

3 Phase Fully Actuated w/ Alternate Phasing Operation 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.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Phase 1 may be lagged.
- Reposition existing signal heads numbered 21 and 22.
- Set all detector units to presence mode.
- In the event of loop replacement, refer to the current ITS and Signal Design Manual and submit a Plan of Record to the Signal Design Section.
- Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
- Pavement markings are existing.
- The City Engineer or their representative will determine the hours of use for each phasing plan.
- 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.
- Reconnect lead-in cable to separate loops 2A, 2B, 2C, 6A & 6B, as shown.
- Existing signal head 43 has been relabeled to 44.
- Install GPS emergency preemption system per manufacturer's instructions to achieve preemption needed, as shown in phasing diagram.
- Install Louver in existing signal head 44.
- City system data:

Controller Asset #1086.

DETECTOR INSTALLATION CHART											
DETECTOR						PROGRAMMING					
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTEND TIME	DELAY TIME	USE ADDED INITIAL	TYPE	LOOP NEW CARD
1A	6X60	0	2-4-2	-	1	Yes	-	5*	-	N	X
2A	6X6	90	EXIST	-	2	Yes	-	-	-	N	X
2B	6X6	90	EXIST	-	2	Yes	-	-	-	N	X
2C	6X6	90	EXIST	-	2	Yes	-	-	-	N	X
4A	6X60	0	2-4-2	-	4	Yes	-	-	-	N	X
4B	6X60	0	2-4-2	-	4	Yes	-	5	-	N	X
6A	6X6	60	EXIST	-	6	Yes	-	-	-	N	X
6B	6X6	60	EXIST	-	6	Yes	-	-	-	N	X

* Reduce Delay to 3 seconds during Alternate Phasing operation.
Disable Phase call for loop during Alternate Phasing operation.

SIGNAL FACE	PHASE				
	Ø 1+6	Ø 2+6	Ø 4	PRE 3	FLASH
11	←	←	←	←	←
21, 22, 23	R	G	R	G	Y
41, 42, 43, 44	R	R	G	R	R
61, 62	↑	↑	R	↑	Y

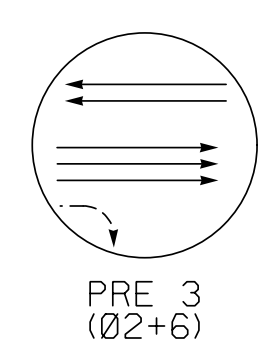
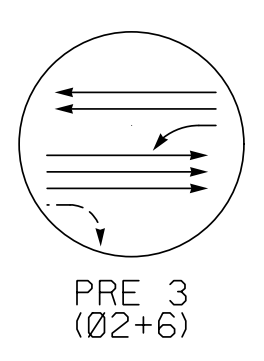
ALTERNATE PHASING TABLE OF OPERATION

ALTERNATE PHASING DIAGRAM

SIGNAL FACE	PHASE				
	Ø 1+6	Ø 2+6	Ø 4	PRE 3	FLASH
11	←	←	←	←	←
21, 22, 23	R	G	R	G	Y
41, 42, 43, 44	R	R	G	R	R
61, 62	↑	↑	R	↑	Y

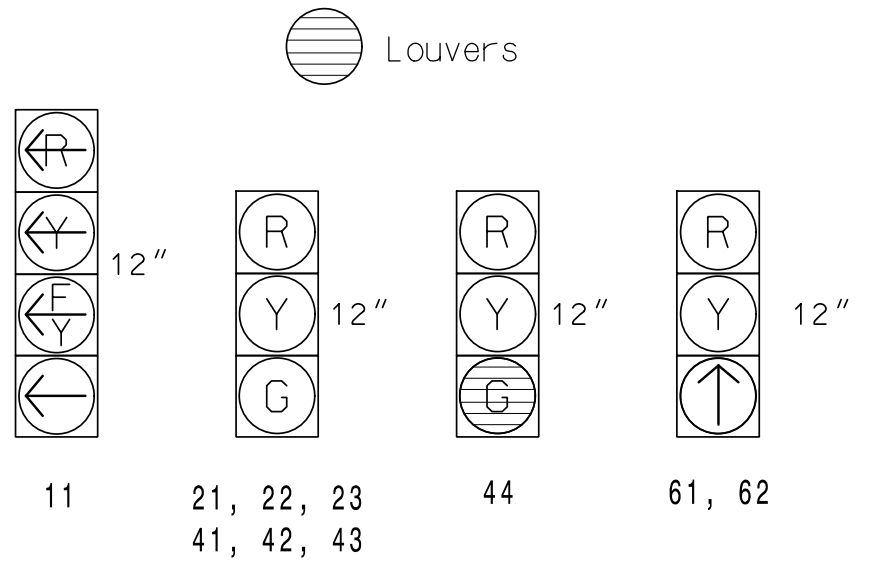
DEFAULT PHASING TABLE OF OPERATION

DEFAULT PHASING DIAGRAM

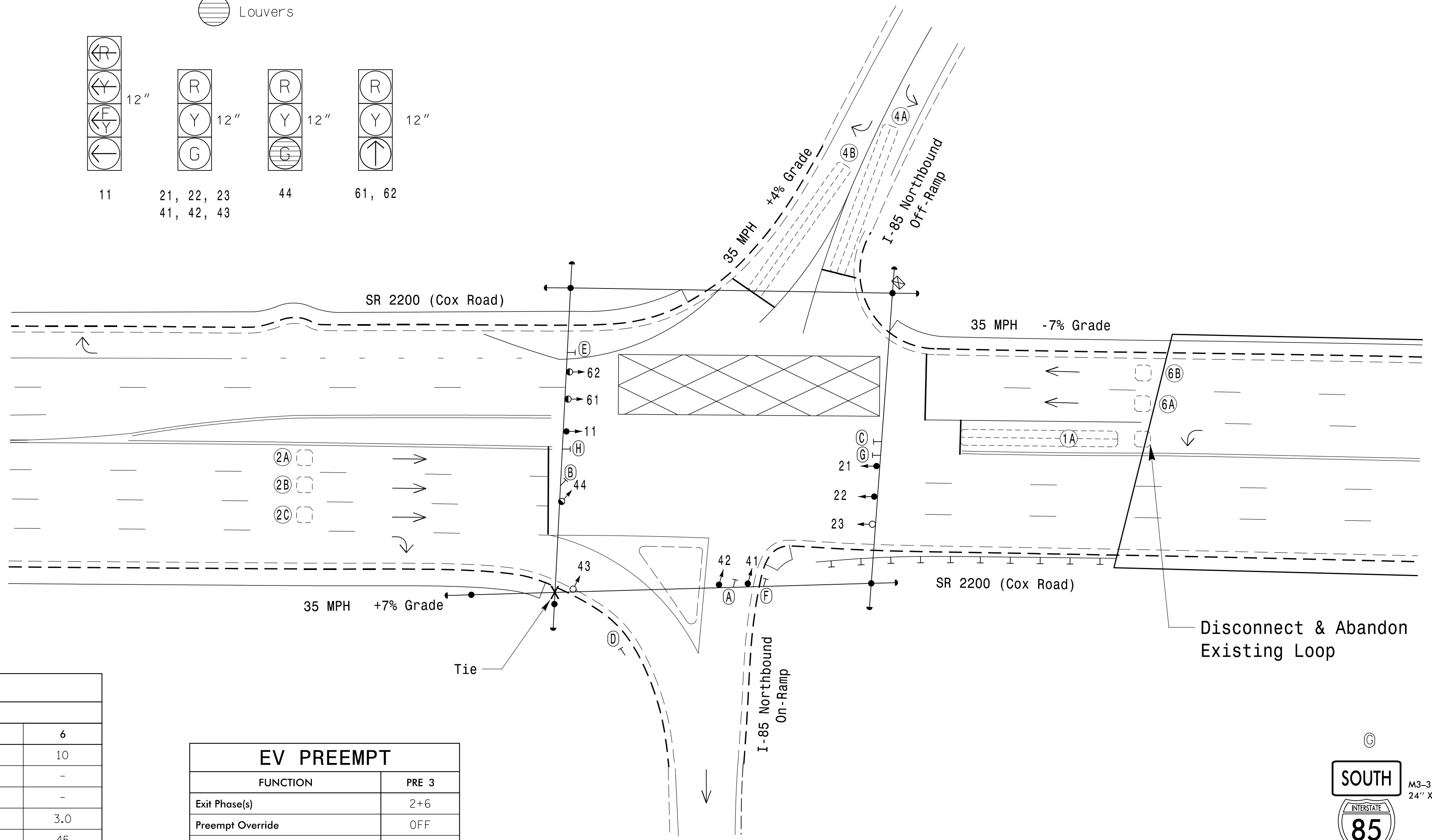


SIGNAL FACE I.D.

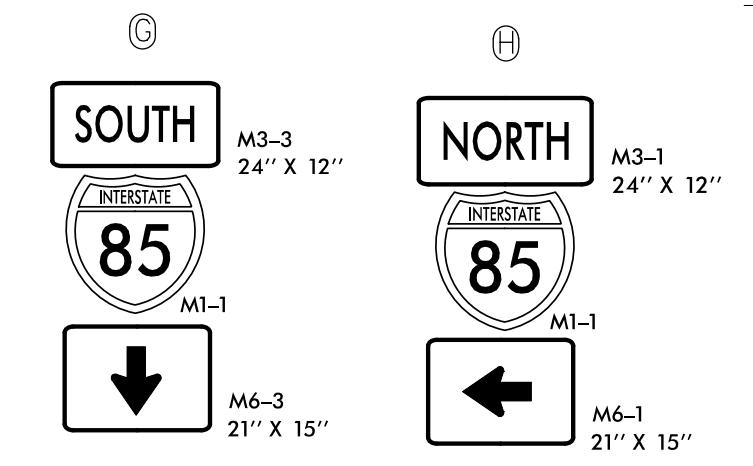
All Heads L.E.D.



- #### PHASING DIAGRAM DETECTION LEGEND
- DETECTED MOVEMENT
 - UNDETECTED MOVEMENT (OVERLAP)
 - UNSIGNALIZED MOVEMENT
 - PEDESTRIAN MOVEMENT



PROPOSED	EXISTING
○ Traffic Signal Head	● N/A
○ Modified Signal Head	○ N/A
○ Sign	○ N/A
○ Pedestrian Signal Head With Push Button & Sign	○ N/A
○ Signal Pole with Guy	○ N/A
○ Signal Pole with Sidewalk Guy	○ N/A
○ Inductive Loop Detector	○ N/A
○ Controller & Cabinet	○ N/A
○ Junction Box	○ N/A
○ 2-in Underground Conduit	○ N/A
○ Right of Way	○ N/A
○ Directional Arrow	○ N/A
○ Left Arrow "ONLY" Sign (R3-5L)	○ N/A
○ Right Arrow "ONLY" Sign (R3-5R)	○ N/A
○ No Left Turn Sign (R3-2)	○ N/A
○ "YIELD" Sign (R1-2)	○ N/A
○ "DO NOT BLOCK INTERSECTION" Sign (R10-7)	○ N/A
○ Street Name Sign (D3-1)	○ N/A



FEATURE	PHASE			
	1	2	4	6
Min Green *	7	10	7	10
Walk *	-	-	-	-
Ped Clear	-	-	-	-
Veh. Extension *	1.0	3.0	2.0	3.0
Max 1 *	15	45	25	45
Yellow	3.2	4.4	3.0	4.4
Red Clear	3.1	2.8	2.6	2.8
Red Revert	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	-	X	-	X
Recall Position	-	MIN RECALL	-	MIN RECALL
Dual Entry	-	-	-	-
Simultaneous Gap	X	X	X	X

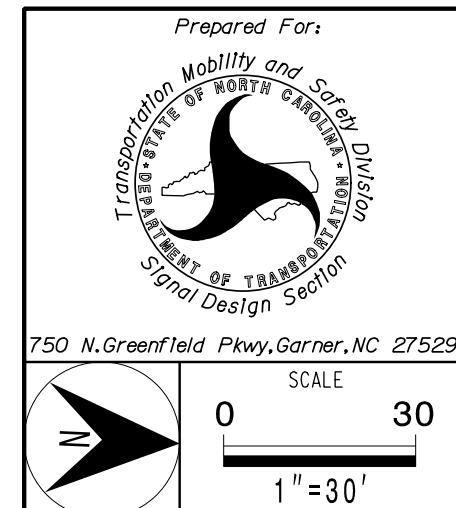
* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

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

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

Signal Upgrade

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



SR 2200 (Cox Road) at I-85 Northbound Ramps	
Division 12	Gaston County
PLAN DATE: May 2021	REVIEWED BY: SL Phillips
PREPARED BY: DM Curri	REVIEWED BY: KP Baumann
REVISIONS	INIT. DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Discussed by: <i>[Signature]</i>	DATE: 3/11/2022
Signature: <i>[Signature]</i>	DATE: _____
SIG. INVENTORY NO. 12-1086	

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