

816.01 - Gorham and Moore

40 20 0 40 Feet



10' TS Post w/ ped button and ped signal
One head-three segment light for Gorham Street

Mount SPVD and emergency preemption on mast arm

8' TS Post w/ped button and ped signal

New Cabinet with ATC Controller,
Emergency Pre-emption, and SPVD system

10' TS Post w/ ped button and ped signal.
One head-three segment signal for Dix Street and
One head-three segment signal for Gorham Street.

8' TS Post w/ped button and ped signal

- Item List:
- 1 SPVD System
 - 1 Emergency Pre-emption System (for Moore EB and Gorham SB Traffic Only)
 - 1 ATC Controller
 - 1 Cabinet
 - 2 TS Post 8' w/ped button and ped signals
 - 2 TS Post 10' w/ped button and ped signal and traffic signal

NOTES:

1. All conduits, pavement markings and signage completed under previous contract by paving contractor.

DIX ST

GORHAM ST

MOORE ST

**816.02 - Dutton and Merrimack/
Merrimack and Worthen**



Remove pavement lane lines.
Paint STOP at stop line.
Paint T & L for new parking spaces
Paint Thru arrow on top of right only arrow to create Right-Thru only marking

Install two (2) R1-1 stop signs (30"x30")
Install two (2) R3-2 no left turn (24"x24")
Remove 'Right Lane Must Turn Right' Sign

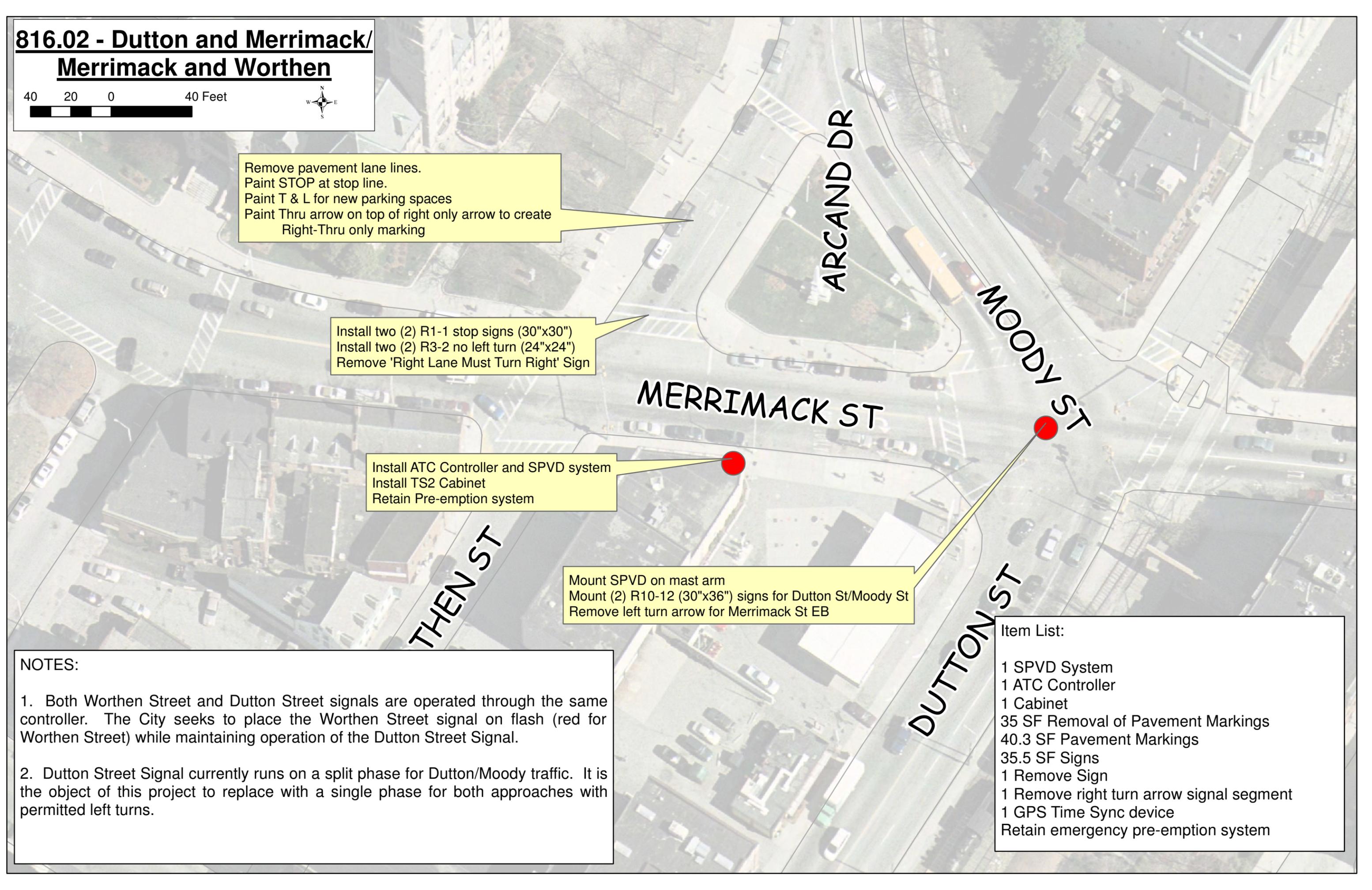
Install ATC Controller and SPVD system
Install TS2 Cabinet
Retain Pre-emption system

Mount SPVD on mast arm
Mount (2) R10-12 (30"x36") signs for Dutton St/Moody St
Remove left turn arrow for Merrimack St EB

NOTES:

- Both Worthen Street and Dutton Street signals are operated through the same controller. The City seeks to place the Worthen Street signal on flash (red for Worthen Street) while maintaining operation of the Dutton Street Signal.
- Dutton Street Signal currently runs on a split phase for Dutton/Moody traffic. It is the object of this project to replace with a single phase for both approaches with permitted left turns.

- Item List:
- 1 SPVD System
 - 1 ATC Controller
 - 1 Cabinet
 - 35 SF Removal of Pavement Markings
 - 40.3 SF Pavement Markings
 - 35.5 SF Signs
 - 1 Remove Sign
 - 1 Remove right turn arrow signal segment
 - 1 GPS Time Sync device
 - Retain emergency pre-emption system



816.03 - Dutton and Market

40 20 0 40 Feet



Remove R3-8 lane designation sign

Remove (3) pavement arrows and (3) ONLY markings.

Remove one signal head for SB traffic
Adjust remaining signal heads to align with lanes
Place protected left signal under remaining signal
Mount (2) R10-12 (30"x36") signs for Dutton St
Remove R3-8 sign

WORTHEN ST

MARKET ST

DUTTON ST

SHATTUCK ST

NOTES:

1. Dutton Street SB traffic has a designated left turn only lane which is being converted to a through-left turn lane.
2. The leading/lagging left turn phases will be preserved.

Item List:

- 109 SF Removal of Pavement Markings
- 15 SF Signs
- 2 Remove Sign
- 1 Remove signal head
- 1 Adjust signal heads

816.04 - Market and Central

40 20 0 40 Feet



MARKET ST

CENTRAL ST

PRESCOTT ST

Remove Yield to Pedestrian on Crosswalk signs

Retime ATC to include exclusive pedestrian phase and lagging protected left turn for NB Central Street traffic

Add sign "All Bridge Street Traffic" with diagonal arrow pointing towards Prescott Street

Add sign "All Bridge Street Traffic" with diagonal arrow pointing towards Prescott Street

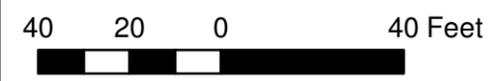
NOTES:

1. Due to heavy volume of turning traffic and conflicting pedestrian traffic, an exclusive pedestrian phase will be implemented at this intersection.
2. A lagging protected left turn phases will be added to the Central St NB traffic.

Item List:

- 1 Adjust ATC timings
- 1 Remove Sign
- 1 Add Left Turn Arrow to NB Central St
- 18 SF Sign

816.05 - Merrimack and Central



JOHN ST

MERRIMACK ST

CITY AV

CENTRAL ST

TT ST

Make ped phase concurrent on east side of intersection to left turn
Close crosswalk on west side of intersection at all times

Switch both green lenses to left arrow lenses

Obliterate right turn arrows from pavement markings
Add 2 Left Turn Only R3-5 (30"x36") signs
Add 2 ONLY pavement markings

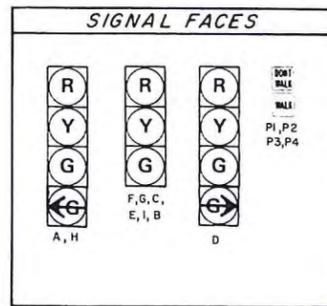
NOTES:

1. Due to heavy volume of turning traffic and conflicting pedestrian traffic, a left turn only restriction will be implemented with a concurrent ped crossing on the east side of the intersection.
2. All pedestrian traffic accross Merrimack Street will be guided to east side of intersection.

Item List:

- 1 Adjust ATC timings
- 15 SF Left Turn Only Sign
- 2 Left Turn Arrow Lenses
- 31 SF obliterate pavement markings
- 41 SF pavement markings

816.01 Gorham & Moore
Signal ID # 27



DETECTOR	ASSOC. PHASE	AMPLIFIER
D1	A	1st Magnetic
D2	A	2nd Magnetic
D3*	B**	1st Wire Loop
D4*	C	2nd Wire Loop
D5*	C	3rd Wire Loop

* All Wire Loop Detectors to Operate in Presence Mode.
** Detector "D3" is a Delayed Called Detector. The Delay Setting for this Detector shall be 5 seconds

ITEM NO. 85.42	
MAJOR ITEMS REQUIRED	
QTY	ITEM
1	Type 4W Controller with CP or CB Base Mounted Cabinet.
1	30' Type II Mast Arm
1	Time Clock
3	Signal Pole & Base Standard-10 Feet
6	One Way Signal Heads-3 Section-12" Lenses
3	One Way Signal Heads-A Section-12" Lenses
3	12"x12" Pull Boxes
2	8"x29" Pull Boxes
3	Wire Loop Detectors (Multi-Loop Configuration)
3	Wire Loop Detector Amplifiers
2	Multi-Loop Non Compensated Magnetic Detector
2	Magnetic Detector Amplifiers
1	120 Volt Service Connection
4	Type A Pedestrian Signal Heads (1-Way)
3	Pedestrian Pushbuttons With Signs and Saddles
Necessary Duct Cable, Foundations, Labor, Miscellaneous Material And Equipment To Complete The Installation	

TRAFFIC SIGNAL PHASING & TIMING FOR FULLY-ACTUATED TRAFFIC CONTROL

STREET	DIRECTION	FACES	PHASE A	PHASE B	PHASE C	PHASE D	EMERGENCY OPERATION
Gorham Street	N.B.	F, G, C	G Y R	R R R	R R R	R R R	FLASH Y
Gorham Street	S.B.	A, H	G ⁶⁰ ⁶⁰ ⁶⁰	⁶⁰ Y R	R R R	R R R	FLASH Y
Gorham Street	S.B.	B	G ⁶⁰ ⁶⁰ ⁶⁰	G Y R	R R R	R R R	FLASH Y
Moore Street	W.B.	E, I	R R R	R R R	G Y R	R R R	FLASH R
Moore Street	W.B.	D	R R R	⁶⁰ ⁶⁰ ⁶⁰	G Y R	R R R	FLASH R
Pedestrian		P	DW DW DW	DW DW DW	DW DW DW	Walk FDW	OFF

① If ϕB is Skipped This Shall Become Y
② If ϕB is Skipped This Shall Become R
③ If ϕC is Skipped This Shall Become Y

④ If ϕC is Skipped This Shall Become R
⑤ If ϕB is Next This Shall Become Y
⑥ If ϕB is Next This Shall Become R

TIMING IN SECONDS							
ADVANCE GREEN							
MINIMUM GREEN		15.5		4		8	
INITIAL INTERVAL		12		3		6	
VEHICLE INTERVAL		3.5		1		2	
MAXIMUM GREEN		60		30		30	
YELLOW CLEAR			3		3		3
ALL RED CLEAR					2		0
WALK INTERVAL							7
PED. CLEARANCE							12
DETECTOR		lock		Non Lock		Non Lock	
RECALL		ON		OFF		OFF	

IN CHARGE OF PAL
DESIGNED BY VUS
CHECKED BY LMB
DRAWN BY WAG
CHECKED BY WAT

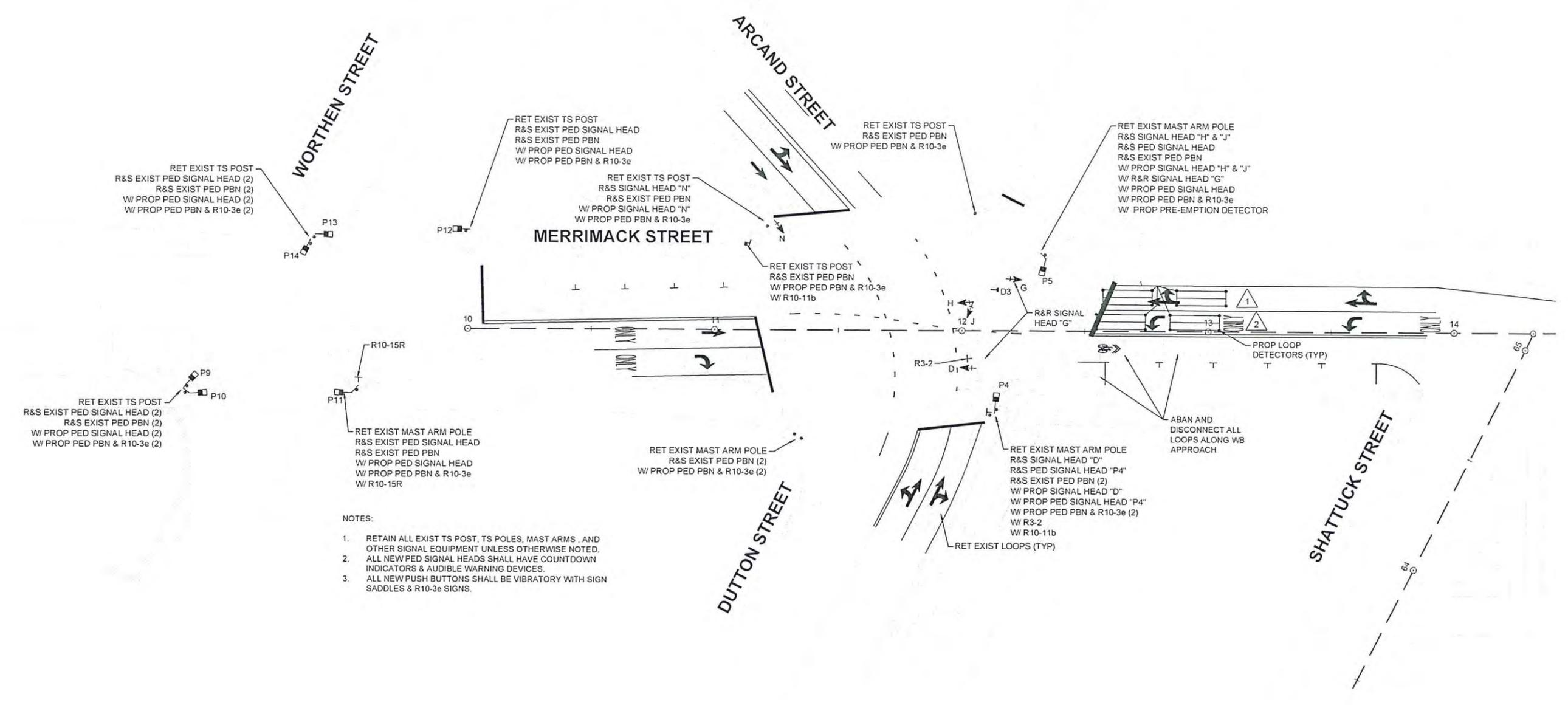
CITY OF LOWELL, MASSACHUSETTS
DIVISION OF PLANNING AND DEVELOPMENT

TRAFFIC SIGNALIZATION

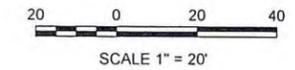
NO SCALE
SCALE
5-31-79
DATE
13 of 25
SHEET

STORCH ASSOCIATES
TWO CHARLES GATE WEST BOSTON, MASSACHUSETTS

816.02 Dutton & Merrimack
 Merrimack & Worthen
 Signal ID = 46



- NOTES:
1. RETAIN ALL EXIST TS POST, TS POLES, MAST ARMS, AND OTHER SIGNAL EQUIPMENT UNLESS OTHERWISE NOTED.
 2. ALL NEW PED SIGNAL HEADS SHALL HAVE COUNTDOWN INDICATORS & AUDIBLE WARNING DEVICES.
 3. ALL NEW PUSH BUTTONS SHALL BE VIBRATORY WITH SIGN SADDLES & R10-3e SIGNS.



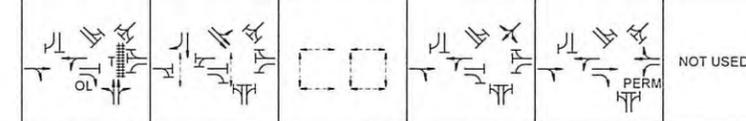
SEE SHEET 12 FOR SIGN SUMMARY

816-02 - CONT

T0462_LOWELL_S_SIGNAL_PLANS.DWG Plotted on 27-Jan-2014 3:25 PM

PROPOSED SEQUENCE AND TIMING																			
APPROACH	DIRECTION	HOUSING	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	FLASHING OPERATION	
MINIMUM INTERVAL			10			10						4			10				
VEHICLE EXTENSION			3			3						0			3				
MAXIMUM 1			20			35						4			30				
MAXIMUM 2			35			30						4			35				
YELLOW CLEARANCE				3.0			3.0						3.0			3.0			
RED CLEARANCE					1.5			1.5						1.0			2.0		
WALK						7.0			7										
PEDESTRIAN CLEARANCE						2.0	3.0	3.0		24.0	1								
MERRIMACK STREET EAST	EB-T	H	R	R	R	R	R	R	R	R	R	R	R	R	R	G	Y	R	FR
MERRIMACK STREET EAST	EB-R	D	R	R	R	R	R	R	R	R	R	R	R	R	R	G	Y	R	FR
DUTTON STREET	NB	J,N	G	Y	R	R	R	R	R	R	R	R	R	R	R	R	R	R	FY
ARCAND DRIVE	SB	B,E,M	R	R	R	G	Y	R	R	R	R	R	R	R	R	R	R	R	FY
TROLLEY	ALL	T1-T4	G	Y	R	R	R	R	R	R	R	R	R	R	R	R	R	R	OUT
CONCURRENT PEDESTRIAN	Ø2 PED	P1,P8,P9,P14	DW	DW	DW	WFDW	DW	OUT											
DETECTOR			NON-LOCK	NON-LOCK															
RECALL			OFF	SOFT	OFF	OFF	OFF	SOFT	OFF	OFF									
			Ø1	Ø2	Ø3	Ø4	Ø5	Ø6,Ø7,Ø8											

- NOTES:
1. AUTOMATIC FLASHING OPERATION PER M.U.T.C.D. SECTIONS 4D.28 THRU 4D.31.
 2. PEDESTRIAN PHASE UPON PUSH BUTTON ACTIVATION ONLY
 3. MAXIMUM 1 = NORMAL OPERATION
 4. MAXIMUM 2 = M-F 3PM TO 7PM
 5. PERM = PERMISSIVE LEFT-TURN
 6. OL = OVERLAP
 7. T = TROLLEY



ITEM 816.01
MERRIMACK STREET AT ARCAND STREET / DUTTON STREET / WORTHEN STREET
LIST OF MAJOR ITEMS REQUIRED

QUANTITY	DESCRIPTION
3	SIGNAL HEAD, 3-SECTION, 12" L.E.D. MODULES, LOUVERED BACKPLATES
1	SIGNAL HEAD, 4-SECTION, 12" L.E.D. MODULES, LOUVERED BACKPLATES
4	R&S SIGNAL HEAD
1	R&R SIGNAL HEAD
8	PEDESTRIAN SIGNAL HEAD, 16" L.E.D. MODULES, W/ COUNTDOWN INDICATOR & AUDIBLE WARNING DEVICES
14	PEDESTRIAN PUSH BUTTON (VIBRATORY) W/ R10-3e AND SIGN SADDLE
8	R&S PEDESTRIAN SIGNAL HEAD
14	R&S PEDESTRIAN PUSH BUTTON & SIGN SADDLE
4	WIRE LOOP DETECTOR (6' X 20')
1	ABANDON AND DISCONNECT ALL LOOPS ALONG MERRIMACK ST WB APPROACH TO DUTTON STREET
4	MAST ARM OR POST MOUNTED SIGNS (R10-15R, R3-2, R10-11b AS NOTED - UNDER ITEM 832.)
1	EMERGENCY VEHICLE PRE-EMPTION DETECTOR AND DETECTOR CABLING
1	CONTROLLER PROGRAMMING & FINE TUNING
1	INTERSECTION CABLING FOR NEW SIGNAL HEADS / LOOPS / PRE-EMPTION

PLUS NECESSARY CONDUIT, CABLE, LABOR, MISCELLANEOUS MATERIAL AND EQUIPMENT TO COMPLETE THE INSTALLATION AND PROVIDE AN OPERATING TRAFFIC CONTROL SIGNAL.

PROPOSED

Ø	DESCRIPTION	TIME	PHASE	PRESENCE	SEC	Ø	SERIES
1	2-6'X20'	2-4-2	PRESENCE	0	Ø5		SERIES
2	2-6'X20'	2-4-2	PRESENCE	0	Ø5		SERIES
				5 SEC	Ø5		
					Ø5		
					Ø1		
					Ø1		

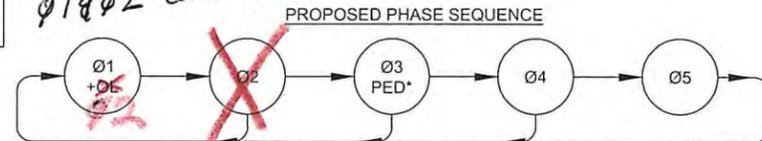
SEQUENCE & TIMING NOTES:

1. IF THE ASSIGNED RIGHT OF WAY FOR ANY TRAFFIC MOVEMENT IS TO REMAIN IN EFFECT DURING THE NEXT CALLED PHASE, THE SIGNAL INDICATIONS FOR THAT TRAFFIC MOVEMENT WILL NOT CHANGE DURING THE CLEARANCE INTERVAL.
2. THE RIGHT OF WAY MAY BE ASSIGNED TO ANY PHASE OR ANY COMBINATION OF NON-CONFLICTING PHASES.
3. IF CALLS EXIST ON ALL PHASES, THE ASSIGNMENT OF RIGHT OF WAY SHALL BE IN ACCORDANCE WITH THE PREFERENTIAL PHASE SEQUENCE.
4. IF THE ASSIGNED RIGHT-OF-WAY FOR ANY TRAFFIC MOVEMENT IS TO CHANGE DURING THE NEXT CALLED PHASE, THE SIGNAL INDICATION FOR THAT MOVEMENT WILL DISPLAY THE APPROPRIATE CLEARANCE INTERVALS.
5. PEDESTRIAN PHASE WILL ONLY BE CALLED UPON PUSH BUTTON ACTIVATION. UPON PUSH BUTTON ACTIVATION.

CONSTRUCTION NOTES:

1. THE CONSTRUCTION SHALL CONFORM WITH MASSACHUSETTS DEPARTMENT OF TRANSPORTATION, HIGHWAY DIVISION SPECIFICATIONS UNLESS OTHERWISE NOTED.
2. EACH LOOP GROUP SHALL BE SPLICED IN SINGLE PULL BOX AND WIRED TO SEPARATE CONTROLLER INPUT.
3. ALL SIGNAL HEADS AND SIGNS SHALL BE RIGIDLY MOUNTED.
4. CONTRACTOR SHALL FINE-TUNE THE TIMING AND COORDINATION PARAMETERS IN THE PRESENCE OF THE ENGINEER AND CITY OF LOWELL REPRESENTATIVES FOLLOWING INSTALLATION.

Remove overlap of Ø1 & Ø2 concurrent



PREEMPTION PHASING & PRIORITY

PREEMPT PHASE ASSIGNMENT	VEHICLE PHASE ASSIGNMENT
1	
2	Ø1
3	Ø5
4	
5	

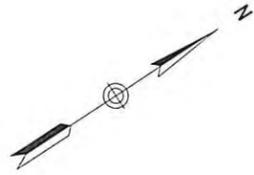
EMERGENCY VEHICLE PRE-EMPTION NOTES:

1. EMERGENCY VEHICLE PRE-EMPTION SIGNALS SHALL BE OPTICALLY TRANSMITTED BY OPTICAL EMITTERS MOUNTED IN EMERGENCY VEHICLES AND RECEIVED BY OPTICAL DETECTORS LOCATED AT EACH INTERSECTION.
2. EMERGENCY VEHICLE PRE-EMPTION SIGNALS SHALL BE SERVICED ON A FIRST DETECTED FIRST SERVE BASIS.
3. IN RESPONSE TO A PRE-EMPTION SIGNAL RECEIVED AT AN INTERSECTION BY OPTICAL DETECTOR D1 (OR D2, D3, D4, D5) THE CONTROLLER SHALL HOLD OR ADVANCE TO AND HOLD IN EMERGENCY VEHICLE PRE-EMPTION PHASE #1 (OR #2, #3, #4, #5) GREEN FOR A MINIMUM OF FIFTEEN (15) SECONDS OR UNTIL PRE-EMPTION SIGNAL CEASES. THE CONTROLLER SHALL THEN TIME PRE-EMPTION PHASE CLEARANCE (3 SECONDS; YELLOW AND 2 SECONDS; ALL RED) AND SERVICE SUBSEQUENT EMERGENCY VEHICLE PRE-EMPTION PHASES AS NECESSARY.
4. NORMAL CLEARANCE SHALL BE PROVIDED ON PHASES THAT ARE TO BE TERMINATED BY PRE-EMPTION DEMAND.
5. CONFIRMATION STROBE SHALL BE ILLUMINATED WHENEVER ANY EMERGENCY VEHICLE PRE-EMPTION GREEN IS ON.

PROPOSED SIGNAL HEAD DATA

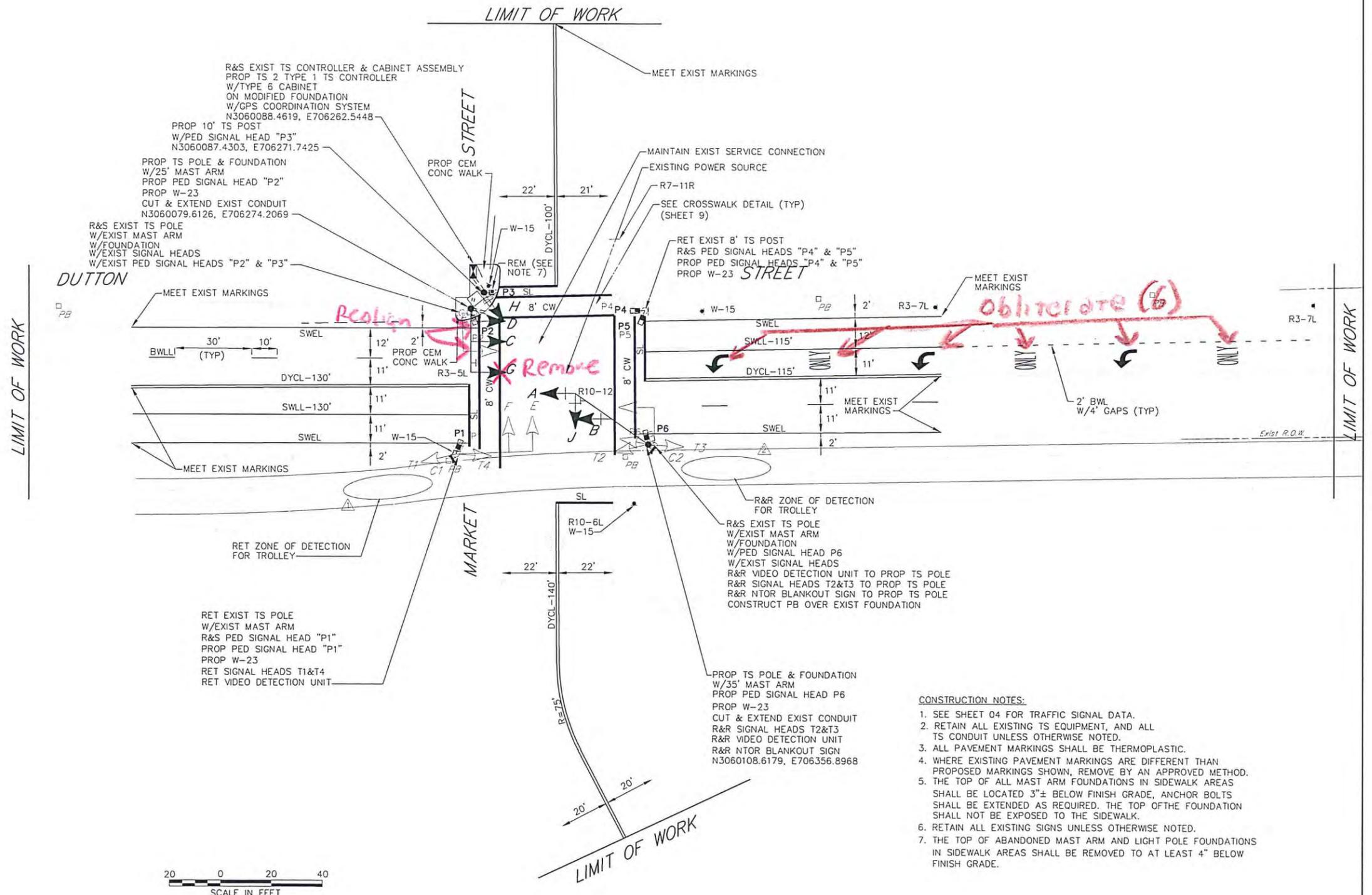
	REMOVED & RESET	REMOVED & STACK	REMOVED & STACK	D	H,J,N	P4-P5,P9-P14
				ALL 12" LENSES W/ 5" LOUVERED BACKPLATES (FREE-SWINGING ON MAST ARM)		ALL 16" L.E.D. W/ COUNTDOWN INDICATORS

Remove



816.03- Dutton & Market
Signal ID # 43

LOWELL
DUTTON STREET AT MARKET STREET
GENERAL PLANS
SHEET 03 OF 10



CONSTRUCTION NOTES:

1. SEE SHEET 04 FOR TRAFFIC SIGNAL DATA.
2. RETAIN ALL EXISTING TS EQUIPMENT, AND ALL TS CONDUIT UNLESS OTHERWISE NOTED.
3. ALL PAVEMENT MARKINGS SHALL BE THERMOPLASTIC.
4. WHERE EXISTING PAVEMENT MARKINGS ARE DIFFERENT THAN PROPOSED MARKINGS SHOWN, REMOVE BY AN APPROVED METHOD.
5. THE TOP OF ALL MAST ARM FOUNDATIONS IN SIDEWALK AREAS SHALL BE LOCATED 3"± BELOW FINISH GRADE, ANCHOR BOLTS SHALL BE EXTENDED AS REQUIRED. THE TOP OF THE FOUNDATION SHALL NOT BE EXPOSED TO THE SIDEWALK.
6. RETAIN ALL EXISTING SIGNS UNLESS OTHERWISE NOTED.
7. THE TOP OF ABANDONED MAST ARM AND LIGHT POLE FOUNDATIONS IN SIDEWALK AREAS SHALL BE REMOVED TO AT LEAST 4" BELOW FINISH GRADE.

816.03 CONT

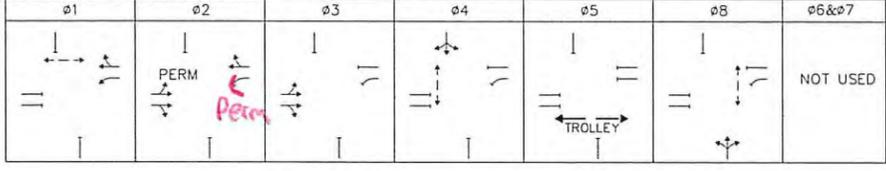
LOWELL
DUTTON STREET AT MARKET STREET
GENERAL PLANS
SHEET 04 OF 10

PROPOSED SEQUENCE AND TIMING																					
APPROACH	DIRECTION	HOUSING	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	FLASHING OPERATION
MINIMUM INTERVAL			13			19			10			16			10			16			
VEHICLE EXTENSION			-			-			-			-			2			-			
MAXIMUM 1			13			19			10			16			10			16			
MAXIMUM 2			-			-			-			-			-			-			
YELLOW CLEARANCE				3			3			3			3			4			3		
RED CLEARANCE					2			2			2			2			2			2	
PEDESTRIAN INTERVAL			7/6									5/11						5/11			
DUTTON STREET	NB	A	R	R	R	G	Y	R	G	Y	R	R	R	R	R	R	R	R	R	R	FR
DUTTON STREET	NB	B	R	R	R	G	Y	R	G	Y	R	R	R	R	R	R	R	R	R	R	FR
DUTTON STREET	SB	G	G	Y	R	FR															
DUTTON STREET	SB	C,D	G	Y	R	G	Y	R	R	R	R	R	R	R	R	R	R	R	R	R	FR
MARKET STREET	EB	E,F	R	R	R	R	R	R	R	R	R	G	Y	R	R	R	R	R	R	R	FR
MARKET STREET	WB	H,J	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	G	Y	R	FR
TROLLEY CROSSING	NB	T1,T2	-	-	-	-	-	-	-	-	-	-	-	-	I	FA	-	-	-	-	FA
TROLLEY CROSSING	SB	T3,T4	-	-	-	-	-	-	-	-	-	-	-	-	I	FA	-	-	-	-	FA
BLANK-OUT SIGN	NB		OFF	ON	ON	ON	OFF	OFF	OFF	OUT											
PEDESTRIAN X-ING	NB-SB	P3,P4	W/FDW	DW	OUT																
PEDESTRIAN X-ING	EB-WB	P1-P2	DW	OUT																	
PEDESTRIAN X-ING	EB-WB	P5-P6	DW	W/FDW	DW	DW	OUT														
DETECTOR			-			-			-			-			NON-LOCK			-			
RECALL			MAX-PED			MAX			MAX			MAX-PED			OFF			MAX-PED			

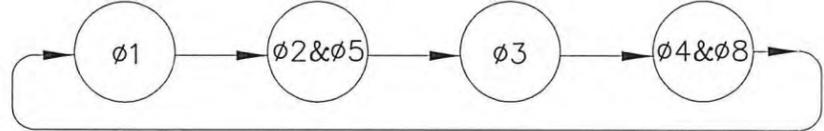
- SEQUENCE & TIMING NOTES:
- IF THE ASSIGNED RIGHT OF WAY FOR ANY TRAFFIC MOVEMENT IS TO REMAIN IN EFFECT DURING THE NEXT CALLED PHASE, THE SIGNAL INDICATIONS FOR THAT TRAFFIC MOVEMENT WILL NOT CHANGE DURING THE CLEARANCE INTERVAL.
 - THE RIGHT OF WAY MAY BE ASSIGNED TO ANY PHASE OR ANY COMBINATION OF NON-CONFLICTING PHASES.
 - IF CALLS EXIST ON ALL PHASES, THE ASSIGNMENT OF RIGHT OF WAY SHALL BE IN ACCORDANCE WITH THE PREFERENTIAL PHASE SEQUENCE.
 - IF THE ASSIGNED RIGHT-OF-WAY FOR ANY TRAFFIC MOVEMENT IS TO CHANGE DURING THE NEXT CALLED PHASE, THE SIGNAL INDICATION FOR THAT MOVEMENT WILL DISPLAY THE APPROPRIATE CLEARANCE INTERVALS.

Remove

- NOTES:
- AUTOMATIC FLASHING OPERATION PER M.U.T.C.D. SECTION 4D.12.
 - MAXIMUM 1 = NORMAL OPERATION
 - MAXIMUM 2 = NOT USED
 - STOP AND GO OPERATION FOR 24 HOURS PER DAY. FLASHING OPERATION FOR EMERGENCY ONLY.
 - INHIBIT MAX TERMINATION SHALL BE IN EFFECT DURING COORDINATION.
 - SEE SHEETS 6-7 FOR COORDINATION DATA.



PROPOSED PREFERENTIAL PHASE SEQUENCE



ADD Bi-modal LENS TO C

Remove

EXISTING/PROPOSED SIGNAL HEAD DATA							
A	B,C,D,H,J	G	E,F	P1,P2,P3	P4,P5,P6	P1-P6	T1,T2,T3,T4
							
BI-MODAL LENS	12" LENS		ALL 12" LENS	R&S P1,P2,P3	R&S P4,P5,P6		TROLLEY RET T2&T3 R&R T1&T4

- NOTES:
- ALL PROP SIGNAL HEADS SHALL BE RIGID MOUNTED AND EQUIPPED WITH 5"± LOUVERED BACKPLATES.
 - ALL PROPOSED SIGNAL DISPLAYS SHALL BE EQUIPPED W/L.E.D. MODULES AND TUNNEL VISORS.

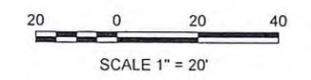
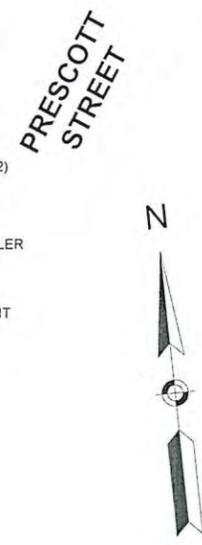
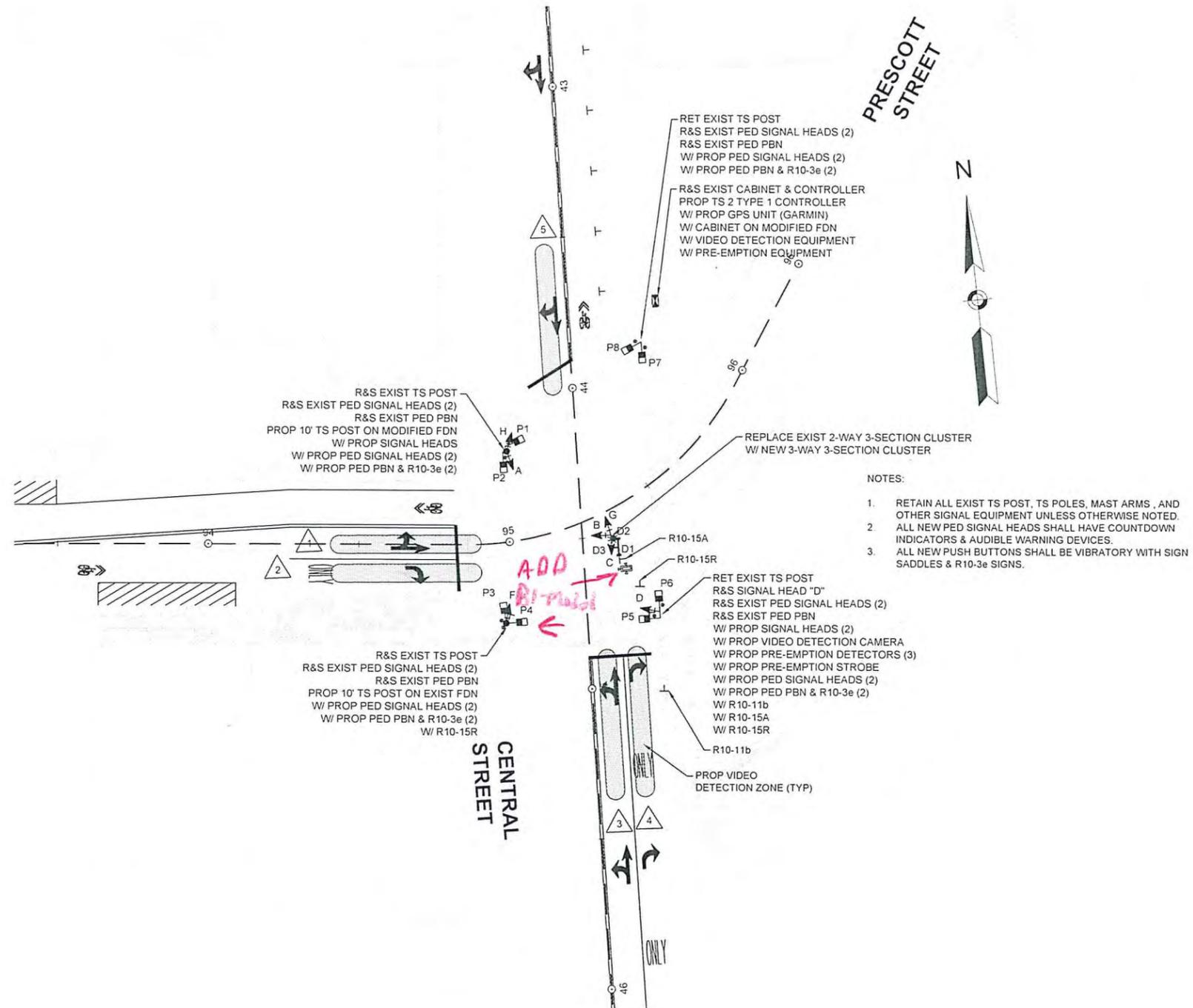
ITEM 816.01
TRAFFIC SIGNAL RECONSTRUCTION
MARKET STREET AT DUTTON STREET
LIST OF MAJOR ITEMS REQUIRED

QUANTITY	DESCRIPTION
1	8ø TS 2 TYPE 1 CONTROLLER IN A TYPE 6 BASE MOUNTED CABINET ON MODIFIED FOUNDATION
1	TS 25' MAST ARM TYPE 2, STEEL, INCL. FOUNDATION
1	TS 35' MAST ARM TYPE 2, STEEL, INCL. FOUNDATION
1	TS POST 10' STANDARD INCL. FOUNDATION
6	SIGNAL HEAD, 3-SECTION, 12" LENSES
1	SIGNAL HEAD, 4-SECTION BI-MODAL, 12" LENSES
6	PEDESTRIAN SIGNAL HEAD W/COUNTDOWN TIMER
1	GPS COORDINATION SYSTEM (1 RECEIVER, 1 REFERENCE UNIT, AND CABLE)
1	RECABLE INTERSECTION

PLUS NECESSARY DUCT, CABLE, LABOR, MISCELLANEOUS MATERIAL AND EQUIPMENT TO COMPLETE THE INSTALLATION AND PROVIDE AN OPERATING TRAFFIC CONTROL SIGNAL.

EXISTING VIDEO DETECTOR DATA				
DETECTOR NO.	ZONE SIZE	DETECTION UNIT	DELAY /EXT	CALL PHASE
△	TO BE FIELD ADJUSTED	C1	0	ø5
△	TO BE FIELD ADJUSTED	C2	0	ø5

816.04 - Market AND Central
Signal 10 & 12



SEE SHEET 12 FOR SIGN SUMMARY

816.09 - CONT.

LOWELL
TWO-WAY CONVERSION
TRAFFIC SIGNAL PLANS
SHEET 23 OF 25

ITEM 816.07
MARKET STREET AT CENTRAL STREET
LIST OF MAJOR ITEMS REQUIRED

PROPOSED SEQUENCE AND TIMING												
APPROACH	DIRECTION	HOUSING	1	2	3	4	5	6	7	8	9	FLASHING OPERATION
MINIMUM INTERVAL			10			10			10			
VEHICLE EXTENSION			2			2			2			
MAXIMUM 1			30			45			45			
MAXIMUM 2			30			45			45			
YELLOW CLEARANCE				3.0			3.0			3.0		
RED CLEARANCE					1.0			1.0			1.0	
WALK			7.0			7.0			7.0			
PEDESTRIAN CLEARANCE			10.0	3.0	1.0	12.0	3.0	1.0	8.0	3.0	1.0	
MARKET STREET	EB	B,D	G	Y	R	R	R	R	R	R	R	FR
CENTRAL STREET	NB	A,C,E	R	R	R	G	Y	R	R	R	R	FY
CENTRAL STREET	SB	F,G,H	R	R	R	R	R	R	G	Y	R	FY
CONCURRENT PEDESTRIAN	Ø2 PED	P1,P4,P5,P8	DW	DW	DW	DW	DW	DW	DW	DW	DW	OUT
CONCURRENT PEDESTRIAN	Ø4 PED	P6-P7	DW	DW	DW	WFDW	DW	DW	DW	DW	DW	OUT
CONCURRENT PEDESTRIAN	Ø8 PED	P2-P3	DW	DW	DW	DW	DW	DW	WFDW	DW	DW	OUT
DETECTOR			NON-LOCK			NON-LOCK			NON-LOCK			
RECALL			SOFT			SOFT			SOFT			

QUANTITY	DESCRIPTION
1	8Ø TS 2 TYPE 1 CONTROLLER IN A TYPE P BASE MOUNTED CABINET ON MODIFIED FDN, PAINTED BLACK
1	R&S EXIST CONTROLLER AND CABINET
1	R&S 8' TS POST
1	R&S 10' TS POST
2	10' TS POST, ORNAMENTAL, PAINTED BLACK, ON EXIST MODIFIED FDN
7	SIGNAL HEAD, 3-SECTION, 12" L.E.D. MODULES, LOUVERED BACKPLATES
4	R&S SIGNAL HEAD
8	PEDESTRIAN SIGNAL HEAD, 16" L.E.D. MODULES, W/ COUNTDOWN INDICATOR & AUDIBLE WARNING DEVICES
8	PEDESTRIAN PUSH BUTTON (VIBRATORY) W/ R10-3e AND SIGN SADDLE
8	R&S PEDESTRIAN SIGNAL HEAD
4	R&S PEDESTRIAN PUSH BUTTON & SIGN SADDLE
1	VIDEO DETECTION CAMERA W/ EXTENSION ARM (OMNI-DIRECTIONAL)
1	VIDEO DETECTION CHASSIS AND CABLING
1	VIDEO DETECTION PROCESSOR MODULE
3	EMERGENCY PRE-EMPTION DETECTORS AND DETECTOR CABLING
2	EMERGENCY PRE-EMPTION 2-CHANNEL PHASE SELECTORS
1	EMERGENCY PRE-EMPTION SYSTEM CHASSIS
1	EMERGENCY PRE-EMPTION STROBE (WHITE LENS)
1	MALFUNCTION MANAGEMENT UNIT (MMU)
1	SPARE B.I.U. (BUS INTERFACE UNITS)
1	GPS UNIT (GARMIN)
5	MAST ARM OR POST MOUNTED SIGNS (R10-11b, R10-15R, R3-2, R10-15A AS NOTED - UNDER ITEM 832.)
1	CONTROLLER/COORDINATION PROGRAMMING & FINE TUNING
1	INTERSECTION CABLING FOR NEW SIGNAL HEADS / PRE-EMPTION

PLUS NECESSARY CONDUIT, CABLE, LABOR, MISCELLANEOUS MATERIAL AND EQUIPMENT TO COMPLETE THE INSTALLATION AND PROVIDE AN OPERATING TRAFFIC CONTROL SIGNAL.

VIDEO DETECTOR DATA					
DETECTOR NO.	APPROX. SIZE	Ø CALLED	Ø EXTENDED	OPERATIONS	DELAY / EXTENSION
1	6'X50'	Ø2	Ø2	PRESENCE	0
2	6'X50'	Ø2	Ø2	PRESENCE	5 SEC
3	6'X50'	Ø4	Ø4	PRESENCE	0
4	6'X50'	Ø4	Ø4	PRESENCE	0
5	6'X50'	Ø8	Ø8	PRESENCE	0

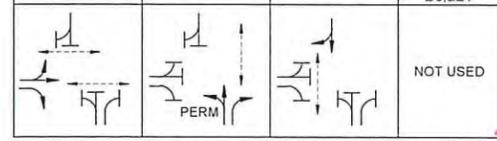
NOTE: DELAY AND EXTENSION TIMINGS SHALL BE PROGRAMMED IN THE CONTROLLER ONLY.

CONSTRUCTION NOTES:

- PULL BOXES SHALL NOT BE LOCATED WITHIN WHEELCHAIR RAMPS.
- THE CONSTRUCTION SHALL CONFORM WITH MASSACHUSETTS DEPARTMENT OF TRANSPORTATION, HIGHWAY DIVISION SPECIFICATIONS UNLESS OTHERWISE NOTED.
- ALL NEW MAST ARM FOUNDATIONS SHALL CONFORM WITH MASSACHUSETTS DEPARTMENT OF TRANSPORTATION, HIGHWAY DIVISION "MAST ARM & FOUNDATION DETAILS STANDARD DRAWINGS", DATED FEBRUARY 24, 2011
- ALL NEW SIGNAL HEADS AND SIGNS ON PROPOSED MAST ARMS SHALL BE RIGIDLY MOUNTED. R&R SIGNAL HEADS SHALL BE ATTACHED TO MAST ARMS SIMILAR TO EXISTING ATTACHMENT.
- CONTRACTOR SHALL FINE-TUNE THE TIMING AND COORDINATION PARAMETERS IN THE PRESENCE OF THE ENGINEER AND CITY OF LOWELL REPRESENTATIVES FOLLOWING INSTALLATION.

NOTES:

- AUTOMATIC FLASHING OPERATION PER M.U.T.C.D. SECTIONS 4D.28 THRU 4D.31.
- PEDESTRIAN CALL UPON PUSH BUTTON ACTIVATION ONLY.
- MAXIMUM 1 = NORMAL OPERATION
- MAXIMUM 2 = DURING COORDINATION
- PERM = PERMISSIVE LEFT-TURN

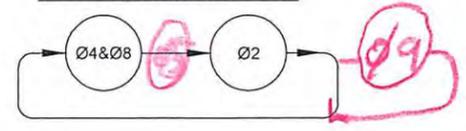


Ø5 lagging protected left 5 seconds

SEQUENCE & TIMING NOTES:

- IF THE ASSIGNED RIGHT OF WAY FOR ANY TRAFFIC MOVEMENT IS TO REMAIN IN EFFECT DURING THE NEXT CALLED PHASE, THE SIGNAL INDICATIONS FOR THAT TRAFFIC MOVEMENT WILL NOT CHANGE DURING THE CLEARANCE INTERVAL.
- THE RIGHT OF WAY MAY BE ASSIGNED TO ANY PHASE OR ANY COMBINATION OF NON-CONFLICTING PHASES.
- IF CALLS EXIST ON ALL PHASES, THE ASSIGNMENT OF RIGHT OF WAY SHALL BE IN ACCORDANCE WITH THE PREFERENTIAL PHASE SEQUENCE.
- IF THE ASSIGNED RIGHT-OF-WAY FOR ANY TRAFFIC MOVEMENT IS TO CHANGE DURING THE NEXT CALLED PHASE, THE SIGNAL INDICATION FOR THAT MOVEMENT WILL DISPLAY THE APPROPRIATE CLEARANCE INTERVALS.
- CONCURRENT PEDESTRIAN PHASES WILL ONLY BE CALLED UPON PUSH BUTTON ACTIVATION. UPON PUSH BUTTON ACTIVATION.

PROPOSED PHASE SEQUENCE



EXISTING / PROPOSED SIGNAL HEAD DATA					
A,B,C	E	D	A,D,F,H	B,C,G	P1-P8
REMOVE & STACK		REMOVE & STACK			
			ALL 12" LENSES W/ 5" LOUVERED BACKPLATES	FREE-SWINGING	ALL 16" L.E.D. W/ COUNTDOWN INDICATORS

	MONDAY THRU FRIDAY	SATURDAY	SUNDAY
PLAN 1/1/1 70° CYCLE	0600-1000	-	-
PLAN 2/1/1 80° CYCLE	1500-1900	-	-
PLAN 3/1/1 80° CYCLE	-	1000-1500	1000-1500
FREE OPERATION	0000-0600 1000-1500 1900-2400	0000-1000 1500-2400	0000-1000 1500-2400
FLASH OPERATION	NO PROGRAMMED FLASH MODE CONFLICT FLASH ONLY		

COORDINATION NOTES:

- OFFSET: BEGINNING OF Ø4&Ø8 YELLOW.
- Ø4&Ø8 "CALL NOT ACTUATED" DURING COORDINATION.
- SPLIT TIMES EQUAL GREEN PLUS CLEARANCES.
- INHIBIT MAX TERMINATION SHALL BE IN EFFECT DURING COORDINATION.
- CONTRACTOR AND VENDOR SHALL ADJUST SIGNAL TIMINGS AND COORDINATION IN THE FIELD AS NECESSARY AND UPON APPROVAL BY ENGINEER AND CITY OF LOWELL.

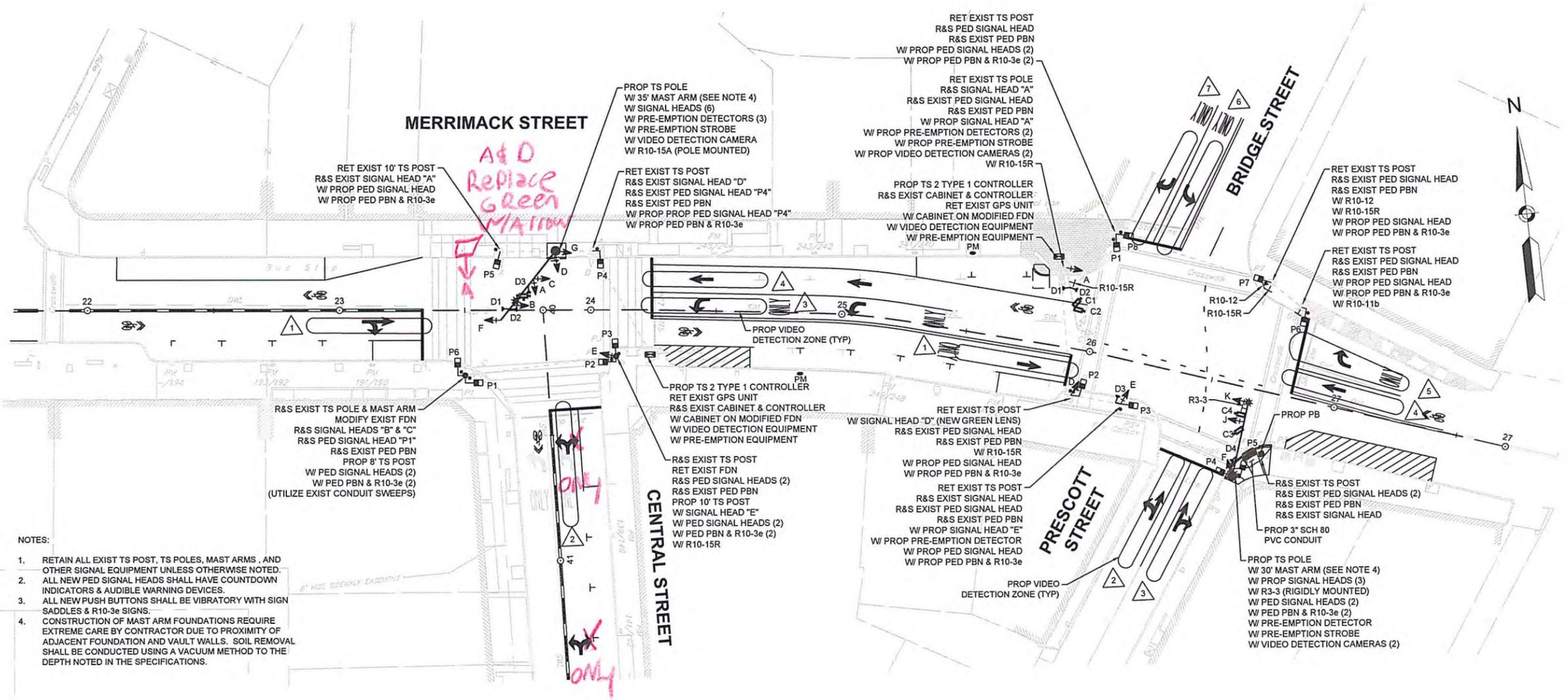
	1/1/1	2/1/1	3/1/1
CYCLE LENGTH	70 SEC	80 SEC	80 SEC
OFFSET	0	0	0
SPLIT Ø2	24	32	32
SPLIT Ø4	46	48	48
SPLIT Ø8	46	48	48
COORDINATED PHASE	Ø4 & Ø8	Ø4 & Ø8	Ø4 & Ø8

EMERGENCY VEHICLE PRE-EMPTION NOTES:

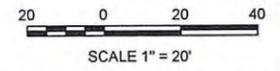
- EMERGENCY VEHICLE PRE-EMPTION SIGNALS SHALL BE OPTICALLY TRANSMITTED BY OPTICAL EMITTERS MOUNTED IN EMERGENCY VEHICLES AND RECEIVED BY OPTICAL DETECTORS LOCATED AT EACH INTERSECTION.
- EMERGENCY VEHICLE PRE-EMPTION SIGNALS SHALL BE SERVICED ON A FIRST DETECTED FIRST SERVE BASIS.
- IN RESPONSE TO A PRE-EMPTION SIGNAL RECEIVED AT AN INTERSECTION BY OPTICAL DETECTOR D1 (OR D2, D3) THE CONTROLLER SHALL HOLD OR ADVANCE TO AND HOLD IN EMERGENCY VEHICLE PRE-EMPTION PHASE #1 (OR #2, #3) GREEN FOR A MINIMUM OF TEN (10) SECONDS OR UNTIL PRE-EMPTION SIGNAL CEASES. THE CONTROLLER SHALL THEN TIME PRE-EMPTION PHASE CLEARANCE (3 SECONDS: YELLOW AND 1.5 SECONDS: ALL RED) AND SERVICE SUBSEQUENT EMERGENCY VEHICLE PRE-EMPTION PHASES AS NECESSARY.
- NORMAL CLEARANCE SHALL BE PROVIDED ON PHASES THAT ARE TO BE TERMINATED BY PRE-EMPTION DEMAND.
- CONFIRMATION STROBE SHALL BE ILLUMINATED WHENEVER ANY EMERGENCY VEHICLE PRE-EMPTION GREEN IS ON.
- PEDESTRIAN INDICATIONS SHALL REMAIN IN SOLID "DON'T WALK" DURING ACTIVE PRE-EMPTION INTERVAL.

PRE-EMPTION PHASING & PRIORITY			
DETECTOR	PRE-EMPT PHASE ASSIGNMENT	MOVEMENT	VEHICLE PHASE ASSIGNMENT
D1	1		Ø4
D2	2		Ø8
D3	3		Ø2

816.05 - Merrimack & Central
Traffic ID# 50



- NOTES:
1. RETAIN ALL EXIST TS POST, TS POLES, MAST ARMS, AND OTHER SIGNAL EQUIPMENT UNLESS OTHERWISE NOTED.
 2. ALL NEW PED SIGNAL HEADS SHALL HAVE COUNTDOWN INDICATORS & AUDIBLE WARNING DEVICES.
 3. ALL NEW PUSH BUTTONS SHALL BE VIBRATORY WITH SIGN SADDLES & R10-3e SIGNS.
 4. CONSTRUCTION OF MAST ARM FOUNDATIONS REQUIRE EXTREME CARE BY CONTRACTOR DUE TO PROXIMITY OF ADJACENT FOUNDATION AND VAULT WALLS. SOIL REMOVAL SHALL BE CONDUCTED USING A VACUUM METHOD TO THE DEPTH NOTED IN THE SPECIFICATIONS.



SEE SHEET 12 FOR SIGN SUMMARY

816.05-CONT

PROPOSED SEQUENCE AND TIMING															
APPROACH	DIRECTION	HOUSING	1	2	3	4	5	6	7	8	9	10	11	12	FLASHING OPERATION
MINIMUM INTERVAL			10			10			6			10			
VEHICLE EXTENSION			2			2			2			2			
MAXIMUM 1			20			50			40			50			
MAXIMUM 2			20			50			40			50			
YELLOW CLEARANCE				3.0			3.0			3.0			3.0		
RED CLEARANCE					1.0			1.0			1.0			1.0	
WALK						7.0			7.0						
PEDESTRIAN CLEARANCE						9.0	3.0	1.0	9.0	3.0	1.0				
MERRIMACK STREET	EB	E,F	R	R	R	G	Y	R	R	R	R	R	R	R	FY
MERRIMACK STREET	WB-L	B	R	R	R	R	R	R	R	R	R	G	Y	R	FY
MERRIMACK STREET	WB-T	C,G	R	R	R	R	R	R	R	R	R	G	Y	R	FY
CENTRAL STREET	NB	A,D	R	R	R	R	R	R	G	Y	R	R	R	R	FR
CONCURRENT PEDESTRIAN	Ø2&Ø6 PED	P1-P2	DW	DW	DW	W/FDW	DW	DW	DW	DW	DW	DW	DW	DW	OUT
CONCURRENT PEDESTRIAN	Ø4 PED	P3-P6	DW	DW	DW	DW	DW	DW	W/FDW	DW	DW	DW	DW	DW	OUT
DETECTOR			NON-LOCK		NON-LOCK		NON-LOCK		NON-LOCK		NON-LOCK		NON-LOCK		
RECALL			OFF		SOFT		OFF		SOFT		OFF		SOFT		
			Ø1		Ø2		Ø4		Ø6		Ø3,Ø5, Ø7,Ø8				
											NOT USED				

- NOTES:
- AUTOMATIC FLASHING OPERATION PER M.U.T.C.D. SECTIONS 4D.28 THRU 4D.31.
 - PEDESTRIAN CALL UPON PUSH BUTTON ACTIVATION ONLY.
 - MAXIMUM 1 = NORMAL OPERATION
MAXIMUM 2 = DURING COORDINATION
 - Ø2&Ø6 TO OPERATE IN DUAL ENTRY MODE
 - PERM = PERMISSIVE LEFT-TURN

SEQUENCE & TIMING NOTES:

- IF THE ASSIGNED RIGHT OF WAY FOR ANY TRAFFIC MOVEMENT IS TO REMAIN IN EFFECT DURING THE NEXT CALLED PHASE, THE SIGNAL INDICATIONS FOR THAT TRAFFIC MOVEMENT WILL NOT CHANGE DURING THE CLEARANCE INTERVAL.
- THE RIGHT OF WAY MAY BE ASSIGNED TO ANY PHASE OR ANY COMBINATION OF NON-CONFLICTING PHASES.
- IF CALLS EXIST ON ALL PHASES, THE ASSIGNMENT OF RIGHT OF WAY SHALL BE IN ACCORDANCE WITH THE PREFERENTIAL PHASE SEQUENCE.
- IF THE ASSIGNED RIGHT-OF-WAY FOR ANY TRAFFIC MOVEMENT IS TO CHANGE DURING THE NEXT CALLED PHASE, THE SIGNAL INDICATION FOR THAT MOVEMENT WILL DISPLAY THE APPROPRIATE CLEARANCE INTERVALS.
- CONCURRENT PEDESTRIAN PHASE WILL ONLY BE CALLED UPON PUSH BUTTON ACTIVATION. UPON PUSH BUTTON ACTIVATION.

PREEMPTION PHASING & PRIORITY			
DETECTOR	PREEMPT PHASE ASSIGNMENT	MOVEMENT	VEHICLE PHASE ASSIGNMENT
D1	1		Ø2
D2	2		Ø1&Ø6
D3	3		Ø4

EMERGENCY VEHICLE PRE-EMPTION NOTES:

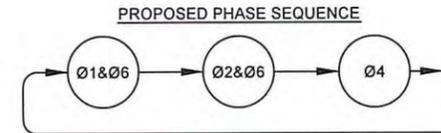
- EMERGENCY VEHICLE PRE-EMPTION SIGNALS SHALL BE OPTICALLY TRANSMITTED BY OPTICAL EMITTERS MOUNTED IN EMERGENCY VEHICLES AND RECEIVED BY OPTICAL DETECTORS LOCATED AT EACH INTERSECTION.
- EMERGENCY VEHICLE PRE-EMPTION SIGNALS SHALL BE SERVICED ON A FIRST DETECTED FIRST SERVE BASIS.
- IN RESPONSE TO A PRE-EMPTION SIGNAL RECEIVED AT AN INTERSECTION BY OPTICAL DETECTOR D1 (OR D2, D3) THE CONTROLLER SHALL HOLD OR ADVANCE TO AND HOLD IN EMERGENCY VEHICLE PRE-EMPTION PHASE #1 (OR #2, #3) GREEN FOR A MINIMUM OF TEN (10) SECONDS OR UNTIL PRE-EMPTION SIGNAL CEASES. THE CONTROLLER SHALL THEN TIME PRE-EMPTION PHASE CLEARANCE (3 SECONDS: YELLOW AND 1 SECOND: ALL RED) AND SERVICE SUBSEQUENT EMERGENCY VEHICLE PRE-EMPTION PHASES AS NECESSARY.
- NORMAL CLEARANCE SHALL BE PROVIDED ON PHASES THAT ARE TO BE TERMINATED BY PRE-EMPTION DEMAND.
- CONFIRMATION STROBE SHALL BE ILLUMINATED WHENEVER ANY EMERGENCY VEHICLE PRE-EMPTION GREEN IS ON.
- PEDESTRIAN INDICATIONS SHALL REMAIN IN SOLID "DON'T WALK" DURING ACTIVE PRE-EMPTION INTERVAL.

EXISTING / PROPOSED SIGNAL HEAD DATA			
A,B,C,D	A,C,D,E,F,G	B	P1-P6
REMOVED & STACK 			
	ALL 12" LENSES W/ 5" LOUVERED BACKPLATES	BI-MODAL	ALL 16" L.E.D. W/ COUNTDOWN INDICATORS

ITEM 816.03
MERRIMACK STREET AT CENTRAL STREET
LIST OF MAJOR ITEMS REQUIRED

QUANTITY	DESCRIPTION
1	Ø2 TS 2 TYPE 1 CONTROLLER IN A TYPE P BASE MOUNTED CABINET ON MODIFIED FDN, PAINTED BLACK
1	R&S EXIST CONTROLLER AND CABINET
1	TS POLE W/ 35' MAST ARM, TYPE 2, PAINTED BLACK, INCL. FDN.
1	R&S TS POLE W/ 25' MAST ARM, MODIFY EXIST FDN.
1	10' TS POST, ORNAMENTAL, PAINTED BLACK, ON EXIST FOUNDATION
1	8' TS POST, ORNAMENTAL, PAINTED BLACK, ON MODIFIED FOUNDATION
1	R&S 8' TS POST
6	SIGNAL HEAD, 3-SECTION, 12" L.E.D. MODULES, LOUVERED BACKPLATES
1	SIGNAL HEAD, 4-SECTION, 12" L.E.D. MODULES, LOUVERED BACKPLATES
4	R&S SIGNAL HEAD
6	PEDESTRIAN SIGNAL HEAD, 16" L.E.D. MODULES, W/ COUNTDOWN INDICATOR & AUDIBLE WARNING DEVICES
6	PEDESTRIAN PUSH BUTTON (VIBRATORY) W/ R10-3e AND SIGN SADDLE
4	R&S PEDESTRIAN SIGNAL HEAD
3	R&S PEDESTRIAN PUSH BUTTON & SIGN SADDLE
1	VIDEO DETECTION CAMERA W/ EXTENSION ARM (OMNI-DIRECTIONAL)
1	VIDEO DETECTION CHASSIS AND CABLING
1	VIDEO DETECTION PROCESSOR MODULE
3	EMERGENCY PRE-EMPTION DETECTORS AND DETECTOR CABLING
2	EMERGENCY PRE-EMPTION 2-CHANNEL PHASE SELECTORS
1	EMERGENCY PRE-EMPTION SYSTEM CHASSIS
1	EMERGENCY PRE-EMPTION STROBE (WHITE LENS)
1	MALFUNCTION MANAGEMENT UNIT (MMU)
1	SPARE B.I.U. (BUS INTERFACE UNITS)
2	MAST ARM OR POST MOUNTED SIGNS (R10-15R, R10-15A AS NOTED - UNDER ITEM 832.)
1	CONTROLLER/COORDINATION PROGRAMMING & FINE TUNING
1	INTERSECTION CABLING FOR NEW SIGNAL HEADS / PRE-EMPTION

PLUS NECESSARY CONDUIT, CABLE, LABOR, MISCELLANEOUS MATERIAL AND EQUIPMENT TO COMPLETE THE INSTALLATION AND PROVIDE AN OPERATING TRAFFIC CONTROL SIGNAL.



COORDINATION NOTES:

- OFFSET: BEGINNING OF Ø6 YELLOW.
- Ø6 "CALL NOT ACTUATED" DURING COORDINATION.
- SPLIT TIMES EQUAL GREEN PLUS CLEARANCES.
- INHIBIT MAX TERMINATION SHALL BE IN EFFECT DURING COORDINATION.
- CONTRACTOR AND VENDOR SHALL ADJUST SIGNAL TIMINGS AND COORDINATION IN THE FIELD AS NECESSARY AND UPON APPROVAL BY ENGINEER AND CITY OF LOWELL.

	1/1/1	2/1/1	3/1/1
CYCLE LENGTH	70 SEC	80 SEC	80 SEC
OFFSET	11	4	4
SPLIT Ø1	18	16	16
SPLIT Ø2	31	31	31
SPLIT Ø4	21	33	33
SPLIT Ø6	49	47	47
COORDINATED PHASE	Ø6	Ø6	Ø6

CONSTRUCTION NOTES:

- PULL BOXES SHALL NOT BE LOCATED WITHIN WHEELCHAIR RAMPS.
- THE CONSTRUCTION SHALL CONFORM WITH MASSACHUSETTS DEPARTMENT OF TRANSPORTATION, HIGHWAY DIVISION SPECIFICATIONS UNLESS OTHERWISE NOTED.
- ALL NEW MAST ARM FOUNDATIONS SHALL CONFORM WITH MASSACHUSETTS DEPARTMENT OF TRANSPORTATION, HIGHWAY DIVISION "MAST ARM & FOUNDATION DETAILS STANDARD DRAWINGS", DATED FEBRUARY 24, 2011
- EACH LOOP GROUP SHALL BE SPLICED IN SINGLE PULL BOX AND WIRED TO SEPARATE CONTROLLER INPUT.
- ALL SIGNAL HEADS AND SIGNS SHALL BE RIDGIDLY MOUNTED.
- CONTRACTOR SHALL FINE-TUNE THE TIMING AND COORDINATION PARAMETERS IN THE PRESENCE OF THE ENGINEER AND CITY OF LOWELL REPRESENTATIVES FOLLOWING INSTALLATION.

	MONDAY THRU FRIDAY	SATURDAY	SUNDAY
PLAN 1/1/1 70" CYCLE	0600-1000	-	-
PLAN 2/1/1 80" CYCLE	1500-1900	-	-
PLAN 3/1/1 80" CYCLE	-	1000-1500	1000-1500
FREE OPERATION	0000-0600 1000-1500 1900-2400	0000-1000 1500-2400	0000-1000 1500-2400
FLASH OPERATION	NO PROGRAMMED FLASH MODE CONFLICT FLASH ONLY		

VIDEO DETECTOR DATA					
DETECTOR NO.	APPROX. SIZE	Ø CALLED	Ø EXTENDED	OPERATIONS	DELAY/ EXT.
1	±6'X50'	Ø2	Ø2	PRESENCE	0
2	±6'X50'	Ø4	Ø4	PRESENCE	0
3	±6'X50'	Ø1&Ø6	Ø1&Ø6	PRESENCE	0
4	±6'X50'	Ø6	Ø6	PRESENCE	0

NOTE: DELAY AND EXTENSION TIMINGS SHALL BE PROGRAMMED IN THE CONTROLLER ONLY.