- SEC.	X	-	-	-	-	-	-	-	-	X	-
2C	6X6	5	355	X	-	2	- SEC.	- SEC.	X	-	-	-	-	-	-	-	-	X	-
2D	6X6	5	355	X	-	2	- SEC.	- SEC.	X	-	-	-	-	-	-	-	-	X	-
6A	6X6	5	355	X	-	6	- SEC.	- SEC.	X	-	-	-	-	-	-	-	-	X	-
6B	6X6	5	355	X	-	6	- SEC.	- SEC.	X	-	-	-	-	-	-	-	-	X	-
6C	6X6	5	355	X	-	6	- SEC.	- SEC.	X	-	-	-	-	-	-	-	-	X	-
6D	6X6	5	355	X	-	6	- SEC.	- SEC.	X	-	-	-	-	-	-	-	-	X	-
8A	6X40	2-4-2	0	X	-	8	- SEC.	- SEC.	X	-	-	-	-	-	-	-	-	X	-
8B	6X40	2-4-2	0	X	-	8	- SEC.	- SEC.	X	-	-	-	-	-	-	-	-	X	-
8C	6X40	2-4-2	0	X	-	8	- SEC.	- SEC.	X	-	-	-	-	-	-	-	-	X	-

3 Phase
Fully Actuated
(Raleigh Signal System)

NOTES

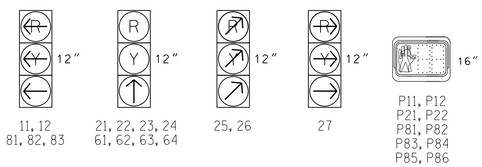
1. Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Phase 1 may be lagged.
4. Set all detector units to presence 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. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
8. Program phase 4 as dummy phase for Ring 1.
9. Phase 8 pedestrian timing is designed as a 2 stage crossing. The FDW time shown is only intended to get a pedestrian to/from the median during a single crossing. Install R10-3D signs as appropriate.

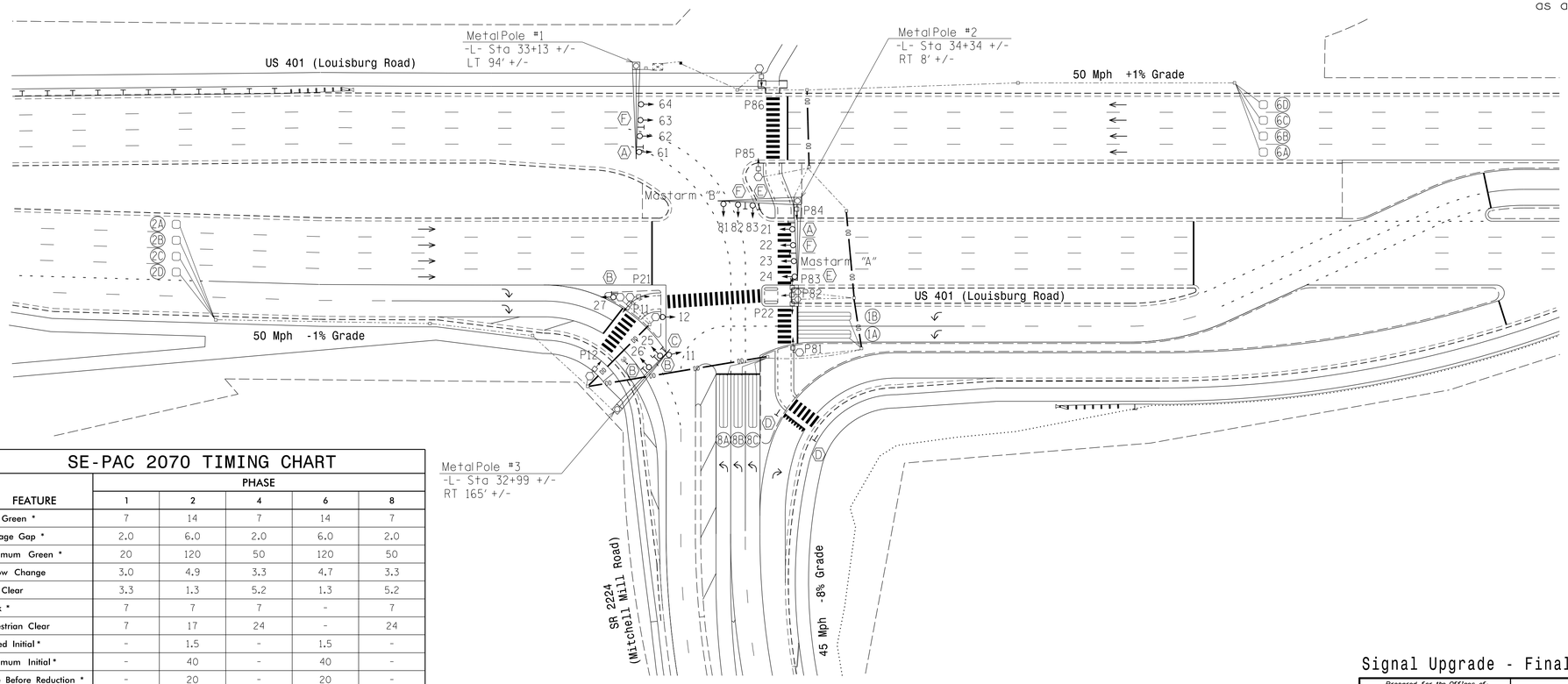
PHASING DIAGRAM DETECTION LEGEND

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

SIGNAL FACE I.D.

All Heads L.E.D.





LEGEND

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Sign	
	Pedestrian Signal Head	
	Signal Pole with Guy	
	Signal Pole with Sidewalk Guy	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
	Directional Arrow	
	Type II Signal Pedestal	
N/A	Curb Ramp	
DD	Directional Drill	N/A
	Metal Pole with Mastarm	
N/A	Noise Wall	
N/A	Guardrail	
Ⓐ	"NO U-TURN/NO LEFT TURN" Sign (R3-18)	Ⓐ
Ⓑ	"NO TURN ON RED" Sign (R10-11)	Ⓑ
Ⓒ	No Left Turn Sign (R3-2)	Ⓒ
Ⓓ	Pedestrian Crossing Sign (W11-2) w/ Downward Diagonal Arrow Plaque (W16-7P)	Ⓓ
Ⓔ	No Right Turn Sign (R3-1)	Ⓔ
Ⓕ	Street Name Sign By Others (D3-1)	Ⓕ

SE-PAC 2070 TIMING CHART

FEATURE	PHASE 1	PHASE 2	PHASE 4	PHASE 6	PHASE 8
Min Green *	7	14	7	14	7
Passage Gap *	2.0	6.0	2.0	6.0	2.0
Maximum Green *	20	120	50	120	50
Yellow Change	3.0	4.9	3.3	4.7	3.3
Red Clear	3.3	1.3	5.2	1.3	5.2
Walk *	7	7	7	-	7
Pedestrian Clear	7	17	24	-	24
Added Initial *	-	1.5	-	1.5	-
Maximum Initial *	-	40	-	40	-
Time Before Reduction *	-	20	-	20	-
Time To Reduce *	-	40	-	40	-
Minimum Gap	-	3.0	-	3.0	-
Recall Mode	-	MIN RECALL	-	MIN RECALL	-
Vehicle Call Memory	NON-LOCK	LOCK	NON-LOCK	LOCK	NON-LOCK
Dual Entry	-	-	-	-	-
Simultaneous Gap	ON	ON	ON	ON	ON

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

AECOM
NC Firm License No.: F-0342
701 Corporate Center Drive
Suite 475 Raleigh, NC 27607
Phone: 919-854-6200

Signal Upgrade - Final Design

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

US 401 (Louisburg Road)
at
SR 2224 (Mitchell Mill Road)

Division 5 Wake County Raleigh

PLAN DATE:	Jan 2023	REVIEWED BY:	F.A. Campbell
PREPARED BY:	H.M. Surti	REVIEWED BY:	

SCALE 0 50 1"=50'

REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 034481 ENGINEER HEMANG M. SURTI

DocuSigned by:
Hemang M. Surti 1/24/2023
E6139B0C7A5A4F1...
SIG. INVENTORY NO. 05-1982

1/24/2023
pw:\\aecom-na-pw.bentley.com:AECOM_DS21_NA_2020\Documents\60609754\U-5748 Ligon Mill\900-CAD GIS\910_CAD\70_NCDOT_TIP\Traffic\Signals\Design\Signals\05198_sig_dsn_2022XXXX.dgn
michael.cavenaugh