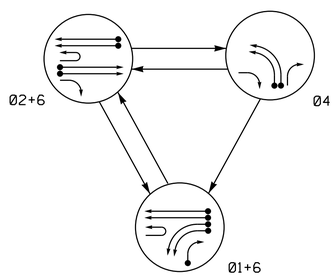
PROJECT REFERENCE NO.	SHEET NO.
W-5705C	Sig. 4.0

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

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

TABLE OF OPERATION

SIGNAL FACE	PHASE 01+6	PHASE 02+6	PHASE 04	FLASH
11, 12	←	~~R~~	~~R~~	~~R~~
21	F Y	F Y	R	Y
22	R	G	R	Y
23	R	G	R/←	Y
41	R	R	G	R
42	R/←	R	G	R
61, 62	G	G	R	Y

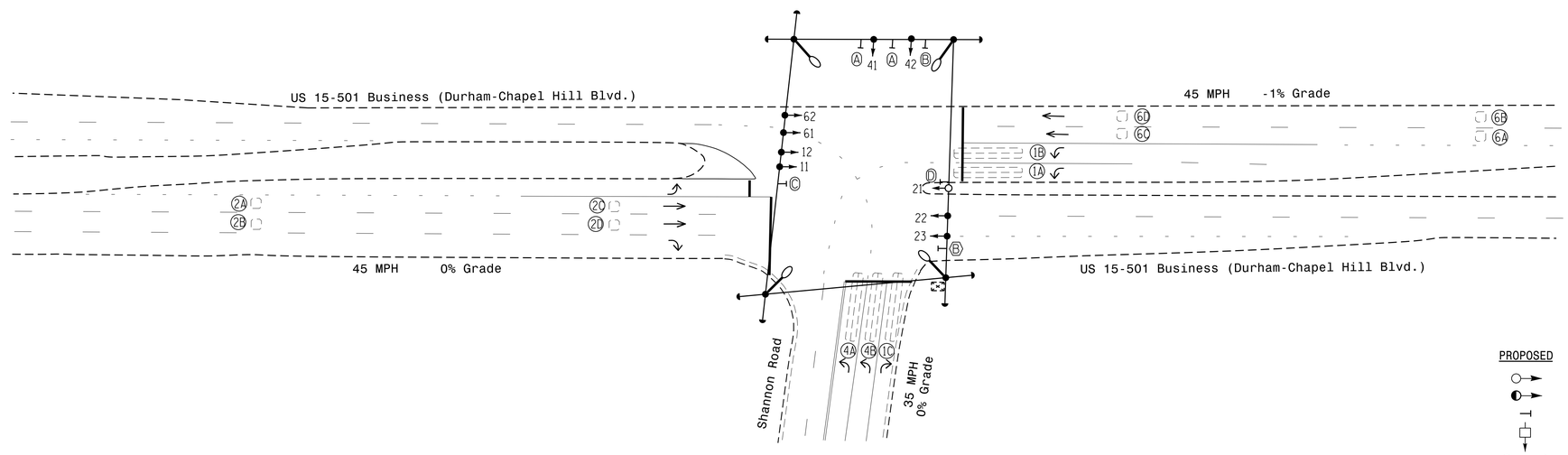
2033 SOFTWARE w/ 2070 CONTROLLER LOOP & DETECTOR UNIT INSTALLATION CHART

INDUCTIVE LOOPS						DETECTOR PROGRAMMING														
							TIMING		ATTRIBUTES									STATUS	
LOOP NO.	SIZE (ft)	TURNS	DIST. FROM STOPBAR (ft)	NEW	EXISTING	NEMA PHASE	DELAY	CARRY (STRETCH)	1 FULL TIME DELAY	2 PEDESTRIAN CALL	3 RESERVED	4 COUNT	5 EXTENSION	6 TYPE 3	7 CALLING	8 ALTERNATE	SYSTEM LOOPS	NEW	EXISTING
1A, 1B	6X40	2-4-2	+5	-	X	1	- SEC.	- SEC.	-	-	-	-	X	-	X	-	-	-	X
1C	6X40	2-4-2	+5	-	X	1	15 SEC.	- SEC.	-	-	-	-	X	-	X	-	-	-	X
2A, 2B	6X6	EXIST	300	-	X	2	- SEC.	1.6 SEC.	-	-	-	-	X	-	X	-	-	-	X
2C, 2D	6X6	EXIST	90	-	X	2	- SEC.	- SEC.	-	-	-	-	X	-	X	-	-	-	X
4A	6X40	2-4-2	+5	-	X	4	3 SEC.	- SEC.	-	-	-	-	X	-	X	-	-	-	X
4B	6X40	2-4-2	+5	-	X	4	- SEC.	- SEC.	-	-	-	-	X	-	X	-	-	-	X
6A, 6B	6X6	EXIST	300	-	X	6	- SEC.	1.6 SEC.	-	-	-	-	X	-	X	-	-	-	X
6C, 6D	6X6	EXIST	90	-	X	6	- SEC.	- SEC.	-	-	-	-	X	-	X	-	-	-	X

3 Phase
Fully Actuated
(Durham 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. Disable Backup Protection for Phase 6.
4. Phase 1 may be lagged.
5. Set all detector units to presence mode.
6. Program all timing information into phase banks 1, 2, and 3 unless otherwise noted.
7. Set phase bank 3 maximum limit to 250 seconds for phases used.
8. Pavement markings are existing.
9. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
10. Install 2070 controller with 2033 software in existing cabinet.



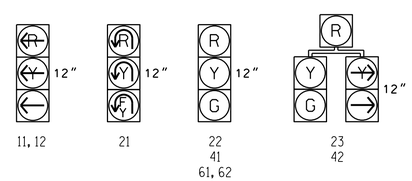
TIMING CHART
2033 SOFTWARE w/ 2070 CONTROLLER

PHASE	Ø1	Ø2	Ø4	Ø6	OL E
MINIMUM INITIAL *	7 SEC.	12 SEC.	7 SEC.	12 SEC.	
VEHICLE EXTENSION *	2.0 SEC.	2.0 SEC.	2.0 SEC.	2.0 SEC.	
YELLOW CHANGE INT.	3.0 SEC.	4.6 SEC.	3.0 SEC.	4.6 SEC.	4.6 SEC.
RED CLEARANCE	3.5 SEC.	1.6 SEC.	3.4 SEC.	1.6 SEC.	1.6 SEC.
MAXIMUM LIMIT *	20 SEC.	45 SEC.	20 SEC.	45 SEC.	
RECALL POSITION	NONE	VEH. RECALL	NONE	VEH. RECALL	
VEHICLE CALL MEMORY	NONLOCK	YELLOW LOCK	NONLOCK	YELLOW LOCK	
DOUBLE ENTRY	OFF	OFF	OFF	OFF	
WALK *	– SEC.	– SEC.	– SEC.	– SEC.	
FLASHING DON'T WALK	– SEC.	– SEC.	– SEC.	– SEC.	
TYPE 3 LIMIT	– SEC.	– SEC.	– SEC.	– SEC.	
ALTERNATE EXTENSION	– SEC.	– SEC.	– SEC.	– SEC.	
ADD PER VEHICLE *	– SEC.	– SEC.	– SEC.	– SEC.	
MAXIMUM INITIAL *	– SEC.	– SEC.	– SEC.	– SEC.	
MAXIMUM GAP*	2.0 SEC.	2.0 SEC.	2.0 SEC.	2.0 SEC.	
REDUCE 0.1 SEC EVERY *	– SEC.	– SEC.	– SEC.	– SEC.	
MINIMUM GAP	2.0 SEC.	2.0 SEC.	2.0 SEC.	2.0 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.

SIGNAL FACE I.D.

All Heads L.E.D.



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	
	Luminaire Assembly	
Ⓐ	Left Arrow "ONLY" Sign (R3-5L)	Ⓐ
Ⓑ	Right Arrow "ONLY" Sign (R3-5R)	Ⓑ
Ⓒ	U-Turn "MUST YIELD" Sign (R3-27)	Ⓒ

Signal Upgrade

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared in 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 15-501 Business (Durham-Chapel Hill Blvd.) at Shannon Road

Division 5 Durham County Durham

PLAN DATE:	July 2017	REVIEWED BY:	
PREPARED BY:	A. F. Aslami	REVIEWED BY:	

SCALE 0 40 1"=40"

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 036833 ENGINEER RYAN W. HOUGH

DocuSigned by: Ryan W. Hough 8/31/2017
49302DFAA265423... DATE

SIG. INVENTORY NO. 05-1659