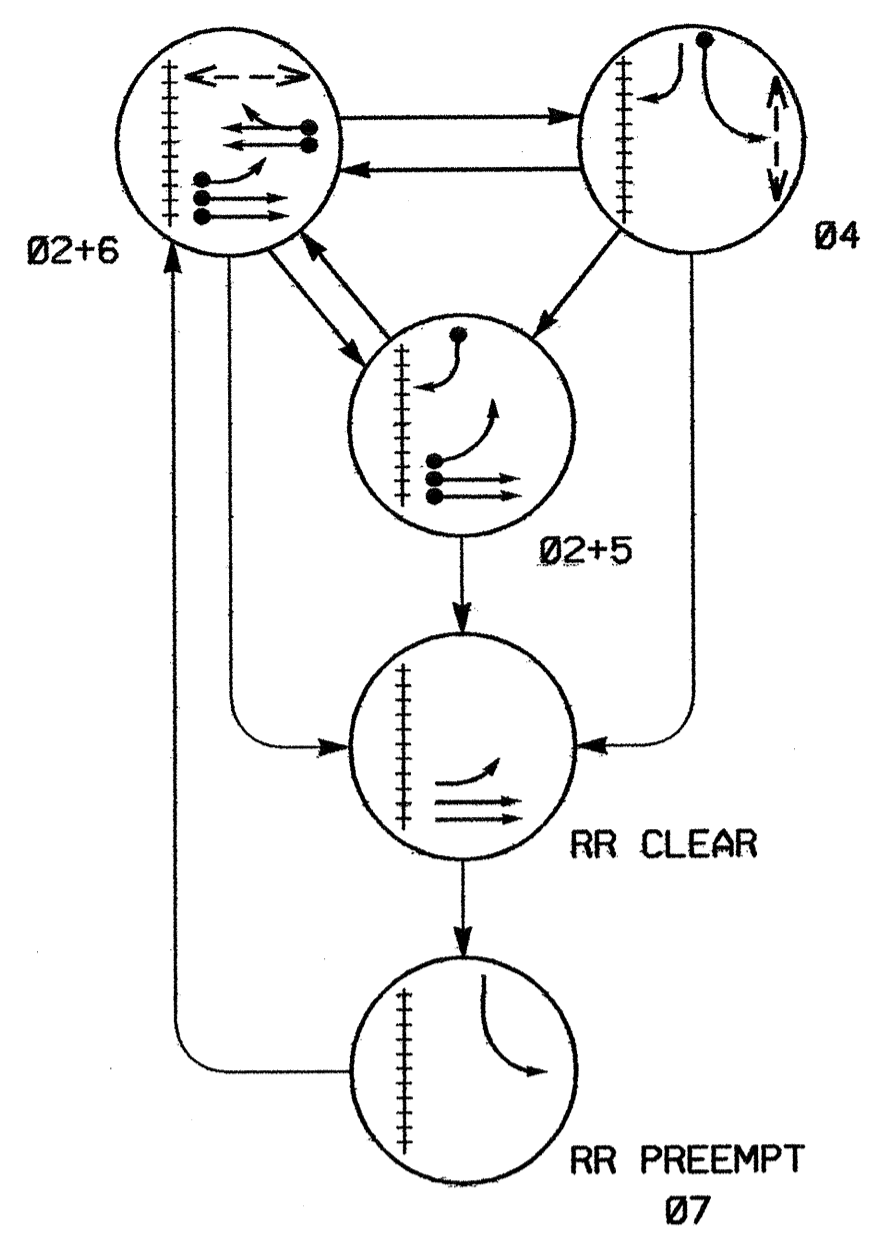


PHASING DIAGRAM



SIGNAL FACE I.D.

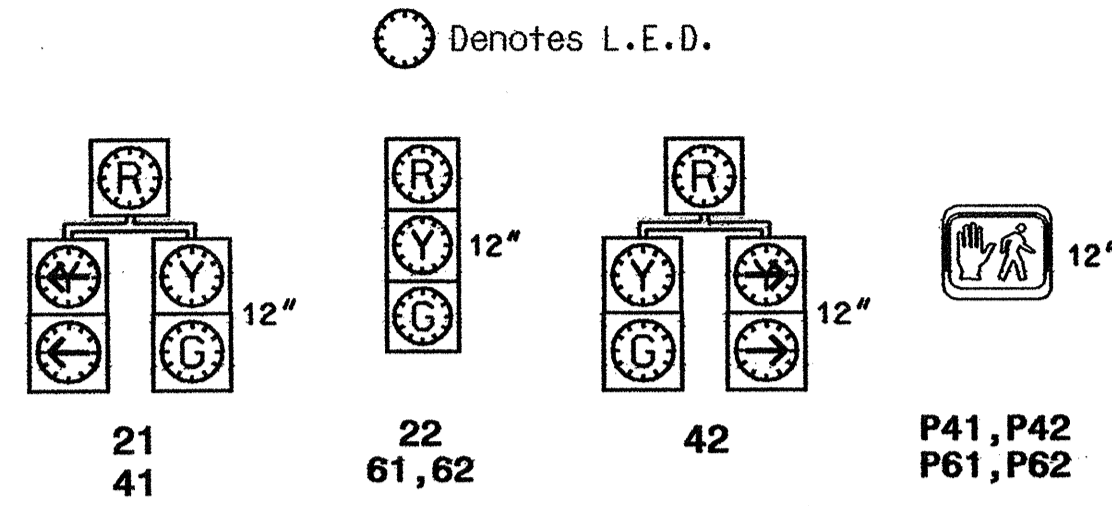


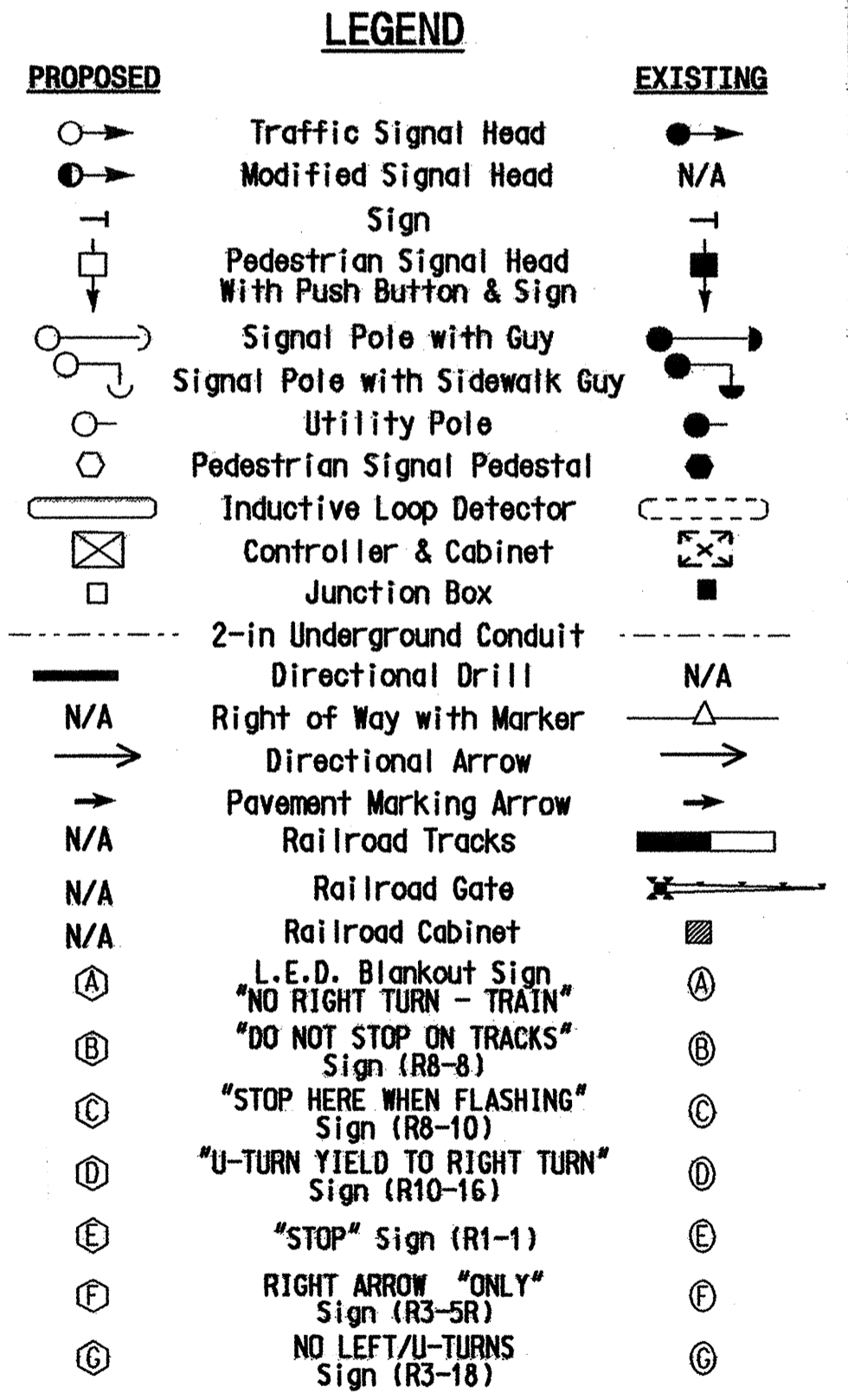
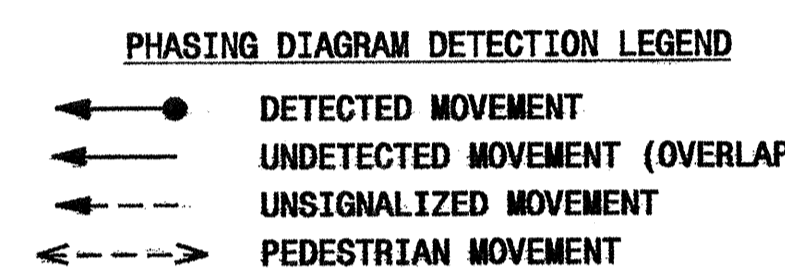
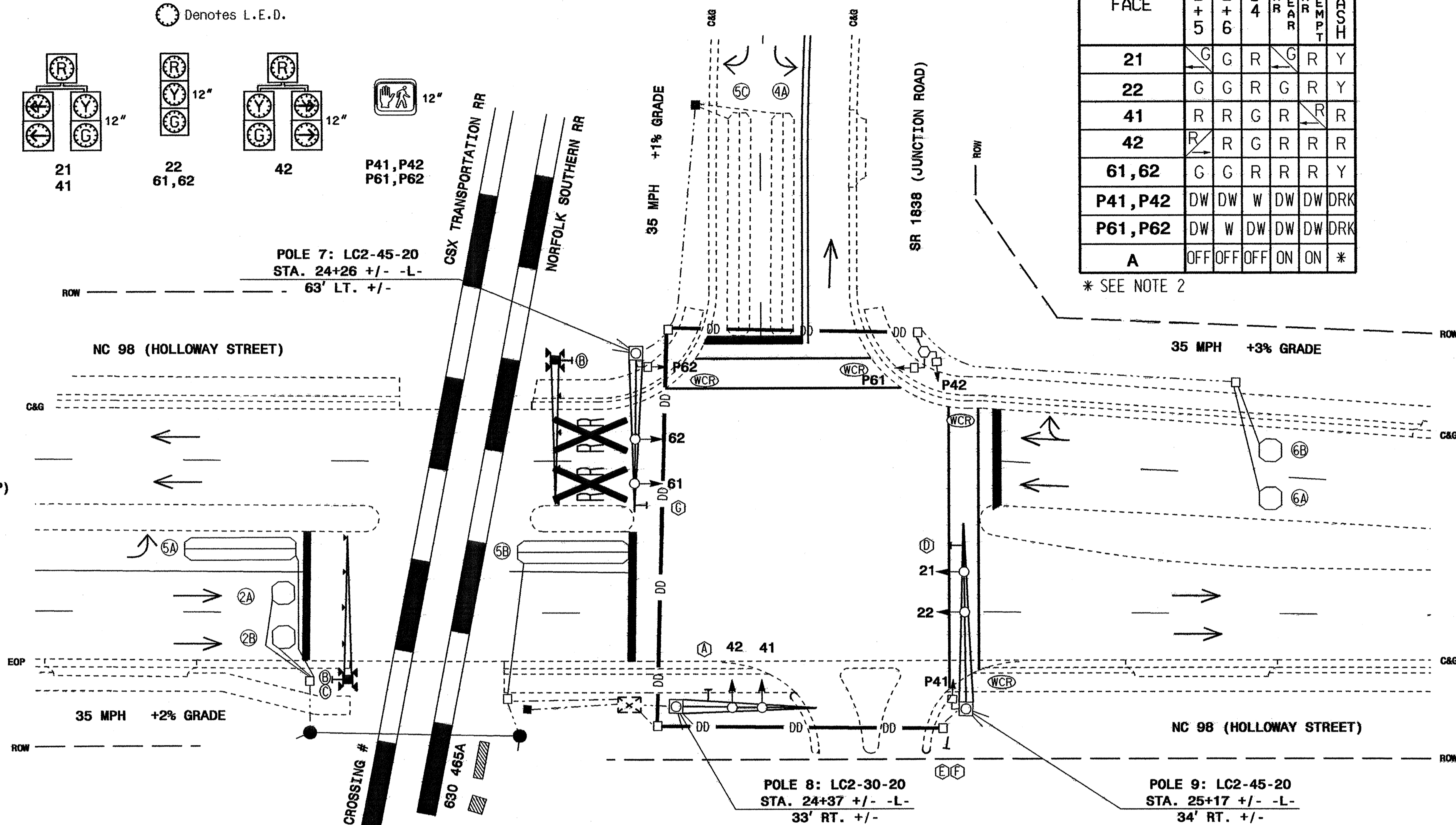
TABLE OF OPERATION

SIGNAL FACE	PHASE					
	02+5	02+6	04	CLEAR	PREEMPT	FLASH
21	G	G	R	G	R	Y
22	G	G	R	G	R	Y
41	R	R	G	R	R	R
42	R	R	G	R	R	R
61,62	G	G	R	R	R	Y
P41, P42	DW	DW	W	DW	DW	DRK
P61, P62	DW	W	DW	DW	DW	DRK
A	OFF	OFF	OFF	ON	ON	*

3 PHASE FULLY ACTUATED W/RAILROAD PREEMPTION (DURHAM SIGNAL SYSTEM)

NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated January 2002 and "Standard Specifications for Roads and Structures" dated January 2002.
- Ensure flashing operation does not alter operation of blankout signs.
- Program all timing information into phase banks 1, 2, and 3 unless otherwise noted.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values shall supersede these values.
- Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
- Set all detector units to presence mode.
- Set phase bank 3 maximum limit to 250 seconds for phases used.
- This location contains railroad preemption phasing. Do not program signal for late night flashing operation.



TIMING CHART 170 CONTROLLER					FOR PREEMPTION USE ONLY
PHASE	02	04	05	06	0L 1
MINIMUM INITIAL	10 SEC.	7 SEC.	7 SEC.	10 SEC.	---
VEHICLE EXTENSION	4.0 SEC.	1.0 SEC.	3.0 SEC.	3.0 SEC.	---
YELLOW CHANGE INT.	4.0 SEC.	4.0 SEC.	4.0 SEC.	4.0 SEC.	4.0 SEC.
RED CLEARANCE	1.5 SEC.	1.5 SEC.	1.5 SEC.	1.0 SEC.	1.0 SEC.
MAXIMUM LIMIT	45 SEC.	25 SEC.	15 SEC.	45 SEC.	---
RECALL POSITION	VEH. RECALL	NONE	NONE	VEH. RECALL	NONE
VEHICLE CALL MEMORY	YELLOW LOCK	NONE	NONE	YELLOW LOCK	NONE
DOUBLE ENTRY	OFF	OFF	OFF	OFF	OFF
WALK	- SEC.	4 SEC.	- SEC.	4 SEC.	---
FLASHING DON'T WALK	- SEC.	15 SEC.	- SEC.	11 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	4.0 SEC.	1.0 SEC.	3.0 SEC.	3.0 SEC.	---
REDUCE 0.1 SEC EVERY	- SEC.	- SEC.	- SEC.	- SEC.	---
MINIMUM GAP	4.0 SEC.	1.0 SEC.	3.0 SEC.	3.0 SEC.	---

LOOP & DETECTOR UNIT INSTALLATION CHART
170 CONTROLLER AND CABINET

LOOP NO.	SIZE (ft)	TURNS	DIST. FROM STOPBAR (ft)	NEW EXISTING	NEMA PHASE	TIMING		DETECTOR PROGRAMMING ATTRIBUTES										STATUS	
						DELAY	CARRY (STRETCH)	1	2	3	4	5	6	7	8	SYSTEM	NEW	EXISTING	
								FULL TIME DELAY	PEDESTRIAN CALL	RESERVED	COUNT	EXTENSION	TYPE 3	CALLING	ALTERNATE				
2A, 2B	6X6	4	90	X	2	SEC.	SEC.							X	X				X
4A	6X60	2-4-2	0	X	4	3 SEC.	SEC.							X	X				X
5A	6X30	2-4-2	0	X	2	3 SEC.	SEC.	X						X	X				X
5B	6X30	2-4-2	0	X	5	15 SEC.	SEC.							X	X				X
5C	6X60	2-4-2	0	X	2	3 SEC.	SEC.	X						X	X				X
6A, 6B	6X6	4	70	X	6	SEC.	SEC.							X	X				X
P41, P42	N/A	N/A	N/A	X	4	SEC.	SEC.												X
P61, P62	N/A	N/A	N/A	X	6	SEC.	SEC.	X											X

PLAN QUANTITIES

Pay Item	Feet
Signal Cable	1520
Messenger Cable	0
Lead-in Cable	1040

RAILROAD PREEMPTION

FUNCTION	SECONDS
DELAY BEFORE PREEMPT	0
TRACK CLEARANCE GREEN	13

PLAN PREPARED IN THE OFFICE OF:
Kubilins
TRANSPORTATION GROUP, INC.
201 PRODUCTION DR., 2ND FLOOR, YORKTOWN, VA 23693
PH: (757) 594-1489 FAX: (757) 594-9010

SIGNAL UPGRADE - FINAL DESIGN

NC 98 (HOLLOWAY STREET) AT SR 1838 (JUNCTION ROAD)

DIVISION 5 DURHAM CO. DURHAM

PLANNED BY: JANUARY 2004 REVIEWED BY: MAK

PREPARED BY: CED REVIEWED BY:

SCALE: 1"=20'

SEAL: NORTH CAROLINA PROFESSIONAL ENGINEER ANN KUBILINS

SIG. INVENTORY NO. 05-0138