### 2 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. Reposition signal heads #11, #21, #22, #23, #61, #62, and optical detector #10 during this phase of construction
- 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. This intersection features an optical preemption system. Shown locations of optical detectors are conceptual only.
- 8. Upon completion of Emergency Vehicle Preemption, controller returns to normal operation.
- 9. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
- 10. Disconnect and bag signal head #21 and pedestrian signals #P21 and #P22 for Temporary Design 3. Signal head #21 shall remain disconnected and bagged for Temporary Design 5.
- 11. Reconnect and unbag signal heads #11, #81 and #82 for Temporary Design 5 that were disconnected and bagged for Temporary Design 4.
- 12. Contractor shall adjust video detection zones as required.

<u>PROPOSED</u>

 $\bigcirc$ 

**O**->

N/A

 $\langle \Delta \rangle$ 

 $\bigcirc$ 

**LEGEND** 

Traffic Signal Head

Modified Signal Head

Modified Pedestrian 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 2-in Underground Conduit

> Right of Way Directional Arrow

"No Left Turn" (R3-2) Work Area

Drums

Barricades

Direct Bury

Optical Detector

—— Permanent Utility Easement

# Video Detector Video Detection Area Signal Upgrade - Temporary Design 5 (TMP Phase 1, Steps 11-21) SEAL

---- E---- Construction Easement

Signal Upgrade - Temporary Design 3 (TMP Phase 1, Steps 11-21)

NC 55 (North Alston Avenue)

Taylor Street Division 5 Durham County

SEAL Durham

**EXISTING** 

**-**

N/A

N/A

\_-----

 $\longrightarrow$ 

 $\triangle$ 

N/A N/A

N/A

N/A

N/A

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INIT. DATE MyPAL SIG. INVENTORY NO. 05-0228T3/T

TABLE OF OPERATION 2033 SOFTWARE w/ 2070 CONTROLLER

									DET	EC1	ΓOR	PR	OGF	RAMI	MIN	G				
	INDUCT	IVE LO	OPS									A٦	TRI	вит	ES			PS	STA	TUS
	·						TIA	MII	٧G	1	2	3	4	5	6	7	8	00.		()
	SIZE		DIST. FROM	>	9	NEMA				TIME AY	RIAN	Œ)	Ę	<u>v</u>	ო	υ Z	IATE	<b>∀</b>	¥	EXISTING
LOOP NO.	(ft)	TURNS	STOPBAR (ft)	NEW	EXISTING	PHASE	DELAY	- 1	CARRY (STRETCH)	FULL T DELA	PEDESTRIA CALL	RESER	COU	EXTENS	TYPE	CALLING	ALTERN	SYSTEM	ž	EXIS
2A	6×6	*	70	*	-	2	- SE	C.	- SEC.	-	_	_	-	Χ	_	Χ	-	-	_	*
4 A	6×40	*	0	-	*	4	10 SE	C.	- SEC.	-	-	-	-	Χ	-	Χ	-	-	-	*
6A	6×6	*	70	*	-	6	- SE(	C.	- SEC.	ı	-	-	-	Χ	-	Χ	-	-	-	*
6B	6×40	*	0	*	-	6	- SE	C.	- SEC.	ı	-	-	-	Χ	-	Χ	-	-	_	*
				1 .												1				1 .

LOOP & DETECTOR UNIT INSTALLATION CHART

8A 6×40 \* 0 \* - 8 10 SEC. - SEC. - - - X - X -\* Video Detection Zone

#### PHASING DIAGRAM DETECTION LEGEND

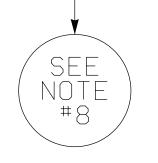
PHASING DIAGRAM

DETECTED MOVEMENT UNDETECTED MOVEMENT (OVERLAP)

UNSIGNALIZED MOVEMENT

FUNCTION

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



EVB (Ø1+6)

EV Preempt Phases

## SIGNAL FACE I.D.

PHASE

F P Y

GRRR

| R | G | R | R

All Heads L.E.D. \* See Note 10 \*\* See Note 11

SIGNAL

FACE

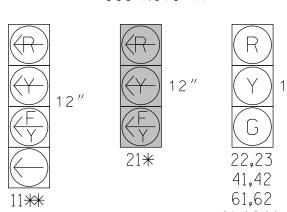
11

22,23

41,42

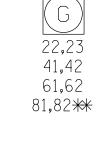
61,62

81,82





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	12"
$\langle \gamma \rangle$	
11 ylak	
11**	



	25 Mph 0% Grade Taylor Str	
, R ×	True	PUE35 MPH +3%. G
NC 55 (N. Alston Ave.)	PUE	6B 6B
	61	
R/W — — — — — — — — — — — — — — — — — — —	P22   P21   P21	E E
	Taylor Street Street 	
	7 4 8 5 2 2 4 6 5 5 2 5 4 6 5 6 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6	<b>E</b>
	A A A A A A A A A A A A A A A A A A A	

EVB (SECONDS) 0 DELAY BEFORE PREEMPT PED. CLEAR BEFORE PREEMPT 0 MIN. GREEN BEFORE PREEMPT CLEARANCE TIME 2 2.0 PREEMPT EXTEND\*\* \*\* Program Timing on Optical Detector Unit

2033 EV PREEMPTION

TIMING CHART 2033 SOFTWARE W/2070 CONTROLLER									
PHASE	Ø1	Ø2	Ø4	Ø6	Ø8				
MINIMUM INITIAL *	- SEC.	1 () <b>SEC</b> .	7 <b>SEC</b> .	10 <b>SEC</b> .	7 <b>SEC</b> .				
VEHICLE EXTENSION *	- SEC.	3.0 <b>SEC</b> .	2.0 <b>SEC</b> .	3.0 <b>SEC</b> .	2.0 <b>SEC</b> .				
YELLOW CHANGE INT.	3.8 <b>SEC</b> .	3.8 <b>SEC</b> .	3.2 <b>SEC</b> .	3.8 <b>SEC</b> .	3.0 <b>SEC</b> .				
RED CLEARANCE	2.3 <b>SEC</b> .	1.6 <b>SEC</b> .	1.2 <b>SEC</b> .	1.6 <b>SEC</b> .	1.9 <b>SEC</b> .				
MAXIMUM LIMIT *	- SEC.	50 <b>SEC</b> .	35 <b>SEC</b> .	50 <b>SEC</b> .	35 <b>SEC</b> .				
RECALL POSITION	NONE	VEH. RECALL	NONE	VEH. RECALL	NONE				
VEHICLE CALL MEMORY	NONE	YELLOW LOCK	NONE	YELLOW LOCK	NONE				
DOUBLE ENTRY	OFF	OFF	ON	OFF	ON				
WALK *	– SEC.	- SEC.	- SEC.	– SEC.	– SEC.				
FLASHING DON'T WALK	- SEC.	- SEC.	- SEC.	- SEC.	– SEC.				
MIN PED CLEARANCE	– SEC.	- SEC.	– SEC.	- SEC.	– 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*	– SEC.	3 <b>.</b> 0 <b>SEC</b> .	2 <b>.</b> 0 <b>SEC</b> .	3 <b>.</b> 0 <b>sec</b> .	2 <b>.</b> 0 <b>SEC</b> .				
REDUCE 0.1 SEC EVERY *	- SEC.	- SEC.	- SEC.	- SEC.	- SEC.				
MINIMUM GAP	- SEC.	3 <b>.</b> 0 <b>sec</b> .	2 <b>.</b> 0 <b>SEC</b> .	3 <b>.</b> 0 <b>sec</b> .	2 <b>.</b> 0 <b>SEC</b> .				

\* 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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PLAN DATE: September 2014 REVIEWED BY: J Hochanadel

4/02/15 DATE