PROJECT DESCRIPTION

I. GENERAL

THIS PROJECT INVOLVES THE RECONSTRUCTION OF THE TRAFFIC SIGNAL AT US 1 (WASHINGTON BOULEVARD) AND HOWARD STREET / ~~CORRIDOR ROAD.~~ US 1 IS ASSUMED TO RUN IN A NORTH/SOUTH DIRECTION.

II. INTERSECTION OPERATION

THE INTERSECTION IS TO OPERATE IN A NEMA SIX-PHASE, FULLY-ACTUATED MODE, WITH THE NORTHBOUND AND SOUTHBOUND US 1 MOVEMENTS OPERATING CONCURRENTLY. EXCLUSIVE LEFT TURN PHASE IS PROVIDED FOR NORTHBOUND AND SOUTHBOUND US 1. THE SOUTHBOUND US 1 LEFT TURN WILL OPERATE AS THE LEAD LEFT TURN AND THE NORTHBOUND US 1 LEFT TURN WILL BE THE LAG LEFT TURN.
A SPLIT PHASE IS PROVIDED FOR EASTBOUND HOWARD STREET AND WESTBOUND CORRIDOR ROAD.
THIS INTERSECTION IS INTERCONNECTED TO THE TRAFFIC SIGNAL AT US 1 SOUTHBOUND AND MD 32 SOUTHBOUND SOUTH RAMP.
~~THE PRE-EMPTION PHASE IS ACTIVATED BY A PUSHBUTTON IN THE FIREHOUSE LOCATED ON CORRIDOR ROAD.~~
THE PRE-EMPTION PHASE IS ACTIVATED BY AN OPTICOM DETECTOR EYE FACING HOWARD STREET.

III. PEDESTRIAN OPERATION

NAVIGATOR AUDIBLE PEDESTRIAN PUSHBUTTONS TO CROSS THE EAST LEG, WEST LEG, NORTH LEG ACROSS US 1 SOUTHBOUND, NORTH LEG ACROSS SOUTHBOUND LEFT TURN RAMP, AND NORTH LEG ACROSS US 1 NORTHBOUND ARE TO BE PROVIDED. WHEN THE PEDESTRIAN LOCATES AND PRESSES THE PUSHBUTTON FOR AN EXTENDED TIME, THE PUSHBUTTON UNIT WILL ANNOUNCE THE FOLLOWING MESSAGE:

EAST: "WAIT TO CROSS CORRIDOR AT WASHINGTON, WAIT."

WEST: "WAIT TO CROSS HOWARD AT WASHINGTON, WAIT."

PUSHBUTTONS NO. 33 AND 34
NORTH: "WAIT TO CROSS WASHINGTON AT HOWARD, WAIT. CROSSWALK ANGLES RIGHT."

PUSHBUTTONS NO. 36 AND 52
NORTH: "WAIT TO CROSS WASHINGTON AT CORRIDOR, WAIT."

PUSHBUTTONS NO. 35 AND 51
NORTH: "WAIT TO CROSS RAMP, WAIT."

SPECIAL NOTES

1. THE CONTACT PERSONS FOR THIS PROJECT ARE AS FOLLOWS:

DISTRICT

MS. ANDREA ABEND
UTILITY ENGINEER
301-624-8115/8116

MR. JOHN CONCANNON
ASSISTANT DISTRICT ENGINEER - TRAFFIC
301-624-8140/8141

MR. JOHN HUCHROWSKI
ASSISTANT DISTRICT ENGINEER - CONSTRUCTION
301-624-8200/8201

MS. SUE PALMER
ASSISTANT DISTRICT ENGINEER - MAINTENANCE
301-624-8105/8106

OFFICE OF TRAFFIC AND SAFETY

MR. RICHARD DAFF SR.
CHIEF, TRAFFIC OPERATIONS
410-787-7630

MR. ROBERT SNYDER
ASSISTANT DIVISION CHIEF, TRAFFIC OPERATIONS
410-787-7630

MR. ED RODENHIZER
TEAM LEADER SIGNAL OPERATIONS
410-787-7650

MR. EUGENE BAILEY
TEAM LEADER SIGN OPERATIONS
410-787-7670

MR. MIKE STOCKER
SUPPLY OFFICER IV (SIGNAL SHOP WAREHOUSE)
410-787-7668

2. MAINTENANCE OF TRAFFIC WILL BE HANDLED BY THE CONTRACTOR UTILIZING THE FOLLOWING STANDARD PLATES FOR TRAFFIC CONTROL: 104.04-13, 104.04-15, 104.03-12, 104.04-05.

EQUIPMENT LIST

EQUIPMENT TO BE FURNISHED BY STATE HIGHWAY ADIMISTRATION

A.

ITEM NO./ CAT CODE	QUANTITY	DESCRIPTION
9000	1 EA	EIGHT-PHASE, FULL-TRAFFIC-ACTUATED ASC III CONTROLLER
9000	1 EA	NEMA SIZE "S" BASE MOUNTED CABINET WITH INTERSECTION MONITOR
9000	1 EA	UNINTERUPTABLE POWER SUPPLY
9000	1 EA	UPS BATTERIES (6 BATTERY BANK)
9000	1 EA	UPS BYPASS SWITCH
9000	1 EA	QUICK CONNECT BLOCK AND HARNESS FOR TELEMETRY INTERFACE PANEL
9000	2 EA	FOUR-CHANNEL, TIME-DELAY-OUTPUT, LOOP DETECTOR AMPLIFIER
9000	139 SF	SHEET ALUMINUM SIGNS CONSISTING OF:
	12.5 SF 2 EACH	R3-1, (30"X30"), MAST ARM MOUNT
	18 SF 2 EACH	R3-5(L), (30"X36"), MAST ARM MOUNT
	7.5 SF 1 EACH	R3-5(R), (30"X36"), MAST ARM MOUNT
	18 SF 2 EACH	R3-6, (30"X36"), MAST ARM MOUNT
	21.33 SF 2 EACH	D-3(1), (VAR.X16"), MAST ARM MOUNT
	12.5 SF 2 EACH	R3-2, (30"X30"), MAST ARM MOUNT
	6 SF 3 EACH	M3-3, (24"X12"), POST MOUNT
	6 SF 3 EACH	M3-1, (24"X12"), POST MOUNT
	24 SF 6 EACH	M1-4, (24"X24"), POST MOUNT
	4.38 SF 2 EACH	M5-1, (21"X15"), POST MOUNT
	8.75 SF 4 EACH	M6-1, (21"X15"), POST MOUNT

B. EQUIPMENT TO BE FURNISHED AND/OR INSTALLED BY CONTRACTOR

ITEM NO./ CAT CODE	QUANTITY	DESCRIPTION
1001	1 EA	MAINTENANCE OF TRAFFIC
[2] 2001	61~~60~~ CY	CLASS II EXCAVATION
2002	5 CY	TEST PIT EXCAVATION
5001	6 EA	REMOVAL OF EXISTING PERMANENT PAVEMENT MARKINGS SYMBOLS OR LEGENDS
5003	200 LF	REMOVAL OF EXISTING PERMANENT PAVEMENT LINE MARKINGS ANY WIDTH
5004	500 LF	12 INCH WHITE PREFORMED THERMOPLASTIC PAVEMENT MARKING LINES
5005	200 LF	24 INCH WHITE PREFORMED THERMOPLASTIC PAVEMENT MARKING LINES
5006	82 SF	WHITE PREFORMED THERMOPLASTIC PAVEMENT MARKING LEGENDS AND SYMBOLS
[2] 6001	445~~440~~ LF	STANDARD TYPE A COMBINATION CURB AND GUTTER 12 INCH GUTTER PAN 8 INCH DEPTH
6002	1480 SF	5 INCH CONCRETE SIDEWALK
6003	100 SF	DETECTABLE WARNING SURFACE FOR CURB RAMP
8001	56 EA	12 INCH LED SIGNAL HEAD SECTION
[1] 8002	2 EA	2-WIRE CENTRAL CONTROL UNIT
8007	5 EA	ANY SIZE LIGHTING ARM ON SIGNAL POLE WITH 250 WATT HPS LAMP AND LUMINAIRE
8008	10 EA	AUDIBLE/TACTILE PEDESTRIAN PUSH BUTTON STATION AND SIGNS
[2] 8009	9~~8~~ EA	BREAKAWAY PEDESTAL POLE (ANY SIZE)
8015	10 EA	LED 16 INCH COUNTDOWN PEDESTRIAN SIGNAL HEAD
8017	3 EA	MAST ARM POLE AND 38 FOOT MAST ARM ANY 'T' DIMENSION
8018	1 EA	MAST ARM POLE AND 50 FOOT MAST ARM ANY 'T' DIMENSION
8022	5 EA	NONINVASIVE DETECTOR (ANY LENGTH) LEAD IN CABLE UP TO 1000 FEET
8023	1 EA	REMOVE AND DISPOSE OF EQUIPMENT (PER ASSIGNMENT)
8025	2 EA	TWIN MAST ARM POLE AND 50 FOOT/60 FOOT MAST ARM
8028	6 EA	VIDEO DETECTION CAMERA AND CABLE ANY LENGTH
8030	90 LF	1-CONDUCTOR ELECTRICAL CABLE, NO. 2 AWG/THHN
8031	600 LF	12-PAIR COMMUNICATION CABLE, SELF-SUPPORTING, JELLY-FILLED/UNDERGROUND
~~8033~~	~~500 LF~~	~~DISCONNECT, PULL BACK & REROUTE CABLE.~~ [3]
8034	1400 LF	ELECTRICAL CABLE - 2 CONDUCTOR (NO. 12 AWG) TYPE T/C
8037	700 LF	SCHEDULE 80 RIGID PVC CONDUIT UP TO 4 INCHES-SLOTTED
8038	600 LF	SCHEDULE 80 RIGID PVC CONDUIT UP TO 4 INCHES-TRENCHED
8039	115 LF	WOOD SIGN SUPPORTS UP TO 4"X6"
8040	139 SF	INSTALL OVERHEAD OR GROUND MOUNTED SIGN (INCLUDING ALL HARDWARE)
8042	930 LF	NO. 6 AWG STRANDED BARE COPPER GROUND WIRE
8045	30 LF	ELECTRICAL CABLE 1-CONDUCTOR NO. 8 AWG-THHN/THWN
8046	17 EA	FURNISH AND INSTALL ELECTRICAL HANDHOLE
8051	1 EA	CUT, CLEAN, GALVANIZE AND CAP TRAFFIC SIGNAL STRUCTURE
8053	2200 LF	ELECTRICAL CABLE-2 CONDUCTOR (NO. 14 AWG)
8055	4300 LF	ELECTRICAL CABLE-5 CONDUCTOR (NO. 14 AWG)
8056	2400 LF	ELECTRICAL CABLE-7 CONDUCTOR (NO. 14 AWG)
8061	1 EA	INSTALL CONTROLLER AND CABINET-BASE MOUNT (ANY SIZE)
[3] 8032	165 LF	4 CONDUCTOR OPTICOM CABLE
[3] 8048	1 EA	OPTICOM NO. 721 DETECTOR EYE

C. SHA FORCES SHALL REMOVE THE CONTROLLER AND ALL AUXILIARY EQUIPMENT FROM THE CONTROLLER CABINET. THE CABINET AND ALL OTHER MATERIALS TO BE REMOVED BY THE CONTRACTOR SHALL BECOME THE PROPERTY OF THE CONTRACTOR.

KCI TECHNOLOGIES
ENGINEERS
PLANNERS
SCIENTISTS
CONSTRUCTION MANAGERS
936 RIDGEBROOK ROAD
SPARKS, MARYLAND 21152
TELEPHONE: (410) 316-7800
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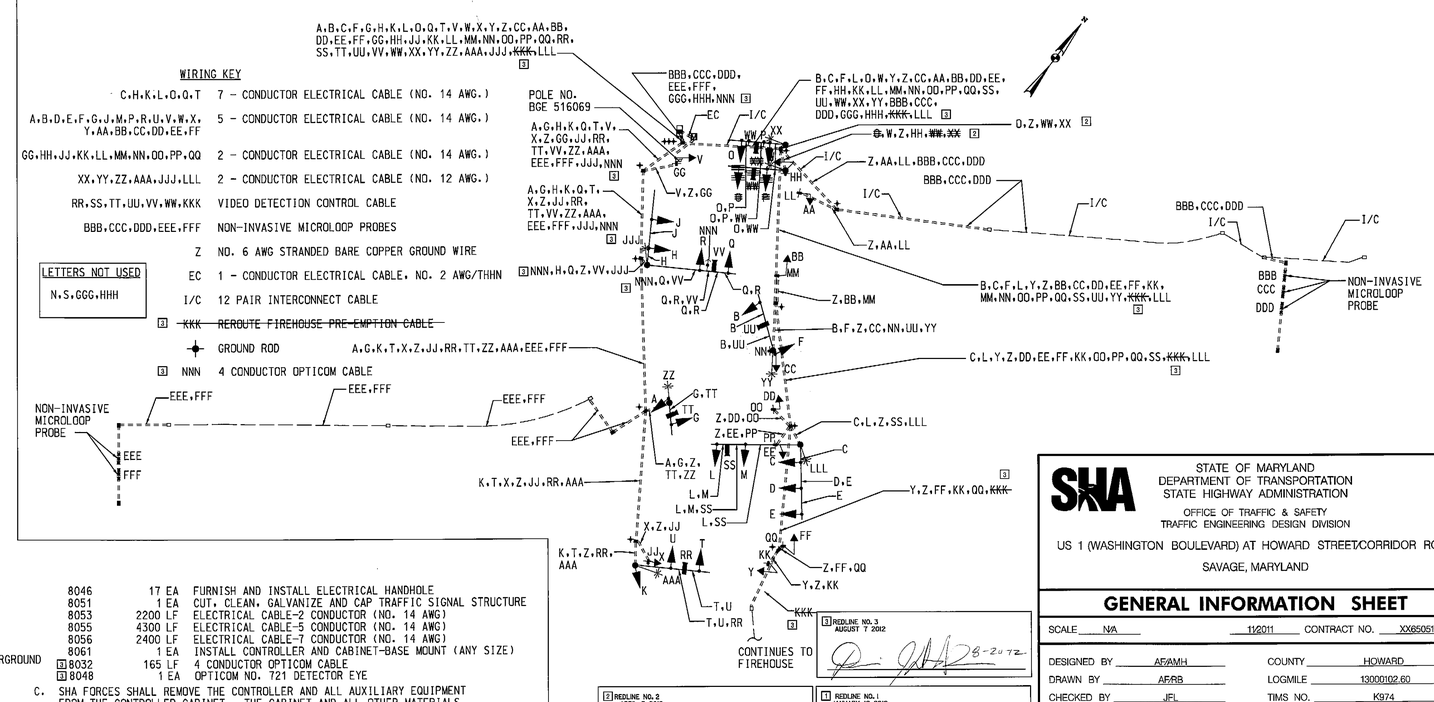
PHASE CHART

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
	~~R~~ ~~Y~~ ~~G~~	~~R~~ ~~Y~~ ~~G~~	R Y G	R Y G	R Y G	~~R~~ ~~Y~~ ~~G~~	~~R~~ ~~Y~~ ~~G~~	R Y G	R Y G	R Y G	R Y G	R Y G	R Y ~~G~~	R Y G	R Y G	R Y G	R Y ~~G~~	R Y G										
PHASE 2 AND 5 +OL(A)	~~R~~	~~R~~	R	R	R	~~G~~	~~G~~	G	G	R	R	R	R	R	R	R	~~G~~/G	G	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW
2 AND 5 CHANGE	~~R~~	~~R~~	R	R	R	~~Y~~	~~Y~~	Y	Y	R	R	R	R	R	R	R	Y	Y	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW
PHASE 2 AND 6	~~R~~	~~R~~	G	G	G	~~R~~	~~R~~	G	G	R	R	R	R	R	R	R	R	R	WK	WK	WK	WK	DW	DW	WK	WK	DW	DW
PEDESTRIAN CLEARANCE	~~R~~	~~R~~	G	G	G	~~R~~	~~R~~	G	G	R	R	R	R	R	R	R	R	R	FDW	FDW	FDW	FDW	DW	DW	FDW	FDW	DW	DW
2 AND 6 CHANGE	~~R~~	~~R~~	Y	Y	Y	~~R~~	~~R~~	Y	Y	R	R	R	R	R	R	R	R	R	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW
PHASE 1 AND 6 +OL(B)	~~G~~	~~G~~	G	G	G	~~R~~	~~R~~	R	R	R	R	R	~~G~~/G	G	R	R	R	R	DW	DW	DW	DW	DW	DW	WK	WK	DW	DW
PEDESTRIAN CLEARANCE	~~G~~	~~G~~	G	G	G	~~R~~	~~R~~	R	R	R	R	R	~~G~~/G	G	R	R	R	R	DW	DW	DW	DW	DW	DW	FDW	FDW	DW	DW
1 AND 6 CHANGE	~~Y~~	~~Y~~	Y	Y	Y	~~R~~	~~R~~	R	R	R	R	R	Y	Y	R	R	R	R	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW
PHASE 3 +OL(B)	~~R~~	~~R~~	R	R	R	~~R~~	~~R~~	R	R	G	G	G	~~G~~/G	G	R	R	R	R	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW
PHASE 3 CHANGE	~~R~~	~~R~~	R	R	R	~~R~~	~~R~~	R	R	Y	Y	Y	Y	Y	R	R	R	R	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW
PHASE 3 ALT. +OL(B)	~~R~~	~~R~~	R	R	R	~~R~~	~~R~~	R	R	G	G	G	~~G~~/G	G	R	R	R	R	DW	DW	DW	DW	DW	DW	WK	WK	WK	WK
PEDESTRIAN CLEARANCE	~~R~~	~~R~~	R	R	R	~~R~~	~~R~~	R	R	G	G	G	~~G~~/G	G	R	R	R	R	DW	DW	DW	DW	DW	DW	FDW	FDW	FDW	FDW
PHASE 3 ALT. CHANGE	~~R~~	~~R~~	R	R	R	~~R~~	~~R~~	R	R	Y	Y	Y	Y	Y	R	R	R	R	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW
PHASE 4 +OL(A)	~~R~~	~~R~~	R	R	R	~~R~~	~~R~~	R	R	R	R	R	R	R	G	G	~~G~~/G	G	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW
PHASE 4 CHANGE	~~R~~	~~R~~	R	R	R	~~R~~	~~R~~	R	R	R	R	R	R	R	Y	Y	Y	Y	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW
PHASE 4 ALT +OL(A)	~~R~~	~~R~~	R	R	R	~~R~~	~~R~~	R	R	R	R	R	R	R	G	G	~~G~~/G	G	DW	DW	DW	DW	W	W	W	W	DW	DW
PEDESTRAIN CLEARANCE	~~R~~	~~R~~	R	R	R	~~R~~	~~R~~	R	R	R	R	R	R	R	G	G	~~G~~/G	G	DW	DW	DW	DW	FDW	FDW	FDW	FDW	DW	DW
PHASE 4 ALT. CHANGE	~~R~~	~~R~~	R	R	R	~~R~~	~~R~~	R	R	R	R	R	R	R	Y	Y	Y	Y	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW
FLASHING OPERATION	~~FLR~~	~~FLR~~	FLY	FLY	FLY	~~FLR~~	~~FLR~~	FLY	FLY	FLR	FLR	FLR	FLR	FLR	FLR	FLR	FLR	FLR	DARK	DARK	DARK	DARK	DARK	DARK	DARK	DARK	DARK	DARK
[3] PHASE 4 +OL(A)	~~R~~	~~R~~	R	R	R	~~R~~	~~R~~	R	R	R	R	R	R	R	G	G	~~G~~/G	G	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW
[3] PHASE 4 CHANGE	~~R~~	~~R~~	R	R	R	~~R~~	~~R~~	R	R	R	R	R	R	R	Y	Y	Y	Y	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW

WIRING DIAGRAM



[3] REDLINE NO. 3
AUGUST 7 2012

[2] REDLINE NO. 2
APRIL 3 2012
DENNIS J. DODA

[1] REDLINE NO. 1
JANUARY 19 2012
DENNIS J. DODA

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF TRAFFIC & SAFETY
TRAFFIC ENGINEERING DESIGN DIVISION

US 1 (WASHINGTON BOULEVARD) AT HOWARD STREET/CORRIDOR ROAD
SAVAGE, MARYLAND

GENERAL INFORMATION SHEET

SCALE N/A	11/2011	CONTRACT NO.	XX6505185
DESIGNED BY	AFAMH	COUNTY	HOWARD
DRAWN BY	AFRB	LOGMILE	13000102.60
CHECKED BY	JFL	TIMS NO.	K974
F.A.P. NO.		TOD NO.	
TS NO. 1685 I	DRAWING SG-3 OF 3	SHEET NO.	3 OF 3

PLOTTED: "01:35 PM on Monday, August 06, 2012"
FILE: M:\2009\09209819.33\Submittals\PS & E\Redline No. 2\K974 GI.dgn

BY: Aaron Hottenstein Division: P068 Highway TrafficGMA Emp