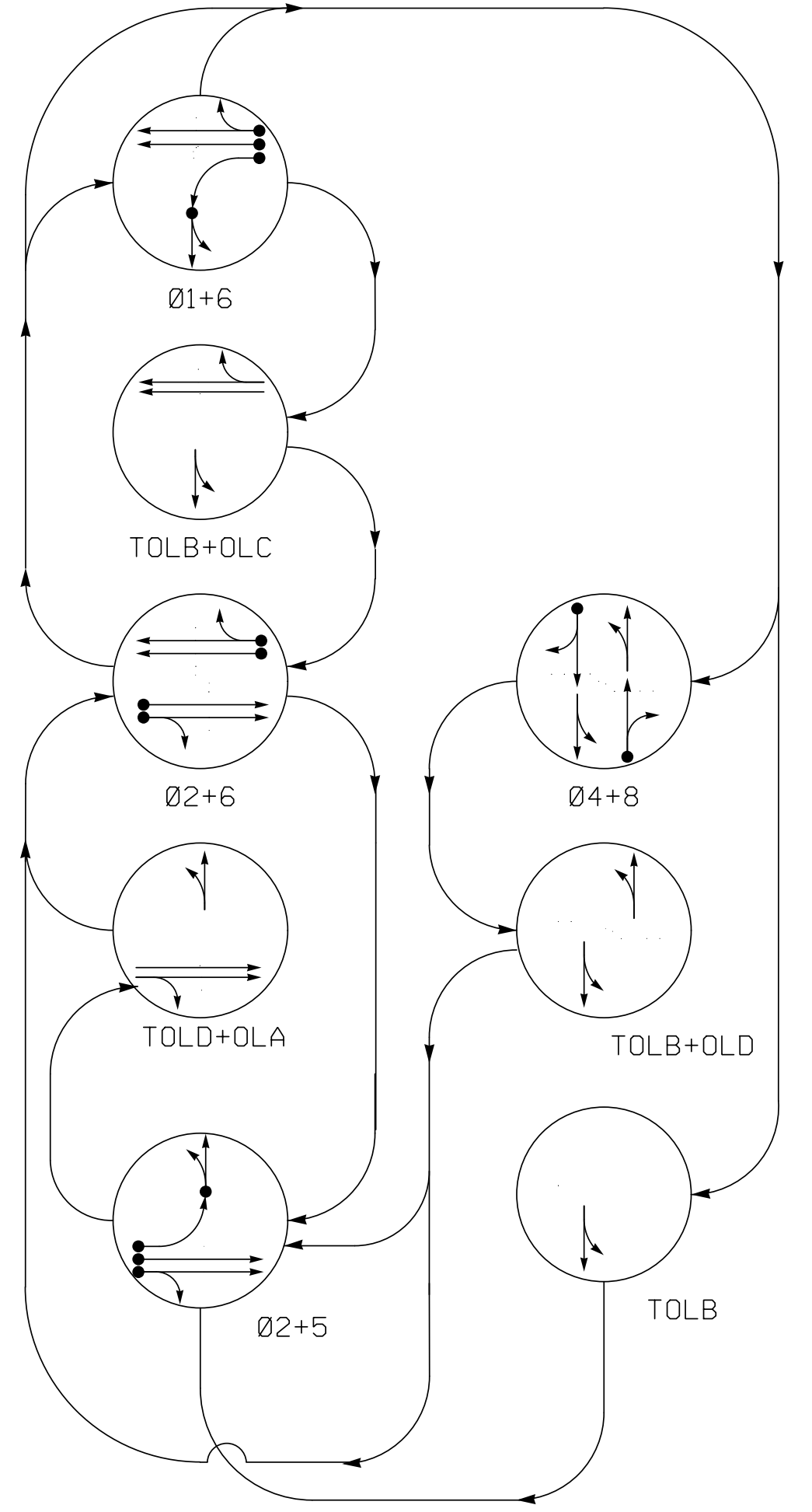


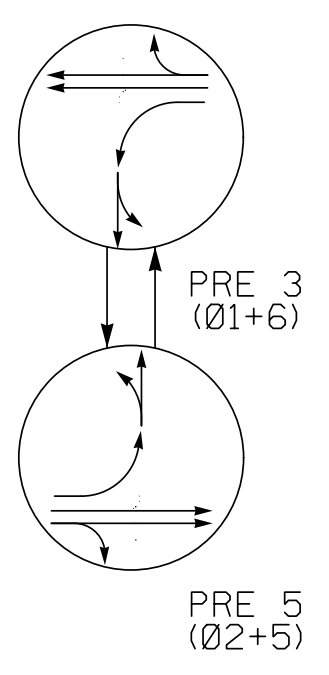
**PHASING DIAGRAM**



**PHASING DIAGRAM DETECTION LEGEND**

- ←● DETECTED MOVEMENT
- ←○ UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- ←- - PEDESTRIAN MOVEMENT

**EV PREEMPT PHASES (Medium Priority)**

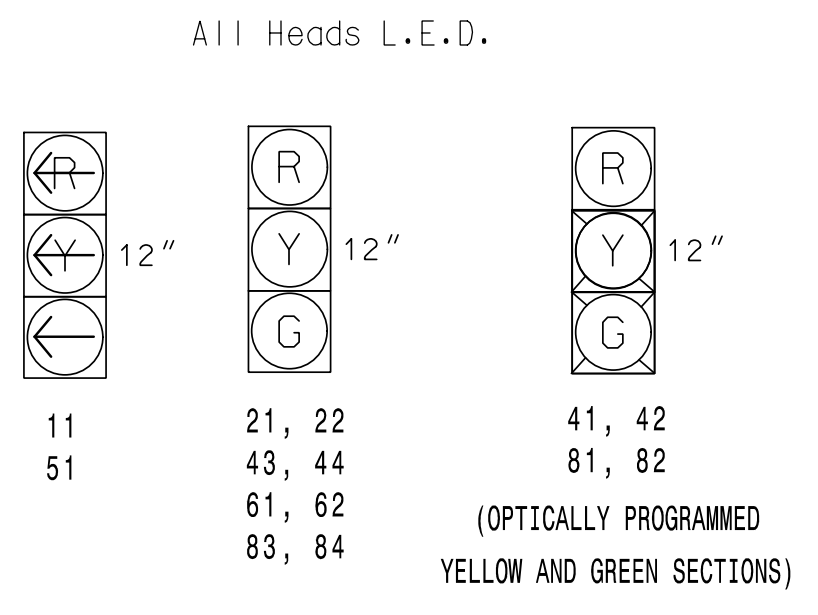


**TABLE OF OPERATION**

SIGNAL FACE	PHASE									
	Ø2+5	Ø2+6	Ø1+6	Ø4+8	TOLD+OLA	TOLB+OLC	TOLB+OLD	TOLB	TOLD	TOLA
11	R	R	←	R	R	R	←	R	R	R
21, 22	G	G	R	R	G	R	R	R	G	Y
* 41, 42	R	R	G	G	R	G	G	G	R	R
43, 44	R	R	R	G	R	R	R	R	R	R
51	←	R	R	R	R	R	R	←	R	R
61, 62	R	G	G	R	R	G	R	G	R	Y
* 81, 82	G	R	R	G	G	R	G	R	G	R
83, 84	R	R	R	G	R	R	R	R	R	R

\* See Note 13

**SIGNAL FACE I.D.**



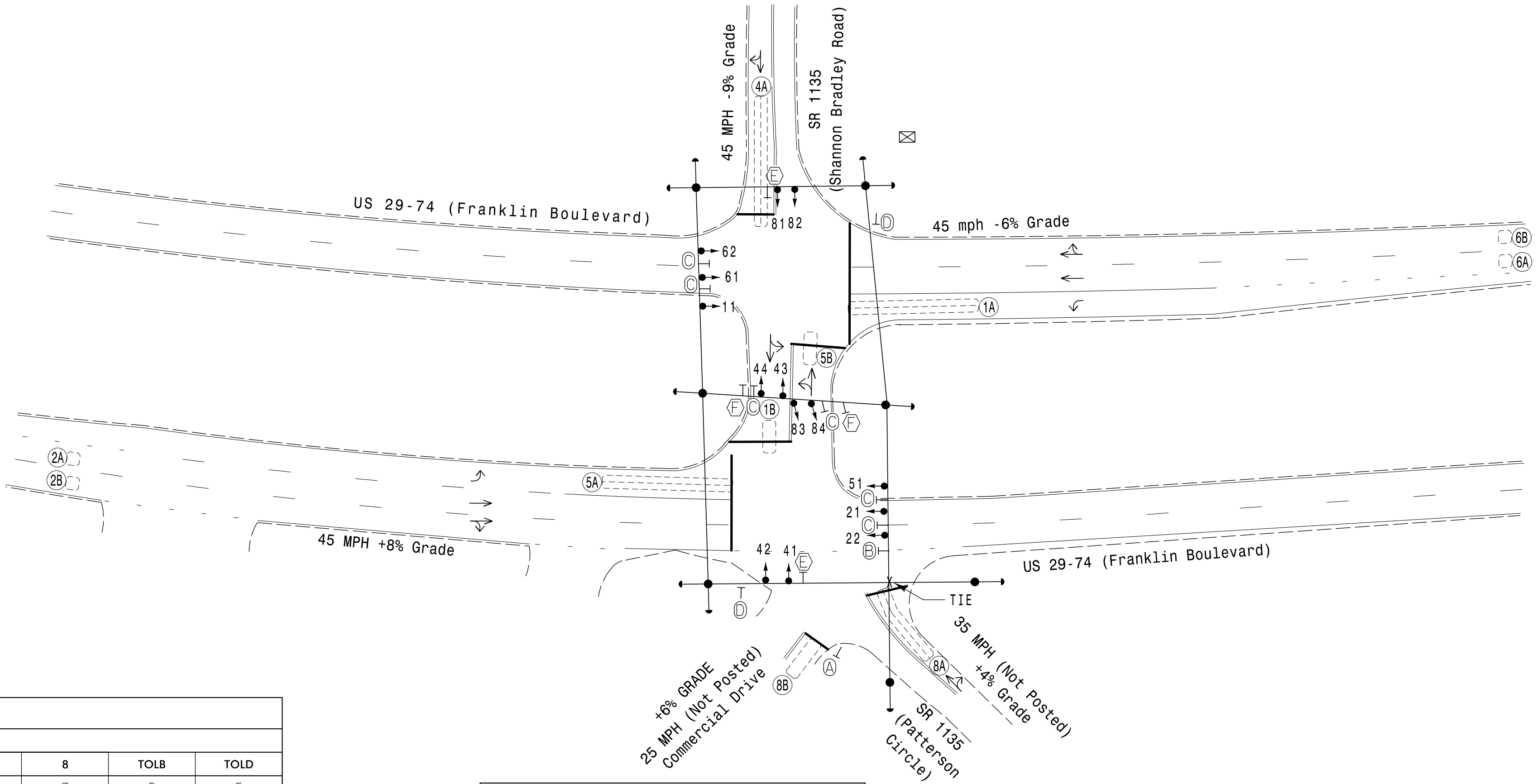
**DETECTOR INSTALLATION CHART**

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	6X60	0	2-4-2	-	1	Yes	-	-	-	N	-	X
1B	6X15	+5	EXIST	-	1	Yes	-	3	-	N	-	X
2A	6X6	300	EXIST	-	2	Yes	-	-	X	N	-	X
2B	6X6	300	EXIST	-	2	Yes	-	-	-	N	-	X
4A	6X60	+5	2-4-2	-	4	Yes	-	3	-	N	-	X
5A	6X60	0	2-4-2	-	5	Yes	-	-	-	N	-	X
5B	6X15	+5	EXIST	-	5	Yes	-	3	-	N	-	X
6A	6X6	300	EXIST	-	6	Yes	-	-	X	N	-	X
6B	6X6	300	EXIST	-	6	Yes	-	-	-	N	-	X
8A	6X40	0	2-4-2	-	8	Yes	-	3	-	N	-	X
8B	6X20	0	EXIST	-	8	Yes	-	3	-	N	-	X

**7 Phase Fully Actuated w/ 2 Timed Overlaps 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.
- 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.
- 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.
- Existing signal heads 11, 23, 24, 31, 45, 46, 47, 48 have been relabeled to 51, 61, 62, 11, 81, 82, 83, 84, respectively.
- Existing loops 1A, 1B, 2C, 2D, 3A, 3B, 4B, 4C have been relabeled to 5A, 5B, 6A, 6B, 1A, 1B, 8A, 8B respectively.
- Signal heads numbered 41, 42, 81, and 82 are tethered.
- City system data:  
Controller Asset #: 1124.



**TIMING CHART**

FEATURE	PHASE							
	1	2	4	5	6	8	TOLB	TOLD
Min Green *	7	12	7	7	12	7	5	5
Walk *	-	-	-	-	-	-	-	-
Ped Clear	-	-	-	-	-	-	-	-
Veh. Extension *	2.0	6.0	1.0	2.0	6.0	1.0	0.0	0.0
Max 1 *	20	120	20	25	120	20	N/A	N/A
Yellow	3.1	3.9	5.5	3.0	5.1	5.5	4.1	3.7
Red Clear	3.0	1.5	3.0	1.1	1.0	1.3	2.6	2.6
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Actuations B4 Add *	-	-	-	-	-	-	-	-
Seconds / Actuation *	-	1.5	-	-	1.5	-	-	-
Max Initial *	-	34	-	-	34	-	-	-
Time Before Reduction *	-	15	-	-	15	-	-	-
Time To Reduce *	-	40	-	-	40	-	-	-
Minimum Gap	-	3.0	-	-	3.0	-	-	-
Locking Detector	-	X	-	-	X	-	-	-
Recall Position	-	MIN RECALL	-	-	MIN RECALL	-	-	-
Dual Entry	-	-	X	-	-	X	-	-
Simultaneous Gap	X	X	X	X	X	X	X	X

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

**EV PREEMPT**

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

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

**LEGEND**

- | PROPOSED   | EXISTING   |
|--|--|
| ○ → Traffic Signal Head                            | ● → N/A  |
| ○ → Modified Signal Head                           | ○ → 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                       | --- 2-in Underground Conduit                     |
| N/A → Right of Way                                 | N/A → Right of Way                               |
| → Directional Arrow                                | → Directional Arrow                              |
| (A) "STOP" Sign (R1-1)                             | (A) "STOP" Sign (R1-1)                           |
| (B) "NO TURN ON RED" Sign (R10-11)                 | (B) "NO TURN ON RED" Sign (R10-11)               |
| (C) Street Name Sign (D3-1)                        | (C) Street Name Sign (D3-1)                      |
| (D) "ONE WAY" Sign (R6-1L)                         | (D) "ONE WAY" Sign (R6-1L)                       |
| (E) Combined Through and Left Arrow Sign (R3-6L)   | (E) Combined Through and Left Arrow Sign (R3-6L) |
| (F) "ONE WAY" Sign (R6-1R)                         | (F) "ONE WAY" Sign (R6-1R)                       |

**Signal Upgrade**

Prepared For: **US 29-74 (Franklin Boulevard) at SR 1135 (Shannon Bradley Road) / Patterson Circle & Commercial Drive**

Division 12 Gaston County Gastonia

PLAN DATE: May 2021 REVIEWED BY: SL Phillips

PREPARED BY: SP Pennington REVIEWED BY: KP Baumann

Scale: 1" = 40'

3/9/2022 11:14:18 AM DanHill@cur1

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

3/11/2022

PLANS PREPARED IN THE OFFICE OF:  
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