

60631225P

S-9G

SIGNAL PLAN: WB MINERAL POINT ROAD AT S ROSA ROAD

60631225P

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

CITY OF MADISON

CONTRACT NO: 60631225C

REVISION

DATE

BY

Scale: 1 IN=40 FT

60631225P

60631225P

RING 2



N

EMERGENCY VEHICLE PREEMPTION SEQUENCE

AFTER PREEMPTION SEQUENCE 2+9 OR 6+3, CONTROLLER SHALL RETURN TO PHASES 2+9.

LEGEND

← PHASE
← OVERLAP

EXTENSION STRETCH LOOP FUNCTION

--	--

LOOP FUNCTION

1.

2.

3.

4.

TYPE OF COORDINATION	
NONE	
TBC	X
TRAFFIC RESPONSIVE	
ADAPTIVE	
*LOCATION OF MASTER	
CONTROLLER NO:	S-
SIGNAL SYSTEM NO:	SS-

TYPE OF PRE-EMPT	
NONE	
RAILROAD	
EMERGENCY VEHICLE	
GTT	X
TOMAR	
HARDWIRE	
OTHER	
CONFIRMATION LIGHTS	
LIFT BRIDGE	
QUEUE DETECTION	

GENERAL NOTES:



PROJECT ID:	60631225P
INTERSECTION:	MINERAL POINT RD & ROSA RD

SIGNAL WIRE COLOR CODING	BLK-BLACK	RED-RED	GRN-GREEN
	WHT-WHITE	BLU-BLUE	ORG-ORANGE

DATE: Oct-22

CB1 TO	AWG 14 # OF COND.	HEAD NO.	SIGNAL INDICATION WIRE COLOR											PED BUTTON	OTHER	
			RED	YELLOW	GREEN	<RED>	<YELLOW>	<FLASH YEL>	<GREEN>	" _ "	" Δ "	" "	D/WALK	WALK		
SB1	7	14	RED	ORG	GRN											
		6B											BLK	BLU		
SB2	12	6	RED	ORG	GRN											
		8D											BLK	BLU		
		PB													WHT/BLK	
SB3	19	4				RED	ORG		GRN							
		5				RED	ORG		GRN							
		9				RED/BLK	ORG/BLK		GRN/BLK							
		18														
		8B								RED/WHT	BLK/RED	GRN/WHT	BLK	BLU		
		8C											BLU/BLK	BLU/WHT		
		PB													WHT/BLK	
SB4	12	2	RED	ORG	GRN											
		3	RED	ORG	GRN											
		2B											BLK	BLU		
		8A											BLK/WHT	BLU/BLK		
		PB													WHT/BLK	
SB5	12	12	RED	ORG	GRN											
		16	RED/BLK	ORG/BLK	GRN/BLK											
SB6	7	17	RED	ORG	GRN											
		2A											BLK/WHT	BLU/BLK		
SB7	12	1	RED	ORG	GRN											
		10				RED/BLK	ORG/BLK		GRN/BLK							
		4D											BLK	BLU		
		PB													WHT/BLK	
SB8	12	11				RED	ORG		GRN							
		4B											BLK	BLU		
		4C											BLK/WHT	BLU/BLK		
		PB													WHT/BLK	
		PB													RED/BLK	
SB9	12	7	RED	ORG	GRN											
		8	RED	ORG	GRN											
		4A											BLK	BLU		
		PB													WHT/BLK	
SB10	12	13	RED	ORG	GRN											
		15	RED/BLK	ORG/BLK	GRN/BLK											
		6A											BLK	BLU		

- NOTES:
- USE WHITE CONDUCTOR IN THE SIGNAL CABLE AS THE GROUNDED CONDUCTOR FOR ALL TRAFFIC SIGNAL INDICATIONS.
 - ENSURE THE GROUNDED CONDUCTOR IN THE FEEDER CABLE AND THE POLE CABLES ARE BOTH 18" LONGER THAN THE UNGROUNDED CONDUCTORS.
 - AT THE SIGNAL BASES, CONNECT ONE TERMINAL FROM THE PEDESTRIAN PUSH BUTTONS TO THE COLOR INDICATED IN THE CHART.
CONNECT THE OTHER TERMINAL TO THE GROUNDED CONDUCTOR.

EQUIPMENT GROUNDING CONDUCTORS 10 AWG GRN XLP	
FROM	TO
CB1	SB1
SB1	SB2
SB2	SB3
SB3	SB4
SB4	SB5
SB5	SB6
SB6	SB7
SB7	SB8
SB8	SB9
SB9	SB10
SB10	CB1

LIGHTING UF 8 AWG W/ GROUND	
FROM	TO
CB1	SB2
SB2	SB3
SB3	SB5
CB1	SB10
SB10	SB9
SB9	SB8

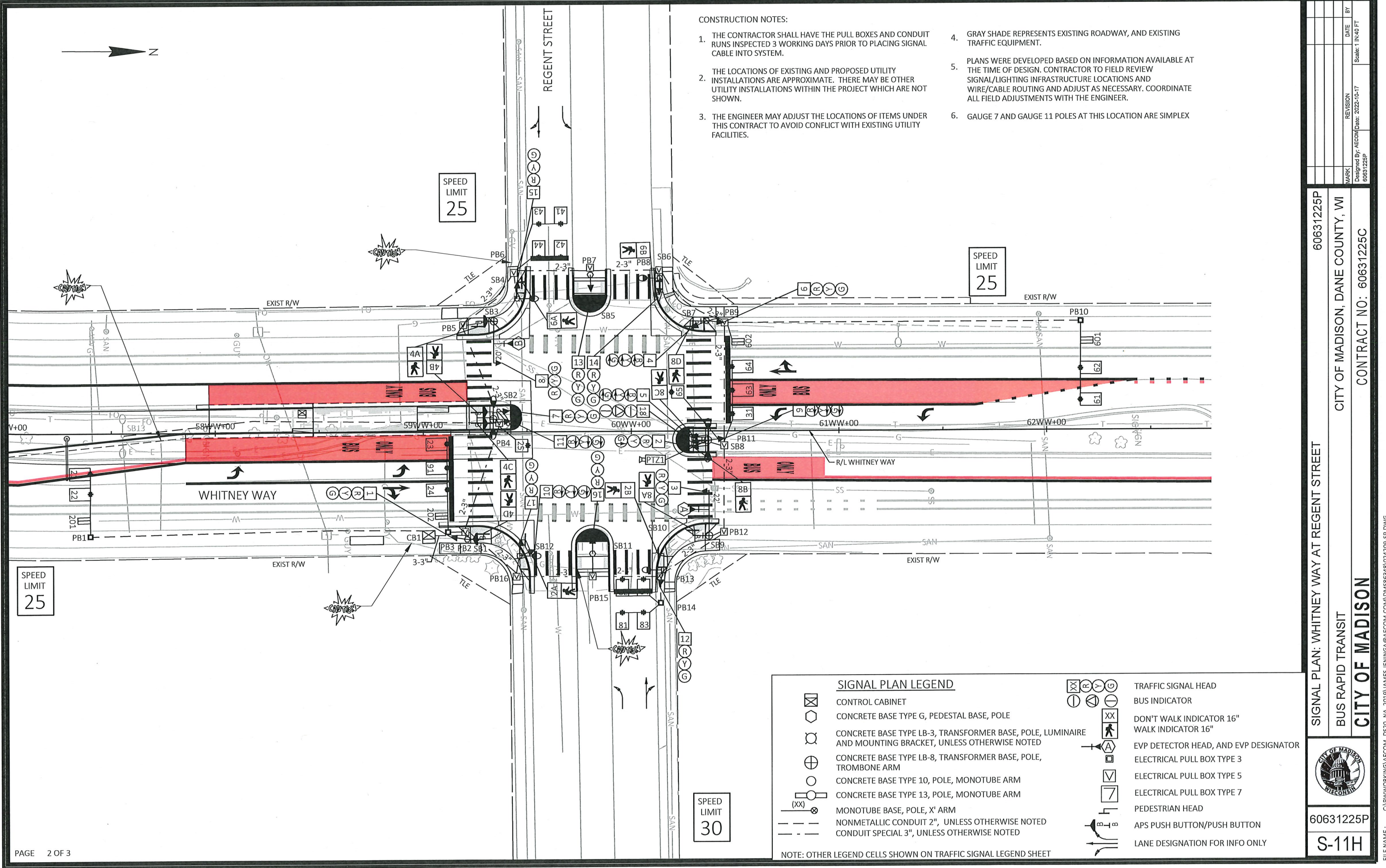
EMERGENCY VEHICLE PREEMPTION WITH CONFIRMATION LIGHTS		
HEAD	FROM	TO
A	CB1	SB4
B	CB1	SB9

PTZ CAMERA		
HEAD	FROM	TO
PTZ1	CB1	SB3

Mark	REVISION	DATE	BY
60631225P	9/28/2022		
Designed By: AECOM			
60631225P			

60631225P
CITY OF MADISON, DANE COUNTY, WI
CONTRACT NO: 60631225C
CABLE ROUTING: MINERAL POINT AT ROSA ROAD
BUS RAPID TRANSIT
CITY OF MADISON





CONSTRUCTION NOTES:

1. THE CONTRACTOR SHALL HAVE THE PULL BOXES AND CONDUIT RUNS INSPECTED 3 WORKING DAYS PRIOR TO PLACING SIGNAL CABLE INTO SYSTEM.
2. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.
3. THE ENGINEER MAY ADJUST THE LOCATIONS OF ITEMS UNDER THIS CONTRACT TO AVOID CONFLICT WITH EXISTING UTILITY FACILITIES.
4. GRAY SHADE REPRESENTS EXISTING ROADWAY, AND EXISTING TRAFFIC EQUIPMENT.
5. PLANS WERE DEVELOPED BASED ON INFORMATION AVAILABLE AT THE TIME OF DESIGN. CONTRACTOR TO FIELD REVIEW SIGNAL/LIGHTING INFRASTRUCTURE LOCATIONS AND WIRE/CABLE ROUTING AND ADJUST AS NECESSARY. COORDINATE ALL FIELD ADJUSTMENTS WITH THE ENGINEER.
6. GAUGE 7 AND GAUGE 11 POLES AT THIS LOCATION ARE SIMPLEX

SIGNAL PLAN LEGEND

	CONTROL CABINET		TRAFFIC SIGNAL HEAD
	CONCRETE BASE TYPE G, PEDESTAL BASE, POLE		BUS INDICATOR
	CONCRETE BASE TYPE LB-3, TRANSFORMER BASE, POLE, LUMINAIRE AND MOUNTING BRACKET, UNLESS OTHERWISE NOTED		DON'T WALK INDICATOR 16" WALK INDICATOR 16"
	CONCRETE BASE TYPE LB-8, TRANSFORMER BASE, POLE, TROMBONE ARM		EVP DETECTOR HEAD, AND EVP DESIGNATOR
	CONCRETE BASE TYPE 10, POLE, MONOTUBE ARM		ELECTRICAL PULL BOX TYPE 3
	CONCRETE BASE TYPE 13, POLE, MONOTUBE ARM		ELECTRICAL PULL BOX TYPE 5
	MONOTUBE BASE, POLE, X' ARM		ELECTRICAL PULL BOX TYPE 7
	NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED		PEDESTRIAN HEAD
	CONDUIT SPECIAL 3", UNLESS OTHERWISE NOTED		APS PUSH BUTTON/PUSH BUTTON
			LANE DESIGNATION FOR INFO ONLY

NOTE: OTHER LEGEND CELLS SHOWN ON TRAFFIC SIGNAL LEGEND SHEET

SIGNAL PLAN: WHITNEY WAY AT REGENT STREET

BUS RAPID TRANSIT

CITY OF MADISON

60631225P

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

60631225P

S-11H

FILE NAME: C:\P\WORKING\AECOM_DS20_NA_2019\UAMES.JENINGA\AECOM\COM\DSM86348\024209-SP.DWG

LAYOUT NAME - Plan 1 in 40 FT

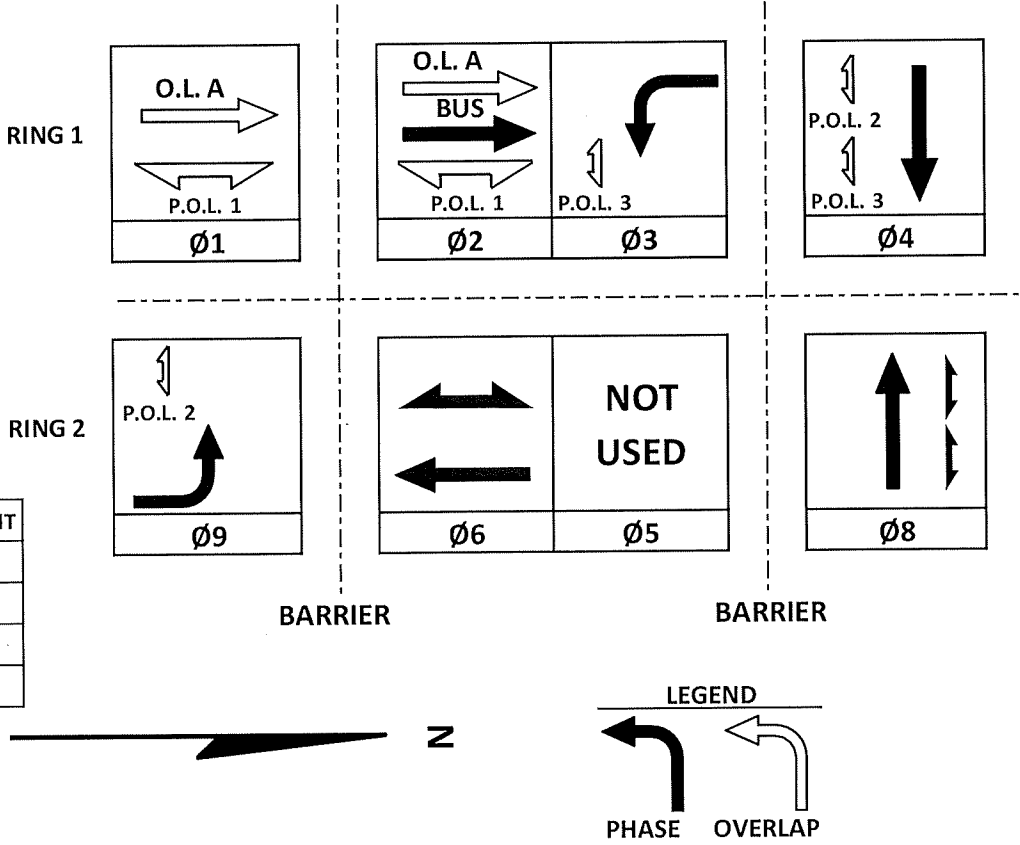
DATE: 2022-10-17

REVISION: 60631225P

BY: 60631225P

	HEAD NUMBERS	FLASH
Ø1		
Ø2	18	R
Ø3	9,10,11	R
Ø4	15,16,17	R
Ø5		
Ø6	6,7,8	R
Ø7		
Ø8	12,13,14	R
Ø9	4,5	R
Ø2P		
Ø4P	8A,8B,8C,8D	
Ø6P	6A,6B	
Ø8P		
OLA	1,2,3	1,2
POL1	2A,2B	1,2
POL2	4A,4B	4,9
POL3	4C,4D	3,4

	OL ASSIGNMENT
OLA	1,2,3
POL1	2A,2B
POL2	4A,4B
POL3	4C,4D



CONTROLLER LOGIC				
PHASE NUMBER	PHASE LOCKING	DUAL ENTRY W / Ø	PHASE RECALL	PHASE ACTIVE
1		9		X
2	X	6	MIN	X
3		6		X
4		8		X
5				
6	X	2	MIN	X
7				
8		4		X
9		1		X

EMERGENCY VEHICLE PREEMPTION SEQUENCE				
EMERGENCY VEHICLE PREEMPTOR	A	B	C	D
MOVEMENT				
PHASE	2+9	6+3		

AFTER PREEMPTION SEQUENCE 2+9 OR 6+3, CONTROLLER SHALL RETURN TO PHASES 2+9.

TYPE OF INTERCONNECT/COMMUNICATION	
NONE	
CLOSED LOOP	
TWISTED PAIR	
FIBER OPTIC*	X
FIBER OPTIC (ETHERNET)	
RADIO	
CELL MODEM	

TYPE OF COORDINATION	
NONE	
TBC	X
TRAFFIC RESPONSIVE	
ADAPTIVE	
*LOCATION OF MASTER CONTROLLER NO:	S-
SIGNAL SYSTEM NO:	SS-

TYPE OF LIGHTING	
BY OTHER AGENCY	
IN TRAFFIC CABINET	X
IN SEPARATE DOT LIGHTING CABINET	

TYPE OF PRE-EMPT	
NONE	
RAILROAD	
EMERGENCY VEHICLE	
GTT	
TOMAR	
HARDWIRE	
OTHER	
CONFIRMATION LIGHTS	
LIFT BRIDGE	
QUEUE DETECTION	

GENERAL NOTES:

-
-
-
-

DETECTOR INPUT	3	1	7	5	11	9	15	13
DETECTOR #(S)	21	23	25	201	31	41	43	61
PHASE CALLED	2	2		2	3	4	4	6
PHASE EXTENDED	2	2		2	3	4	4	6
DISCONNECT TIME								
CALLING DELAY								
EXTENSION STRETCH								
LOOP FUNCTION								

DETECTOR INPUT	4	2	8	6	12	10	16	14
DETECTOR #(S)	22	24		202		42	44	62
PHASE CALLED	2	2		2		4	4	6
PHASE EXTENDED	2	2		2		4	4	6
DISCONNECT TIME								
CALLING DELAY								
EXTENSION STRETCH								
LOOP FUNCTION								

DETECTOR INPUT	19	17	23	21	27	25	31	29
DETECTOR #(S)	63	65	601	81	83	91		
PHASE CALLED	6		6	8	8	9		
PHASE EXTENDED	6		6	8	8	9		
DISCONNECT TIME								
CALLING DELAY								
EXTENSION STRETCH								
LOOP FUNCTION								

DETECTOR INPUT	20	18	24	22	28	26	32	30
DETECTOR #(S)	64		602	82	84			
PHASE CALLED	6		6	8	8			
PHASE EXTENDED	6		6	8	8			
DISCONNECT TIME								
CALLING DELAY								
EXTENSION STRETCH								
LOOP FUNCTION								

DETECTOR INPUT	
DETECTOR #(S)	
PHASE CALLED	
PHASE EXTENDED	
DISCONNECT TIME	
CALLING DELAY	
EXTENSION STRETCH	
LOOP FUNCTION	

WHITNEY WAY AT REGENT STREET	
CITY OF MADISON	
DANE COUNTY	
SIGNAL NO:	CABINET TYPE: TS2
CONTROLLER TYPE: ECONOLITE	
DATE:	SEPTEMBER 2022 PAGE NUMBER: 3 OF 3

60631225P

SEQUENCE OF OPERATION:WHITNEY WAY AT REGENT STREET

BUS RAPID TRANSIT

CITY OF MADISON

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C



60631225P
S-111

PROJECT ID:	60631225P
INTERSECTION:	MINERAL POINT RD & REGENT ST

SIGNAL WIRE COLOR CODING	BLK-BLACK WHT-WHITE	RED-RED BLU-BLUE	GRN-GREEN ORG-ORANGE
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DATE: Sep-22

CB1 TO SB1	AWG 14 # OF COND.	HEAD NO.	SIGNAL INDICATION WIRE COLOR											PED BUTTON	OTHER
			RED	YELLOW	GREEN	<RED>	<YELLOW>	<FLASH YEL>	<GREEN>	" - "	" Δ "	" I "	D/WALK	WALK	
SB1	12	1	RED	ORG	GRN								BLK	BLU	
		4D													WHT/BLK
		PB													
SB2	15	7	RED	ORG	GRN										
		11				RED/BLK	ORG/BLK		GRN/BLK				BLK	BLU	
		4B											BLK/WHT	BLU/BLK	
		4C													WHT/BLK
		PB													BLU/WHT
		PB													
SB3	12	8	RED	ORG	GRN								BLK	BLU	
		4A													WHT/BLK
		PB													
SB4	7	15	RED	ORG	GRN								BLK	BLU	
		6A													
SB5	7	13	RED	ORG	GRN										
SB6	7	14	RED	ORG	GRN								BLK	BLU	
		6B													
SB7	12	4				RED/BLK	ORG/BLK		GRN/BLK						
		6	RED	ORG	GRN								BLK	BLU	
		8D													WHT/BLK
		PB													
SB8	19	2	RED	ORG	GRN										
		5				RED/BLK	ORG/BLK		GRN/BLK						
		9				WHT/RED	ORG/RED		BLU/RED						
		18								RED/WHT	BLK/RED	GRN/WHT			
		8B											BLK	BLU	
		8C											BLU/BLK	BLU/WHT	WHT/BLK
SB9	12	3	RED	ORG	GRN								BLK	BLU	
		8A													RED/BLK
		PB													
SB10	7	12	RED	ORG	GRN								BLK	BLU	
		2B													
SB11	7	16	RED	ORG	GRN										
SB12	12	10				RED/BLK	ORG/BLK		GRN/BLK						
		17	RED	ORG	GRN								BLK	BLU	
		2A													

- NOTES:
- 1. USE WHITE CONDUCTOR IN THE SIGNAL CABLE AS THE GROUNDED CONDUCTOR FOR ALL TRAFFIC SIGNAL INDICATIONS.
 - 2. ENSURE THE GROUNDED CONDUCTOR IN THE FEEDER CABLE AND THE POLE CABLES ARE BOTH 18" LONGER THAN THE UNGROUNDED CONDUCTORS.
 - 3. AT THE SIGNAL BASES, CONNECT ONE TERMINAL FROM THE PEDESTRIAN PUSH BUTTONS TO THE COLOR INDICATED IN THE CHART. CONNECT THE OTHER TERMINAL TO THE GROUNDED CONDUCTOR.

EQUIPMENT GROUNDING CONDUCTORS 10 AWG GRN XLP	
FROM	TO
CB1	SB1
SB1	SB2
SB2	SB3
SB3	SB4
SB4	SB5
SB5	SB6
SB6	SB7
SB7	SB8
SB8	SB9
SB9	SB10
SB10	SB11
SB11	SB12
SB12	CB1

LIGHTING UF 8 AWG W/ GROUND	
FROM	TO
CB1	SB2
SB2	SB13
SB13	SB4
SB4	SB6
CB1	SB12
SB12	SB10
SB10	SB8

PTZ CAMERA		
HEAD	FROM	TO
PTZ1	CB1	SB8

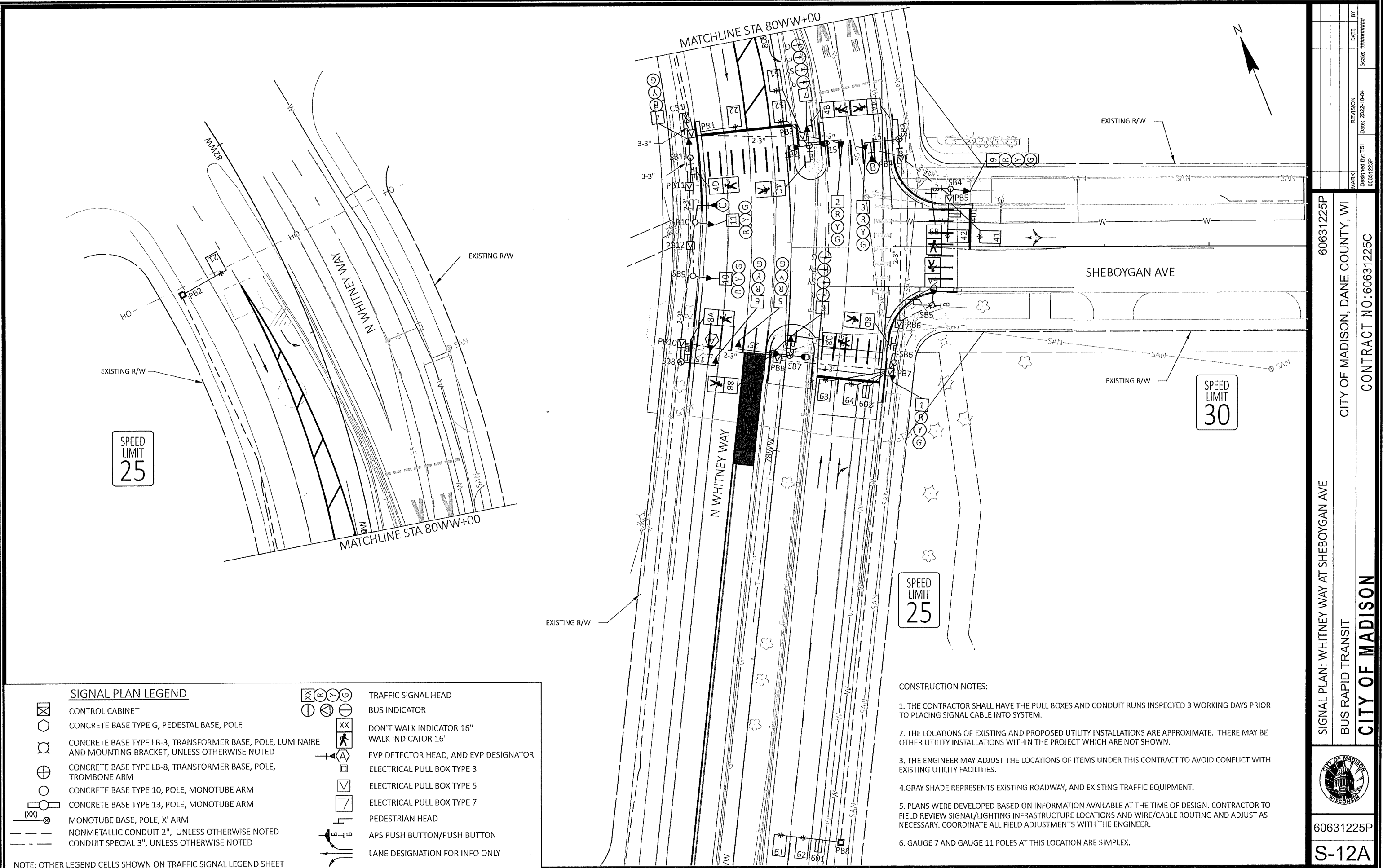
Mark	REVISION	DATE	BY
Designed By: AECOM	Date:	9/26/2022	Scale: NTS
60631225P			

60631225P
CITY OF MADISON, DANE COUNTY, WI
CONTRACT NO: 60631225C
CABLE ROUTING: WHITNEY WAY AT REGENT STREET
BUS RAPID TRANSIT
CITY OF MADISON



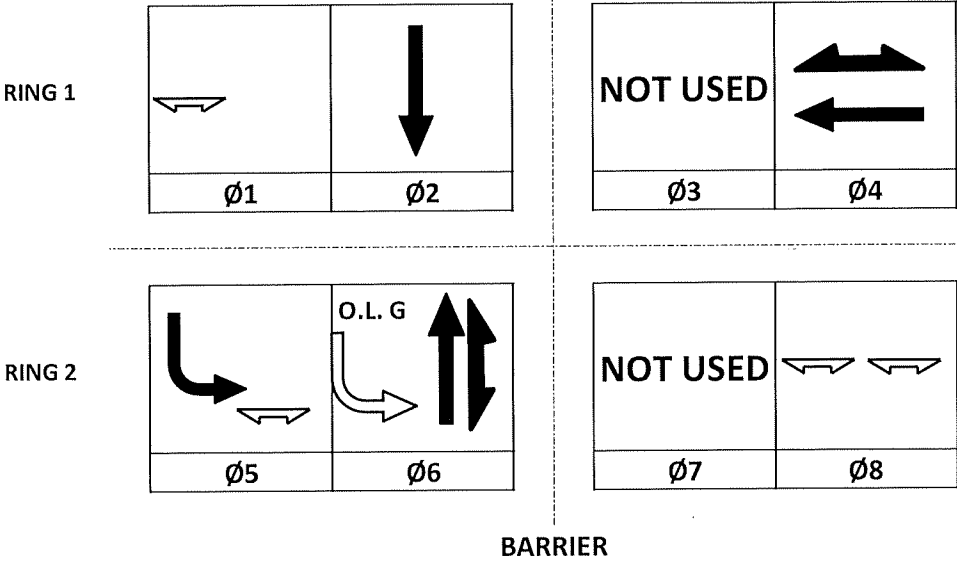
60631225P

S-11J



60631225P		CITY OF MADISON		60631225P	
SIGNAL PLAN: WHITNEY WAY AT SHEBOYGAN AVE		BUS RAPID TRANSIT		CITY OF MADISON	
CITY OF MADISON, DANE COUNTY, WI		CONTRACT NO: 60631225C		S-12A	
MARK	DESIGNED BY: TSI	REVISION	DATE	BY	DATE
60631225P	60631225P		2022-10-04		#####

	HEAD NUMBERS	FLASH
Ø1		
Ø2	4,5,6	
Ø3		
Ø4	9,10,11	
Ø5	7,8	
Ø6	1,2,3	
Ø7		
Ø8		
Ø2P		
Ø4P	4A,4B,4C,4D	
Ø6P	6A,6B	
Ø8P	8A,8B,8C,8D	
OLE		
OLF		
OLG		
OLH		



POL1 = 8+1 PB1=CALLS PHASE 8+5
POL2 = 8+5 PB2=CALLS PHASE 8
PB3=CALLS PHASE 8+1

CONTROLLER LOGIC

PHASE NUMBER	PHASE LOCKING	DUAL ENTRY W / Ø	PHASE RECALL	PHASE ACTIVE
1				
2	X	6	MIN	X
3				
4		8		X
5		2		X
6	X	2	MIN	X
7				
8		8		X

EMERGENCY VEHICLE PREEMPTION SEQUENCE

EMERGENCY VEHICLE PREEMPTOR	A	B	C	D
MOVEMENT	↓	↑	←	
PHASE	2+5	6	4	

AFTER PREEMPTION SEQUENCE 2+5 OR 6+1, CONTROLLER SHALL RETURN TO PHASES 2+6.
AFTER PREEMPTION SEQUENCE 4 , CONTROLLER SHALL RETURN TO PHASES 4.

TYPE OF INTERCONNECT/COMMUNICATION	
NONE	
CLOSED LOOP	
TWISTED PAIR	
FIBER OPTIC*	X
FIBER OPTIC (ETHERNET)	
RADIO	
CELL MODEM	

TYPE OF COORDINATION	
NONE	
TBC	X
TRAFFIC RESPONSIVE	
ADAPTIVE	
*LOCATION OF MASTER CONTROLLER NO:	S-
SIGNAL SYSTEM NO:	SS-

TYPE OF LIGHTING	
BY OTHER AGENCY	
IN TRAFFIC CABINET	X
IN SEPARATE DOT LIGHTING CABINET	

TYPE OF PRE-EMPT	
NONE	
RAILROAD	
EMERGENCY VEHICLE	
GTT	
TOMAR	
HARDWIRE	
OTHER	
LIFT BRIDGE	
QUEUE DETECTION	

DETECTOR INPUT	3	1	7	5	11	9	15	13
PLAN LOOP DETECTOR*(S)	21	41	43	51	61	63	601	
CALLLED PHASE	2	4	4	5	6	6	6	
CALL OPTION	2	4	4	5	6	6	6	
DELAY TIME								
EXTENTION OPTION								
EXTEND TIME								
USE ADDED INITIAL								
CROSS SWITCH PHASE								

DETECTOR INPUT	4	2	8	6	12	10	16	14
PLAN LOOP DETECTOR*(S)	22	42	401	52	62	64	602	
CALLLED PHASE	2	4	4	5	6	6	6	
CALL OPTION	2	4	4	5	6	6	6	
DELAY TIME								
EXTENTION OPTION								
EXTEND TIME								
USE ADDED INITIAL								
CROSS SWITCH PHASE								

DETECTOR INPUT	19	17	23	21	27	25	31	29
PLAN LOOP DETECTOR*(S)								
CALLLED PHASE								
CALL OPTION								
DELAY TIME								
EXTENTION OPTION								
EXTEND TIME								
USE ADDED INITIAL								
CROSS SWITCH PHASE								

DETECTOR INPUT	20	18	24	22	28	26	32	30
PLAN LOOP DETECTOR*(S)								
CALLLED PHASE								
CALL OPTION								
DELAY TIME								
EXTENTION OPTION								
EXTEND TIME								
USE ADDED INITIAL								
CROSS SWITCH PHASE								



WHITNEY WAY / SHEBOYGAN	
CITY OF MADISON	
COUNTY	
SIGNAL NO:	CABINET TYPE: TS2
CONTROLLER TYPE: COBALT	
DATE: 10/22	PAGE NO. 2 of 3

60631225P	60631225C
SEQUENCE OF OPERATION: WHITNEY WAT AT SHEBOYGAN AVE	CITY OF MADISON, DANE COUNTY, WI
BUS RAPID TRANSIT	CONTRACT NO: 60631225C

PROJECT ID:	60631225P
INTERSECTION:	WHITNEY WAY & SHEBOYGAN AVE

SIGNAL WIRE	BLK-BLACK	RED-RED	GRN-GREEN
COLOR CODING	WHT-WHITE	BLU-BLUE	ORG-ORANGE

DATE: Oct-22

CB1 TO	AWG 14 # OF COND.	HEAD NO.	SIGNAL INDICATION WIRE COLOR										D/WALK	WALK	PED BUTTON	OTHER
			RED	YELLOW	GREEN	<RED>	<YELLOW>	<FLASH YEL>	<GREEN>	" _ "	" Δ "	" "				
SB1	12	4	RED	ORG	GRN								BLK	BLU		
		4D													WHT/BLK	
		PB														
SB2	15	2	RED	ORG	GRN											
		7				RED/BLK	ORG/BLK		GRN/BLK							
		4B											BLK	BLU		
		4C											BLU/BLK	BLU/WHT		
		PB													WHT/BLK	
SB3	12	3	RED	ORG	GRN								BLK	BLU		
		4A													WHT/BLK	
		PB														
SB4	12	9	RED	ORG	GRN								BLK	BLU		
		6B													WHT/BLK	
		PB														
SB5	7	6A											BLK	BLU		
		PB													WHT/BLK	
SB6	12	1	RED	ORG	GRN											
		8D											BLK	BLU		
		PB													WHT/BLK	
SB7	15	5	RED	ORG	GRN											
		8				RED/BLK	ORG/BLK		GRN/BLK							
		8B											BLK	BLU		
		8C											BLU/BLK	BLU/WHT		
		PB													WHT/BLK	
SB8	12	6	RED	ORG	GRN											
		8A											BLK	BLU		
		PB													WHT/BLK	
SB9	7	10	RED	ORG	GRN											
SB10	7	11	RED	ORG	GRN											

- NOTES:
- 1. USE WHITE CONDUCTOR IN THE SIGNAL CABLE AS THE GROUNDED CONDUCTOR FOR ALL TRAFFIC SIGNAL INDICATIONS.
 - 2. ENSURE THE GROUNDED CONDUCTOR IN THE FEEDER CABLE AND THE POLE CABLES ARE BOTH 18" LONGER THAN THE UNGROUNDED CONDUCTORS.
 - 3. AT THE SIGNAL BASES, CONNECT ONE TERMINAL FROM THE PEDESTRIAN PUSH BUTTONS TO THE COLOR INDICATED IN THE CHART.
CONNECT THE OTHER TERMINAL TO THE GROUNDED CONDUCTOR.

EMERGENCY VEHICLE PREEMPTION WITH CONFIRMATION LIGHTS		
HEAD	FROM	TO
A	CB1	SB8
B	CB1	SB3
C	CB1	SB10

LIGHTING UF 8 AWG W/ GROUND	
FROM	TO
CB1	SB2
SB2	SB5
SB5	SB7
SB7	CB1

EQUIPMENT GROUNDING CONDUCTORS 10 AWG GRN XLP	
FROM	TO
CB1	SB2
SB2	SB3
SB3	SB4
SB4	SB5
SB5	SB6
SB6	SB7
SB7	SB8
SB8	SB9
SB9	SB10
SB10	CB1

CABEL ROUTING: WHITNEY WAY & SHEBOYGAN AVE

60631225P

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

CITY OF MADISON

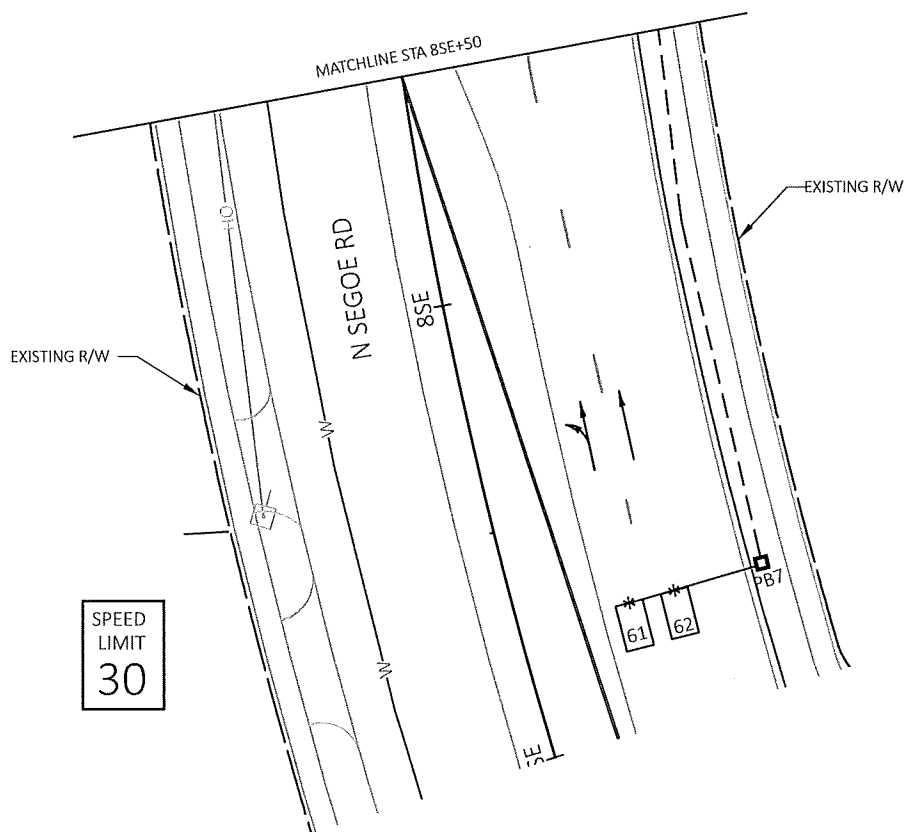
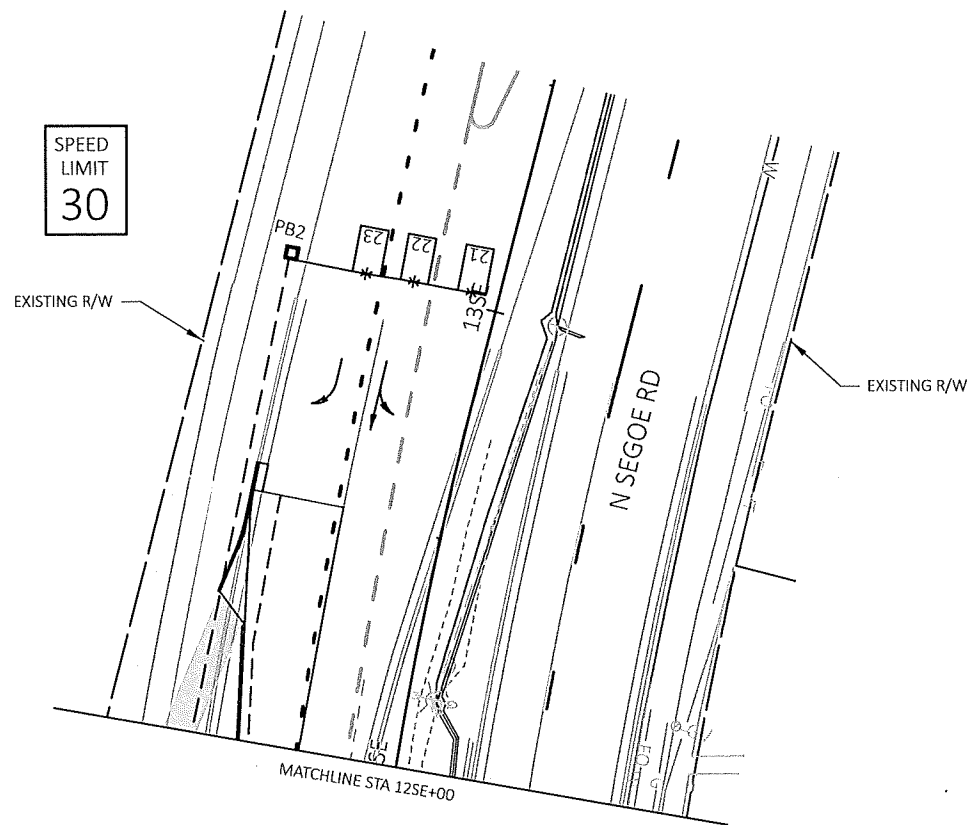
CONTRACT NO: 60631225C



60631225P

S-12C





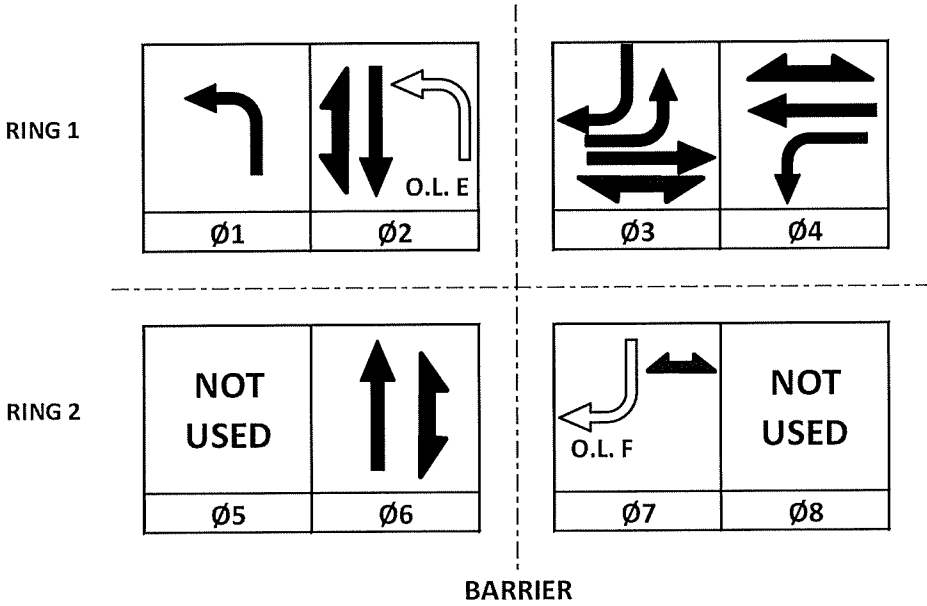
MARK	REVISION	DATE	BY
60631225P	Date: 2022-10-04	Scale: 1"=40' XREF	

SIGNAL PLAN: N SEG OE ROAD AT SHEBOYGAN AVENUE
BUS RAPID TRANSIT
CITY OF MADISON
60631225P
CITY OF MADISON, DANE COUNTY, WI
CONTRACT NO: 60631225C



60631225P
S-13B

	HEAD NUMBERS	FLASH
Ø1	4, 5	R
Ø2	6,7,8	
Ø3	9,10,11	
Ø4	12,13,14	R
Ø5		
Ø6	1,2,3	
Ø7		
Ø8		
Ø2P	2A,2B	
Ø4P	4A,4B,4C,4D	
Ø6P	6A,6B	
Ø3P	3A,3B	
OLE	4,5	R
OLF	6,8	
OLG		
OLH		



OLA: SBRT, PHASE 3, PED PROT 3
OLB: EBLT, PHASE 4, PED PROT PED 8
OLE: NBRT FYA, PROTECTED PHASE 1, FYA PHASE 2

Ped OL1: NORTH CROSSING,SB LANES,OVERLAP WITH PHASES 3+4+1

PB1=CALLS PED4 THEN PED1
PB2=CALLS PED4
PB3=CALLS PED3 OR,
DEPENDING ON WHAT IS NEXT
PB4=CALLS PED3 THEN PED4

CONTROLLER LOGIC

PHASE NUMBER	PHASE LOCKING	DUAL ENTRY W / Ø	PHASE RECALL	PHASE ACTIVE
1		6		X
2	X	6	MIN	X
3				X
4				X
5				
6	X	2	MIN	X
7				
8				

EMERGENCY VEHICLE PREEMPTION SEQUENCE

EMERGENCY VEHICLE PREEMPTOR	A	B	C	D
MOVEMENT	↓	↑	→	
PHASE	2	6+1	3	

AFTER PREEMPTION SEQUENCE 2 OR 6+1, CONTROLLER SHALL RETURN TO PHASES 2+6.
AFTER PREEMPTION SEQUENCE 3, CONTROLLER SHALL RETURN TO PHASES 3.

DETECTOR LOGIC

DETECTOR INPUT	3	1	7	5	11	9	15	13
PLAN LOOP DETECTOR*(S)	11	21	23	25	31	33	61	63
CALLLED PHASE	1	2	2	2	3	3	6	6
CALL OPTION	1	2	2	2	3	3	6	6
DELAY TIME								
EXTENTION OPTION								
EXTEND TIME								
USE ADDED INITIAL								
CROSS SWITCH PHASE								

DETECTOR INPUT	4	2	8	6	12	10	16	14
PLAN LOOP DETECTOR*(S)	12	22	24		32	34	62	64
CALLLED PHASE	1	2	2		3	3	6	6
CALL OPTION	1	2	2		3	3	6	6
DELAY TIME								
EXTENTION OPTION								
EXTEND TIME								
USE ADDED INITIAL								
CROSS SWITCH PHASE								

DETECTOR INPUT	19	17	23	21	27	25	31	29
PLAN LOOP DETECTOR*(S)								
CALLLED PHASE								
CALL OPTION								
DELAY TIME								
EXTENTION OPTION								
EXTEND TIME								
USE ADDED INITIAL								
CROSS SWITCH PHASE								

DETECTOR INPUT	20	18	24	22	28	26	32	30
PLAN LOOP DETECTOR*(S)								
CALLLED PHASE								
CALL OPTION								
DELAY TIME								
EXTENTION OPTION								
EXTEND TIME								
USE ADDED INITIAL								
CROSS SWITCH PHASE								

TYPE OF INTERCONNECT/COMMUNICATION	
NONE	
CLOSED LOOP	
TWISTED PAIR	
FIBER OPTIC*	X
FIBER OPTIC (ETHERNET)	
RADIO	
CELL MODEM	

TYPE OF COORDINATION	
NONE	
TBC	X
TRAFFIC RESPONSIVE	
ADAPTIVE	
*LOCATION OF MASTER CONTROLLER NO: S-	
SIGNAL SYSTEM NO: SS-	

TYPE OF LIGHTING	
BY OTHER AGENCY	
IN TRAFFIC CABINET	X
IN SEPARATE DOT LIGHTING CABINET	

TYPE OF PRE-EMPT	
NONE	
RAILROAD	
EMERGENCY VEHICLE	
GTT	
TOMAR	
HARDWIRE	
OTHER	
LIFT BRIDGE	
QUEUE DETECTION	



SEGOE / SHEBOYGAN	
CITY OF MADISON	
COUNTY	
SIGNAL NO:	CABINET TYPE: TS2
CONTROLLER TYPE: COBALT	
DATE: 10/22	PAGE NO. 3 of 4

60631225P

SEQUENCE OF OPERATION: SEGOE ROAD AT SHEBOYGAN AVENUE

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

60631225P

S-13C

CT ID:	60631225P
INTERSECTION:	SHEBOYGAN AVE & SEGOE RD

SIGNAL WIRE	BLK-BLACK	RED-RED	GRN-GREEN
COLOR CODING	WHT-WHITE	BLU-BLUE	ORG-ORANGE

DATE: Oct-22

CB1 TO	AWG 14 # OF COND.	HEAD NO.	SIGNAL INDICATION WIRE COLOR										D/WALK	WALK	PED BUTTON	OTHER
			RED	YELLOW	GREEN	<RED>	<YELLOW>	<FLASH YEL>	<GREEN>	" _ "	" Δ "	" I "				
SB1	12	6	RED	ORG	GRN											
		4D											BLK	BLU		
		PB													WHT/BLK	
SB2	19	2	RED	ORG	GRN											
		5				RED/BLK	ORG/BLK	BLU/BLK	GRN/BLK							
		4B											BLK	BLU		
		4C											BLU/BLK	BLU/WHT		
SB3	12	PB													WHT/BLK	
		3	RED	ORG	GRN											
		4A											BLK	BLU		
SB4	19	PB													WHT/BLK	
		10	RED	ORG	GRN				BLU/BLK							
		12	RED/BLK	ORG/BLK	GRN/BLK				BLK/WHT							
SB5	7	6B											BLK	BLU		
		PB													WHT/BLK	
		6A											BLK	BLU		
SB6	15	PB													WHT/BLK	
		1	RED	ORG	GRN				BLU/BLK							
		11	RED/BLK	ORG/BLK	GRN/BLK								BLK	BLU		
SB7	12	8B														
		PB													WHT/BLK	
		4				RED/BLK	ORG/BLK	BLU/BLK	GRN/BLK							
SB8	12	7	RED	ORG	GRN											
		8	RED	ORG	GRN											
		8A											BLK	BLU		
SB9	19	PB													WHT/BLK	
		9	RED	ORG	GRN				BLU/BLK							
		13	RED/BLK	ORG/BLK	GRN/BLK				BLK/WHT							
SB10	12	2B											BLK	BLU		
		PB													WHT/BLK	
		14	RED	ORG	GRN											
		2A											BLK	BLU		
		PB													WHT/BLK	

- NOTES:
- 1. USE WHITE CONDUCTOR IN THE SIGNAL CABLE AS THE GROUNDED CONDUCTOR FOR ALL TRAFFIC SIGNAL INDICATIONS.
 - 2. ENSURE THE GROUNDED CONDUCTOR IN THE FEEDER CABLE AND THE POLE CABLES ARE BOTH 18" LONGER THAN THE UNGROUNDED CONDUCTORS.
 - 3. AT THE SIGNAL BASES, CONNECT ONE TERMINAL FROM THE PEDESTRIAN PUSH BUTTONS TO THE COLOR INDICATED IN THE CHART.
CONNECT THE OTHER TERMINAL TO THE GROUNDED CONDUCTOR.

EMERGENCY VEHICLE PREEMPTION WITH CONFIRMATION LIGHTS		
HEAD	FROM	TO
A	CB1	SB8
B	CB1	SB3
C	CB1	SB6

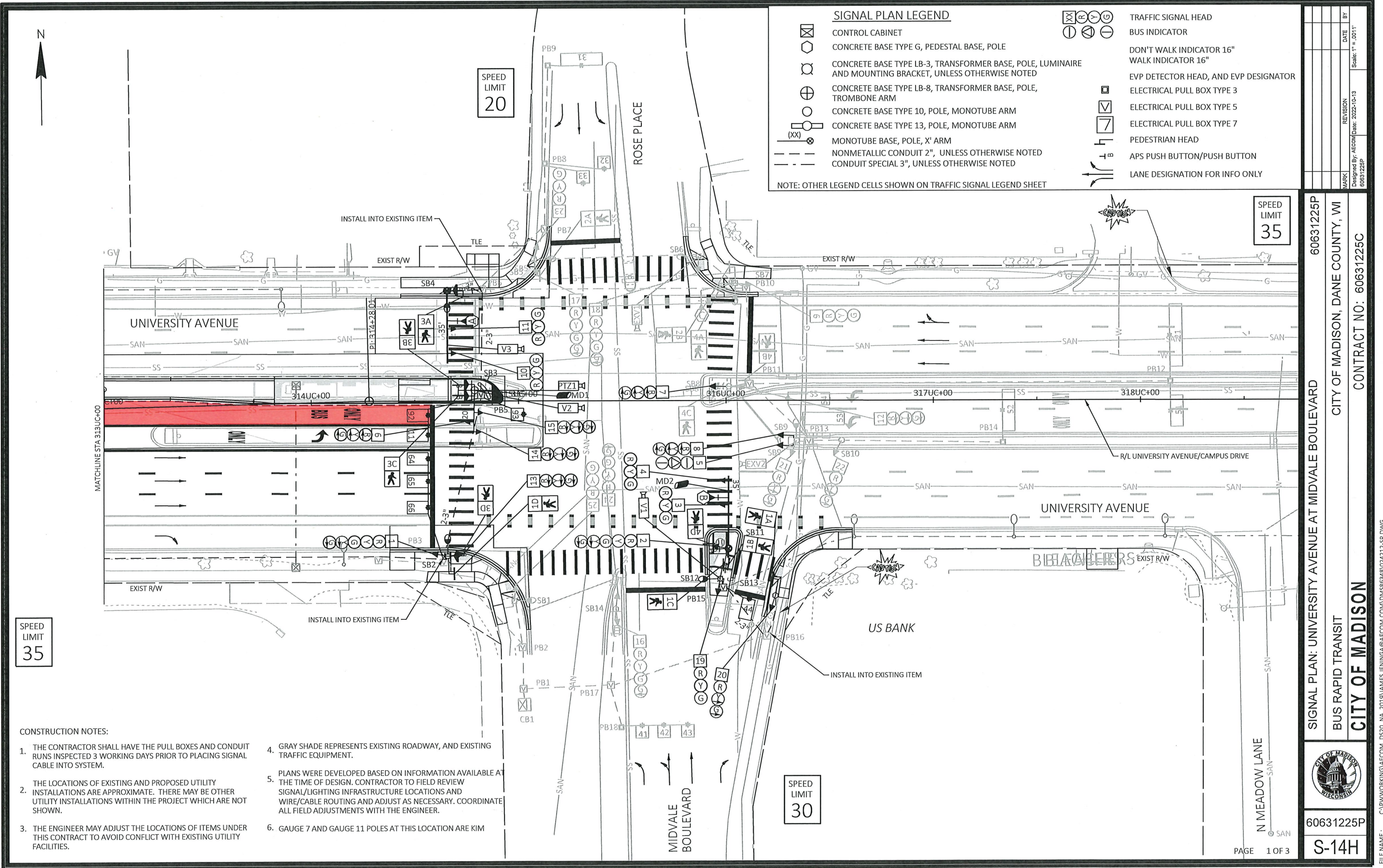
LIGHTING UF 8 AWG W/ GROUND	
FROM	TO
CB1	SB2
SB2	SB7
SB7	SB10
SB10	CB1

EQUIPMENT GROUNDING CONDUCTORS 10 AWG GRN XLP	
FROM	TO
CB1	SB1
SB1	SB2
SB2	SB3
SB3	SB4
SB4	SB5
SB5	SB6
SB6	SB7
SB7	SB8
SB8	SB9
SB9	SB10
SB10	CB1

Mark	Designd By:	Scale: NTS
	60631225P	
REVISION	DATE	BY
10/04/2022		

CABEL ROUTING: SEGOE RD AT SHEBOYGAN AVE
CITY OF MADISON, DANE COUNTY, WI
BUS RAPID TRANSIT
CONTRACT NO: 60631225C






CONSTRUCTION NOTES:

1. THE CONTRACTOR SHALL HAVE THE PULL BOXES AND CONDUIT RUNS INSPECTED 3 WORKING DAYS PRIOR TO PLACING SIGNAL CABLE INTO SYSTEM.
2. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.
3. THE ENGINEER MAY ADJUST THE LOCATIONS OF ITEMS UNDER THIS CONTRACT TO AVOID CONFLICT WITH EXISTING UTILITY FACILITIES.
4. GRAY SHADE REPRESENTS EXISTING ROADWAY, AND EXISTING TRAFFIC EQUIPMENT.
5. PLANS WERE DEVELOPED BASED ON INFORMATION AVAILABLE AT THE TIME OF DESIGN. CONTRACTOR TO FIELD REVIEW SIGNAL/LIGHTING INFRASTRUCTURE LOCATIONS AND WIRE/CABLE ROUTING AND ADJUST AS NECESSARY. COORDINATE ALL FIELD ADJUSTMENTS WITH THE ENGINEER.
6. GAUGE 7 AND GAUGE 11 POLES AT THIS LOCATION ARE KIM

60631225P

CITY OF MADISON



60631225P

S-14H

SIGNAL PLAN: UNIVERSITY AVENUE AT MIDVALE BOULEVARD

BUS RAPID TRANSIT

CITY OF MADISON

60631225P

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

FILE NAME: C:\P\WORKING\AECOM_DS20_NA_2019\JAMES.JENNINGA@AECOM.COM\024212-SP.DWG

LAST PLOT DATE: 2022-10-13

LAYOUT NAME: Plan 1 IN 40 FT 01

MARK

DESIGNED BY: AECOM

DATE: 2022-10-13

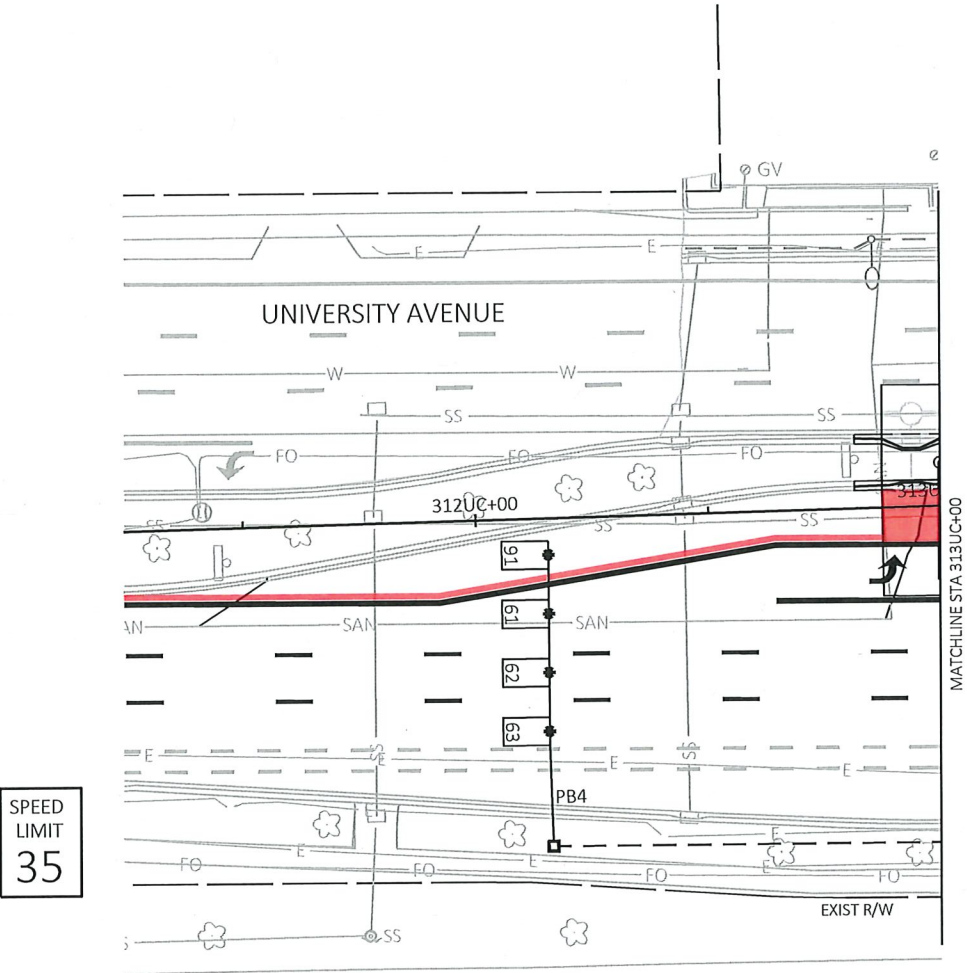
REVISION

DATE

BY

Scale: 1" = .001'

60631225P



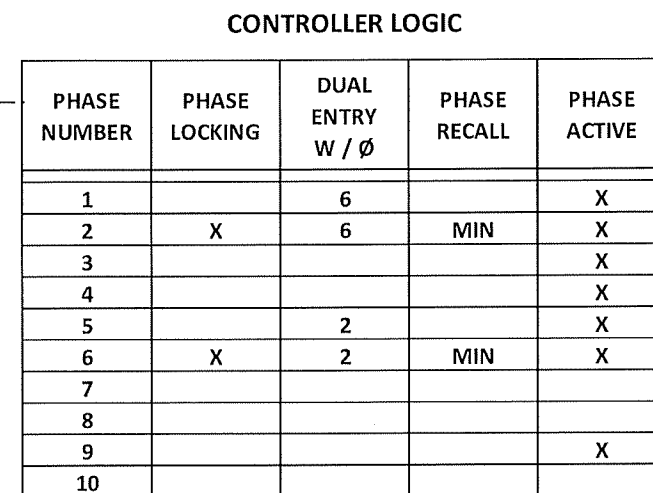
MARK	REVISION	DATE	BY
60631225P	Designed By: AECOM	2022-10-11	Scale: 1" = .0011"

SIGNAL PLAN: EB UNIVERSITY AVENUE AT MIDVALE BOULEVARD 60631225P
BUS RAPID TRANSIT CITY OF MADISON, DANE COUNTY, WI
CITY OF MADISON CONTRACT NO: 60631225C



60631225P

S-14I



TYPE OF INTERCONNECT/COMMUNICATION	
NONE	
CLOSED LOOP	
TWISTED PAIR	
FIBER OPTIC*	X
FIBER OPTIC (ETHERNET)	
RADIO	
CELL MODEM	

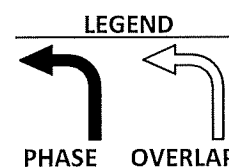
TYPE OF COORDINATION	
NONE	
TBC	X
TRAFFIC RESPONSIVE	
ADAPTIVE	
*LOCATION OF MASTER	
CONTROLLER NO:	S-
SIGNAL SYSTEM NO:	SS-




TYPE OF LIGHTING	
BY OTHER AGENCY	
IN TRAFFIC CABINET	X
IN SEPARATE DOT LIGHTING CABINET	

TYPE OF PRE-EMPT		
N	NONE	
	RAILROAD	
	EMERGENCY VEHICLE	
	GTT	X
	TOMAR	
	HARDWIRE	
	OTHER	
	CONFIRMATION LIGHTS	
	LIFT BRIDGE	
	QUEUE DETECTION	

		F L A S H	
	HEAD NUMBERS		
Ø1	6,7,8	-	
Ø2	9,10,11	R	
Ø3	23,24,25	-	
Ø4	16,17,18,19	R	
Ø5	12,13,14,15	R	
Ø6	1,2,3,4	R	
Ø7		-	
Ø8			
Ø9	5	R	
Ø2P	2A,2B		
Ø4P	4A,4B,4C,4D		
Ø6P			
Ø8P			
OLBUS	5		
OLB	20,21,22		
OLC	1,2		
POL1	1A,1B,1C,1D		
POL2	3A,3B		
POL3	3C,3D		

PUSH BUTTONS:	
PB1 = SW CORNER	PB1 = CALLS PHASE 3+5
PB2 = E MEDIAN S BUTTON	PB2 = CALLS PHASE 3+5
PB3 = E MEDIAN N BUTTON	PB3 = CALLS PHASE 1+3
PB4 = NW CORNER	PB4 = CALLS PHASE 4
PB5 = NE CORNER	PB5 = CALLS PHASE 4
PB6 = W MEDIAN	PB6 = CALLS PHASE 4
PB7 = SE ISLAND	PB7 = CALLS PHASE 4



EMERGENCY VEHICLE PREEMPTION SEQUENCE				
EMERGENCY VEHICLE PREEMPTOR	A	B	C	D
MOVEMENT				
PHASE	2+5	6+1	4	

AFTER PREEMPTION SEQUENCE 2+5 OR 1+6, CONTROLLER SHALL RETURN TO PHASES 1+6.

AFTER PREEMPTION SEQUENCE 4, CONTROLLER SHALL RETURN TO PHASE 4.

DETECTOR INPUT	3	1	7	5	11	9	15	13
DETECTOR #(S)	11	21	31	33	41	43	51	53
PHASE CALLED	1	2	3	3	4	4	5	5
PHASE EXTENDED	1	2	3	3	4	4	5	5
DISCONNECT TIME								
CALLING DELAY								
EXTENSION STRETCH								
LOOP FUNCTION								

DETECTOR INPUT	4	2	8	6	12	10	16	14
DETECTOR #(S)			32		42	44	52	54
PHASE CALLED			3		4	4	5	5
PHASE EXTENDED			3		4	4	5	5
DISCONNECT TIME								
CALLING DELAY								
EXTENSION STRETCH								
LOOP FUNCTION								

19	17	23	21	27	25	31	29
61	63	65	91	93			
6	6	6	9	9			
6	6	6	9	9			

20	18	24	22	28	26	32	30
62	64	66	92				
6	6	6	9				
6	6	6	9				

DETECTOR INPUT	1.
DETECTOR #(S)	
PHASE CALLED	2.
PHASE EXTENDED	
DISCONNECT TIME	
CALLING DELAY	3.
EXTENSION STRETCH	
LOOP FUNCTION	4.

DETECTOR INPUT
DETECTOR #(S)
PHASE CALLED
PHASE EXTENDED
DISCONNECT TIME
CALLING DELAY
EXTENSION STRETCH
LOOP FUNCTION

1. PHASE 1 AND PHASE 5 SHALL NOT TIME CONCURRENTLY.

GENERAL NOTES:

UNIVERSITY AVENUE AT MIDVALE BOULEVARD
CITY OF MADISON
DANE COUNTY

SIGNAL NO:		CABINET TYPE: TS2	
		CONTROLLER TYPE: COBALT	
DATE:	OCTOBER 2022	PAGE NUMBER:	3 OF 3

PROJECT ID:	60631225P		SIGNAL WIRE		BLK-BLACK	RED-RED	GRN-GREEN										
INTERSECTION:	MINERAL POINT RD & MIDVALE BLVD		COLOR CODING		WHT-WHITE	BLU-BLUE	ORG-ORANGE										
			SIGNAL INDICATION WIRE COLOR												PED		
CB1 TO	AWG 14	HEAD NO.	RED	YELLOW	GREEN	<RED>	<YELLOW>	<FLASH YEL>	<GREEN>	" - "	" Δ "	" I "	D/WALK	WALK	BUTTON	OTHER	
SB1	EXISTING	25	EXISTING														
SB2	15	1	RED	ORG	GRN		RED/WHT		GRN/WHT								
		13				RED/BLK	ORG/BLK		GRN/BLK				BLK	BLU			
		1D											BLK/WHT	BLU/BLK			
		3D													WHT/BLK		
		PB															
SB3	15	6				RED	ORG		GRN								
		14				RED/BLK	ORG/BLK		GRN/BLK								
		15				RED/BLK	ORG/BLK		GRN/BLK								
		3B											BLK	BLU			
		3C											BLU/BLK	BLU/WHT			
		PB													WHT/BLK		
		PB													BLK/WHT		
SB4	12	10	RED	ORG	GRN												
		11	RED	ORG	GRN												
		3A											BLK	BLU			
		PB													WHT/BLK		
SB5	EXISTING	17	EXISTING														
		23	EXISTING														
		2A	EXISTING														
SB6	EXISTING	18	EXISTING														
SB7	EXISTING	9	EXISTING														
		2B	EXISTING														
		4A	EXISTING														
		PB	EXISTING														
SB8	EXISTING	7	MATCH EXISTING														
		4B	EXISTING														
		4C	EXISTING														
		PB	EXISTING														
SB9	12	5								RED	ORG	GRN					
		8				RED/BLK	ORG/BLK		GRN/BLK								
		21	BLK				BLU		BLU/BLK								
SB10	EXISTING	22	EXISTING														
SB11	15	2	RED	ORG	GRN		ORG/BLK		GRN/BLK								
		3	RED	ORG	GRN												
		4	RED	ORG	GRN												
		1C											BLK	BLU			
		4D											BLU/BLK	BLK/WHT			
		PB													WHT/BLK		
SB12	7	19	RED	ORG	GRN												
		1B											BLK	BLU			
SB13	7	20	RED				ORG		GRN								
		1A											BLK	BLU			
SB14	EXISTING	16	EXISTING														
		24	EXISTING														

NOTES:
1. USE WHITE CONDUCTOR IN THE SIGNAL CABLE AS THE GROUNDED CONDUCTOR FOR ALL TRAFFIC SIGNAL INDICATIONS.
2. ENSURE THE GROUNDED CONDUCTOR IN THE FEEDER CABLE AND THE POLE CABLES ARE BOTH 18" LONGER THAN THE UNGROUNDED CONDUCTORS.
3. AT THE SIGNAL BASES, CONNECT ONE TERMINAL FROM THE PEDESTRIAN PUSH BUTTONS TO THE COLOR INDICATED IN THE CHART.
CONNECT THE OTHER TERMINAL TO THE GROUNDED CONDUCTOR.
4. RECONNECT THE GROUNDING CONDUCTORS WHEREVER THE CIRCUIT HAS BEEN INTERRUPTED TO ENSURE THE GROUNDING CIRCUIT IS COMPLETE.

EMERGENCY VEHICLE PREEMPTION WITH CONFIRMATION LIGHTS		
HEAD	FROM	TO
A	CB1	SB4
B	CB1	SB12
C	CB1	SB7

LIGHTING UF	
8 AWG W/ GROUND	
FROM	TO
CB1	SB1
SB1	SB2
SB2	SB4
SB4	SB5
CB1	SB12
SB12	SB9
SB9	SB7
SB7	SB6

MIRCOWAVE DETECTION		
HEAD	FROM	TO
MD1	CB1	SB4
MD2	CB1	SB11

PTZ CAMERA		
HEAD	FROM	TO
PTZ1	CB1	SB3

VIDEO DETECTION		
HEAD	FROM	TO
EXV1	CB1	SB6
EXV2	CB1	SB9
V1	CB1	SB12
V2	CB1	SB3
V3	CB1	SB4

EQUIPMENT GROUNDING CONDUCTORS 10 AWG GRN XLP	
FROM	TO
CB1	SB1
SB1	SB2
SB2	SB3
SB3	SB4
SB4	SB5
SB5	SB6
SB6	SB7
SB7	SB8
SB8	SB9
SB9	SB10
SB10	SB13
SB13	SB11
SB11	SB12
SB12	SB14
SB14	CB1

60631225P

CABLE ROUTING: UNIVERSITY AVENUE AT MIDVALE BOULEVARD

BUS RAPID TRANSIT

CITY OF MADISON

CITY OF MADISON
WISCONSIN

60631225P

S-14K

REVISION

DATE

Scale: NTS

Mark

Designed By: ACOM

60631225P

9/28/2022

CONTRACT NO: 60631225C

CITY OF MADISON, DANE COUNTY, WI

CONSTRUCTION NOTES

1. THE CONTRACTOR SHALL HAVE THE PULL BOXES AND CONDUIT RUNS INSPECTED 3 DAYS PRIOR TO PLACING SIGNAL CABLE AND ELECTRICAL WIRE INTO SYSTEM.
2. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.
3. THE ENGINEER SHALL ADJUST THE LOCATIONS OF THE ITEMS UNDER THIS CONTRACT TO AVOID CONFLICT WITH EXISTING UTILITY FACILITIES.
4. GRAYSCALE REPRESENTS EXISTING CONDITIONS.
5. THE CONTRACTOR MAY CHOOSE TO USE DIRECTIONAL BORING METHODS FOR NON-ROADWAY CROSSING SEGMENTS, BUT WILL BE PAID FOR UNDER STANDARD TRENCH BID ITEMS.

SPEED
LIMIT
25

SPEED
LIMIT
25

SPEED
LIMIT
25

SPEED
LIMIT
25

SIGNAL PLAN LEGEND

	CONTROL CABINET		TRAFFIC SIGNAL HEAD
	CONCRETE BASE TYPE G, PEDESTAL BASE, POLE		BUS INDICATOR
	CONCRETE BASE TYPE LB-3, TRANSFORMER BASE, POLE, LUMINAIRE AND MOUNTING BRACKET, UNLESS OTHERWISE NOTED**		DON'T WALK INDICATOR 16"
	CONCRETE BASE TYPE LB-8, TRANSFORMER BASE, POLE, TROMBONE ARM**		WALK INDICATOR 16"
	CONCRETE BASE TYPE 10, POLE, MONOTUBE ARM		EVP DETECTOR HEAD, AND EVP DESIGNATOR
	CONCRETE BASE TYPE 13, POLE, MONOTUBE ARM		ELECTRICAL PULL BOX TYPE 3
	MONOTUBE BASE, POLE, X' ARM		ELECTRICAL PULL BOX TYPE 5
	NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED		ELECTRICAL PULL BOX TYPE 7
	CONDUIT SPECIAL 3", UNLESS OTHERWISE NOTED		PEDESTRIAN HEAD
			APS PUSH BUTTON/PUSH BUTTON
			LANE DESIGNATION FOR INFO ONLY

NOTE: OTHER LEGEND CELLS SHOWN ON TRAFFIC SIGNAL LEGEND SHEET

NO TRANSFORMER BASES USED AT THIS INTERSECTION.

MARK	REVISION	DATE	BY
60631225P	Designed By: STRAND	2022-10-20	60631225P

SIGNAL PLAN: E WASHINGTON AVENUE AT BLAIR STREET
BUS RAPID TRANSIT
CITY OF MADISON
60631225P
CITY OF MADISON, DANE COUNTY, WI
CONTRACT NO: 60631225C

60631225P
S-19C

SEQUENCE OF OPERATION: E WASHINGTON AVENUE AT BLAIR STREET	60631225P
BUS RAPID TRANSIT	CITY OF MADISON, DANE COUNTY, WI
CITY OF MADISON	CONTRACT NO: 60631225C



PROJECT ID:	60631225
INTERSECTION:	EAST WASHINGTON AVENUE & BLAIR STREET

Signal Wire Color Coding	BLK - black	RED - red	GRN - green
	WHT - white	BLU - blue	ORG - orange

EXCB1 TO	NO. OF CONDUCTORS	HEAD NO.	SIGNAL INDICATION WIRE COLOR											PED BUTTON	OTHER
			RED	YELLOW	GREEN	<RED>	<YELLOW>	<GREEN>	<FLASHING YELLOW>	" _ "	" Δ "	" "	D/WALK	WALK	
EXSB1	5	11	EXISTING												
		18	RED				ORG	GRN							
EXSB2	5	1	EXISTING												
		19	RED				ORG	GRN							
EXSB3	5	81	EXISTING												
		4				RED	ORG	GRN							
EXSB4	EXISTING	8	EXISTING												
		15	EXISTING												
EXSB5	EXISTING	16	EXISTING												
		14	EXISTING												
EXSB6	15	90	EXISTING												
		9	RED	ORG	GRN										
EXSB7	5	10	RED/BLK	ORG/BLK	GRN/BLK										
		12	RED/WHT	BLU/WHT	GRN/WHT			BLU/BLK					BLK	BLU	
EXSB8	EXISTING	89													
		17	RED				ORG	GRN							
EXSB9	12	88	EXISTING												
		13	EXISTING												
SB10	15	7	RED	ORG	GRN								BLK	BLU	
		86											BLU/BLK	BLK/WHT	WHT/BLK
EXSB11	15	87													GRN/BLK
		8													
EXSB11	15	5				RED	ORG	GRN							
		6				RED/BLK	ORG/BLK	GRN/BLK							
EXSB11	15	84											BLK	BLU	
		8											RED/WHT	GRN/WHT	WHT/BLK
EXSB11	15	85													BLK/WHT
		8													
EXSB11	15	83	RED	ORG	GRN								BLK	BLU	
		3	RED/BLK	ORG/BLK	GRN/BLK								RED/WHT	GRN/WHT	WHT/BLK
EXSB11	15	82													BLK/WHT
		8													
EXSB11	15	83													
		8													

EQUIPMENT GROUNDING CONDUCTORS 10 AWG GRN XLP	
FROM	TO
EXCB1	EXSB1
EXCB1	EXSB2
EXSB2	EXSB3
EXSB3	EXSB4
EXSB4	EXSB5
EXSB5	EXSB6
EXSB6	EXSB7
EXSB7	EXSB8
EXSB8	EXSB9
EXSB9	SB10
SB10	EXSB11
EXSB11	EXCB1

EMERGENCY VEHICLE PREEMPTION WITH CONFIRMATION LIGHTS		
HEAD	FROM	TO
A	EXCB1	SB5
B	EXCB1	SB10

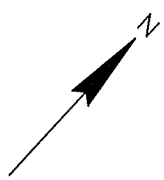
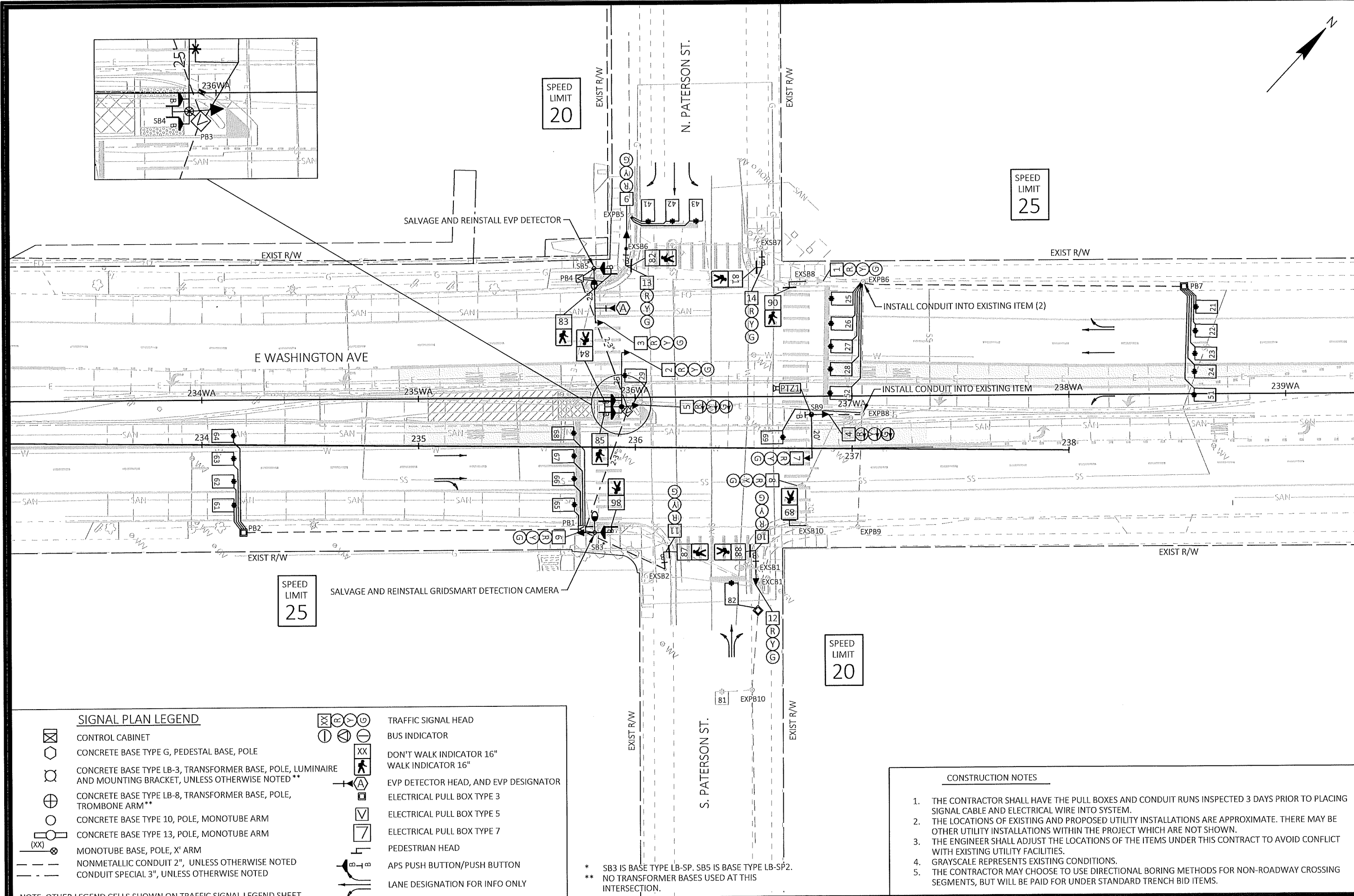
PTZ CAMERA		
HEAD	FROM	TO
PTZ1	EXCB1	EXSB9
PTZ2	EXCB1	EXSB11

- NOTES:
1. USE THE WHITE CONDUCTOR IN THE CABLE ASSEMBLY AS THE GROUNDED CONDUCTOR FOR ALL TRAFFIC SIGNAL INDICATIONS.
 2. ENSURE THE GROUNDED CONDUCTOR IN THE FEEDER CABLE AND THE POLE CABLES ARE BOTH 18" LONGER THAN THE UNGROUNDED CONDUCTORS.
 3. AT THE SIGNAL BASES, CONNECT ONE TERMINAL FROM THE PEDESTRIAN PUSH BUTTONS TO THE COLOR INDICATED IN THE CHART. CONNECT THE OTHER TERMINAL TO THE GROUNDED CONDUCTOR.
 4. RECONNECT THE GROUNDING CONDUCTORS WHEREVER THE CIRCUIT HAS BEEN INTERRUPTED TO ENSURE THE GROUNDING CIRCUIT IS COMPLETE.

Mark	REVISION	DATE	BY
Design/By: STRAND	10/20/2022		
60631225P			

60631225P
CITY OF MADISON, DANE COUNTY, WI
CONTRACT NO: 60631225C
CABLE ROUTING: E WASHINGTON AVENUE AT BLAIR STREET
BUS RAPID TRANSIT
CITY OF MADISON





SIGNAL PLAN LEGEND

	CONTROL CABINET
	CONCRETE BASE TYPE G, PEDESTAL BASE, POLE
	CONCRETE BASE TYPE LB-3, TRANSFORMER BASE, POLE, LUMINAIRE AND MOUNTING BRACKET, UNLESS OTHERWISE NOTED **
	CONCRETE BASE TYPE LB-8, TRANSFORMER BASE, POLE, TROMBONE ARM**
	CONCRETE BASE TYPE 10, POLE, MONOTUBE ARM
	CONCRETE BASE TYPE 13, POLE, MONOTUBE ARM
	MONOTUBE BASE, POLE, X' ARM
	NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
	CONDUIT SPECIAL 3", UNLESS OTHERWISE NOTED

	TRAFFIC SIGNAL HEAD
	BUS INDICATOR
	DON'T WALK INDICATOR 16"
	WALK INDICATOR 16"
	EVP DETECTOR HEAD, AND EVP DESIGNATOR
	ELECTRICAL PULL BOX TYPE 3
	ELECTRICAL PULL BOX TYPE 5
	ELECTRICAL PULL BOX TYPE 7
	PEDESTRIAN HEAD
	APS PUSH BUTTON/PUSH BUTTON
	LANE DESIGNATION FOR INFO ONLY

NOTE: OTHER LEGEND CELLS SHOWN ON TRAFFIC SIGNAL LEGEND SHEET

* SB3 IS BASE TYPE LB-SP. SB5 IS BASE TYPE LB-SP2.
** NO TRANSFORMER BASES USED AT THIS INTERSECTION.

- CONSTRUCTION NOTES**

 1. THE CONTRACTOR SHALL HAVE THE PULL BOXES AND CONDUIT RUNS INSPECTED 3 DAYS PRIOR TO PLACING SIGNAL CABLE AND ELECTRICAL WIRE INTO SYSTEM.
 2. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.
 3. THE ENGINEER SHALL ADJUST THE LOCATIONS OF THE ITEMS UNDER THIS CONTRACT TO AVOID CONFLICT WITH EXISTING UTILITY FACILITIES.
 4. GRAYSCALE REPRESENTS EXISTING CONDITIONS.
 5. THE CONTRACTOR MAY CHOOSE TO USE DIRECTIONAL BORING METHODS FOR NON-ROADWAY CROSSING SEGMENTS, BUT WILL BE PAID FOR UNDER STANDARD TRENCH BID ITEMS.

SIGNAL PLAN: E WASHINGTON AVENUE AT PATERSON STREET

BUS RAPID TRANSIT

CITY OF MADISON

60631225P

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

60631225P

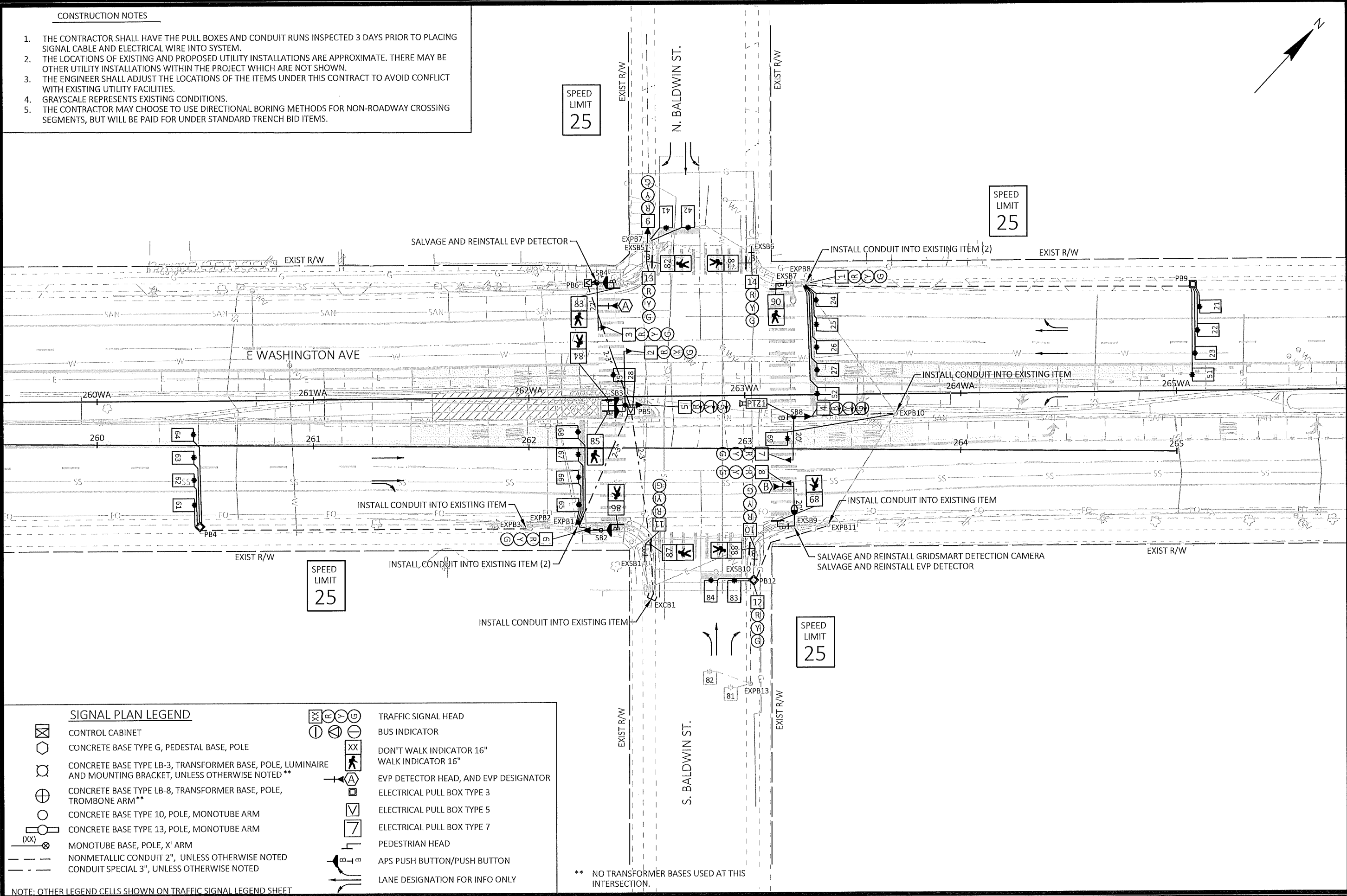
S-20C

MARK	REVISION	DATE	BY
60631225P	Designed By: STRAN	Date: 2022-10-17	Scale: 1 IN=40 FT

[illegible]

CONSTRUCTION NOTES

1. THE CONTRACTOR SHALL HAVE THE PULL BOXES AND CONDUIT RUNS INSPECTED 3 DAYS PRIOR TO PLACING SIGNAL CABLE AND ELECTRICAL WIRE INTO SYSTEM.
2. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.
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SIGNAL PLAN LEGEND

- | | | | |
|--|--|--|---------------------------------------|
| | CONTROL CABINET | | TRAFFIC SIGNAL HEAD |
| | CONCRETE BASE TYPE G, PEDESTAL BASE, POLE | | BUS INDICATOR |
| | CONCRETE BASE TYPE LB-3, TRANSFORMER BASE, POLE, LUMINAIRE AND MOUNTING BRACKET, UNLESS OTHERWISE NOTED ** | | DON'T WALK INDICATOR 16" |
| | CONCRETE BASE TYPE LB-8, TRANSFORMER BASE, POLE, TROMBONE ARM** | | WALK INDICATOR 16" |
| | CONCRETE BASE TYPE 10, POLE, MONOTUBE ARM | | EVP DETECTOR HEAD, AND EVP DESIGNATOR |
| | CONCRETE BASE TYPE 13, POLE, MONOTUBE ARM | | ELECTRICAL PULL BOX TYPE 3 |
| | MONOTUBE BASE, POLE, X' ARM | | ELECTRICAL PULL BOX TYPE 5 |
| | NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED | | ELECTRICAL PULL BOX TYPE 7 |
| | CONDUIT SPECIAL 3", UNLESS OTHERWISE NOTED | | PEDESTRIAN HEAD |
| | | | APS PUSH BUTTON/PUSH BUTTON |
| | | | LANE DESIGNATION FOR INFO ONLY |

NOTE: OTHER LEGEND CELLS SHOWN ON TRAFFIC SIGNAL LEGEND SHEET

** NO TRANSFORMER BASES USED AT THIS INTERSECTION.

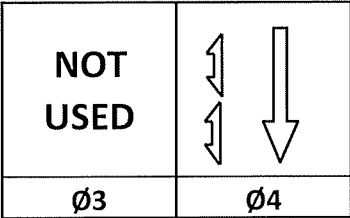
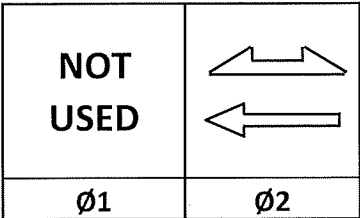
SIGNAL PLAN: E WASHINGTON AVENUE AT BALDWIN STREET
BUS RAPID TRANSIT
CITY OF MADISON
60631225P
CITY OF MADISON, DANE COUNTY, WI
CONTRACT NO: 60631225C



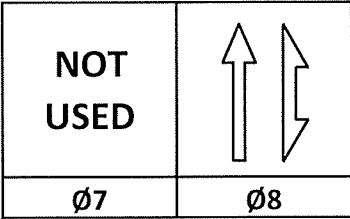
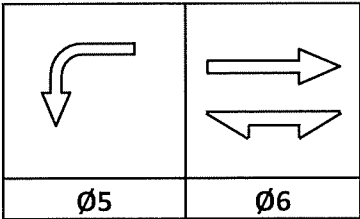
60631225P
S-21D

	HEAD NUMBERS	F L A S H
Ø1		
Ø2	1,2,3	R
Ø3		
Ø4	9,10,11	R
Ø5	4,5	R
Ø6	6,7,8	R
Ø7		
Ø8	12,13,14	R
Ø2P	81,82	
Ø4P	83,84,85,86	
Ø6P	87,88	
Ø8P	89,90	

RING 1



RING 2



BARRIER

N

EMERGENCY VEHICLE PREEMPTION SEQUENCE

EMERGENCY VEHICLE PREEMPTOR	A	B	C	D
MOVEMENT				
PHASE	2+5	6+2		

AFTER PREEMPTION SEQUENCE A OR B, CONTROLLER SHALL RETURN TO PHASES 2+6.
AFTER PREEMPTION SEQUENCE C OR D, CONTROLLER SHALL RETURN TO PHASES 4+8.

CONTROLLER LOGIC

PHASE NUMBER	PHASE LOCKING	DUAL ENTRY W / Ø	PHASE RECALL	PHASE ACTIVE
1				
2	X	6	MIN	X
3				
4		8		X
5				X
6	X	2	MIN	X
7				
8		4		X

DETECTOR LOGIC

DETECTOR INPUT	3	1	7	5	11	9	15	13
PLAN LOOP DETECTOR*(S)	21	23	25	27	41	51	61	63
CALLED PHASE	2	2	2	2	4	5	6	6
CALL OPTION								
DELAY TIME								
EXTENSION OPTION								
EXTEND TIME								
USE ADDED INITIAL								
CROSS SWITCH PHASE								

DETECTOR INPUT	4	2	8	6	12	10	16	14
PLAN LOOP DETECTOR*(S)	22	24	26	28	42	52	62	64
CALLED PHASE	2	2	2		4	5	6	6
CALL OPTION								
DELAY TIME								
EXTENSION OPTION								
EXTEND TIME								
USE ADDED INITIAL								
CROSS SWITCH PHASE								

19	17	23	21	27	25	31	29
65	67	69	82	84			
6	6		8	8			

20	18	24	22	28	26	32	30
66	68	81	83				
6	6	8	8				

DETECTOR INPUT
PLAN LOOP DETECTOR*(S)
CALLED PHASE
CALL OPTION
DELAY TIME
EXTENSION OPTION
EXTEND TIME
USE ADDED INITIAL
CROSS SWITCH PHASE

DETECTOR INPUT
PLAN LOOP DETECTOR*(S)
CALLED PHASE
CALL OPTION
DELAY TIME
EXTENSION OPTION
EXTEND TIME
USE ADDED INITIAL
CROSS SWITCH PHASE

TYPE OF INTERCONNECT/COMMUNICATION	
NONE	
CLOSED LOOP	
TWISTED PAIR	
FIBER OPTIC*	X
FIBER OPTIC (ETHERNET)	
RADIO	
CELL MODEM	

TYPE OF COORDINATION	
NONE	
TBC	
TRAFFIC RESPONSIVE	X
CLOSED LOOP	
ADAPTIVE	
*LOCATION OF MASTER CONTROLLER NO:	S-
SIGNAL SYSTEM NO:	SS-

TYPE OF LIGHTING	
BY OTHER AGENCY	
IN TRAFFIC CABINET	
IN SEPARATE DOT LIGHTING CABINET	X

TYPE OF PRE-EMPT	
NONE	
RAILROAD	
EMERGENCY VEHICLE	X
GTT	
TOMAR	
HARDWIRE	
OTHER	
LIFT BRIDGE	
QUEUE DETECTION	

GENERAL NOTES:

-
-
-
-

East Washington Avenue and Baldwin Street	
CITY OF MADISON	
DANE COUNTY	
SIGNAL NO:	CABINET TYPE: TS2
	CONTROLLER TYPE: COBALT
DATE: 10/5/2022	

SEQUENCE OF OPERATION: E WASHINGTON AVENUE AT BALDWIN STREET	60631225P	BY
BUS RAPID TRANSIT	CITY OF MADISON, DANE COUNTY, WI	DATE
CITY OF MADISON	CONTRACT NO: 60631225C	Scale: NTS

	60631225P
S-21E	

Signal Wire Color Coding	BLK - black	RED - red	GRN - green
	WHT - white	BLU - blue	ORG - orange

EQUIPMENT GROUNDING CONDUCTORS 10 AWG GRN XLP	
From	TO
EXCB1	EXSB1
EXCB1	SB2
SB2	SB3
SB3	SB4
SB4	EXSB5
EXSB5	EXSB6
EXSB6	EXSB7
EXSB7	SB8
SB8	EXSB9
EXSB9	EXSB10
EXSB10	EXCB1

EMERGENCY VEHICLE PREEMPTION WITH CONFIRMATION LIGHTS		
HEAD	FROM	TO
A	EXCB1	SB5
B	EXCB1	SB10

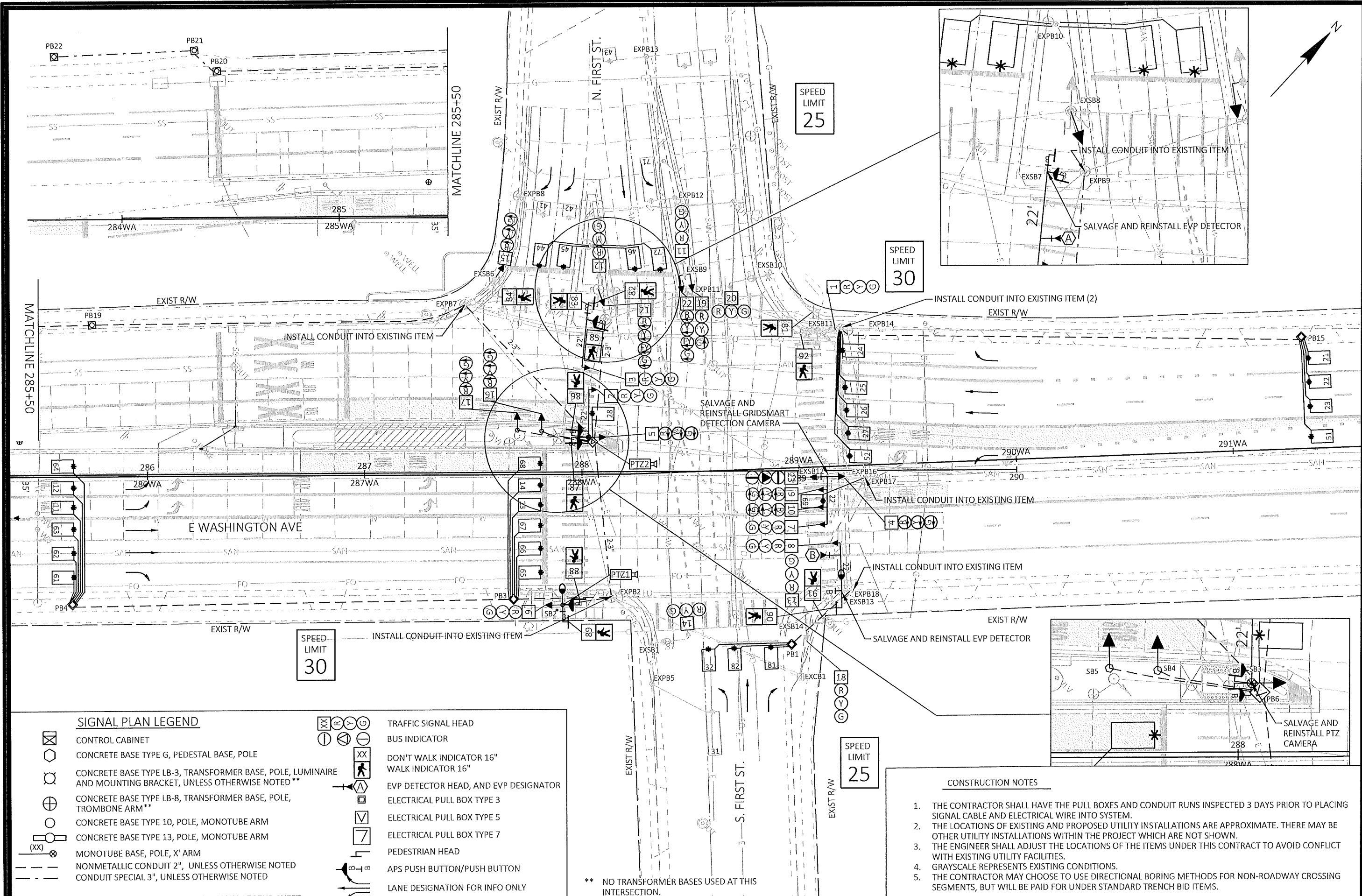
PTZ CAMERA		
HEAD	FROM	TO
PTZ1	EXCB1	SB8

NOTES:

- 1. USE THE WHITE CONDUCTOR IN THE CABLE ASSEMBLY AS THE GROUNDED CONDUCTOR FOR ALL TRAFFIC SIGNAL INDICATIONS.**
- 2. ENSURE THE GROUNDED CONDUCTOR IN THE FEEDER CABLE AND THE POLE CABLES ARE BOTH 18" LONGER THAN THE UNGROUNDED CONDUCTORS.**
- 3. AT THE SIGNAL BASES, CONNECT ONE TERMINAL FROM THE PEDESTRIAN PUSH BUTTONS TO THE COLOR INDICATED IN THE CHART.
CONNECT THE OTHER TERMINAL TO THE GROUNDED CONDUCTOR.**
- 4. RECONNECT THE GROUNDING CONDUCTORS WHEREVER THE CIRCUIT HAS BEEN INTERRUPTED TO ENSURE THE GROUNDING CIRCUIT IS COMPLETE.**

[illegible]

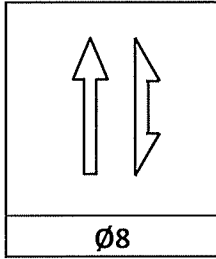
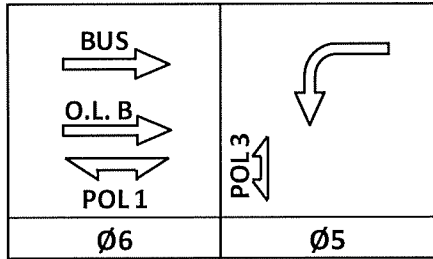
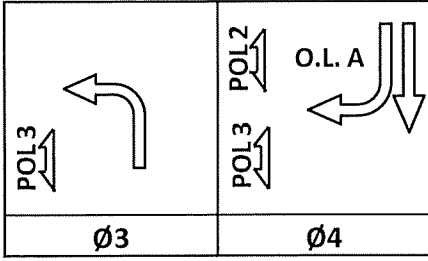
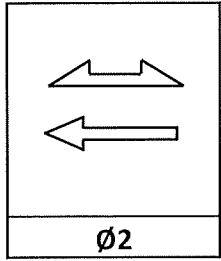
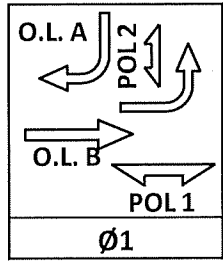
CABLE ROUTING: E WASHINGTON AVENUE AT BALDWIN STREET	60631225P
BUS RAPID TRANSIT	CITY OF MADISON, DANE COUNTY, WI
CITY OF MADISON	CONTRACT NO: 60631225C



	HEAD NUMBERS	F L A S H
Ø1	9,10	R
Ø2	1,2,3	R
Ø3	21,22	R
Ø4	11,12,13,14,15,16,17	R
Ø5	4,5	R
Ø6	6,7,8,23	R
Ø7		
Ø8	18,19,20	R
Ø2P	81,82,83,84	
Ø4P	85,86,87,88	
Ø6P	89,90	
Ø8P	91,92	

RING 1

RING 2



BARRIER

BARRIER

N

EMERGENCY VEHICLE PREEMPTION SEQUENCE

EMERGENCY VEHICLE PREEMPTOR	A	B	C	D
MOVEMENT				
PHASE	2+5	6+1		

AFTER PREEMPTION SEQUENCE A OR B, CONTROLLER SHALL RETURN TO PHASES 2+6.

AFTER PREEMPTION SEQUENCE C OR D, CONTROLLER SHALL RETURN TO PHASES 4+8.

CONTROLLER LOGIC

PHASE NUMBER	PHASE LOCKING	DUAL ENTRY W / Ø	PHASE RECALL	PHASE ACTIVE
1				X
2	X	6	MIN	X
3				X
4		8		X
5				X
6	X	2	MIN	X
7				
8		4		X

DETECTOR LOGIC

DETECTOR INPUT	3	1	7	5	11	9	15	13
PLAN LOOP DETECTOR*(S)	11	13	21	23	25	27	31	41
CALLLED PHASE	1	1	2	2	2	2	3	4
CALL OPTION								
DELAY TIME								
EXTENSION OPTION								
EXTEND TIME								
USE ADDED INITIAL								
CROSS SWITCH PHASE								

DETECTOR INPUT	4	2	8	6	12	10	16	14
PLAN LOOP DETECTOR*(S)	12	14	22	24	26	28	32	42
CALLLED PHASE	1	1	2	2	2		3	4
CALL OPTION								
DELAY TIME								
EXTENSION OPTION								
EXTEND TIME								
USE ADDED INITIAL								
CROSS SWITCH PHASE								

19	17	23	21	27	25	31	29
43	45	51	61	63	65	67	69
4	4	5	6	6	6	6	

20	18	24	22	28	26	32	30
44	46	52	62	64	66	68	71
4	4	5	6	6	6	6	4

35	33	39	37	43	41	47	45
72	82						
4	8						

36	34	40	38	44	42	48	46
81							
8							

DETECTOR INPUT	
PLAN LOOP DETECTOR*(S)	
CALLLED PHASE	
CALL OPTION	
DELAY TIME	
EXTENSION OPTION	
EXTEND TIME	
USE ADDED INITIAL	
CROSS SWITCH PHASE	

DETECTOR INPUT	
PLAN LOOP DETECTOR*(S)	
CALLLED PHASE	
CALL OPTION	
DELAY TIME	
EXTENSION OPTION	
EXTEND TIME	
USE ADDED INITIAL	
CROSS SWITCH PHASE	

TYPE OF INTERCONNECT/COMMUNICATION	
NONE	
CLOSED LOOP	
TWISTED PAIR	
FIBER OPTIC*	X
FIBER OPTIC (ETHERNET)	
RADIO	
CELL MODEM	

TYPE OF COORDINATION	
NONE	
TBC	
TRAFFIC RESPONSIVE	X
CLOSED LOOP	
ADAPTIVE	
*LOCATION OF MASTER CONTROLLER NO:	S-
SIGNAL SYSTEM NO:	SS-

TYPE OF LIGHTING	
BY OTHER AGENCY	
IN TRAFFIC CABINET	
IN SEPARATE DOT LIGHTING CABINET	X

TYPE OF PRE-EMPT	
NONE	
RAILROAD	
EMERGENCY VEHICLE	X
GTT	
TOMAR	
HARDWIRE	
OTHER	
LIFT BRIDGE	
QUEUE DETECTION	

GENERAL NOTES:

1. PEDESTRIAN OVERLAP 2 CROSSES INBOUND EAST WASHINGTON AVENUE ON THE WEST SIDE OF THE INTERSECTION.
2. PEDESTRIAN OVERLAP 3 CROSSES OUTBOUND EAST WASHINGTON AVENUE ON THE WEST SIDE OF THE INTERSECTION.
- 3.
- 4.

East Washington Avenue and First Street CITY OF MADISON DANE COUNTY	
SIGNAL NO:	CABINET TYPE: TS2
CONTROLLER TYPE: COBALT	
DATE: 10/5/2022	

SEQUENCE OF OPERATION: E WASHINGTON AVENUE AT FIRST STREET
BUS RAPID TRANSIT
CITY OF MADISON

60631225P
CITY OF MADISON, DANE COUNTY, WI
CONTRACT NO: 60631225C

60631225P
S-22D

PROJECT ID:	60631225
INTERSECTION:	EAST WASHINGTON AVENUE & FIRST STREET

Signal Wire Color Coding	BLK - black	RED - red	GRN - green
	WHT - white	BLU - blue	ORG - orange

EXCB1 TO	NO. OF CONDUCTORS	HEAD NO.	SIGNAL INDICATION WIRE COLOR										D/WALK	WALK	PED BUTTON	OTHER	
			RED	YELLOW	GREEN	<RED>	<YELLOW>	<GREEN>	<FLASHING YELLOW>	" - "	" Δ "	" "					
EXSB1	EXISTING	14															
SB2	12	8	RED	ORG	GRN								BLK	BLU			
		88													WHT/BLK		
		B											BLU/BLK	BLK/WHT			
		89													GRN/BLK		
		B															
SB3	15	2	RED	ORG	GRN												
		5				RED/BLK	ORG/BLK	GRN/BLK					BLK	BLU			
		86													WHT/BLK		
		B											RED/WHT	GRN/WHT			
		87													BLK/WHT		
		B															
SB4	5	16				RED	ORG	GRN									
SB5	5	17				RED	ORG	GRN									
EXSB6	5	15				RED	ORG	GRN									
		84	EXISTING														
		B	EXISTING														
EXSB7	12	3	RED	ORG	GRN								BLK	BLU			
		82													WHT/BLK		
		B											BLU/BLK	BLK/WHT			
		85													GRN/BLK		
		B															
EXSB8	5	12	EXISTING														
		21				RED	ORG	GRN	BLU								
		83	EXISTING														
		B	EXISTING														
EXSB9	12	11	EXISTING														
		19	RED	ORG		RED/BLK	ORG/BLK	GRN									
		22				RED/BLK	ORG/BLK	GRN/BLK	BLU								
EXSB10	EXISTING	20	EXISTING														
EXSB11	EXISTING	1	EXISTING														
		81	EXISTING														
		B	EXISTING														
		92	EXISTING														
		B	EXISTING														
EXSB12	19	4				RED	ORG	GRN									
		7	RED/BLK	ORG/BLK	GRN/BLK												
		9				RED/WHT	BLU/WHT	GRN/WHT									
		10				WHT/RED	ORG/RED	BLU/RED									
		23								BLK	BLK/WHT	BLU			WHT/BLK		
		B															
EXSB13	7	8	RED	ORG	GRN								BLK	BLU			
		90													WHT/BLK		
		B															
EXSB14	EXISTING	13	EXISTING														
		18	EXISTING														
		91	EXISTING														
		B	EXISTING														

- NOTES:
1. USE THE WHITE CONDUCTOR IN THE CABLE ASSEMBLY AS THE GROUNDED CONDUCTOR FOR ALL TRAFFIC SIGNAL INDICATIONS.
 2. ENSURE THE GROUNDED CONDUCTOR IN THE FEEDER CABLE AND THE POLE CABLES ARE BOTH 18" LONGER THAN THE UNGROUNDED CONDUCTORS.
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 4. RECONNECT THE GROUNDING CONDUCTORS WHEREVER THE CIRCUIT HAS BEEN INTERRUPTED TO ENSURE THE GROUNDING CIRCUIT IS COMPLETE.

EQUIPMENT GROUNDING CONDUCTORS 10 AWG GRN XLP	
From	TO
EXCB1	EXSB1
EXSB1	SB2
SB2	SB3
SB3	SB4
SB4	SB5
SB5	EXSB6
EXSB6	EXSB7
EXSB7	EXSB8
EXSB8	EXSB9
EXSB9	EXSB10
EXSB10	EXSB11
EXSB11	EXSB12
EXSB12	EXSB13
EXSB13	EXCB1
EXCB1	EXSB14

EMERGENCY VEHICLE PREEMPTION WITH CONFIRMATION LIGHTS		
HEAD	FROM	TO
A	EXCB1	SB5
B	EXCB1	SB10

PTZ CAMERA		
HEAD	FROM	TO
PTZ1	EXCB1	SB2
PTZ2	EXCB1	SB3

CABLE ROUTING: E WASHINGTON AVENUE AT FIRST STREET


BUS RAPID TRANSIT

CITY OF MADISON

60631225P

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C



60631225P

S-22E

REVISION

Date: 10/20/2022

Scale: NTS

BY

DATE

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