

LIST OF MAJOR EQUIPMENT		
EQUIPMENT ITEMS - 678.15 (INSTALL TRAFFIC CONTROL SIGNAL SYSTEM, INTERSECTION (VT ROUTE 2A @ MARSHALL AVE. & MAPLE ST.))	QUANTITY	REMARKS
POWER STANCHION WITH DISCONNECTS	1	
TRAFFIC SIGNAL CONTROLLER (NEMA TS2)	1	ECONOLITE COBALT
NEW 12-INCH LED SIGNAL HEADS (ONE-WAY 3- SECTION, VISORS, DISCONNECT HANGERS, 5 INCH LOUVERED BACKPLATES WITH 2 INCH RETRO-REFLECTIVE BORDER AND MOUNTING HARDWARE (FLAT BLACK)	13	
NEW 12-INCH LED SIGNAL HEADS (ONE-WAY 5- SECTION, VISORS, DISCONNECT HANGERS, 5 INCH LOUVERED BACKPLATES WITH 2 INCH RETRO-REFLECTIVE BORDER AND MOUNTING HARDWARE (FLAT BLACK)	1	
SIGNAL HEAD BRACKETS AND ANCILLARY EQUIPMENT	14	
PEDESTRIAN PUSH BUTTON ASSEMBLIES POLE MOUNTED WITH LOCATOR TONE, RIO-3e SIGN, FLAT BLACK HOUSING	6	
PEDESTRIAN SIGNAL HEAD COUNTDOWN STYLE, FLAT BLACK HOUSING	6	
NEMA P44 BASE-MOUNTED CONTROLLER CABINET WITH 15-INCH EXTENDED BASE ON A CONCRETE FOUNDATION	1	PAINTED FLAT BLACK WITH ANCILLARY EQUIPMENT, FACING AWAY FROM TRAFFIC
ELECTRICAL WIRING	1170'	SEE SUMMARY THIS SHEET
SMART MALFUNCTION MONITORING UNIT (MMU)	2	ECONOLITE MMU2-16E SMART MONITOR
BIU	2	ECONOLITE BIU-64
DETECTOR BRACKET FOR MAST ARM OR POLE	4	
STOP BAR DETECTOR ASSEMBLY	4	ECONOLITE AUTOSCOPE ENCORE
ADVANCED DETECTOR ASSEMBLY	2	WAVETRONIX SMARTSENSOR ADVANCE
DETECTION PROCESSOR (CARDS)	1	WAVETRONIX CLICK 650
STOP BAR DETECTION PROCESSOR (CARDS)	1	ECONOLITE AUTOSCOPE TIP
STOP BAR DETECTION PROCESSOR (CARDS)	1	ECONOLITE AUTOSCOPE TAP
DETECTION CABINET RACK	2	
OPTICAL PREEMPTION DETECTORS	2	TOMAR
OPTICAL PREEMPTION SIGNAL PROCESS CARD & CAGE	2	TOMAR
PREEMPTION AC STROBE - RED	2	TOMAR
HARDENED NETWORK SWITCH	1	CISCO IE 2000
CONTROLLER IDENTIFICATION PLAQUE	1	SEE TRAFFIC SIGNAL SYSTEM NOTES
GPS CLOCK	1	

CONDUIT SCHEDULE				
	WIRED CONDUIT	ELECTRICAL CONDUIT		DESCRIPTION
	2"	4"	2"	4"
POWER TO STANCHION				SERVICE
STANCHION TO CONTROLLER	24' 18"			POWER
CONTROLLER TO JB2	12'			DETECTION
CONTROLLER TO JB2	12'			SIGNAL/LIGHTING
CONTROLLER TO JB2		12'		FUTURE USE
EX JBI TO JB2		40'		FUTURE USE *
JB2 TO JB3	14'			DETECTION
JB2 TO JB3	14'			SIGNAL/LIGHTING
JB2 TO JB3		14'		FUTURE USE
JB3 TO JBI	22' 20"			DETECTION
JB3 TO JBI	22' 20"			SIGNAL/LIGHTING
JB3 TO JBI		22' 20"		FUTURE
SUBTOTAL	120' 10"	88' 86"		
ROUNDING	10"	14"		
TOTALS	120'	100'		

* FUTURE COORDINATION WITH MARSHALL/HARVEST INTERSECTION.

CONTROLLER TIMING CHART									
PHASE	1	2	3	4	5	6	7	8	9
IN USE	X	X	X	X	X	X	X	X	X
TRAFFIC MOVEMENT	↔	←	↵	↑	↘	→	↗	↓	PED
MIN. GREEN	5	5	5	5	5	5	5	5	
MAX 2 - GREEN (AM)	5	37	7	15	24	18	9	13	
MAX 1 - GREEN (OFF)	5	43	7	5	29	19	5	7	
MAX 3 - GREEN (PM)	9	43	10	10	27	25	7	13	
YELLOW CLEARANCE	4	4	4	4	4	4	4	4	
ALL RED CLEARANCE	2	2	2	2	2	2	2	2	
VEHICLE EXTENSION	2	2	4	4	4	2	4	4	
DELAY GREEN									
WALK									5
PEDESTRIAN CLEAR									17
RECALL MODE (SOFT)		X				X			

SCHEDULE PLAN			
SCHEDULE NO.	DAY PLAN	DAYS	DATES
1	1	MON, TUE, WED, THU, FRI	1-31
1	2	SAT, SUN	1-31

COORDINATION PLAN												
PATTERN	COS	CYCLE	OFFSET	SPLIT PHASES/SPLIT TIMES								
				1	2	3	4	5	6	7	8	9
1	III	84	71	11	49	13	11	35	25	11	13	-
2	2II	88	10	11	43	13	21	30	24	15	19	-
3	3II	96	22	14	49	16	17	31	32	16	17	-

DAY PLAN				
PLAN NO.	EVENT	ACTION PLAN	START TIME	
1	1	254	12:00 AM	
1	2	2	6:00 AM	
1	3	1	10:00 AM	
1	4	3	2:30 PM	
1	5	1	7:00 PM	
1	6	254	10:00 PM	
2	1	254	12:00 AM	
2	2	1	6:00 AM	
2	3	3	9:00 AM	
2	4	254	10:00 PM	

ACTION PLAN			
PLAN NO.	PATTERN	FLASH	REFERENCE
1	1	NO	MAX 1
2	2	NO	MAX 2
3	3	NO	MAX 3
4	254-FREE	NO	MAX 1

WEEKDAY PEAKS			
	HOURS		
MAX 2 - AM PEAK	6:00 AM	TO	10:00 AM
	10:00 AM	TO	2:30 PM
MAX 1 - OFF PEAK	7:00 PM	TO	10:00 PM
MAX 3 - PM PEAK	2:30 PM	TO	7:00 PM
FREE	10:00 PM	TO	6:00 AM

PREEMPTION TIMING				
	PREEMPTOR			
	1	2	3	4
DIRECTION	NB	SB		
HOLD PHASE	2&5	1&6		
DETECTOR LOCK	YES	YES		
DURATION TIME	12	12		
MIN. GREEN	5	5		
GREEN	12	12		
YELLOW	4	4		
RED	2	2		

ELECTRICAL WIRING		
	LENGTH	DESCRIPTION
EX MAP-1 TO EX MA-1	20'	DETECTION
EX MAP-1 TO EX MA-1	20'	SIGNAL HEAD
EX MA-1 TO DETECTOR	30'	DETECTION
EX MA-1 TO SIGNAL HEAD	30'	SIGNAL HEAD
EX-MAP-2 TO EX MA-2	20'	DETECTION
EX-MAP-2 TO EX MA-2	20'	SIGNAL HEAD
EX-MAP-2 TO EX MA-2	20'	SIGNAL HEAD
EX MA-2 TO DETECTOR	25'	DETECTION
EX MA-2 TO SIGNAL HEAD	25'	SIGNAL HEAD
EX MA-2 TO SIGNAL HEAD	25'	SIGNAL HEAD
EX MAP-2 TO EX MA-3	20'	DETECTION
EX MAP-2 TO EX MA-3	20'	SIGNAL HEAD
EX MAP-2 TO EX MA-3	20'	SIGNAL HEAD
EX MAP-2 TO EX MA-3	20'	PREEMPTION DETECTOR
EX MAP-2 TO EX MA-3	20'	PREEMPTION STROBE
EX MAP-2 TO EX MA-3	20'	PREEMPTION DETECTOR
EX MAP-2 TO EX MA-3	20'	PREEMPTION STROBE
EX MA-3 TO DETECTOR	40'	DETECTION
EX MA-3 TO SIGNAL HEAD	40'	SIGNAL HEAD
EX MA-3 TO SIGNAL HEAD	40'	SIGNAL HEAD
EX MA-3 TO PREEMPTION DETECTOR	40'	MAINLINE PREEMPTION
EX MA-3 TO PREEMPTION LIGHT	40'	STROBE LIGHT
EX MA-3 TO PREEMPTION DETECTOR	40'	MAINLINE PREEMPTION
EX MA-3 TO PREEMPTION LIGHT	40'	STROBE LIGHT
ASSUMED EXTRA	500'	ADDITIONAL (SEE NOTE 1 BELOW)
SUBTOTAL	1155'	
ROUNDING	15'	
TOTAL	1170'	(SEE NOTES BELOW)

- NOTES:
- ASSUMED ELECTRICAL WIRE FOR USE IF, AT THE DISCRETION OF THE ENGINEER, LENGTHS OF EXISTING SIGNAL WIRE ARE REPLACED.
 - TOTAL QUANTITY OF ELECTRICAL WIRING SHOWN IS APPROXIMATED FOR BIDDING PURPOSES. THE ACTUAL AMOUNT OF ELECTRICAL WIRING MAY VARY DUE TO FIELD CONDITIONS.
 - ELECTRICAL WIRING WILL BE PAID UNDER ITEM 678.15 - TRAFFIC CONTROL SIGNAL SYSTEM, INTERSECTION (VT ROUTE 2A @ MARSHALL AVE. AND MAPLE ST.)

DETECTOR OPERATOR	
STOP BAR	PRESENCE
* ADVANCE	PULSE OR ACTUATION

* FOR DATA COLLECTION ONLY

VT ROUTE 2A / MARSHALL AVE / MAPLE TREE PLACE INTERSECTION



PROJECT NAME:	WILLISTON	PLOT DATE:	2/15/2017
PROJECT NUMBER:	NH 2949(1)	DRAWN BY:	P. ARMATA
FILE NAME:	z12d224bdr.sig.dgn	CHECKED BY:	T. LUTHER
DESIGNED BY:	D. DEBAIE	TRAFFIC SIGNAL SYSTEMS SHEET 2	SHEET 242 OF 249