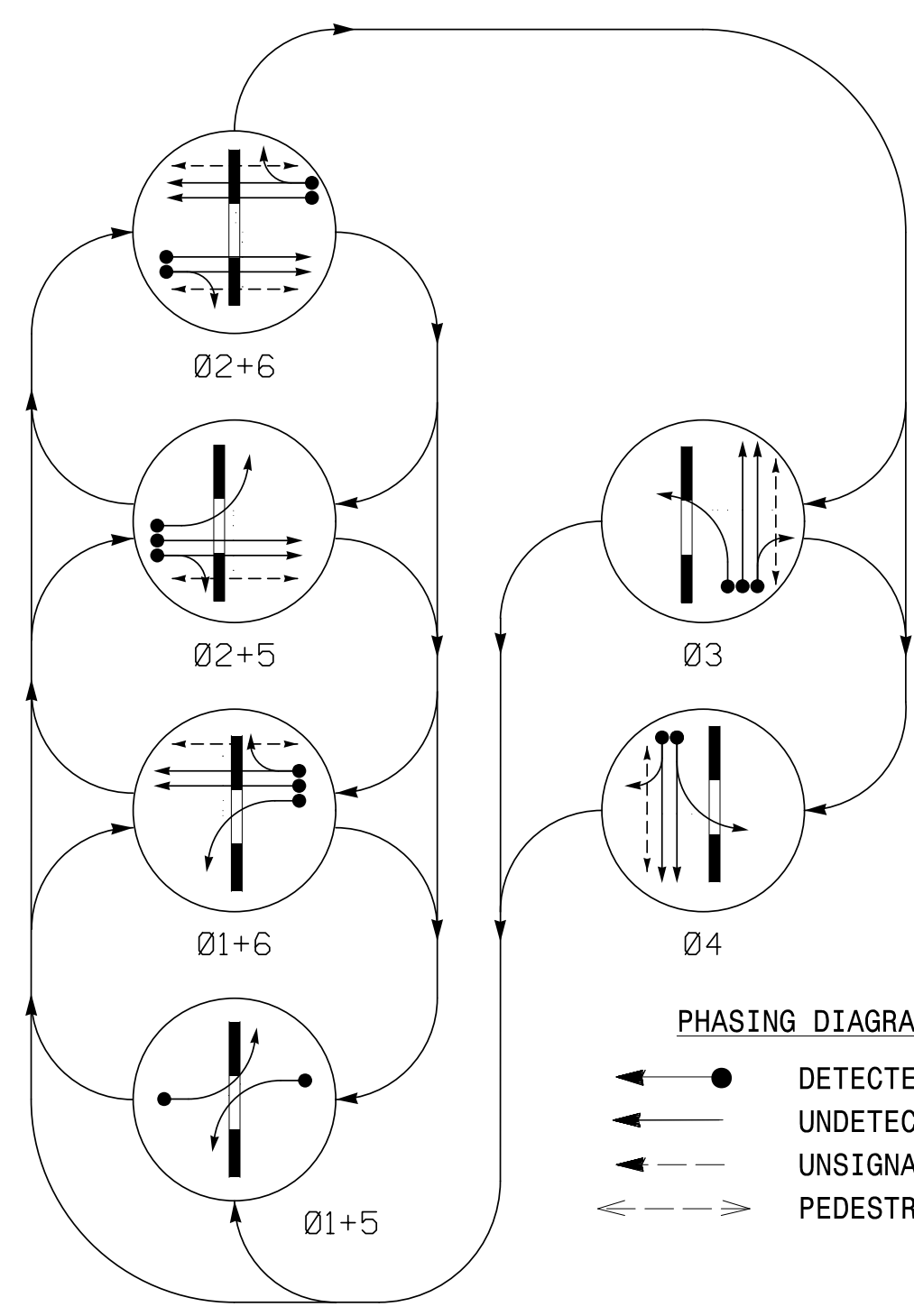
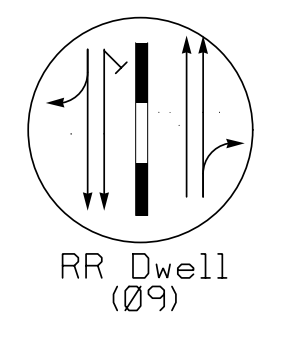


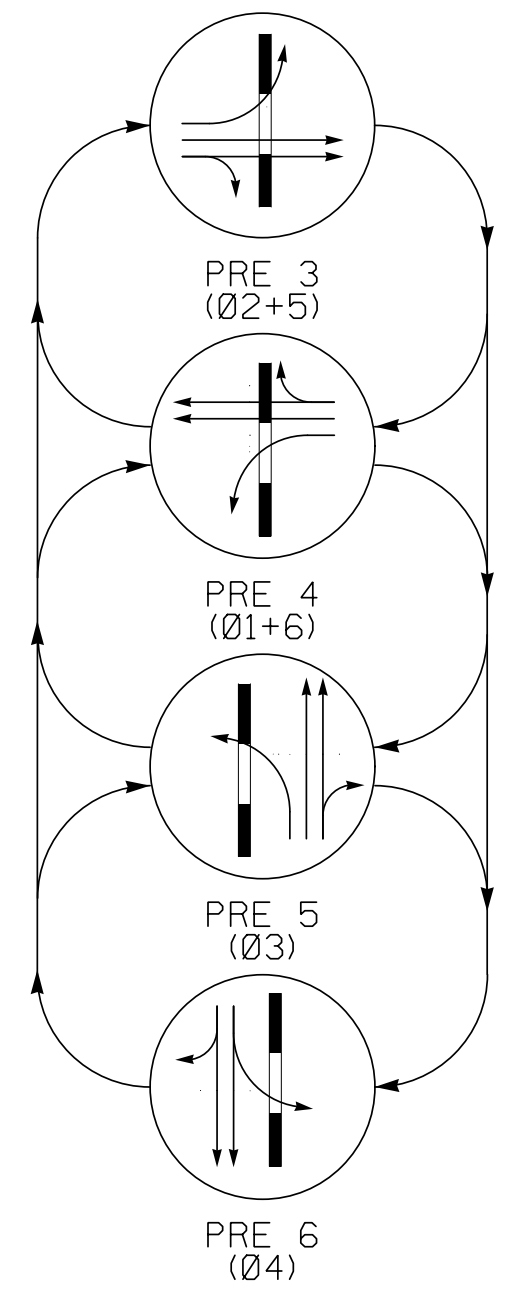
PHASING DIAGRAM



RAIL PREEMPT PHASES (High Priority)



EV PREEMPT PHASES (Medium Priority)



DETECTOR INSTALLATION CHART

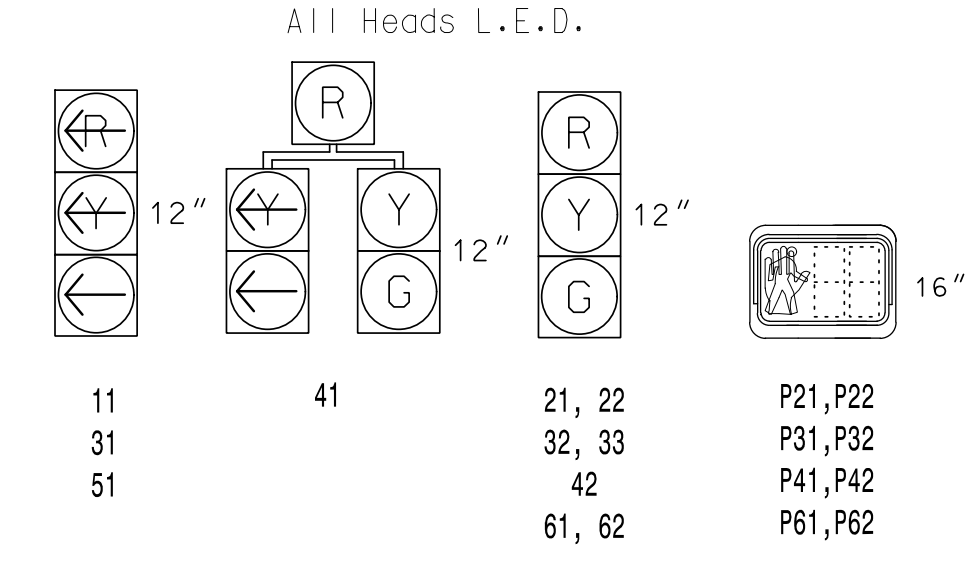
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PROGRAMMING							
					PHASE	CALLING	EXTEND TIME	DELAY TIME	USE ADDED INITIAL	TYPE	SYSTEM LOOP	NEW CARD
1A	6X40	0	2-4-2	-	1	Yes	-	3	-	N	-	X
3A	6X40	0	2-4-2	-	3	Yes	-	-	-	N	-	X
3B	6X40	0	2-4-2	-	3	Yes	-	-	-	N	-	X
3C	6X40	0	2-4-2	-	3	Yes	-	-	-	N	-	X
4A	6X40	0	2-4-2	-	4	Yes	-	-	-	N	-	X
4B	6X40	0	2-4-2	-	4	Yes	-	-	-	N	-	X
5A	6X40	0	2-4-2	-	5	Yes	-	3	-	N	-	X

TABLE OF OPERATION

SIGNAL FACE	PHASE															
	Ø 1+5	Ø 1+6	Ø 2+5	Ø 2+6	Ø 3	Ø 4	Ø 1+5	Ø 1+6	Ø 2+5	Ø 2+6	Ø 3	Ø 4	Ø 1+5	Ø 1+6	Ø 2+5	Ø 2+6
11	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←
21, 22	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←
31	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←
32, 33	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←
41	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←
42	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←
51	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←
61, 62	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←	←
P21, P22	DW	DW	W	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DRK	DRK
P31, P32	DW	DW	DW	DW	W	DW	DW	DW	DW	DW	DW	DW	DW	DW	DRK	DRK
P41, P42	DW	DW	DW	DW	W	DW	DW	DW	DW	DW	DW	DW	DW	DW	DRK	DRK
P61, P62	DW	W	DW	W	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DRK	DRK
Sign (A)	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	*

* See Note 10.

SIGNAL FACE I.D.



EV PREEMPT

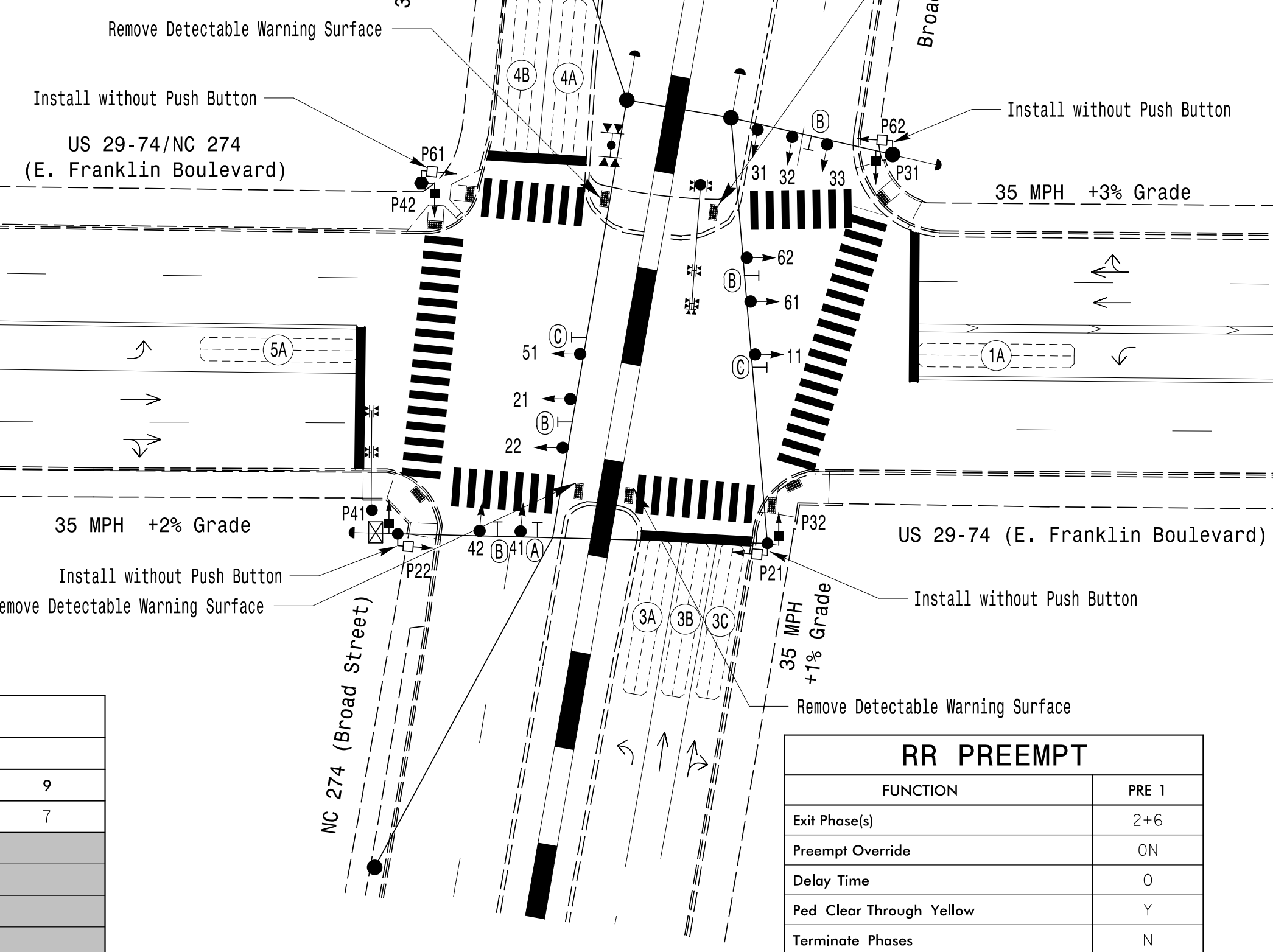
FUNCTION	PRE 3	PRE 4	PRE 5	PRE 6
Exit Phase(s)	2+6	2+6	3	4
Preempt Override	OFF	OFF	OFF	OFF
Delay Time	0	0	0	0
Ped Clear Through Yellow	Y	Y	Y	Y
Terminate Phases	N	N	N	N
Entrance Walk	1	1	1	1
Entrance Ped Clear	25.5*	25.5*	25.5*	25.5*
Entrance Min Green	1	1	1	1
Entrance Yellow Change	25.5*	25.5*	25.5*	25.5*
Entrance Red Clear	25.5*	25.5*	25.5*	25.5*
Minimum Dwell Time	7	7	7	7
Preempt Input Extension Time**	2	2	2	2
Preempt Max Time	120	120	120	120
Exit Yellow Change	25.5*	25.5*	25.5*	25.5*
Exit Red Clear	25.5*	25.5*	25.5*	25.5*

* Time defaults to time used for phase during normal operation.
** Program Timing on GPS Detection Unit.

TIMING CHART

FEATURE	PHASE						
	1	2	3	4	5	6	9
Min Green *	7	10	7	7	7	10	7
Walk *	-	7	7	7	-	7	-
Ped Clear	-	23	18	17	-	27	-
Veh. Extension *	2.0	-	2.0	2.0	2.0	-	-
Max 1 *	15	45	25	25	15	45	-
Yellow	3.0	3.7	3.8	3.8	3.0	3.7	3.8
Red Clear	3.3	2.2	2.1	2.4	3.3	2.4	2.4
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Actuations B4 Add *	-	-	-	-	-	-	-
Seconds / Actuation *	-	-	-	-	-	-	-
Max Initial *	-	-	-	-	-	-	-
Time Before Reduction *	-	-	-	-	-	-	-
Time To Reduce *	-	-	-	-	-	-	-
Minimum Gap	-	-	-	-	-	-	-
Locking Detector	-	-	-	-	-	-	-
Recall Position	-	PED/MAX	-	-	-	PED/MAX	-
Dual Entry	-	-	-	-	-	-	-
Simultaneous Gap	X	X	X	X	X	X	X

* 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.



RR PREEMPT

FUNCTION	PRE 1
Exit Phase(s)	2+6
Preempt Override	ON
Delay Time	0
Ped Clear Through Yellow	Y
Terminate Phases	N
Track Clear Reserve	N
Entrance Walk	1
Entrance Ped Clear	4
Entrance Min Green	1
Entrance Yellow Change	3.8
Entrance Red Clear	3.3
Track Clear Min Green	0
Track Clear Yellow Change	25.5*
Track Clear Red Clear	25.5*
Min Dwell Time	7
Exit Yellow Change	25.5*
Exit Red Clear	25.5*

* Time defaults to time used for phase during normal operation.

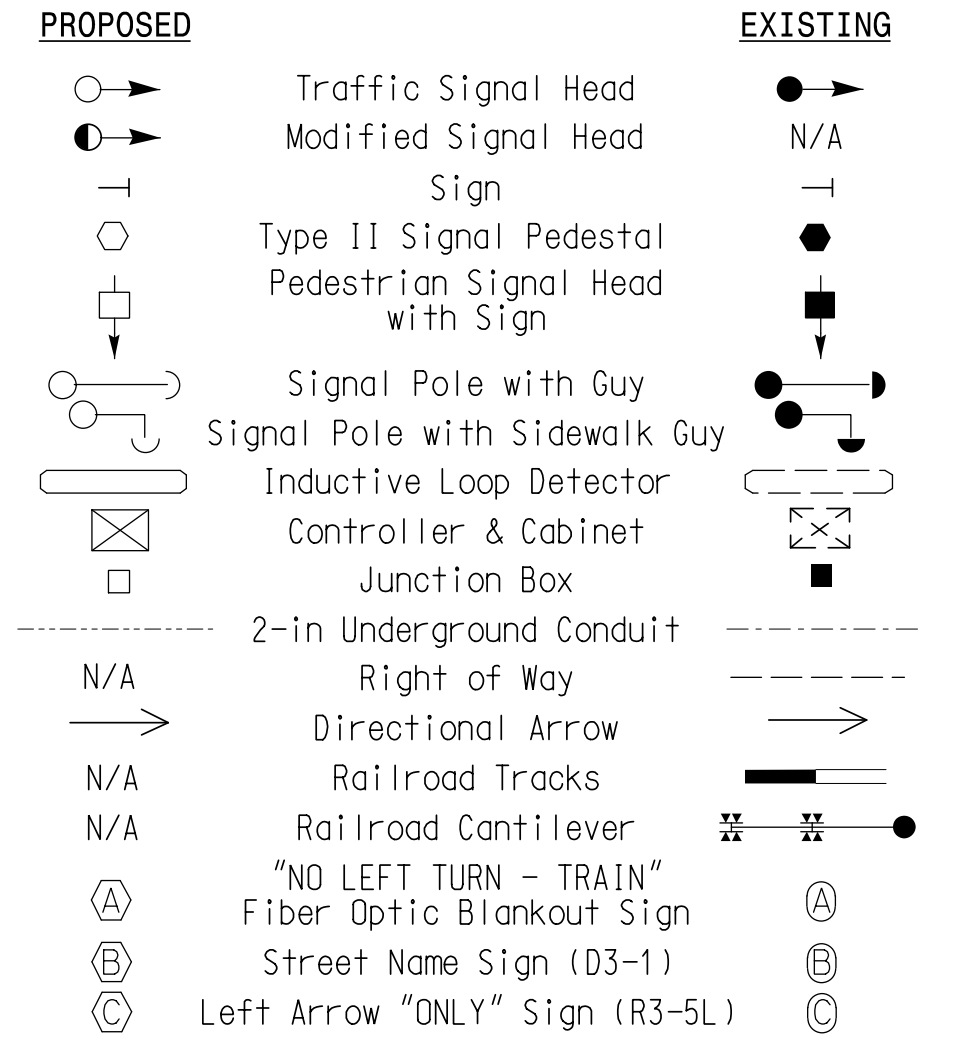
THIS SIGNAL WAS DESIGNED FOR SIMULTANEOUS PREEMPTION

6 Phase Semi-Actuated With Railroad Preemption and Emergency Vehicle Preemption Gastonia Signal System

NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
- This location contains railroad preemption phasing. Do not program signal for late night flashing operation.
- Phase 1 and/or phase 5 may be lagged.
- The order of phase 3 and phase 4 may be reversed.
- Set all detector units to presence mode.
- Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
- Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls for phases 3 & 4.
- Program pedestrian heads to countdown the flashing "Don't Walk" time only.
- Pavement markings are existing.
- Ensure flashing operation does not alter operation of blackout signs.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values shall supersede these values.
- Install new cabinet on the existing cabinet foundation.
- All new cabinets and base extenders shall be black in color. See Project Special Provisions for details.
- Install GPS emergency preemption system per manufacturer's instructions to achieve preemption needed, as shown in phasing diagram.
- All proposed pedestrian signal heads shall be black in color. See Project Special Provisions for details.
- City system data: Controller Asset: #0043

LEGEND



Signal Upgrade

Prepared For: **US 29-74/NC 274 (E. Franklin Boulevard) at NC 274 (Broad Street)**

Division 12 Gaston County Gastonia

PLAN DATE: May 2021 REVIEWED BY: SL Phillips

PREPARED BY: SP Pennington REVIEWED BY: KP Baumann

REVISIONS: _____ INIT. DATE

Scale: 1" = 30'

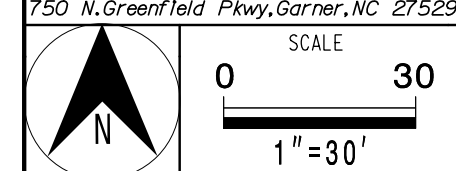
Document Not Considered Final Unless All Signatures Completed

Seal: NORTH CAROLINA PROFESSIONAL ENGINEER KEVIN P. BAUMANN SEAL 044434

Signature: _____ DATE: 3/11/2022

SIG. INVENTORY NO. 12-0043

PLANS PREPARED IN THE OFFICE OF:
Kimley-Horn
NC License #0102
421 Fayetteville Street, Suite 600
Raleigh, NC 27601
(919) 677-2000



3/9/2022 11:13:21 AM Dantelle.Curran \\msk\imley-horn.com\SE-RAL\MRAL-T\15K011036569 Gastonia Signal System\9 Signal\SES4 - Signal Design\120043-2021.dgn