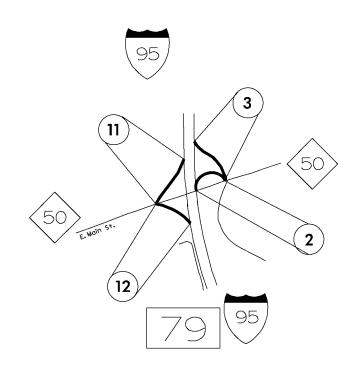


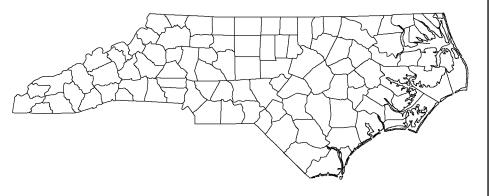
PROJECT	SHEET NO.	TOTAL SHEETS
I-53Ø3	2	
DESCR	IPTION	
I-95 REHAB FROM HARNET	TT COUNTY LINE	TO MM84

When OGAFC Type FC-2 Modified mixture is specified, use OGAFC, Type FC-1 Modified on entrance and exit ramps, gore areas and at the end of project construction joints. Adjust the thickness of placement as specified in Standards Specifications Section 650 page 6-43.



# JOHNSTON COUNTY

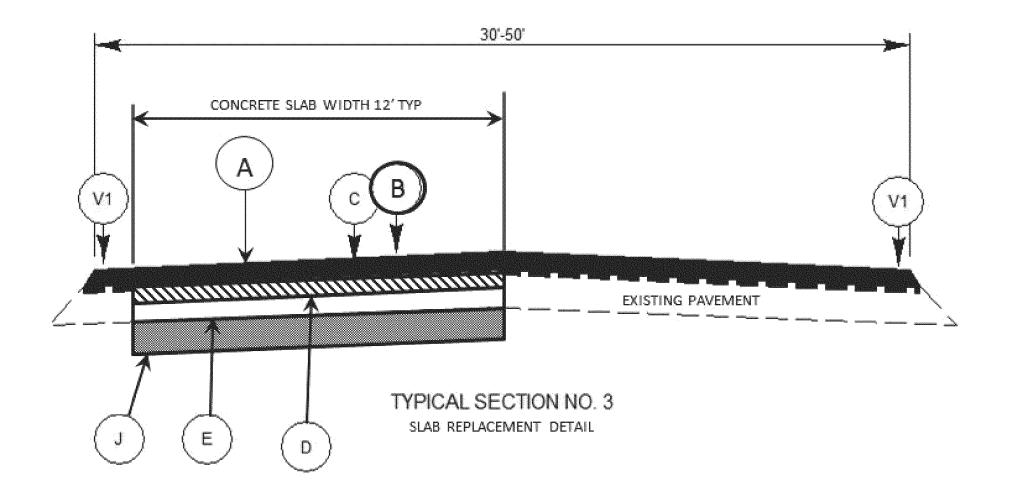
NORTH CAROLINA SHEET 2 OF 2





	/AR. 38' TO 50'(EX. PVMT.)	
VAR.	VAR. 30'+/- TO 42'+/- MILL 2", FILL 1.5" S9.5C AND VERLAY WITH OGAFC FC-2 MOD.	VAR.
PAVEMENT	EXISTI	NG NG
MILL TO THIS LINE	TYPICAL SECTION NO. I	
	20'-28'	
	20'-28' MILL 1.5"	
C	V2 B1	
	EXISTING PAVEMENT	
1.5"	TYPICAL SECTION NO. 2	1.5"
MILL TO THIS LINE		MILL TO THIS LINE

	PAVEMENT SCHEDULE
Α	REMOVE EXISTING CONCRETE SLAB
	PROP. OPEN-GRADED ASPHALT FRICTION
В	COURSE , TYPE FC-2 MODIFIED, AT AN
	AVERAGE RATE OF 90 LBS PER SQ.YD.
	PROP. OPEN-GRADED ASPHALT FRICTION
	COURSE, TYPE FC-1 MODIFIED, AT AN
В1	AVERAGE RATE OF 70 LBS PER SQ. YD.
	USE AT BEGINNING AND END OF RAMPS
	FOR TRANSITION
	PROP. APPROX. 1.5" ASPHALT CONCRETE
С	SURFACE COURSE, TYPE S9.5C, AT AN
•	AVERAGE RATE OF 168 LBS. PER SQ.
	YARD
	PROP. VAR. DEPTH ASPHALT CONCRETE
	INTERMEDIATE COURSE, TYPE 119.0C,, AT
D	AN AVERAGE RATE OF 114 LBS. PER SQ.
	YD. PER 1" DEPTH TO BE PLACE IN
	LAYERS NOT LESS THAN 2-1/4" OR
	GREATER THAN 4" IN DEPTH
	PROP. APPROX 5-1/2" ASPHALT
Ε	CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE 627 LBS PER SQ.
	YD.
J	PROP. 12" AGGREGATE BASE COURSE
V	2" MILLING
V1	MILLED RUMBLE STRIPS
V2	1.5" MILLING



PROJECT NO.	SHEET NO.	TOTAL SHEETS
I-5303	4	

r	
	PAVEMENT SCHEDULE
Α	REMOVE EXISTING CONCRETE SLAB
	PROP. OPEN-GRADED ASPHALT FRICTION
В	COURSE , TYPE FC-2 MODIFIED, AT AN
	AVERAGE RATE OF 90 LBS PER SQ.YD.
	PROP. OPEN-GRADED ASPHALT FRICTION
	COURSE, TYPE FC-1 MODIFIED, AT AN
B1	AVERAGE RATE OF 70 LBS PER SQ. YD.
	USE AT BEGINNING AND END OF RAMPS
	FOR TRANSITION_
	PROP. APPROX. 1.5" ASPHALT CONCRETE
	SURFACE COURSE, TYPE S9.5C, AT AN
С	AVERAGE RATE OF 168 LBS. PER SQ. YARD
	PROP. VAR. DEPTH ASPHALT CONCRETE
	INTERMEDIATE COURSE, TYPE I19.0C,, AT
	AN AVERAGE RATE OF 114 LBS, PER SQ.
D	YD. PER 1" DEPTH TO BE PLACE IN
D	LAYERS NOT LESS THAN 2-1/4" OR
	GREATER THAN 4" IN DEPTH
	PROP. APPROX 5-1/2" ASPHALT
	CONCRETE BASE COURSE, TYPE B25.0C,
E	AT AN AVERAGE RATE 627 LBS PER SQ.
J	PROP. 12" AGGREGATE BASE COURSE
V	2"_MILLING
V1	MILLED RUMBLE STRIPS
V2	1.5" MILLING

PROJECT NO.	SHEET NO.	TOTAL NO.
I-5303	5	

# SUMMARY OF QUANTITIES

PROJECT	COUNTY	MAP	ROUTE	DESCRIPTION	ТҮР	LANES	LANE TYPE	FINAL SURFACE TESTING REQUIRED	WARM MIX ASPHALT REQUIRED	LENGTH	WIDTH	UNDERCUT EXCAVATION	REMOVAL EXISTING CONCRETE SLABS	GEOTEXTILE FOR SOIL STABILIZA-TION	AGGREGATE BASE COURSE	2" MILLING	1.5" MILLING	BASE COURSE, B25.0C	INTER- MEDIATE COURSE, I19.0C	SURFACE COURSE, S9.5C	ASPHALT BINDER FOR PLANT MIX	POLYMER MODIFIED ASPHALT BINDER FOR PLANT MIX	OGAFC, TYPE FC-1 MOD	OGAFC, TYPE FC- 2 MOD	MILLED RUMBLE STRIPS ASPHALT	PORTABLE LIGHTING	INDUCTIVE LOOP
NO		NO			NO					MI	FT	CY	SY	SY	TONS	SY	SY	TONS	TONS	TONS	TONS	TONS	TON	TON	LF	LS	LF
		1	I-95 NORTHBOUND	COUNTY LINE	1	2	MD	YES	NO	6.12	30	65	200	200	170	118,302		125	68	11,340	678	319		5,231	64,627	1	200
		2	EXIT 79 RAMP OFF	I-95 NB - NC 50	2	1		NO	NO	0.12	25						1,760			149	9	1	20				
		3	EXIT 79 RAMP ON	NC 50 -l 95 NB	2	1		NO	NO	0.2	20						2,347			198	12	1	16				
		4	EXIT 81 RAMP	I-95 NB - I-40 EB	2	1		NO	NO	0.28	22						3,614			305	18	1	18				
		5	EXIT 81 RAMP	I-40 EB -I-95 NB	2	1		NO	NO	0.18	24						2,470			214	13	1	19				
I-5303	Johnston	6	EXIT 81 RAMP	I-40 WB - I-95 NB	2	1		NO	NO	0.22	24						3,098			262	15	1	19				
1-5505	JOHNSTON	7	I-95 SOUTHBOUND	COUNTY LINE	1	2	MD	YES	NO	6.12	30	65	200	200	170	123,352		125	68	9,086	545	330		5,405	64,627		200
		8	EXIT 81 RAMP	RAMP I-95 SB- I-40 WB	2	1		NO	NO	0.29	20						3,403			288	17	1	16				
		9	EXIT 81 RAMP	I-40 WB - I 95 SB	2	1		NO	NO	0.19	22						2,452			170	10	1	20				
		10	EXIT 81 RAMP	I-95 SB - I-40 EB	2	1		NO	NO	0.3	22						3,872			327	19	1	18				
		11	EXIT 79 RAMP	I-95 SB - NC 50	2	1		NO	NO	0.16	24						2,253			190	11	1	19				
		12	EXIT 79 RAMP	NC 50 I-95 SB	2	1		NO	NO	0.13	28						2,136			180	11	1	22				
	TOTAL FOR	PROJ N	NO. I-5303							14.31		130	400	400	340	241,654	27,405	250	136	22,709	1,358	659	187	10,636	129,254	1	400
	GRAI	ND TOT	TAL							14.31		130	400	400	340	241,654	27,405	250	136	22,709	1,358	659	187	10,636	129,254	1	400

PROJECT NO.	SHEET NO.	TOTAL NO.
I-5303	6	

## THERMOPLASTIC AND PAINT QUANTITIES

							1			4400000000-E	4405000000-E	4410000000-E	4415000000-N	4420000000-N	1/122000000-N	4430000000-N	4445000000-E	4480000000-N	4510000000-N	4650000000-N	4686000000-E	468800	nnnn-E	470000000-E	4702000000-E
PROJECT	COUNTY	MAP	ROUTE	DESCRIPTION	TYP	LANES	LANE	LENGTH	WIDTH	STATIONARY	PORTABLE	BARRICADE	FLASHING	PORTABLE	PORTABLE	DRUMS	BARRICADES	TMA	LAW	TEMPORARY	6" X 120 M	6" X 90 M	6" X 90 M	12" X 90 M	12" X 120 M
1 Moseci		I WIA	NOOTE	DESCRIPTION		LANES	TYPE	CENTON	**.5	WORK ZONE	WORK ZONE		ARROW BOARD		CHANGEABLE	J. Ditoliis	(TYPE III)	11112	ENFORCEMENT	RAISED	WHITE	WHITE	YELLOW	WHITE	WHITE
							''''			SIGN	SIGN	WORK ZONE	AILIOW BOAILD	MESSAGE	MESSAGE		(1112,		EIN ORCEWENT	PAVEMENT	THERMO	THERMO	THERMO	THERMO	THERMO
										3.3.4	31011	SIGN		SIGN	SIGN (SHORT					MARKERS	1112111110	111211110	mena	I IIIEKIIVIO	I III
												5.5.1		5.0	TERM)					W.A.M.C.N.S					
l NO		NO			l NO					SF	SF	SF	EA.	EA	DAY	EA	16	EA	HR	FΔ	IF.	LF	1 F	IF.	1 16
10		1	I-95 NORTHBOUND	FROM MM 84 TO HARNETT COUNTY LINE	1	2	MD	6.12	30	240	458	26	,	7	14	200	48	2	168	1,254	9,570	36,100	32,340	1,560	1,400
					-		IVID			240	436	26	-		14	200	40		100	1,234		36,100		1,360	1,400
		2	EXIT 79 RAMP OFF	I-95 NB - NC 50	2	1		0.12	25												230		580		
		3	EXIT 79 RAMP ON	NC 50 -I 95 NB	2	1		0.2	20													990	980		
		4	EXIT 81 RAMP	I-95 NB - I-40 EB	2	1		0.28	22													1,500	1,500		
		5	EXIT 81 RAMP	I-40 EB -I-95 NB	2	1		0.18	24														890		
1-5303	Johnston	6	EXIT 81 RAMP	I-40 WB - I-95 NB	2	1		0.22	24													1,030	1,030		
13303	Johnston	7	I-95 SOUTHBOUND	MM84 TO HARNETT COUNTY LINE	1	2	MD	6.12	30												13,450	33,970	32,340	2,240	1,100
		8	EXIT 81 RAMP	RAMP I-95 SB- I-40 WB	2	1		0.29	20													1,330	1,330		
		9	EXIT 81 RAMP	I-40 WB - I 95 SB	2	1		0.19	22														890		
		10	EXIT 81 RAMP	I-95 SB - I-40 EB	2	1		0.3	22														1,450		
		11	EXIT 79 RAMP	I-95 SB - NC 50	2	1		0.16	24												180	760	760		
		12	EXIT 79 RAMP	NC 50 I-95 SB	2	1		0.13	28													550	550		
	TOTAL FOR	R PROLNO	). I-5303					14.31		240	458	26	3	7	14	200	48	2	168	1,254	23,430	76,230	74,640	3,800	2,500
																			150,	870		1			
						ı		1						1	1	1		ı	1	Г				ı	
	GRA	AND TOTA	L					14.31		240	458	26	3	7	14	200	48	2	168	1,254	23,430	76,230	74,640	3,800	2,500
		_																				150,	870		[

# THERMOPLASTIC AND PAINT QUANTITIES

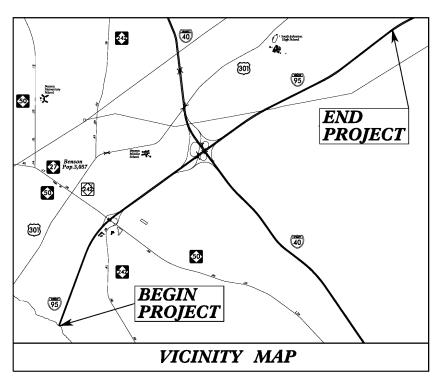
										4710000000-E	4721000000-E		47250	00000-E		48150	00000-E	4825000000-E	4835000000-E	4840000000-N		48450	00000-N		4905000000-N
PROJECT	COUNTY	МАР	ROUTE	DESCRIPTION	ТҮР	LANES	LANE TYPE	LENGTH	WIDTH	24" X 120 M WHITE THERMO	THERMO MSG ONLY 120 M	THERMO MERGE ARROW 90 M	THERMO RT ARROW 90 M	THERMO STR & LT ARROW 90 M	THERMO LT ARROW 90 M	6" WHITE PAINT	6" YELLOW PAINT	12" WHITE PAINT	24" WHITE PAINT	PAINT MSG ONLY	PAINT MERGE ARROW	PAINT RT ARROW	PAINT STR & LT ARROW	PAINT LT ARROW	SNOW PLOWABLE MARKERS
NO		NO			NO					LF	EA	EA	EA	EA	EA	LF	LF	LF	LF	EA	EA	EA	EA	EA	EA
		1	I-95 NORTHBOUND	FROM MM 84 TO HARNETT COUNTY LINE	1	2	MD	6.12	30		16	6	8			91,340	64,680	5,920		32	12	16			626
		2	EXIT 79 RAMP OFF	I-95 NB - NC 50	2	1		0.12	25	60			2	2		460	1,160		120			4	4		12
		3	EXIT 79 RAMP ON	NC 50 -I 95 NB	2	1		0.2	20							1,980	1,960								
		4	EXIT 81 RAMP	I-95 NB - I-40 EB	2	1		0.28	22							3,000	3,000								
		5	EXIT 81 RAMP	I-40 EB -I-95 NB	2	1		0.18	24								1,780								
I-5303	Johnston	6	EXIT 81 RAMP	I-40 WB - I-95 NB	2	1		0.22	24							2,060	2,060								
1-3303	30111131011	7	I-95 SOUTHBOUND	MM84 TO HARNETT COUNTY LINE	1	2	MD	6.12	30		16	6	8			94,840	64,680	6,680		32	12	16			839
		8	EXIT 81 RAMP	RAMP I-95 SB- I-40 WB	2	1		0.29	20							2,660	2,660								
		9	EXIT 81 RAMP	I-40 WB - I 95 SB	2	1		0.19	22								1,780								
		10	EXIT 81 RAMP	I-95 SB - I-40 EB	2	1		0.3	22								2,900								
		11	EXIT 79 RAMP	I-95 SB - NC 50	2	1		0.16	24	40			2		2	1,880	1,520		80			4		4	9
		12	EXIT 79 RAMP	NC 50 I-95 SB	2	1		0.13	28							1,100	1,100								
	TOTAL FO	R PROLNC	1.5303					14.31		100	32	12	20	2	2	199,320	149,280	12,600	200	64	24	40	4	4	1,486
	TOTALIO													36		348	,600						72		
						1		14.31		100	32	12	20	,	1 1	199,320	149.280	12.600	200	64	2/	1 40	1 4	4	1.486
	GR	AND TOTA	L		1			14.51		150	32	12		36		· · · · · ·	3.600	12,000	200	04		1 +0	<u>                                     </u>		1,480

# STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

# TRANSPORTATION MANAGEMENT PLAN

# JOHNSTON COUNTY





#### TEMPORARY PAVEMENT MARKINGS AND MARKERS

6" PAINT

12" PAINT

24" PAINT

SYMBOLS AND CHARACTERS

MARKERS CRYSTAL & RED

WHITE EDGELINE YELLOW EDGELINE 10 FT. WHITE SKIP 3-FT-9FT WHITE MINISKIP WHITE GORELINE WHITE SOLID LANE LINE

DON A. PARKER

WHITE STOP BAR

LEFT TURN ARROW RIGHT TURN ARROW COMBO STRAIGHT/LEFT MERGE ARROW ALPHANUMERIC CHAR.



N.C.D.O.T. WORK ZONE TRAFFIC CONTROL 1561 MAIL SERVICE CENTER (MSC) RALEIGH, NC 27699-1561 750 N. GREENFIELD PARKWAY, GARNER, NC 27529 (DELIVERY) PHONE: (919) 773-2800 FAX: (919) 771-2745

TRAFFIC CONTROL PROJECT DESIGN ENGINEER

J. S. BOURNE, P.E. STATE TRAFFIC MANAGEMENT ENGINEER

J. STEVE KITE, P.E. TRAFFIC CONTROL PROJECT ENGINEER

SPENCER B. JENNINGS TRAFFIC CONTROL DESIGN ENGINEER



#### INDEX OF SHEETS

SHEET NO.	TITLE
TMP - 1	TITLE SHEET, VICINITY MAP, INDEX OF SHEETS, LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, AND TEMPORARY PAVEMENT MARKINGS
TMP-1A - 1B	TRANSPORTATION OPERATIONS PLAN: (WORK ZONE TRAFFIC CONTROL REQUIREMENTS AND NARRATIVE)
TMP-2A	RESURFACING ADVANCE WARKING SIGNS FOR HIGH SPEED FACILITIES > 60 MPH
TMP-2B	WORK ZONE "VARIABLE" SPEED LIMIT REDUCTION
TMP-2C	TYPICAL SIGNAL LOOP LOCATIONS
TMP-3	DETOUR EXIT 81 RAMP I-95 NB - I-40
TMP-4	MAP 2 DETOUR EXIT 79 RAMP OFF 195-NB - NC 50
TMP-5	MAP 3 DETOUR EXIT 79 RAMP ON NC 50 - I-95 NB
TMP-6	MAP 4 DETOUR EXIT 81 RAMP 1-95-NB - I-40 EB
TMP - 7	MAP 5 DETOUR EXIT 81 RAMP I-40 EB - I-95 NB
TMP-8	MAP 6 DETOUR EXIT 81 RAMP I-40 WB - I-95 NB
TMP-9	DETOUR EXIT 81 RAMP I-40 EB - I-95 SB
TMP - 10	MAP 8 DETOUR EXIT 81 RAMP I-95 SB - I-40 WB
TMP - 11	MAP 9 DETOUR EXIT 81 RAMP I-40 WB - I-95 SB
TMP-12	MAP 10 DETOUR EXIT 81 RAMP I-95 SB - I-40 EB
TMP-13	MAP 11 DETOUR EXIT 79 RAMP I-95 SB - NC 50
TMP-14	MAP 12 DETOUR EXIT 79 RAMP NC 50 - I-95 SB

#### **ROADWAY** STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2012 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

TITLE

1101.02	TEMPORARY LANE CLOSURES
1101.03	TEMPORARY ROAD CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1101.05	WORK ZONE VEHICLE ACCESSES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1115.01	FLASHING ARROW BOARDS
1130.01	DRUM
1145.01	BARRICADES
1165.01	WORK VEHICLE LIGHTING SYSTEMS AND TMA DELINEATION
1180.01	SKINNY-DRUM
4005 04	DAVEMENT MARKETINGS I THE TYPES AND SECOND

STD.NO.

	OTTIME BIOM
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTI-LANE ROADWAYS
1205.03	PAVEMENT MARKINGS - EXITS AND ENTRANCE RAMPS
1205.06	PAVEMENT MARKINGS - LANE DROPS
1250.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING
1251.01	RAISED PAVEMENT MARKERS - PERMANENT AND TEMPORARY
	DocuSigned by:



TMP-1

PROJ. REFERENCE NO. SHEET NO. I - 5303 TMP - 1A

## WORK ZONE TRAFFIC CONTROL GENERAL REQUIREMENTS

#### LANE CLOSURE RESTRICTIONS

CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAIL DRAWINGS, STANDARD DETAILS, AND ROADWAY DETAILS ARE NOT ATTAINABLE TO MEET FIELD CONDITIONS OR RESULT IN DUPLICATE OR UNDESTRED OVERLAPPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING, OR REMOVAL OF DEVICES AS DIRECTED BY THE ENGINEER.

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT EXCEPT WHEN OTHERWISE NOTED IN THE PLAN OR DIRECTED BY THE ENGINEER.

TIME RESTRICTIONS (SEE SPECIAL PROVISION, INTERMEDIATE CONTRACT TIME AND LIQUIDATED DAMAGES)

A) DO NOT CLOSE OR NARROW SINGLE TRAVEL LANES AS FOLLOWS:

ROAD NAME

DAY AND TIME RESTRICTIONS

I-95 FRIDAY AT 12:00 P.M. NOON TO SUNDAY AT 12:00 A.M. MIDNIGHT

DO NOT CLOSE OR NARROW TWO TRAVEL LANES AS FOLLOWS:

ROAD NAME

DAY AND TIME RESTRICTIONS

I-95 MONDAY THROUGH THURSDAY FROM 6:00 A.M. TO 12:00 A.M. MIDNIGHT

B) DO NOT CLOSE OR NARROW TRAVEL LANES DURING HOLIDAYS AND SPECIAL EVENTS AS FOLLOWS:

ROAD NAME

I-95

#### HOLIDAY

- 1. FOR ANY UNEXPECTED OCCURRENCE THAT CREATES UNUSUALLY HIGH TRAFFIC VOLUMES, AS DIRECTED BY THE ENGINEER.
- 2. FOR NEW YEAR'S, BETWEEN THE HOURS OF 6:30 A.M. DECEMBER 31st TO 7:00 P.M. JANUARY 2ND. IF NEW YEAR'S DAY IS ON A FRIDAY, SATURDAY, SUNDAY, OR MONDAY THEN UNTIL 7:00 P.M. THE FOLLOWING TUESDAY.
- 3. FOR EASTER, BETWEEN THE HOURS OF 6:30 A.M. THURSDAY AND 7:00 P.M. MONDAY.
- 4. FOR MEMORIAL DAY, BETWEEN THE HOURS OF 6:30 A.M. FRIDAY TO 7:00 P.M. TUESDAY.
- 5. FOR INDEPENDENCE DAY, BETWEEN THE HOURS OF 6:30 A.M. THE DAY BEFORE INDEPENDENCE DAY AND 7:00 P.M. THE DAY AFTER INDEPENDENCE DAY.

IF INDEPENDENCE DAY IS ON A FRIDAY, SATURDAY, SUNDAY OR MONDAY THEN BETWEEN THE HOURS OF 6:30 A.M. THE THURSDAY BEFORE INDEPENDENCE DAY AND 7:00 P.M. THE TUESDAY AFTER INDEPENDENCE DAY.

- FOR LABOR DAY, BETWEEN THE HOURS OF 6:30 A.M. FRIDAY AND 7:00 P.M. TUESDAY.
- 7. FOR THANKSGIVING DAY, BETWEEN THE HOURS OF 6:30 A.M. TUESDAY TO 7:00 P.M. MONDAY.
- 8. FOR CHRISTMAS, BETWEEN THE HOURS OF 6:30 A.M. THE FRIDAY BEFORE THE WEEK OF CHRISTMAS DAY AND 7:00 P.M. THE FOLLOWING TUESDAY AFTER THE WEEK OF CHRISTMAS.

C) DO NOT CLOSE RAMPS/LOOPS AS FOLLOWS:

ROAD NAME

DAY AND TIME RESTRICTIONS

I-95 AT I-40 MONDAY THRU THURSDAY FROM 5:00 A.M. TO 11:00 P.M. RAMPS & LOOPS AND

(MAPS 1, 4-10) FRIDAY 5:00 A.M. TO SUNDAY 12:00 A.M. MIDNIGHT

I-95 AT NC 50 MONDAY THRU THURSDAY FROM 5:00 A.M. TO 9:00 P.M. RAMPS & LOOPS AND

(MAPS 2,3,11,12) FRIDAY 5:00 A.M. TO SUNDAY 12:00 A.M. MIDNIGHT

D) DO NOT CONDUCT ANY HAULING OPERATIONS AGAINST THE FLOW OF TRAFFIC OF AN OPEN TRAVELWAY UNLESS THE HAULING OPERATION IS PROTECTED BY BARRIER OR GUARDRAIL OR AS DIRECTED BY THE ENGINEER.

#### WORK ZONE SIGNING:

#### (A) INSTALLATION

IF THERE IS A PERIOD OF CONSTRUCTION INACTIVITY LONGER THAN 14 CALENDAR DAYS, REMOVE OR COVER ADVANCE/GENERAL WARNING WORK ZONE SIGNS. UNCOVER ADVANCE/GENERAL WARNING WORK ZONE SIGNS NO MORE THAN 7 CALENDAR DAYS BEFORE WORK RESUMES. ALL OTHER OPERATIONS MAY BE SUSPENDED UPON FAILURE TO COMPLY WITH THE ABOVE REQUIREMENTS. SUCH SUSPENDED OPERATIONS WOULD NOT BE RESUMED UNTIL THE ABOVE REQUIREMENTS ARE FULFILLED.

#### (B) SIGN REMOVAL

ALL STATIONARY WORK ZONE SIGNS SHALL BE REMOVED ONCE THE PROJECT IS SUBSTANTIALLY COMPLETE. THE PROJECT IS SUBSTANTIALLY COMPLETE WHEN THE RESURFACING OPERATIONS ARE COMPLETED AND THE SHOULDERS ARE BROUGHT UP TO THE SAME ELEVATION AS THE PROPOSED PAVEMENT AND WHEN PAVEMENT MARKINGS ARE INSTALLED. THE PAVEMENT MARKING DOESN'T HAVE TO BE THE FINAL MARKING MATERIAL TO BE CONSIDERED SUBSTANTIALLY COMPLETE. ANY REMAINING PUNCH LIST ITEMS ARE TO BE COMPLETED WITH PORTABLE WORK ZONE SIGNING.

#### (C) LANE CLOSURE WORK ZONE SIGNS

INSTALL ANY REQUIRED LANE CLOSURE SIGNING NEEDED DURING THE LIFE OF THE PROJECT IN ACCORDANCE WITH THE STANDARD DRAWING NO. 1101.02, 1101.11 AND 1110.02 OF THE 2012 ROADWAY STANDARD DRAWINGS.

#### (D) ROAD CLOSURE SIGNS

NOTIFIY THE ENGINEER FOURTEEN (14) CALENDAR DAYS PRIOR TO RAMP/LOOP CLOSURE. PROVIDE SIGNING AND DEVICES REQUIRED TO CLOSE THE ROAD ACCORDING TO THE ROADWAY STANDARD DRAWINGS AND TRAFFIC CONTROL PLANS AND PROVIDE SIGNING REQUIRED FOR THE OFF-SITE DETOUR ROUTE AS SHOWN IN THE TRAFFIC CONTROL PLANS. COVER OR REMOVE ALL SIGNS AND DEVICES REQUIRED TO CLOSE THE ROAD AND ALL SIGNS REQUIRED FOR THE OFF-SITE DETOUR WHEN THE DETOUR IS NOT IN OPERATION. ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

#### PAVEMENT MARKING AND MARKERS:

#### DESCRIPTION

TEMPORARY PAVEMENT MARKINGS SHALL BE INSTALLED IN ACCORDANCE WITH STANDARD DRAWINGS 1205.01 THROUGH 1205.13 OF THE 2012 ROADWAY STANDARD DRAWINGS AND SECTION 1205 OF THE 2012 STANDARD SPECIFICATIONS.

#### (A) MARKERS

REMOVE EXISTING SNOWPLOWABLE PAVEMENT MARKERS IN PREPARATION FOR PAVING. REPAIR ANY PAVEMENT DAMAGE DUE TO EXISTING PAVEMENT MARKER REMOVAL PRIOR TO THE END OF THE WORK DAY. DISPOSE OF EXISTING PAVEMENT MARKERS AS DIRECTED BY THE ENGINEER. NO DIRECT PAYMENT WILL BE MADE FOR THIS WORK AS IT WILL BE INCIDENTAL TO THE PAVING OPERATION.

INSTALL PERMANENT PAVEMENT MARKERS WITHIN 60 CALENDAR DAYS AFTER COMPLETING THE RESURFACING. PAVEMENT MARKERS SHALL BE INSTALLED IN ACCORDANCE WITH STANDARD DRAWING 1205.12 AND STANDARD DRAWINGS 1250.01 THROUGH 1253.01 OF THE 2012 ROADWAY STANDARD DRAWINGS AND SECTIONS 1250 THROUGH 1253 OF THE 2012 STANDARD SPECIFICATIONS.

#### (B) MARKING AND MARKERS

FOR TEMPORARY PAVEMENT MARKING USE RSD 1205.01, 1205.02, 1205.03, 1205.06, 1205.08, 1205.12, 1205.13.

FOR TEMPORARY RAISED PAVEMENT MARKERS USE RSD 1250.01 AND 1251.01.







MAINTAIN TRAFFIC IN ACCORDANCE WITH DIVISIONS 10, 11 AND 12 OF THE 2012 STANDARD SPECIFICATIONS AND THE FOLLOWING PROVISIONS:

INSTALL WORK ZONE ADVANCE WARNING SIGNS IN ACCORDANCE WITH THE DETAIL DRAWING PROVIDED IN THESE PLANS PRIOR TO BEGINNING ANY OTHER WORK

WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO AND WITHIN 10 FEET OF OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING STANDARD DRAWING NO. 1101.02 OF THE 2012 ROADWAY STANDARD DRAWINGS. WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL OF AN UNDIVIDED OR DIVIDED FACILITY, CLOSE THE LANE ACCORDING TO THE TRAFFIC CONTROL PLANS, 2012 ROADWAY STANDARD DRAWINGS OR AS DIRECTED BY THE ENGINEER. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL LANE.

WHEN UTILIZING A SLOW-MOVING OPERATION FOR SUCH ITEMS AS PAVEMENT MARKING AND MARKER PLACEMENT, AS A MINIMUM THE SLOW MOVING OPERATION CARAVAN SHALL CONSIST OF THE VEHICLES AND DEVICES SHOWN ON THE MOVING OPERATION CARAVAN DETAILS ACCORDING TO ROADWAY STANDARD DRAWING NO. 1101.02, SHEET 13 OF THE 2012 ROADWAY STANDARD DRAWINGS. TRAFFIC CONES MAY BE USED WHEN NECESSARY TO PROVIDE ADDITIONAL PROTECTION OF WET PAVEMENT MARKINGS. BALLAST ALL TRAFFIC CONES SO THEY WILL NOT BE BLOWN OVER BY TRAFFIC.

#### CONSTRUCTION OPERATIONS:

- CONTRACTOR SHALL MILL AND PAVE LANES IN AN ORDER SUCH THAT WATER SHALL NOT ACCUMULATE.
- 2. IF MILLED AREAS ARE NOT PAVED BACK BY THE END OF THE WORK DAY, THE CONTRACTOR IS TO FURNISH AND INSTALL THE FOLLOWING PORTABLE SIGNS TO WARN DRIVERS OF THE CONDITIONS. THESE ARE TO INCLUDE, BUT NOT LIMITED TO "ROUGH ROAD" (W8-8), "UNEVEN LANES" (W8-11), AND "GROOVED PAVEMENT" (W8-15) W/ MOTORCYCLE PLAQUE MOUNTED BELOW. THESE ARE TO BE DUAL INDICATED ON MULTI-LANE ROADWAYS WITH SPEED LIMITS 45 MPH AND GREATER WHERE LATERAL CLEARANCE CAN BE OBTAINED WITHIN THE MEDIAN AREAS.
- 3. REMOVE /REPLACE ANY CONFLICTING OR DAMAGED PAVEMENT MARKINGS AND MARKERS BY THE END OF EACH DAY'S OPERATION.
- 4. OPERATE EQUIPMENT AND CONDUCT OPERATIONS IN THE SAME DIRECTION AS THE FLOW OF TRAFFIC. MAINTAIN VEHICULAR ACCESS IN ACCORDANCE WITH ARTICLE 1101-05 OF THE 2012 STANDARD SPECIFICATIONS.

PROJ. REFERENCE NO. SHEET NO. I - 5303 TMP - 1B

#### WORK ZONE TRAFFIC CONTROL NARRATIVE

WORK ZONE TRAFFIC CONTROL NARRATIVE

1) MILLING AND RESURFACING I-95 NB AND SB (MAP 1 AND 7 AND TYPICAL SECTION 1)

FOR MILLING AND RESURFACING OF I-95 NB AND SB, USE WORK ZONE "VARIABLE SPEED LIMIT REDUCTION", (TMP-2B) AND RSD 1101.02 SHEET 4, 9 AND 10. WHEN WORK IS OCCURING IN THE CENTER LANE OF A 3 LANE SECTION, USE RSD 1101.02, SHEET 8 TO CLOSE THE RIGHT 2 LANES. MILL 2" AND PAVE BACK 1.5" ASPHALT CONCRETE SURFACE COURSE AND PLACE TEMPORARY PAVEMENT MARKINGS BY THE END OF EACH WORK DAY. REMOVE LANE CLOSURE AND REOPEN TO EXISTING TRAFFIC PATTERN AT THE END OF EACH DAY'S WORK PERIOD. (SEE INTERMEDIATE CONTRACT TIME FOR ALLOWABLE LANE CLOSURE TIMES).

FOR 2 LANE SECTIONS, BRING ALL NEWLY RESURFACED LANES TO THE SAME ELEVATION WITHIN 24 HOURS FOR NOMINAL LIFTS OF 1.5 INCHES OR LESS OF ASPHALT SURFACE COURSE.

FOR 3 LANE SECTIONS, BRING ALL NEWLY RESURFACED LANES TO THE SAME ELEVATION WITHIN 36 HOURS FOR NOMINAL LIFTS OF 1.5 INCHES OR LESS OF ASPHALT SURFACE COURSE.

FOR REMOVAL OF EXISTING CONCRETE SLABS (SEE TYPICAL SECTION 3)

USE WORK ZONE "VARIABLE SPEED LIMIT REDUCTION", (TMP-2B) AND RSD 1101.02 SHEET 4, 8, 9, AND 10. WORK IN A CONTINUOUS MANNER WITH PERSONNEL ONSITE BEHIND A LANE CLOSURE UNTIL THE SLAB IS REMOVED AND PAVED BACK THRU THE 1.5" ASPHALT SURFACE COURSE AND PLACE TEMPORARY PAVEMENT MARKINGS.

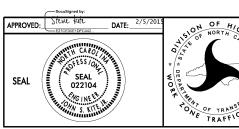
MILLING AND RESURFACING OF RAMPS THAT DO NOT INCLUDE INDUCTIVE LOOPS (SEE MAP 3 THRU 6, 8 THRU 10, AND 12 AND TYPICAL SECTION 2)

FOR MILLING AND RESURFACING OF RAMPS, USE WORK ZONE "VARIABLE SPEED LIMIT REDUCTION", (TMP-2B) AND THE ASSOCIATED OFFSITE DETOUR DETAIL. MILL 2" AND PAVE BACK 1.5" ASPHALT CONCRETE SURFACE AND PLACE TEMPORARY PAVEMENT MARKINGS BY THE END OF EACH WORK PERIOD. (SEE INTERMEDIATE CONTRACT TIME FOR ALLOWABLE LANE AND RAMP CLOSURE TIMES).

MILLING AND RESURFACING OF RAMPS THAT INCLUDE INDUCTIVE LOOPS (MAP 2 AND 11 AND TYPICAL SECTION 2)

FOR MILLING AND RESURFACING OF RAMPS, USE WORK ZONE "VARIABLE SPEED LIMIT REDUCTION", (TMP-2B) AND THE ASSOCIATED OFFSITE DETOUR DETAIL. MILL 2" AND PAVE BACK 1.5" ASPHALT CONCRETE SURFACE AND PLACE TEMPORARY PAVEMENT MARKINGS BY THE END OF EACH WORK PERIOD. INSTALL NEW INDUCTIVE LOOP WITHIN 7 CONSECUTIVE CALENDAR DAYS FROM THE DATE WHEN THE EXISTING INDUCTIVE LOOP WAS DISTURBED. (SEE INTERMEDIATE CONTRACT TIME FOR ALLOWABLE LANE AND RAMP CLOSURE TIMES AND REPLACEMENT OF INDUCTIVE SIGNAL LOOPS).

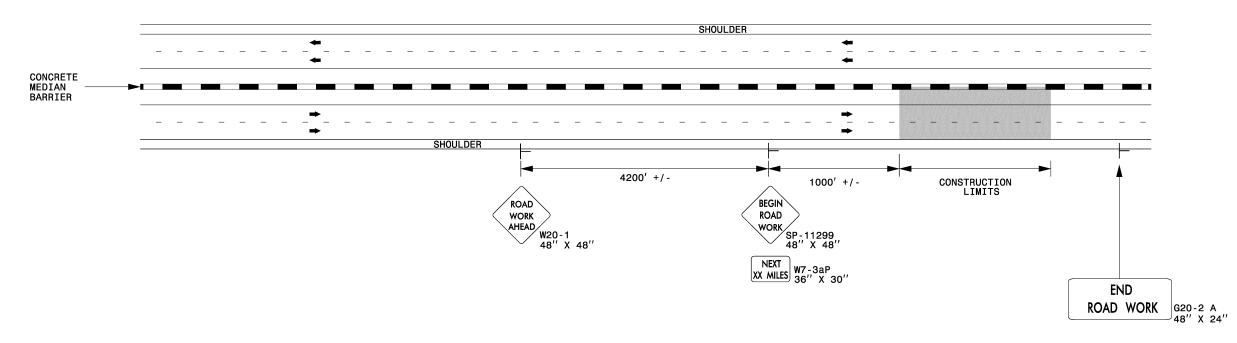
2) PLACEMENT OF OPEN GRADED FRICTION COURSE AND FINAL PAVEMENT MARKINGS IS A SEPARATE OPERATION TO BE COMPLETED AFTER MILLING, SLAB REPLACEMENT, AND FIRST 1.5" OF ASPHALT SURFACE COURSE. USE SAME TRAFFIC CONTROL SET-UPS AS DESCRIBED ABOVE.



TRANSPORTATION
OPERATIONS
PLAN

PROJ. REFERENCE NO. SHEET NO. I - 5303 TMP - 2A

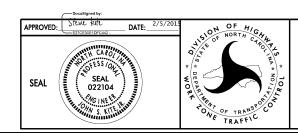
# DIVIDED MEDIANS WITH WIDTHS LESS THAN 46' OR WITH PERMANENT MEDIAN BARRIER



#### NOTES:

- 1) LATERAL CLEARANCE AT ALL SIGN LOCATIONS SHALL BE 6' AS MEASURED FROM THE EDGE OF PAVEMENT.
- 2) MOUNT SIGNS THAT ARE LARGER THAN 10 SQUARE FEET IN AREA ON TWO OR MORE WOOD OR U-CHANNEL SUPPORTS. PERFORATED SQUARE TUBING SUPPORT SYSTEMS MAY SUPPORT LARGER AREAS ON A SINGLE SUPPORT. FOLLOW MANUFACTURER'S RECOMMENDATIONS. THESE SYSTEMS SHALL BE NCHRP 350 COMPLIANT AND NCDOT APPROVED.
- 3) INSTALL "ROAD WORK AHEAD" (W20-1) ALONG ENTRANCE RAMPS 500' PRIOR TO RAMP TERMINAL, AND "END ROAD WORK" (G20-2a) AT THE END OF EXIT RAMPS WITHIN THE WORK ZONE.
- 4) IF MILLED AREAS ARE NOT PAVED BACK BY THE END OF THE WORK DAY, PORTABLE SIGNS SHALL BE USED TO WARN DRIVERS OF THE PRESENT CONDITIONS. THESE ARE TO INCLUDE, BUT NOT LIMITED TO "ROUGH ROAD" W8-8, "UNEVEN LANES" W8-11, "GROOVED PAVEMENT" W8-15 w/MOTORCYCLE PLAQUE MOUNTED BELOW. THESE ARE TO BE DOUBLE INDICATED ON MULTI-LANE ROADWAYS WITH SPEED LIMITS 45 MPH AND GREATER AND WHERE LATERAL CLEARANCE CAN BE OBTAINED WITHIN THE MEDIAN AREAS.

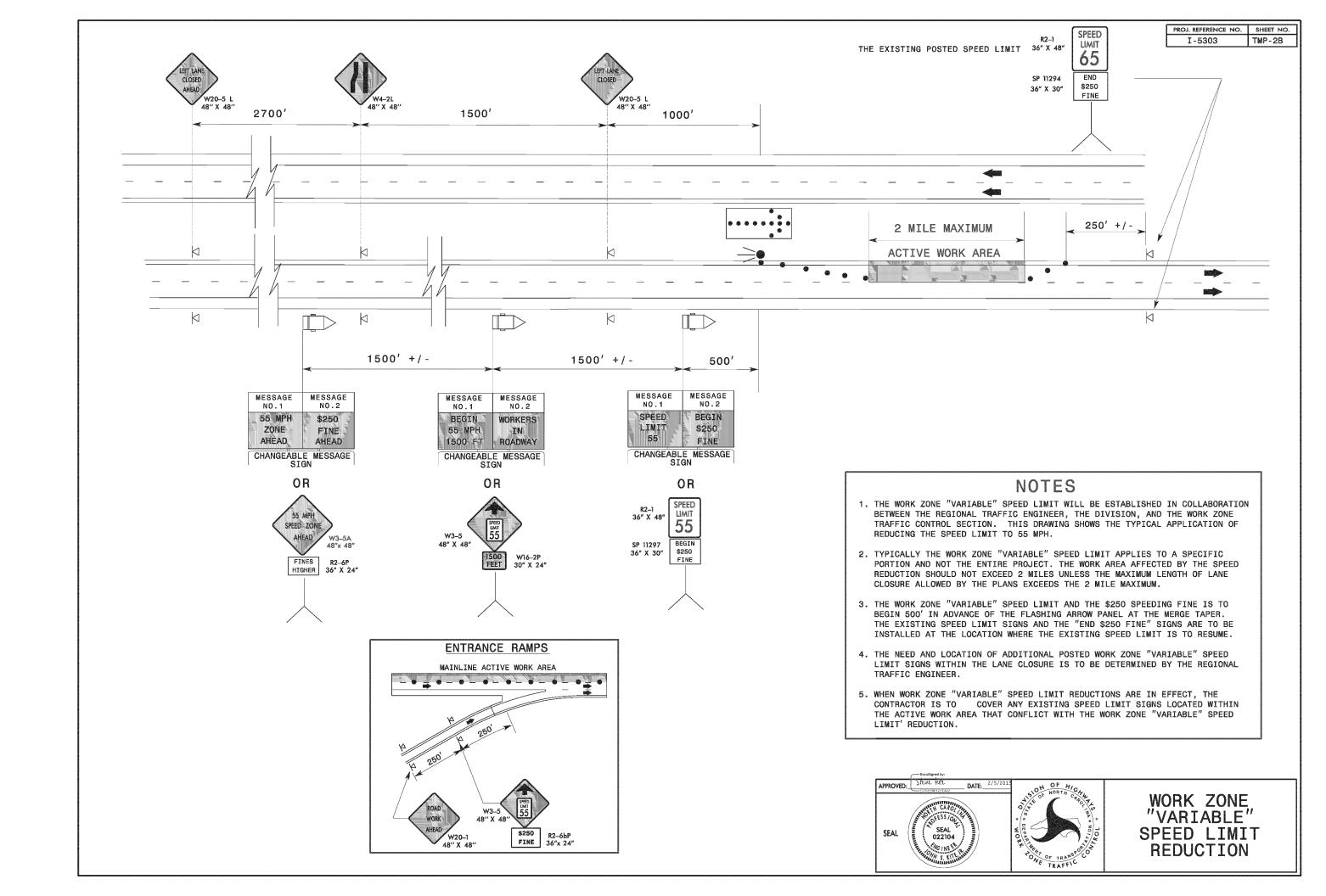
# LEGEND ├ STATIONARY SIGN DIRECTION OF TRAFFIC FLOW

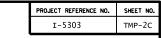


RESURFACING ADVANCE
WARNING SIGNS FOR
HIGH SPEED FACILITIES
≥ 60 MPH

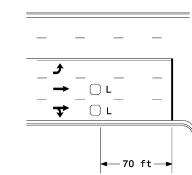
U3\|raffic\|rafficConfrol\|CP\|-53U3\_|C\_|MP\_ZA.dgn

2/4/2015 P:\TIPProjects-IN15303\





# Low Speed Detection (≤35 mph)



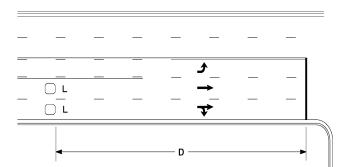
L = 6ft X 6ft Wired in series

L = 6ft X 40ft Quadrupole loop, wired separately

Right Turn Lane Detection

L1 = 6ft X 40ft Quadrupole loop L2 = 6ft X 6ft [Minimum] Presence loop

Wired separately



Speed Limit L = 6ft X 6ft ft mph Wired in series for TS1 250 Controllers 300 Wired separately for TS2, 355 170, and 2070L Controllers 420

Volume Density Operation

40

45

50

55

Speed Limit	D1	D2
mph	ft	ft
40	250	80
45	300	90
50	355	100
55	420	110

□ L1

"Stretch" Operation

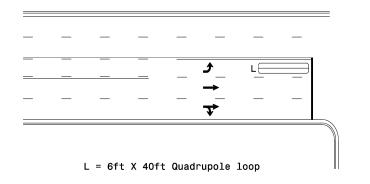
### Left Turn Lane Detection

OR

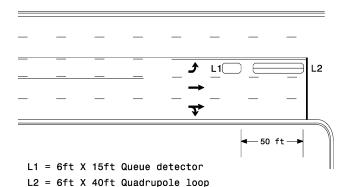
High Speed Detection

(≽40 mph)

OR



Presence Loop Detection



**→** □L2 **→** □ L2

- D2 -

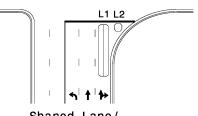
L1 = 6ft X 6ft

L2 = 6ft X 6ft

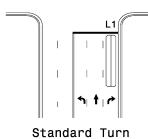
Wired in series

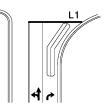
Wired in series

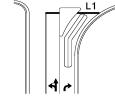
Queue Loop Detection



Shared Lane/ Wide Radius Turn



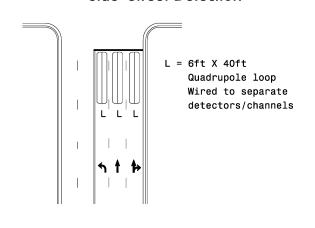




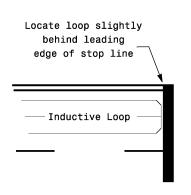
Wide Radius Turn

Channelized Turn

#### Side Street Detection



## Presence Loop Placement at Stop Lines



Note:

Loop may be located in advance of stop line under any of the following conditions:

- 1) stop line is greater than 15' from edge of intersecting roadway
- 2) loop detects a permissive or protected/permissive left turn
- 3) for an exclusive right turn

#### Recommended Number of Turns

Single 6' X 6' loop (when wired separately):

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Length of Lead-in ft	Number of Turns
< 250	3
250-375	4
375-525	5
> 525	6

Quadrupole loops: Use 2-4-2 turns

6' X 15' Loops: Lead-in < 150', use 2 turns Lead-in > 150', use 3 turns



N/A

Typical Signal Loop Locations

PLAN DATE: January 2015 REVIEWED BY: PREPARED BY: PLA REVIEWED BY:

L'Alexander

