PHASING DIAGRAM

Ø2+6 Ø4+8 Ø2+5

EV Preempt Phases

EVB (Ø6)

*SEE NOTE #11

SEE NOTE #10

PHASING DIAGRAM DETECTION LEGEND

- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT
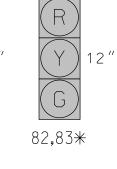
2033 EV PREEMPTION

FUNCTION	EVB (SECONDS)
DELAY BEFORE PREEMPT	0
MIN. PED. CLEAR BEFORE PREEMPT	*
MIN. GREEN BEFORE PREEMPT	1
CLEARANCE TIME	2
PREEMPT EXTEND**	2.0

* See Timing Chart for Min Ped Clearance
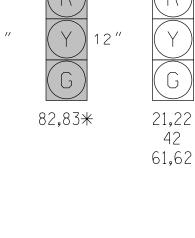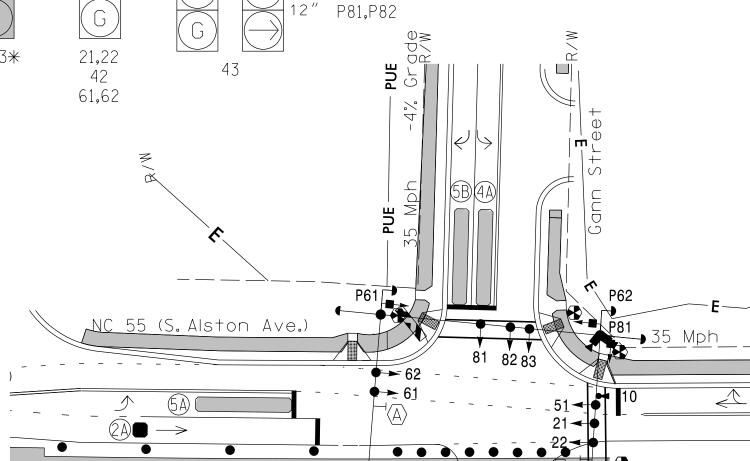** Program Timing on Optical Detector Unit

TABLE OF OPERATION

SIGNAL FACE	Ø2+5	Ø2+6	Ø4+8	EVB	FLASH
21,22	G	G	R	R	Y
41	-R-	-R-	G	-R-	-R-
42	R	R	G	R	R
43	R/-	R	G	R	R
51	-←-	-←-	-R-	-←-	Y
61,62	R	G	R	G	Y
P61,P62	DW	W	DW	DW	DRK
P81,P82	DW	DW	W	DW	DRK

SIGNAL FACE I.D.

All Heads L.E.D.
* See Note 14

51   81*   41   82,83*   21,22 42 61,62   43   16" P61,P62 P81,P82

12"

2033 SOFTWARE w/ 2070 CONTROLLER
LOOP & DETECTOR UNIT INSTALLATION CHART

INDUCTIVE LOOPS / DETECTOR PROGRAMMING

LOOP NO.	SIZE (ft)	TURNS	DIST. FROM STOPBAR (ft)	NEW	EXISTING	NEMA PHASE	DELAY	CARRY (STRETCH)	FULL TIME	DELAY	PEDESTRIAN CALL	RESERVED	COUNT	EXTENSION	TYPE 3	CALLING	ALTERNATE	SYSTEM LOOPS	NEW	EXISTING
2A	6x6	*	70	-	*	2	- SEC.	- SEC.	-	-	-	-	-	X	-	X	-	-	-	*
4A	6x40	*	0	-	*	4	3 SEC.	- SEC.	-	-	-	-	-	X	-	X	-	-	-	*
5A	6x40	*	0	-	*	5	15 SEC.	- SEC.	-	-	-	-	-	X	-	X	-	-	-	*
						2	- SEC.	- SEC.	-	-	-	-	-	X	-	X	-	-	-	*
5B	6x40	*	0	-	*	5	15 SEC.	- SEC.	-	-	-	-	-	X	-	X	-	-	-	*
6A	6x6	*	70	-	*	6	- SEC.	- SEC.	-	-	-	-	-	X	-	X	-	-	-	*

PEDESTRIAN DETECTION

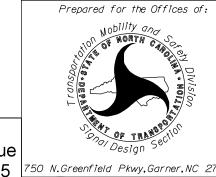| LOOP NO.	SIZE	TURNS	DIST.	NEW	EXISTING	NEMA PHASE	DELAY	CARRY	FULL TIME	DELAY	PEDESTRIAN CALL	RESERVED	COUNT	EXTENSION	TYPE 3	CALLING	ALTERNATE	SYSTEM LOOPS	NEW	EXISTING
P61,P62	N/A	N/A	N/A	-	X	6	- SEC.	- SEC.	-	X	-	-	-	-	-	X	-	-	-	X
P81,P82	N/A	N/A	N/A	-	X	8	- SEC.	- SEC.	-	X	-	-	-	-	-	X	-	-	-	X

* Video Detection Zone

3 Phase
Fully Actuated
w/ EV Preemption
(Durham Signal System)

NOTES

1. Refer to "Road Standard Drawings NCDOT" dated January 2012, "Standard Specifications for Roads and Structures" dated January 2012.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Phase 5 may be lagged.
4. Set all detector units to presence mode.
5. Program all timing information into phase banks 1,2, and 3 unless otherwise noted.
6. Set phase bank 3 maximum limit to 250 seconds for phases used.
7. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
8. Program pedestrian heads to countdown the flashing "Don't Walk" time.
9. This intersection features an optical preemption system. Shown locations of optical detectors are conceptual only.
10. Upon completion of Emergency Vehicle Preemption, controller returns to normal operation.
11. When EVB preemption initializes during side street service signal head 51 will display a red arrow.
12. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
13. Pedestrain pedestals are conceptual and shown for reference only. See sheets P1-P3 for pushbutton location details.
14. Disconnect and bag signal heads #81,#82 and #83 during this phase of construction.
15. Contractor shall adjust video detection zones as required.
16. Contractor shall maintain pedestrian access through construction zone.

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	
(A)	"No Left Turn" (R3-2)	(A)
(B)	"No Right Turn" (R3-1)	(B)
	Optical Detector	
	Work Area	N/A
	Drums	N/A
E	Construction Easement	N/A
PUE	Permanent Utility Easement	N/A
	Barricades	N/A
	Type I Pushbutton Post	
	Rigid Conduit	
	Video Detector	
	Video Detection Area	

Map labels

NC 55 (S. Alston Ave.)
Gann Street
NC 147 NB Ramp
35 Mph -4% Grade
35 Mph +2% Grade
35 Mph -4% Grade

TIMING CHART
2033 SOFTWARE w/ 2070 CONTROLLER

PHASE	Ø2	Ø4	Ø5	Ø6	Ø8	OL4
MINIMUM INITIAL *	10 SEC.	7 SEC.	7 SEC.	10 SEC.	1 SEC.	0 SEC.
VEHICLE EXTENSION *	3.0 SEC.	2.0 SEC.	2.0 SEC.	3.0 SEC.	3.0 SEC.	
YELLOW CHANGE INT.	4.1 SEC.	3.0 SEC.	4.1 SEC.	4.1 SEC.	3.0 SEC.	3.0 SEC.
RED CLEARANCE	2.3 SEC.	2.6 SEC.	3.2 SEC.	2.3 SEC.	0.0 SEC.	2.6 SEC.
MAXIMUM LIMIT *	50 SEC.	35 SEC.	15 SEC.	50 SEC.	50 SEC.	
RECALL POSITION	VEH. RECALL	NONE	NONE	VEH. RECALL	NONE	
VEHICLE CALL MEMORY	YELLOW LOCK	NONE	NONE	YELLOW LOCK	NONE	
DOUBLE ENTRY	OFF	ON	OFF	OFF	ON	
WALK *	- SEC.	- SEC.	- SEC.	4 SEC.	4 SEC.	
FLASHING DON'T WALK	- SEC.	- SEC.	- SEC.	8 SEC.	4 SEC.	
MIN PED CLEARANCE	- SEC.	- SEC.	- SEC.	4 SEC.	2 SEC.	
TYPE 3 LIMIT	- SEC.	- SEC.	- SEC.	- SEC.	- SEC.	
ALTERNATE EXTENSION	- SEC.	- SEC.	- SEC.	- SEC.	- SEC.	
ADD PER VEHICLE *	- SEC.	- SEC.	- SEC.	- SEC.	- SEC.	
MAXIMUM INITIAL *	- SEC.	- SEC.	- SEC.	- SEC.	- SEC.	
MAXIMUM GAP*	3.0 SEC.	2.0 SEC.	2.0 SEC.	3.0 SEC.	- SEC.	
REDUCE 0.1 SEC EVERY *	- SEC.	- SEC.	- SEC.	- SEC.	- SEC.	
MINIMUM GAP	3.0 SEC.	2.0 SEC.	2.0 SEC.	3.0 SEC.	- SEC.	

* 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.

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

Signal Upgrade - Temporary Design 5 (TMP Phase 2, Steps 1-6)

NC 55 (South Alston Avenue)
at
NC 147 NB Ramp / Gann Street
Division 5   Durham County   Durham

PLAN DATE: September 2014	REVIEWED BY: J Hochanadel
PREPARED BY: C Lawson	REVIEWED BY:

SCALE	
0 — 40	1"=40'

SEAL
NORTH CAROLINA
PROFESSIONAL SEAL
28430
ENGINEER
JEFFREY P. HOCHANADEL

REVISIONS	INIT.	DATE

4/02/15
DATE

SIG. INVENTORY NO. 05-0284T5