

VEHICLE LOOP DETECTOR SCHEDULE

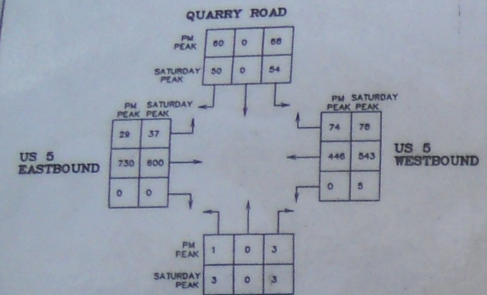
Loop	Lane	Call Phas	Size	Type	No. of Turns	Mode	Inductance		Resistance		Leakage to Ground	Imp Type	Loading Memory
							Calc	Actual	Calc	Actual			
2A	WB L	240	6" x 40'	QUAD	2	PRES	191 mH		1.08 ohm		STD	X	
2B	WB TR	240	6" x 40'	QUAD	2	PRES	185 mH		1.00 ohm		STD	X	
4A	SB L	4	6" x 40'	QUAD	2	PRES	185 mH		1.00 ohm		STD	X	
4B	SB TR	4	6" x 40'	QUAD	2	PRES	185 mH		1.00 ohm		STD	X	
8A	EB L	240	6" x 40'	QUAD	2	PRES	204 mH		1.25 ohm		STD	X	
8B	WB L	240	6" x 40'	QUAD	2	PRES	183 mH		0.98 ohm		STD	X	
S	NBLTR	8	6" x 40'	QUAD	2	DELAY-8	172 mH		0.84 ohm		STD	X	

ALL CALCULATED VALUES ARE AT THE CONTROLLER. MEASURED VALUES MUST BE FILLED IN PRIOR TO TEST PERIOD.

CONDUIT SCHEDULE

	ORIGIN	DESTINATION	ESTIMATED LENGTH
2"	POWER SOURCE POLE	JUNCTION BOX #1	80'
2"	POWER JUNCTION BOX #1	ACTION BOX #1	80'
2"	POWER JUNCTION BOX #1	STATIONCH	5'
2"	POWER STATIONCH	CONTROLLER	10'
1-1/2"	LOOP EDGE OF PMT #1	JUNCTION BOX #1	3'
1-1/2"	LOOP JUNCTION BOX #1	JUNCTION BOX #2	113'
2"	LOOP JUNCTION BOX #2	JUNCTION BOX #3	55'
1-1/2"	LOOP EDGE OF PMT #2	JUNCTION BOX #3	3'
1-1/2"	LOOP JUNCTION BOX #3	JUNCTION BOX #4	88'
1-1/2"	LOOP EDGE OF PMT #3	JUNCTION BOX #4	3'
2"	LOOP JUNCTION BOX #4	JUNCTION BOX #5	44'
1-1/2"	LOOP EDGE OF PMT #4	JUNCTION BOX #5	2'
2"	LOOP JUNCTION BOX #5	JUNCTION BOX #6	88'
1-1/2"	LOOP EDGE OF PMT #5	JUNCTION BOX #6	4'
1-1/2"	POWER JUNCTION BOX #6	CONTROLLER	7'
1-1/2"	POWER POLE #1	JUNCTION BOX #6	7'
1-1/2"	POWER POLE #1	JUNCTION BOX #7	3'
2"	POWER JUNCTION BOX #7	JUNCTION BOX #8	108'
2"	POWER JUNCTION BOX #8	JUNCTION BOX #9	55'

*ACTUAL LENGTHS BY CONTRACTOR

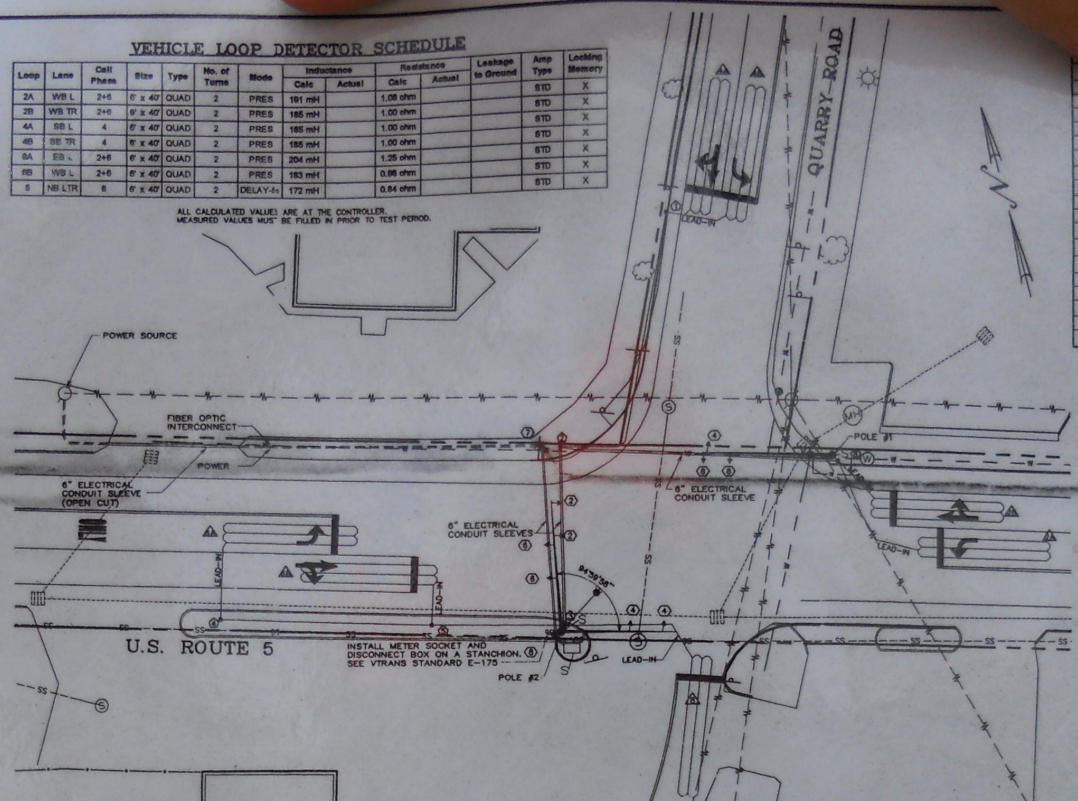


US 5 EASTBOUND
 PM PEAK: 29, 37
 SATURDAY PEAK: 730, 800
 0, 0

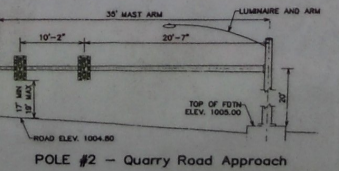
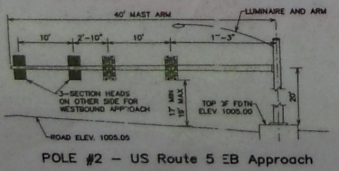
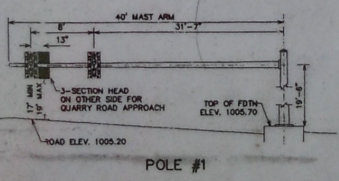
US 5 WESTBOUND
 PM PEAK: 74, 78
 SATURDAY PEAK: 446, 543
 0, 5

VITRANS DISTRICT MAINTENANCE BUILDING
 YEAR 2006 AVERAGE HOURLY VOLUMES WITH PROJECT TRAFFIC TURNING MOVEMENT VOLUMES

- NOTES:**
- NEW EQUIPMENT
 - ALL SIGNAL HEADS SHALL BE RIGIDLY MOUNTED ON CANTILEVER ARMS AND SHALL BE BLACK POLYCARBONATE. ALL LENSES SHALL BE LED'S WITH A VISIBLE BEAM SPREAD OF EIGHTY DEGREES OFF-AXIS. ALL SIGNAL HEADS SHALL INCLUDE DISCONNECT HANGERS (WHERE NEEDED), AND BACKPLATES SHALL BE INCLUDED AS SPECIFIED ON PLANS.
 - THE CONTROLLER SHALL BE ECONOMITE BRAND, MODEL AS3/25-2100 (TS-2 TYPE 2) CABINET TO BE GROUND MOUNTED WITH BASE EXTENSION AND SIZED APPROPRIATELY TO HOUSE EQUIPMENT.
 - PROVIDE AN ECONOMITE AS3/20-1000 SYSTEM MASTER.
 - A DISCONNECT BREAKER FOR EACH CIRCUIT SHALL BE INSTALLED IN A HANIPROOF (NEMA 3R) LOCKED CABINET ON A STATIONCH. CONSIDER USING OPTION #2 ON STD E-172.
 - THE CONTROLLER CABINET SHALL BE EQUIPPED WITH FULL-OUT SHELVES CAPABLE OF SUPPORTING LAPTOP COMPUTER.
 - SIGNAL OPERATION
 - SWITCH-OVER FROM EXISTING TO REPLACEMENT SIGNALS SHALL NOT BE DONE DURING PEAK TRAFFIC PERIODS. UNIFORMED TRAFFIC OFFICERS SHALL CONTROL TRAFFIC DURING SWITCH-OVER.
 - THE SIGNAL SHALL SWITCH ON THE US 5 MOVEMENT (PHASE 2 & 8).
 - IN THE US 5 PHASE (2 & 8) SHALL BE USED FOR THE START-UP PHASE FOLLOWING A FLASH OPERATION. IF USED ALL PHASES WILL START ON ALL RED INDICATION FOR FIVE SECONDS.
 - PROCEED TO COMMENCING FULL OPERATION. THE SIGNAL SYSTEM SHALL OPERATE IN FULL FLASH MODE FOR A MINIMUM OF 48 HOURS.
 - JUNCTION / PULL BOXES
 - JUNCTION/PULL BOXES ARE DETAILED ON STD E-173. MINIMUM JUNCTION BOX SIZE SHALL BE 18" x 12", OR LARGER AS REQUIRED BY ELECTRICAL CODE.
 - THE LOGS ON THE PULL BOXES/JUNCTION BOXES SHALL BE "SIGNAL".
 - POLYMER CONCRETE & REINFORCED FIBERGLASS UL LISTED PULL BOXES SHALL BE INSTALLED WITH HEAVY DUTY COVERS.
 - TRAFFIC SIGNAL CONDUIT
 - ALL TRAFFIC CONDUIT SHALL BE PVC.
 - MINIMUM CONDUIT SIZE SHALL BE:
 - 1-1/2" FOR INTERCONNECT CABLE AND LOOP WIRE.
 - 2" FOR SHIELDED LEAD-IN CABLE SIGNAL CABLE, POWER CABLE.
 - ALL CONDUIT, UNLESS SPECIFIED OTHERWISE ON THE PLANS.
 - SEE CHART ON SHEET E-172 FOR DESIGN VALUES.
 - IF CONDUIT IS PLACED BELOW THE ROADWAY OR ACROSS SIDE ROADS, IT SHALL BE PLACED IN A PVC ELECTRICAL CONDUIT SLEEVE. SEE SIZE AS SHOWN ON THE PLANS (8" MIN).
 - STREET LIGHTING
 - MAST ARMS SHALL HAVE A 250 WATT HIGH PRESSURE SODIUM LUMINAIRE AS SHOWN ON THE PLANS. INSTALLED WITH A 3' MOUNTING HEIGHT ABOVE THE EDGE OF PAVEMENT WITH A 15' ARM. ARM ORIENTATION IS SHOWN ON LAYOUT SHEET.
 - VEHICLE LOOP DETECTORS
 - STANDARD E-172 LOOP SHALL EXTEND 5 FEET AHEAD OF STOP BAR UNLESS OTHERWISE NOTED ON THE PLANS.
 - GENERAL
 - THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS AND MAKE ALL NECESSARY ARRANGEMENTS WITH THE UTILITY COMPANY TO PROVIDE A PERMANENT POWER SUPPLY TO THE SIGNAL AND STREET LIGHTING EQUIPMENT. IF APPLICABLE, THE ROUTING OF POWER TO THE INTERSECTION SHALL BE SUCH THAT THE STATE HAS FULL RESPONSIBILITY FROM THE METER TO THE SIGNAL. NO INTERFERING OWNERSHIP RESPONSIBILITY SHALL BE ALLOWED.
 - AN ID PLAQUE AS DETAILED SHALL BE AFFIXED TO THE CONTROLLER.
 - CONTRACTOR SHALL ALLOW FOR EVALUATION AND TUNING AND PHASING CHANGES DURING INITIAL OPERATION FOR AOT SPECIFICATIONS.
 - RELATED VT AGENCY OF TRANSPORTATION STANDARDS, AS APPLICABLE:
 - E-142 REGULATORY SIGN DETAILS
 - E-143 REGULATORY SIGN DETAILS
 - E-144 WARNING SIGN DETAILS
 - E-145 WARNING SIGN DETAILS
 - E-146 PAVEMENT MARKING DETAILS
 - E-147 PAVEMENT MARKING DETAILS
 - E-148 PAVEMENT MARKING DETAILS
 - E-149 TRAFFIC CONTROL SIGNALS, PRESTAL POST MOUNTED
 - E-150 TRAFFIC CONTROL SIGNALS, GENERAL NOTES & DETAILS
 - E-151 TRAFFIC CONTROL SIGNALS, MISC. DETAILS
 - E-152 TRAFFIC CONTROL SIGNALS, CANTILEVER MOUNTING DETAILS
 - E-153 VEHICLE DETECTOR LOOP DETAILS
 - E-154 PULLBOXES & JUNCTION BOXES
 - E-155 POWER DROP STATIONCHS
 - E-156 PAVEMENT MARKING DETAILS
 - E-157 PAVEMENT MARKING DETAILS
 - THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING AND DETERMINING THE LOCATION, SIZE AND ELEVATION OF ALL EXISTING UTILITIES SHOWN OR NOT SHOWN ON THIS PLAN PRIOR TO THE START OF CONSTRUCTION. THE ENGINEER SHALL BE NOTIFIED IN WRITING, IN WRITING, OF ANY UTILITIES FOUND INTERFERING WITH THE PROPOSED CONSTRUCTION AND APPROPRIATE REMEDIAL ACTION SHALL BE TAKEN BEFORE PROCEEDING WITH THE WORK. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND ELEVATIONS IN THE FIELD BEFORE COMMENCING CONSTRUCTION AND NOTIFY THE ENGINEER, IN WRITING, OF ANY DISCREPANCY FOUND.
 - LOCATION OF NEW AND/OR RELOCATED SIGNAGE SHALL BE COORDINATED WITH THE PROPER VERMONT AGENCY OF TRANSPORTATION OFFICIAL PRIOR TO INSTALLATION.
 - THE QUANTITIES LISTED ABOVE ARE APPROXIMATE AND ARE FURNISHED FOR INFORMATION ONLY. MISCELLANEOUS UNBIDDED WIRE, CABLE, HARDWARE, ETC., ARE REQUIRED TO PROVIDE FOR A FUNCTIONING TRAFFIC SIGNAL SYSTEM. THE CONTRACTOR IS RESPONSIBLE FOR VERIFICATION OF THE NUMBER OF ITEMS AND THE TYPES OF EQUIPMENT REQUIRED.
 - NEW SIGNAL SUPPORTS SHALL BE DESIGNED IN ACCORDANCE WITH ASHRAE'S STANDARD SPECIFICATION FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNAL, LUMINAIRES, AND TRAFFIC SIGNALS DATED 2001 OR ITS LATEST REVISION.



US ROUTE 5 INTERSECTION PLAN



POLE #1

POLE #2 - US Route 5 EB Approach

POLE #2 - Quarry Road Approach

NOTES:
 CANTILEVER POLE FOUNDATION TO BE ENGINEER DESIGN BY POLE SUPPLIER.

TYPICAL ELEVATIONS

POLE DETAILS



SIGNAL FACE ARRANGEMENT

CONTROLLER TIMING CHART

LOCAL PROGRAMMING	PHASE								WEEKDAY THINGS
	1	2	3	4	5	6	7	8	
MINIMUM GREEN	15	8	15	8					WEEKDAY PEAK: 9AM - 5PM
EXTENSION	2	2	2	2					WEEKDAY OFF-PEAK: REST OF DAY
YELLOW CLEARANCE	4	4	4	4					SATURDAY PEAK: 1AM - 3PM
ALL RED CLEARANCE	2	2	2	2					SATURDAY OFF-PEAK: REST OF DAY
MAX GREEN 1 (WEEKDAY OFF PEAK)	33	15	33	15					
MAX GREEN 2 (EAM OFF PEAK)	25	12	25	12					
WALK	-	-	-	-					
FLASHING DOT WALK	-	-	-	-					

TIMING & PHASING DIAGRAM

PLAN

NO.	DAY OF WEEK								TIME	CYCLE	OFFSET	SPLIT	REMARKS
	M	T	W	T	F	S	S						
1	X	X	X	X	X			10:00	1	1	1	COORDINATED	
2	X	X	X	X	X			18:00				FREE	
3	X	X	X	X	X			9:00	1	1	1	COORDINATED	
4						X		18:00				FREE	
5						X		9:00				FREE	

OFFSETS (SEC)

CYCLE NO.	1	2	3	4
LENGTH (SEC)	1	1	1	1
OFFSET	0	0	0	0

Offset Referenced to 2nd Start of Green

SPLITS (SEC)

CYCLE	PHASE							
	1	2	3	4	5	6	7	8
1	1	1	1	1	1	1	1	1
2	1	1	1	1	1	1	1	1

COORDINATION TABLES

LIST OF MAJOR EQUIPMENT

EQUIPMENT	QUANTITY
NEW 12" LED TRAFFIC SIGNAL HEADS BY TUNNEL VISIONS, DISCONNECT HANGERS & MOUNTING HARDWARE BACKPLATES FOR ALL HEADS	9-ONE WAY, 3 SECTION
CANTILEVER POLE WITH MAST ARM(S), LUMINAIRE ARM AND FOUNDATION (ONE LUMINAIRE ARM REQ'D)	2
SIGNAL CONTROLLER	1
SYSTEM MASTER	1
EQUIPMENT CABINET	1
POWER DROP STATIONCH	1
VEHICLE DETECTOR LOOPS	7
MISC. HARDWARE EQUIPMENT, ETC. TO COMPLETE INSTALLATION	SEE NOTE #12

POLE/MAST ARM DESIGN NOTES

LUMINAIRE NOTES

SEE NOTE 13 FOR CANTILEVER POLE DESIGN SPECIFICATIONS.

TYPE
 1. SIGNAL LUMINAIRE
 2. STREET LIGHTING
 3. VEHICLE DETECTOR LOOP

SIZE
 4. 250 WATT
 5. 15 FOOT CANOLES
 6. E-180A, E-180B

PROJECT 8010.4
 DATE: 6-10-2006

Traffic Signal

Derby Properties LLC
 ST. JOHNSBURY, VERMONT

SHEET 3 OF 3