PROJECT ID:	60631225
INTERSECTION:	EAST WASHINGTON AVENUE & FOURTH 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	EXISTING	10	EXISTING												
		12	EXISTING												
		86	EXISTING												
		B	EXISTING												
EXSB2	EXISTING	11	EXISTING												
		85	EXISTING												
		B	EXISTING												
EXSB3	EXISTING	4	EXISTING												
		84	EXISTING												
		B	EXISTING												
SB4	12	2	RED	ORG	GRN										
		7				RED/BLK	ORG/BLK	GRN/BLK							
		B												WHT/BLK	
EXSB5	EXISTING	3	EXISTING												
		83	EXISTING												
		B	EXISTING												
EXSB6	EXISTING	9	EXISTING												
		13	EXISTING												
		82	EXISTING												
		B	EXISTING												
EXSB7	EXISTING	14	EXISTING												
		81	EXISTING												
		B	EXISTING												
EXSB8	EXISTING	1	EXISTING												
		90	EXISTING												
		B	EXISTING												
SB9	15	5	RED	ORG	GRN										
		8				RED/BLK	ORG/BLK	GRN/BLK							
		88											BLK	BLU	
		B													WHT/BLK
		89											RED/WHT	GRN/WHT	
		B													BLK/WHT
SB10	7	6	RED	ORG	GRN										
		87											BLK	BLU	
		B													WHT/BLK

EQUIPMENT GROUNDING CONDUCTORS 10 AWG GRN XLP	
From	TO
EXCB1	EXSB1
EXCB1	EXSB2
EXSB2	EXSB3
EXSB3	SB4
SB4	EXSB5
EXSB5	EXSB6
EXSB6	EXSB7
EXSB7	EXSB8
EXSB8	SB9
SB9	SB10
SB10	EXCB1

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

PTZ CAMERA		
HEAD	FROM	TO
PTZ1	EXCB1	SB4

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
Designed By: sTRAND	Date: 10/20/2022	Scale: NTS	
60631225P			

60631225P

CABLE ROUTING: E WASHINGTON AVENUE AT FOURTH STREET

BUS RAPID TRANSIT

CITY OF MADISON

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

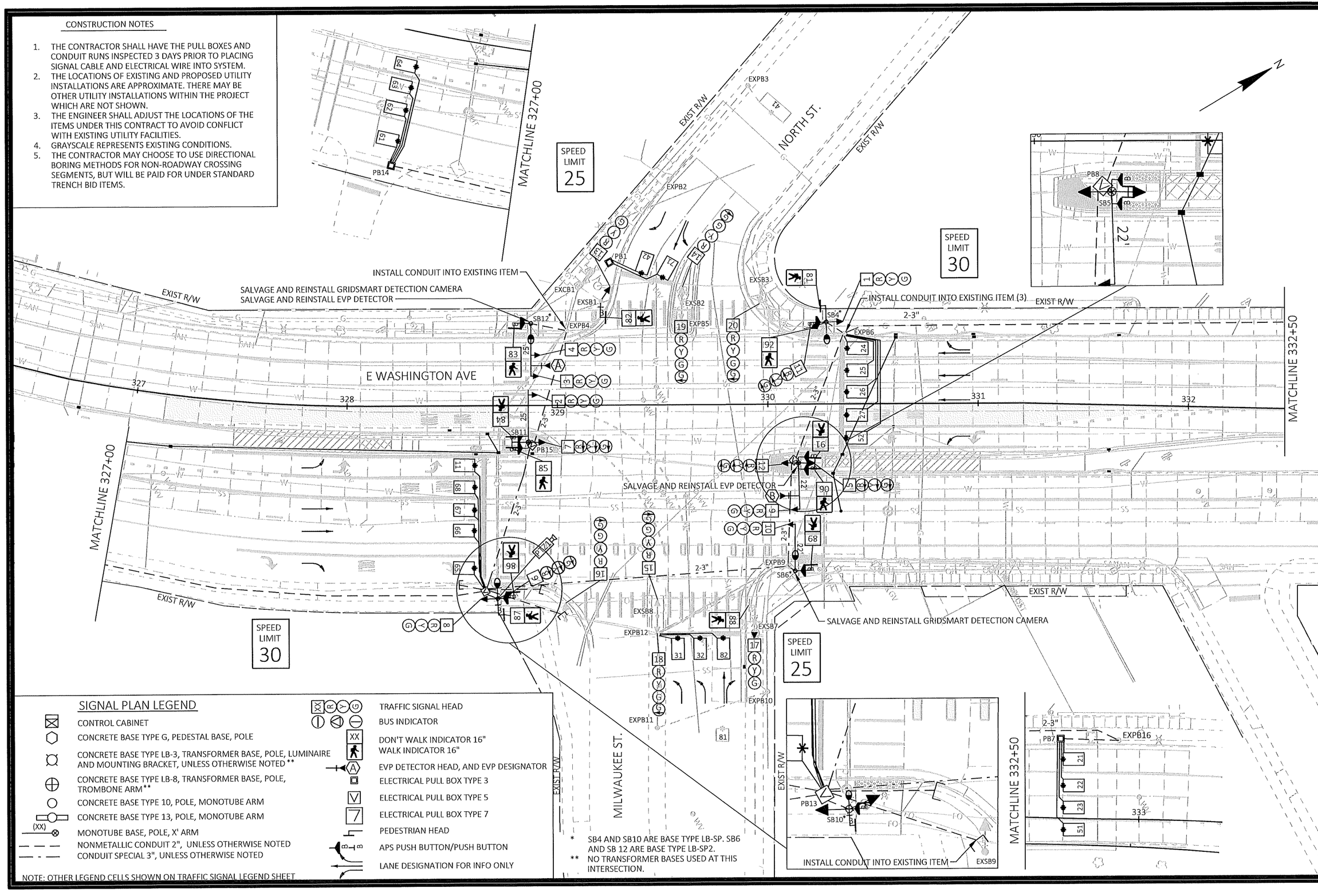
60631225P

S-23E

ATTACHMENT E

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 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
- (XX) 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

* SB4 AND SB10 ARE BASE TYPE LB-SP. SB6 AND SB 12 ARE BASE TYPE LB-SP2.
** NO TRANSFORMER BASES USED AT THIS INTERSECTION.

MARK	REVISION	DATE	BY
Designed By: STRAND	Scale: 1 IN:40 FT		
Date: 2022-10-12			
60631225P			

60631225P

SIGNAL PLAN: E WASHINGTON AVENUE AT MILWAUKEE STREET

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

BUS RAPID TRANSIT

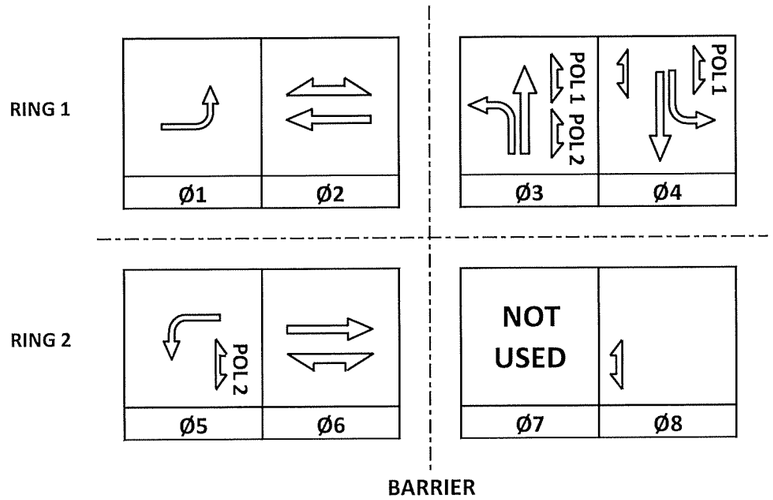
CITY OF MADISON

60631225P

S-24J

FILE NAME : C:\PW\WORKING\AECOM_D520_NA_2019\CAR28015\D01072151\0242207-SP.DWG
LAYOUT NAME - 0242207-sp
LAST PLOT DATE - 2022-10-12

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



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	

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				X
5				X
6	X	2	MIN	X
7				
8				X
9				X
10				X

DETECTOR LOGIC

DETECTOR INPUT	3	1	7	5	11	9	15	13
PLAN LOOP DETECTOR*(S)	11	22	24	26	31	41	51	61
CALLED PHASE	1	2	2	2	3	4	5	6
CALL OPTION								
DELAY TIME								
EXTENSION OPTION								
EXTEND TIME								
USE ADDED INITIAL								
CROSS SWITCH PHASE								

19	17	23	21	27	25	31	29	DETECTOR INPUT
63	65	67	71	82				PLAN LOOP DETECTOR*(S)
6	6	6	4	3				CALLED PHASE
								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)	21	23	25	27	32	42	52	62
CALLED PHASE	2	2	2	2	3	4	5	6
CALL OPTION								
DELAY TIME								
EXTENSION OPTION								
EXTEND TIME								
USE ADDED INITIAL								
CROSS SWITCH PHASE								

20	18	24	22	28	26	32	30	DETECTOR INPUT
64	66	68	81					PLAN LOOP DETECTOR*(S)
6	6	6	3					CALLED PHASE
								CALL OPTION
								DELAY TIME
								EXTENSION OPTION
								EXTEND TIME
								USE ADDED INITIAL
								CROSS SWITCH PHASE

GENERAL NOTES:

1. PEDESTRIAN PHASE 4 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 Milwaukee Street
CITY OF MADISON
DANE COUNTY

SIGNAL NO: CABINET TYPE: TS2
CONTROLLER TYPE: COBALT
DATE: 10/5/2022

Mark	REVISION	DATE	BY
Designed By: STRAND 60631225P	Date: 10/20/2022	Scale: NTS	

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

60631225P
S-24K

PROJECT ID:	60631225
INTERSECTION:	EAST WASHINGTON AVENUE & MILWAUKEE 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	7	13	RED	ORG	GRN										
		82											BLK	BLU	
		B													WHT/BLK
EXSB2	EXISTING	14	EXISTING												
		19	EXISTING												
EXSB3	EXISTING	20	EXISTING												
SB4	15	1	RED	ORG	GRN										
		11				RED/BLK	ORG/BLK	GRN/BLK							
		81											BLK	BLU	
		B													WHT/BLK
		92											RED/WHT	GRN/WHT	
		B													BLK/WHT
SB5	19	5				RED	ORG	GRN							
		9	RED/BLK	ORG/BLK	GRN/BLK										
		12				RED/WHT	BLU/WHT	GRN/WHT							
		90											BLK	BLU	
		B													WHT/BLK
		91											BLU/BLK	BLK/WHT	
		B													WHT/RED
SB6	7	10	RED	ORG	GRN										
		89											BLK	BLU	
		B													WHT/BLK
EXSB7	5	17	RED	ORG	GRN										
		88	EXISTING												
		B	EXISTING												
EXSB8	EXISTING	15	EXISTING												
		18	EXISTING												
EXSB9	EXISTING	16	EXISTING												
SB10	15	6				RED	ORG	GRN							
		8	RED/BLK	ORG/BLK	GRN/BLK										
		86											BLK	BLU	
		B													WHT/BLK
		87											RED/WHT	GRN/WHT	
		B													BLK/WHT
SB11	15	2	RED	ORG	GRN										
		7				RED/BLK	ORG/BLK	GRN/BLK							
		84											BLK	BLU	
		B													WHT/BLK
		85											RED/WHT	GRN/WHT	
		B													BLK/WHT
SB12	12	3	RED	ORG	GRN										
		4	RED/BLK	ORG/BLK	GRN/BLK								BLK	BLU	
		83													WHT/BLK
		B													

EQUIPMENT GROUNDING CONDUCTORS 10 AWG GRN XLP	
From	TO
EXCB1	EXSB1
EXCB1	EXSB2
EXSB2	EXSB3
EXSB3	SB4
SB4	SB5
SB5	SB6
SB6	EXSB7
EXSB7	EXSB8
EXSB8	EXSB9
EXSB9	SB10
SB10	SB11
SB11	SB12
SB12	EXCB1

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

PTZ CAMERA		
HEAD	FROM	TO
PTZ1	EXCB1	SB10

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
Designed By: STRAND 60631225P	Date: 10/20/2022	Scale: NTS	

60631225P

CABLE ROUTING: E WASHINGTON AVENUE AT MILWAUKEE STREET

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

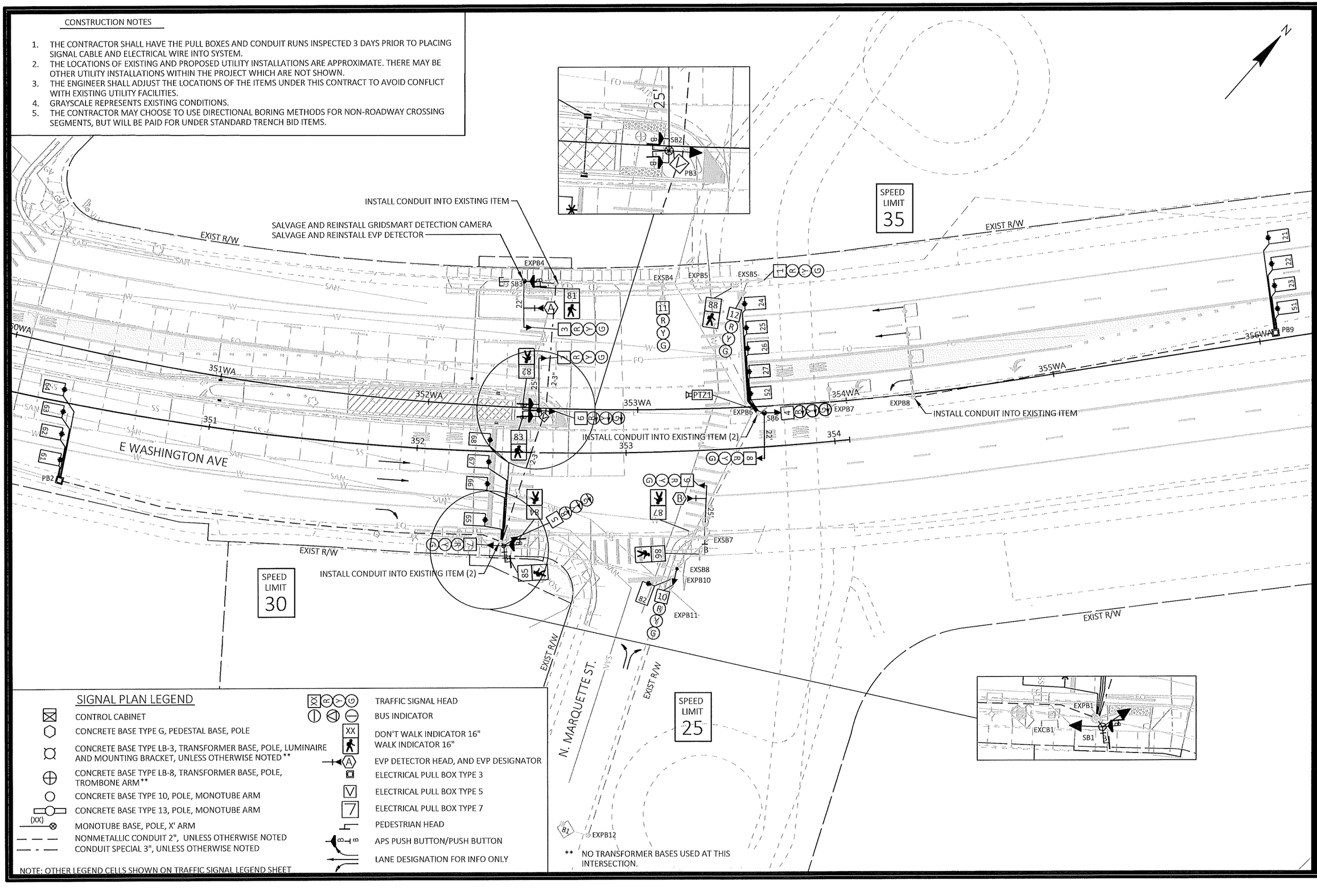
CITY OF MADISON

60631225P

S-24L

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 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
- (XX) MONOTUBE BASE, POLE, X' ARM
- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- CONDUIT SPECIAL 3", UNLESS OTHERWISE NOTED

NOTE: OTHER LEGEND CELLS SHOWN ON TRAFFIC SIGNAL LEGEND SHEET

- TRAFFIC SIGNAL HEAD
- BUS INDICATOR
- XX 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

** NO TRANSFORMER BASES USED AT THIS INTERSECTION.

MARK	REVISION	DATE	BY

Designed By: STRAND Date: 2022-10-17 Scale: 1 IN:40 FT
60631225P

SIGNAL PLAN: E WASHINGTON AVENUE AT NORTH MARQUETTE STREET 60631225P

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

BUS RAPID TRANSIT

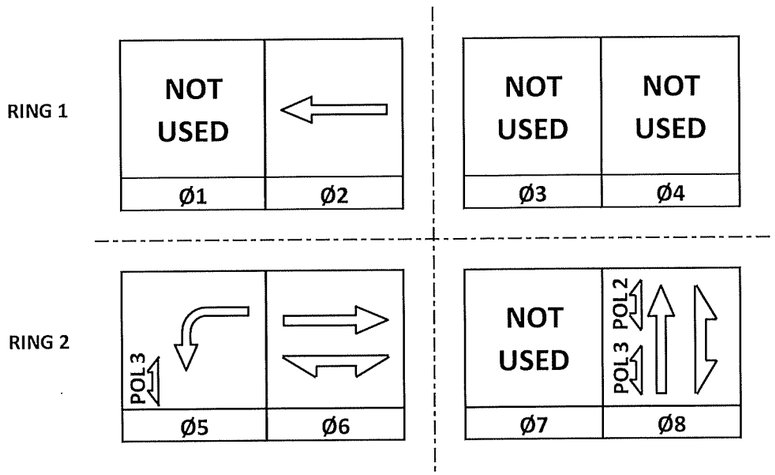
CITY OF MADISON

60631225P

S-25C

FILE NAME : C:\PW\WORKING\AECOM_D520_NA_2019\CAR28015\D01071215\024208-SP.DWG
LAYOUT NAME - 024208-sp
LAST PLOT DATE - 2022-10-17

	HEAD NUMBERS	FLASH
Ø1		
Ø2	1,2,3	R
Ø3		
Ø4		
Ø5	4,5,6	R
Ø6	7,8,9	R
Ø7		
Ø8	10,11,12	R
Ø2P		
Ø4P		
Ø6P	85,86	
Ø8P	87,88	



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	

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				
5				X
6	X	2	MIN	X
7				
8				X

DETECTOR LOGIC

DETECTOR INPUT	3	1	7	5	11	9	15	13
PLAN LOOP DETECTOR*(S)	21	23	25	27	52	62	64	66
CALLED PHASE	2	2	2	2	5	6	6	6
CALL OPTION								
DELAY TIME								
EXTENSION OPTION								
EXTEND TIME								
USE ADDED INITIAL								
CROSS SWITCH PHASE								

DETECTOR INPUT	19	17	23	21	27	25	31	29
PLAN LOOP DETECTOR*(S)	68	82						
CALLED PHASE	6	8						
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	51	61	63	65	67
CALLED PHASE	2	2	2	5	6	6	6	6
CALL OPTION								
DELAY TIME								
EXTENSION OPTION								
EXTEND TIME								
USE ADDED INITIAL								
CROSS SWITCH PHASE								

DETECTOR INPUT	20	18	24	22	28	26	32	30
PLAN LOOP DETECTOR*(S)	81							
CALLED PHASE	8							
CALL OPTION								
DELAY TIME								
EXTENSION OPTION								
EXTEND TIME								
USE ADDED INITIAL								
CROSS SWITCH PHASE								

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 Marquette Street
CITY OF MADISON
DANE COUNTY

SIGNAL NO: CABINET TYPE: TS2
CONTROLLER TYPE: COBALT
DATE: 10/5/2022

Mark	REVISION	DATE	BY
Designed By: STRAND 60631225P	Date: 10/24/2022	Scale: NTS	

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

60631225P
S-25D

PROJECT ID:	60631225
INTERSECTION:	EAST WASHINGTON AVENUE & MARQUETTE 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	
SB1	15	5				RED	ORG	GRN							
		7	RED/BLK	ORG/BLK	GRN/BLK										
		84											BLK	BLU	
		B													WHT/BLK
		85											RED/WHT	GRN/WHT	
		B													BLK/WHT
SB2	15	2	RED	ORG	GRN										
		6				RED/BLK	ORG/BLK	GRN/BLK							
		82											BLK	BLU	
		B													WHT/BLK
		83											RED/WHT	GRN/WHT	
		B													BLK/WHT
SB3	7	3	RED	ORG	GRN										
		81											BLK	BLU	
		B													WHT/BLK
EXSB4	EXISTING	11								EXISTING					
EXSB5	EXISTING	1								EXISTING					
		12								EXISTING					
		88								EXISTING					
		B								EXISTING					
SB6	12	4				RED	ORG	GRN							
		8	RED/BLK	ORG/BLK	GRN/BLK										
EXSB7	5	9	RED	ORG	GRN					EXISTING					
		86								EXISTING					
		B								EXISTING					
		87								EXISTING					
		B													BLK
EXSB8	5	10	RED	ORG	GRN										

EQUIPMENT GROUNDING CONDUCTORS 10 AWG GRN XLP

From	TO
EXCB1	SB1
SB1	SB2
SB2	SB3
SB3	EXSB4
EXSB4	EXSB5
EXSB5	SB6
SB6	SB7
SB7	EXSB8
EXSB8	EXCB1

EMERGENCY VEHICLE PREEMPTION WITH CONFIRMATION LIGHTS

HEAD	FROM	TO
A	EXCB1	SB5
B	EXCB1	SB10

PTZ CAMERA

HEAD	FROM	TO
PTZ1	EXCB1	SB6

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
	Designed By: STRAND 60631225P	Date: 10/20/2022	Scale: NTS

60631225P

CABLE ROUTING: E WASHINGTON AVENUE AT MARQUETTE STREET

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

CITY OF MADISON

60631225P

S-25E

ATTACHMENT E

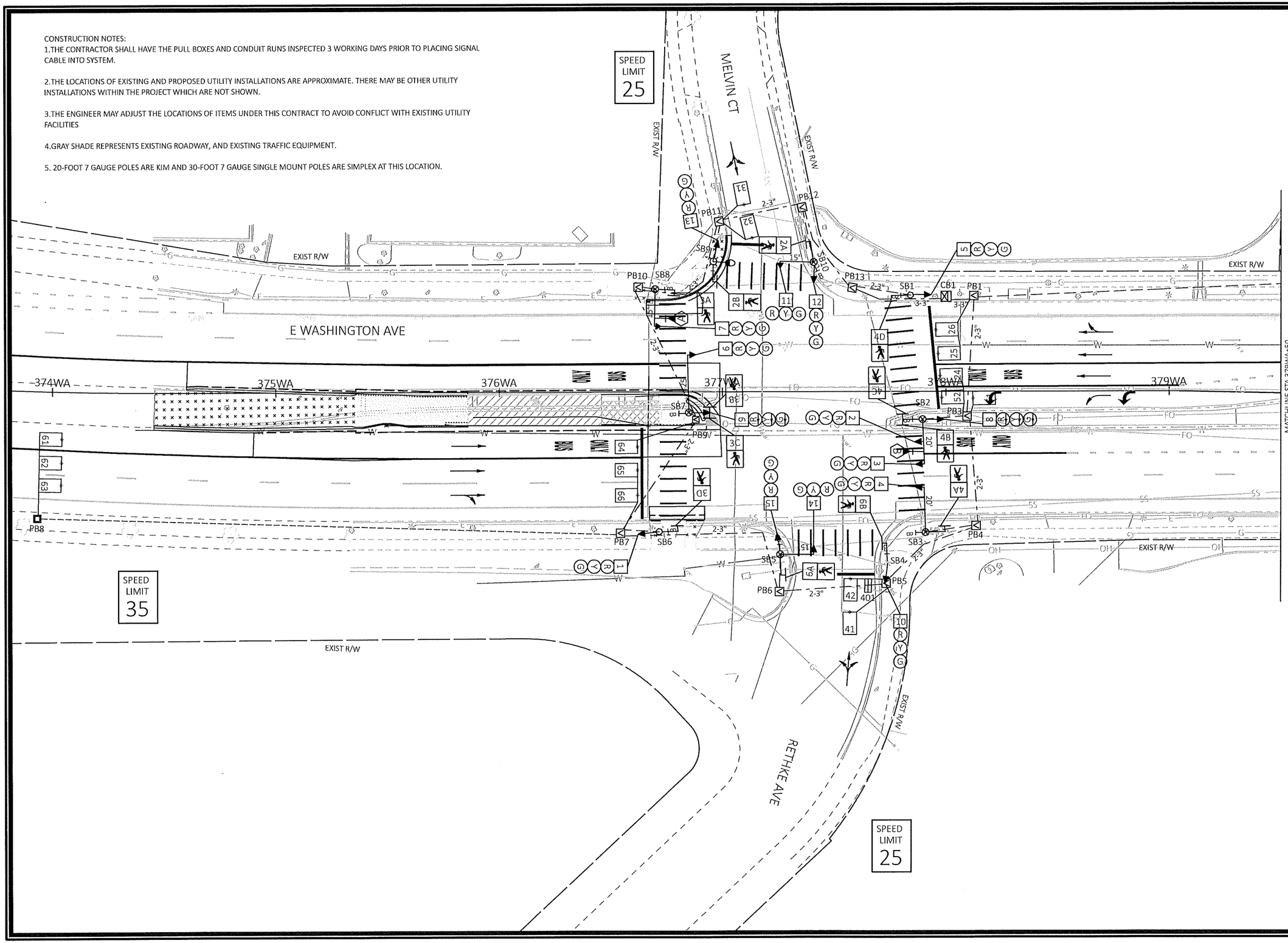
CONSTRUCTION NOTES:
1.THE CONTRACTOR SHALL HAVE THE PULL BOXES AND CONDUIT RUNS INSPECTED 3 WORKING DAYS PRIOR TO PLACING SIGNAL CABLE INTO SYSTEM.

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. 20-FOOT 7 GAUGE POLES ARE KIM AND 30-FOOT 7 GAUGE SINGLE MOUNT POLES ARE SIMPLEX AT THIS LOCATION.



SIGNAL PLAN: E WASHINGTON AVE AT MELVIN CRT/RETHKE AVE

BUS RAPID TRANSIT

60631225P

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO:60631225C

CITY OF MADISON

MARK	REVISION	DATE	BY
Designed By:.TSI 60631225P	Date: 2022-09-27	Scale: 1:40_XREF	

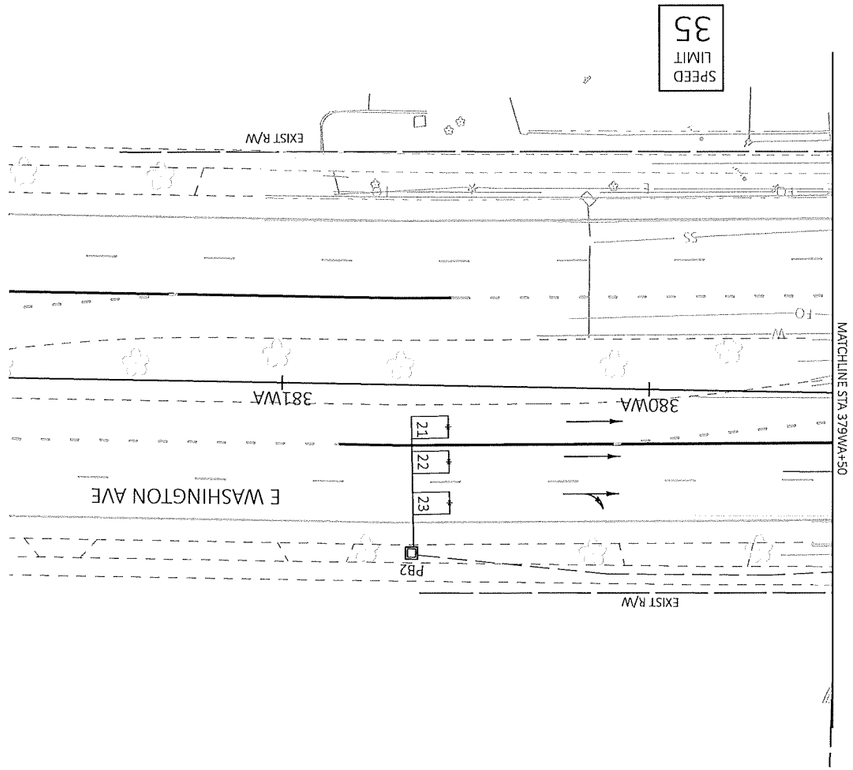
60631225P

S-26A

FILE NAME : pw://aecom-na-pw.bentley.com:AECOM_DS2D_NA_2019/Documents/60631225-Madison BRT Ph2 Pre-Design/90D-CAD GIS/EastSheets/024211-sp.dwg

LAYOUT NAME - 024211-sp

LAST PLOT DATE - 10/17/2022



N

SIGNAL PLAN: E WASHINGTON AVE AT MELVIN CRT/RETHKE AVE 60631225P

BUS RAPID TRANSIT

CITY OF MADISON

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO:60631225C

S-26B

60631225P

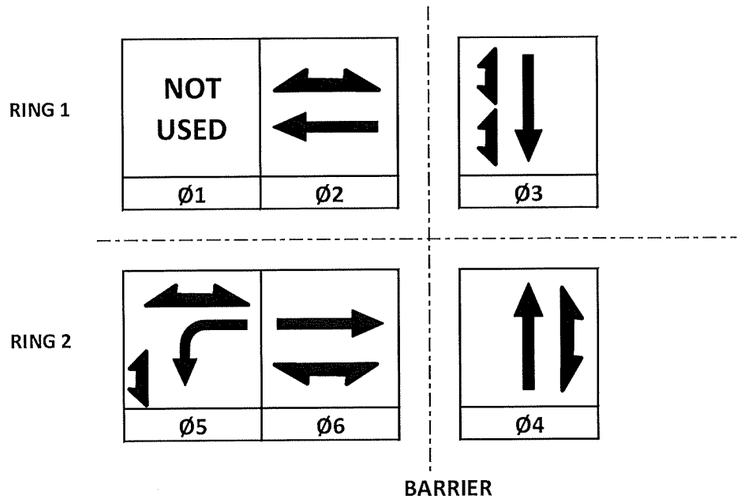
MARK	REVISION	DATE	BY
Designed By:TSI 60631225P	Date: 2022-09-27	Scale: 1:40_XREF	

FILE NAME : pw://aecom-na-pw.bentley.com:AECOM_DS20_NA_2019/Documents/60631225-Madison BRT Ph2 Pre-Design/900-CAD GIS/East/Sheets/024211-sp.dwg

LAYOUT NAME - 024211-sp

LAST PLOT DATE - 10/4/2022

	HEAD NUMBERS	FLASH
Ø1		
Ø2	5,6,7	
Ø3	13,14,15	
Ø4	10,11,12	
Ø5	8,9	← R
Ø6	1,2,3,4	
Ø7		
Ø8		
Ø2P	2A,2B	
Ø3P	3A,3B,3C,3D	
Ø4P	4A,4B,4C,4D	
Ø6P	6A,6B	
OLE		
OLF		
OLG		
OLH		



CONTROLLER LOGIC

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

EMERGENCY VEHICLE PREEMPTION SEQUENCE

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

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

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	

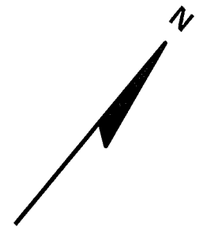
DETECTOR LOGIC

DETECTOR INPUT	3	1	7	5	11	9	15	13
PLAN LOOP DETECTOR*(S)	21	23	25	31	41	401	51	61
CALLED PHASE	2	2	2	3	4	4	5	6
CALL OPTION	2	2	2	3	4	4	5	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	24	26	32	42		52	62
CALLED PHASE	2	2	2	3	4		5	6
CALL OPTION	2	2	2	3	4		5	6
DELAY TIME								
EXTENTION OPTION								
EXTEND TIME								
USE ADDED INITIAL								
CROSS SWITCH PHASE								

19	17	23	21	27	25	31	29	DETECTOR INPUT
63	65							PLAN LOOP DETECTOR*(S)
6	6							CALLED PHASE
6	6							CALL OPTION
								DELAY TIME
								EXTENTION OPTION
								EXTEND TIME
								USE ADDED INITIAL
								CROSS SWITCH PHASE

20	18	24	22	28	26	32	30	DETECTOR INPUT
64	66							PLAN LOOP DETECTOR*(S)
6	6							CALLED PHASE
6	6							CALL OPTION
								DELAY TIME
								EXTENTION OPTION
								EXTEND TIME
								USE ADDED INITIAL
								CROSS SWITCH PHASE



Mark	Designed By: TSI	REVISION	DATE	BY
	60631225P	Date: 10/17/2022	Scale: NTS	

SEQUENCE OF OPERATION: E WASHINGTON AVE AT MELVIN CT/RETHKE AVE 60631225P

CITY OF MADISON, DANE COUNTY, WI

BUS RAPID TRANSIT

CONTRACT NO: 60631225C

WASHINGTON AVE / MELVIN CRT / RETHKE AVE

CITY OF MADISON

COUNTY

SIGNAL NO: CABINET TYPE:TS2

CONTROLLER TYPE: COBALT

DATE: 10/22 PAGE NO. 3 of 4

60631225P

S-26C

INTERSECTION:	60631225P
	WASHINGTON AVE & MELVIN CT/RETHKE AVE

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

DATE: Oct-22

	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	12	5	RED	ORG	GRN											
		8D											BLK	BLU		
		PB													WHT/BLK	
SB2	19	2	RED	ORG	GRN											
		3	RED	ORG	GRN											
		8				RED/BLK	ORG/BLK		GRN/BLK							
		8C											BLK	BLU		
		8B											BLU/BLK	BLU/WHT		
		PB													WHT/BLK	
SB3	12	4	RED	ORG	GRN											
		8A											BLK	BLU		
		PB													WHT/BLK	
SB4	12	10	RED	ORG	GRN											
		6B											BLK	BLU		
		PB													WHT/BLK	
SB5	15	14	RED	ORG	GRN											
		15	RED/BLK	ORG/BLK	GRN/BLK											
		6A														
		PB													WHT/BLK	
SB6	12	1	RED	ORG	GRN											
		4D											BLK	BLU		
		PB													WHT/BLK	
SB7	19	6	RED	ORG	GRN											
		9				RED/BLK	ORG/BLK		GRN/BLK							
		4B											BLK	BLU		
		4C											BLU/BLK	BLU/WHT		
		PB													WHT/BLK	
SB8	12	7	RED	ORG	GRN								BLK	BLU		
		4A											BLK	BLU		
		PB													WHT/BLK	
SB9	12	13	RED	ORG	GRN											
		2B											BLK	BLU		
		PB													WHT/BLK	
SB10	12	11	RED	ORG	GRN											
		12	RED/BLK	ORG/BLK	GRN/BLK											
		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	SB2

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	SB1
SB10	CB1

Mark	REVISION	DATE	BY
Designed By: 60631225P	Date: 10/4/2022	Scale: NTS	
	TSI		

CABEL ROUTING: WASHINGTON AVE AT MELVIN CT/RETHKE AVE 60631225P

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

CITY OF MADISON

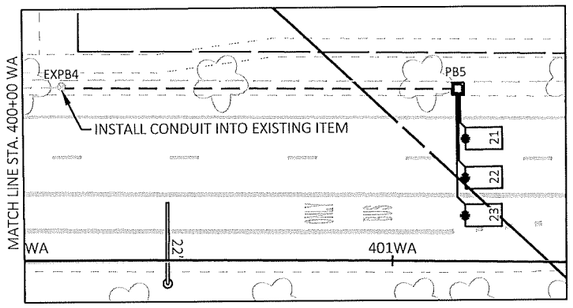
60631225P

S-26D

FILE NAME: C:\OneDrive\AECOM\City of Madison BRT Quantities - Cost_Quantities\Madison BRT MG Plan Sheets.pptx
LAST PLOT DATE - 10/4/2022

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 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
- (XX) 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

** NO TRANSFORMER BASES USED AT THIS INTERSECTION.

MARK	REVISION	DATE	BY
Designed By: STRAND Date: 2022-10-20 60631225P			Scale: 1 IN:40 FT

SIGNAL PLAN: E WASHINGTON AVENUE AT N. FAIR OAKS AVENUE

CITY OF MADISON, DANE COUNTY, WI

60631225P

BUS RAPID TRANSIT

CITY OF MADISON

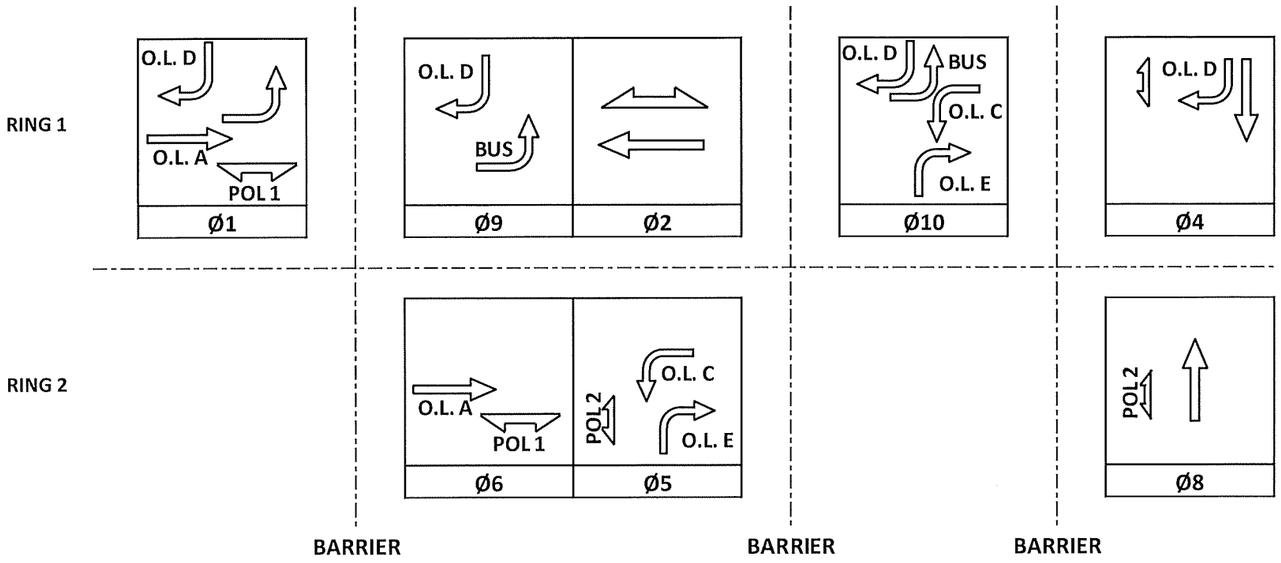
CONTRACT NO: 60631225C

60631225P

S-27E

FILE NAME : C:\PW\WORKING\AECOM_DS20_NA_2019\CAR28015\D0107215\024209-SP.DWG
LAYOUT NAME - 024209-sp
LAST PLOT DATE - 2022-10-20

	HEAD NUMBERS	FLASH
Ø1	11,12	R
Ø2	1,2,3,4	R
Ø3		
Ø4	13,14,15	R
Ø5	5,6,7	R
Ø6	8,9,10	R
Ø7		
Ø8	16,17,18	R
Ø2P	81,82	
Ø4P	83,84,85,86	
Ø6P	87,88	
Ø8P		



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	

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				
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	21	23	25	41	43	61	63
CALLED PHASE	1	2	2	2	4	4	6	6
CALL OPTION								
DELAY TIME								
EXTENSION OPTION								
EXTEND TIME								
USE ADDED INITIAL								
CROSS SWITCH PHASE								

DETECTOR INPUT	19	17	23	21	27	25	31	29
PLAN LOOP DETECTOR*(S)	65	71	81					
CALLED PHASE	6	4	8					
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	22	24	26	42	51	62	64
CALLED PHASE	1	2	2	2	4	5	6	6
CALL OPTION								
DELAY TIME								
EXTENSION OPTION								
EXTEND TIME								
USE ADDED INITIAL								
CROSS SWITCH PHASE								

DETECTOR INPUT	20	18	24	22	28	26	32	30
PLAN LOOP DETECTOR*(S)	66	72	82					
CALLED PHASE	6	4	8					
CALL OPTION								
DELAY TIME								
EXTENSION OPTION								
EXTEND TIME								
USE ADDED INITIAL								
CROSS SWITCH PHASE								

GENERAL NOTES:

1. PEDESTRIAN OVERLAP 1 CROSSES NORTHBOUND FAIR OAKS AVENUE ON THE SOUTH SIDE OF THE INTERSECTION.
2. PEDESTRIAN OVERLAP 2 CROSSES OUTBOUND EAST WASHINGTON AVENUE ON THE WEST SIDE OF THE INTERSECTION.
3.
4.

East Washington Avenue and Fair Oaks/Wright Street
CITY OF MADISON
DANE COUNTY

SIGNAL NO:	CABINET TYPE: TS2
	CONTROLLER TYPE: COBALT
DATE: 10/5/2022	

Mark	REVISION	DATE	BY
Designed By: STRAND 60631225P	Date: 10/20/2022	Scale: NTS	

SEQUENCE OF OPERATION: E WASHINGTON AVENUE AT N. FAIR OAKS AVENUE 60631225P
BUS RAPID TRANSIT CITY OF MADISON, DANE COUNTY, WI
CONTRACT NO: 60631225C
CITY OF MADISON

60631225P

S-27F

PROJECT ID:	60631225
INTERSECTION:	EAST WASHINGTON AVENUE & FAIR OAKS AVENUE

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	1	EXISTING													
		11				RED	ORG	GRN								
		18	EXISTING													
		81	EXISTING													
EXSB2	12	5				RED	ORG	GRN								
		9	RED/BLK	ORG/BLK	GRN/BLK											
		12				BLK	BLU	WHT/BLK								
SB3	5	10	RED	ORG	GRN											
SB4	7	88											BLK	BLU		
		B													WHT/BLK	
EXSB5	EXISTING	14	EXISTING													
		16	EXISTING													
EXSB6	19	6				RED	ORG	GRN								
		8	RED/BLK	ORG/BLK	GRN/BLK											
		15	RED/WHT	BLU/WHT	GRN/WHT		ORG/RED	BLU/RED								
		86											BLK	BLU		
		B													WHT/BLK	
		87											BLU/BLK	BLK/WHT		
		B													WHT/RED	
SB7	19	2	RED	ORG	GRN											
		3	RED/BLK	ORG/BLK	GRN/BLK											
		7				RED/WHT	BLU/WHT	GRN/WHT								
		84											BLK	BLU		
		B													WHT/BLK	
		85											BLU/BLK	BLK/WHT		
		B													WHT/RED	
SB8	7	83											BLK	BLU		
		B													WHT/BLK	
EXSB9	EXISTING	4	EXISTING													
SB10	7	82											BLK	BLU		
		B													WHT/BLK	
EXSB11	EXISTING	13	EXISTING													
		17	EXISTING													

EQUIPMENT GROUNDING CONDUCTORS 10 AWG GRN XLP	
From	TO
EXCB1	EXSB1
EXSB1	EXSB2
EXSB2	SB3
SB3	SB4
SB4	EXSB5
EXSB5	EXSB6
EXSB6	SB7
SB7	SB8
SB8	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	SB2

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
	Designed By: STRAND 60631225P	Date: 10/20/2022	Scale: NTS

60631225P

CABLE ROUTING: E WASHINGTON AVENUE AT N. FAIR OAKS AVENUE

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

CITY OF MADISON

60631225P

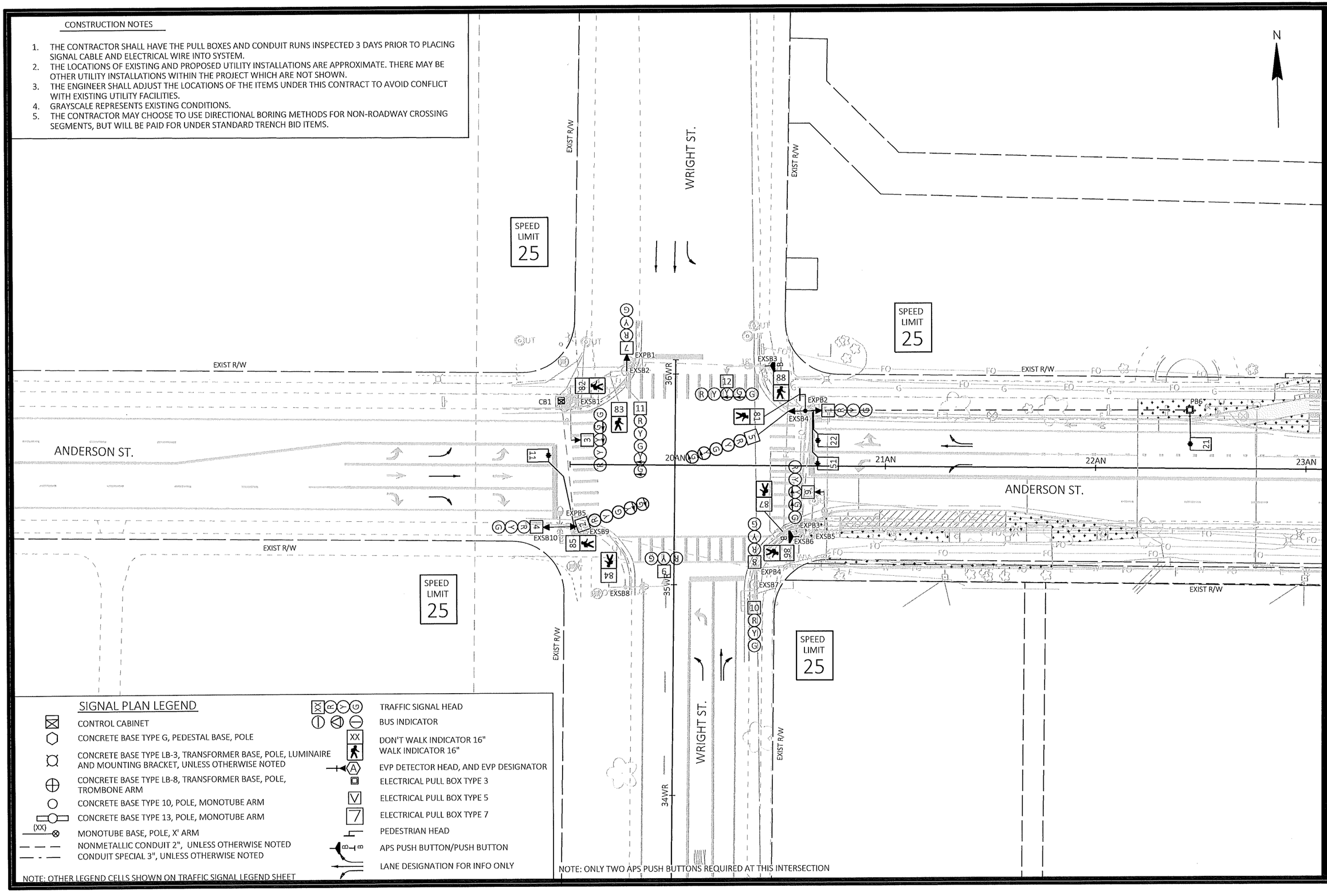
S-27G

ATTACHMENT E

ATTACHMENT E

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 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
- (XX) 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

NOTE: ONLY TWO APS PUSH BUTTONS REQUIRED AT THIS INTERSECTION

MARK	REVISION	DATE	BY
Designed By: STRAND 60631225P	Date: 2022-10-19	Scale: 1 IN:40 FT	

60631225P

SIGNAL PLAN: ANDERSON STREET AT WRIGHT STREET

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

BUS RAPID TRANSIT

CITY OF MADISON

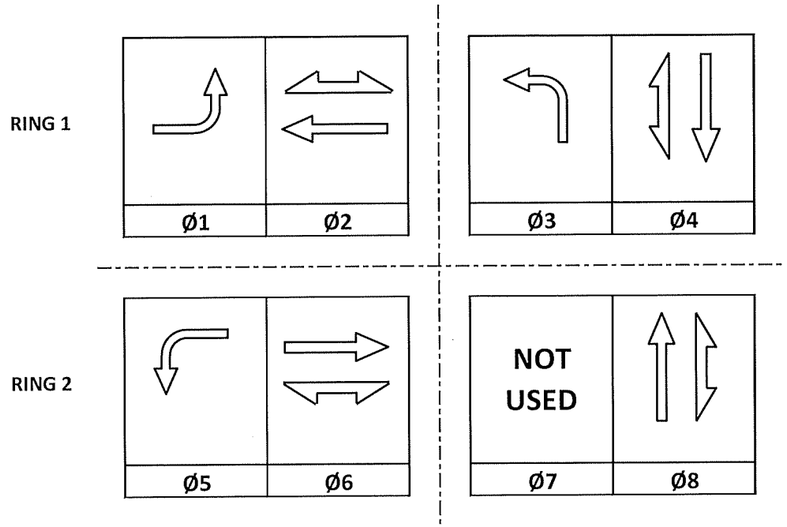
60631225P

S-28A

FILE NAME : C:\PW\WORKING\AECOM_DS20_NA_2019\CAR28015\D0107215\024214-SP.DWG
LAYOUT NAME - 024214-sp

LAST PLOT DATE - 2022-10-19

	HEAD NUMBERS	FLASH
Ø1	5,6	R ←
Ø2	1,2,3	R
Ø3	11,12	R ←
Ø4	7,8,9	R
Ø5	2,3	R ←
Ø6	4,5,6	R
Ø7		
Ø8	10,11,12	R
Ø2P	81,82	
Ø4P	83,84,85,86	
Ø6P	87,88	
Ø8P		



N

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	

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	22						
CALLED PHASE	1	2						
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)	21	51						
CALLED PHASE	2	5						
CALL OPTION								
DELAY TIME								
EXTENSION OPTION								
EXTEND TIME								
USE ADDED INITIAL								
CROSS SWITCH PHASE								

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

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

GENERAL NOTES:

1.
2.
3.
4.

Wright Street and Anderson Street
CITY OF MADISON
DANE COUNTY

SIGNAL NO: CABINET TYPE: TS2
CONTROLLER TYPE: COBALT
DATE: 10/5/2022

Mark	Designed By: STRAND 60631225P	REVISION	Date: 10/20/2022	Scale: NTS	DATE	BY

SEQUENCE OF OPERATION: WRIGHT STREET AT ANDERSON STREET
BUS RAPID TRANSIT
60631225P
CITY OF MADISON, DANE COUNTY, WI
CONTRACT NO: 60631225C
CITY OF MADISON

60631225P
S-28B

PROJECT ID:	60631225
INTERSECTION:	WRIGHT STREET & ANDERSON 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	7	3	RED	ORG	GRN		BLU	BLK								
		82	EXISTING													
		B	EXISTING													
		B	EXISTING													
EXSB2	5	7	RED	ORG	GRN											
		11	EXISTING													
		83	EXISTING													
EXSB3	EXISTING	12	EXISTING													
		83	EXISTING													
		B	EXISTING													
		B	EXISTING													
EXSB4	12	1	RED	ORG	GRN											
		5	RED/BLK	ORG/BLK	GRN/BLK		BLK/WHT	BLU/BLK								
		81											BLK	BLU		
EXSB5	7	6	RED	ORG	GRN		BLU	BLK								
EXSB6	EXISTING	86	EXISTING													
		87	EXISTING													
		B	EXISTING													
EXSB7	EXISTING	8	EXISTING													
		10	EXISTING													
EXSB8	EXISTING	9	EXISTING													
		84	EXISTING													
EXSB9	EXISTING	B	EXISTING													
EXSB10	12	2	RED	ORG	GRN											
		4	RED/BLK	ORG/BLK	GRN/BLK		BLK/WHT	BLU/BLK								
		85	EXISTING													
		B	EXISTING													

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

PTZ CAMERA		
HEAD	FROM	TO
PTZ1	EXCB1	EXSB3

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
Designed By: STRAND 60631225P	Date: 10/20/2022	Scale: NTS	

60631225P

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

CABLE ROUTING: WRIGHT STREET AT ANDERSON STREET

BUS RAPID TRANSIT

CITY OF MADISON

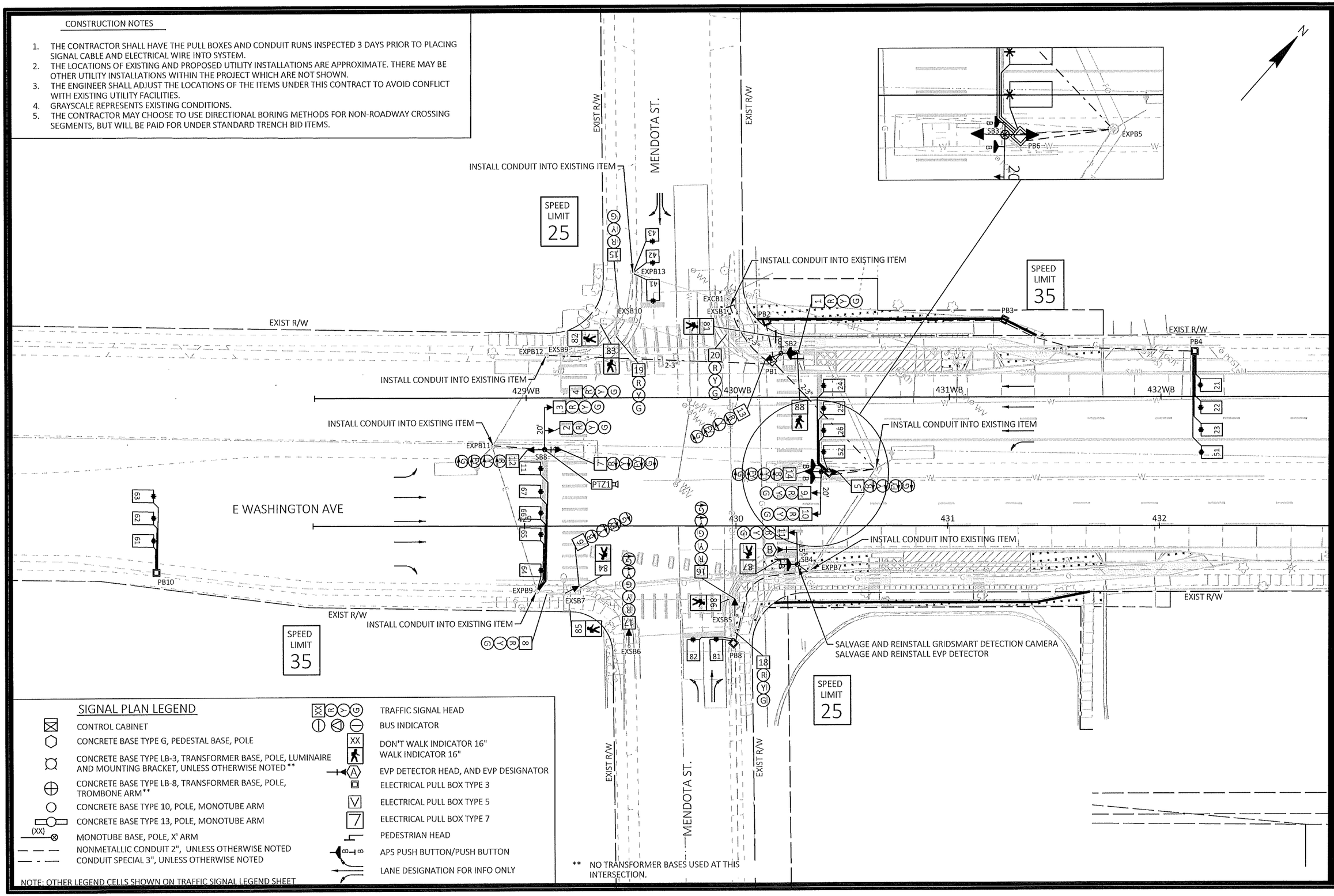
60631225P

S-28C

ATTACHMENT E

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 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
- (XX) MONOTUBE BASE, POLE, X' ARM
- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- CONDUIT SPECIAL 3", UNLESS OTHERWISE NOTED

- TRAFFIC SIGNAL HEAD
- BUS INDICATOR
- XX 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

** NO TRANSFORMER BASES USED AT THIS INTERSECTION.

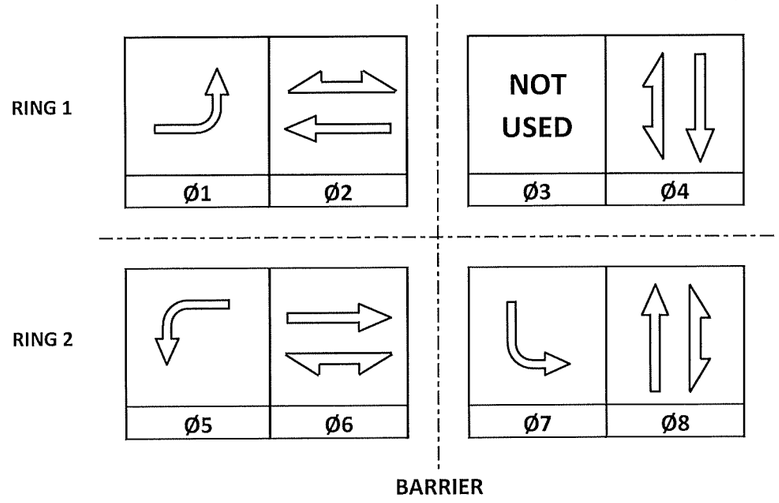
MARK	REVISION	DATE	BY

Designed By: STRAND
Date: 2022-10-20
Scale: 1 IN=40 FT
60631225P

SIGNAL PLAN: E WASHINGTON AVENUE AT MENDOTA STREET
BUS RAPID TRANSIT
CITY OF MADISON, DANE COUNTY, WI
CONTRACT NO: 60631225C
CITY OF MADISON
60631225P
S-29C

FILE NAME: C:\PW\WORKING\AECOM_DS20_NA_2019\CAR28015\D01072151\024210-SP.DWG
LAYOUT NAME - 024210-sp
LAST PLOT DATE - 2022-10-20

	HEAD NUMBERS	FLASH
Ø1	12,13,14	R ←
Ø2	1,2,3,4	R
Ø3		
Ø4	15,16,17	R
Ø5	5,6,7	R ←
Ø6	8,9,10,11	R
Ø7		
Ø8	18,19,20	R
Ø2P	81,82	
Ø4P	83,84	
Ø6P	85,86	
Ø8P	87,88	



N

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	

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				
4		8		X
5				X
6	X	2	MIN	X
7				X
8		4		X

DETECTOR LOGIC

DETECTOR INPUT	3	1	7	5	11	9	15	13
PLAN LOOP DETECTOR*(S)	11	22	24	26	42	51	61	63
CALLED PHASE	1	2	2	2		5	6	6
CALL OPTION								
DELAY TIME								
EXTENSION OPTION					X			
EXTEND TIME								
USE ADDED INITIAL								
CROSS SWITCH PHASE								

DETECTOR INPUT	19	17	23	21	27	25	31	29
PLAN LOOP DETECTOR*(S)	65	67	82					
CALLED PHASE	6	6	8					
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)	21	23	25	41	43	52	62	64
CALLED PHASE	2	2	2	4		5	6	6
CALL OPTION								
DELAY TIME								
EXTENSION OPTION					X			
EXTEND TIME								
USE ADDED INITIAL								
CROSS SWITCH PHASE								

DETECTOR INPUT	20	18	24	22	28	26	32	30
PLAN LOOP DETECTOR*(S)	66	81						
CALLED PHASE	6	8						
CALL OPTION								
DELAY TIME								
EXTENSION OPTION								
EXTEND TIME								
USE ADDED INITIAL								
CROSS SWITCH PHASE								

GENERAL NOTES:

1.
2.
3.
4.

East Washington Avenue and Mendota Street
CITY OF MADISON
DANE COUNTY

SIGNAL NO: CABINET TYPE: TS2
CONTROLLER TYPE: COBALT
DATE: 10/5/2022

Mark	REVISION	DATE	BY

Designed By: STRAND
60631225P
Date: 10/20/2022
Scale: NTS

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

60631225P
S-29D

PROJECT ID:	60631225
INTERSECTION:	EAST WASHINGTON AVENUE & MENDOTA 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	EXISTING	20	EXISTING													
SB2	15	1	RED	ORG	GRN											
		13				RED/BLK	ORG/BLK	GRN/BLK	BLU/BLK							
		81											BLK	BLU		
		B													WHT/BLK	
		88											RED/WHT	GRN/WHT		
		B													BLK/WHT	
SB3	19	5				RED	ORG	GRN	BLU							
		9	WHT/RED	ORG/RED	BLU/RED											
		10	RED/WHT	BLU/WHT	GRN/WHT											
		14				RED/BLK	ORG/BLK	GRN/BLK	BLU/BLK							
		B													WHT/BLK	
SB4	7	11	RED	ORG	GRN											
		87											BLK	BLU		
		B													WHT/BLK	
EXSB5	7	16	RED	ORG	GRN			BLU	BLK							
		18	EXISTING													
		86	EXISTING													
EXSB6	7	17	RED	ORG	GRN			BLU	BLK							
EXSB7	5	6				RED	ORG	GRN	BLK							
		8	EXISTING													
		84	EXISTING													
		B	EXISTING													
		85	EXISTING													
SB8	19	2	WHT/RED	ORG/RED	BLU/RED											
		3	RED/WHT	BLU/WHT	GRN/WHT											
		7				RED	ORG	GRN	BLU							
		12				RED/BLK	ORG/BLK	GRN/BLK	BLU/BLK							
		B													WHT/BLK	
EXSB9	EXISTING	4	EXISTING													
		82	EXISTING													
		B	EXISTING													
EXSB10	EXISTING	15	EXISTING													
		19	EXISTING													
		83	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.
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.

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

Mark	REVISION	DATE	BY
	Designed By: STRAND 60631225P	Date: 10/20/2022	Scale: NTS

60631225P

CABLE ROUTING: E WASHINGTON AVENUE AT MENDOTA STREET

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

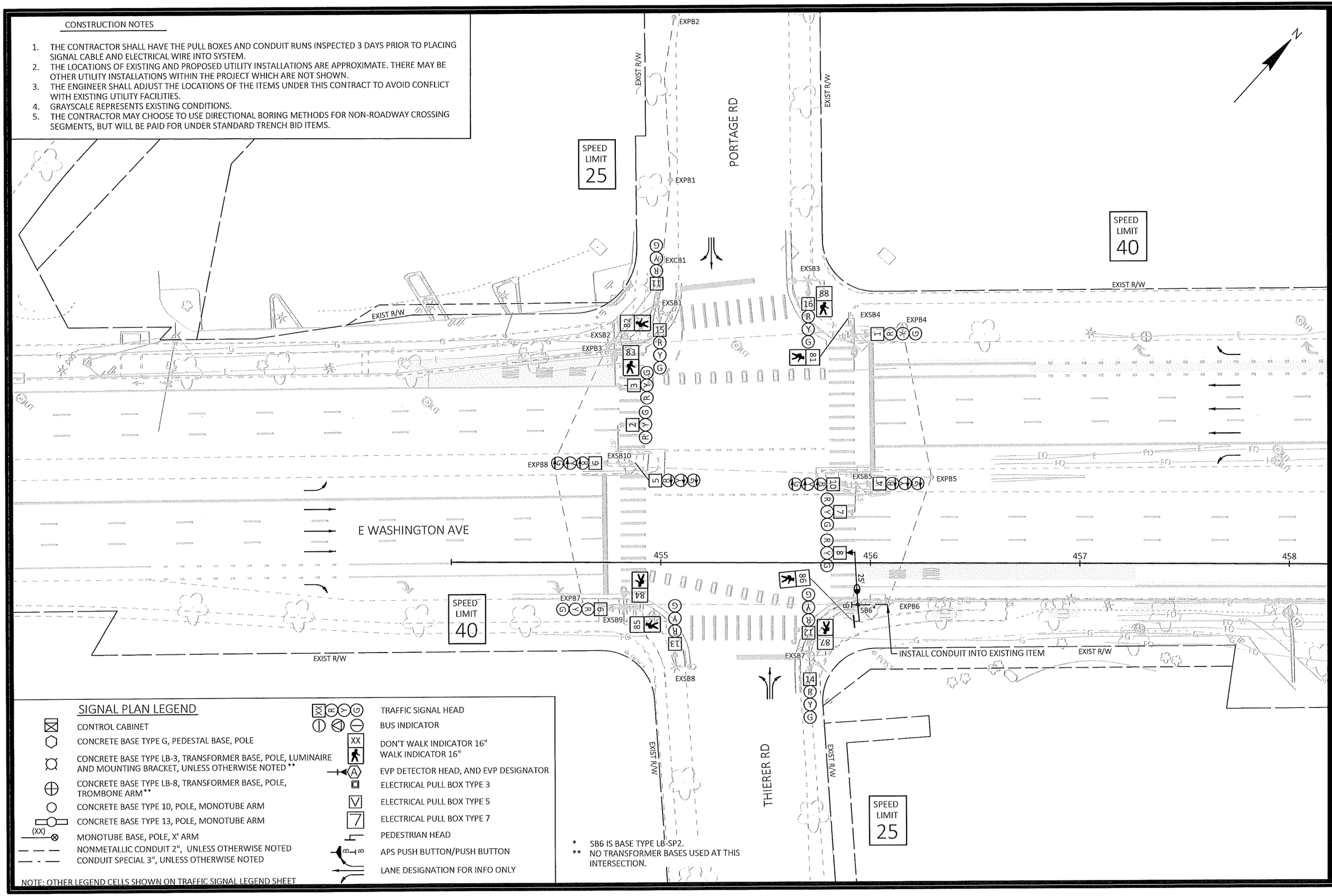
CITY OF MADISON

60631225P

S-29E

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 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
- (XX) 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

* SB6 IS BASE TYPE LB-SP2.
** NO TRANSFORMER BASES USED AT THIS INTERSECTION.

MARK	REVISION	DATE	BY
Designed By: STRAND	Date: 2022-10-12	Scale: CUSTOM	
60631225P			

SIGNAL PLAN: E WASHINGTON AVENUE AT PORTAGE ROAD
BUS RAPID TRANSIT
CITY OF MADISON, DANE COUNTY, WI
60631225P
CONTRACT NO: 60631225C
CITY OF MADISON
60631225P
S-30A

FILE NAME : C:\PW\WORKING\AECOM_D520_NA_2019\CA828015\D0107215\024213-SP.DWG
LAYOUT NAME - 024213-sp
LAST PLOT DATE - 2022-10-12

PROJECT ID:	60631225
INTERSECTION:	EAST WASHINGTON AVENUE & PORTAGE ROAD

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	EXISTING	11	EXISTING													
		15	EXISTING													
EXSB2	EXISTING	3	EXISTING													
		82	EXISTING													
		83	EXISTING													
		B	EXISTING													
EXSB3	EXISTING	16	EXISTING													
		88	EXISTING													
EXSB4	EXISTING	1	EXISTING													
		81	EXISTING													
		B	EXISTING													
EXSB5	EXISTING	4	EXISTING													
		7	EXISTING													
		10	EXISTING													
SB6	7	8	RED	ORG	GRN											
		86											BLK	BLU		
		B													WHT/BLK	
EXSB7	EXISTING	12	EXISTING													
		14	EXISTING													
		87	EXISTING													
EXSB8	EXISTING	13	EXISTING													
EXSB9	EXISTING	6	EXISTING													
		84	EXISTING													
		B	EXISTING													
		85	EXISTING													
EXSB10	EXISTING	5	EXISTING													
		9	EXISTING													

EQUIPMENT GROUNDING CONDUCTORS 10 AWG GRN XLP	
From	TO
EXSB5	SB6
SB6	EXSB7

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

PTZ CAMERA		
HEAD	FROM	TO
PTZ1	EXCB1	EXSB5

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
	Date: 10/20/2022	Scale: NTS	
Designed By: STRAND 60631225P			

60631225P

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

CABLE ROUTING: E WASHINGTON AVENUE AT PORTAGE ROAD

BUS RAPID TRANSIT

CITY OF MADISON

60631225P

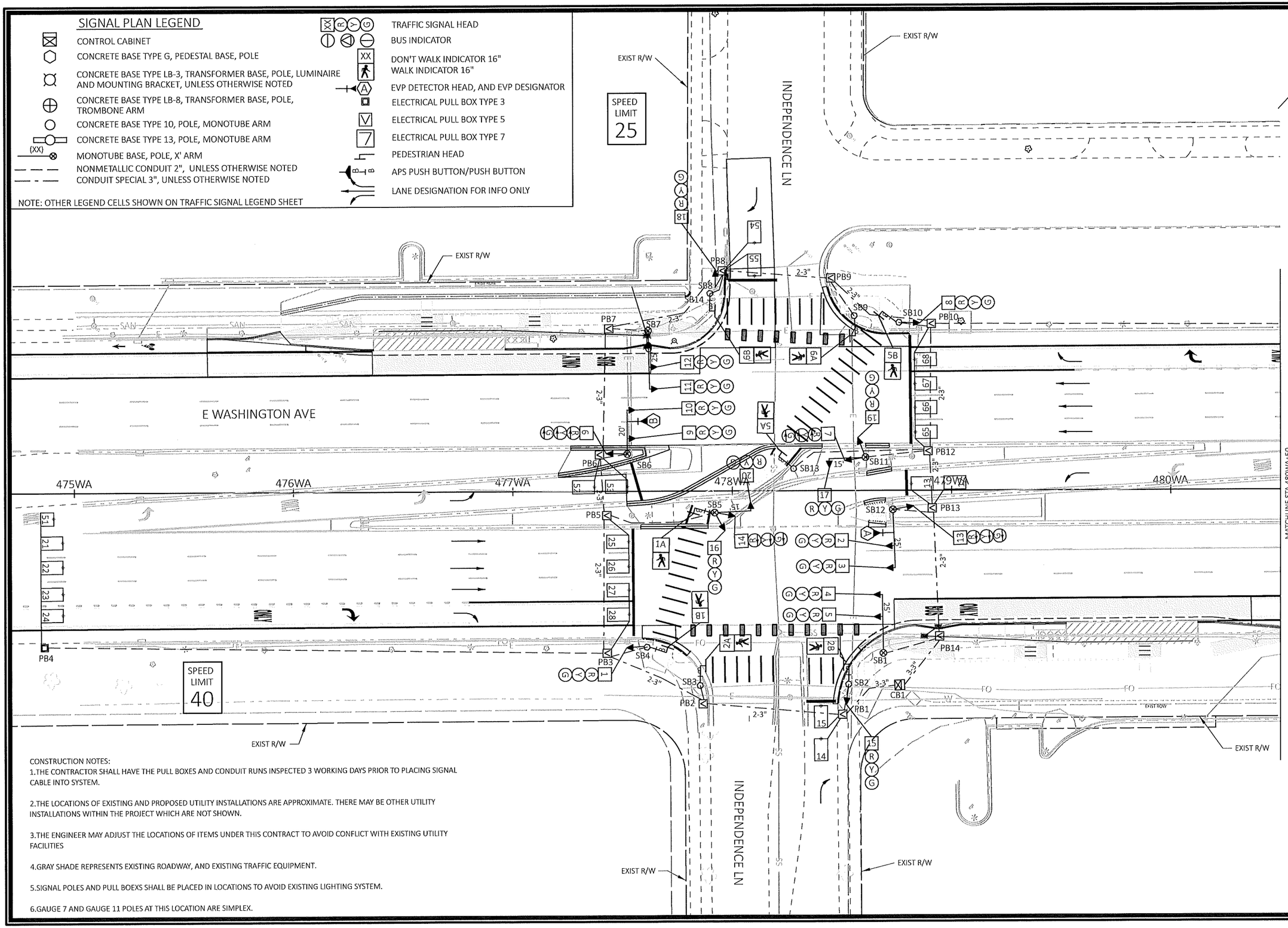
S-30B

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
- (XX) MONOTUBE BASE, POLE, X' ARM
- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- CONDUIT SPECIAL 3", UNLESS OTHERWISE NOTED

NOTE: OTHER LEGEND CELLS SHOWN ON TRAFFIC SIGNAL LEGEND SHEET

- 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



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.SIGNAL POLES AND PULL BOEXS SHALL BE PLACED IN LOCATIONS TO AVOID EXISTING LIGHTING SYSTEM.

6.GAUGE 7 AND GAUGE 11 POLES AT THIS LOCATION ARE SIMPLEX.

MARK	REVISION	DATE	BY
Designed By: 60631225P	Date: 2022-09-27	Scale: 1"=40' _XREF	

60631225P

SIGNAL PLAN: E WASHINGTON AVE AT INDEPENDENCE LN

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

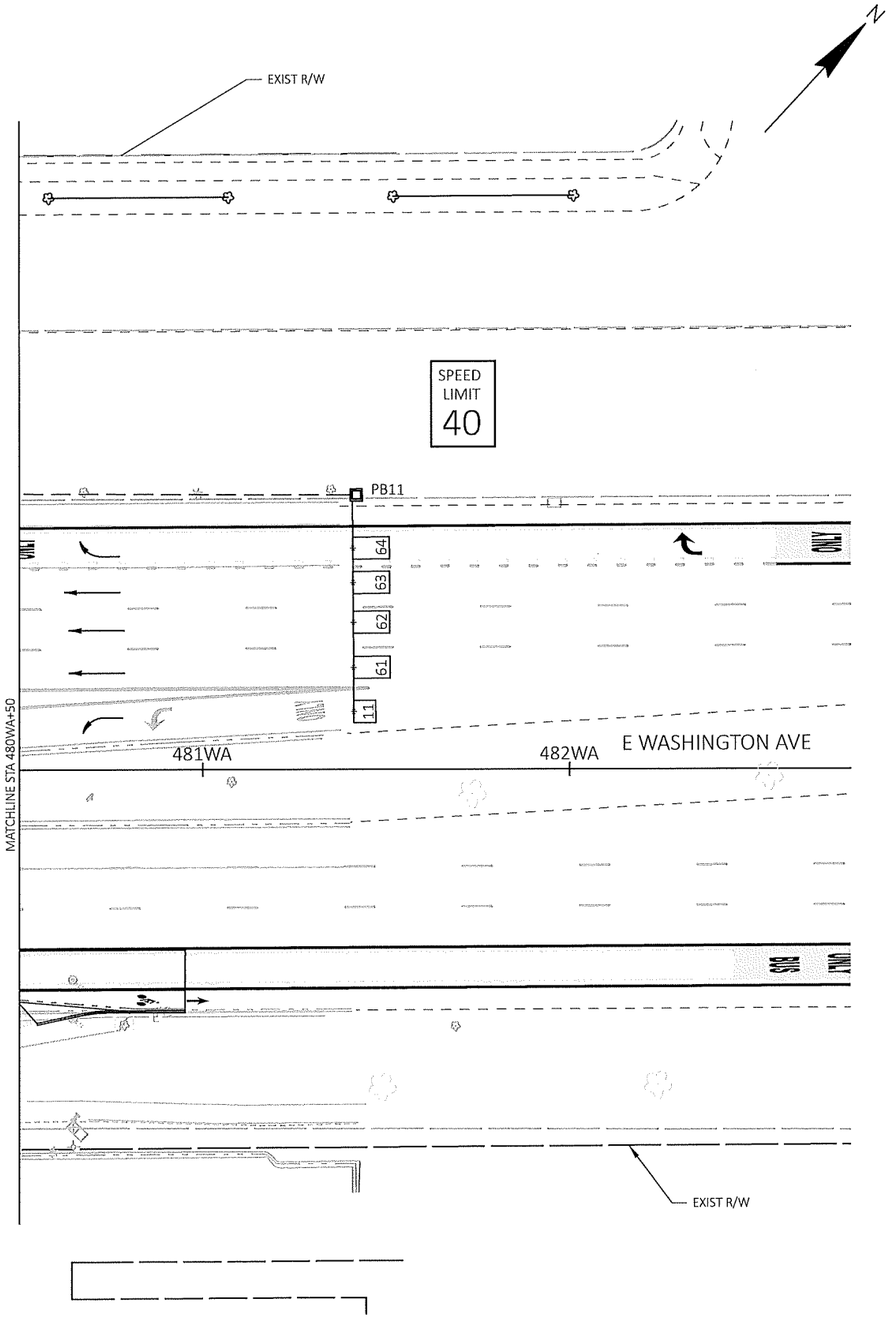
CONTRACT NO: 60631225C

CITY OF MADISON

7/15/2022

60631225P

S-31A



MARK	REVISION	DATE	BY
Designed By: 60631225P	Date: 2022-09-27	Scale: 1"=40' _XREF	

60631225P

SIGNAL PLAN: E WASHINGTON AVE AT INDEPENDENCE LN

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO:60631225C

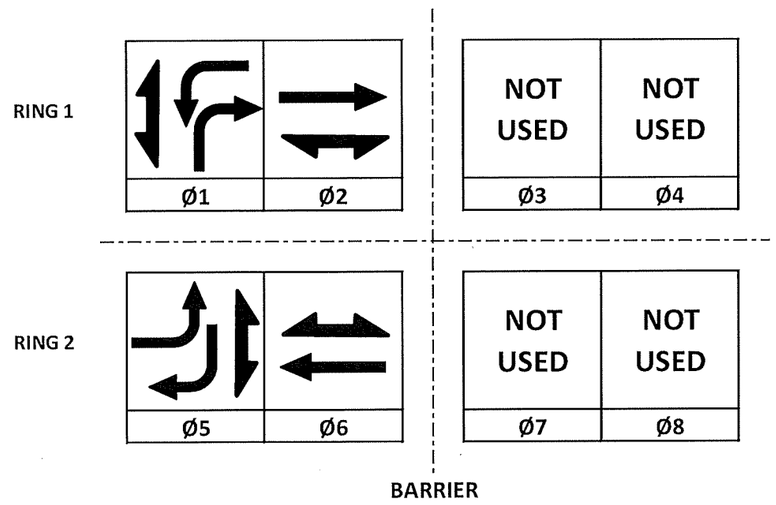
CITY OF MADISON

7/15/2022

60631225P

S-31B

	HEAD NUMBERS	FLASH
Ø1	13,14,15,16,17	
Ø2	1,2,3,4,5	
Ø3		
Ø4		
Ø5	6,7,18,19,20	
Ø6	8,9,10,11,12	
Ø7		
Ø8		
Ø1P	1A,1B	
Ø2P	2A,2B	
Ø5P	5A,5B	
Ø6P	6A,6B	
OLE		
OLF		
OLG		
OLH		



CONTROLLER LOGIC

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

EMERGENCY VEHICLE PREEMPTION SEQUENCE

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

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

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-

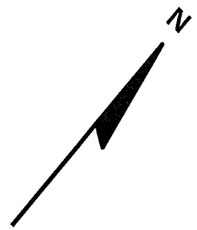
TYPE OF LIGHTING	
BY OTHER AGENCY	
IN TRAFFIC CABINET	X
IN SEPARATE DOT LIGHTING CABINET	

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

DETECTOR LOGIC

DETECTOR INPUT	3	1	7	5	11	9	15	13	19	17	23	21	27	25	31	29
PLAN LOOP DETECTOR*(S)	11	13	15	21	23	25	27	51	53	55	61	63	65	67		
CALLED PHASE	1	1	1	2	2	2	2	5	5	5	6	6	6	6		
CALL OPTION	1	1	1	2	2	2	2	5	5	5	6	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	20	18	24	22	28	26	32	30
PLAN LOOP DETECTOR*(S)	12	14		22	24	26	28	52	54		62	64	66	68		
CALLED PHASE	1	1		2	2	2	2	5	5		6	6	6	6		
CALL OPTION	1	1		2	2	2	2	5	5		6	6	6	6		
DELAY TIME																
EXTENTION OPTION																
EXTEND TIME																
USE ADDED INITIAL																
CROSS SWITCH PHASE																



WASHINGTON AVE / INDEPENDENCE LN
CITY OF MADISON
COUNTY

SIGNAL NO:	CABINET TYPE: TS2
	CONTROLLER TYPE: COBALT
DATE: 10/22	PAGE NO. 3 of 4

Mark	REVISION	Designed By: TSI	DATE	BY
		Date: 10/17/2022	Scale: NTS	

SEQUENCE OF OPERATION: E WASHINGTON AVE AT INDEPENDENCE LN
BUS RAPID TRANSIT
CITY OF MADISON, DANE COUNTY, WI
CONTRACT NO: 60631225C
60631225P
S-31C

OJECT ID:	60631225P
INTERSECTION:	WASHINGTON AVE & INDEPENDENCE LN

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	12	4	RED	ORG	GRN											
		5	RED	ORG	GRN											
SB2	12	15	RED	ORG	GRN											
		6B											BLK	BLU		
		PB													WHT/BLK	
SB3	7	6A											BLK	BLU		
		PB														
SB4	12	1	RED	ORG	GRN											
		8B											BLK	BLU		
		PB													WHT/BLK	
SB5	19	14				RED/BLK	ORG/BLK		GRN/BLK							
		16	RED	ORG	GRN											
		20	BLU	BLK	BLU/BLK											
		8A											BLK	BLU		
		PB													WHT/BLK	
SB6	15	6				RED/BLK	ORG/BLK		GRN/BLK							
		9	RED	ORG	GRN											
		10	RED	ORG	GRN											
SB7	12	11	RED	ORG	GRN											
		12	RED	ORG	GRN											
SB8	12	18	RED	ORG	GRN											
													BLK	BLU		
															WHT/BLK	
SB9	7	2A											BLK	BLU		
		PB													WHT/BLK	
SB10	12	8	RED	ORG	GRN											
		4B											BLK	BLU		
		PB													WHT/BLK	
SB11	15	7				RED/BLK	ORG/BLK		GRN/BLK							
		17	RED	ORG	GRN											
		19	BLU	BLK	BLU/BLK											
SB12	15	2	RED	ORG	GRN											
		3	RED	ORG	GRN											
		13				RED/BLK	ORG/BLK		GRN/BLK							
SB13	7	4A											BLK	BLU		
		PB													WHT/BLK	
SB14	7	2B											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	SB12
B	CB1	SB6

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

Mark	REVISION	DATE	BY
Designed By: TSI	Date: 10/4/2022	Scale: NTS	
60631225P			

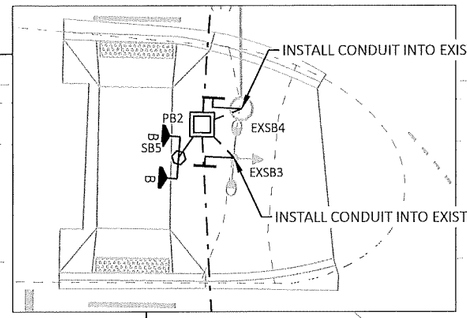
CABEL ROUTING: WASHINGTON AVE & INDEPENDENCE LN
BUS RAPID TRANSIT
CITY OF MADISON
60631225P
CITY OF MADISON, DANE COUNTY, WI
CONTRACT NO: 60631225C

60631225P
S-31D

FILE NAME: C:\OneDrive\AECOM\City of Madison BRT Quantities - Cost_Quantities\Madison BRT M2 Plan Sheets.pptx
LAST PLOT DATE - 10/4/2022

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 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
- (XX) 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

MARK	REVISION	DATE	BY
Designed By: STRAND	Date: 2022-05-25	Scale: 1"=40' _XREF	
60631225P			

60631225P

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

SIGNAL PLAN: E WASHINGTON AVE AT E SPRINGS DR

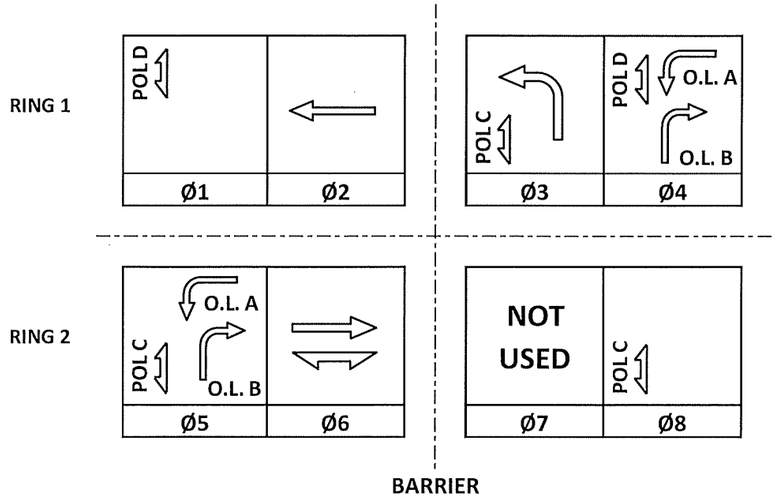
BUS RAPID TRANSIT

CITY OF MADISON

60631225P

S-32C

	HEAD NUMBERS	FLASH
Ø1		
Ø2	1,2,3,4,5	R
Ø3	16,17,18	R
Ø4		
Ø5	6,7,8	R
Ø6	9,10,11,12,13,19	R
Ø7		
Ø8	14,15	R
Ø2P	81,82	
Ø4P		
Ø6P	85,86	
Ø8P	87,88	



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	

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				X
4				
5				X
6	X	2	MIN	X
7				
8				X

DETECTOR LOGIC

DETECTOR INPUT	3	1	7	5	11	9	15	13
PLAN LOOP DETECTOR*(S)								
CALLED PHASE								
CALL OPTION								
DELAY TIME								
EXTENSION OPTION								
EXTEND TIME								
USE ADDED INITIAL								
CROSS SWITCH PHASE								

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

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

GENERAL NOTES:

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

East Washington Avenue and East Springs Drive
CITY OF MADISON
DANE COUNTY

SIGNAL NO: CABINET TYPE: TS2
CONTROLLER TYPE: COBALT
DATE: 10/5/2022

Mark | REVISION | DATE | BY
Designed By: STRAND 60631225P | Date: 10/20/2022 | Scale: NTS

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

60631225P
S-32D

PROJECT ID:	60631225
INTERSECTION:	EAST WASHINGTON AVENUE & EAST SPRINGS DRIVE

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	
SB1	12	7				RED	ORG	GRN							
		9				RED/BLK	ORG/BLK		GRN/BLK						
		84											BLK	BLU	
		B													WHT/BLK
SB2	7	85											BLK	BLU	
		B													WHT/BLK
EXSB3	7	8				RED	ORG	GRN							
		83											BLK	BLU	
EXSB4	12	2	RED	ORG				GRN							
		3	RED/BLK	ORG/BLK	GRN/BLK										
		82											BLK	BLU	
SB5	5	B													BLK
EXSB6	12	4	RED	ORG	GRN										
		5	RED/BLK	ORG/BLK	GRN/BLK										
		81											BLK	BLU	
		B													WHT/BLK
EXSB7	5	17	RED				ORG	GRN							
EXSB8	5	1	RED	ORG	GRN										
EXSB9	12	6				RED	ORG	GRN							
		18	RED/BLK				ORG/BLK	GRN/BLK							
EXSB10	12	10	RED	ORG				GRN							
		11	RED/BLK	ORG/BLK	GRN/BLK										
		15	BLK				BLU	WHT/BLK							
EXSB11	12	12	RED	ORG	GRN										
		13				RED/BLK	ORG/BLK		GRN/BLK						
		19								BLK	BLU	WHT/BLK			
EXSB12	7	14	RED	ORG	GRN		BLK	BLU							
EXSB13	5	16	RED				ORG	GRN							

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.

EQUIPMENT GROUNDING CONDUCTORS 10 AWG GRN XLP	
From	TO
EXCB1	SB1
SB1	SB2
SB2	EXSB3
EXSB3	EXSB4
EXSB4	SB5
SB5	EXSB6
EXSB6	EXSB7
EXSB7	EXSB8
EXSB13	EXCB1

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

PTZ CAMERA		
HEAD	FROM	TO
PTZ1	EXCB1	EXSB3

Mark	REVISION	DATE	BY
Designed By: STRAND 60631225P	Date: 10/20/2022	Scale: NTS	

60631225P

CABLE ROUTING: E WASHINGTON AVENUE AT EAST SPRINGS DRIVE

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

CITY OF MADISON

60631225P

S-32E