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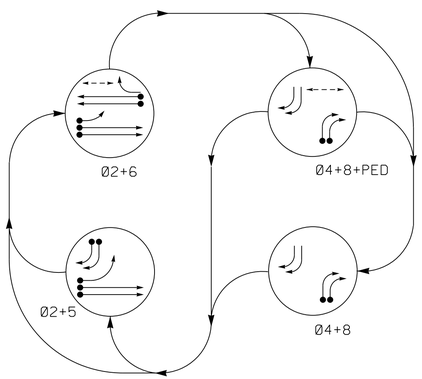
PROJECT REFERENCE NO.	SHEET NO.
I-2513 AA/AB	Sig 4.1

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

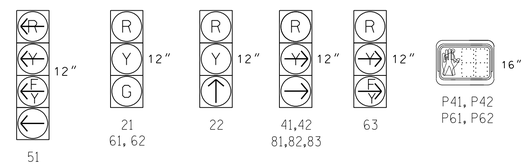
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE Ø2+5	Ø2+6	Ø4+8+PED	Ø4+8	FLASH
21	G	G	R	R	Y
22	↑	↑	R	R	Y
41, 42	→	R	→	→	R
51	←	F Y	R	R	Y
61, 62	R	G	R	R	Y
63	R	F Y	R	R	Y
81, 82, 83	R	R	→	→	R
P41, P42	DW	DW	W	DW	DRK
P61, P62	DW	W	DW	DW	DRK
SIGN "B"	OFF	OFF	ON	OFF	OFF

SIGNAL FACE I.D.

All Heads L.E.D.



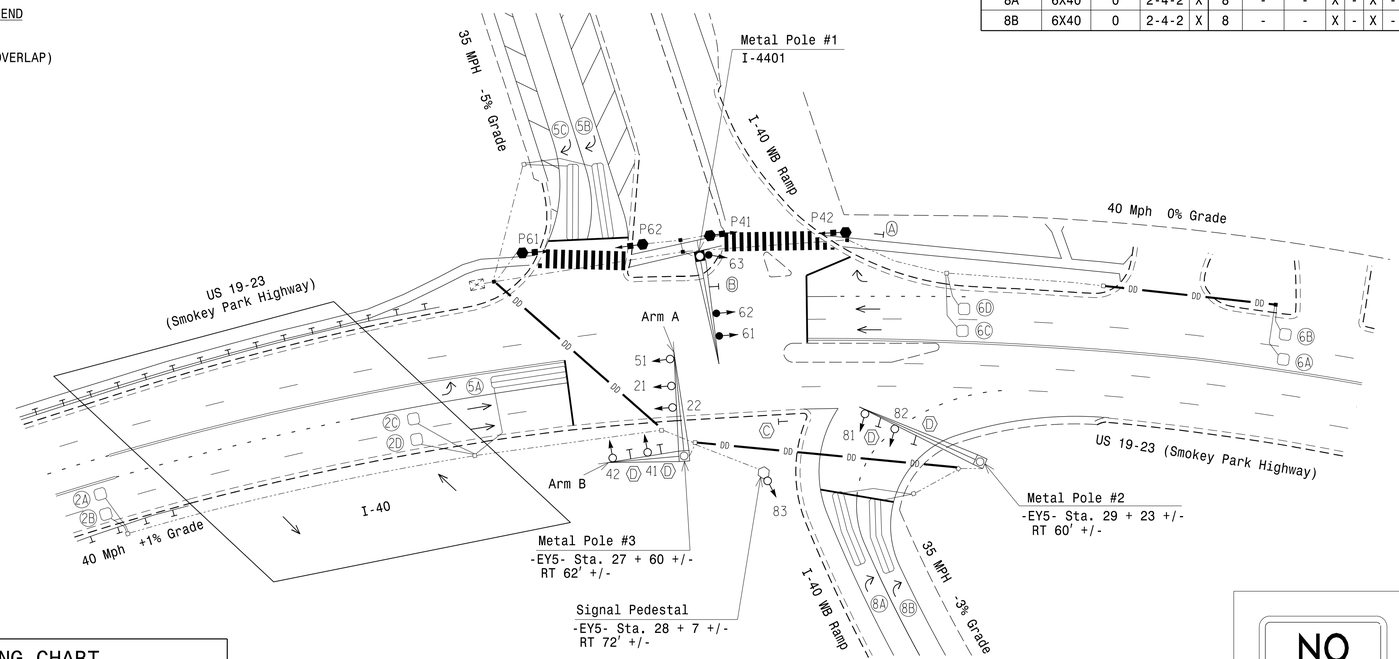
MAXTIME DETECTOR INSTALLATION CHART

DETECTOR					PROGRAMMING							
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL	DELAY DURING GREEN	NEW CARD
2A	6X6	250	6	X	2	-	1.3	X	-	X	-	X
2B	6X6	250	6	X	2	-	1.3	X	-	X	-	X
2C	6X6	80	4	X	2	-	-	X	-	X	-	X
2D	6X6	80	4	X	2	-	-	X	-	X	-	X
5A	6X40	0	2-4-2	X	5	15	-	X	-	X	-	X
					2	-	-	X	-	X	-	X
5B	6X40	0	2-4-2	X	5	-	-	X	-	X	-	X
5C	6X40	0	2-4-2	X	5	-	-	X	-	X	-	X
6A	6X6	250	6	X	6	-	1.3	X	-	X	-	X
6B	6X6	250	6	X	6	-	1.3	X	-	X	-	X
6C	6X6	80	4	X	6	-	-	X	-	X	-	X
6D	6X6	80	4	X	6	-	-	X	-	X	-	X
8A	6X40	0	2-4-2	X	8	-	-	X	-	X	-	X
8B	6X40	0	2-4-2	X	8	-	-	X	-	X	-	X

4 Phase
Fully Actuated
(Asheville Signal System)

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2024 and "Standard Specifications for Roads and Structures" dated January 2024.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Reconnect and unbag signal head P61 and P62.
4. Phase 5 may be lagged.
5. Set all detector units to presence mode.
6. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
7. Program pedestrian heads to countdown the flashing "Don't Walk" time only.
8. Pavement markings are existing.
9. Repaint stop lines and crosswalks.
10. Install pavement markings to designate lane separations for WB Off Ramps.
11. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.



Sign "B"

Figure 1

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	
	Metal Pole with Mastarm	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
	Directional Arrow	
N/A	Guardrail	
	Type II Signal Pedestal	
Ⓐ	Pedestrian Crossing Sign (W11-2) w/ Arrow Plaque	Ⓐ
Ⓑ	"NO RIGHT TURN" LED Blankout Sign (See Figure 1)	Ⓑ
Ⓒ	"NO RIGHT TURN" (R3-1)	Ⓒ
Ⓓ	"NO TURN ON RED" Sign (R10-11b)	Ⓓ

MAXTIME TIMING CHART

FEATURE	PHASE 2	4	5	6	8
Walk *	–	7	–	7	–
Ped Clear *	–	13	–	11	–
Min Green	12	7	7	12	7
Passage *	2.0	2.0	2.0	2.0	2.0
Max 1 *	70	35	25	70	35
Yellow Change	4.2	4.2	3.0	4.2	4.1
Red Clear	3.2	1.3	3.7	3.2	1.7
Added Initial *	–	–	–	–	–
Maximum Initial *	–	–	–	–	–
Time Before Reduction *	–	–	–	–	–
Time To Reduce *	–	–	–	–	–
Minimum Gap	–	–	–	–	–
Advance Walk	–	–	–	–	–
Non Lock Detector	–	X	X	–	X
Vehicle Recall	MIN RECALL	–	–	MIN RECALL	–
Dual Entry	–	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.

Signal Upgrade - Final Design

AECOM
NC Firm License No.: F-0342
5438 Wade Park Boulevard
Suite 200 Raleigh, NC 27607
Phone: 919-461-1100

Prepared for the Offices of:
Transportation Mobility and Safety Division
Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

SCALE 0 40 1"=40'

US 19-23 (Smokey Park Highway)
at
I-40 WB Ramps

Division 13 Buncombe County Asheville

PLAN DATE: December 2023 REVIEWED BY: R. Garrett
PREPARED BY: M. Tindal REVIEWED BY:

REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 026679 ENGINEER ROCHELLE GARRETT

DocuSigned by: Rochelle Garrett 12/5/2023
SIGNATURE DATE
SIG. INVENTORY NO. 13-0468

12/5/2023
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Tindal M