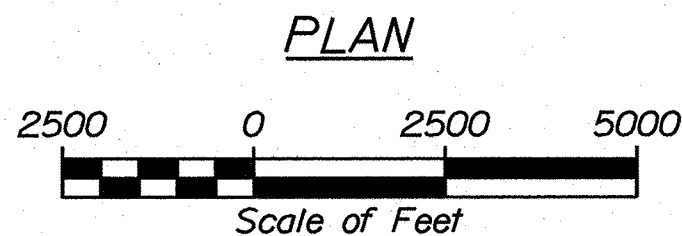
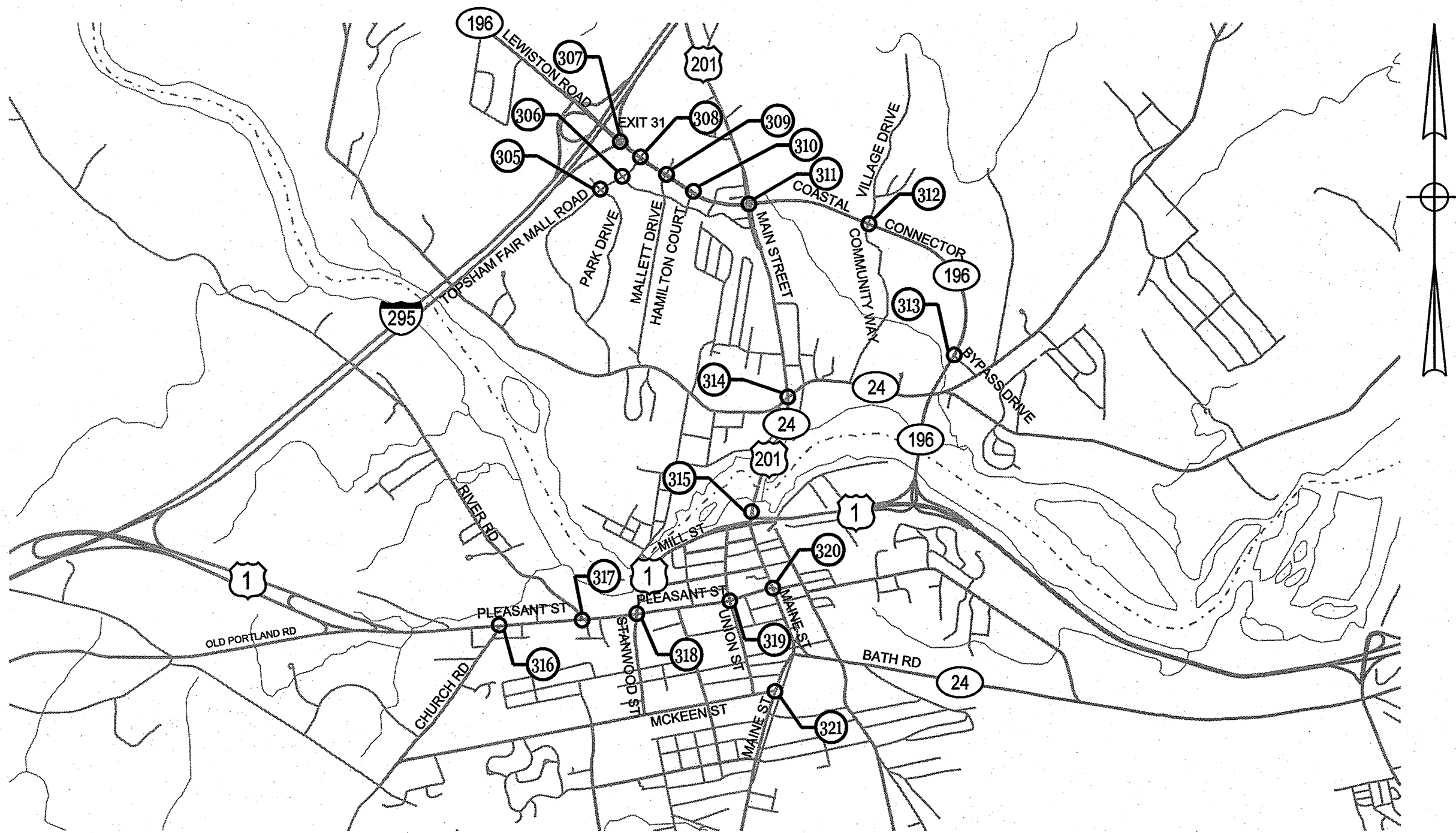


STATE OF MAINE  
DEPARTMENT OF TRANSPORTATION



**BRUNSWICK-TOPSHAM**  
TRAFFIC SIGNAL MODERNIZATION  
**FEDERAL PROJECT NO. 2613400 & 2613800**  
**STATE WIN 026134.00 & 026138.00**



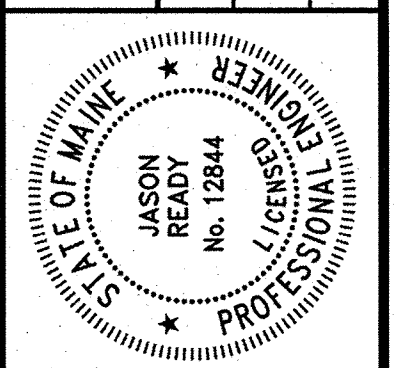
**PLAN LEGEND**

Town, County, State	Centerline-Existing	
Property Lines	Centerline-Proposed	
R/W Lines-Existing	Travelway-Existing	
R/W Lines-Proposed	Travelway-Proposed	
Culvert-Existing	Railroad	
Culvert Proposed	Catch Basins	Existing Proposed
Curbing	Manholes	Existing Proposed
Type 1	Proposed Underdrain	
Type 3	Proposed Ditch	
Type 5	Existing Ditch	
Outline of Bodies of Water	Utility Poles	Existing Proposed
Exposed Bedrock	Fire Hydrants	Existing Proposed
Buildings	Existing Water Line	
Trees	Existing San. Sewer	
Tree Line	Existing San. Sewer Manhole	
Clearing Limit Line	Guardrail-Existing	
Boring	Guardrail-Proposed	
Existing Overhead Line	Guardrail-Cable, Other	
	Existing	Proposed
Fiber Optic Cable		
Signal Conduit		
Accessible Pedestrian Signal (APS) Button		
Pedestrian Signal Head w/ Pushbutton		
Pedestrian Signal Post w/ equipment		
Steel Strain Pole		
Mast Arm Pole		
Receiver		
Signal Head (no backplate)		
Signal Head (w/ Backplate)		
Confirmation Strobe		
Mast Arm Mounted Sign		
Controller Cabinet		
Meter Pedestal		
Pullbox		
Video Detection Camera		
Video Detection Camera (360*)		
Advance Detection		
Combination Stop Line and Advance Detection		
Dual Mode DSRC/C-V2X (Dedicated Short Range Communications)		
Detection Zone (& ID)		
Underground Fiber Splice Enclosure		
Aerial Fiber Splice Enclosure		
Adaptive Signal Control Technology		

**INDEX OF SHEETS**

Description	Sheet No.
Title Sheet	1
General Notes	2
Location Map	3
MaineDOT Cloud Hosted Network	4
Traffic Signal Plans	5-21
Interconnect Plan	22

STATE OF MAINE DEPARTMENT OF TRANSPORTATION	APPROVED	DATE
COMMISSIONER: <i>[Signature]</i>		4-19-24
CHIEF ENGINEER: <i>[Signature]</i>		4-19-24



SIGNATURE	P.E. NUMBER	DATE
<i>[Signature]</i>	12844	04/11/2024

PROJECT INFORMATION	MULTIMODAL
PROGRAM	B. KEEZER
PROJECT MANAGER	J. READY
DESIGNER	VHB
CONSULTANT	
PROJECT RESIDENT	
CONTRACTOR	
PROJECT COMPLETION DATE	

BRUNSWICK-TOPSHAM	TITLE SHEET
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SHEET NUMBER
1
OF 22

<b>PROJECT LOCATION:</b>	Brunswick - Topsham
<b>PROGRAM AREA:</b>	Multimodal
<b>OUTLINE OF WORK:</b>	Traffic Signal Upgrades

WIN 026134.00 & 026138.00

GENERAL NOTES:

1. WORK FOR THIS PROJECT WILL RESULT IN THE MODERNIZATION OF TRAFFIC CONTROL SIGNALS IN BRUNSWICK AND TOPSHAM. EQUIPMENT INCLUDES BUT IS NOT LIMITED TO, FURNISHING AND INSTALLING SHELF MOUNTED ECONOLITE ADVANCED TRANSPORTATION CONTROLLERS (ATC) WITH ADAPTIVE SIGNAL CONTROL FEATURES AT SELECT LOCATIONS (SEE SPECIAL PROVISION 718.13 FOR ADDITIONAL INFORMATION). VEHICULAR SIGNAL HEADS WITH RETROREFLECTIVE BACKPLATES, SUPPLEMENTAL WIRING AND SIGNAL CABLE, OVERHEAD MAST ARM AND SPAN WIRE MOUNTED SIGNS, NON-INVASIVE STOP BAR VEHICLE DETECTION, NON-INVASIVE ADVANCE VEHICLE DETECTION, NEW D-HARNESS FOR EMERGENCY VEHICLE PREEMPTION, TRANSIT SIGNAL PRIORITY, AND ALL APPURTENANCES AND INCIDENTALS REQUIRED FOR COMPLETE FUNCTIONING INSTALLATIONS. IN ADDITION, THE PROJECT WILL PROVIDE THE MEANS FOR REMOTE COMMUNICATIONS TO THE TRAFFIC SIGNAL CONTROL CABINET EQUIPMENT BY FIELD MONITORING UNIT WITH A CLOUD-BASED CENTRAL MANAGEMENT SYSTEM VIA A SECURE VIRTUAL PRIVATE NETWORK TUNNEL AND REPLACEMENT OF SELECT EXISTING LOCAL WIRELESS RADIO INTERCONNECT EQUIPMENT. THE PROJECT ADDITIONALLY PROVIDES FOR DUAL MODE DEDICATED SHORT RANGE COMMUNICATIONS/4GLTE 5G ROAD SIDE UNITS (RSU) PROVIDING SELECTED CONNECTED VEHICLE APPLICATIONS INTEGRATED INTO THE ADVANCED TRANSPORTATION CONTROLLER AND MAINEDOT TRAFFIC MANAGEMENT CENTER.
2. ALL WORK SHALL BE COMPLETED IN CONFORMANCE WITH THE LATEST REVISIONS OF THE STATE OF MAINE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGES, MAINEDOT STANDARD DETAILS, SUPPLEMENTAL SPECIFICATIONS, SPECIAL PROVISIONS FOR THIS CONTRACT, THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, THE NATIONAL ELECTRICAL CODE, AND ANY REQUIREMENTS OF THE POWER COMPANY.
3. THE CONTRACTOR SHALL NOTIFY UTILITY COMPANIES AT LEAST 48 HOURS BEFORE ANY OPERATIONS ARE CONDUCTED THAT COULD POTENTIALLY CONFLICT WITH AERIAL UTILITIES.
4. ANY RELOCATIONS OR ADJUSTMENTS OF EXISTING UTILITY FACILITIES WILL BE MADE BY THE RESPECTIVE UTILITIES IN COORDINATION WITH THE WORK OF THE CONTRACTOR.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ANY NECESSARY OPENING PERMITS.
6. WHERE NOTED ON THE PLANS, ALL NEW VEHICULAR SIGNAL HEADS SHALL BE EQUIPPED WITH NEW LED LENSES 12 INCHES IN DIAMETER AND EQUIPPED WITH NEW 5-INCH LOUVERED BACK PLATES, INCLUDING 3-INCH RETROREFLECTIVITY.
7. ALL NEW SIGNAL HEADS SHALL BE FIX MOUNTED TO MAST ARMS WITH ASTROBRACKETS, OR MOUNTED TO MAST ARM POLES WITH BRACKET ARMS, OR TETHERED TO SPAN WIRE, AS INDICATED ON PLANS.
8. TRAFFIC SIGNAL WORK SHALL BE COMPLETED IN A MANNER AND ORDER THAT WILL CAUSE THE MINIMUM DISRUPTION TO TRAFFIC.
9. ALL EXISTING DRIVEWAY ACCESSSES SHALL BE MAINTAINED AT ALL TIMES.
10. EXISTING AND PROPOSED TRAFFIC SIGNAL MOUNTING HEIGHTS SHALL BE CHECKING FOR MEETING VERTICAL CLEARANCE REQUIREMENTS IN CONFORMANCE TO MAINEDOT STANDARD SPECIFICATIONS AND DETAILS AND ADJUSTED WHERE NEEDED.
11. THE CONTRACTOR SHALL PROVIDE THE RESIDENT AND MAINEDOT WITH A SCHEDULE OF WORK FOR CONSTRUCTING THE TRAFFIC IMPROVEMENTS AT LEAST TWO WEEKS PRIOR TO THE COMMENCEMENT OF WORK.
12. THE CONTRACTOR SHALL PERFORM THE WORK IN A MANNER THAT WILL REQUIRE THE LEAST AMOUNT OF DOWNTIME TO THE TRAFFIC SIGNAL OPERATIONS.
13. TWO COPIES OF AS-BUILT PLANS, WIRING DIAGRAMS, BOX PRINTS, AND EQUIPMENT MANUALS SHALL BE LEFT IN EACH OF THE CONTROLLER CABINETS.
14. ALL MATERIAL SCHEDULES SHOWN ON THE PLANS ARE FOR GENERAL INFORMATION ONLY. THE CONTRACTOR SHALL PREPARE HIS OWN MATERIAL SCHEDULES BASED UPON HIS PLAN REVIEW. ALL SCHEDULES SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO ORDERING MATERIALS OR PERFORMING WORK.
15. INTERSECTIONS 305 THROUGH 313 WILL BE PROVIDED WITH NEW WIRING TO EACH SIGNAL HEAD.

16. TRAFFIC SIGNAL EQUIPMENT

CONTRACTOR FURNISHED EQUIPMENT THAT INCLUDES THE TRAFFIC SIGNAL CONTROLLERS AND VARIOUS OTHER EQUIPMENT ITEMS SHOWN ON THE PLANS SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR. THE TRAFFIC SIGNAL CONTROLLERS SUPPLIED UNDER THIS CONTRACT SHALL BE ETHERNET EQUIPPED ECONOLITE EOS ADVANCED TRANSPORTATION CONTROLLERS ONLY.

THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR PROVIDING THE PROJECT WITH WORKING AND FULLY CONFIGURED TRAFFIC SIGNAL CONTROLLERS FOR EACH INTERSECTION, DELIVERY AND COMPLETE SET-UP OF THE CLOUD-BASED CENTRAL MANAGEMENT SYSTEM, SIGNAL PERFORMANCE MEASURE APPLICATIONS, ADAPTIVE SIGNAL CONTROL TECHNOLOGY AT SELECT LOCATIONS (SEE SPECIAL PROVISION 718.13), CONNECTED VEHICLE SYSTEM, INSTALLATION OF THE CENTRAL AND LOCAL INTERSECTION COMMUNICATIONS INTERFACE, INCLUDING WIRELESS RADIO EQUIPMENT AND ALL INTERMEDIATE WIRELESS RADIO EQUIPMENT TO ENSURE A FULLY FUNCTIONING COMMUNICATIONS SYSTEM, AND COORDINATION WITH MAINEDOT OFFICE OF INFORMATION TECHNOLOGY. THE CONTRACTOR IS FURTHER RESPONSIBLE FOR SYSTEM START-UP AND SYSTEM LOADING, ACCEPTANCE TESTING, AND TRAINING. IN ADDITION, THE CONTRACTOR SHALL FURNISH AND INSTALL AND/OR EXPAND THE EXISTING LIGHT-BASED EMERGENCY VEHICLE PREEMPTION SYSTEM COMPATIBLE WITH THE PREEMPTION EMITTERS OWNED BY THE MUNICIPAL FIRE DEPARTMENT, NOTING THAT SYSTEM SHALL BE CONFIGURED SUCH THAT PREEMPTION OR PRIORITY CONTROL CAN ALSO BE INITIATED THROUGH DEDICATED SHORT-RANGE COMMUNICATIONS (DSRC)/4GLTE 5G THROUGH A ROADSIDE UNIT BY WAY OF AN APPROACHING AUTHORIZED VEHICLE WITH AN ON-BOARD UNIT.

THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR FURNISHING AND INSTALLING ALL OTHER EQUIPMENT DETAILED IN GENERAL NOTE 1 AND SHALL BE AWARE OF AND CONFORM TO ALL DETAILS FOR THE MATERIAL SPECIFICATIONS IN SPECIAL PROVISION 718.

17. COMMUNICATIONS

THE SYSTEM SHALL SUPPORT COMMUNICATIONS TO ADVANCED TRANSPORTATION CONTROLLERS, ASSOCIATED EQUIPMENT, AND VEHICLE DETECTION AS SHOWN IN THE PLANS. ALL CONNECTIONS TO THE EXISTING MAINEDOT CLOUD-BASED CENTRAL MANAGEMENT SYSTEM SHALL BE VIA A SECURE VPN NETWORK. COMMUNICATIONS FROM THE CLOUD-BASED SYSTEM TO THE ON-STREET TRAFFIC SIGNAL CONTROLLERS SHALL BE MADE THROUGH THE EXISTING WIRELESS NETWORK AND THE FIELD MONITORING UNIT.

CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING WHICH COMPATIBLE CELLULAR PROVIDER AN PROVIDE THE BEST NETWORK COVERAGE TO THE SHELF MOUNT FMU FOR REMOTE COMMUNICATIONS TO THE CMS AND PROVIDE THE PROPER SIM CARD ON A PER SITE BASIS.

CONTRACTOR SHALL PROVIDE SUFFICIENT SLACK CABLE TO THE SHELF MOUNT FMU HARNESS SO THE DEVICE CAN BE ROTATED AROUND WITHOUT HAVING TO DISCONNECT THE HARNESS.

CONTRACTOR SHALL ADDITIONALLY PROVIDE A HIGH GAIN ANTENNA FOR EACH LOCATION IN LIEU OF THE STANDARD FMU PETRI DISH ANTENNA.

18. VEHICLE DETECTION

THE CONTRACTOR SHALL FURNISH AND INSTALL NON-INVASIVE STOP LINE AND ADVANCE VEHICLE DETECTION AS SHOWN IN THE PLANS, AS PAYMENT FOR THIS WORK. THE CONTRACTOR SHALL SUBMIT A LUMP SUM BID PER INTERSECTION FOR NON-INVASIVE STOP LINE AND A LUMP SUM BID PER INTERSECTION FOR NON-INVASIVE ADVANCE (WHERE APPLICABLE) DETECTION. THE VEHICLE DETECTORS ARE TO BE CONNECTED TO THE INTERSECTION TRAFFIC CONTROLLER FOR LOCAL VEHICLE DETECTION AND REMOTELY CONNECTED TO THE MAINEDOT TRAFFIC MANAGEMENT CENTER TO ALLOW VISUAL CONFIRMATION (STOP LINE) AND ADJUSTMENT OF THE DETECTION ZONES AS SHOWN IN THE PLANS. WORK SHALL BE CONSTRUCTED AND PAID FOR AS OUTLINED IN SPECIAL PROVISION 643.

THE LOCATION OF THE DETECTION DEVICES SHOWN IN THE PLANS ARE CONCEPTUAL FOR OPTIMAL APPROACH COVERAGE ASSUMING ONE TYPE (ADVANCE, IF APPLICABLE, AND/OR STOP LINE) DEVICE PER APPROACH. THE ACTUAL NUMBER OF DETECTION DEVICES AND MOUNTING LOCATIONS SHALL BE PER MANUFACTURES RECOMMENDATION.

THE NON-INVASIVE VEHICLE DETECTION ZONES SHOWN IN THE PLANS ARE FOR ILLUSTRATIVE PURPOSES ONLY. FINAL DETECTION ZONES SHALL BE LOCATED IN THE FIELD AND APPROVED BY MAINEDOT AND THE RESIDENT.

THE RESIDENT RESERVES THE RIGHT TO DIRECT THE CONTRACTOR TO ADJUST THE VIDEO DETECTOR MOUNTING HEIGHT FOR LOCAL CONDITIONS IDENTIFIED DURING OR AFTER INSTALLATION. NO ADDITIONAL COST WILL BE ALLOWED FOR FIELD ADJUSTING THE PIPE EXTENSIONS OR REWIRING AS NECESSARY. THIS WORK WILL BE INCIDENTAL TO THE 643.21 AND/OR 643.22 ITEM.

THE CONTRACTOR SHALL RE-INSPECT EACH SIGNALIZED INTERSECTION DURING THE ACCEPTANCE TESTING PERIOD AND CERTIFY DETECTORS ARE FUNCTIONING PROPERLY BEFORE FINAL ACCEPTANCE IS GRANTED.

19. ROAD SIDE UNIT

THE CONTRACTOR MAY MOUNT RSU IN AN ALTERNATE LOCATION THAN SHOWN ON THE PLANS PROVIDED THE ANTENNAE HAVE A CLEAR LINE OF SIGHT FOR ALL APPROACHES. THIS PROVISION IS TO BETTER ASSIST THE CONTRACTOR TO STAY WITHIN THE 100 METER LIMITATION OF THE CAT5 CABLE RUN WITHOUT HAVING TO PURCHASE REPEATERS TO MATCH PROPOSED PLAN LOCATIONS.

20. COORDINATED SIGNAL TIMINGS

EXISTING AND PROPOSED BASE SIGNAL TIMING PARAMETERS FOR PROJECT INTERSECTIONS ARE SHOWN IN THE LOWER RIGHT CORNER OF THIS PLAN SET (SHEETS 5 THROUGH 21).

PROPOSED TIME-BASE COORDINATED SIGNAL TIMING PARAMETERS ARE FOUND UNDER SEPARATE COVER AND WILL BE PROVIDED TO THE CONTRACTOR IN THE ECONOLITE EOS PROGRAMMING REFERENCE CARD SPREADSHEET AFTER THE CONTRACT IS AWARDED.

21. START-UP AND SYSTEM LOADING

THE SYSTEM SUPPLIER SHALL INITIATE COMPLETE SYSTEM OPERATION INCLUDING ATC, CMS, ASCT, SPM, STOP LINE VEHICLE DETECTION SYSTEM, ADVANCED VEHICLE DETECTION SYSTEM, CV SYSTEM, HOSTED CLOUD-BASED SYSTEMS, FMU, THE COMMUNICATIONS SYSTEM, AND REMOTE MONITORING AND CONTROL OF CMS/ASCT OPERATIONS AS SHOWN ON THE PLANS AND/OR DIRECTED BY MAINEDOT AND THE RESIDENT. AFTER THE SUPPLIER HAS INITIATED SYSTEM OPERATION, THE SYSTEM SHALL BE RUN FOR A CONTINUOUS 7-DAY INITIAL OPERATIONAL TESTING PERIOD. IF ANY MAJOR FUNCTIONS OF THE SYSTEM FAIL TO OPERATE DURING THIS TESTING PERIOD, AS DETERMINED BY MAINEDOT AND/OR THE RESIDENT, THE SUPPLIER SHALL CORRECT OR REPAIR THE SYSTEM AND THE CONTINUOUS 7-DAY TESTING PERIOD SHALL BE RESTARTED. AT THE COMPLETION OF A SUCCESSFUL 7-DAY TESTING PERIOD, THE SUPPLIER SHALL ADVISE MAINEDOT AND/OR THE RESIDENT THAT THE SYSTEM IS READY FOR THE START-UP PHASE. ANY MAJOR SYSTEM MALFUNCTIONS ENCOUNTERED DURING THE START-UP PHASE SHALL BE CORRECTED BY THE SUPPLIER, AND THE TEST RESTARTED. DURING THIS PERIOD, MAINEDOT AND/OR THE RESIDENT MAY MAKE MODIFICATIONS TO THE SYSTEM TIMING PARAMETERS, BUT THIS WILL NOT CAUSE RESTARTING OF THE TESTING PERIOD. AT THE COMPLETION OF THE TESTING PERIOD, THE SYSTEM WILL BE DEEMED READY FOR FINAL ACCEPTANCE TESTING AS DESCRIBED IN ACCEPTANCE TESTING.

22. ACCEPTANCE TESTING

UPON COMPLETION OF THE 7-DAY TESTING PERIOD, MAINEDOT AND/OR THE RESIDENT SHALL EVALUATE SYSTEM OPERATIONS. IT IS EXPECTED THAT THE COMPLETE SYSTEM SHALL OPERATE FULLY FUNCTIONAL FOR A PERIOD OF 30 CONSECUTIVE DAYS WITHOUT MALFUNCTION. MINOR MALFUNCTIONS OF INOPERABILITY NOT THE FAULT OF THE CONTRACTOR, AS JUDGED BY MAINEDOT AND/OR THE RESIDENT, ARE NOT INCLUDED IN THE 30-DAY PERIOD. IF THE SYSTEM FAILS TO OPERATE AS INTENDED BY THIS SPECIFICATION THE MALFUNCTION SHALL BE CORRECTED BY THE CONTRACTOR AT ITS COST AND A NEW 30-DAY TESTING PERIOD SHALL BEGIN. THIS PROCESS SHALL CONTINUE UNTIL A COMPLETELY OPERABLE SYSTEM IS DEMONSTRATED FOR A CONSECUTIVE 30-DAY PERIOD.

ACCEPTANCE TESTING MUST DEMONSTRATE TO MAINEDOT AND/OR THE RESIDENT'S REASONABLE SATISFACTION THAT THE HARDWARE AND LICENSED SOFTWARE FUNCTION IN ACCORDANCE WITH THE SPECIFICATIONS, REQUIREMENTS, FUNCTIONALITIES, PERFORMANCE CRITERIA OR OTHER BENEFITS STATED IN DOCUMENTATION, PROPOSALS, AND/OR DEMONSTRATIONS GIVEN TO MAINEDOT.

23. SALVAGE RIGHTS

MAINEDOT SHALL HAVE FIRST RIGHTS TO ALL EQUIPMENT REMOVED OR REPLACED BY THE PROJECT (CONTACT BROOKE GLIDDEN AT BROOKE.GLIDDEN@MAINE.GOV). THE LOCAL MUNICIPALITIES SHALL HAVE SECOND SALVAGE RIGHTS TO ALL EQUIPMENT NOT CLAIMED BY MAINEDOT. THE CONTRACTOR SHALL CAREFULLY REMOVE AND STORE ALL EQUIPMENT CLAIMED BY EITHER MAINEDOT OR THE MUNICIPALITY FOR RETRIEVAL BY MAINEDOT OR THE MUNICIPALITY. THE STORAGE AREA SHALL BE SECURE AND ALL CONTROL EQUIPMENT REMOVED THAT HAS COMPUTER CHIP TECHNOLOGY SHALL BE STORED IN AN INTERIOR CLIMATE CONTROLLED ENVIRONMENT.

ANY EQUIPMENT NOT CLAIMED BY EITHER MAINEDOT OR THE MUNICIPALITY FOR SALVAGE SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR AND DISPOSED OF IN A MANNER ACCEPTABLE TO THE RESIDENT.

24. THE RESIDENT AND MAINEDOT SHALL HAVE THE RIGHT AND AUTHORITY TO DETERMINE THE ACCEPTABILITY OF WORK AND MATERIALS IN PROGRESS OR COMPLETED AND SHALL HAVE THE RIGHT TO REJECT ANY WORK OR MATERIALS WHICH DO NOT CONFORM, IT ITS SOLE OPINION, TO THE PLANS OR SPECIFICATIONS.

25. THE MAINTENANCE OF TRAFFIC SIGNALS SHALL REMAIN THE RESPONSIBILITY OF THE CONTRACTOR UNTIL FINAL ACCEPTANCE BY MAINEDOT.

26. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SUBMITTING RED-LINE AS-BUILT DRAWINGS OF THE FINAL WORK TO THE RESIDENT. THOSE DRAWINGS SHALL BE ON A CLEAN SET OF PLANS SHOWING ALL CHANGES OR MODIFICATIONS TO THE BID PLANS.

27. THE CONTRACTOR IS DIRECTED TO PROJECT SPECIAL PROVISION 718 FOR ADDITIONAL INFORMATION RELATED TO THE FOLLOWING:

- 718.13 TRAFFIC SIGNAL CONTROL SYSTEM
- 718.14 FIELD MONITORING UNIT (NOTE: DIFFERS FROM MAINEDOT REPAIR SPEC)
- 718.15 EMERGENCY VEHICLE PREEMPTION SYSTEM
- 718.16 WIRELESS INTERCONNECT SYSTEM

SPECIAL PROVISION 718 EXPANDS UPON THE INFORMATION FOUND IN THESE GENERAL NOTES, MAINEDOT STANDARD SPECIFICATIONS DATED MARCH 2020, AND MAINEDOT STANDARD DETAILS DATED MARCH 2020. AS SUCH, THE MORE RESTRICTIVE LANGUAGE BETWEEN THESE GENERAL NOTES, MAINEDOT STANDARD SPECIFICATIONS, MAINEDOT STANDARD DETAILS, AND SPECIAL PROVISION 718 SHALL GOVERN THE WORK TO BE PERFORMED UNDER THIS PROJECT.

28. RIGHT-OF-WAY

RIGHT-OF-WAY WHERE NOTED IN THE PLANS IS APPROXIMATE.

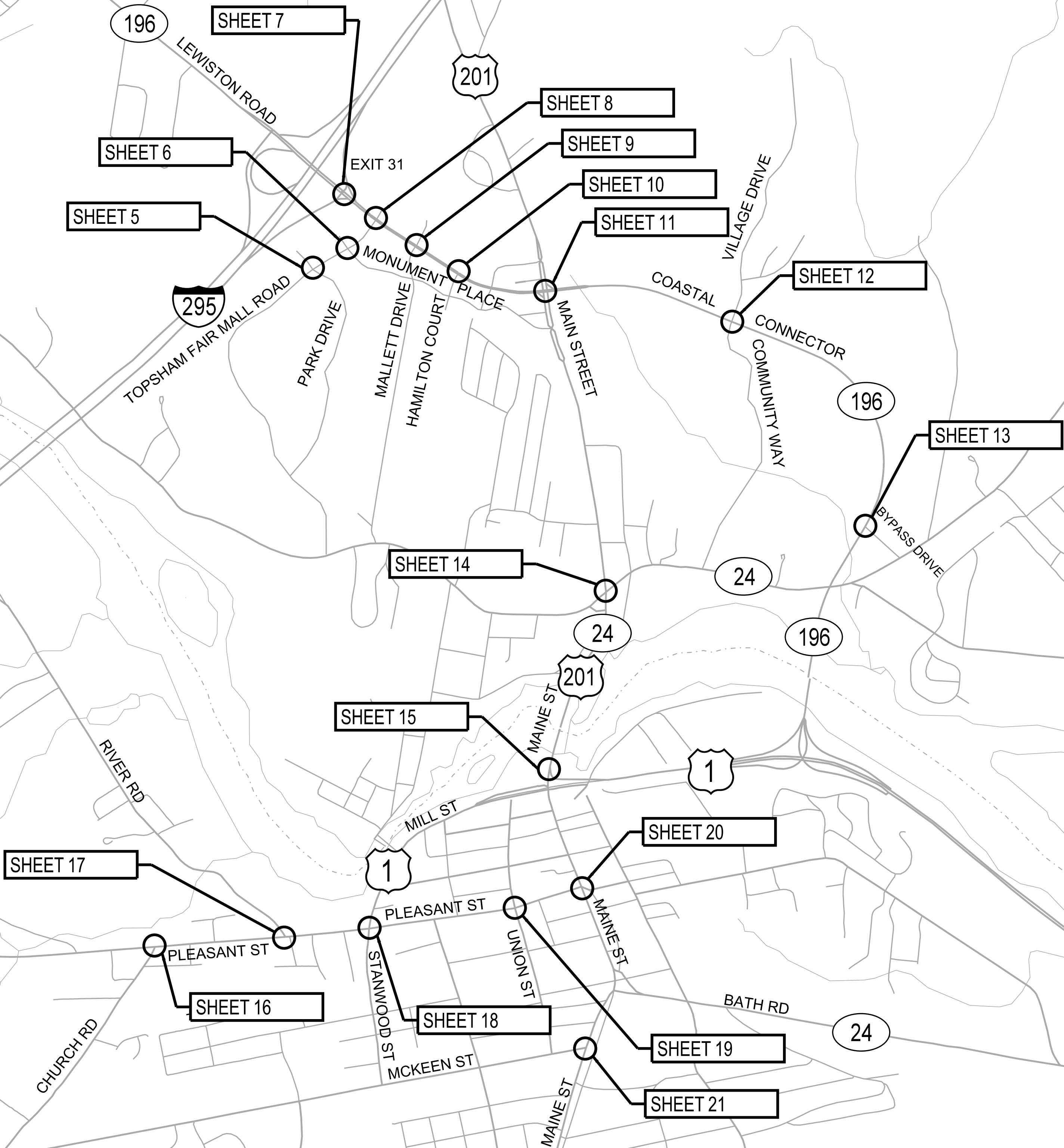
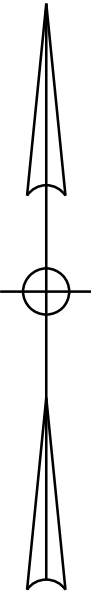
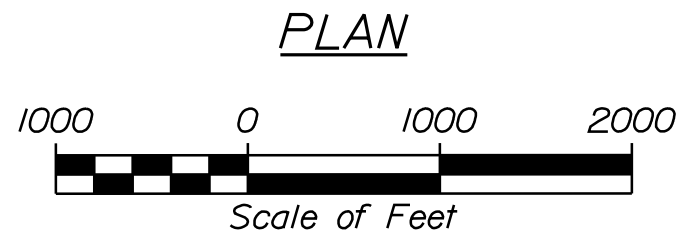
EXISTING SIGN SUMMARY


SYMBOL	SIGN	TEXT
	R3-6L	THRU LEFT
	R3-6R	THRU RIGHT
	R3-5L	LEFT ONLY
	R3-5A	THRU ONLY
	R3-5R	RIGHT ONLY
	R10-5	LEFT ON GREEN ARROW ONLY
	R10-11	NO TURN ON RED
	R10-11T	NO RIGHT TURN ON RED
	R10-12	LEFT TURN YIELD ON GREEN
	R10-15	TURNING TRAFFIC YIELD TO PEDESTRIANS
	R13-A	NO RIGHT TURN ON RED
	W25-2	ONCOMING TRAFFIC MAY HAVE EXTENDED GREEN




PROJ. MANAGER	B. KEEZER	BY	DATE
DESIGN-DETAILED	READY	J.ROBERT	12/22
CHECKED-REVIEWED	CEOBAY	CEOBAY	03/24
DESIGN-DETAILED			
DESIGN-DETAILED			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			








BRUNSWICK - TOPSHAM		STATE OF MAINE	
LOCATION MAP		DEPARTMENT OF TRANSPORTATION	
		PROJECT NO. 2613400 & 2613800	
		WIN	
		026134.00 & 026138.00	
		TRAFFIC PLANS	
SHEET NUMBER			
3		PROJ. MANAGER	B. KEEZER
		DESIGN-DETAILED	JROBERT
		CHECKED-REVIEWED	CEGBAY
		DESIGN-DETAILED2	03/24
		DESIGN-DETAILED3	
		REVISIONS 1	
		REVISIONS 2	
		REVISIONS 3	
		REVISIONS 4	
		FIELD CHANGES	
OF 22			


LEGEND


 - TOPSHAM/BRUNSWICK PROJECT

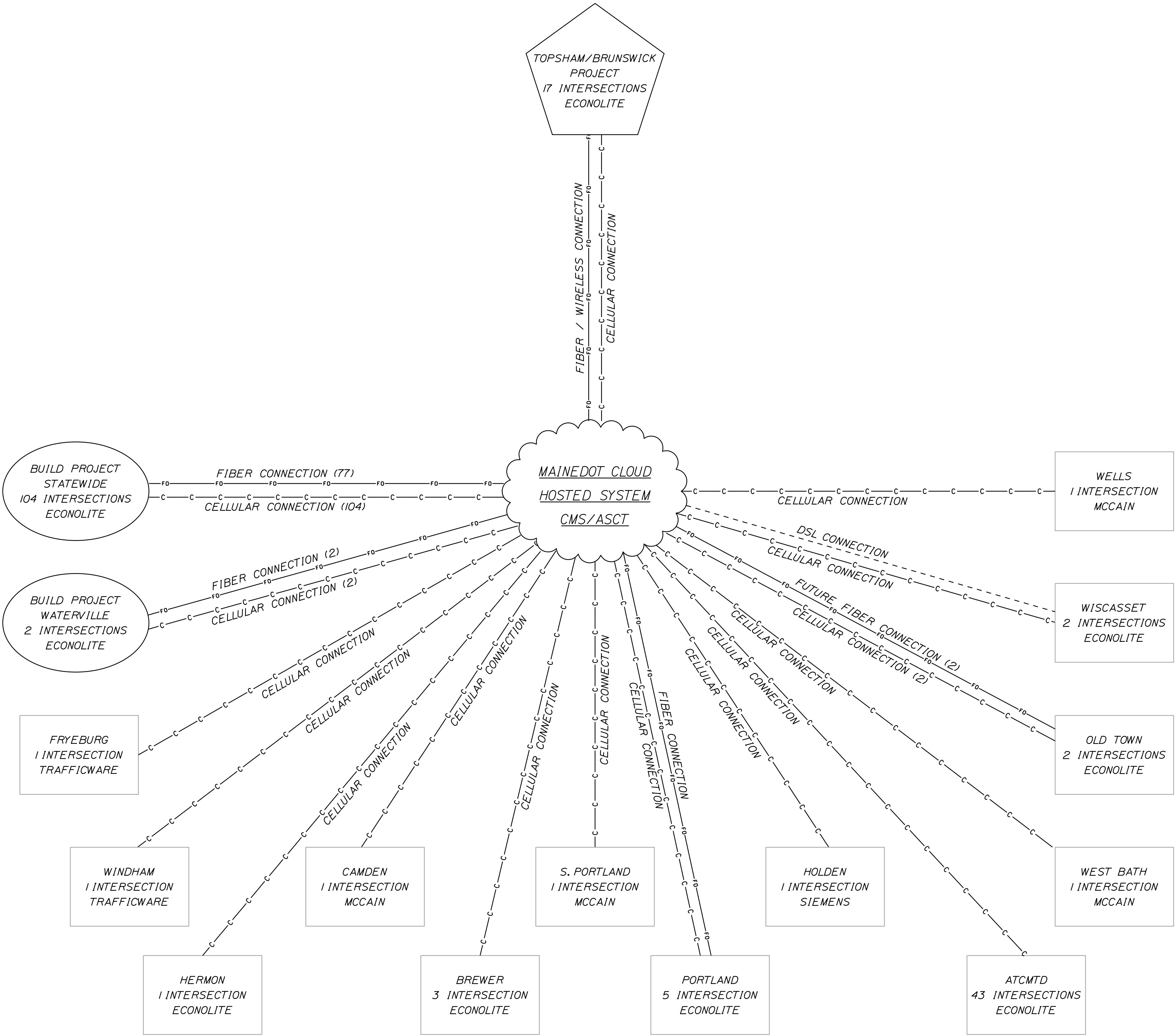
 - BUILD PROJECT

 - EXISTING INTERSECTION

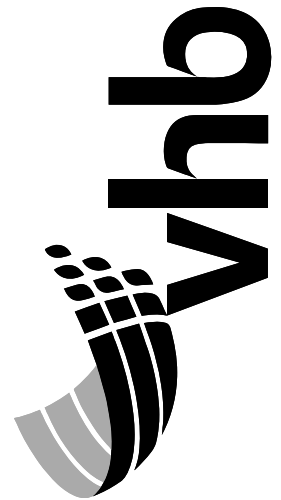
 - CELLULAR CONNECTION

 - DSL CONNECTION

 - FIBER CONNECTION



STATE OF MAINE  
DEPARTMENT OF TRANSPORTATION  
PROJECT NO. 2613400 & 2613800  
WIN  
026134.00 & 026138.00 TRAFFIC PLANS



PROJ. MANAGER	B. KEEZER	BY	DATE
DESIGN-DETAILED	J. ROBERT	12/22	
CHECKED-REVIEWED	CEOBAY	03/24	
DESIGN-DETAILED			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

BRUNSWICK-TOPSHAM

MAINEDOT CLOUD HOSTED NETWORK (1 OF 4)

SHEET NUMBER

4

OF 22

LIST OF WORK ITEMS

EQUIPMENT AND WORK ITEMS 643.71	QUANTITY
REMOVE AND SALVAGE EXISTING SIGNAL CONTROLLER, CONFLICT MONITOR AND VEHICLE DETECTION SYSTEM	-
FURNISH AND INSTALL NEW SHELF MOUNT ATC CONTROLLER	1
FURNISH AND INSTALL NEW CONFLICT MONITOR (CMU)	1
FURNISH AND INSTALL AI-500-085-04 FIELD MONITORING UNIT (FMU)	1
FURNISH AND INSTALL ONE-WAY, 5-INCH LOUVERED BACKPLATE WITH 3-INCH RETROREFLECTIVE BORDER FOR EXISTING 3-SECTION TRAFFIC SIGNAL HEAD	10
FURNISH AND INSTALL ONE-WAY, 5-INCH LOUVERED BACKPLATE WITH 3-INCH RETROREFLECTIVE BORDER FOR EXISTING 4-SECTION TRAFFIC SIGNAL HEAD	1
FURNISH AND INSTALL NEW SIGNAL CABLE	-
IMPLEMENT LOCAL AND SYSTEM SIGNAL TIMINGS	-
FURNISH AND INSTALL NON-INVASIVE STOP BAR VEHICLE DETECTION SYSTEM FOR 4 APPROACHES (ITEM 643.21)	1
FURNISH AND INSTALL ADVANCE VEHICLE DETECTION SYSTEM FOR NB AND SB APPROACHES (ITEM 643.22)	2
FURNISH AND INSTALL LANE USE SIGNS (ITEM 645.271)	4
FURNISH AND INSTALL ROADSIDE UNIT (RSU) (ITEM 654.351)	1

THE LISTED QUANTITIES ARE APPROXIMATE AND ARE FURNISHED FOR INFORMATION ONLY.

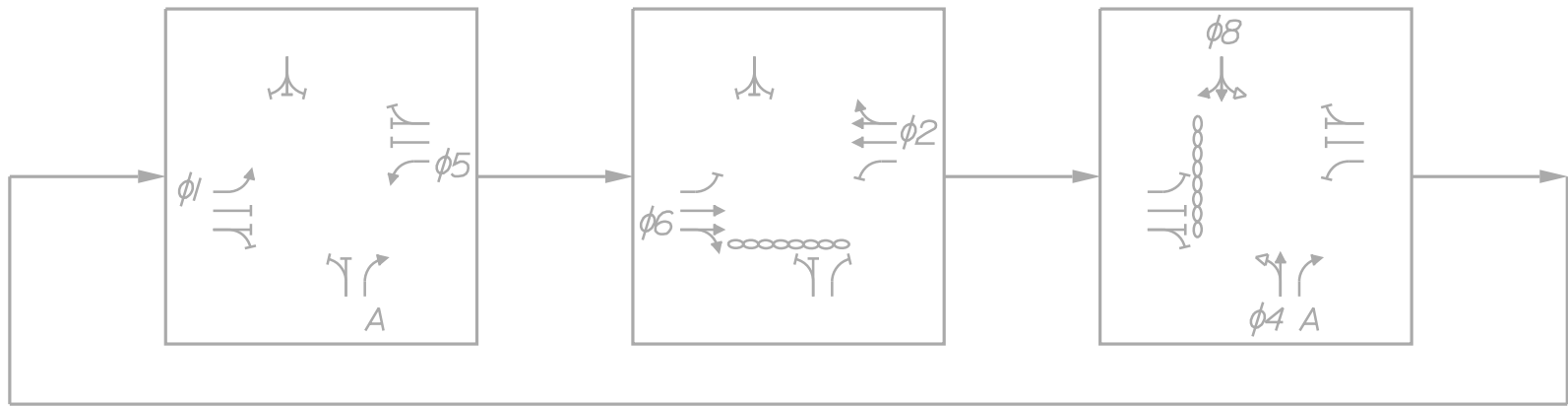
DETECTOR SCHEDULE

DETECTOR ZONE NO.	LOCATION	φ CALLED	φ EXT.	MODE A-ADVANCE B-STOPLINE	DELAY TIME	EXT. TIME
①	TFM NB LEFT	1	1	B	-	-
②	TFM NB THRU	6	6	B	-	-
③	TFM NB THRU-RIGHT	6	6	B	-	-
④	TFM SB LEFT	5	5	B	-	-
⑤	TFM SB THRU	2	2	B	-	-
⑥	TFM SB THRU-RIGHT	2	2	B	-	-
⑦	DRIVEWAY EB LEFT-THRU-RIGHT	8	8	B	-	-
⑧	PARK WB LEFT-THRU	4	4	B	-	-
⑨	PARK WB RIGHT	4	4	B	-	-
④9	TFM NB THRU	6	6	A	-	-
⑤2	TFM SB THRU	2	2	A	-	-

EXISTING PHASE SEQUENCE

RING AND BARRIER DIAGRAM

1 2 4  
5 6 8

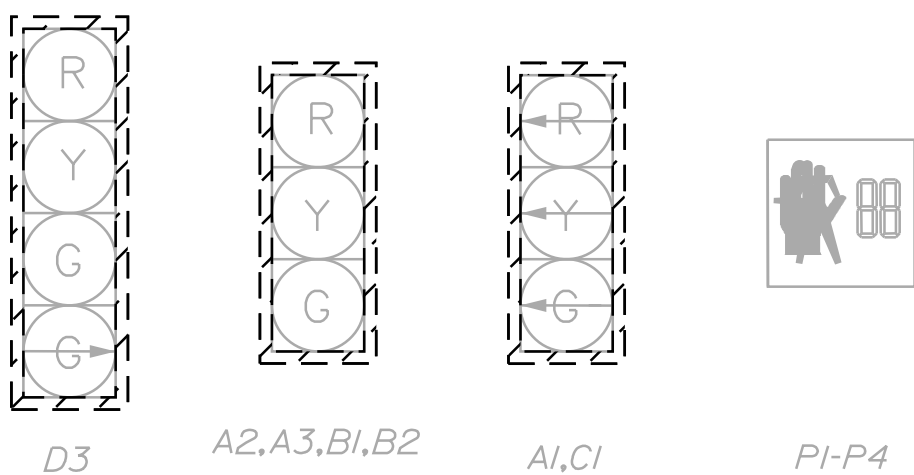


OVERLAP PHASING: OVL A = 4+5

PHASING NOTES:

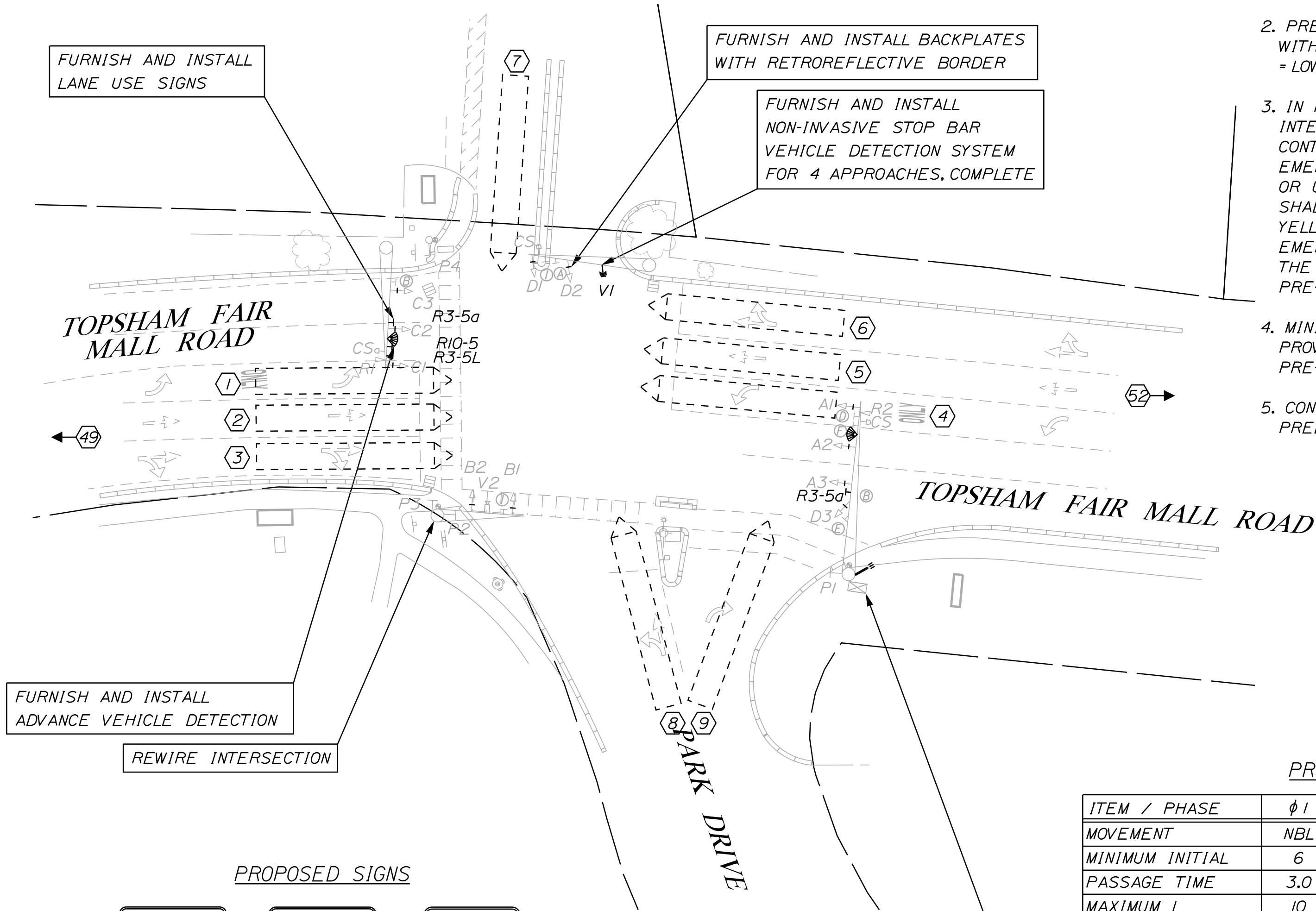
1. EACH PEDESTRIAN PHASE SHALL HAVE A MINIMUM OF A 4 SECOND LEADING PEDESTRIAN INTERVAL (LPI).
2. PEDESTRIAN PHASE UPON PUSH BUTTON ACTIVATION ONLY.

EXISTING INDICATIONS



NOTE:

ALL INDICATIONS SHALL BE 12" LIGHT EMITTING DIODES (LED'S) WITH 5" LOUVERED RETROREFLECTIVE BACKPLATES



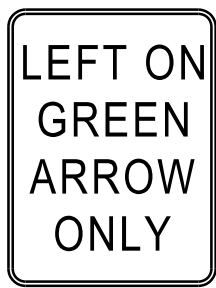
PROPOSED SIGNS



R3-5L  
30'x36"  
I-PROPOSED



R3-5a  
30'x36"  
2-PROPOSED



R10-5  
30'x36"  
I-PROPOSED

R-S EXISTING CONTROLLER, CONFLICT MONITOR AND VEHICLE DETECTION

FURNISH AND INSTALL NEW ATC CONTROLLER, CONFLICT MONITOR (CMU), ROADSIDE UNIT (RSU), FIELD MONITOR UNIT (FMU)

LOCATION 305

EMERGENCY VEHICLE PREEMPTION OPERATION

ID	PREEMPT ASSIGNMENT	TSP ASSIGNMENT	RECEIVER PRIORITY	ACTIVE PHASE
	1		NOT USED/RESERVED	
	2		NOT USED/RESERVED	
R1	3	7	1	φ2&φ5 (SB)
R2	4	8	2	φ1&φ6 (NB)
R3	5	9	NOT USED/RESERVED	
R4	6	10	NOT USED/RESERVED	

PRE-EMPTION NOTES:

1. EMERGENCY VEHICLE PRE-EMPTION SIGNALS SHALL BE TRANSMITTED BY OPTICAL EMITTERS (TYPICALLY EXISTING, BUT WHERE APPLICABLE PROVIDED BY OTHERS) AND/OR BY A DUAL MODE DSRC/C-V2X ON-BOARD UNIT (OBU) MOUNTED IN EMERGENCY VEHICLES COMMUNICATING WITH THE PROPOSED DUAL MODE DSRC/C-V2X ROAD SIDE UNIT (RSU) AND/OR RECEIVED BY OPTICAL DETECTORS LOCATED AT THE INTERSECTION.
2. PRE-EMPTION SIGNALS SHALL BE SERVICED ON A PRIORITY BASIS WITH RECEIVERS ASSIGNED DESCENDING PRIORITIES (1 = HIGHEST, 4 = LOWEST)
3. IN RESPONSE TO A PRE-EMPTION SIGNAL RECEIVED AT AN INTERSECTION BY AN OPTICAL DETECTOR AND/OR RSU, THE CONTROLLER SHALL HOLD OR ADVANCE TO AND HOLD THE EMERGENCY ACTIVE PHASE GREEN FOR A MINIMUM OF 10 SECONDS OR UNTIL THE PRE-EMPTION SIGNAL CEASES. THE CONTROLLER SHALL THEN TIME PRE-EMPTION PHASE CLEARANCE (3.5 SECONDS YELLOW AND 2.5 SECONDS ALL RED) AND SERVICE SUBSEQUENT EMERGENCY ACTIVE PHASES AS NECESSARY. AT THE COMPLETION OF THE PRE-EMPTION CYCLE, THE CONTROLLER SHALL TIME THE PRE-EMPTION CLEARANCE AND RESUME NORMAL SIGNAL OPERATION.
4. MINIMUM GREEN AND NORMAL VEHICLE CLEARANCE SHALL BE PROVIDED ON PHASES THAT ARE TO BE TERMINATED BY PRE-EMPTION DEMAND.
5. CONFIRMATION STROBES SHALL BE ILLUMINATED WHENEVER ANY PREEMPTION GREEN IS ON.

PROPOSED SIGNAL TIMING SCHEDULE

ITEM / PHASE	φ 1	φ 2	φ 3	φ 4	φ 5	φ 6	φ 7	φ 8
MOVEMENT	NBL	SBT	-	WB	SBL	NBT	-	EB
MINIMUM INITIAL	6	10	-	6	6	10	-	6
PASSAGE TIME	3.0	4.0	-	3.0	3.0	4.0	-	3.0
MAXIMUM 1	10	25	-	20	10	25	-	20
MAXIMUM 2	20	35	-	35	15	35	-	35
YELLOW	3.5	3.5	-	3.5	3.5	3.5	-	3.5
ALL RED	2.5	2.5	-	2.5	2.5	2.5	-	2.5
PED WALK	-	-	-	-	-	4	-	5
PED CLEAR	-	-	-	-	-	25	-	20
DYN MAX LIMIT	15	35	-	30	15	35	-	30
DYN MAX STEP	5	10	-	5	5	10	-	5
RECALL	0	S	-	0	0	S	-	0
DETECTOR	NL	NL	-	NL	NL	NL	-	NL
PRE-EMPT PRIORITY	4	3	-	-	3	4	-	-
FLASH	R	Y	-	R	R	Y	-	R
DUAL ENTRY	OFF	ON	-	ON	OFF	ON	-	ON

NOTES: S = SOFT RECALL Y = YELLOW D = DARK  
O = RECALL OFF R = RED  
L = LOCKING DETECTOR MEMORY  
NL = NON-LOCKING DETECTOR MEMORY

PLAN



-- RIGHT-OF-WAY IS BASED ON INTEGRATION OF GIS SHAPE FILES PROVIDED BY THE TOWN OF TOPSHAM, SIGNING, STRIPING, SIGNAL, AND RIGHT-OF-WAY PLANS DATED JANUARY 1997, APRIL 1994, AND JANUARY 1992.



LIST OF WORK ITEMS

EQUIPMENT AND WORK ITEMS 643.71	QUANTITY
REMOVE AND SALVAGE EXISTING SIGNAL CONTROLLER, CONFLICT MONITOR AND VEHICLE DETECTION SYSTEM	-
FURNISH AND INSTALL NEW SHELF MOUNT ATC CONTROLLER	1
FURNISH AND INSTALL NEW CONFLICT MONITOR (CMU)	1
FURNISH AND INSTALL AI-500-085-04 FIELD MONITORING UNIT (FMU)	1
FURNISH AND INSTALL ONE-WAY, 5-INCH LOUVERED BACKPLATE WITH 3-INCH RETROREFLECTIVE BORDER FOR EXISTING 3-SECTION TRAFFIC SIGNAL HEAD	10
FURNISH AND INSTALL NEW SIGNAL CABLE	-
IMPLEMENT LOCAL AND SYSTEM SIGNAL TIMINGS	-
FURNISH AND INSTALL NON-INVASIVE STOP BAR VEHICLE DETECTION SYSTEM FOR 4 APPROACHES (ITEM 643.21)	1
FURNISH AND INSTALL ADVANCE VEHICLE DETECTION SYSTEM FOR NB AND SB APPROACHES (ITEM 643.22)	2
FURNISH AND INSTALL LANE USE SIGNS (ITEM 645.271)	3
FURNISH AND INSTALL ROADSIDE UNIT (RSU) (ITEM 654.351)	1

THE LISTED QUANTITIES ARE APPROXIMATE AND ARE FURNISHED FOR INFORMATION ONLY.

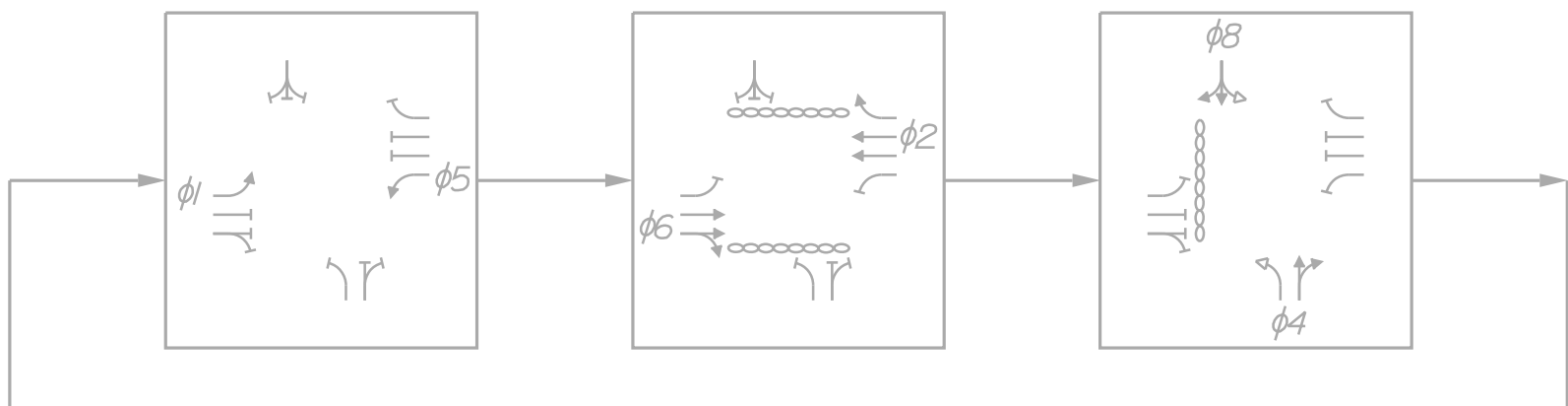
DETECTOR SCHEDULE

DETECTOR ZONE NO.	LOCATION	φ CALLED	φ EXT.	MODE A-ADVANCE B-STOPLINE	DELAY TIME	EXT. TIME
①	TFM NB LEFT	1	1	B	-	-
②	TFM NB THRU	6	6	B	-	-
③	TFM NB THRU-RIGHT	6	6	B	-	-
④	TFM SB LEFT	5	5	B	-	-
⑤	TFM SB THRU (INSIDE)	2	2	B	-	-
⑥	TFM SB THRU (OUTSIDE)	2	2	B	-	-
⑦	TFM SB RIGHT	2	2	B	5	-
⑧	DRIVEWAY EB LEFT-THRU-RIGHT	8	8	B	-	-
⑨	MONUMENT WB LEFT	4	4	B	-	-
⑩	MONUMENT WB THRU-RIGHT	4	4	B	-	-
④9	TFM NB THRU	6	6	A	-	-
⑤2	TFM SB THRU	2	2	A	-	-

EXISTING PHASE SEQUENCE

RING AND BARRIER DIAGRAM

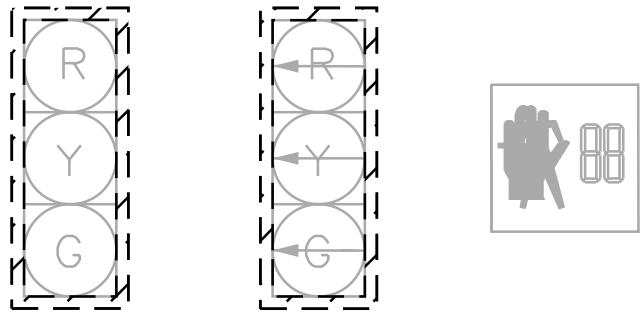
1 2 4  
5 6 8



PHASING NOTES:

- EACH PEDESTRIAN PHASE SHALL HAVE A MINIMUM OF A 4 SECOND LEADING PEDESTRIAN INTERVAL (LPI).
- PEDESTRIAN PHASE UPON PUSH BUTTON ACTIVATION ONLY.

EXISTING INDICATIONS



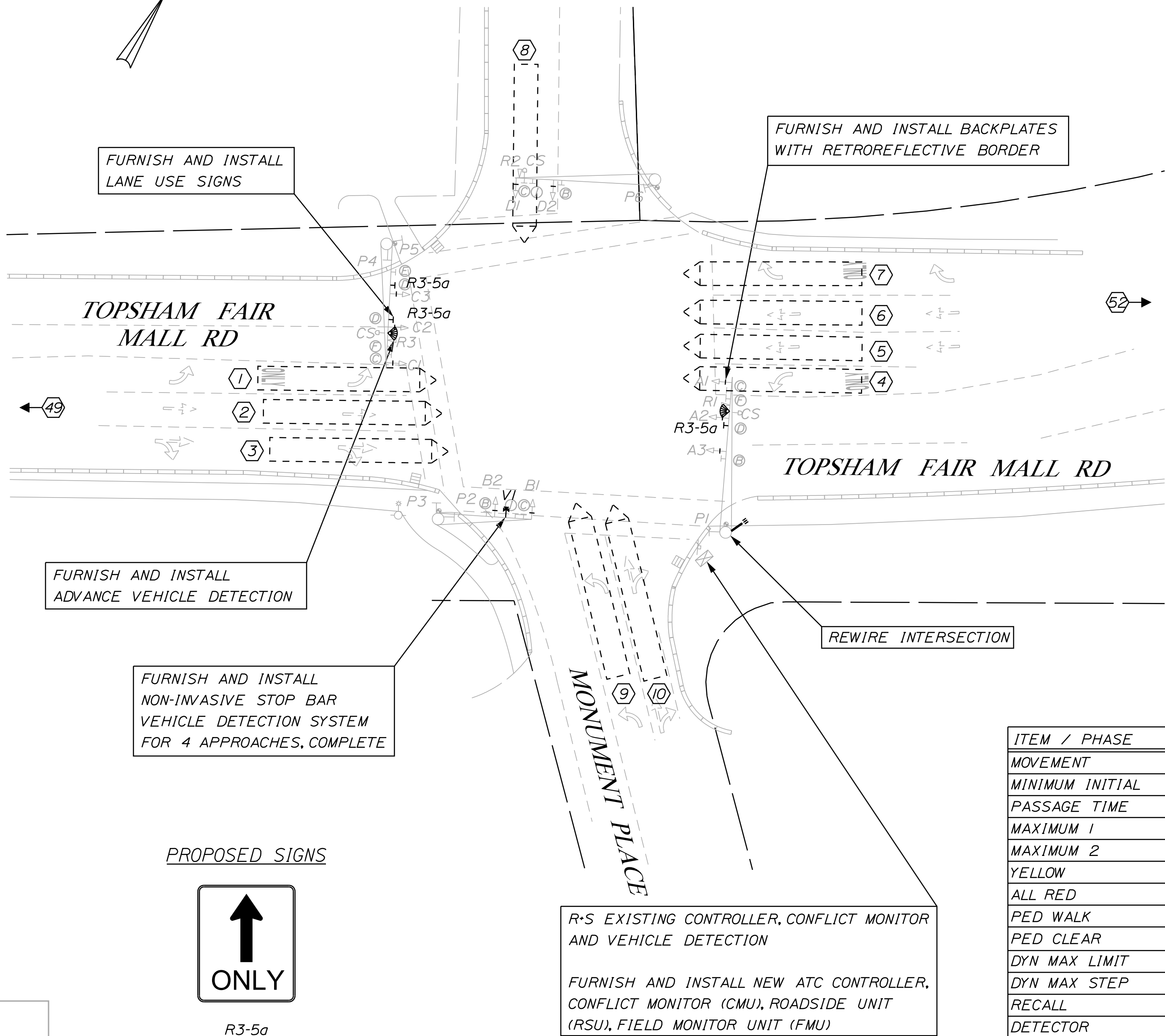
A2,A3,B1,B2  
C2,C3,D1,D2

A1,C1

PI-P6

NOTE:

ALL INDICATIONS SHALL BE 12" LIGHT EMITTING DIODES (LED'S) WITH 5' LOUVERED RETROREFLECTIVE BACKPLATES



PROPOSED SIGNS



R3-5a  
30"x36"  
3-PROPOSED

R-S EXISTING CONTROLLER, CONFLICT MONITOR AND VEHICLE DETECTION

FURNISH AND INSTALL NEW ATC CONTROLLER, CONFLICT MONITOR (CMU), ROADSIDE UNIT (RSU), FIELD MONITOR UNIT (FMU)

LOCATION 306

EMERGENCY VEHICLE PREEMPTION OPERATION

ID	PREEMPT ASSIGNMENT	TSP ASSIGNMENT	RECEIVER PRIORITY	ACTIVE PHASE
	1		NOT USED/RESERVED	
	2		NOT USED/RESERVED	
R3	3	7	1	φ2&φ5 (SB)
R1	4	8	2	φ1&φ6 (NB)
R2	5	9	3	φ8 (EB)
R4	6	10	NOT USED/RESERVED	

PRE-EMPTION NOTES:

- EMERGENCY VEHICLE PRE-EMPTION SIGNALS SHALL BE TRANSMITTED BY OPTICAL EMITTERS (TYPICALLY EXISTING, BUT WHERE APPLICABLE PROVIDED BY OTHERS) AND/OR BY A DUAL MODE DSRC/C-V2X ON-BOARD UNIT (OBU) MOUNTED IN EMERGENCY VEHICLES COMMUNICATING WITH THE PROPOSED DUAL MODE DSRC/C-V2X ROAD SIDE UNIT (RSU) AND/OR RECEIVED BY OPTICAL DETECTORS LOCATED AT THE INTERSECTION.
- PRE-EMPTION SIGNALS SHALL BE SERVICED ON A PRIORITY BASIS WITH RECEIVERS ASSIGNED DESCENDING PRIORITIES (1 = HIGHEST, 4 = LOWEST)
- IN RESPONSE TO A PRE-EMPTION SIGNAL RECEIVED AT AN INTERSECTION BY AN OPTICAL DETECTOR AND/OR RSU, THE CONTROLLER SHALL HOLD OR ADVANCE TO AND HOLD THE EMERGENCY ACTIVE PHASE GREEN FOR A MINIMUM OF 10 SECONDS OR UNTIL THE PRE-EMPTION SIGNAL CEASES. THE CONTROLLER SHALL THEN TIME PRE-EMPTION PHASE CLEARANCE (3.5 SECONDS YELLOW AND 2.5 SECONDS ALL RED) AND SERVICE SUBSEQUENT EMERGENCY ACTIVE PHASES AS NECESSARY. AT THE COMPLETION OF THE PRE-EMPTION CYCLE, THE CONTROLLER SHALL TIME THE PRE-EMPTION CLEARANCE AND RESUME NORMAL SIGNAL OPERATION.
- MINIMUM GREEN AND NORMAL VEHICLE CLEARANCE SHALL BE PROVIDED ON PHASES THAT ARE TO BE TERMINATED BY PRE-EMPTION DEMAND.
- CONFIRMATION STROBES SHALL BE ILLUMINATED WHENEVER ANY PREEMPTION GREEN IS ON.

PROPOSED SIGNAL TIMING SCHEDULE

ITEM / PHASE	φ 1	φ 2	φ 3	φ 4	φ 5	φ 6	φ 7	φ 8
MOVEMENT	NBL	SBT	-	WB	SBL	NBT	-	EB
MINIMUM INITIAL	6	10	-	6	6	10	-	6
PASSAGE TIME	3.0	4.0	-	3.0	3.0	4.0	-	3.0
MAXIMUM 1	10	25	-	20	10	25	-	20
MAXIMUM 2	15	45	-	40	15	45	-	40
YELLOW	3.5	3.5	-	3.5	3.5	3.5	-	3.5
ALL RED	2.5	2.5	-	2.5	2.5	2.5	-	2.5
PED WALK	-	4	-	5	-	4	-	-
PED CLEAR	-	24	-	21	-	24	-	-
DYN MAX LIMIT	15	35	-	30	15	35	-	30
DYN MAX STEP	5	10	-	5	5	10	-	5
RECALL	0	S	-	0	0	S	-	0
DETECTOR	NL	NL	-	NL	NL	NL	-	NL
PRE-EMPT PRIORITY	4	3	-	-	3	4	-	5
FLASH	R	Y	-	R	R	Y	-	R
DUAL ENTRY	OFF	ON	-	ON	OFF	ON	-	ON

NOTES: S = SOFT RECALL Y = YELLOW D = DARK  
O = RECALL OFF R = RED  
L = LOCKING DETECTOR MEMORY  
NL = NON-LOCKING DETECTOR MEMORY

PLAN



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LIST OF WORK ITEMS

EQUIPMENT AND WORK ITEMS 643.71	QUANTITY
REMOVE AND SALVAGE EXISTING SIGNAL CONTROLLER, CONFLICT MONITOR AND VEHICLE DETECTION SYSTEM	-
FURNISH AND INSTALL NEW SHELF MOUNT ATC CONTROLLER	1
FURNISH AND INSTALL NEW CONFLICT MONITOR (CMU)	1
FURNISH AND INSTALL AI-500-085-04 FIELD MONITORING UNIT (FMU)	1
FURNISH AND INSTALL NEW SIGNAL CABLE	-
IMPLEMENT LOCAL AND SYSTEM SIGNAL TIMINGS	-
FURNISH AND INSTALL NON-INVASIVE STOP BAR VEHICLE DETECTION SYSTEM FOR 3 APPROACHES (ITEM 643.21)	1
FURNISH AND INSTALL ADVANCE VEHICLE DETECTION SYSTEM FOR NB, EB AND WB APPROACHES (ITEM 643.22)	3
FURNISH AND INSTALL LANE USE SIGNS (ITEM 645.271)	2
FURNISH AND INSTALL ROADSIDE UNIT (RSU) (ITEM 654.351)	1

THE LISTED QUANTITIES ARE APPROXIMATE AND ARE FURNISHED FOR INFORMATION ONLY.

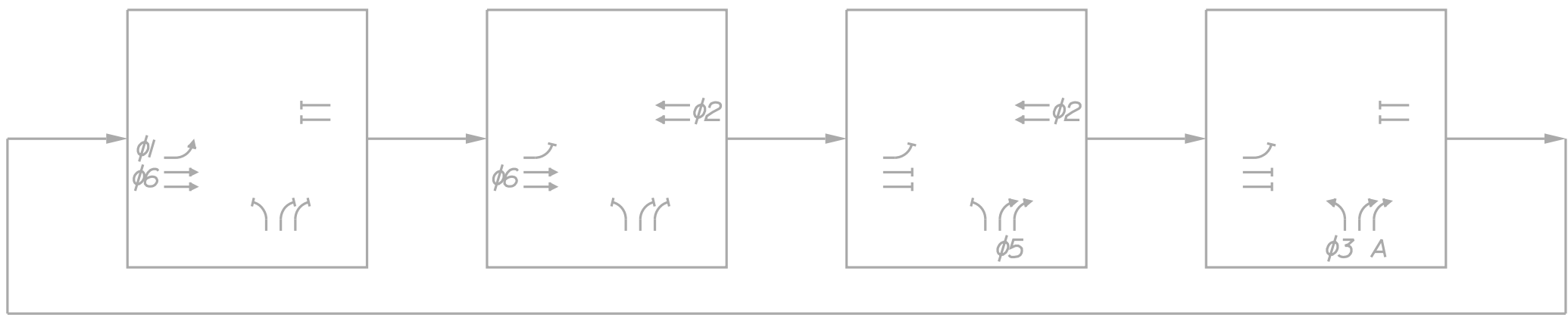
DETECTOR SCHEDULE

DETECTOR ZONE NO.	LOCATION	φ CALLED	φ EXT.	MODE A=ADVANCE B=STOPLINE	DELAY TIME	EXT. TIME
1	196 EB LEFT	1	1	B	-	-
2	196 EB THRU INSIDE	6	6	B	-	-
3	196 EB THRU OUTSIDE	6	6	B	-	-
4	196 WB THRU INSIDE	2	2	B	-	-
5	196 WB THRU OUTSIDE	2	2	B	-	-
6	OFF RAMP NB LEFT	3	3	B	-	-
7	OFF RAMP NB RIGHT INSIDE	5	5	B	-	-
8	OFF RAMP NB RIGHT OUTSIDE	5	5	B	-	-
49	196 EB ADVANCE	6	6	A	-	-
62	196 WB ADVANCE	2	2	A	-	-
63	OFF RAMP NB ADVANCE	3	3	A	-	-

EXISTING PHASE SEQUENCE

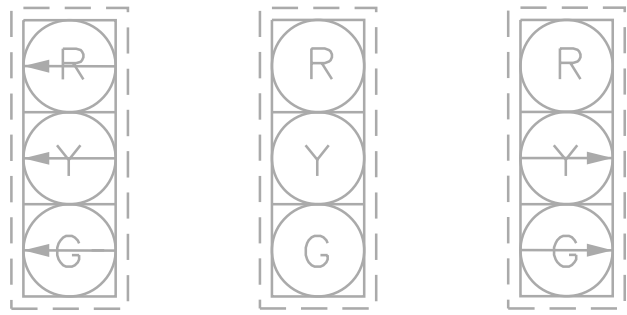
RING AND BARRIER DIAGRAM

1 2 3  
6 5



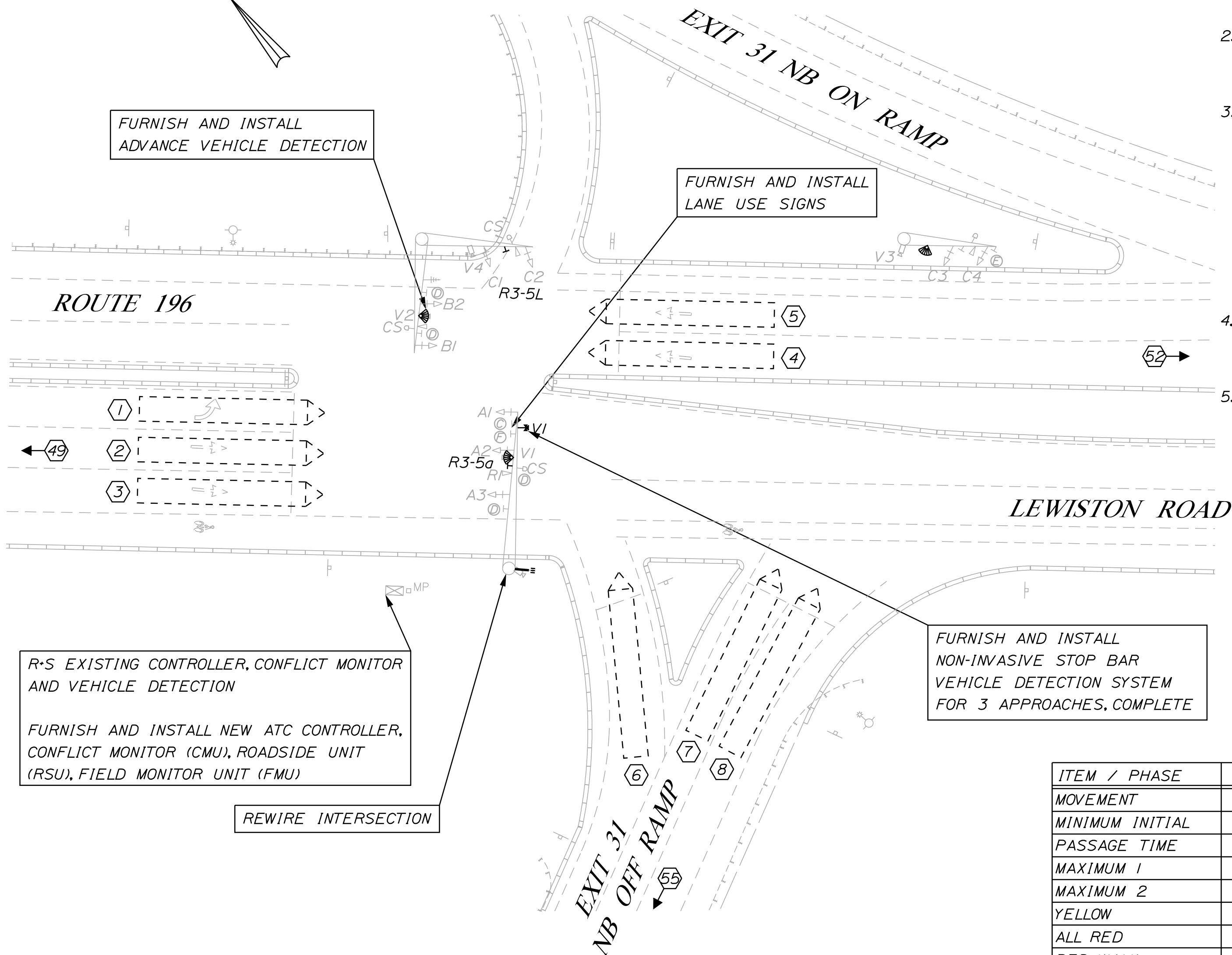
OVERLAP PHASING:  
OVL A = 3+5

EXISTING INDICATIONS



A1,C1,C2    A2,A3,B1,B2    C3,C4

NOTE:  
ALL INDICATIONS 12" LIGHT EMITTING DIODES (LED'S)  
WITH 5" LOUVERED RETROREFLECTIVE BACKPLATES



REWIRE INTERSECTION

PROPOSED SIGNS



R3-5L  
30"x36"  
I-PROPOSED



R3-5a  
30"x36"  
I-PROPOSED

LOCATION 307

EMERGENCY VEHICLE PREEMPTION OPERATION

ID	PREEMPT ASSIGNMENT	TSP ASSIGNMENT	RECEIVER PRIORITY	ACTIVE PHASE
	1		NOT USED/RESERVED	
	2		NOT USED/RESERVED	
R1	3	7	1	φ2 (WB)
R2	4	8	2	φ1&φ6 (EB)
R3	5	9	3	φ3 (NB)
	6	10	NOT USED/RESERVED	

PRE-EMPTION NOTES:

- EMERGENCY VEHICLE PRE-EMPTION SIGNALS SHALL BE TRANSMITTED BY OPTICAL EMITTERS (TYPICALLY EXISTING, BUT WHERE APPLICABLE PROVIDED BY OTHERS) AND/OR BY A DUAL MODE DSRC/C-V2X ON-BOARD UNIT (OBU) MOUNTED IN EMERGENCY VEHICLES COMMUNICATING WITH THE PROPOSED DUAL MODE DSRC/C-V2X ROAD SIDE UNIT (RSU) AND/OR RECEIVED BY OPTICAL DETECTORS LOCATED AT THE INTERSECTION.
- PRE-EMPTION SIGNALS SHALL BE SERVICED ON A PRIORITY BASIS WITH RECEIVERS ASSIGNED DESCENDING PRIORITIES (1 = HIGHEST, 4 = LOWEST)
- IN RESPONSE TO A PRE-EMPTION SIGNAL RECEIVED AT AN INTERSECTION BY AN OPTICAL DETECTOR AND/OR RSU, THE CONTROLLER SHALL HOLD OR ADVANCE TO AND HOLD THE EMERGENCY ACTIVE PHASE GREEN FOR A MINIMUM OF 10 SECONDS OR UNTIL THE PRE-EMPTION SIGNAL CEASES. THE CONTROLLER SHALL THEN TIME PRE-EMPTION PHASE CLEARANCE (4.0 SECONDS YELLOW AND 2.5 SECONDS ALL RED) AND SERVICE SUBSEQUENT EMERGENCY ACTIVE PHASES AS NECESSARY. AT THE COMPLETION OF THE PRE-EMPTION CYCLE, THE CONTROLLER SHALL TIME THE PRE-EMPTION CLEARANCE AND RESUME NORMAL SIGNAL OPERATION.
- MINIMUM GREEN AND NORMAL VEHICLE CLEARANCE SHALL BE PROVIDED ON PHASES THAT ARE TO BE TERMINATED BY PRE-EMPTION DEMAND.
- CONFIRMATION STROBES SHALL BE ILLUMINATED WHENEVER ANY PREEMPTION GREEN IS ON.

PROPOSED SIGNAL TIMING SCHEDULE

ITEM / PHASE	φ 1	φ 2	φ 3	φ 4	φ 5	φ 6	φ 7	φ 8
MOVEMENT	EBL	WB	NBL	-	NBR	EBT	-	-
MINIMUM INITIAL	5	7	5	-	5	7	-	-
PASSAGE TIME	3.0	4.0	4.0	-	3.0	4.0	-	-
MAXIMUM 1	20	40	30	-	15	30	-	-
MAXIMUM 2	20	60	30	-	15	60	-	-
YELLOW	3.5	4.0	3.5	-	4.0	3.5	-	-
ALL RED	2.5	2.0	2.5	-	2.0	2.5	-	-
PED WALK	-	-	-	-	-	-	-	-
PED CLEAR	-	-	-	-	-	-	-	-
DYN MAX LIMIT	25	60	40	-	20	50	-	-
DYN MAX STEP	5	10	5	-	5	10	-	-
RECALL	0	MIN	0	-	0	MIN	-	-
DETECTOR	NL	NL	NL	-	NL	NL	-	-
PRE-EMPT PRIORITY	4	3	5	-	-	4	-	-
FLASH	R	Y	R	-	R	Y	-	-
DUAL ENTRY	OFF	ON	OFF	-	OFF	ON	-	-

NOTES: S = SOFT RECALL Y = YELLOW D = DARK  
O = RECALL OFF R = RED  
L = LOCKING DETECTOR MEMORY  
NL = NON-LOCKING DETECTOR MEMORY

PLAN



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PROJ. MANAGER	B. KEEZER	BY	DATE
DESIGN-DETAILED	J. ROBERT	12/22	
CHECKED-REVIEWED	CEOBAY	03/24	
DESIGN-DETAILED			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

Filename: 008\_Signal\_04.dgn

THE LISTED QUANTITIES ARE APPROXIMATE AND  
ARE FURNISHED FOR INFORMATION ONLY.

DETECTOR ZONE NO.	LOCATION	$\phi$ CALLED	$\phi$ EXT.	MODE A=ADVANCE B=STOPLINE	DELAY TIME	EXT. TIME
①	196 EB LEFT	1	1	B	-	-
②	196 EB THRU INSIDE	6	6	B	-	-
③	196 EB THRU OUTSIDE	6	6	B	-	-
④	196 EB RIGHT	6	6	B	5	-
⑤	196 WB LEFT INSIDE	5	5	B	-	-
⑥	196 WB LEFT OUTSIDE	5	5	B	-	-
⑦	196 WB THRU	2	2	B	-	-
⑧	196 WB THRU-RIGHT	2	2	B	-	-
⑨	DRIVEWAY SB LEFT-THRU-RIGHT	3	3	B	-	-
⑩	TFM NB LEFT	4	4	B	-	-
⑪	TFM NB LEFT-THRU	4	4	B	-	-
⑫	TFM NB RIGHT INSIDE	4	4	B	-	-
⑬	TFM NB RIGHT OUTSIDE	4	4	B	-	-
⑭	196 EB ADVANCE	6	6	A	-	-
⑮	196 WB ADVANCE	2	2	A	-	-

2	1	3	4
5	6		

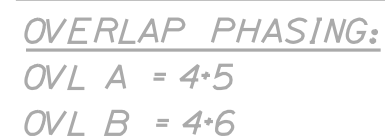
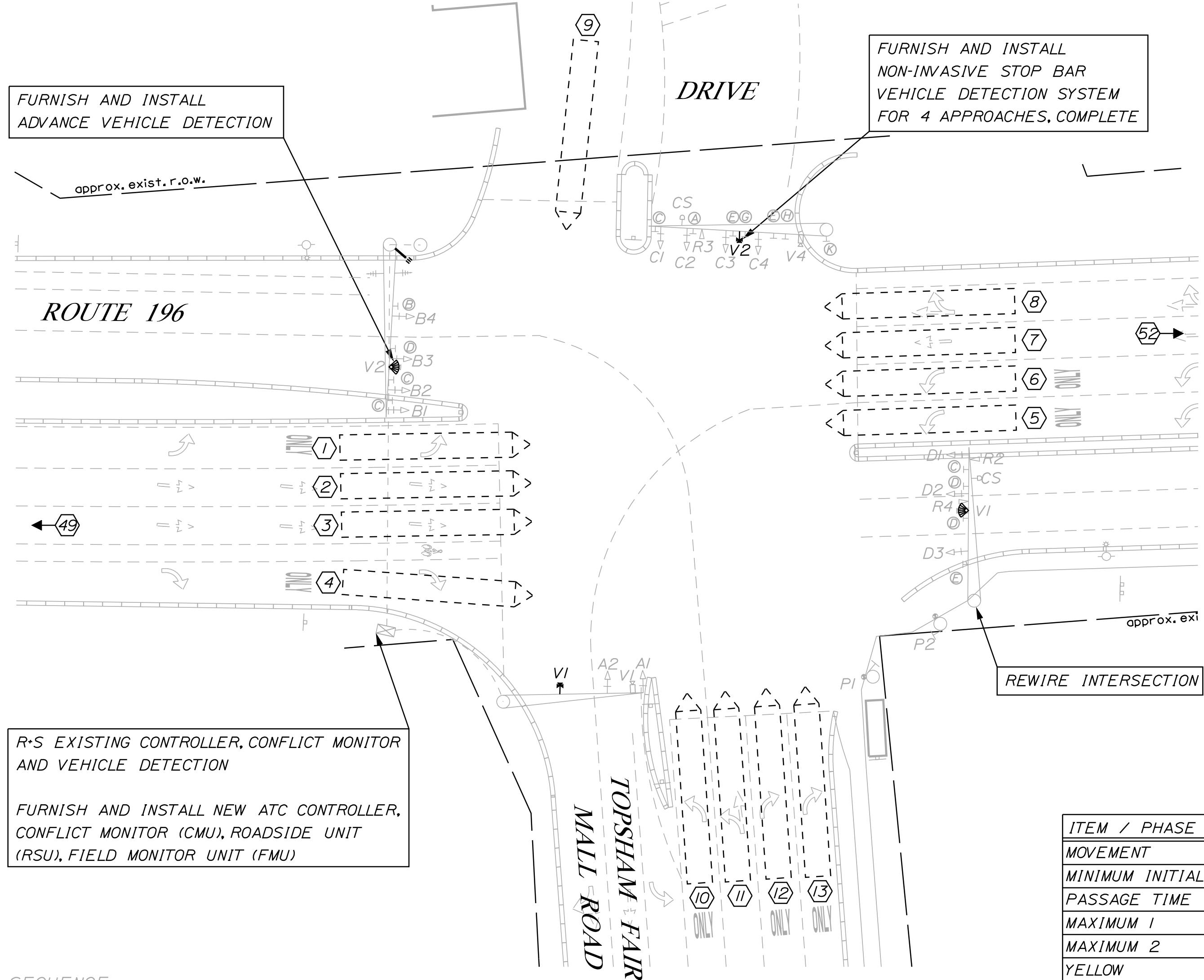


Diagram illustrating the eight possible orientations of a 2x2x2 cube. The cube is shown in a 2x2 grid of orientations. The top row shows the cube with the front face (R) and the right face (Y) visible. The bottom row shows the cube with the front face (R) and the left face (L) visible. The orientations are labeled C2, B1, B2, C1, D1, A1, A2, C3, C4, D3, and P1-P2.

ALL INDICATIONS 12" LIGHT EMITTING DIODES (LED'S)  
WITH 5" LOUVERED RETROREFLECTIVE BACKPLATES



PRE-EMPTION NOTES:

1. EMERGENCY VEHICLE PRE-EMPTION SIGNALS SHALL BE TRANSMITTED BY OPTICAL EMITTERS (TYPICALLY EXISTING, BUT WHERE APPLICABLE PROVIDED BY OTHERS) AND/OR BY A DUAL MODE DSRC/C-V2X ON-BOARD UNIT (OBU) MOUNTED IN EMERGENCY VEHICLES COMMUNICATING WITH THE PROPOSED DUAL MODE DSRC/C-V2X ROAD SIDE UNIT (RSU) AND/OR RECEIVED BY OPTICAL DETECTORS LOCATED AT THE INTERSECTION.
2. PRE-EMPTION SIGNALS SHALL BE SERVICED ON A PRIORITY BASIS WITH RECEIVERS ASSIGNED DESCENDING PRIORITIES (1 = HIGHEST, 4 = LOWEST)
3. IN RESPONSE TO A PRE-EMPTION SIGNAL RECEIVED AT AN INTERSECTION BY AN OPTICAL DETECTOR AND/OR RSU, THE CONTROLLER SHALL HOLD OR ADVANCE TO AND HOLD THE EMERGENCY ACTIVE PHASE GREEN FOR A MINIMUM OF 10 SECONDS OR UNTIL THE PRE-EMPTION SIGNAL CEASES. THE CONTROLLER SHALL THEN TIME PRE-EMPTION PHASE CLEARANCE (3.5 SECONDS YELLOW AND 2.5 SECONDS ALL RED) AND SERVICE SUBSEQUENT EMERGENCY ACTIVE PHASES AS NECESSARY. AT THE COMPLETION OF THE PRE-EMPTION CYCLE, THE CONTROLLER SHALL TIME THE PRE-EMPTION CLEARANCE AND RESUME NORMAL SIGNAL OPERATION.
4. MINIMUM GREEN AND NORMAL VEHICLE CLEARANCE SHALL BE PROVIDED ON PHASES THAT ARE TO BE TERMINATED BY PRE-EMPTION DEMAND.
5. CONFIRMATION STROBES SHALL BE ILLUMINATED WHENEVER ANY PREEMPTION GREEN IS ON.

NOTES: S = SOFT RECALL Y = YELLOW D = DARK  
O = RECALL OFF R = RED  
L = LOCKING DETECTOR MEMORY  
NL = NON-LOCKING DETECTOR MEMORY

25 0 25 50

Scale of Feet

\* - RIGHT-OF-WAY IS BASED ON INTEGRATION OF GIS SHAPE FILES PROVIDED BY THE TOWN OF TOPSHAM, SIGNING, STRIPING, SIGNAL, AND RIGHT-OF-WAY PLANS DATED JANUARY 1997, APRIL 1994, AND JANUARY 1992.



Filename: 009\_Signal\_05.dgn

THE LISTED QUANTITIES ARE APPROXIMATE AND  
ARE FURNISHED FOR INFORMATION ONLY.

1. EACH PEDESTRIAN PHASE SHALL HAVE A MINIMUM OF A 4 SECOND LEADING PEDESTRIAN INTERVAL (LPI).
2. PEDESTRIAN PHASE UPON PUSH BUTTON ACTIVATION ONLY.

NOTE:  
ALL INDICATIONS 12" LIGHT EMITTING DIODES (LED'S)  
WITH 5" LOUVERED RETROREFLECTIVE BACKPLATES



5. CONFIRMATION STROBES SHALL BE ILLUMINATED WHENEVER ANY  
PREEMPTION GREEN IS ON.

NOTES: S = SOFT RECALL Y = YELLOW D = DARK  
O = RECALL OFF R = RED  
L = LOCKING DETECTOR MEMORY  
NL = NON-LOCKING DETECTOR MEMORY

25 0 25 50

Scale of Feet

\* - RIGHT-OF-WAY IS BASED ON INTEGRATION OF GIS SHAPE FILES PROVIDED BY THE TOWN OF TOPSHAM, SIGNING, STRIPING, SIGNAL, AND RIGHT-OF-WAY PLANS DATED JANUARY 1997, APRIL 1994, AND JANUARY 1992.

LIST OF WORK ITEMS

EQUIPMENT AND WORK ITEMS 643.71	QUANTITY
REMOVE AND SALVAGE EXISTING SIGNAL CONTROLLER, CONFLICT MONITOR AND VEHICLE DETECTION SYSTEM	-
FURNISH AND INSTALL NEW SHELF MOUNT ATC CONTROLLER	1
FURNISH AND INSTALL NEW CONFLICT MONITOR (CMU)	1
FURNISH AND INSTALL AI-500-085-04 FIELD MONITORING UNIT (FMU)	1
FURNISH AND INSTALL NEW SIGNAL CABLE	-
IMPLEMENT LOCAL AND SYSTEM SIGNAL TIMINGS	-
FURNISH AND INSTALL NON-INVASIVE STOP BAR VEHICLE DETECTION SYSTEM FOR 3 APPROACHES (ITEM 643.21)	1
FURNISH AND INSTALL ADVANCE VEHICLE DETECTION SYSTEM FOR EB AND WB APPROACHES (ITEM 643.22)	2
FURNISH AND INSTALL ROADSIDE UNIT (RSU) (ITEM 654.351)	1

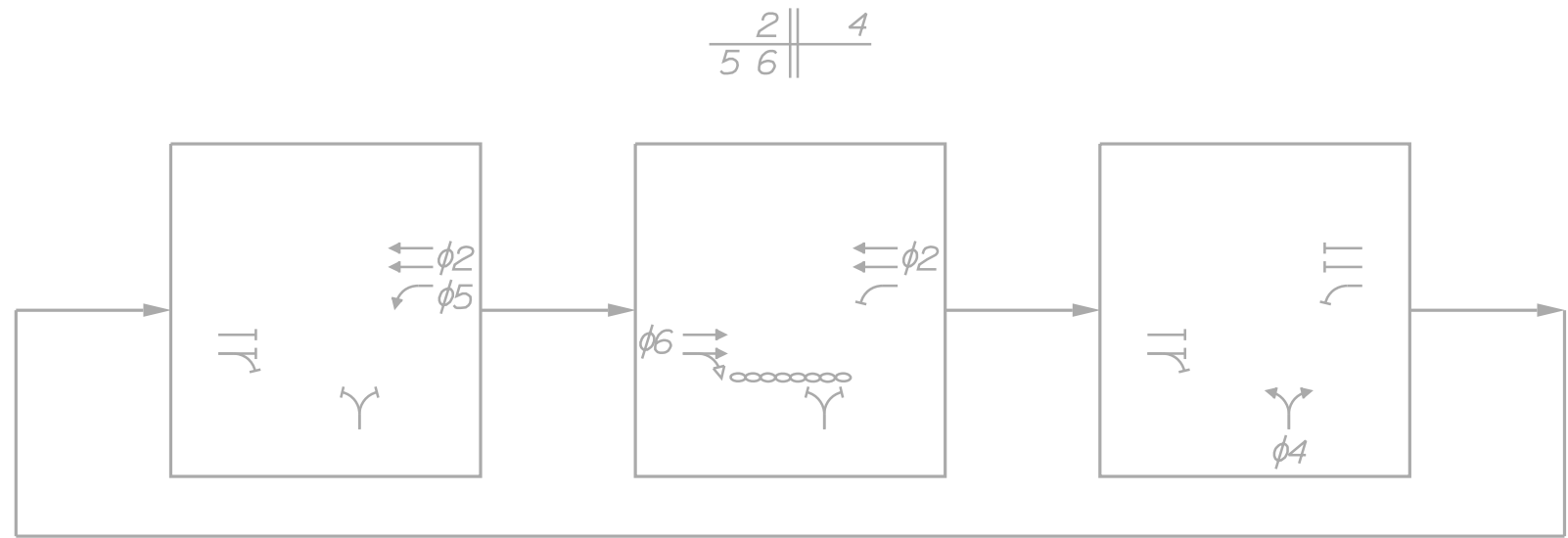
THE LISTED QUANTITIES ARE APPROXIMATE AND ARE FURNISHED FOR INFORMATION ONLY.

DETECTOR SCHEDULE

DETECTOR ZONE NO.	LOCATION	φ CALLED	φ EXT.	MODE A-ADVANCE B-STOPLINE	DELAY TIME	EXT. TIME
①	196 EB THRU	6	6	B	-	-
②	196 EB THRU-RIGHT	6	6	B	-	-
③	196 WB LEFT	5	5	B	-	-
④	196 WB THRU	2	2	B	-	-
⑤	196 WB THRU-RIGHT	2	2	B	-	-
⑥	HAMILTON NB LEFT-THRU-RIGHT	4	4	B	-	-
④9	196 EB ADVANCE	6	6	A	-	-
⑤2	196 WB ADVANCE	2	2	A	-	-

EXISTING PHASE SEQUENCE

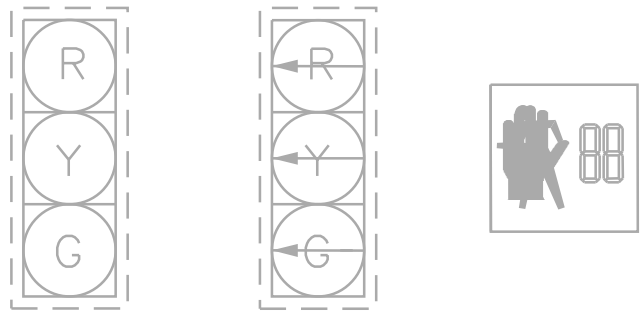
RING AND BARRIER DIAGRAM



PHASING NOTES:

- EACH PEDESTRIAN PHASE SHALL HAVE A MINIMUM OF A 4 SECOND LEADING PEDESTRIAN INTERVAL (LPI).
- PEDESTRIAN PHASE UPON PUSH BUTTON ACTIVATION ONLY.

EXISTING INDICATIONS



A1,A2,C2  
C3,D1,D2

CI

PI-P2

NOTE:  
ALL INDICATIONS 12" LIGHT EMITTING DIODES (LED'S)  
WITH 5" LOUVERED RETROREFLECTIVE BACKPLATES

FURNISH AND INSTALL  
NON-INVASIVE STOP BAR  
VEHICLE DETECTION SYSTEM  
FOR 3 APPROACHES, COMPLETE

FURNISH AND INSTALL  
ADVANCE VEHICLE DETECTION

REWIRE INTERSECTION

R-S EXISTING CONTROLLER, CONFLICT MONITOR  
AND VEHICLE DETECTION

FURNISH AND INSTALL NEW ATC CONTROLLER,  
CONFLICT MONITOR (CMU), ROADSIDE UNIT  
(RSU), FIELD MONITOR UNIT (FMU)

LOCATION 310

EMERGENCY VEHICLE PREEMPTION OPERATION

ID	PREEMPT ASSIGNMENT	TSP ASSIGNMENT	RECEIVER PRIORITY	ACTIVE PHASE
	1		NOT USED/RESERVED	
	2		NOT USED/RESERVED	
R3	3	7	1	φ2&φ5 (WB)
R1	4	8	2	φ6 (EB)
R4	5	9	3	φ4 (NB)
	6	10	NOT USED/RESERVED	

PRE-EMPTION NOTES:

- EMERGENCY VEHICLE PRE-EMPTION SIGNALS SHALL BE TRANSMITTED BY OPTICAL EMITTERS (TYPICALLY EXISTING, BUT WHERE APPLICABLE PROVIDED BY OTHERS) AND/OR BY A DUAL MODE DSRC/C-V2X ON-BOARD UNIT (OBU) MOUNTED IN EMERGENCY VEHICLES COMMUNICATING WITH THE PROPOSED DUAL MODE DSRC/C-V2X ROAD SIDE UNIT (RSU) AND/OR RECEIVED BY OPTICAL DETECTORS LOCATED AT THE INTERSECTION.
- PRE-EMPTION SIGNALS SHALL BE SERVICED ON A PRIORITY BASIS WITH RECEIVERS ASSIGNED DESCENDING PRIORITIES (1 = HIGHEST, 4 = LOWEST)
- IN RESPONSE TO A PRE-EMPTION SIGNAL RECEIVED AT AN INTERSECTION BY AN OPTICAL DETECTOR AND/OR RSU ,THE CONTROLLER SHALL HOLD OR ADVANCE TO AND HOLD THE EMERGENCY ACTIVE PHASE GREEN FOR A MINIMUM OF 10 SECONDS OR UNTIL THE PRE-EMPTION SIGNAL CEASES. THE CONTROLLER SHALL THEN TIME PRE-EMPTION PHASE CLEARANCE (4.0 SECONDS YELLOW AND 2.5 SECONDS ALL RED) AND SERVICE SUBSEQUENT EMERGENCY ACTIVE PHASES AS NECESSARY. AT THE COMPLETION OF THE PRE-EMPTION CYCLE, THE CONTROLLER SHALL TIME THE PRE-EMPTION CLEARANCE AND RESUME NORMAL SIGNAL OPERATION.
- MINIMUM GREEN AND NORMAL VEHICLE CLEARANCE SHALL BE PROVIDED ON PHASES THAT ARE TO BE TERMINATED BY PRE-EMPTION DEMAND.
- CONFIRMATION STROBES SHALL BE ILLUMINATED WHENEVER ANY PREEMPTION GREEN IS ON.

PROPOSED SIGNAL TIMING SCHEDULE

ITEM / PHASE	φ 1	φ 2	φ 3	φ 4	φ 5	φ 6	φ 7	φ 8
MOVEMENT	-	WB	-	NB	WBL	EBT	-	-
MINIMUM INITIAL	-	10	-	5	5	10	-	-
PASSAGE TIME	-	3.0	-	3.0	3.0	3.0	-	-
MAXIMUM 1	-	35	-	15	15	35	-	-
MAXIMUM 2	-	60	-	25	20	60	-	-
YELLOW	-	4.0	-	3.5	4.0	4.0	-	-
ALL RED	-	2.0	-	2.5	2.0	2.0	-	-
PED WALK	-	-	-	-	-	5	-	-
PED CLEAR	-	-	-	-	-	15	-	-
DYN MAX LIMIT	-	45	-	20	20	45	-	-
DYN MAX STEP	-	10	-	5	5	10	-	-
RECALL	-	MIN	-	0	0	MIN	-	-
DETECTOR	-	NL	-	NL	NL	NL	-	-
PRE-EMPT PRIORITY	-	3	-	5	3	4	-	-
FLASH	-	Y	-	R	R	Y	-	-
DUAL ENTRY	-	ON	-	OFF	OFF	ON	-	-

NOTES: S = SOFT RECALL Y = YELLOW D = DARK  
O = RECALL OFF R = RED  
L = LOCKING DETECTOR MEMORY  
NL = NON-LOCKING DETECTOR MEMORY

PLAN



\* - RIGHT-OF-WAY IS BASED ON INTEGRATION OF GIS SHAPE FILES PROVIDED BY THE TOWN OF TOPSHAM, SIGNING, STRIPING, SIGNAL, AND RIGHT-OF-WAY PLANS DATED JANUARY 1997, APRIL 1994, AND JANUARY 1992.



LIST OF WORK ITEMS

EQUIPMENT AND WORK ITEMS 643.71	QUANTITY
REMOVE AND SALVAGE EXISTING SIGNAL CONTROLLER, CONFLICT MONITOR AND VEHICLE DETECTION SYSTEM	-
FURNISH AND INSTALL NEW SHELF MOUNT ATC CONTROLLER	1
FURNISH AND INSTALL NEW CONFLICT MONITOR (CMU)	1
FURNISH AND INSTALL AI-500-085-04 FIELD MONITORING UNIT (FMU)	1
FURNISH AND INSTALL NEW SIGNAL CABLE	-
IMPLEMENT LOCAL AND SYSTEM SIGNAL TIMINGS	-
FURNISH AND INSTALL NON-INVASIVE STOP BAR VEHICLE DETECTION SYSTEM FOR 4 APPROACHES (ITEM 643.21)	1
FURNISH AND INSTALL ADVANCE VEHICLE DETECTION SYSTEM FOR EB AND WB APPROACHES (ITEM 643.22)	2
FURNISH AND INSTALL LANE USE SIGNS (ITEM 645.271)	1
FURNISH AND INSTALL ROADSIDE UNIT (RSU) (ITEM 654.351)	1

THE LISTED QUANTITIES ARE APPROXIMATE AND ARE FURNISHED FOR INFORMATION ONLY.

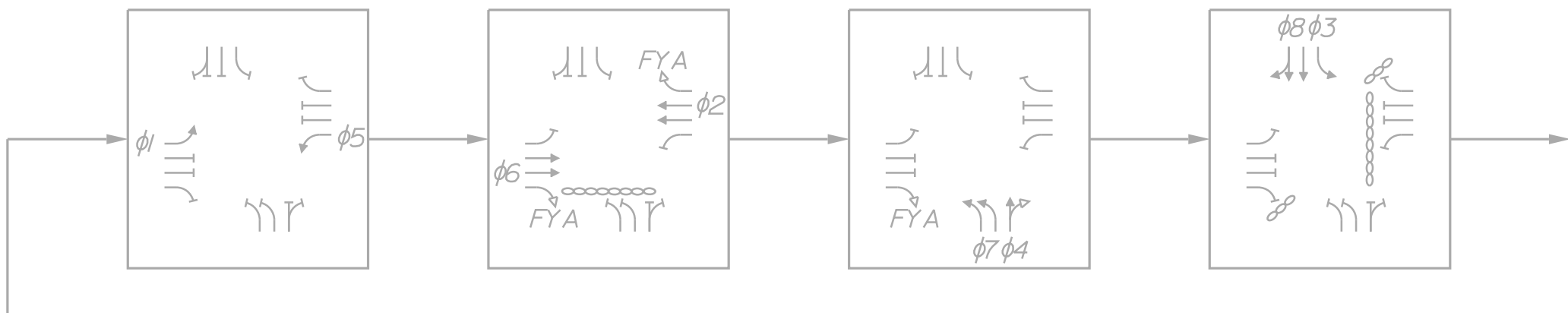
DETECTOR SCHEDULE

DETECTOR ZONE NO.	LOCATION	φ CALLED	φ EXT.	MODE A-ADVANCE B-STOPLINE	DELAY TIME	EXT. TIME
①	196 EB LEFT	1	1	B	-	-
②	196 EB THRU INSIDE	6	6	B	-	-
③	196 EB THRU OUTSIDE	6	6	B	-	-
④	196 WB LEFT	5	5	B	-	-
⑤	196 WB THRU INSIDE	2	2	B	-	-
⑥	196 WB THRU OUTSIDE	2	2	B	-	-
⑦	MAIN SB LEFT	3	3	B	-	-
⑧	MAIN SB THRU	8	8	B	-	-
⑨	MAIN SB THRU-RIGHT	8	8	B	-	-
⑩	MAIN NB LEFT INSIDE	7	7	B	-	-
⑪	MAIN NB LEFT OUTSIDE	7	7	B	-	-
⑫	MAIN NB THRU-RIGHT	4	4	B	-	-
⑬	196 EB ADVANCE	6	6	A	-	-
⑭	196 WB ADVANCE	2	2	A	-	-

EXISTING PHASE SEQUENCE

RING AND BARRIER DIAGRAM

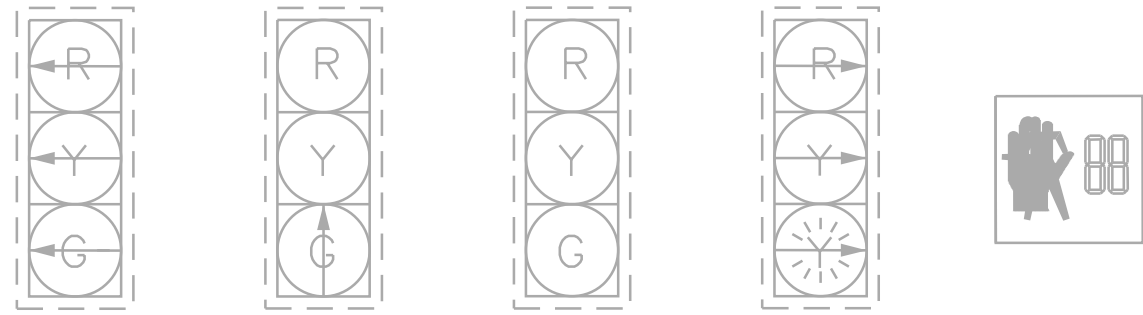
1 2 4 3  
5 6 7 8



PHASING NOTES:

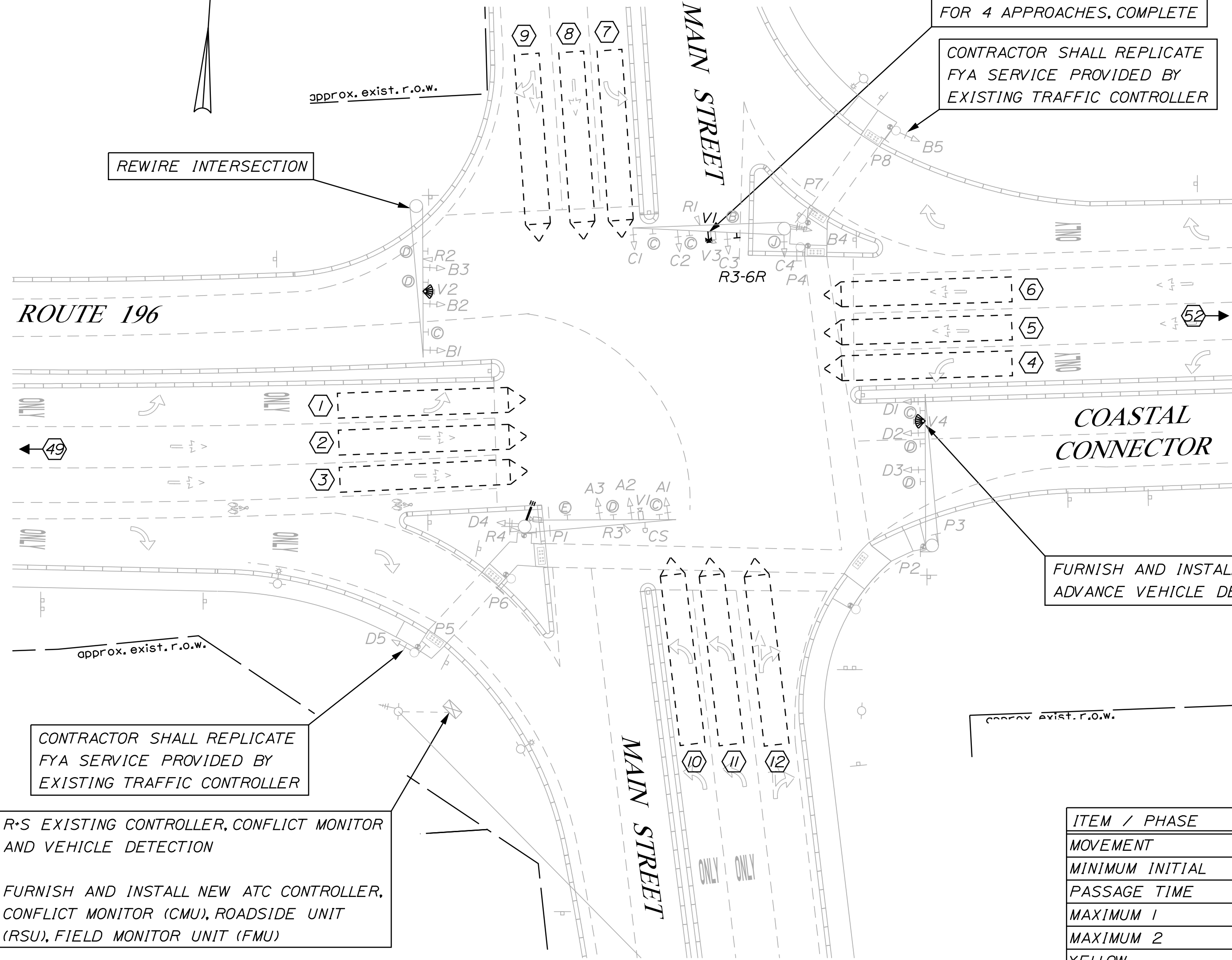
- EACH PEDESTRIAN PHASE SHALL HAVE A MINIMUM OF A 4 SECOND LEADING PEDESTRIAN INTERVAL (LPI).
- PEDESTRIAN PHASE UPON PUSH BUTTON ACTIVATION ONLY.

EXISTING INDICATIONS



NOTE:

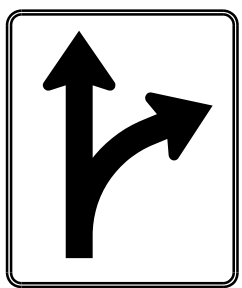
ALL INDICATIONS 12" LIGHT EMITTING DIODES (LED'S) WITH 5" LOUVERED RETROREFLECTIVE BACKPLATES



R-S EXISTING CONTROLLER, CONFLICT MONITOR AND VEHICLE DETECTION

FURNISH AND INSTALL NEW ATC CONTROLLER, CONFLICT MONITOR (CMU), ROADSIDE UNIT (RSU), FIELD MONITOR UNIT (FMU)

PROPOSED SIGNS



R3-6R  
30"x36"  
I-PROPOSED

LOCATION 311

EMERGENCY VEHICLE PREEMPTION OPERATION

ID	PREEMPT ASSIGNMENT	TSP ASSIGNMENT	RECEIVER PRIORITY	ACTIVE PHASE
	1		NOT USED/RESERVED	
	2		NOT USED/RESERVED	
R1	3	7	1	φ2&φ5 (WB)
R2	4	8	2	φ1&φ6 (EB)
R3	5	9	3	φ3&φ8 (SB)
R4	6	10	4	φ7&φ4 (NB)

PRE-EMPTION NOTES:

- EMERGENCY VEHICLE PRE-EMPTION SIGNALS SHALL BE TRANSMITTED BY OPTICAL EMITTERS (TYPICALLY EXISTING, BUT WHERE APPLICABLE PROVIDED BY OTHERS) AND/OR BY A DUAL MODE DSRC/C-V2X ON-BOARD UNIT (OBU) MOUNTED IN EMERGENCY VEHICLES COMMUNICATING WITH THE PROPOSED DUAL MODE DSRC/C-V2X ROAD SIDE UNIT (RSU) AND/OR RECEIVED BY OPTICAL DETECTORS LOCATED AT THE INTERSECTION.
- PRE-EMPTION SIGNALS SHALL BE SERVICED ON A PRIORITY BASIS WITH RECEIVERS ASSIGNED DESCENDING PRIORITIES (1 = HIGHEST, 4 = LOWEST)
- IN RESPONSE TO A PRE-EMPTION SIGNAL RECEIVED AT AN INTERSECTION BY AN OPTICAL DETECTOR AND/OR RSU, THE CONTROLLER SHALL HOLD OR ADVANCE TO AND HOLD THE EMERGENCY ACTIVE PHASE GREEN FOR A MINIMUM OF 10 SECONDS OR UNTIL THE PRE-EMPTION SIGNAL CEASES. THE CONTROLLER SHALL THEN TIME PRE-EMPTION PHASE CLEARANCE (4.0 SECONDS YELLOW AND 3.0 SECONDS ALL RED) AND SERVICE SUBSEQUENT EMERGENCY ACTIVE PHASES AS NECESSARY. AT THE COMPLETION OF THE PRE-EMPTION CYCLE, THE CONTROLLER SHALL TIME THE PRE-EMPTION CLEARANCE AND RESUME NORMAL SIGNAL OPERATION.
- MINIMUM GREEN AND NORMAL VEHICLE CLEARANCE SHALL BE PROVIDED ON PHASES THAT ARE TO BE TERMINATED BY PRE-EMPTION DEMAND.
- CONFIRMATION STROBES SHALL BE ILLUMINATED WHENEVER ANY PREEMPTION GREEN IS ON.

PROPOSED SIGNAL TIMING SCHEDULE

ITEM / PHASE	φ 1	φ 2	φ 3	φ 4	φ 5	φ 6	φ 7	φ 8
MOVEMENT	WBR	WB	SBL	NBT	WBL	EBT	NBL	SBT
MINIMUM INITIAL	6	10	6	8	5	10	8	6
PASSAGE TIME	3.0	3.0	2.0	2.0	3.0	3.0	2.0	1.5
MAXIMUM 1	20	35	25	20	20	35	20	25
MAXIMUM 2	23	60	20	17	20	60	17	15
YELLOW	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
ALL RED	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
PED WALK	-	-	-	4	-	4	-	7
PED CLEAR	-	-	-	21	-	21	-	7
DYN MAX LIMIT	25	45	30	30	25	45	30	35
DYN MAX STEP	5	10	5	5	5	10	5	5
RECALL	0	S	0	0	0	S	0	0
DETECTOR	NL	NL	NL	NL	NL	NL	NL	NL
PRE-EMPT PRIORITY	4	3	5	6	3	4	6	5
FLASH	R	Y	R	R	R	Y	R	R
DUAL ENTRY	OFF	ON	OFF	ON	OFF	ON	OFF	ON

NOTES: S = SOFT RECALL Y = YELLOW D = DARK  
0 = RECALL OFF R = RED  
L = LOCKING DETECTOR MEMORY  
NL = NON-LOCKING DETECTOR MEMORY

PLAN



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LIST OF WORK ITEMS

EQUIPMENT AND WORK ITEMS 643.71	QUANTITY
REMOVE AND SALVAGE EXISTING SIGNAL CONTROLLER, CONFLICT MONITOR AND VEHICLE DETECTION SYSTEM	-
FURNISH AND INSTALL NEW SHELF MOUNT ATC CONTROLLER	1
FURNISH AND INSTALL NEW CONFLICT MONITOR (CMU)	1
FURNISH AND INSTALL AI-500-085-04 FIELD MONITORING UNIT (FMU)	1
FURNISH AND INSTALL NEW SIGNAL CABLE	-
FURNISH AND INSTALL NEW BATTERIES (6) AT 3 WIRELESS REPEATER STATIONS AND SERVICE EXISTING REPEATERS IF NECESSARY	-
IMPLEMENT LOCAL AND SYSTEM SIGNAL TIMINGS	
FURNISH AND INSTALL NON-INVASIVE STOP BAR VEHICLE DETECTION SYSTEM FOR 4 APPROACHES (ITEM 643.21)	1
FURNISH AND INSTALL ADVANCE VEHICLE DETECTION SYSTEM FOR EB AND WB APPROACHES (ITEM 643.22)	2
FURNISH AND INSTALL ROADSIDE UNIT (RSU) (ITEM 654.351)	1

THE LISTED QUANTITIES ARE APPROXIMATE AND ARE FURNISHED FOR INFORMATION ONLY.

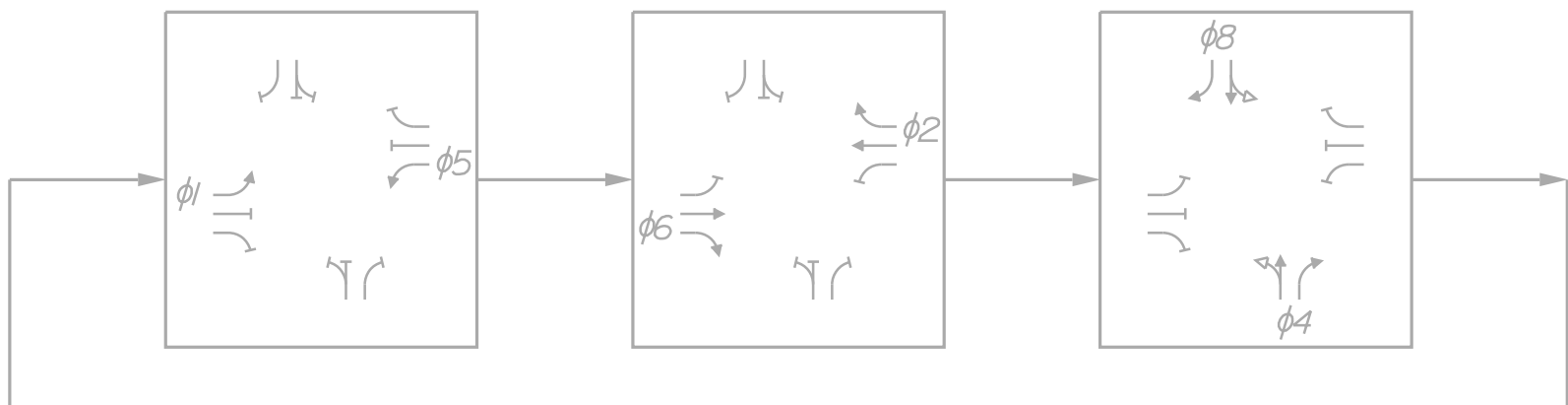
DETECTOR SCHEDULE

DETECTOR ZONE NO.	LOCATION	φ CALLED	φ EXT.	MODE A=ADVANCE B=STOPLINE	DELAY TIME	EXT. TIME
①	196 EB LEFT	1	1	B	-	-
②	196 EB THRU	6	6	B	-	-
③	196 EB RIGHT	6	6	B	5	-
④	196 WB LEFT	5	5	B	-	-
⑤	196 WB THRU	2	2	B	-	-
⑥	196 WB RIGHT	2	2	B	5	-
⑦	VILLAGE SB LEFT-THRU	8	8	B	-	-
⑧	VILLAGE SB RIGHT	8	8	B	5	-
⑨	COMMUNITY NB LEFT-THRU	4	4	B	-	-
⑩	COMMUNITY NB RIGHT	4	4	B	5	-
④9	196 EB ADVANCE	6	6	A	-	-
⑤2	196 WB ADVANCE	2	2	A	-	-

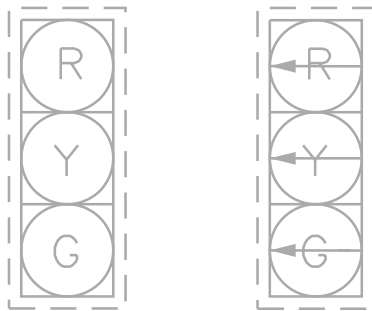
EXISTING PHASE SEQUENCE

RING AND BARRIER DIAGRAM

1 2 4  
5 6 8



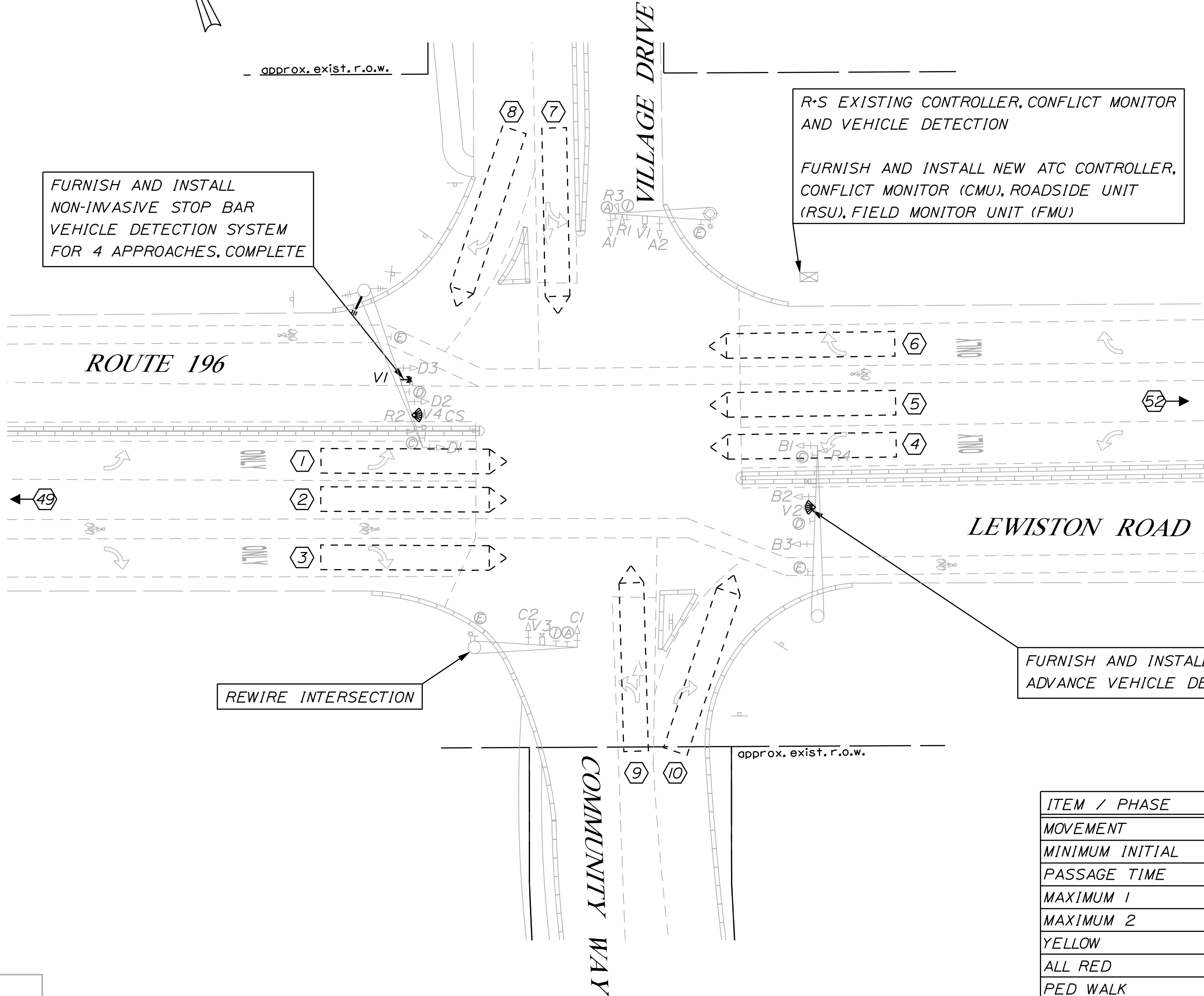
EXISTING INDICATIONS



A1,A2,B2,B3  
C1,C2,D2,D3

B1,D1

NOTE:  
ALL INDICATIONS 12" LIGHT EMITTING DIODES (LED'S)  
WITH 5' LOUVERED RETROREFLECTIVE BACKPLATES



EMERGENCY VEHICLE PREEMPTION OPERATION

ID	PREEMPT ASSIGNMENT	TSP ASSIGNMENT	RECEIVER PRIORITY	ACTIVE PHASE
	1		NOT USED/RESERVED	
	2		NOT USED/RESERVED	
R2	3	7	1	φ2&φ5 (WB)
R4	4	8	2	φ1&φ6 (EB)
R3	5	9	3	φ8 (NB)
	6	10	NOT USED/RESERVED	

PRE-EMPTION NOTES:

- EMERGENCY VEHICLE PRE-EMPTION SIGNALS SHALL BE TRANSMITTED BY OPTICAL EMITTERS (TYPICALLY EXISTING, BUT WHERE APPLICABLE PROVIDED BY OTHERS) AND/OR BY A DUAL MODE DSRC/C-V2X ON-BOARD UNIT (OBU) MOUNTED IN EMERGENCY VEHICLES COMMUNICATING WITH THE PROPOSED DUAL MODE DSRC/C-V2X ROAD SIDE UNIT (RSU) AND/OR RECEIVED BY OPTICAL DETECTORS LOCATED AT THE INTERSECTION.
- PRE-EMPTION SIGNALS SHALL BE SERVICED ON A PRIORITY BASIS WITH RECEIVERS ASSIGNED DESCENDING PRIORITIES (1 = HIGHEST, 4 = LOWEST)
- IN RESPONSE TO A PRE-EMPTION SIGNAL RECEIVED AT AN INTERSECTION BY AN OPTICAL DETECTOR AND/OR RSU, THE CONTROLLER SHALL HOLD OR ADVANCE TO AND HOLD THE EMERGENCY ACTIVE PHASE GREEN FOR A MINIMUM OF 10 SECONDS OR UNTIL THE PRE-EMPTION SIGNAL CEASES. THE CONTROLLER SHALL THEN TIME PRE-EMPTION PHASE CLEARANCE (5.0 SECONDS YELLOW AND 3.0 SECONDS ALL RED) AND SERVICE SUBSEQUENT EMERGENCY ACTIVE PHASES AS NECESSARY. AT THE COMPLETION OF THE PRE-EMPTION CYCLE, THE CONTROLLER SHALL TIME THE PRE-EMPTION CLEARANCE AND RESUME NORMAL SIGNAL OPERATION.
- MINIMUM GREEN AND NORMAL VEHICLE CLEARANCE SHALL BE PROVIDED ON PHASES THAT ARE TO BE TERMINATED BY PRE-EMPTION DEMAND.
- CONFIRMATION STROBES SHALL BE ILLUMINATED WHENEVER ANY PREEMPTION GREEN IS ON.

PROPOSED SIGNAL TIMING SCHEDULE

ITEM / PHASE	φ 1	φ 2	φ 3	φ 4	φ 5	φ 6	φ 7	φ 8
MOVEMENT	EBL	WBT	-	NBT	WBL	EBT	-	SBT
MINIMUM INITIAL	5	15	-	7	5	15	-	7
PASSAGE TIME	3.0	3.0	-	3.0	3.0	3.0	-	3.0
MAXIMUM 1	15	60	-	15	15	60	-	15
MAXIMUM 2	15	90	-	15	15	60	-	15
YELLOW	5.0	5.0	-	3.5	5.0	5.0	-	3.5
ALL RED	3.0	3.0	-	2.5	3.0	3.0	-	2.5
PED WALK	-	-	-	-	-	-	-	-
PED CLEAR	-	-	-	-	-	-	-	-
DYN MAX LIMIT	20	90	-	25	20	90	-	25
DYN MAX STEP	5	10	-	5	5	10	-	5
RECALL	0	S	-	0	0	S	-	0
DETECTOR	NL	NL	-	NL	NL	NL	-	NL
PRE-EMPT PRIORITY	4	3	-	-	3	4	-	5
FLASH	R	Y	-	R	R	Y	-	R
DUAL ENTRY	OFF	ON	-	OFF	OFF	ON	-	OFF

NOTES: S = SOFT RECALL Y = YELLOW D = DARK  
0 = RECALL OFF R = RED  
L = LOCKING DETECTOR MEMORY  
NL = NON-LOCKING DETECTOR MEMORY

PLAN



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PROJ. MANAGER	B. KEEZER	BY	DATE
DESIGN-DETAILED	READY	JROBERT	12/22
CHECKED-REVIEWED	CEGBAY	CEGBAY	03/24
DESIGN-DETAILED			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			



LIST OF WORK ITEMS

EQUIPMENT AND WORK ITEMS 643.71	QUANTITY
REMOVE AND SALVAGE EXISTING SIGNAL CONTROLLER, CONFLICT MONITOR AND VEHICLE DETECTION SYSTEM	-
FURNISH AND INSTALL NEW SHELF MOUNT ATC CONTROLLER	1
FURNISH AND INSTALL NEW CONFLICT MONITOR (CMU)	1
FURNISH AND INSTALL AI-500-085-04 FIELD MONITORING UNIT (FMU)	1
FURNISH AND INSTALL NEW SIGNAL CABLE	-
IMPLEMENT LOCAL AND SYSTEM SIGNAL TIMINGS	-
FURNISH AND INSTALL NON-INVASIVE STOP BAR VEHICLE DETECTION SYSTEM FOR 3 APPROACHES (ITEM 643.21)	1
FURNISH AND INSTALL ADVANCE VEHICLE DETECTION SYSTEM FOR EB AND WB APPROACHES (ITEM 643.22)	2
FURNISH AND INSTALL ROADSIDE UNIT (RSU) (ITEM 654.351)	1

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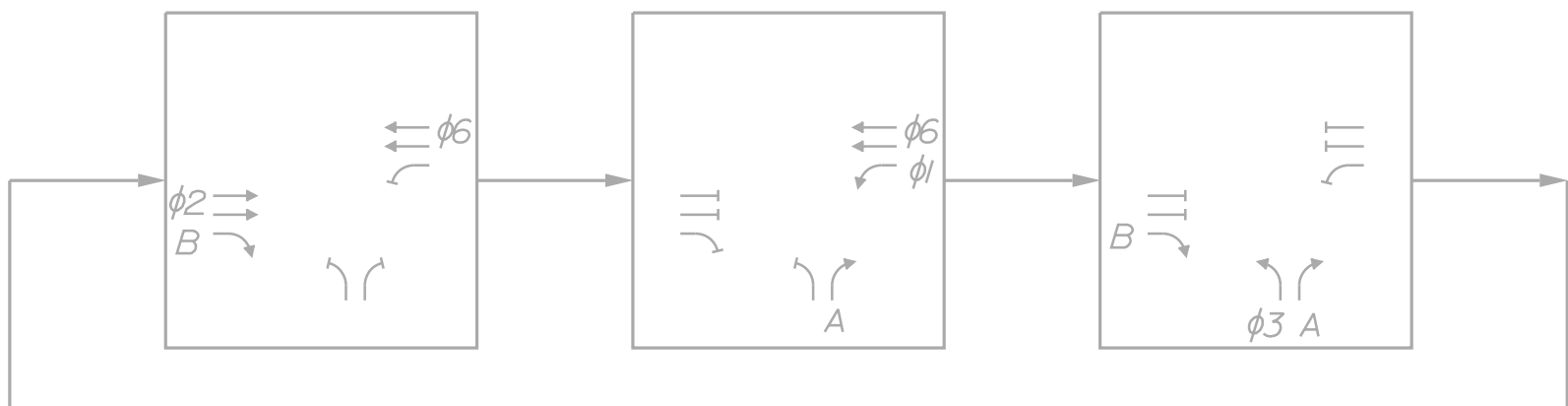
DETECTOR SCHEDULE

DETECTOR ZONE NO.	LOCATION	φ CALLED	φ EXT.	MODE A=ADVANCE B=STOPLINE	DELAY TIME	EXT. TIME
1	196 SB LEFT	1	1	B	-	-
2	196 SB THRU INSIDE	6	6	B	-	-
3	196 SB THRU OUTSIDE	6	6	B	-	-
4	196 NB THRU INSIDE	2	2	B	-	-
5	196 NB THRU OUTSIDE	2	2	B	-	-
6	196 NB RIGHT	2	2	B	5	-
7	BYPASS WB LEFT	3	3	B	-	-
8	BYPASS WB RIGHT	3	3	B	5	-
9	196 SB ADVANCE	6	6	A	-	-
10	196 NB ADVANCE	2	2	A	-	-

EXISTING PHASE SEQUENCE

RING AND BARRIER DIAGRAM

2 1 || 3  
6

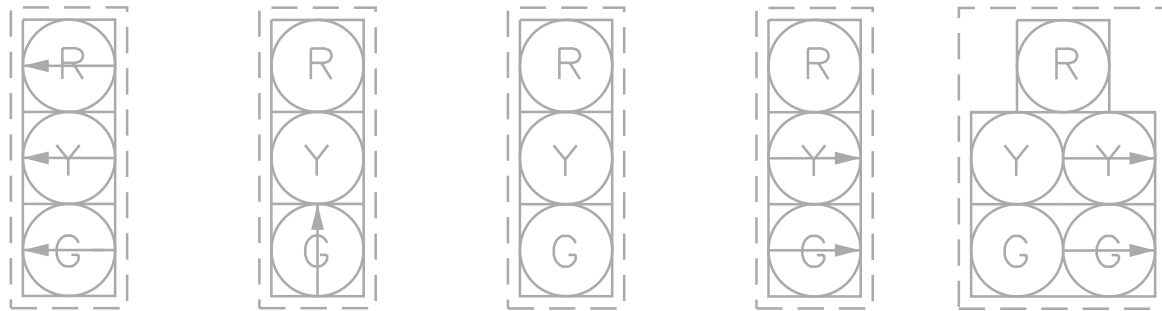


OVERLAP PHASING:

OVL A = 1-3

OVL B = 2-3

EXISTING INDICATIONS



CI AI A2,C2,C3,D1 A3 D2

NOTE:  
ALL INDICATIONS 12" LIGHT EMITTING DIODES (LED'S)  
WITH 5" LOUVERED RETROREFLECTIVE BACKPLATES

EMERGENCY VEHICLE PREEMPTION OPERATION

ID	PREEMPT ASSIGNMENT	TSP ASSIGNMENT	RECEIVER PRIORITY	ACTIVE PHASE
	1		NOT USED/RESERVED	
	2		NOT USED/RESERVED	
R1	3	7	1	φ2 (WB)
R3	4	8	2	φ1&φ6 (EB)
R4	5	9	3	φ3 (SB)
	6	10	NOT USED/RESERVED	

PRE-EMPTION NOTES:

- EMERGENCY VEHICLE PRE-EMPTION SIGNALS SHALL BE TRANSMITTED BY OPTICAL EMITTERS (TYPICALLY EXISTING, BUT WHERE APPLICABLE PROVIDED BY OTHERS) AND/OR BY A DUAL MODE DSRC/C-V2X ON-BOARD UNIT (OBU) MOUNTED IN EMERGENCY VEHICLES COMMUNICATING WITH THE PROPOSED DUAL MODE DSRC/C-V2X ROAD SIDE UNIT (RSU) AND/OR RECEIVED BY OPTICAL DETECTORS LOCATED AT THE INTERSECTION.
- PRE-EMPTION SIGNALS SHALL BE SERVICED ON A PRIORITY BASIS WITH RECEIVERS ASSIGNED DESCENDING PRIORITIES (1 = HIGHEST, 4 = LOWEST)
- IN RESPONSE TO A PRE-EMPTION SIGNAL RECEIVED AT AN INTERSECTION BY AN OPTICAL DETECTOR AND/OR RSU, THE CONTROLLER SHALL HOLD OR ADVANCE TO AND HOLD THE EMERGENCY ACTIVE PHASE GREEN FOR A MINIMUM OF 10 SECONDS OR UNTIL THE PRE-EMPTION SIGNAL CEASES. THE CONTROLLER SHALL THEN TIME PRE-EMPTION PHASE CLEARANCE (4.0 SECONDS YELLOW AND 3.0 SECONDS ALL RED) AND SERVICE SUBSEQUENT EMERGENCY ACTIVE PHASES AS NECESSARY. AT THE COMPLETION OF THE PRE-EMPTION CYCLE, THE CONTROLLER SHALL TIME THE PRE-EMPTION CLEARANCE AND RESUME NORMAL SIGNAL OPERATION.
- MINIMUM GREEN AND NORMAL VEHICLE CLEARANCE SHALL BE PROVIDED ON PHASES THAT ARE TO BE TERMINATED BY PRE-EMPTION DEMAND.
- CONFIRMATION STROBES SHALL BE ILLUMINATED WHENEVER ANY PREEMPTION GREEN IS ON.

PROPOSED SIGNAL TIMING SCHEDULE

ITEM / PHASE	φ 1	φ 2	φ 3	φ 4	φ 5	φ 6	φ 7	φ 8
MOVEMENT	EBL	WBT	SBR	-	-	EBT	-	-
MINIMUM INITIAL	5	12	5	-	-	12	-	-
PASSAGE TIME	3.0	3.0	2.0	-	-	3.0	-	-
MAXIMUM 1	40	60	35	-	-	60	-	-
MAXIMUM 2	50	60	25	-	-	60	-	-
YELLOW	4.0	4.0	3.5	-	-	4.0	-	-
ALL RED	3.0	3.0	2.5	-	-	3.0	-	-
PED WALK	-	-	-	-	-	-	-	-
PED CLEAR	-	-	-	-	-	-	-	-
DYN MAX LIMIT	40	90	40	-	-	90	-	-
DYN MAX STEP	5	10	5	-	-	10	-	-
RECALL	0	S	0	-	-	S	-	-
DETECTOR	NL	NL	NL	-	-	NL	-	-
PRE-EMPT PRIORITY	4	3	5	-	-	4	-	-
FLASH	R	R	R	-	-	R	-	-
DUAL ENTRY	OFF	ON	OFF	-	-	ON	-	-

NOTES: S = SOFT RECALL Y = YELLOW D = DARK  
0 = RECALL OFF R = RED  
L = LOCKING DETECTOR MEMORY  
NL = NON-LOCKING DETECTOR MEMORY

PLAN



-- RIGHT-OF-WAY IS BASED ON INTEGRATION OF GIS SHAPE FILES PROVIDED BY THE TOWN OF TOPSHAM, SIGNING, STRIPING, SIGNAL, AND RIGHT-OF-WAY PLANS DATED JANUARY 1997, APRIL 1994, AND JANUARY 1992.



PROJ. MANAGER	B. KEEZER	BY	DATE
DESIGN-DETAILED	READY	JROBERT	12/22
CHECKED-REVIEWED	CEBOY	CEBOY	03/24
DESIGN-DETAILED			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

LIST OF WORK ITEMS

EQUIPMENT AND WORK ITEMS 643.71	QUANTITY
REMOVE AND SALVAGE EXISTING SIGNAL CONTROLLER	-
FURNISH AND INSTALL NEW RACK MOUNT ATC CONTROLLER	1
IMPLEMENT LOCAL AND SYSTEM SIGNAL TIMINGS	-
FURNISH AND INSTALL ROADSIDE UNIT (RSU) (ITEM 654.351)	1

THE LISTED QUANTITIES ARE APPROXIMATE AND ARE FURNISHED FOR INFORMATION ONLY.

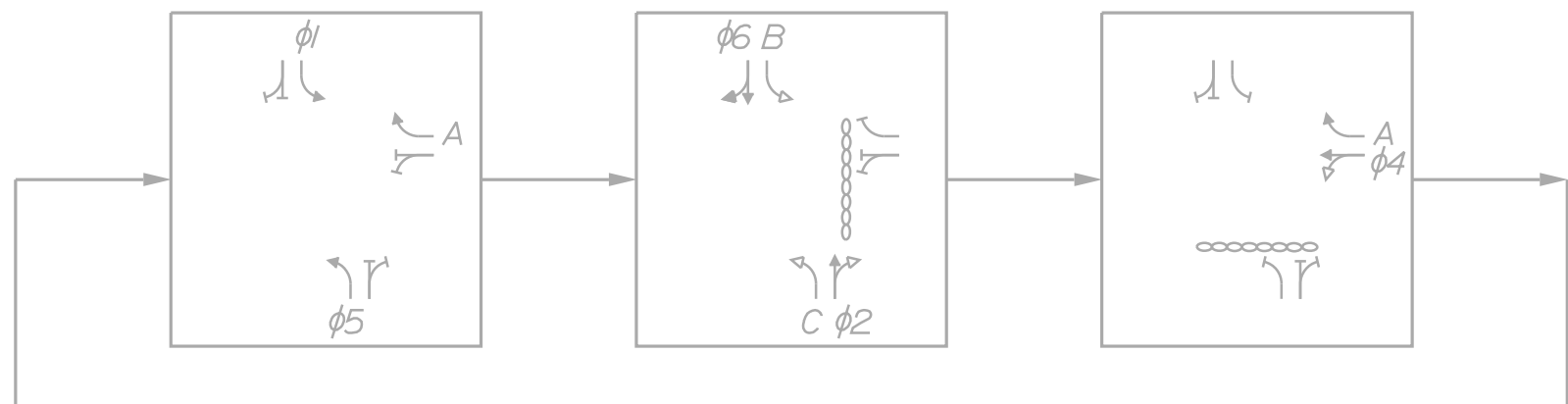
DETECTOR SCHEDULE

DETECTOR ZONE NO.	LOCATION	φ CALLED	φ EXT.	MODE A=ADVANCE B=STOPLINE	DELAY TIME	EXT. TIME
①	201 NB LEFT	5	5	B	-	-
②	201 NB THRU-RIGHT	2	2	B	-	-
③	201 SB LEFT	1	1	B	-	-
④	201 SB THRU-RIGHT	6	6	B	-	-
⑤	24B WB LEFT-THRU	4	4	B	-	-
⑥	24B WB RIGHT	4	4	B	5	-

EXISTING PHASE SEQUENCE

RING AND BARRIER DIAGRAM

1 2 || 4  
5 6 ||



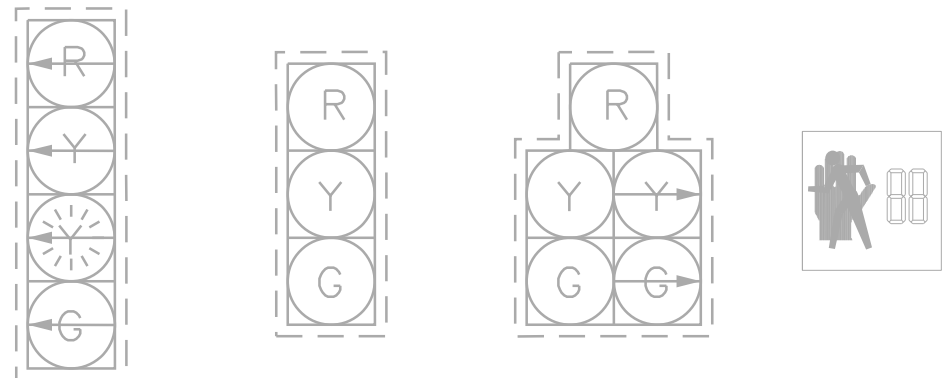
OVERLAP PHASING:

OVL A = 1-4  
OVL B = 1-2  
OVL C = 5-6

PHASING NOTES:

1. EACH PEDESTRIAN PHASE SHALL HAVE A MINIMUM OF A 4 SECOND LEADING PEDESTRIAN INTERVAL (LPI).  
2. PEDESTRIAN PHASE UPON PUSH BUTTON ACTIVATION ONLY.

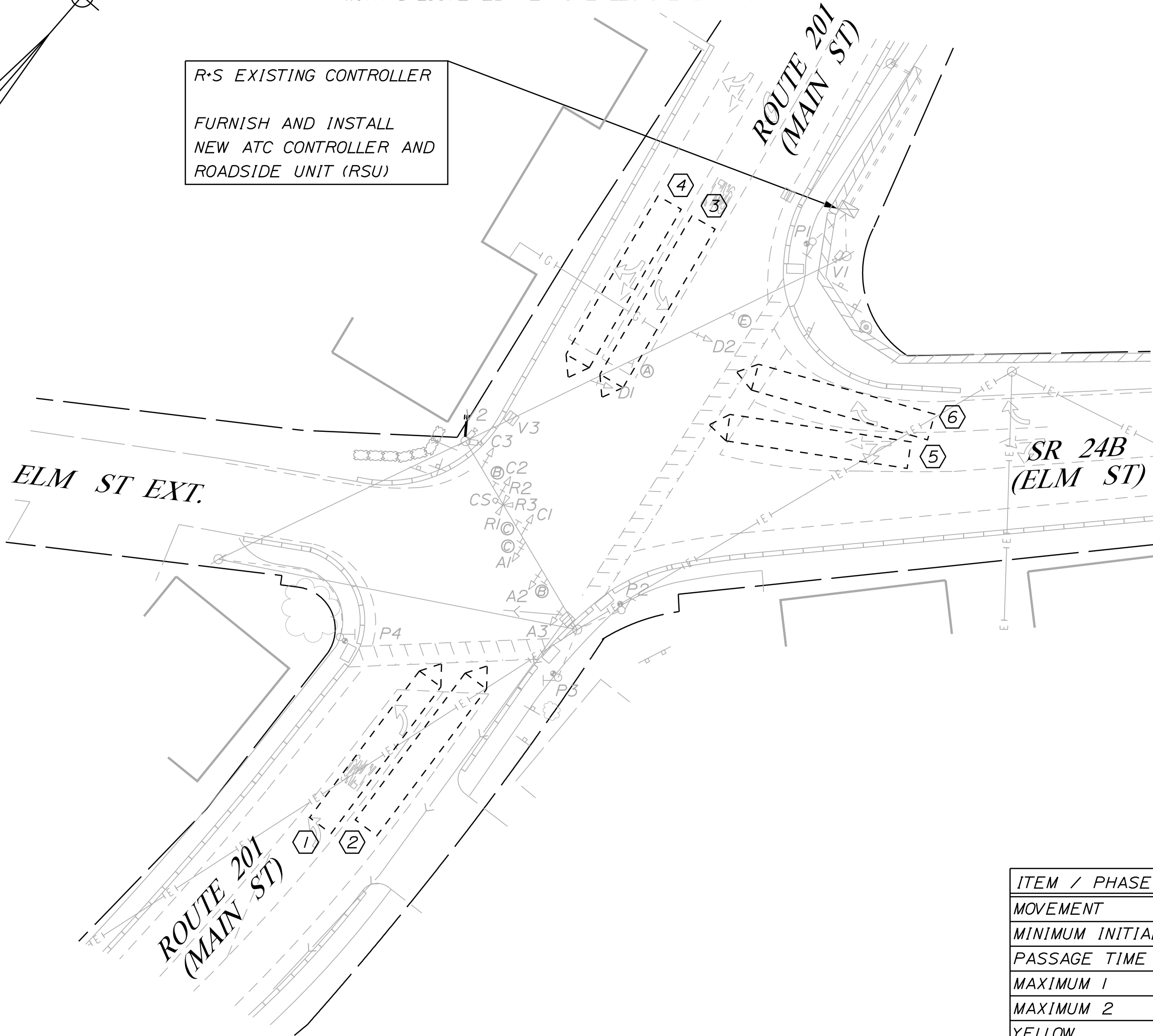
EXISTING INDICATIONS



NOTE:  
ALL INDICATIONS 12" LIGHT EMITTING DIODES (LED'S)  
WITH 5" LOUVERED RETROREFLECTIVE BACKPLATES

R-S EXISTING CONTROLLER

FURNISH AND INSTALL  
NEW ATC CONTROLLER AND  
ROADSIDE UNIT (RSU)



EMERGENCY VEHICLE PREEMPTION OPERATION

ID	PREEMPT ASSIGNMENT	TSP ASSIGNMENT	RECEIVER PRIORITY	ACTIVE PHASE
	1		NOT USED/RESERVED	
	2		NOT USED/RESERVED	
R1	3	7	1	φ2&φ5 (NB)
R2	4	8	2	φ1&φ6 (SB)
R3	5	9	3	φ4 (WB)
	6	10	NOT USED/RESERVED	

PRE-EMPTION NOTES:

- EMERGENCY VEHICLE PRE-EMPTION SIGNALS SHALL BE TRANSMITTED BY OPTICAL EMITTERS (TYPICALLY EXISTING, BUT WHERE APPLICABLE PROVIDED BY OTHERS) AND/OR BY A DUAL MODE DSRC/C-V2X ON-BOARD UNIT (OBU) MOUNTED IN EMERGENCY VEHICLES COMMUNICATING WITH THE PROPOSED DUAL MODE DSRC/C-V2X ROAD SIDE UNIT (RSU) AND/OR RECEIVED BY OPTICAL DETECTORS LOCATED AT THE INTERSECTION.
- PRE-EMPTION SIGNALS SHALL BE SERVICED ON A PRIORITY BASIS WITH RECEIVERS ASSIGNED DESCENDING PRIORITIES (1 = HIGHEST, 4 = LOWEST)
- IN RESPONSE TO A PRE-EMPTION SIGNAL RECEIVED AT AN INTERSECTION BY AN OPTICAL DETECTOR AND/OR RSU, THE CONTROLLER SHALL HOLD OR ADVANCE TO AND HOLD THE EMERGENCY ACTIVE PHASE GREEN FOR A MINIMUM OF 10 SECONDS OR UNTIL THE PRE-EMPTION SIGNAL CEASES. THE CONTROLLER SHALL THEN TIME PRE-EMPTION PHASE CLEARANCE (4.0 SECONDS YELLOW AND 4.0 SECONDS ALL RED) AND SERVICE SUBSEQUENT EMERGENCY ACTIVE PHASES AS NECESSARY. AT THE COMPLETION OF THE PRE-EMPTION CYCLE, THE CONTROLLER SHALL TIME THE PRE-EMPTION CLEARANCE AND RESUME NORMAL SIGNAL OPERATION.
- MINIMUM GREEN AND NORMAL VEHICLE CLEARANCE SHALL BE PROVIDED ON PHASES THAT ARE TO BE TERMINATED BY PRE-EMPTION DEMAND.
- CONFIRMATION STROBES SHALL BE ILLUMINATED WHENEVER ANY PREEMPTION GREEN IS ON.

PROPOSED SIGNAL TIMING SCHEDULE

ITEM / PHASE	φ 1	φ 2	φ 3	φ 4	φ 5	φ 6	φ 7	φ 8
MOVEMENT	SBL NBT	-	WBL NBL	SBT	-	-	-	-
MINIMUM INITIAL	5	10	-	7	5	10	-	-
PASSAGE TIME	3.0	3.0	-	3.0	3.0	3.0	-	-
MAXIMUM 1	20	40	-	20	20	40	-	-
MAXIMUM 2	-	-	-	-	-	-	-	-
YELLOW	3.0	3.0	-	4.0	3.0	4.0	-	-
ALL RED	2.0	2.5	-	4.0	2.0	2.0	-	-
PED WALK	-	4	-	4	-	-	-	-
PED CLEAR	-	13	-	26	-	-	-	-
DYN MAX LIMIT	25	50	-	25	25	50	-	-
DYN MAX STEP	5	10	-	5	5	10	-	-
RECALL	0	S	-	0	0	0	-	-
DETECTOR	NL	NL	-	NL	NL	NL	-	-
PRE-EMPT PRIORITY	4	3	-	5	3	4	-	-
FLASH	R	Y	-	R	R	Y	-	-
DUAL ENTRY	OFF	ON	-	OFF	OFF	ON	-	-

NOTES: S = SOFT RECALL Y = YELLOW D = DARK  
0 = RECALL OFF R = RED  
L = LOCKING DETECTOR MEMORY  
NL = NON-LOCKING DETECTOR MEMORY

PLAN



LOCATION 314

STATE OF MAINE  
DEPARTMENT OF TRANSPORTATION  
PROJECT NO. 2613400 & 2613800  
WIN  
026134.00 & 026138.00 TRAFFIC PLANS

PROJ. MANAGER	B. KEEZER	BY	J. ROBERT	DATE	12/22
DESIGN-DETAILED	J. ROBERT	CHECKED	C. BOYD	DATE	03/24
DESIGN-REVIEWED	C. BOYD	DESIGNED			
REVISIONS 1		REVISIONS 2			
REVISIONS 3		REVISIONS 4			
FIELD CHANGES					

TOPSHAM  
ROUTE 201(MAIN ST) AND  
SR 24B (ELM ST) / ELM ST EXT.  
TRAFFIC SIGNAL PLAN

SHEET NUMBER  
14  
OF 22



LIST OF WORK ITEMS

EQUIPMENT AND WORK ITEMS 643.71	QUANTITY
REMOVE AND SALVAGE EXISTING SIGNAL CONTROLLER, CONFLICT MONITOR AND VEHICLE DETECTION SYSTEM	-
FURNISH AND INSTALL NEW SHELF MOUNT ATC CONTROLLER	1
FURNISH AND INSTALL NEW CONFLICT MONITOR (CMU)	1
FURNISH AND INSTALL AI-500-085-04 FIELD MONITORING UNIT (FMU)	1
FURNISH AND INSTALL RED ARROW LED LENSE	1
FURNISH AND INSTALL YELLOW ARROW LED LENSE	2
FURNISH AND INSTALL ONE-WAY, 5-INCH LOUVERED BACKPLATE WITH 3-INCH RETROREFLECTIVE BORDER FOR EXISTING 3-SECTION TRAFFIC SIGNAL HEAD	12
FURNISH AND INSTALL NEW SIGNAL CABLE	-
IMPLEMENT LOCAL AND SYSTEM SIGNAL TIMINGS	-
FURNISH AND INSTALL NON-INVASIVE STOP BAR VEHICLE DETECTION SYSTEM FOR 4 APPROACHES (ITEM 643.21)	1
FURNISH AND INSTALL ADVANCE VEHICLE DETECTION SYSTEM FOR WB APPROACH (ITEM 643.22)	1
FURNISH AND INSTALL LANE USE SIGNS (ITEM 645.271)	1
FURNISH AND INSTALL ROADSIDE UNIT (RSU) (ITEM 654.351)	1

THE LISTED QUANTITIES ARE APPROXIMATE AND ARE FURNISHED FOR INFORMATION ONLY.

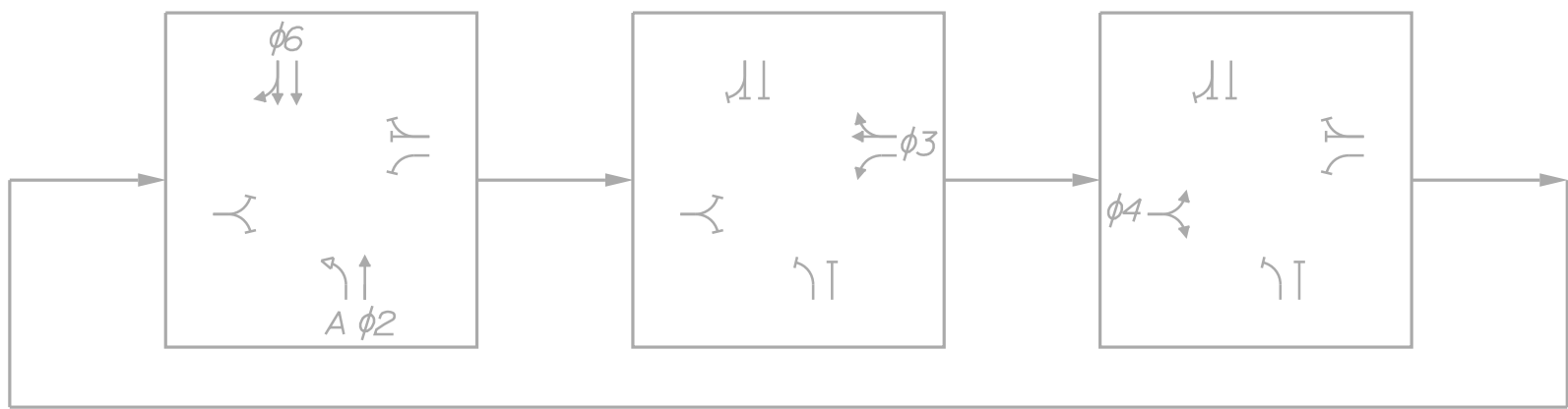
DETECTOR SCHEDULE

DETECTOR ZONE NO.	LOCATION	φ CALLED	φ EXT.	MODE A-ADVANCE B-STOPLINE	DELAY TIME	EXT. TIME
①	MAINE SB THRU	6	6	B	-	-
②	MAINE SB THRU-RIGHT	6	6	B	-	-
③	MAINE NB LEFT	2	2	B	-	-
④	MAINE NB THRU	2	2	B	-	-
⑤	RT 1 RAMP WB LEFT	3	3	B	-	-
⑥	RT 1 RAMP WB THRU-RIGHT	3	3	B	-	-
⑦	CABOT EB LEFT-THRU-RIGHT	4	4	B	-	-
⑧	RT 1 RAMP WB ADVANCE	3	3	A	-	-

EXISTING PHASE SEQUENCE

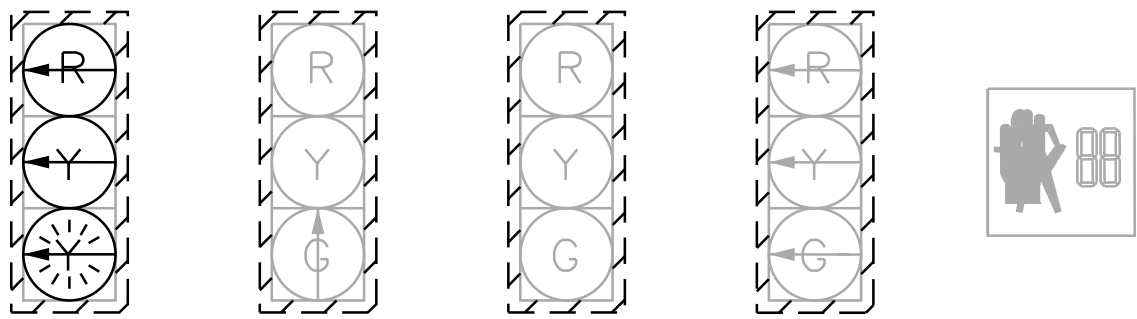
RING AND BARRIER DIAGRAM

2 3 4  
6



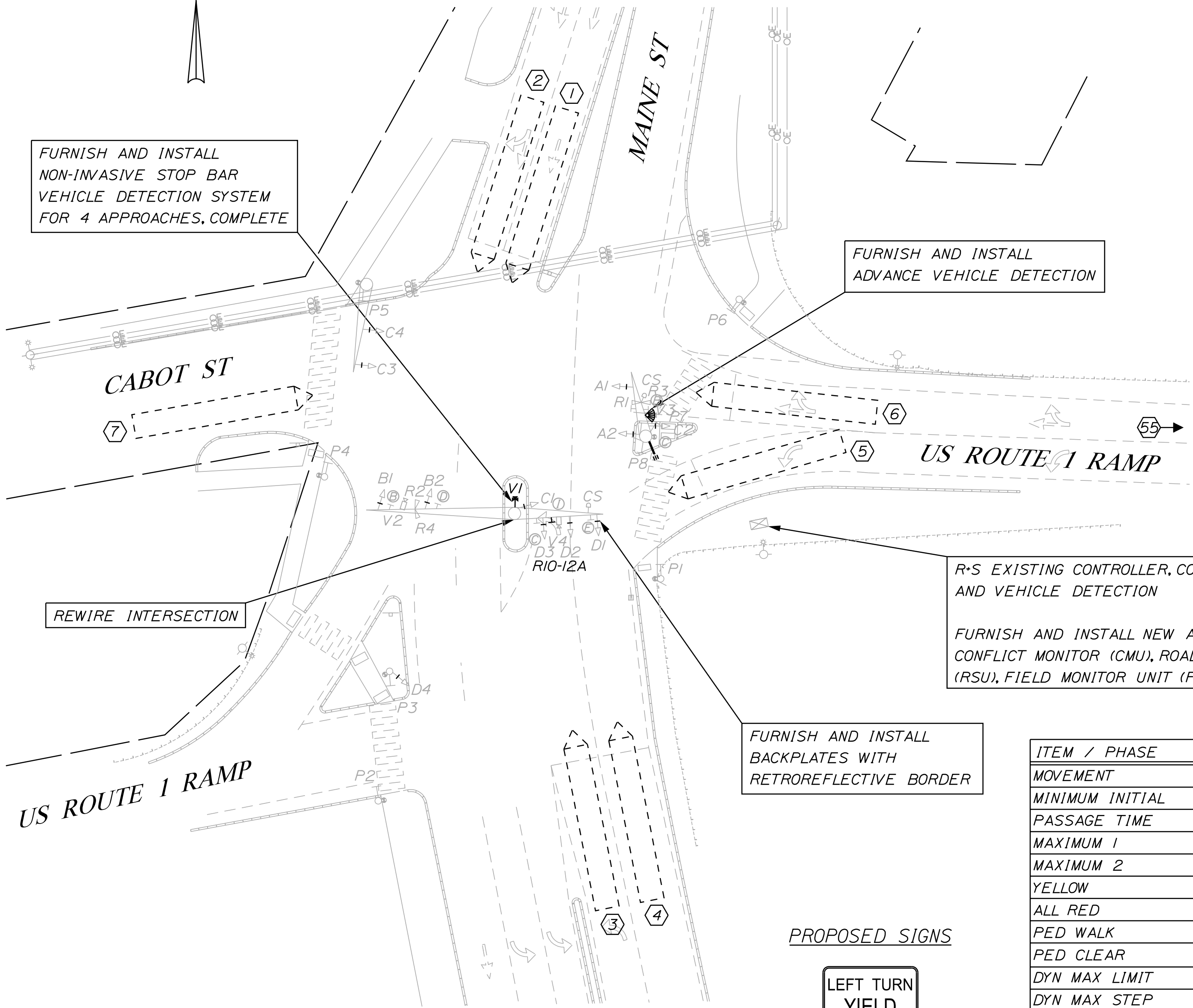
OVERLAP PHASING:  
OVL A = 2

EXISTING INDICATIONS



D3 B2,DI A1,A2,B1,C2 C3,C4,D2 C1,D4 PI-P8

NOTE:  
ALL INDICATIONS SHALL BE 12" LIGHT EMITTING DIODES (LED'S) WITH 5" LOUVERED RETROREFLECTIVE BACKPLATES



FURNISH AND INSTALL NON-INVASIVE STOP BAR VEHICLE DETECTION SYSTEM FOR 4 APPROACHES, COMPLETE

FURNISH AND INSTALL ADVANCE VEHICLE DETECTION

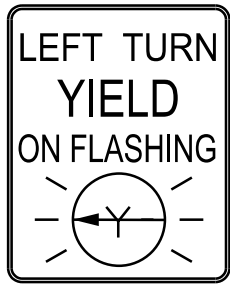
REWIRE INTERSECTION

R-S EXISTING CONTROLLER, CONFLICT MONITOR AND VEHICLE DETECTION

FURNISH AND INSTALL NEW ATC CONTROLLER, CONFLICT MONITOR (CMU), ROADSIDE UNIT (RSU), FIELD MONITOR UNIT (FMU)

FURNISH AND INSTALL BACKPLATES WITH RETROREFLECTIVE BORDER

PROPOSED SIGNS



R10-12A  
30"x36"  
I-PROPOSED

EMERGENCY VEHICLE PREEMPTION OPERATION

ID	PREEMPT ASSIGNMENT	TSP ASSIGNMENT	RECEIVER PRIORITY	ACTIVE PHASE
	1		NOT USED/RESERVED	
	2		NOT USED/RESERVED	
R2	3	7	1	φ6 (SB)
R4	4	8	2	φ2 (NB)
R3	5	9	3	φ3 (WB)
R1	6	10	4	φ4 (EB)

PRE-EMPTION NOTES:

- EMERGENCY VEHICLE PRE-EMPTION SIGNALS SHALL BE TRANSMITTED BY OPTICAL EMITTERS (TYPICALLY EXISTING, BUT WHERE APPLICABLE PROVIDED BY OTHERS) AND/OR BY A DUAL MODE DSRC/C-V2X ON-BOARD UNIT (OBU) MOUNTED IN EMERGENCY VEHICLES COMMUNICATING WITH THE PROPOSED DUAL MODE DSRC/C-V2X ROAD SIDE UNIT (RSU) AND/OR RECEIVED BY OPTICAL DETECTORS LOCATED AT THE INTERSECTION.
- PRE-EMPTION SIGNALS SHALL BE SERVICED ON A PRIORITY BASIS WITH RECEIVERS ASSIGNED DESCENDING PRIORITIES (1 = HIGHEST, 4 = LOWEST)
- IN RESPONSE TO A PRE-EMPTION SIGNAL RECEIVED AT AN INTERSECTION BY AN OPTICAL DETECTOR AND/OR RSU, THE CONTROLLER SHALL HOLD OR ADVANCE TO AND HOLD THE EMERGENCY ACTIVE PHASE GREEN FOR A MINIMUM OF 10 SECONDS OR UNTIL THE PRE-EMPTION SIGNAL CEASES. THE CONTROLLER SHALL THEN TIME PRE-EMPTION PHASE CLEARANCE (4.0 SECONDS YELLOW AND 3.0 SECONDS ALL RED) AND SERVICE SUBSEQUENT EMERGENCY ACTIVE PHASES AS NECESSARY. AT THE COMPLETION OF THE PRE-EMPTION CYCLE, THE CONTROLLER SHALL TIME THE PRE-EMPTION CLEARANCE AND RESUME NORMAL SIGNAL OPERATION.
- MINIMUM GREEN AND NORMAL VEHICLE CLEARANCE SHALL BE PROVIDED ON PHASES THAT ARE TO BE TERMINATED BY PRE-EMPTION DEMAND.
- CONFIRMATION STROBES SHALL BE ILLUMINATED WHENEVER ANY PREEMPTION GREEN IS ON.

PROPOSED SIGNAL TIMING SCHEDULE

ITEM / PHASE	φ 1	φ 2	φ 3	φ 4	φ 5	φ 6	φ 7	φ 8
MOVEMENT	-	NBT	WB	EB	-	SB	-	-
MINIMUM INITIAL	-	5	5	8	-	5	-	-
PASSAGE TIME	-	2.0	2.0	2.0	-	60	-	-
MAXIMUM 1	-	60	20	10	-	70	-	-
MAXIMUM 2	-	70	20	10	-	60	-	-
YELLOW	-	3.5	4.0	3.5	-	3.5	-	-
ALL RED	-	3.0	3.0	3.0	-	3.0	-	-
PED WALK	-	7	-	-	-	7	-	-
PED CLEAR	-	18	-	-	-	12	-	-
DYN MAX LIMIT	-	80	25	15	-	80	-	-
DYN MAX STEP	-	10	5	5	-	10	-	-
RECALL	-	S	0	0	-	S	-	-
DETECTOR	-	NL	NL	NL	-	NL	-	-
PRE-EMPT PRIORITY	-	4	5	6	-	3	-	-
FLASH	-	Y	R	R	-	Y	-	-
DUAL ENTRY	-	ON	OFF	ON	-	ON	-	-

NOTES: S = SOFT RECALL Y = YELLOW D = DARK  
0 = RECALL OFF R = RED  
L = LOCKING DETECTOR MEMORY  
NL = NON-LOCKING DETECTOR MEMORY

PLAN



\* - RIGHT-OF-WAY INFORMATION FROM MAINE OFFICE OF GEOGRAPHIC INFORMATION SYSTEMS - AUGUST 7, 2018



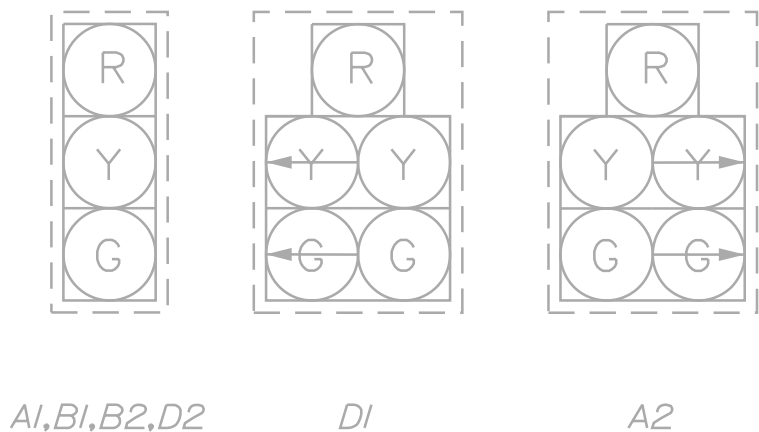
PROJ. MANAGER	B. KEEZER	BY	DATE
DESIGN-DETAILED	READY	JROBERT	12/22
CHECKED-REVIEWED	CEGBAY	CEGBAY	03/24
DESIGN-DETAILED			
DESIGN-DETAILED			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

LIST OF WORK ITEMS

EQUIPMENT AND WORK ITEMS 643.71	QUANTITY
REMOVE AND SALVAGE EXISTING SIGNAL CONTROLLER, CONFLICT MONITOR AND VEHICLE DETECTION SYSTEM	-
FURNISH AND INSTALL NEW SHELF MOUNT ATC CONTROLLER	1
FURNISH AND INSTALL NEW CONFLICT MONITOR (CMU)	1
FURNISH AND INSTALL AI-500-085-04 FIELD MONITORING UNIT (FMU)	1
IMPLEMENT LOCAL AND SYSTEM SIGNAL TIMINGS	-
FURNISH AND INSTALL NON-INVASIVE STOP BAR VEHICLE DETECTION SYSTEM FOR 3 APPROACHES (ITEM 643.21)	1
FURNISH AND INSTALL ADVANCE VEHICLE DETECTION SYSTEM FOR EB AND WB APPROACHES (ITEM 643.22)	2
FURNISH AND INSTALL LANE USE SIGNS (ITEM 645.271)	2
FURNISH AND INSTALL ROADSIDE UNIT (RSU) (ITEM 654.351)	1
FURNISH AND INSTALL NEW WIRELESS RADIO COMMUNICATIONS EQUIPMENT (ITEM 654.23)	1

THE LISTED QUANTITIES ARE APPROXIMATE AND ARE FURNISHED FOR INFORMATION ONLY.

EXISTING INDICATIONS



NOTE:  
ALL INDICATIONS 12" LIGHT EMITTING DIODES (LED'S)  
WITH 5" LOUVERED RETROREFLECTIVE BACKPLATES

EMERGENCY VEHICLE PREEMPTION OPERATION

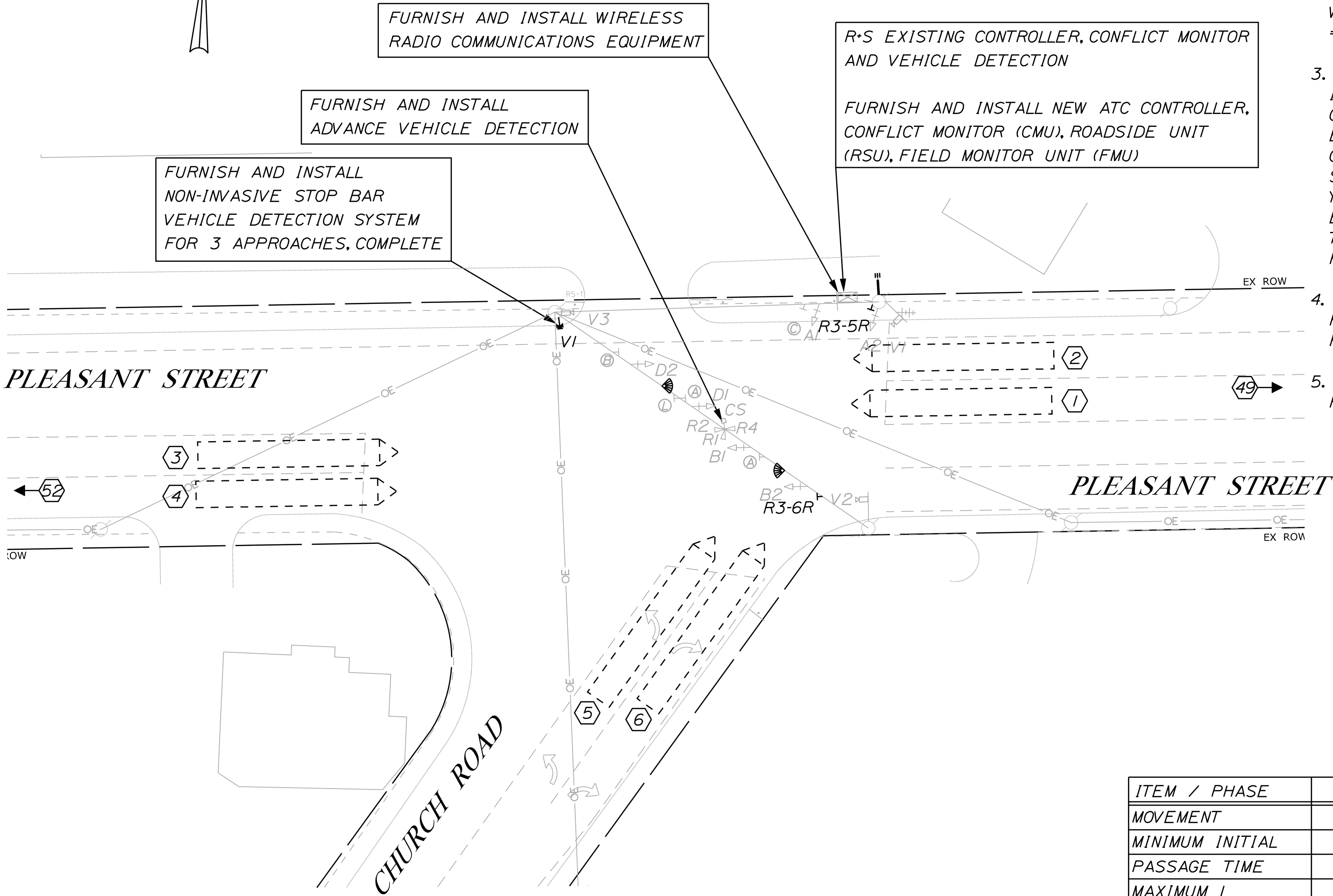
ID	PREEMPT ASSIGNMENT	TSP ASSIGNMENT	RECEIVER PRIORITY	ACTIVE PHASE
	1		NOT USED/RESERVED	
	2		NOT USED/RESERVED	
R3	3	7	1	Ø1&6 (WB)
R1	4	8	2	Ø2 (EB)
R2	5	9	3	Ø3 (NB)
R4	6	10	NOT USED/RESERVED	

PRE-EMPTION NOTES:

- EMERGENCY VEHICLE PRE-EMPTION SIGNALS SHALL BE TRANSMITTED BY OPTICAL EMITTERS (TYPICALLY EXISTING, BUT WHERE APPLICABLE PROVIDED BY OTHERS) AND/OR BY A DUAL MODE DSRC/C-V2X ON-BOARD UNIT (OBU) MOUNTED IN EMERGENCY VEHICLES COMMUNICATING WITH THE PROPOSED DUAL MODE DSRC/C-V2X ROAD SIDE UNIT (RSU) AND/OR RECEIVED BY OPTICAL DETECTORS LOCATED AT THE INTERSECTION.
- PRE-EMPTION SIGNALS SHALL BE SERVICED ON A PRIORITY BASIS WITH RECEIVERS ASSIGNED DESCENDING PRIORITIES (1 = HIGHEST, 4 = LOWEST)
- IN RESPONSE TO A PRE-EMPTION SIGNAL RECEIVED AT AN INTERSECTION BY AN OPTICAL DETECTOR AND/OR RSU, THE CONTROLLER SHALL HOLD OR ADVANCE TO AND HOLD THE EMERGENCY ACTIVE PHASE GREEN FOR A MINIMUM OF 10 SECONDS OR UNTIL THE PRE-EMPTION SIGNAL CEASES. THE CONTROLLER SHALL THEN TIME PRE-EMPTION PHASE CLEARANCE (4.0 SECONDS YELLOW AND 3.0 SECONDS ALL RED) AND SERVICE SUBSEQUENT EMERGENCY ACTIVE PHASES AS NECESSARY. AT THE COMPLETION OF THE PRE-EMPTION CYCLE, THE CONTROLLER SHALL TIME THE PRE-EMPTION CLEARANCE AND RESUME NORMAL SIGNAL OPERATION.
- MINIMUM GREEN AND NORMAL VEHICLE CLEARANCE SHALL BE PROVIDED ON PHASES THAT ARE TO BE TERMINATED BY PRE-EMPTION DEMAND.
- CONFIRMATION STROBES SHALL BE ILLUMINATED WHENEVER ANY PREEMPTION GREEN IS ON.

DETECTOR SCHEDULE

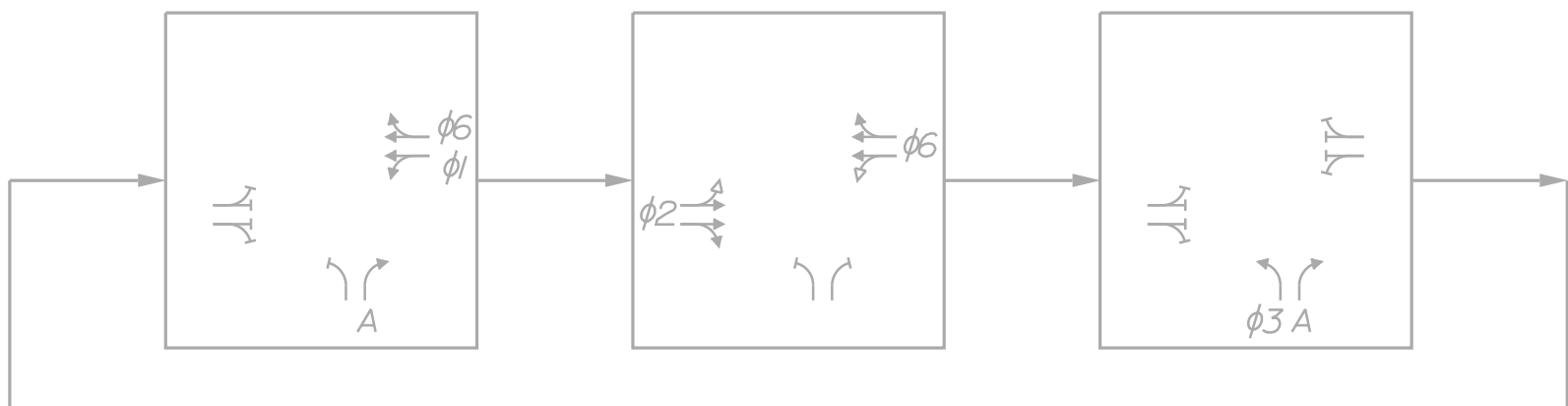
DETECTOR ZONE NO.	LOCATION	Ø CALLED	Ø EXT.	MODE A=ADVANCE B=STOPLINE	DELAY TIME	EXT. TIME
1	PLEASANT WB LEFT-THRU	1&6	1&6	B	-	-
2	PLEASANT WB THRU-RIGHT	6	6	B	-	-
3	PLEASANT EB LEFT-THRU	2	2	B	-	-
4	PLEASANT EB THRU-RIGHT	2	2	B	-	-
5	CHURCH NB LEFT	3	3	B	-	-
6	CHURCH NB RIGHT	3	3	B	5	-
49	PLEASANT WB ADVANCE	6	6	A	-	-
52	PLEASANT EB ADVANCE	2	2	A	-	-



EXISTING PHASE SEQUENCE

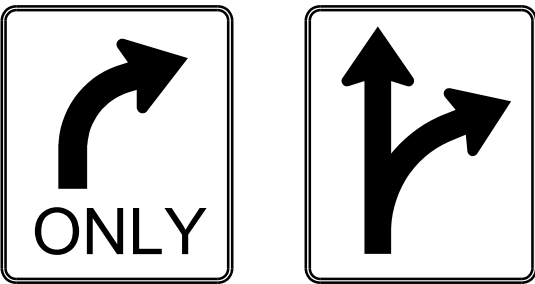
RING AND BARRIER DIAGRAM

1 2 3  
6



OVERLAP PHASING:  
OVL A = 1-3

PROPOSED SIGNS



R3-5R 30"x36" I-PROPOSED  
R3-6R 30"x36" I-PROPOSED

PROPOSED SIGNAL TIMING SCHEDULE

ITEM / PHASE	Ø 1	Ø 2	Ø 3	Ø 4	Ø 5	Ø 6	Ø 7	Ø 8
MOVEMENT	WBL	EB	NB	-	-	WB	-	-
MINIMUM INITIAL	5	10	5	-	-	10	-	-
PASSAGE TIME	2.0	3.0	3.0	-	-	3.0	-	-
MAXIMUM 1	10	45	30	-	-	45	-	-
MAXIMUM 2	15	60	25	-	-	60	-	-
YELLOW	4.0	4.0	3.5	-	-	4.0	-	-
ALL RED	3.0	3.0	2.5	-	-	3.0	-	-
PED WALK	-	-	-	-	-	-	-	-
PED CLEAR	-	-	-	-	-	-	-	-
DYN MAX LIMIT	15	55	40	-	-	55	-	-
DYN MAX STEP	5	10	5	-	-	10	-	-
RECALL	0	S	0	-	-	S	-	-
DETECTOR	NL	NL	NL	-	-	NL	-	-
PRE-EMPT PRIORITY	3	4	5	-	-	3	-	-
FLASH	R	Y	R	-	-	Y	-	-
DUAL ENTRY	OFF	ON	OFF	-	-	ON	-	-

NOTES: S = SOFT RECALL Y = YELLOW D = DARK  
O = RECALL OFF R = RED  
L = LOCKING DETECTOR MEMORY  
NL = NON-LOCKING DETECTOR MEMORY

PLAN



LOCATION 316



PROJ. MANAGER	B. KEEZER	BY	DATE
DESIGN-DETAILED	J. ROBERT	12/22	
CHECKED-REVIEWED	C. BOYD	03/24	
DESIGN-DETAILED			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			



LIST OF WORK ITEMS

EQUIPMENT AND WORK ITEMS 643.71	QUANTITY
REMOVE AND SALVAGE EXISTING SIGNAL CONTROLLER, CONFLICT MONITOR AND VEHICLE DETECTION SYSTEM	-
FURNISH AND INSTALL NEW SHELF MOUNT ATC CONTROLLER	1
FURNISH AND INSTALL NEW CONFLICT MONITOR (CMU)	1
FURNISH AND INSTALL AI-500-085-04 FIELD MONITORING UNIT (FMU)	1
IMPLEMENT LOCAL AND SYSTEM SIGNAL TIMINGS	-
FURNISH AND INSTALL NON-INVASIVE STOP BAR VEHICLE DETECTION SYSTEM FOR 4 APPROACHES (ITEM 643.21)	1
FURNISH AND INSTALL ADVANCE VEHICLE DETECTION SYSTEM FOR EB AND WB APPROACHES (ITEM 643.22)	2
FURNISH AND INSTALL ROADSIDE UNIT (RSU) (ITEM 654.35)	1
FURNISH AND INSTALL NEW WIRELESS RADIO COMMUNICATIONS EQUIPMENT (ITEM 654.23)	1

THE LISTED QUANTITIES ARE APPROXIMATE AND ARE FURNISHED FOR INFORMATION ONLY.

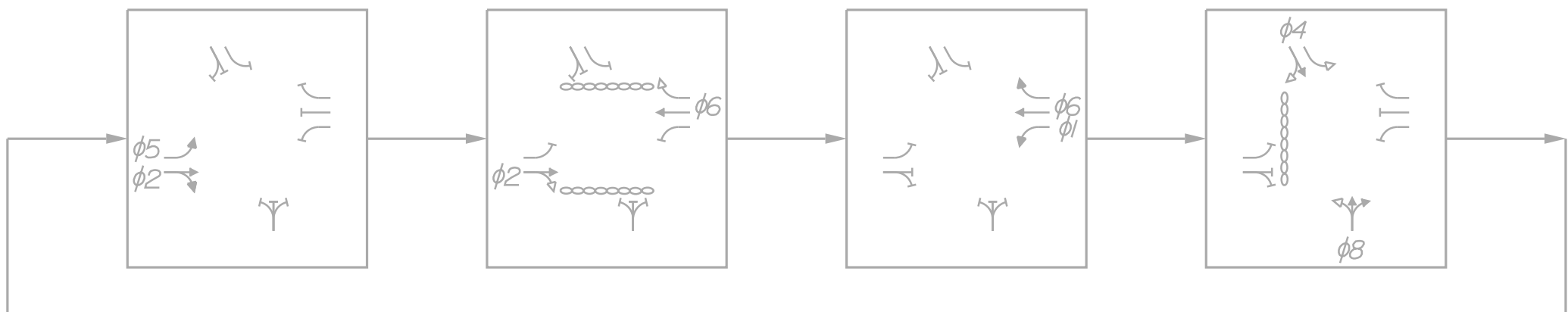
DETECTOR SCHEDULE

DETECTOR ZONE NO.	LOCATION	φ CALLED	φ EXT.	MODE A-ADVANCE B-STOPLINE	DELAY TIME	EXT. TIME
①	PLEASANT WB LEFT-THRU	1&6	1&6	B	-	-
②	PLEASANT WB THRU	6	6	B	-	-
③	PLEASANT WB RIGHT	6	6	B	5	-
④	PLEASANT EB LEFT-THRU	5&2	5&2	B	-	-
⑤	PLEASANT EB THRU-RIGHT	2	2	B	-	-
⑥	WEBSTER NB LEFT-THRU-RIGHT	8	8	B	-	-
⑦	RIVER SB LEFT	4	4	B	-	-
⑧	RIVER SB THRU-RIGHT	4	4	B	-	-
⑨	PLEASANT WB ADVANCE	6	6	A	-	-
⑫	PLEASANT EB ADVANCE	2	2	A	-	-

EXISTING PHASE SEQUENCE

RING AND BARRIER DIAGRAM

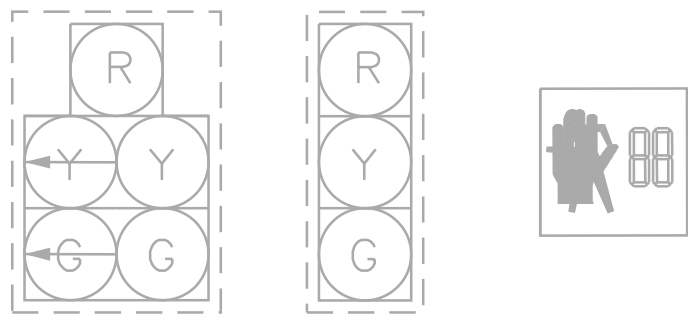
2 1 || 4  
5 6 || 8



PHASING NOTES:

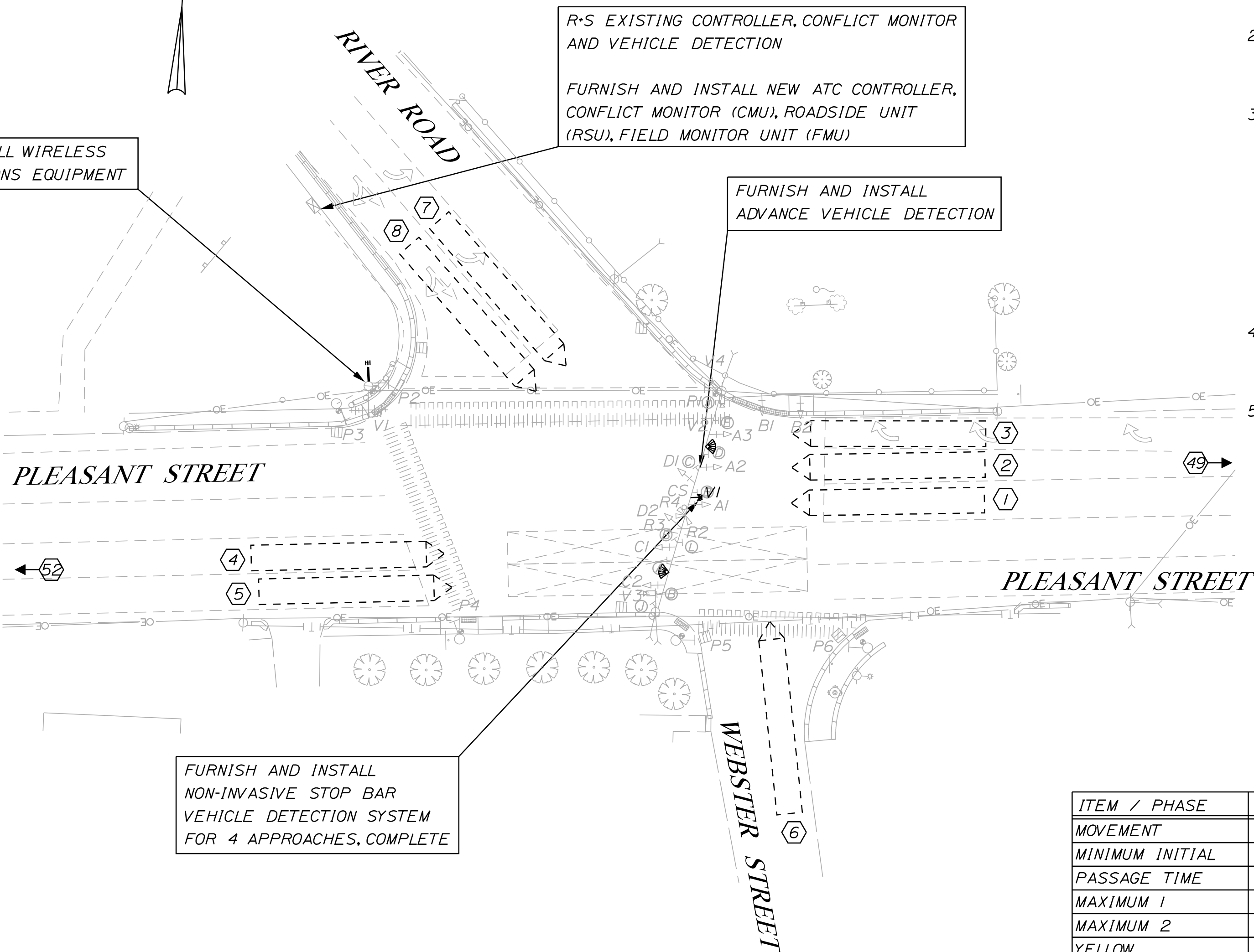
- EACH PEDESTRIAN PHASE SHALL HAVE A MINIMUM OF A 4 SECOND LEADING PEDESTRIAN INTERVAL (LPI).
- PEDESTRIAN PHASE UPON PUSH BUTTON ACTIVATION ONLY.

EXISTING INDICATIONS



AI,CI A2,A3,B1 P1-P6  
B2,C2,D1,D2

NOTE:  
ALL INDICATIONS 12" LIGHT EMITTING DIODES (LED'S)  
WITH 5" LOUVERED RETROREFLECTIVE BACKPLATES



EMERGENCY VEHICLE PREEMPTION OPERATION

ID	PREEMPT ASSIGNMENT	TSP ASSIGNMENT	RECEIVER PRIORITY	ACTIVE PHASE
R1	1		1	FIRE ST
	2		NOT USED/RESERVED	
R3	3	7	1	φ1&6 (WB)
R5	4	8	2	φ2&45 (EB)
R4	5	9	3	φ8 (NB)
R2	6	10	4	φ4 (SB)

PRE-EMPTION NOTES:

- EMERGENCY VEHICLE PRE-EMPTION SIGNALS SHALL BE TRANSMITTED BY OPTICAL EMITTERS (TYPICALLY EXISTING, BUT WHERE APPLICABLE PROVIDED BY OTHERS) AND/OR BY A DUAL MODE DSRC/C-V2X ON-BOARD UNIT (OBU) MOUNTED IN EMERGENCY VEHICLES COMMUNICATING WITH THE PROPOSED DUAL MODE DSRC/C-V2X ROAD SIDE UNIT (RSU) AND/OR RECEIVED BY OPTICAL DETECTORS LOCATED AT THE INTERSECTION.
- PRE-EMPTION SIGNALS SHALL BE SERVICED ON A PRIORITY BASIS WITH RECEIVERS ASSIGNED DESCENDING PRIORITIES (1 = HIGHEST, 4 = LOWEST)
- IN RESPONSE TO A PRE-EMPTION SIGNAL RECEIVED AT AN INTERSECTION BY AN OPTICAL DETECTOR AND/OR RSU, THE CONTROLLER SHALL HOLD OR ADVANCE TO AND HOLD THE EMERGENCY ACTIVE PHASE GREEN FOR A MINIMUM OF 10 SECONDS OR UNTIL THE PRE-EMPTION SIGNAL CEASES. THE CONTROLLER SHALL THEN TIME PRE-EMPTION PHASE CLEARANCE (4.0 SECONDS YELLOW AND 3.0 SECONDS ALL RED) AND SERVICE SUBSEQUENT EMERGENCY ACTIVE PHASES AS NECESSARY. AT THE COMPLETION OF THE PRE-EMPTION CYCLE, THE CONTROLLER SHALL TIME THE PRE-EMPTION CLEARANCE AND RESUME NORMAL SIGNAL OPERATION.
- MINIMUM GREEN AND NORMAL VEHICLE CLEARANCE SHALL BE PROVIDED ON PHASES THAT ARE TO BE TERMINATED BY PRE-EMPTION DEMAND.
- CONFIRMATION STROBES SHALL BE ILLUMINATED WHENEVER ANY PREEMPTION GREEN IS ON.

PROPOSED SIGNAL TIMING SCHEDULE

ITEM / PHASE	φ 1	φ 2	φ 3	φ 4	φ 5	φ 6	φ 7	φ 8
MOVEMENT	WBL	EBT	-	SB	EBL	WB	-	NB
MINIMUM INITIAL	5	10	-	5	5	10	-	5
PASSAGE TIME	2.0	3.0	-	2.0	2.0	3.0	-	2.0
MAXIMUM 1	7	45	-	30	15	45	-	30
MAXIMUM 2	7	60	-	35	15	60	-	35
YELLOW	4.0	4.0	-	3.0	4.0	4.0	-	3.0
ALL RED	3.0	3.0	-	3.0	3.0	3.0	-	3.0
PED WALK	-	6	-	7	-	6	-	-
PED CLEAR	-	10	-	13	-	22	-	-
DYN MAX LIMIT	-	55	-	35	20	55	-	35
DYN MAX STEP	-	10	-	5	5	10	-	5
RECALL	0	S	-	0	0	S	-	0
DETECTOR	NL	NL	-	NL	NL	NL	-	NL
PRE-EMPT PRIORITY	3	4	-	6	4	3	-	5
FLASH	R	Y	-	R	R	Y	-	R
DUAL ENTRY	OFF	ON	-	OFF	OFF	ON	-	OFF

NOTES: S = SOFT RECALL Y = YELLOW D = DARK  
0 = RECALL OFF R = RED  
L = LOCKING DETECTOR MEMORY  
NL = NON-LOCKING DETECTOR MEMORY

PLAN



LOCATION 317

\* - RIGHT-OF-WAY REFERENCE PROVIDED BY MAINEDOT SURVEY WITH ADDITIONAL REFERENCE TO TY LIN  
INTERNATION WITH HUNTER-BALLEW ASSOCIATES INTERSECTION IMPROVEMENT PLAN DATED 3/11/89

LIST OF WORK ITEMS

EQUIPMENT AND WORK ITEMS 643.71	QUANTITY
REMOVE AND SALVAGE EXISTING SIGNAL CONTROLLER, CONFLICT MONITOR AND VEHICLE DETECTION SYSTEM	-
FURNISH AND INSTALL NEW SHELF MOUNT ATC CONTROLLER	1
FURNISH AND INSTALL NEW CONFLICT MONITOR (CMU)	1
FURNISH AND INSTALL AI-500-085-04 FIELD MONITORING UNIT (FMU)	1
PROVIDE BUTTON ACTUATED EMERGENCY PREEMPTION FOR BRUNSWICK POLICE DEPARTMENT BUILDING	1
IMPLEMENT LOCAL AND SYSTEM SIGNAL TIMINGS	-
FURNISH AND INSTALL NON-INVASIVE STOP BAR VEHICLE DETECTION SYSTEM FOR 3 APPROACHES (ITEM 643.21)	1
FURNISH AND INSTALL ADVANCE VEHICLE DETECTION SYSTEM FOR EB AND SB APPROACHES (ITEM 643.22)	2
FURNISH AND INSTALL ROADSIDE UNIT (RSU) (ITEM 654.351)	1
FURNISH AND INSTALL NEW WIRELESS RADIO COMMUNICATIONS EQUIPMENT (ITEM 654.23)	1

THE LISTED QUANTITIES ARE APPROXIMATE AND ARE FURNISHED FOR INFORMATION ONLY.

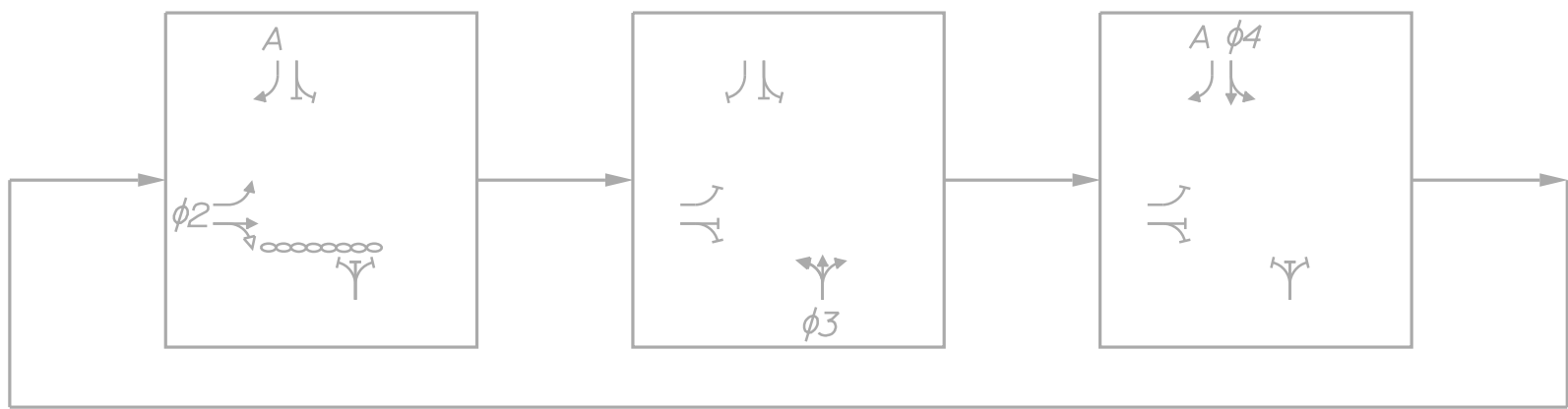
DETECTOR SCHEDULE

DETECTOR ZONE NO.	LOCATION	φ CALLED	φ EXT.	MODE A=ADVANCE B=STOPLINE	DELAY TIME	EXT. TIME
①	PLEASANT EB LEFT	2	2	B	-	-
②	PLEASANT EB THRU-RIGHT	2	2	B	-	-
③	STANWOOD NB LEFT	3	3	B	-	-
④	STANWOOD NB THRU-RIGHT	3	3	B	-	-
⑤	MILL SB LEFT-THRU	4	4	B	-	-
⑥	MILL SB RIGHT	4	4	B	-	-
④9	PLEASANT EB ADVANCE	2	2	A	-	-

EXISTING PHASE SEQUENCE

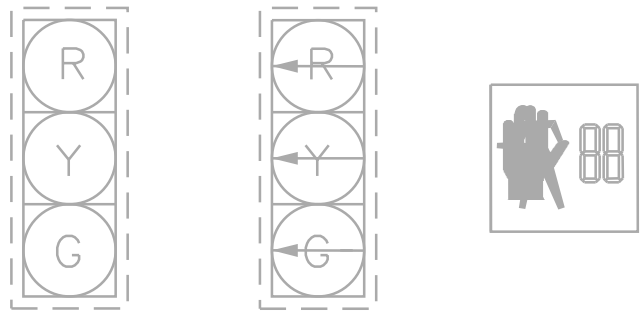
RING AND BARRIER DIAGRAM

2 || 3 4



OVERLAP PHASING:  
OVL A = 2+4

EXISTING INDICATIONS

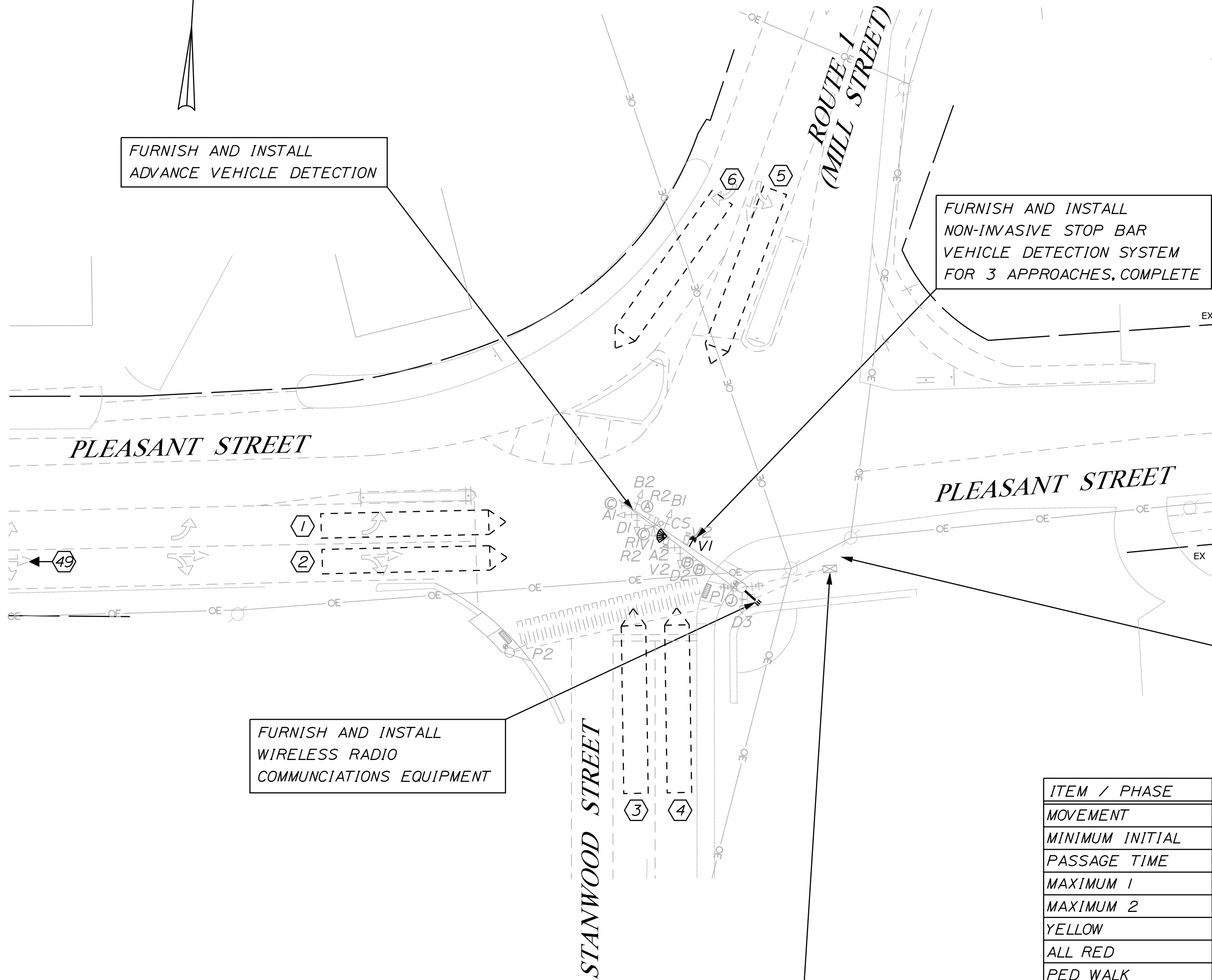


A1,A2,B1  
B2,D2,D3

DI

PI-P2

NOTE:  
ALL INDICATIONS 12" LIGHT EMITTING DIODES (LED'S)  
WITH 5" LOUVERED RETROREFLECTIVE BACKPLATES



EMERGENCY VEHICLE PREEMPTION OPERATION

ID	PREEMPT ASSIGNMENT	TSP ASSIGNMENT	RECEIVER PRIORITY	ACTIVE PHASE
R1	1		1	POLICE ST
	2			NOT USED/RESERVED
R2	3	7	1	φ2 (EB)
R4	4	8	2	φ3 (NB)
R3	5	9	3	φ4 (SB)
	6	10		NOT USED/RESERVED

PRE-EMPTION NOTES:

- EMERGENCY VEHICLE PRE-EMPTION SIGNALS SHALL BE TRANSMITTED BY OPTICAL EMITTERS (TYPICALLY EXISTING, BUT WHERE APPLICABLE PROVIDED BY OTHERS) AND/OR BY A DUAL MODE DSRC/C-V2X ON-BOARD UNIT (OBU) MOUNTED IN EMERGENCY VEHICLES COMMUNICATING WITH THE PROPOSED DUAL MODE DSRC/C-V2X ROAD SIDE UNIT (RSU) AND/OR RECEIVED BY OPTICAL DETECTORS LOCATED AT THE INTERSECTION.
- PRE-EMPTION SIGNALS SHALL BE SERVICED ON A PRIORITY BASIS WITH RECEIVERS ASSIGNED DESCENDING PRIORITIES (1 = HIGHEST, 4 = LOWEST)
- IN RESPONSE TO A PRE-EMPTION SIGNAL RECEIVED AT AN INTERSECTION BY AN OPTICAL DETECTOR AND/OR RSU, THE CONTROLLER SHALL HOLD OR ADVANCE TO AND HOLD THE EMERGENCY ACTIVE PHASE GREEN FOR A MINIMUM OF 10 SECONDS OR UNTIL THE PRE-EMPTION SIGNAL CEASES. THE CONTROLLER SHALL THEN TIME PRE-EMPTION PHASE CLEARANCE (4.0 SECONDS YELLOW AND 2.5 SECONDS ALL RED) AND SERVICE SUBSEQUENT EMERGENCY ACTIVE PHASES AS NECESSARY. AT THE COMPLETION OF THE PRE-EMPTION CYCLE, THE CONTROLLER SHALL TIME THE PRE-EMPTION CLEARANCE AND RESUME NORMAL SIGNAL OPERATION.
- MINIMUM GREEN AND NORMAL VEHICLE CLEARANCE SHALL BE PROVIDED ON PHASES THAT ARE TO BE TERMINATED BY PRE-EMPTION DEMAND.
- CONFIRMATION STROBES SHALL BE ILLUMINATED WHENEVER ANY PREEMPTION GREEN IS ON.

PROVIDE BUTTON ACTUATED EMERGENCY PREEMPTION FOR BRUNSWICK POLICE DEPARTMENT BUILDING VIA OVERHEAD AERIAL UTILITY POLES AND EXISTING UNDERGROUND CONDUIT.

PROPOSED SIGNAL TIMING SCHEDULE

ITEM / PHASE	φ 1	φ 2	φ 3	φ 4	φ 5	φ 6	φ 7	φ 8
MOVEMENT	-	EB	NB	SB	-	-	-	-
MINIMUM INITIAL	-	10	5	5	-	-	-	-
PASSAGE TIME	-	3.0	3.0	3.0	-	-	-	-
MAXIMUM 1	-	80	35	25	-	-	-	-
MAXIMUM 2	-	120	45	25	-	-	-	-
YELLOW	-	4.0	3.5	4.0	-	-	-	-
ALL RED	-	2.0	2.5	2.0	-	-	-	-
PED WALK	-	7	-	-	-	-	-	-
PED CLEAR	-	10	-	-	-	-	-	-
DYN MAX LIMIT	-	120	40	30	-	-	-	-
DYN MAX STEP	-	10	5	5	-	-	-	-
RECALL	-	S	0	0	-	-	-	-
DETECTOR	-	NL	NL	NL	-	-	-	-
PRE-EMPT PRIORITY	-	3	4	5	-	-	-	-
FLASH	-	Y	R	R	-	-	-	-
DUAL ENTRY	-	OFF	OFF	OFF	-	-	-	-

NOTES: S = SOFT RECALL Y = YELLOW D = DARK  
0 = RECALL OFF R = RED  
L = LOCKING DETECTOR MEMORY  
NL = NON-LOCKING DETECTOR MEMORY

PLAN



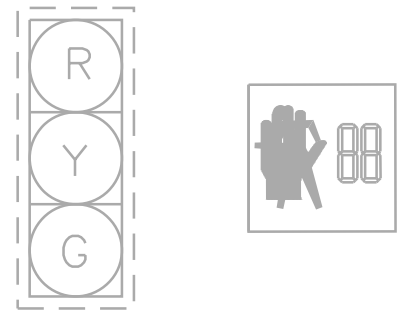
\*\* RIGHT-OF-WAY PROVIDED BY TOWN OF BRUNSWICK SIGNAL AND STRIPING IMPROVEMENT PLAN DATED 5/8/95

LIST OF WORK ITEMS

EQUIPMENT AND WORK ITEMS 643.71	QUANTITY
REMOVE AND SALVAGE EXISTING SIGNAL CONTROLLER, CONFLICT MONITOR AND VEHICLE DETECTION SYSTEM	-
FURNISH AND INSTALL NEW SHELF MOUNT ATC CONTROLLER	1
FURNISH AND INSTALL NEW CONFLICT MONITOR (CMU)	1
FURNISH AND INSTALL AI-500-085-04 FIELD MONITORING UNIT (FMU)	1
IMPLEMENT LOCAL AND SYSTEM SIGNAL TIMINGS	-
FURNISH AND INSTALL NON-INVASIVE STOP BAR VEHICLE DETECTION SYSTEM FOR 3 APPROACHES (ITEM 643.21)	1
FURNISH AND INSTALL ROADSIDE UNIT (RSU) (ITEM 654.351)	1

THE LISTED QUANTITIES ARE APPROXIMATE AND ARE FURNISHED FOR INFORMATION ONLY.

EXISTING INDICATIONS



B1,B2,C1  
C2,D1,D2  
P1-P8

NOTE:  
ALL INDICATIONS 12" LIGHT EMITTING DIODES (LED'S)  
WITH 5" LOUVERED RETROREFLECTIVE BACKPLATES

EMERGENCY VEHICLE PREEMPTION OPERATION

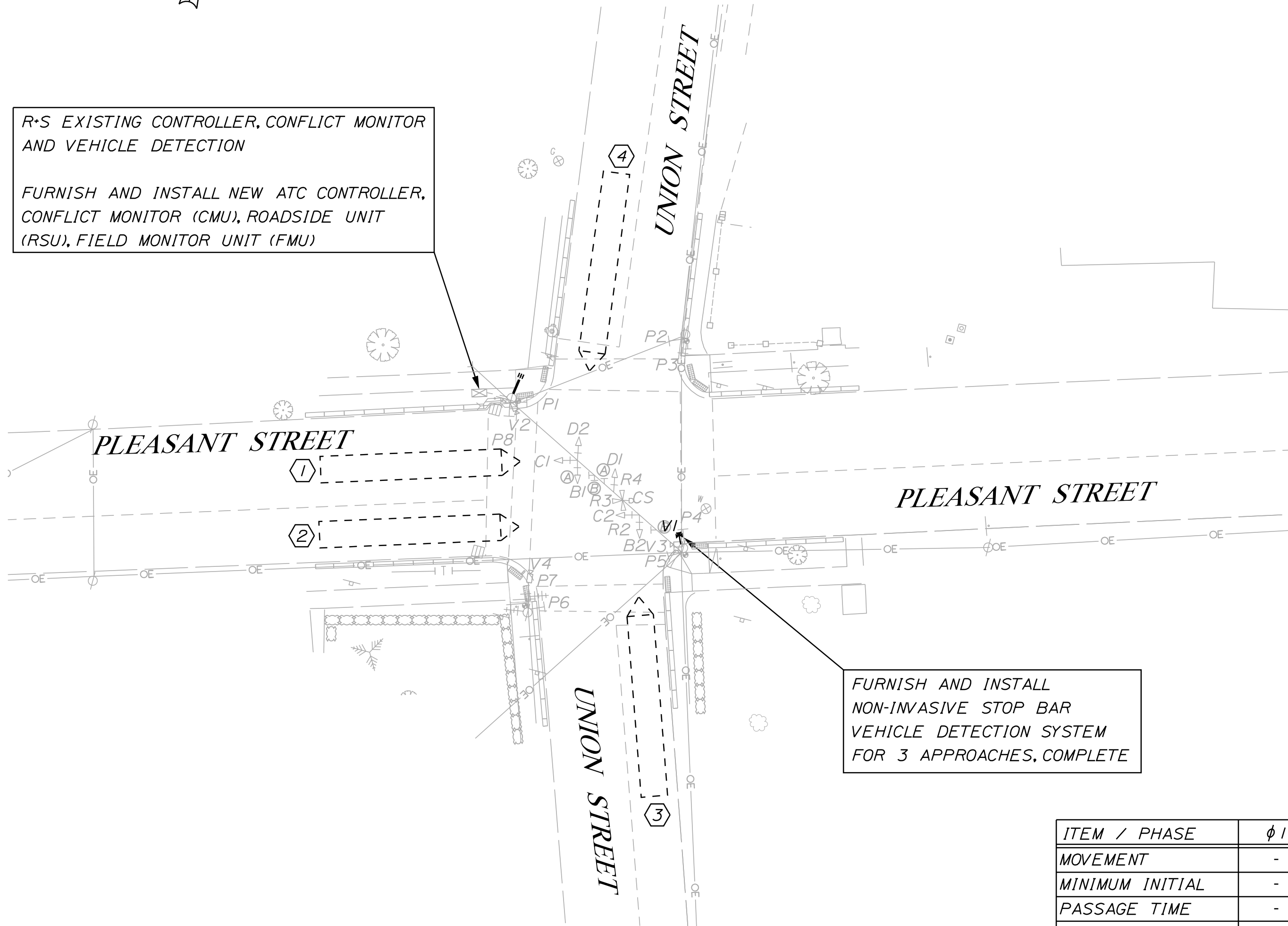
ID	PREEMPT ASSIGNMENT	TSP ASSIGNMENT	RECEIVER PRIORITY	ACTIVE PHASE
	1		NOT USED/RESERVED	
	2		NOT USED/RESERVED	
R3	3	7	1	Ø2 (EB)
R3	4	8	2	Ø4 (SB)
R2	5	9	3	Ø8 (NB)
	6	10	NOT USED/RESERVED	

PRE-EMPTION NOTES:

- EMERGENCY VEHICLE PRE-EMPTION SIGNALS SHALL BE TRANSMITTED BY OPTICAL EMITTERS (TYPICALLY EXISTING, BUT WHERE APPLICABLE PROVIDED BY OTHERS) AND/OR BY A DUAL MODE DSRC/C-V2X ON-BOARD UNIT (OBU) MOUNTED IN EMERGENCY VEHICLES COMMUNICATING WITH THE PROPOSED DUAL MODE DSRC/C-V2X ROAD SIDE UNIT (RSU) AND/OR RECEIVED BY OPTICAL DETECTORS LOCATED AT THE INTERSECTION.
- PRE-EMPTION SIGNALS SHALL BE SERVICED ON A PRIORITY BASIS WITH RECEIVERS ASSIGNED DESCENDING PRIORITIES (1 = HIGHEST, 4 = LOWEST)
- IN RESPONSE TO A PRE-EMPTION SIGNAL RECEIVED AT AN INTERSECTION BY AN OPTICAL DETECTOR AND/OR RSU ,THE CONTROLLER SHALL HOLD OR ADVANCE TO AND HOLD THE EMERGENCY ACTIVE PHASE GREEN FOR A MINIMUM OF 10 SECONDS OR UNTIL THE PRE-EMPTION SIGNAL CEASES. THE CONTROLLER SHALL THEN TIME PRE-EMPTION PHASE CLEARANCE (4.0 SECONDS YELLOW AND 2.5 SECONDS ALL RED) AND SERVICE SUBSEQUENT EMERGENCY ACTIVE PHASES AS NECESSARY. AT THE COMPLETION OF THE PRE-EMPTION CYCLE, THE CONTROLLER SHALL TIME THE PRE-EMPTION CLEARANCE AND RESUME NORMAL SIGNAL OPERATION.
- MINIMUM GREEN AND NORMAL VEHICLE CLEARANCE SHALL BE PROVIDED ON PHASES THAT ARE TO BE TERMINATED BY PRE-EMPTION DEMAND.
- CONFIRMATION STROBES SHALL BE ILLUMINATED WHENEVER ANY PREEMPTION GREEN IS ON.

R+S EXISTING CONTROLLER, CONFLICT MONITOR AND VEHICLE DETECTION

FURNISH AND INSTALL NEW ATC CONTROLLER, CONFLICT MONITOR (CMU), ROADSIDE UNIT (RSU), FIELD MONITOR UNIT (FMU)



FURNISH AND INSTALL NON-INVASIVE STOP BAR VEHICLE DETECTION SYSTEM FOR 3 APPROACHES, COMPLETE

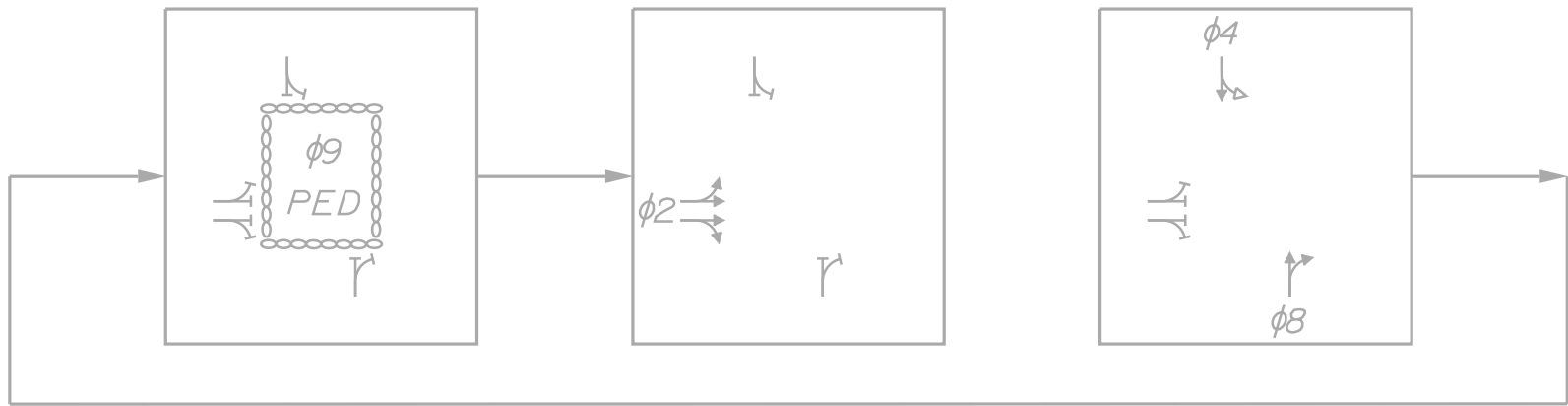
DETECTOR SCHEDULE

DETECTOR ZONE NO.	LOCATION	Ø CALLED	Ø EXT.	MODE A-ADVANCE B-STOPLINE	DELAY TIME	EXT. TIME
Ø1	PLEASANT EB LEFT-THRU	2	2	B	-	-
Ø2	PLEASANT EB THRU-RIGHT	2	2	B	-	-
Ø3	UNION NB LEFT-THRU-RIGHT	8	8	B	-	-
Ø4	UNION SB LEFT-THRU-RIGHT	4	4	B	-	-

EXISTING PHASE SEQUENCE

RING AND BARRIER DIAGRAM

9 || 2 || 4  
8



PROPOSED SIGNAL TIMING SCHEDULE

ITEM / PHASE	Ø 1	Ø 2	Ø 3	Ø 4	Ø 5	Ø 6	Ø 7	Ø 8	Ø 9
MOVEMENT	-	EB	-	SB	-	-	-	NB	PED
MINIMUM INITIAL	-	7	-	5	-	-	-	5	-
PASSAGE TIME	-	3.0	-	2.0	-	-	-	2.0	-
MAXIMUM 1	-	35	-	20	-	-	-	20	-
MAXIMUM 2	-	-	-	-	-	-	-	-	-
YELLOW	-	4.0	-	3.5	-	-	-	3.5	3.0
ALL RED	-	2.5	-	2.5	-	-	-	2.5	-
PED WALK	-	-	-	-	-	-	-	-	7
PED CLEAR	-	-	-	-	-	-	-	-	10
DYN MAX LIMIT	-	45	-	30	-	-	-	30	-
DYN MAX STEP	-	10	-	5	-	-	-	5	-
RECALL	-	S	-	0	-	-	-	0	0
DETECTOR	-	NL	-	NL	-	-	-	NL	L
PRE-EMPT PRIORITY	-	3	-	4	-	-	-	5	-
FLASH	-	R	-	R	-	-	-	R	-
DUAL ENTRY	-	OFF	-	ON	-	-	-	ON	OFF

NOTES: S = SOFT RECALL Y = YELLOW D = DARK  
0 = RECALL OFF R = RED  
L = LOCKING DETECTOR MEMORY  
NL = NON-LOCKING DETECTOR MEMORY

PLAN



LOCATION 319

\* - RIGHT-OF-WAY PROVIDED BY MAINEDOT SURVEY. SUPPLEMENTAL INFORMATION WAS OBTAINED BY VHB THROUGH FIELD REVIEWS AND INVENTORY CONDUCTED BY MAINE TRAFFIC RESOURCES AS A SUBCONSULTANT TO VHB ON NOVEMBER 4, 2011 AND WITH FOLLOW-UP BY VHB ON NOVEMBER 18, 2011.

STATE OF MAINE  
DEPARTMENT OF TRANSPORTATION  
PROJECT NO. 2613400 & 2613800  
WIN  
026134.00 & 026138.00 TRAFFIC PLANS

PROJ. MANAGER	B. KEEZER	BY	J. ROBERT	DATE	12/22
DESIGN-DETAILED	J. ROBERT	CHECKED-REVIEWED	C. BOBAY	03/24	
DESIGN-DETAILED		DESIGN-DETAILED			
REVISIONS 1		REVISIONS 2			
REVISIONS 3		REVISIONS 4			
FIELD CHANGES					

BRUNSWICK  
PLEASANT ST AT UNION ST  
TRAFFIC SIGNAL PLAN

SHEET NUMBER  
19  
OF 22



LIST OF WORK ITEMS

EQUIPMENT AND WORK ITEMS 643.71	QUANTITY
REMOVE AND SALVAGE EXISTING SIGNAL CONTROLLER, CONFLICT MONITOR AND VEHICLE DETECTION SYSTEM	-
FURNISH AND INSTALL NEW SHELF MOUNT ATC CONTROLLER	1
FURNISH AND INSTALL NEW CONFLICT MONITOR (CMU)	1
FURNISH AND INSTALL AI-500-085-04 FIELD MONITORING UNIT (FMU)	1
FURNISH AND INSTALL ONE-WAY, 5-INCH LOUVERED BACKPLATE WITH 3-INCH RETROREFLECTIVE BORDER FOR EXISTING 3-SECTION TRAFFIC SIGNAL HEAD	7
IMPLEMENT LOCAL AND SYSTEM SIGNAL TIMINGS	-
FURNISH AND INSTALL NON-INVASIVE STOP BAR VEHICLE DETECTION SYSTEM FOR 3 APPROACHES (ITEM 643.21)	1
FURNISH AND INSTALL ROADSIDE UNIT (RSU) (ITEM 654.351)	1
FURNISH AND INSTALL LANE USE SIGNS (ITEM 645.271)	9

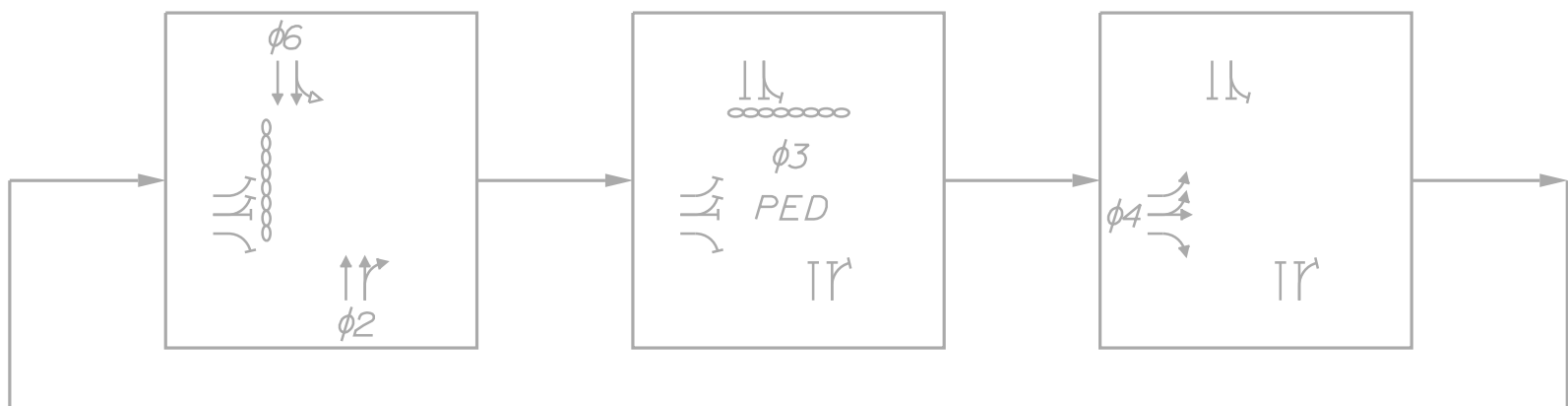
THE LISTED QUANTITIES ARE APPROXIMATE AND ARE FURNISHED FOR INFORMATION ONLY.

DETECTOR SCHEDULE

DETECTOR ZONE NO.	LOCATION	φ CALLED	φ EXT.	MODE A=ADVANCE B=STOPLINE	DELAY TIME	EXT. TIME
①	MAINE SB LEFT-THRU	6	6	B	-	-
②	MAINE SB THRU	6	6	B	-	-
③	MAINE NB THRU	2	2	B	-	-
④	MAINE NB THRU-RIGHT	2	2	B	-	-
⑤	PLEASANT EB LEFT	4	4	B	-	-
⑥	PLEASANT EB LEFT-THRU	4	4	B	-	-
⑦	PLEASANT EB RIGHT	4	4	B	5	-

EXISTING PHASE SEQUENCE

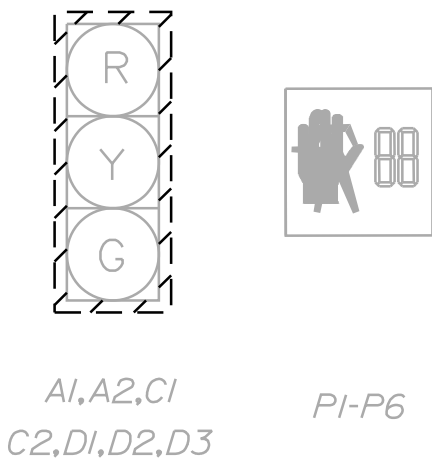
RING AND BARRIER DIAGRAM



PHASING NOTES:

- EACH PEDESTRIAN PHASE SHALL HAVE A MINIMUM OF A 4 SECOND LEADING PEDESTRIAN INTERVAL (LPI).
- PEDESTRIAN PHASE UPON PUSH BUTTON ACTIVATION ONLY.

EXISTING INDICATIONS



NOTE:  
ALL INDICATIONS 12" LIGHT EMITTING DIODES (LED'S)  
WITH 5" LOUVERED RETROREFLECTIVE BACKPLATES

R-S EXISTING CONTROLLER, CONFLICT MONITOR AND VEHICLE DETECTION  
  
FURNISH AND INSTALL NEW ATC CONTROLLER, CONFLICT MONITOR (CMU), ROADSIDE UNIT (RSU), FIELD MONITOR UNIT (FMU)

FURNISH AND INSTALL BACKPLATES WITH RETROREFLECTIVE BORDER

FURNISH AND INSTALL NON-INVASIVE STOP BAR VEHICLE DETECTION SYSTEM FOR 3 APPROACHES, COMPLETE

FURNISH AND INSTALL LANE USE SIGNS



R3-5L 30"x36" 1-PROPOSED  
R3-5A 30"x36" 2-PROPOSED  
R3-5R 30"x36" 1-PROPOSED  
R3-2 36"x36" 1-PROPOSED



R3-1 36"x36" 1-PROPOSED  
R3-6L 30"x36" 2-PROPOSED  
R3-6R 30"x36" 1-PROPOSED

LOCATION 320

EMERGENCY VEHICLE PREEMPTION OPERATION

ID	PREEMPT ASSIGNMENT	TSP ASSIGNMENT	RECEIVER PRIORITY	ACTIVE PHASE
	1		NOT USED/RESERVED	
	2		NOT USED/RESERVED	
R2	3	7	1	φ6 (SB)
R3	4	8	2	φ2 (NB)
R4	5	9	3	φ4 (EB)
	6	10	NOT USED/RESERVED	

PRE-EMPTION NOTES:

- EMERGENCY VEHICLE PRE-EMPTION SIGNALS SHALL BE TRANSMITTED BY OPTICAL EMITTERS (TYPICALLY EXISTING, BUT WHERE APPLICABLE PROVIDED BY OTHERS) AND/OR BY A DUAL MODE DSRC/C-V2X ON-BOARD UNIT (OBU) MOUNTED IN EMERGENCY VEHICLES COMMUNICATING WITH THE PROPOSED DUAL MODE DSRC/C-V2X ROAD SIDE UNIT (RSU) AND/OR RECEIVED BY OPTICAL DETECTORS LOCATED AT THE INTERSECTION.
- PRE-EMPTION SIGNALS SHALL BE SERVICED ON A PRIORITY BASIS WITH RECEIVERS ASSIGNED DESCENDING PRIORITIES (1 = HIGHEST, 4 = LOWEST)
- IN RESPONSE TO A PRE-EMPTION SIGNAL RECEIVED AT AN INTERSECTION BY AN OPTICAL DETECTOR AND/OR RSU, THE CONTROLLER SHALL HOLD OR ADVANCE TO AND HOLD THE EMERGENCY ACTIVE PHASE GREEN FOR A MINIMUM OF 10 SECONDS OR UNTIL THE PRE-EMPTION SIGNAL CEASES. THE CONTROLLER SHALL THEN TIME PRE-EMPTION PHASE CLEARANCE (3.5 SECONDS YELLOW AND 3.5 SECONDS ALL RED) AND SERVICE SUBSEQUENT EMERGENCY ACTIVE PHASES AS NECESSARY. AT THE COMPLETION OF THE PRE-EMPTION CYCLE, THE CONTROLLER SHALL TIME THE PRE-EMPTION CLEARANCE AND RESUME NORMAL SIGNAL OPERATION.
- MINIMUM GREEN AND NORMAL VEHICLE CLEARANCE SHALL BE PROVIDED ON PHASES THAT ARE TO BE TERMINATED BY PRE-EMPTION DEMAND.
- CONFIRMATION STROBES SHALL BE ILLUMINATED WHENEVER ANY PREEMPTION GREEN IS ON.

PROPOSED SIGNAL TIMING SCHEDULE

ITEM / PHASE	φ 1	φ 2	φ 3	φ 4	φ 5	φ 6	φ 7	φ 8
MOVEMENT	-	NB	PED	EB	-	SB	-	-
MINIMUM INITIAL	-	10	-	5	-	10	-	-
PASSAGE TIME	-	4.0	-	3.0	-	4.0	-	-
MAXIMUM 1	-	45	-	45	-	45	-	-
MAXIMUM 2	-	60	-	45	-	60	-	-
YELLOW	-	3.5	3.0	3.5	-	3.5	-	-
ALL RED	-	2.0	-	3.5	-	2.5	-	-
PED WALK	-	-	10	-	-	10	-	-
PED CLEAR	-	-	10	-	-	11	-	-
DYN MAX LIMIT	-	55	-	55	-	55	-	-
DYN MAX STEP	-	10	-	5	-	10	-	-
RECALL	-	MIN	0	0	-	MIN	-	-
DETECTOR	-	NL	L	NL	-	NL	-	-
PRE-EMPT PRIORITY	-	4	-	5	-	3	-	-
FLASH	-	Y	-	R	-	Y	-	-
DUAL ENTRY	-	ON	OFF	OFF	-	ON	-	-

NOTES: S = SOFT RECALL Y = YELLOW D = DARK  
O = RECALL OFF R = RED  
L = LOCKING DETECTOR MEMORY  
NL = NON-LOCKING DETECTOR MEMORY

PLAN



\* - RIGHT-OF-WAY INFORMATION FROM MAINE OFFICE OF GEOGRAPHIC INFORMATION SYSTEMS - AUGUST 7, 2018



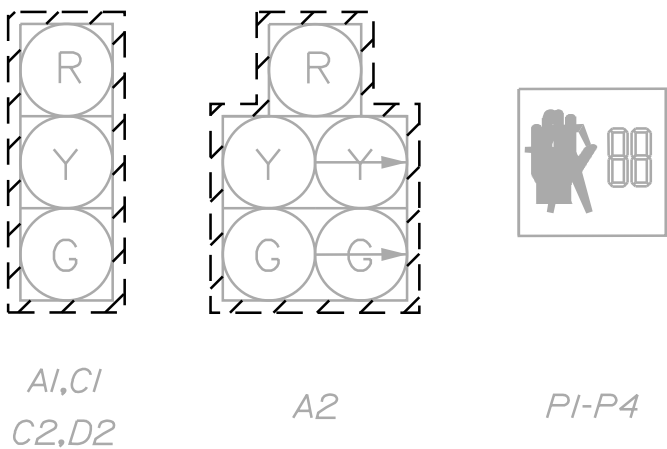
PROJ. MANAGER	B. KEEZER	BY	DATE
DESIGN-DETAILED	J. ROBERT	12/22	
CHECKED-REVIEWED	C. BOYD	03/24	
DESIGN-DETAILED			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

LIST OF WORK ITEMS

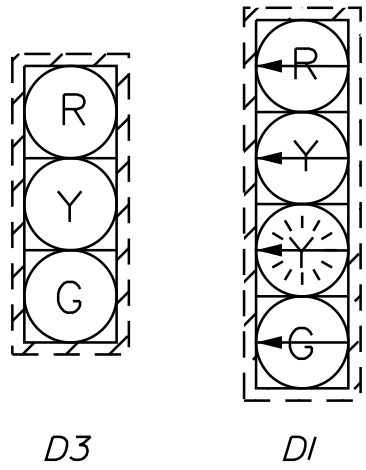
EQUIPMENT AND WORK ITEMS 643.71	QUANTITY
REMOVE AND SALVAGE EXISTING SIGNAL CONTROLLER, CONFLICT MONITOR AND VEHICLE DETECTION SYSTEM	-
FURNISH AND INSTALL NEW SHELF MOUNT ATC CONTROLLER	1
FURNISH AND INSTALL NEW CONFLICT MONITOR (CMU)	1
FURNISH AND INSTALL AI-500-085-04 FIELD MONITORING UNIT (FMU)	1
FURNISH AND INSTALL ONE-WAY, 3-SECTION 12-INCH SIGNAL HEAD WITH LED MODULES AND 5-INCH LOUVERED BACKPLATE WITH 3-INCH RETROREFLECTIVE BORDER	1
FURNISH AND INSTALL ONE-WAY, 4-SECTION 12-INCH SIGNAL HEAD WITH LED MODULES AND 5-INCH LOUVERED BACKPLATE WITH 3-INCH RETROREFLECTIVE BORDER	1
FURNISH AND INSTALL ONE-WAY, 5-INCH LOUVERED BACKPLATE WITH 3-INCH RETROREFLECTIVE BORDER FOR EXISTING 3-SECTION TRAFFIC SIGNAL HEAD	4
FURNISH AND INSTALL ONE-WAY, 5-INCH LOUVERED BACKPLATE WITH 3-INCH RETROREFLECTIVE BORDER FOR EXISTING 5-SECTION TRAFFIC SIGNAL HEAD	1
IMPLEMENT LOCAL AND SYSTEM SIGNAL TIMINGS	-
FURNISH AND INSTALL NON-INVASIVE STOP BAR VEHICLE DETECTION SYSTEM FOR 3 APPROACHES (ITEM 643.21)	1
FURNISH AND INSTALL LANE USE SIGNS (ITEM 645.271)	1
FURNISH AND INSTALL ROADSIDE UNIT (RSU) (ITEM 654.351)	1

THE LISTED QUANTITIES ARE APPROXIMATE AND ARE FURNISHED FOR INFORMATION ONLY.

EXISTING INDICATIONS



PROPOSED INDICATIONS



NOTE:  
ALL INDICATIONS SHALL BE 12" LIGHT EMITTING DIODES (LED'S)  
WITH 5" LOUVERED RETROREFLECTIVE BACKPLATES

EMERGENCY VEHICLE PREEMPTION OPERATION

ID	PREEMPT ASSIGNMENT	TSP ASSIGNMENT	RECEIVER PRIORITY	ACTIVE PHASE
	1		NOT USED/RESERVED	
	2		NOT USED/RESERVED	
R3	3	7	1	φ6 (SB)
R4	4	8	2	φ2&φ5 (NB)
	5	9	NOT USED/RESERVED	
	6	10	NOT USED/RESERVED	

- PRE-EMPTION NOTES:
- EMERGENCY VEHICLE PRE-EMPTION SIGNALS SHALL BE TRANSMITTED BY OPTICAL EMITTERS (TYPICALLY EXISTING, BUT WHERE APPLICABLE PROVIDED BY OTHERS) AND/OR BY A DUAL MODE DSRC/C-V2X ON-BOARD UNIT (OBU) MOUNTED IN EMERGENCY VEHICLES COMMUNICATING WITH THE PROPOSED DUAL MODE DSRC/C-V2X ROAD SIDE UNIT (RSU) AND/OR RECEIVED BY OPTICAL DETECTORS LOCATED AT THE INTERSECTION.
  - PRE-EMPTION SIGNALS SHALL BE SERVICED ON A PRIORITY BASIS WITH RECEIVERS ASSIGNED DESCENDING PRIORITIES (1 = HIGHEST, 4 = LOWEST)
  - IN RESPONSE TO A PRE-EMPTION SIGNAL RECEIVED AT AN INTERSECTION BY AN OPTICAL DETECTOR AND/OR RSU, THE CONTROLLER SHALL HOLD OR ADVANCE TO AND HOLD THE EMERGENCY ACTIVE PHASE GREEN FOR A MINIMUM OF 10 SECONDS OR UNTIL THE PRE-EMPTION SIGNAL CEASES. THE CONTROLLER SHALL THEN TIME PRE-EMPTION PHASE CLEARANCE (3.5 SECONDS YELLOW AND 2.5 SECONDS ALL RED) AND SERVICE SUBSEQUENT EMERGENCY ACTIVE PHASES AS NECESSARY. AT THE COMPLETION OF THE PRE-EMPTION CYCLE, THE CONTROLLER SHALL TIME THE PRE-EMPTION CLEARANCE AND RESUME NORMAL SIGNAL OPERATION.
  - MINIMUM GREEN AND NORMAL VEHICLE CLEARANCE SHALL BE PROVIDED ON PHASES THAT ARE TO BE TERMINATED BY PRE-EMPTION DEMAND.
  - CONFIRMATION STROBES SHALL BE ILLUMINATED WHENEVER ANY PREEMPTION GREEN IS ON.

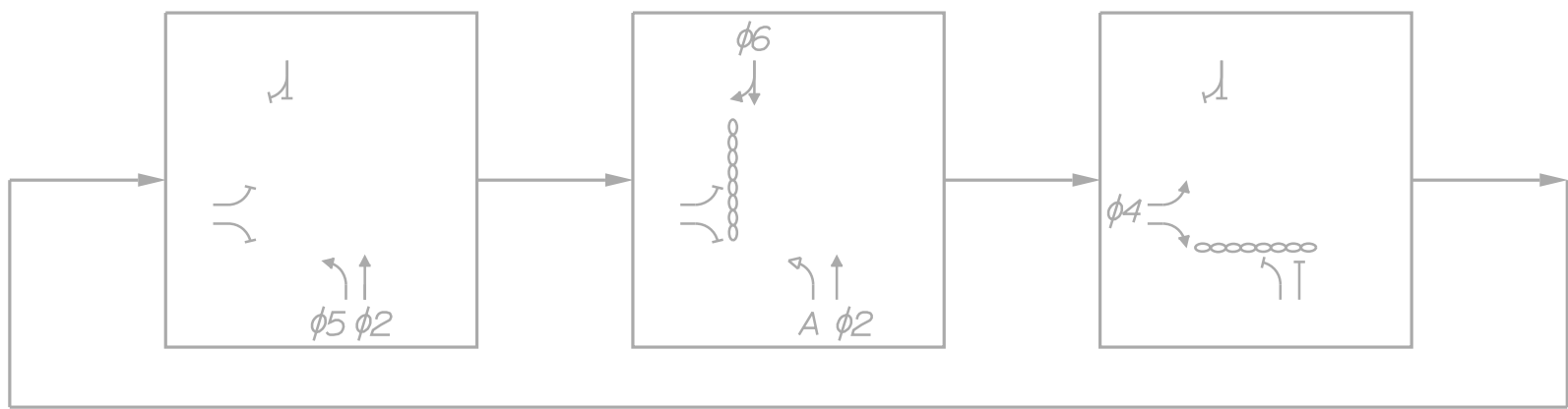
DETECTOR SCHEDULE

DETECTOR ZONE NO.	LOCATION	φ CALLED	φ EXT.	MODE A=ADVANCE B=STOPLINE	DELAY TIME	EXT. TIME
①	MCKEEN SB THRU-RIGHT	6	6	B	-	-
②	MAINE NB LEFT	5	5	B	-	-
③	MAINE NB THRU	2	2	B	-	-
④	MCKEEN EB LEFT	3	3	B	-	-
⑤	MCKEEN EB RIGHT	3	3	B	5	-

EXISTING PHASE SEQUENCE

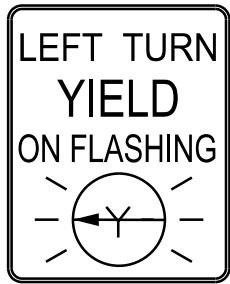
RING AND BARRIER DIAGRAM

2 || 4  
5 6



OVERLAP PHASING: PHASING NOTES:  
OVL A = 5+6  
1. EACH PEDESTRIAN PHASE SHALL HAVE A MINIMUM OF A 4 SECOND LEADING PEDESTRIAN INTERVAL (LPI).  
2. PEDESTRIAN PHASE UPON PUSH BUTTON ACTIVATION ONLY.

PROPOSED SIGNS



RI0-12A  
30"x36"  
I-PROPOSED

LOCATION 321

PROPOSED SIGNAL TIMING SCHEDULE

ITEM / PHASE	φ 1	φ 2	φ 3	φ 4	φ 5	φ 6	φ 7	φ 8
MOVEMENT	-	NB	-	EB	NBL	SB	-	-
MINIMUM INITIAL	-	5	-	5	5	5	-	-
PASSAGE TIME	-	3.0	-	3.0	3.0	3.0	-	-
MAXIMUM 1	-	40	-	20	15	40	-	-
MAXIMUM 2	-	40	-	20	15	40	-	-
YELLOW	-	3.5	-	3.5	3.5	3.5	-	-
ALL RED	-	2.5	-	2.5	2.5	2.5	-	-
PED WALK	-	-	-	5	-	5	-	-
PED CLEAR	-	-	-	10	-	10	-	-
DYN MAX LIMIT	-	50	-	30	20	50	-	-
DYN MAX STEP	-	10	-	5	5	10	-	-
RECALL	-	S	-	0	0	S	-	-
DETECTOR	-	NL	-	NL	NL	NL	-	-
PRE-EMPT PRIORITY	-	4	-	-	4	3	-	-
FLASH	-	Y	-	R	R	Y	-	-
DUAL ENTRY	-	ON	-	-	OFF	ON	-	-

NOTES: S = SOFT RECALL Y = YELLOW D = DARK  
O = RECALL OFF R = RED  
L = LOCKING DETECTOR MEMORY  
NL = NON-LOCKING DETECTOR MEMORY

PLAN



\* - RIGHT-OF-WAY INFORMATION FROM MAINE OFFICE OF GEOGRAPHIC INFORMATION SYSTEMS - AUGUST 7, 2018



PROJ. MANAGER	B. KEEZER	BY	DATE
DESIGN-DETAILED	READY	JROBERT	12/22
CHECKED-REVIEWED	CEOBAY	CEOBAY	03/24
DESIGN-DETAILED			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

NOTE: ALL PROJECT INTERSECTIONS WILL BE REMOTELY CONNECTED AND OPERATED VIA THE EXISTING FIBER OPTIC AND WIRELESS SYSTEM AND FMU TO THE MAINEDOT TMC. PROJECT INTERSECTIONS WILL BE INTEGRATED TO THE CENTRAL CENTRACS SYSTEM FOR REMOTE MANAGEMENT, COORDINATION OR ADAPTIVE CONTROL OF SIGNALS.

MAP LEGEND

EXISTING FIBER OPTIC CABLE

EXISTING COPPER INTERCONNECT

EXISTING CONTROLLER CABINET

EXISTING WIRELESS INTERCONNECT DEVICE

EXISTING SOLAR POWERED WIRELESS REPEATER ON MAINEDOT WOOD POLE

#

PROPOSED PROJECT INTERSECTION  
(LOCATION NUMBER IS SIGNAL SYSTEM DROP NUMBER)

EXISTING ROUTER INSTALLATION FOR CONNECTION TO REGIONAL ADVANCED TRAFFIC MANAGEMENT SYSTEM SERVER LOCATED AT BRUNSWICK POLICE DEPARTMENT STANWOOD STREET STATION

#

EXISTING PROJECT INTERSECTION  
(LOCATION NUMBER IS SIGNAL SYSTEM DROP NUMBER)

